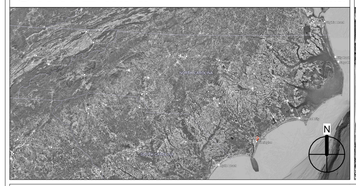
GORDON ROAD FIRE DEPARTMENT

NEW HANOVER COUNTY

GORDON ROAD, WILMINGTON NORTH CAROLINA 28411

STATE MAP

N.T.S.



VICINITY MAP

N.T.S.

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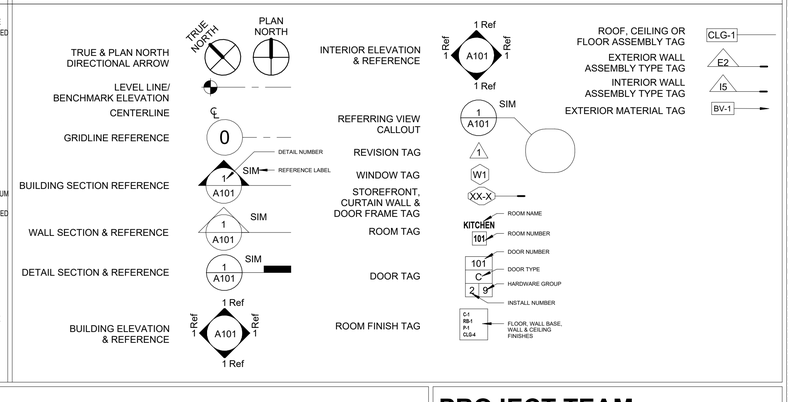
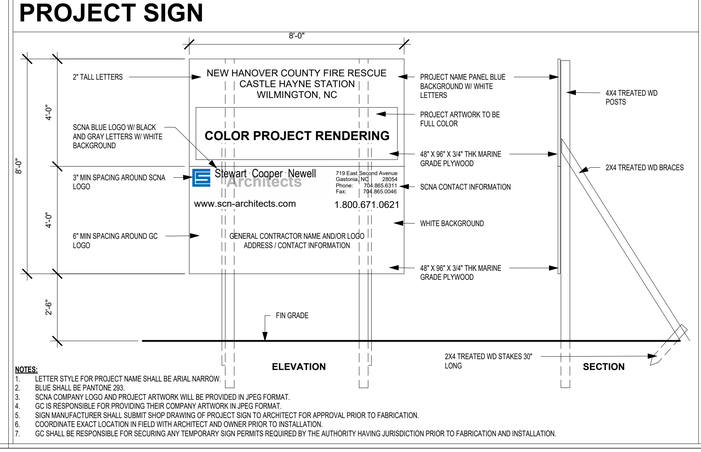
ARCHITECTURAL ABBREVIATIONS

A		DIA	DIAMETER	HC	HANDICAPPED, HOLLOW CORE	OC	ON CENTER	SC	SOLID CORE, SEALED CONCRETE	U	
ABV	ABOVE	DIM	DIMENSION	HDWR	HARDWARE	OPNG	OPENING	SPA	SPACES	UBC	UNIFORM BUILDING CODE
AFC	ABOVE FINISHED CEILING	DISP	DISPENSER	HWD	HARDWOOD	OPP	OPPOSITE	SB	SPLASH BLOCK	UON	UNLESS OTHERWISE NOTED
AFF	ABOVE FINISHED FLOOR	DIV	DIVISION	HD	HEAD, HEADED, HEAVY DUTY	OPH	OPPOSITE HAND	SPFL	SPORT FLOORING	URS	URINAL SCREEN
AP	ACCESS PANEL	DR	DOOR	HW	HEADWALL	OD	OUTSIDE DIAMETER	SQ	SQUARE	UTIL	UTILITY
ACOU	ACOUSTICAL	DBL	DOUBLE	HT	HEIGHT	ORD	OVERFLOW ROOF DRAIN	SF	SQUARE FEET	V	
APC	ACOUSTICAL PANEL CEILING	DWLS	DOWELS	HCFV	HOLLOW CORE FINISHED VENEER	OH	OVERHEAD	SW	STAINED WOOD	VEND	VENDING
ADJ	ADJUSTABLE	DN	DOWN	HM	HOLLOW METAL	OCD	OVERHEAD COILING DOOR	SS	STAINLESS STEEL	VTR	VENT THROUGH ROOF
ADMIN	ADMINISTRATIVE	DS	DOWNSPOUT	H, HORZ	HORIZONTAL	OCG	OVERHEAD COILING GRILLE	STD	STANDARD	VERT	VERTICAL
AGG	AGGREGATE	DWR	DRAWER	HLB	HORIZONTAL LOUVER BLINDS	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED	STL	STEEL	VEST	VESTIBULE
A/C	AIR CONDITIONING	DWG	DRAWING	HB	HOSE BIB	OFVI	OWNER FURNISHED VENDOR INSTALLED	STOR	STORAGE	VCT	VINYL COMPOSITION TILE
AHU	AIR HANDLING UNIT	E		HDG	HOT-DIPPED GALVANIZED			SGFT	STRUCTURAL GLAZED FACING TILE	VWC	VINYL WALL COVERING
ALT	ALTERNATE	EA	EACH	HR(S)	HOUR, HOURS	P		STRUCT	STRUCTURE, STRUCTURAL	V	VOLTS
AL ST	ALUMINUM STOREFRONT	EA	EACH	I		PNTGR	PAINT GRADE	SUS	SUSPENDED	W	
ALUM	ALUMINUM	EW	EACH WAY	IAW	IN ACCORDANCE WITH	P	PAINT, PAINTED	SYS	SYSTEM	WR	WASTE RECEPTACLE
A, AMP	AMPERES	EWC	ELECTRIC WATER COOLER	INC	INCANDESCENT	PR	PAIR	T		WC	WATER CLOSET
AB	ANCHOR BOLT	ELECT	ELECTRICAL	IN	INCH	PNL	PANEL	TKS	TACK STRIP	WH	WATER HEATER
ANOD	ANODIZED	EL, ELEV	ELEVATION	INCL	INCLUDING	PTD	PAPER TOWEL DISPENSER	TKSF	TACK SURFACE	WRGBB	WATER-RESISTANT GYPSUM BACKER BOARD
APPROX	APPROXIMATELY	EQ	EQUAL	ID	INSIDE DIAMETER	PAR	PARALLEL	TKBD	TACKBOARD	WR-WD	WATER-RESISTIVE TREATED WOOD
ARCH	ARCHITECTURAL	EQUIP	EQUIPMENT	INSUL	INSULATED	PTN	PARTITION	TC	TEACHER CABINET	WPG	WATERPROOFING
AWI	ARCHITECTURAL WOODWORK INSTITUTE	ETC	ETCETERA	IG	INSULATED GLAZING	PVMT	PAVEMENT	TECH	TECHNICAL	W	WATTS
ASSY	ASSEMBLY	EXH	EXHAUST	INT	INTERIOR	PEN	PENETRATION	T, TEL	TELEPHONE	WSTRIP	WEATHER-STRIP
@	AT	EF	EXHAUST FAN	IBC	INTERNATIONAL BUILDING CODE	PERP	PERPENDICULAR	TEMP	TEMPERATURE	WP	WEATHERPROOF
ATS	AUTOMATIC TRANSFER SWITCH	(E), EXIST	EXISTING	IECC	INTERNATIONAL ENERGY CONSERVATION CODE	PLAS	PLASTER	TWC	TEXTILE WALL COVERING	WT	WEIGHT
AUX	AUXILIARY	EXGR	EXISTING GRADE			PLT	PLASTIC	TLT	TOILET	WWF	WELDED WIRE FABRIC
B		EXP	EXPANSION			PLAM	PLASTIC LAMINATE	TP	TOILET PARTITION	WWM	WELDED WIRE MESH
BM	BEAM	EJ	EXPANSION JOINT			PL	PLATE	TTD	TOILET TISSURE DISPENSER	WB	WIND BRACE
BLK	BLOCK	EXPD	EXPOSED			PG	PLATE GLASS	TO	TOP OF	WBBP	WIND BRACE BASE PLATE
BLKG	BLOCKING	EXT	EXTERIOR	U		PLWD	PLYWOOD	TOC	TOP OF CURB	WDW	WINDOW
BD	BOARD	EGSB	EXTERIOR GYPSUM SOFFIT BOARD	J		PVC	POLYVINYL CHLORIDE	TOD	TOP OF DRAIN	W/	WITH
BLD	BOLLARD	EIFS	EXTERIOR INSULATION FINISH SYSTEM	JAN	JANITOR	PFT	PORCELAIN FLOOR TILE	TOM	TOP OF MASONRY	WO	WITHOUT
B, BOTT	BOTTOM	F		JT	JOINT	PCP	PORTLAND CEMENT PLASTER	TOS	TOP OF STEEL	WOM	WOMEN
BO	BOTTOM OF	FOC	FACE OF CONCRETE	JST	JOIST	POS	POSITIVE	TYP	TYPICAL	WD	WOOD
BOS	BOTTOM OF STEEL	FOM	FACE OF MASONRY	L		PEMB	PRE-ENGINEERED METAL BUILDING				
BTU	BRITISH THERMAL UNIT	F	FAHRENHEIT	L	ANGLE SHAPE	PREFIN	PRE-FINISHED				
BRZ	BRONZE	FT	FEET	LAM	LAMINATE	PREFAB	PREFABRICATED				
BLDG	BUILDING	FRP	FIBER REINFORCED PLASTIC	LAV	LAVATORY	PT	PRESERVATIVE TREATED				
C		FV	FIELD VERIFY	LG	LENGTH	PA	PUBLIC ADDRESS				
CAB	CABINET	FIN	FINISH	LIB	LIBRARY	Q					
CR	CARD READER	FF	FINISHED FLOOR	LW	LIGHTWEIGHT	QA	QUALITY ASSURANCE				
CPT	CARPET	FGD	FINISHED GRADE	LF	LINEAR FOOT	QC	QUALITY CONTROL				
CPTT	CARPET TILE	FA	FIRE ALARM	LSD	LIQUID SOAP DISPENSER	QT	QUARRY TILE				
CI	CAST IRON	FC	FIRE CODE	LLH	LONG LEG HORIZONTAL	R					
CLG	CEILING	FE	FIRE EXTINGUISHER	LLV	LONG LEG VERTICAL	R	RADIUS				
CBB	CEMENTITIOUS BACKER BOARD	FEC	FIRE EXTINGUISHER CABINET	LVR	LOUVER	REF	REFERENCE				
CWFP	CEMENTITIOUS WOOD FIBER PLANK	FHC	FIRE HOSE CABINET	LVT	LUXURY VINYL TILE	RCP	REINFORCED CONCRETE PIPE				
CL	CENTERLINE	FRTWD	FIRE RETARDANT TREATED WOOD	LB	POUND	REINF	REINFORCED, REINFORCEMENT				
C	CENTIGRADE	FLSH	FLASHING	M		REP	REPRESENTATIVE				
CT	CERAMIC TILE	FLR	FLOOR	MAINT	MAINTENANCE	REQD	REQUIRED				
CHBD	CHALKBOARD	FD	FLOOR DRAIN	MGR	MANAGER	RAF	RESILIENT ATHLETIC FLOORING				
CLR	CLEAR	FOLD PART	FOLDING PARTITION	MH	MANHOLE	RB	RESILIENT BASE				
CLO	CLOSET	FS	FOOT SCRAPER	MTS	MANUAL TRANSFER SWITCH	RWAR	RESILIENT WOOD ATHLETIC FLOORING				
CH	COAT HOOK	FUR	FURRING	MFR	MANUFACTURER	RD	ROOF DRAIN				
CSP	COBBLESTONE PAVERS	Fy	YEILD STRESS	MKBD	MARKERBOARD	RV	ROOF VENT				
CFMF	COLD-FORMED METAL FRAMING	G		MAS	MASONRY	RM	ROOM				
COL	COLUMN	GALV	GALVANIZED	MECH	MASONRY OPENING	RO	ROUGH OPENING				
CONC	CONCRETE	GAS	GAS	MC	MECHANICAL	S					
CMU	CONCRETE MASONRY UNIT	GEN	GENERAL	MCAB	MEDICINE CABINET	SND	SANITARY NAPKIN DISPOSAL UNIT				
CONNX	CONNECTION	GC	GENERAL CONTRACTOR	MMB	MEMBRANE	SNV	SANITARY NAPKIN VENDOR				
CONST	CONSTRUCTION	GMMU	GLASS MESH MORTAR UNITS	MTL	METAL	SJ	SAWN JOINT				
CONT	CONTINUOUS	GL	GLASS, GLAZING	MPH	MILES PER HOUR	SCHED	SCHEDULE				
CJ	CONTROL JOINT	GSFT	GLAZED STRUCTURAL FACING TILE	MIN	MINIMUM	SNT	SEALANT				
CG	CORNER GUARD	GB	GRAB BAR	MIR	MIRROR	SLD	SEALED				
CRDR	CORRIDOR	GD	GRADE	MISC	MISCELLANEOUS	SEC	SECONDARY				
CRS	COURSE	GND	GROUND	MB	MOP BASIN	SHM	SECURE HOLLOW METAL				
CU	CUBIC	GA	GUAGE	MULL	MULLION	SSK	SERVICE SINK				
CTK	CURTAIN TRACK	GYP	GYPSUM	MTCS	MULTI-TONE COLOR SYSTEM	SHT	SHEET				
CUST	CUSTOM	GYPBD	GYPSUM BOARD	N		SHWR	SHOWER				
D		GDW	GYPSUM DRYWALL	NEG	NEGATIVE	SR	SHOWER ROD				
DP	DAMPROOFING	GWB	GYPSUM WALL BOARD	NA	NOT APPLICABLE	SIM	SIMILAR				
DEF	DEFORMED	H		NIC	NOT IN CONTRACT	SGL	SINGLE				
DTL	DETAIL	HEWC	HANDICAPPED ELECTRIC WATER COOLER	NTS	NOT TO SCALE	SD	SMOKE DETECTOR				
DIAG	DIAGRAM			NO, #	NUMBER	SCFV	SOLID CORE FLUSH VENEER				
				O							
				OFF	OFFICE						

ARCHITECTURAL SYMBOLS



PROJECT SIGN



NOTES:

1. LETTER STYLE FOR PROJECT NAME SHALL BE ARIAL NARROW.
2. BLUE SHALL BE PANTONE 293.
3. SCNA COMPANY LOGO AND PROJECT ARTWORK WILL BE PROVIDED IN JPEG FORMAT.
4. GC IS RESPONSIBLE FOR PROVIDING THEIR COMPANY ARTWORK IN JPEG FORMAT.
5. SIGN MANUFACTURER SHALL SUBMIT SHOP DRAWING OF PROJECT SIGN TO ARCHITECT FOR APPROVAL PRIOR TO FABRICATION.
6. COORDINATE EXACT LOCATION IN FIELD WITH ARCHITECT AND OWNER PRIOR TO INSTALLATION.
7. GC SHALL BE RESPONSIBLE FOR SECURING ANY TEMPORARY SIGN PERMITS REQUIRED BY THE AUTHORITY HAVING JURISDICTION PRIOR TO FABRICATION AND INSTALLATION.

PROJECT TEAM

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NOTE

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS ON SITE FOR HIS/HER EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.

Project Status

Project No.
1737

Date:
03.29.2024
Drawn by:
AJP/GAS
Checked by:
KCN/GAS
Revisions:

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ELIZABETH C. NEWELL REGISTERED ARCHITECT 6205 NORTH CAROLINA

03.29.2024

GORDON ROAD FIRE DEPARTMENT

COVER SHEET

Sheet No.
0.00

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: Gordon Road Fire Station

Address: Gordon Road, Wilmington NC; PID: R04300-008-002-000 Zip Code 28411

Owner/Authorized Agent: Kevin Caison Phone # (910) 798 - 4338 E-Mail kcaison@nhegov.com

Owned By: ■ City/County ☐ Private ☐ State

Code Enforcement Jurisdiction: ☐ City_____ ■ County New Hanover ☐ State

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	Stewart Cooper Newell Architects	Ken Newell	6205	(704) 865-6311	knewell@scnarchitects.com
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Electrical	Optima Engineering	Brandon Lee	051825	(704) 338-1137	blee@optimaengineering.com
Fire Alarm	Optima Engineering	Brandon Lee	051825	(704) 338-1137	blee@optimaengineering.com
Plumbing	Optima Engineering	Danny Revilla	043886	(704) 927-1786	drevilla@optimaengineering.com
Mechanical	Optima Engineering	Mark Hyatt	034993	(704) 941-3749	mhyatt@optimaengineering.com
Sprinkler-Standpipe	Optima Engineering	Danny Revilla	043886	(704) 927-1786	drevilla@optimaengineering.com
Structural	Taylor & Viola	Jason Reep	27874	(828) 328-6331	jreep@tayforviola.com
Retaining Walls >5' High	N/A	N/A	N/A	( ) -	N/A
Other	N/A	N/A	N/A	( ) -	N/A

("Other" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC BUILDING CODE: ■ New Building ☐ Addition ☐ Renovation
☐ 1st Time Interior Completion
☐ Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements
☐ Phased Construction - Shell/Core- Contact the local inspection jurisdiction for possible additional procedures and requirements

2018 NC EXISTING BUILDING CODE: EXISTING: ☐ Prescriptive ☐ Repair ☐ Chapter 14
Alteration: ☐ Level I ☐ Level II ☐ Level III
☐ Historic Property ☐ Change of Use

CONSTRUCTED: (date) _____ **CURRENT OCCUPANCY(S)** (Ch. 3): _____

RENOVATED: (date) _____ **PROPOSED OCCUPANCY(S)** (Ch. 3): A-3, B, R-2, S-2

RISK CATEGORY (Table 1604.5): **Current:** ☐ I ☐ II ☐ III ☐ IV
Proposed: ☐ I ☐ II ☐ III ■ IV

BASIC BUILDING DATA

Construction Type: ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A
(check all that apply) ☐ I-B ■ II-B ☐ III-B ☐ V-B

Sprinklers: ☐ No ☐ Partial ■ Yes ■ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D

Standpipes: ☐ No ■ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry

Fire District: ☐ No ■ Yes **Flood Hazard Area:** ■ No ☐ Yes

Special Inspections Required: ☐ No ■ Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3rd Floor			
2nd Floor			
Mezzanine	1,128 SF		1,128 SF
1st Floor	14,461 SF		14,461 SF
Basement			
TOTAL	15,589 SF		15,589 SF

ALLOWABLE AREA

Primary Occupancy Classification(s):
Assembly ☐ A-1 ☐ A-2 ■ A-3 ☐ A-4 ☐ A-5
Business ■
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 Condition ☐ 1 ☐ 2
☐ I-2 Condition ☐ 1 ☐ 2
☐ I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ I-4
Mercantile ☐
Residential ☐ R-1 ■ R-2 ☐ R-3 ☐ R-4
Storage ☐ S-1 Moderate ■ S-2 Low ☐ High-piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Accessory Occupancy Classification(s): S-2

Incidental Uses (Table 509): N/A

Special Uses (Chapter 4 – List Code Sections): Section 420 - Group R-2

Special Provisions: (Chapter 5 – List Code Sections): N/A

Mixed Occupancy: ☐ No ■ Yes Separation: ____ Hr. Exception: _____

■ Non-Separated Use (508.3) - The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.

☐ Separated Use (508.4) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} + \frac{\quad}{\quad} + \cdots\cdots = \frac{\quad}{\quad} \leq 1.00$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
1	Assembly (A-3)	1,211	28,500	18,496	46,996
1	Business (B)	4,953	69,000	44,781	113,781
1	Residential (R-2)	1,461	48,000	31,152	79,152
1	Storage (S-2)	6,836	78,000	50,622	128,622
Mezz.	Storage (S-2)	1,128	78,000	50,622	128,622

[1] Frontage area increases from Section 506.3 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = 592' - 9" (F)
b. Total Building Perimeter = 659' - 0" (P)
c. Ratio (F/P) = 89.9 (F/P)
d. W = Minimum width of public way = 30 (W)
e. Percentage of frontage increase $I_f = 100[F/P - 0.25] \times W/30 =$ 64.9 (%)
[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building x D (maximum3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4.
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE [1]
Building Height in Feet (Table 504.3) [2]	60*	39'-11"	
Building Height in Stories (Table 504.4) [3]	3	2	

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.
[2] The maximum height of air traffic control towers must comply with Table 412.3.1.
[3] The maximum height of open parking garages must comply with Table 406.5.4.

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (w/ ___ * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses		0	0				
Bearing Walls							
Exterior	>30	0	0				
North	>30	0	0				
East	>30	0	0				
West	>30	0	0				
South	>30	0	0				
Interior		0	0				
Nonbearing Walls and Partitions							
Exterior walls							
North	>30	0	0				
East	>30	0	0				
West	>30	0	0				
South	>30	0	0				
Interior walls and partitions		0	0				
Floor Construction Including supporting beams and joists		0	0				
Floor Ceiling Assembly		0	0				
Columns Supporting Floors		0	0				
Roof Construction, including supporting beams and joists		0	0				
Roof Ceiling Assembly		0	0				
Columns Supporting Roof		0	0				
Shaft Enclosures - Exit		N/A	N/A				
Shaft Enclosures - Other		N/A	N/A				
Corridor Separation		0	0				
Occupancy/Fire Barrier Separation		N/A	N/A				
Party/Fire Wall Separation		N/A	N/A				
Smoke Barrier Separation		0	0				
Smoke Partition		0	0				
Tenant/Dwelling Unit/ Sleeping Unit Separation		1	1				
Incidental Use Separation		N/A	N/A				

* Indicate section number permitting reduction

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☐ No ■ Yes
Exit Signs: ☐ No ■ Yes
Fire Alarm: ☐ No ■ Yes
Smoke Detection Systems: ☐ No ■ Yes ☐ Partial _____
Carbon Monoxide Detection: ☐ No ■ Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: _____

■ Fire and/or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations (if not on the site plan)
☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
■ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
■ Occupant loads for each area
■ Exit sign locations (1013)
■ Exit access travel distances (1017)
☐ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
☐ Dead end lengths (1020.4)
■ Clear exit widths for each exit door
■ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
■ Actual occupant load for each exit door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
■ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ Location of doors equipped with hold-open devices
☐ Location of emergency escape windows (1030)
☐ The square footage of each fire area (202)
☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

UNIT CLASSIFICATION	TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED
Sleeping Units	6	1	1	N/A	N/A	N/A	N/A	1

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED		TOTAL # ACCESSIBLE
	REQUIRED	PROVIDED	96" SPACES	132" SPACES	PROVIDED
18,184 SF		45	2		2
TOTAL 18,184 SF		45	2		2

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE		WATER CLOSETS MALE	WATER CLOSETS FEMALE	WATER CLOSETS UNISEX	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWERS /TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
SPACE	EXIST'G	-	-	-	-	-	-	-	-	-	-
	NEW	2	2	2	0	2	2	2	4	2	2
	REQ'D	2	2	0	0	2	2	0	N/A	1	1

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)

ENERGY SUMMARY

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code: ☐ No ☐ Yes (The remainder of this section is not applicable)

Exempt Building: ■ No ☐ Yes (Provide code or statutory reference): _____

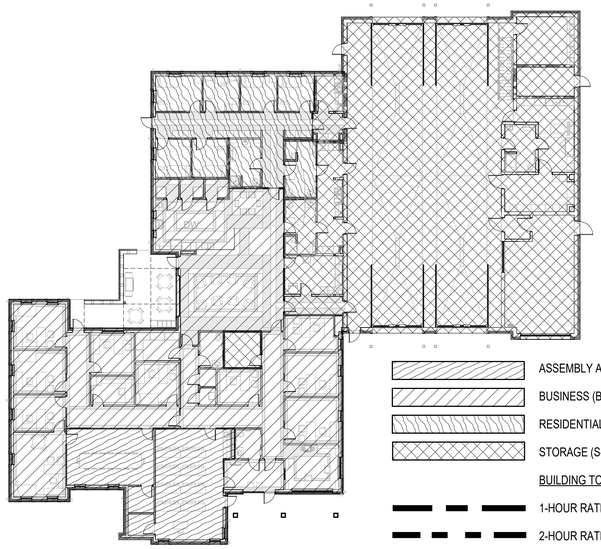
Climate Zone: ■ 3A ☐ 4A ☐ 5A

Method of Compliance: Energy Code ■ Performance ☐ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive
(If "Other" specify source here)_____

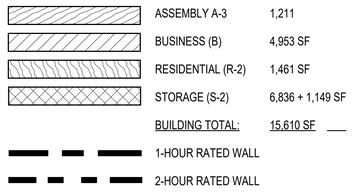
2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(REFER TO STRUCTURAL SHEETS)

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(REFER TO MECHANICAL SHEETS)

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(REFER TO ELECTRICAL SHEETS)



1 LIFE SAFETY KEY PLAN
1" = 20'-0"



OCCUPANCY CLASS AND KEY
1/4" = 1'-0"

COMcheck Software Version 4.1.1.0
Envelope Compliance Certificate

Project Information

Energy Code:	2015 IECC
Project Title:	Gordon Road Fire Station
Location:	Wilmington, North Carolina
Climate Zone:	3a
Project Type:	New Construction
Vertical Glazing / Wall Area:	11%

Construction Site: Wilmington, NC 28411

Owner/Agent:

Designer/Contractor: Stewart Cooper Newell Architects 719 E Second Ave Gastonia, NC 28054 (704)865-6311

Additional Efficiency Package(s)

High efficiency HVAC. Systems that do not meet the performance requirement will be identified in the mechanical requirements checklist report.

Building Area	Floor Area
1-Fire Station : Nonresidential	14390

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Metal Roof: Metal Building, Standing Seam: High Albedo Roof Required, Double Insulation Layer with Thermal Blocks (d), 3-Year-Aged Solar Reflectance = 0.55, Thermal Emittance = 0.86 (e), [Bldg. Use 1 - Fire Station]	5231	0.0	32.5	0.030	0.035
Metal Roof copy 1: Metal Building, Standing Seam: High Albedo Roof Required, Double Insulation Layer with Thermal Blocks (d), 3-Year-Aged Solar Reflectance = 0.55, Thermal Emittance = 0.86 (e), [Bldg. Use 1 - Fire Station]	5597	0.0	32.5	0.030	0.035
Metal Roof copy 2: Metal Building, Standing Seam: High Albedo Roof Required, Double Insulation Layer with Thermal Blocks (d), 3-Year-Aged Solar Reflectance = 0.55, Thermal Emittance = 0.86 (e), [Bldg. Use 1 - Fire Station]	908	0.0	32.5	0.030	0.035
Metal Roof copy 3: Metal Building, Standing Seam: High Albedo Roof Required, Double Insulation Layer with Thermal Blocks (d), 3-Year-Aged Solar Reflectance = 0.55, Thermal Emittance = 0.86 (e), [Bldg. Use 1 - Fire Station]	1194	0.0	32.5	0.030	0.035
Metal Roof copy 4: Metal Building, Standing Seam: High Albedo Roof Required, Double Insulation Layer with Thermal Blocks (d), 3-Year-Aged Solar Reflectance = 0.55, Thermal Emittance = 0.86 (e), [Bldg. Use 1 - Fire Station]	2165	0.0	32.5	0.030	0.035
Metal Roof copy 5: Metal Building, Standing Seam: High Albedo Roof Required, Double Insulation Layer with Thermal Blocks (d), 3-Year-Aged Solar Reflectance = 0.55, Thermal Emittance = 0.86 (e), [Bldg. Use 1 - Fire Station]	409	0.0	32.5	0.030	0.035
Metal Roof copy 6: Metal Building, Standing Seam: High Albedo Roof Required, Double Insulation Layer with Thermal Blocks (d), 3-Year-Aged Solar Reflectance = 0.55, Thermal Emittance = 0.86 (e), [Bldg. Use 1 - Fire Station]	280	0.0	32.5	0.030	0.035

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Aged Solar Reflectance = 0.55, Thermal Emittance = 0.86 (e), [Bldg. Use 1 - Fire Station]					
Metal Roof copy 7: Metal Building, Standing Seam: High Albedo Roof Required, Double Insulation Layer with Thermal Blocks (d), 3-Year-Aged Solar Reflectance = 0.55, Thermal Emittance = 0.86 (e), [Bldg. Use 1 - Fire Station]	332	0.0	32.5	0.030	0.035
Floor 1: Slab-On-Grade:Unheated, Vertical 1 ft., [Bldg. Use 1 - Fire Station] (c)	450	---	16.2	0.569	0.569
NORTH					
Stud Brick copy 2: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	887	0.0	17.6	0.049	0.064
storefront window copy 1: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	78	---	---	0.450	0.460
Stud Brick copy 3: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	196	0.0	17.6	0.049	0.064
cmu brick copy 1: Concrete Block:12", Solid Grouted, Light Density, Furring: None, [Bldg. Use 1 - Fire Station]	23	---	18.4	0.047	0.123
cmu brick copy 4: Concrete Block:12", Solid Grouted, Light Density, Furring: None, [Bldg. Use 1 - Fire Station]	41	---	18.4	0.047	0.123
cmu brick copy 1: Concrete Block:12", Solid Grouted, Light Density, Furring: None, [Bldg. Use 1 - Fire Station]	1276	---	18.4	0.047	0.123
HM Door copy 2: Insulated Metal, Swinging, [Bldg. Use 1 - Fire Station]	24	---	---	0.200	0.610
Stud Hardie copy 4: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	399	0.0	16.6	0.051	0.064
storefront window copy 8: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	54	---	---	0.450	0.460
storefront window copy 7: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	80	---	---	0.450	0.460
Door 8 copy 1: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID na, SHGC 0.25, [Bldg. Use 1 - Fire Station] (b)	53	---	---	0.450	0.770
EAST					
Stud Hardie copy 1: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	917	0.0	16.6	0.051	0.064
HM Door copy 1: Insulated Metal, Swinging, [Bldg. Use 1 - Fire Station]	24	---	---	0.200	0.610
cmu brick copy 3: Concrete Block:12", Solid Grouted, Light Density, Furring: None, [Bldg. Use 1 - Fire Station]	416	---	18.4	0.047	0.123
Stud Hardie copy 5: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	505	0.0	16.6	0.051	0.064
HM Door copy 3: Insulated Metal, Swinging, [Bldg. Use 1 - Fire Station]	24	---	---	0.200	0.610
storefront window copy 9: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	28	---	---	0.450	0.460
Stud Hardie copy 6: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	270	0.0	16.6	0.051	0.064
storefront window copy 10: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	39	---	---	0.450	0.460
Stud Hardie copy 2: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	68	0.0	16.6	0.051	0.064
SOUTH					
Stud Brick copy 4: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	49	0.0	17.6	0.049	0.064
Stud Brick copy 5: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	76	0.0	17.6	0.049	0.064
Stud Brick copy 6: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	248	0.0	17.6	0.049	0.064
storefront window copy 5: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	39	---	---	0.450	0.460
Stud Hardie copy 3: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	725	0.0	16.6	0.051	0.064
storefront window copy 7: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	68	---	---	0.450	0.460
cmu brick copy 2: Concrete Block:12", Solid Grouted, Light Density, Furring: None, [Bldg. Use 1 - Fire Station]	2557	---	18.4	0.047	0.123
Stud Hardie copy 6: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	117	0.0	16.6	0.051	0.064
WEST					
Stud Brick copy 3: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	270	0.0	17.6	0.049	0.064
storefront window copy 2: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	39	---	---	0.450	0.460
Stud Brick copy 4: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	277	0.0	17.6	0.049	0.064
storefront window copy 3: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	39	---	---	0.450	0.460
Stud Brick copy 5: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	169	0.0	17.6	0.049	0.064
Stud Brick copy 5: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	334	0.0	17.6	0.049	0.064
storefront window copy 4: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	39	---	---	0.450	0.460
Stud Hardie copy 2: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	588	0.0	16.6	0.051	0.064
storefront window copy 6: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	51	---	---	0.450	0.460
Door 8: Glass (> 50% glazing):Metal Frame, Entrance Door, Perf. Specs.: Product ID na, SHGC 0.25, [Bldg. Use 1 - Fire Station] (b)	63	---	---	0.450	0.770
cmu brick: Concrete Block:12", Solid Grouted, Light Density, Furring: None, [Bldg. Use 1 - Fire Station]	2019	---	18.4	0.047	0.123
storefront window copy 8: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	16	---	---	0.450	0.460
bay doors copy 1: Glass (> 50% glazing):Metal Frame, Non-Entrance Door, Perf. Specs.: Product ID solarban solargray, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	425	---	---	0.240	0.770
HM Door copy 1: Insulated Metal, Swinging, [Bldg. Use 1 - Fire Station]	24	---	---	0.200	0.610
cmu brick copy 1: Concrete Block:12", Solid Grouted, Light Density, Furring: None, [Bldg. Use 1 - Fire Station]	602	---	18.4	0.047	0.123
storefront window copy 9: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	178	---	---	0.450	0.460
cmu brick copy 1: Concrete Block:12", Solid Grouted, Light Density, Furring: None, [Bldg. Use 1 - Fire Station]	1685	---	18.4	0.047	0.123
bay doors copy 2: Glass (> 50% glazing):Metal Frame, Non-Entrance Door, Perf. Specs.: Product ID solarban solargray, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	425	---	---	0.240	0.770
Stud Hardie copy 4: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	935	0.0	16.6	0.051	0.064
storefront window copy 8: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	80	---	---	0.450	0.460
Stud Hardie copy 4: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	103	0.0	16.6	0.051	0.064
Stud Hardie copy 7: Steel-Framed, 16" o.c., [Bldg. Use 1 - Fire Station]	71	0.0	16.6	0.051	0.064
storefront window copy 11: Metal Frame with Thermal Break:Fixed, Perf. Specs.: Product ID na, SHGC 0.17, [Bldg. Use 1 - Fire Station] (b)	9	---	---	0.450	0.460

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
(b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.
(c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.
(d) Thermal spacer block with minimum R-3.5 must be installed above the purlin/batt, and the roof deck secured to the purlins.
(e) High albedo roof requirement options: 1) 3-year aged solar reflectance >= 0.55 thermal emittance >= 0.75, 2) 3-year aged solar reflectance index >= 64.0, 3) Initial year aged solar reflectance >= 0.70 thermal emittance >= 0.75, 4) Initial year aged solar reflectance index >= 82.0.

Envelope PASSES: Design 38% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2015 IECC requirements in COMcheck Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Project No.
1737

Date:
3/29/2024 3:27:17 PM
Drawn by:
Author
Checked by:
Checker
Revisions:

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KENNETH C. NEWELL REGISTERED ARCHITECT 6205 NORTH CAROLINA

GORDON ROAD FIRE DEPARTMENT

APPENDIX B

Sheet No.
1.00

LEGEND

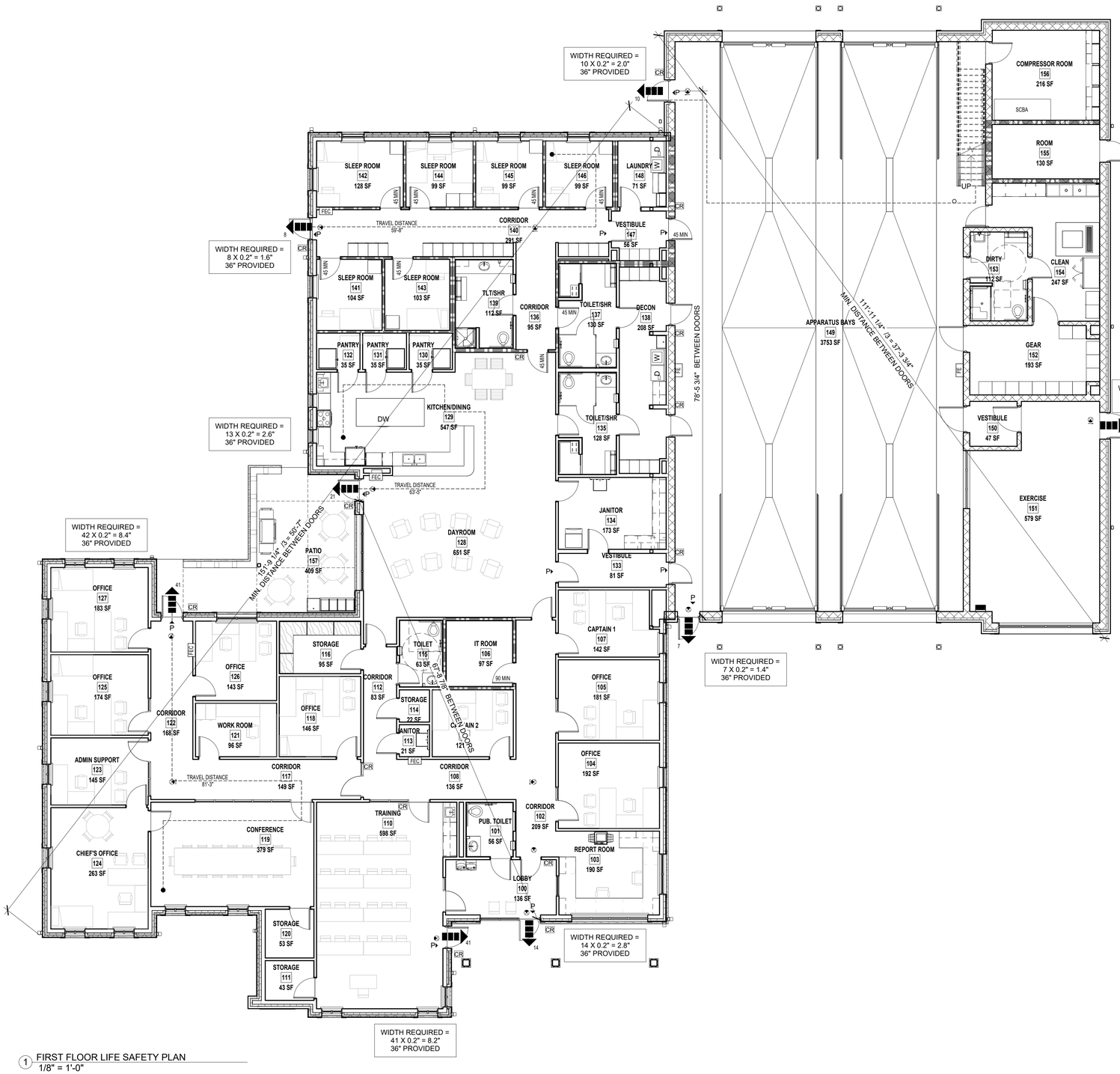
- EXIT DISCHARGE
- FEC — FIRE EXTINGUISHER CABINET
- FE — FIRE EXTINGUISHER SURFACE MOUNTED
- I5 — WALL TYPE (SEE SHEET 1.70)
- CR — CARD READER
- EXIT SIGN (SEE ELECT. DRAWINGS)
- S — SMOKE DETECTOR (SEE ELECT. DRAWINGS)
- P — PANIC HARDWARE LOCATIONS
- 1 OR 2 HOUR FIRE RATED WALL. SEE WALL TYPES ON SHEET 1.70
- 2 HOUR FIRE RATED WALL

FIRE EXTINGUISHER SCHEDULE

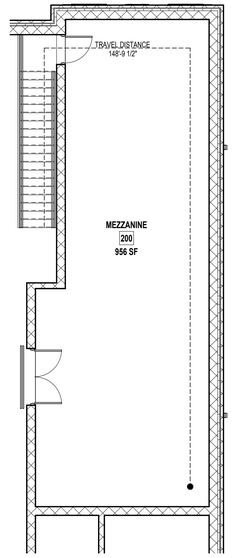
FIRE EXTINGUISHER
- PATIO 115 (1)
- APPARATUS BAYS 146 (4)
- MEZZANINE 200 (1)

FIRE EXTINGUISHER CABINET (FEC) - SEMI RECESSED
- LOBBY 101 (1)
- KITCHEN/DINING 114 (1)
- CORRIDOR 137 (2)

FIRE EXTINGUISHER CABINET - EXTERIOR RATED
-



1 FIRST FLOOR LIFE SAFETY PLAN
1/8" = 1'-0"



2 MEZZANINE LIFE SAFETY PLAN
1/8" = 1'-0"

GENERAL LIFE SAFETY NOTES

1. FIRESTOP AROUND ALL PIPE, CONDUIT, DUCTWORK AND ANY OTHER PENETRATIONS THROUGH RATED WALLS. PENETRATIONS OF NON-RATED PARTITIONS AND FLOORS SHALL BE FIRESTOPPED WITH NON-COMBUSTIBLE MATERIAL.
2. PROVIDE NON-COMBUSTIBLE BLOCKING SECURELY ANCHORED IN ALL WALLS BEHIND ALL TOILET ACCESSORIES, BASE CABINETS, WALL CABINETS VISUAL DISPLAY BOARDS AND ALL OTHER SURFACE MOUNTED ITEMS. PROVIDE NON-COMBUSTIBLE FRAMING SECURELY ANCHORED TO WALL FRAMING TO PROVIDE ANCHORING SURFACE FOR ITEMS RECESSED IN WALLS.
3. COORDINATE ALL WALL FINISHES, IE GYP. BD. - PAINTED, BACKER BD. - TILE, WITH SHEET 7.10 PRIOR TO INSTALLATION.
4. PARTITIONS THAT TERMINATE JUST ABOVE THE FINISH CEILING MUST BE BRACED WITH ALTERNATING ANGLED KICKER STUDS @ 4'-0" O.C. THAT EXTEND FROM THE TOP OF THE PARTITION TO THE BUILDING STRUCTURE AND BE SECURELY ANCHORED.
5. FURR WALLS AROUND FIRE EXTINGUISHER CABINETS AS REQUIRED. SEE THIS SHEET FOR FIRE EXTINGUISHER LOCATIONS AND DETAILS.
6. VERIFY QUANTITY AND LOCATION OF FIRE EXTINGUISHERS. PROVIDE FIRE EXTINGUISHER WITH WALL MOUNT WHERE FE IS NOTED ON PLANS. PROVIDE FIRE EXTINGUISHER AND CABINET WHERE FEC IS NOTED ON PLANS. SEE SPECIFICATIONS FOR REQUIREMENTS FOR ALL FIRE EXTINGUISHERS & CABINETS. COORDINATE ANY CHANGE OF FE OR FEC LOCATION WITH ARCHITECT.
7. FIRE EXTINGUISHERS TO BE SPEC'D ON A ROOM TO ROOM BASIS, BASED ON COMBUSTIBLES WITHIN GIVEN ROOMS.

Project No.
1737

Date:
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Author
Checked by:
Checker
Revisions:

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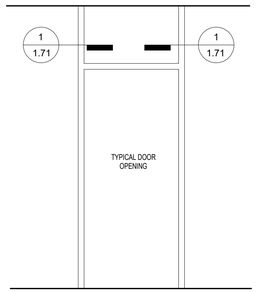
KENNETH C. NEWELL REGISTERED ARCHITECT 6205 NORTH CAROLINA

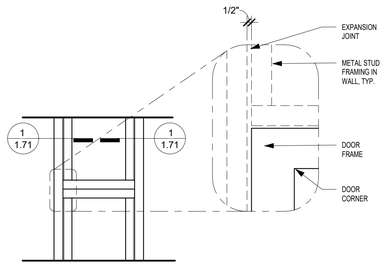
GORDON ROAD FIRE DEPARTMENT

LIFE SAFETY PLANS

Sheet No.
1.10

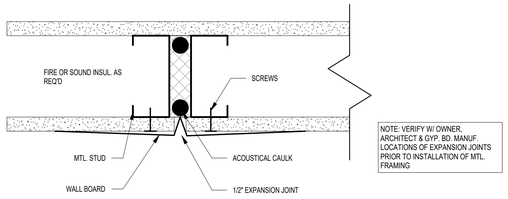


LOCATION FOR EXPANSION JOINT
12" = 1'-0"

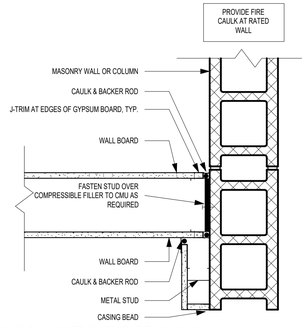


DOOR ELEVATION

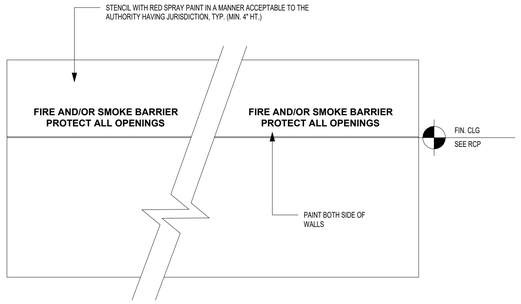
LOCATION FOR EXPANSION JOINT @ CORRIDOR DOORS
1 1/2" = 1'-0"



1 TYP. EXPANSION JOINT @ WALL BOARD
12" = 1'-0"



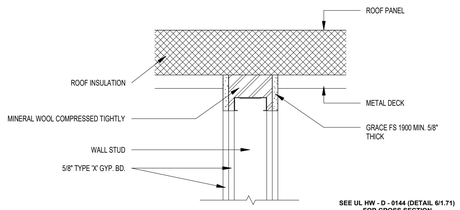
EXPANSION JOINT @ GYP. BD. & CMU WALL
1 1/2" = 1'-0"



FIRESAFING AND FIRE/SMOKE STOPPING:

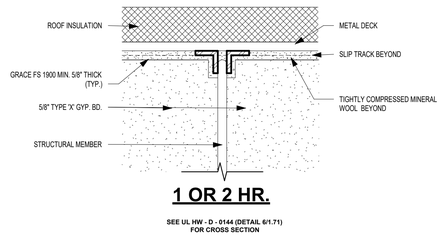
1. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND PROPERLY INSTALLING ALL FIRESAFING, FIRE/SMOKE STOPPING AT ALL PENETRATIONS OR OPENINGS BETWEEN FLOORS AT INTERSECTIONS OF RATED WALLS AND STRUCTURAL ELEMENTS, AT ALL PENETRATIONS OR OPENINGS THROUGH RATED WALLS AND AT ALL OTHER AREAS WHERE FIRE AND SMOKE MAY PENETRATE. COMPLY WITH UL NO. 1479 AND ASTM E814 FOR THE RATINGS REQUIRED BY THE DRAWINGS AND BY TE BUILDING CODE FOR FLOOR PENETRATIONS, WALL PENETRATIONS AND PERIMETER WALL TO FLOOR PROTECTION OR OPENINGS.

FIRE RATING INFORMATION
12" = 1'-0"



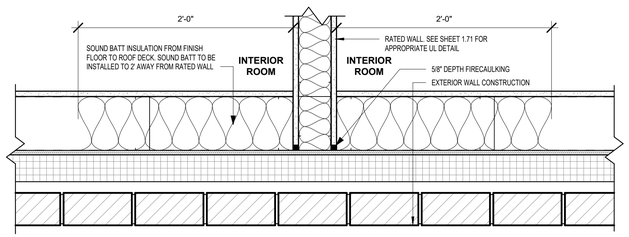
1 OR 2 HR.

RATED TOP OF GYP. BD. WALL DETAIL
6" = 1'-0"



1 OR 2 HR.

TYP. JOIST OR BEAM PENETRATION (TOP OF WALL UL HW-D-0144)
3" = 1'-0"



1 HR RATED INT. WALL @ EXTERIOR INTERSECTION
1 1/2" = 1'-0"

Project No.
1737

Date:
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Author
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Checker
Revisions:

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CHARLES C. ALBERT REGISTERED ARCHITECT 6205 NORTH CAROLINA

GORDON ROAD FIRE DEPARTMENT

UL DETAILS

Sheet No.
1.70

UL Product **iQ**®

UL Solutions

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

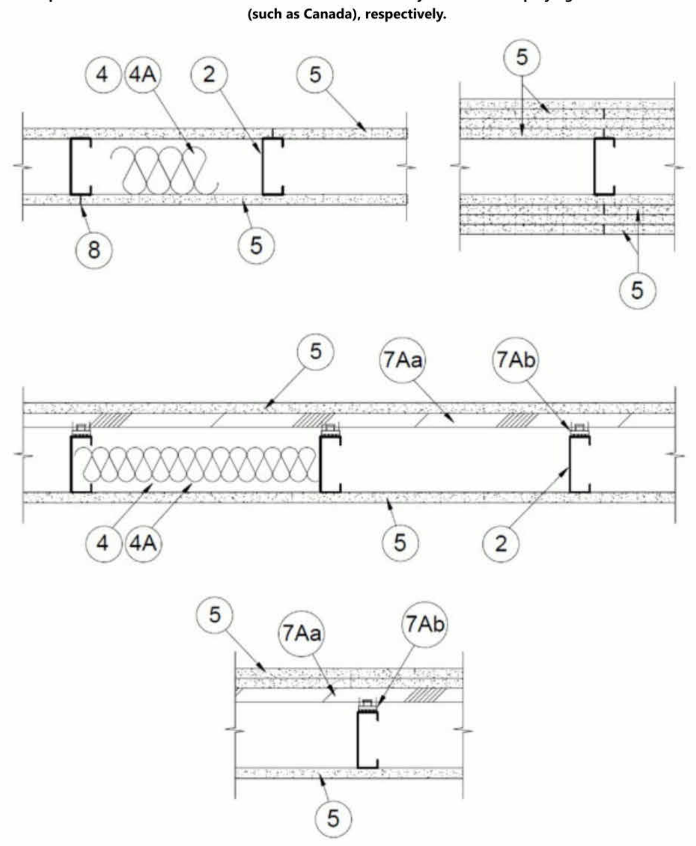
See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U419**

December 28, 2023

Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr (See Items 4 & 5 through 5J)
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Floor and Ceiling Runners —** (Not Shown) — For use with Item 2 — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

1A. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.
CEMCO, LLC — Viper25™ Track

CRACO MFG INC — SmartTrack25™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper25™ Track

1B. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2C, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
CEMCO, LLC — Viper20™ Track

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track

1C. **Framing Members* — Floor and Ceiling Runners —** (Not Shown) — In lieu of Item 1 — Channel shaped, attached to floor and ceiling with fasteners 24 in. OC. max.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

TELLING INDUSTRIES L L C — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

1D. **Floor and Ceiling Runners —** (Not Shown) — For use with Item 2A — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1E. **Framing Members* — Floor and Ceiling Runners —** (Not Shown, As an alternate to Item 1) — For use with Items 2E, 5F or 5G or 5I only, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.
CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1F. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2F, proprietary channel shaped runners, minimum width to accommodate stud size, with 1- 1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
SUPER STUD BUILDING PRODUCTS — The Edge

1G. **Framing Members* — Floor and Ceiling Runner —** For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size attached to floor and ceiling with fasteners 24 in. OC max.
STUDCO BUILDING SYSTEMS — CROCSTUD Track

1H. **Floor and Ceiling Runners —** (Not Shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.018 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track VT100

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track VT100

1I. **Framing Members* — Floor and Ceiling Runners —** (Not Shown, As an alternate to Item 1) — For use with Items 2H, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.
TELLING INDUSTRIES L L C — TRUE-TRACK™

1J. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2I, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.

1K. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2J, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

1L. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2N, proprietary channel shaped runners, 1-1/4 in. wide by min. 3-1/2 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
RESCUE METAL FRAMING, L L C — AlphaTRAK

1M. **Framing Members* — Floor and Ceiling Runners —** Not Shown — As an alternate to Item 1 — For use with Item 2O, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
RONDO BUILDING SERVICES PTY LTD — Rondo Wall Track

1N. **Framing Members* — Floor and Ceiling Runners —** Not Shown — As an alternate to Item 1 — For use with Item 2P, proprietary channel shaped runners, min width to accommodate stud size, galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
OEG BUILDING MATERIALS — OEG Track

1O. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2Q, proprietary channel shaped runners, min width to accommodate stud size, fabricated from min. 25 MSG (0.018 in. min. bare metal thickness), attached to floor and ceiling with fasteners spaced 24 in. OC max.
CEMCO, LLC — Viper X Track

1P. **Framing Members* — Floor and Ceiling Runner —** (Not Shown — Alternate to Item 1) — For use with Item 2R, channel shaped runners pre-equipped with proprietary attachment clips. Min. 3-5/8 in. wide. Legs of top runners minimum 3-1/4 in. wide. Legs of bottom runners minimum 1-1/2 in. wide. Runners attached to floor and ceiling with fasteners 24 in. OC max.

HYPERFRAME INC - Hypertrack

1Q. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2S , proprietary channel shaped runners, min width to accommodate stud size, fabricated from min. 20 EQ/22 mils. (min. 0.0221 in. thick) galvanized steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

JJC INTERNATIONAL DISTRIBUTORS — Non-structural Tracks 3-5/8" and 6".

2. **Steel Studs —** Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

2A. **Steel Studs —** (As an alternate to Item 2, For use with Items 5B, 5E, 5H, 5J or Type ULIX) — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2B. **Framing Members* - Steel Studs —** (As an alternate to Item 2, For use with Items 5C, 5I or Type ULIX) — Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/2 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.
CEMCO, LLC — Viper25™

CRACO MFG INC — SmartStud25™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™

IMPERIAL MANUFACTURING GROUP INC — Viper25™

2C. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
CEMCO, LLC — Viper20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

IMPERIAL MANUFACTURING GROUP INC — Viper20™

2D. **Framing Members* — Steel Studs —** In lieu of Item 2 — Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

TELLING INDUSTRIES L L C — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

2E. **Framing Members* — Steel Studs —** (Not Shown, As an alternate to Item 2) — For use with Items 5F or 5G or 5I or Type ULIX only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2F. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep fabricated from min 0.015 in. (min bare metal thickness) galvanized steel. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.
SUPER STUD BUILDING PRODUCTS — The Edge

2G. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — proprietary channel shaped studs, minimum width indicated under Item 5, Studs to be cut 3/8 to 3/4 in less than the assembly height.
STUDCO BUILDING SYSTEMS — CROCSTUD

2H. **Framing Members* — Steel Studs —** (Not Shown, As an alternate to Item 2) — Fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
TELLING INDUSTRIES L L C — TRUE-STUD™

2I. **Framing Members* — Steel Studs —**

2J. **Framing Members* — Metal Studs —** Not Shown — In lieu of Item 2 — proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights

2K. **Framing Members* — Steel Studs —** As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
EB METAL INC — NITROSTUD

2L. **Framing Members* — Steel Studs —** As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
OLMAR SUPPLY INC — PRIMESTUD

2M. **Framing Members* — Steel Studs —** As an alternate to Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™

2N. **Framing Members*— Steel Studs —** As an alternate to Item 2 — proprietary channel shaped steel studs, min depth 3-1/2 in. and as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in length than assembly height.
RESCUE METAL FRAMING, L L C — AlphaSTUD

2O. **Framing Members* — Steel Studs —** As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.
RONDO BUILDING SERVICES PTY LTD — Rondo Lipped Wall Stud

2P. **Framing Members* — Steel Studs —** As an alternate to Item 2 — proprietary channel shaped steel studs, min width as indicated under Item 5, min 25 MSG galv steel. Studs to be cut 3/8 to 3/4 in. less in lengths than assembly height. Spaced 24 in. OC max.
OEG BUILDING MATERIALS — OEG Stud

2Q. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1O, proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 25 MSG (0.018 in. min. bare metal thickness). Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.
CEMCO, LLC — Viper X

2R. **Framing Members* — Steel Studs —** (Not Shown — Alternate to Item 2, For use with Item 1P) — Channel shaped steel studs with attachment clips at top and bottom, min 3-5/8 in. depth, spaced a max of 24 in. OC. Studs clipped into floor and ceiling runners (Item 1P). Max 2-3/8 in. extension reveal from top of stud to inside of ceiling runner.

HYPERFRAME INC— Hyperstud

2S. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1Q, proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min. 20 EQ/22 mils. (min. 0.0221 in. thick) galvanized steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.

JJC INTERNATIONAL DISTRIBUTORS — Non-structural Studs 3-5/8" and 6".

3. **Wood Structural Panel Sheathing —** (Optional, For use with Item 5 Only) — (Not Shown) — 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used, gypsum panels attached over OSB or plywood panels and fastener lengths for gypsum panels increased by min. 1/2 in.

4. **Batts and Blankets* —** (Required as indicated under Item 5) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 5.
See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4A. **Batts and Blankets* —** (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.
See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4B. **Fiber, Sprayed* —** (Optional, for use with Type ULIX) Where insulation is required - Spray applied granulated mineral fiber material. The fiber is applied with adhesive at a minimum density of 4.0 pcf to completely fill the wall cavity in accordance with the application instructions supplied with the product. See **Fiber, Sprayed** (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

4C. **Foamed Plastic* —** (Where Batts and Blankets*, Item 4, are optional, for use with Item 5K) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity, for 2 hour rated assemblies only. When foamed plastic is used, minimum stud depth shall be 3-1/2 in.

CARLISLE SPRAY FOAM INSULATION — Types SealTite ONE, SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, Foamsulate Closed Cell, Foamsulate OCX, Foamsulate 70, and Foamsulate HFO.

4D. **Foamed Plastic* —** (Where Batts and Blankets*, Item 4, are optional, for use with Item 5L) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity, for up to 2 hour rated assemblies only. When foamed plastic is used, minimum stud depth shall be 3-1/2 in. with minimum 20 MSG stud thickness.

BASF CORP - Enertite® NM, Enertite® G, FE178®, Spraytite® 178, Spraytite® 81206, Walltite® 200, Walltite® US, Walltite® US-N, Walltite HP+, FE137®, FE158®, Spraytite® 158, Spraytite® SP, Spraytite® 81205, Spraytite® Comfort XL, and Walltite® XL

5. **Gypsum Board* —** Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) with Type ULIX need not be staggered. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Rating, Hr	Min Stud Depth, in. Items 2, 2C, 2D, 2F, 2G, 2O	No. of Layers & Thkns of Panel	Min Thkns of Insulation (Item 4)
1	3-1/2	1 layer, 5/8 in. thick	Optional
1	2-1/2	1 layer, 1/2 in. thick	1-1/2 in.
1	1-5/8	1 layer, 3/4 in. thick	Optional
2	1-5/8	2 layers, 1/2 in. thick	Optional
2	1-5/8	2 layers, 5/8 in. thick	Optional
2	3-1/2	1 layer, 3/4 in. thick	3 in.
3	1-5/8	3 layers, 1/2 in. thick	Optional
3	1-5/8	2 layers, 3/4 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 1/2 in. thick	Optional
4	2-1/2	2 layers, 3/4 in. thick	2 in.

CGC INC — 1/2 in. thick Type C, IP-X2 or IPC-AR; WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX, WRX or WRC; 3/4 in. thick Types IP-X3 or ULTRACODE

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — 1/2 in. thick Type C and 5/8 in. thick Type SCX

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type SCX, SGX, SHX, ULIX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR; 3/4 in. thick Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX, WRC or; 3/4 in. thick Types IP-X3 or ULTRACODE

When Item 7B, **Steel Framing Members***, is used, Nonbearing Wall Rating is limited to 1 Hr. Min. stud depth is 3-1/2 in., min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5/8 in. thick) shall be attached to furring channels as described in Item 6. One layer of gypsum board panels (1/2 in. or 5/8 in. thick) attached to opposite side of stud without furring channels as described in Item 6.

5A. **Gypsum Board* —** (As an alternate to Item 5) — 5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 6.
CGC INC — Type SHX.

UNITED STATES GYPSUM CO — Type FRX-G, SHX.

USG MEXICO S A DE C V — Type SHX.

5B. **Gypsum Board* —** (Not Shown) — As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in or 3/4 in. thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) — Nom 5/8 in. or 3/4 in. may be used as alternate to all 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to 20 MSG steel studs Item 2A with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12).
RAY-BAR ENGINEERING CORP — Type RB-LBG

5C. **Gypsum Board* —** (For Use With Item 2B) — Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on opposite sides of studs. (Horizontal Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under section VI of Volume 1 in the Fire Resistive Directory.
CGC INC — Type SCX, ULIX.

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type SCX

UNITED STATES GYPSUM CO — Type SCX, SGX, ULIX.

USG BORAL DRYWALL SFZ LLC — Type SCX

USG MEXICO S A DE C V — Type SCX

5D. **Gypsum Board* —** (As an alternate to Item 5) — 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only.
CGC INC — Type USGX

UNITED STATES GYPSUM CO — Type USGX

USG BORAL DRYWALL SFZ LLC — Type USGX

USG MEXICO S A DE C V — Type USGX

5E. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or No. 6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

5F. **Gypsum Board* —** (As an alternate to Item 5) — For use with Items 1E and 2E and limited to 1 Hour Rating only, Gypsum panels with beveled, square or tapered edges, applied vertically, and fastened to the steel studs with 1 in. long Type S screws spaced 8 in. OC along vertical and bottom edges and 12 in. OC in the field. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Steel stud depth shall be a minimum 3-5/8 in.
THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type SCX

UNITED STATES GYPSUM CO — 5/8 in. thick Type SCX, SGX, ULIX

USG BORAL DRYWALL SFZ LLC — 5/8 in. thick Type SCX, SGX

5G. **Gypsum Board* —** (As an alternate to Item 5) — For use with Items 1E and 2E only, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally, as specified in the table below and fastened to the steel studs as described in Item 6. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Rating, Hr	Min Stud Depth, in. Item 2E	No. of Layers & Thickness of Panel	Min Thkns of Insulation (Item 4)
2	1-5/8	2 layers, 1/2 in. thick	Optional
2	1-5/8	2 layers, 5/8 in. thick	Optional
3	1-5/8	3 layers, 1/2 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 1/2 in. thick	Optional

CGC INC — 1/2 in. thick Type C, IP-X2 or IPC-AR;, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX or 3/4 in. thick Types IP-X3 or ULTRACODE

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — 1/2 in. thick Types C and 5/8 in. thick SCX

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or; 5/8 in. thick Type SCX, SGX, SHX, IP-X1, AR, C, , FRX-G, IP-AR, IP-X2, IPC-AR, ULIX; 3/4 in. thick Types IP-X3 or ULTRACODE

USG BORAL DRYWALL SFZ LLC — 1/2 in. Type C; 5/8 in. Types C, SCX, SGX, ULTRACODE

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or; 3/4 in. thick Types IP-X3 or ULTRACODE

5H. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 or 3/4 in thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) - Nom 5/8 or 3/4 in. may be used as alternate to all 5/8 or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Gypsum board secured to 20 MSG steel studs Item 2B with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 11A) or Lead Discs (see Item 12A).
MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

5I. **Gypsum Board* —** (As an alternate to Item 5) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 5. Steel stud minimum depth shall be as indicated in Item 5.
CGC INC — Type ULIX, ULX

UNITED STATES GYPSUM CO — Type ULIX, ULX

USG MEXICO S A DE C V — Type ULX

5J. **Gypsum Board* —** (Not Shown) — (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in.

thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

5K. **Gypsum Board* —** (As an alternate to Item 5 when Foam Plastic insulation (Item 4C) is used) **—** Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 5 above. Applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Gypsum panels secured to studs with 1 in. long Type S steel screws spaced 8 in. OC at perimeter and in the field. For 2 layer assemblies outer layer will be attached to studs over inner layer with the 1-5/8 in. long steel screws spaced 8 in. OC.

5L. **Gypsum Board* —** (As an alternate to Item 5 when Foam Plastic insulation (Item 4D) is used) **—** Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 5 above. Applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Gypsum panels secured to studs with 1-1/4 in. long Type S steel screws spaced 8 in. OC at perimeter and in the field. For 2 layer assemblies outer layer will be attached to studs over inner layer with the 1-7/8 in. long steel screws spaced 8 in. OC.

6. **Fasteners —** (Not Shown) — For use with Items 2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 7). **Single layer systems:** 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. **Single layer system with Type ULIX:** 1 in. long, spaced 12 in. OC in the field and perimeter, when panels are applied horizontally or vertically.**Two layer systems:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer.**Three-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. **Four-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

7. **Furring Channels —** (Optional, Not Shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 5A.

7A. **Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75).

7B. **Framing Members* —** (Optional, Not Shown) — As an alternate to Item 7, for single or double layer systems, furring channels and Steel Framing Members on only one side of studs as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 5. Not for use with Item 5A.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ba) to one side of studs (Item 2) only. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.
KINETICS NOISE CONTROL INC — Type Isomax

7C. **Framing Members* —** (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ca) to studs (Item 2). Clips spaced max. 48 in. OC. GENIECLIPS secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.
PLITEQ INC — Type GENIECLIP

7D. **Steel Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Da) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

7E. **Steel Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 7Eb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ea) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

7F. **Steel Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 5. Not for use with Item 5A and 5E.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 7Fa) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

7G. **Framing Members* —** (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ga) to studs (Item 2). Clips spaced max. 48 in. OC. Clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips.
CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

8. **Joint Tape and Compound —** Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layer panels. Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge.

9. **Siding, Brick or Stucco —** (Optional, Not Shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies, installed over gypsum panels. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

10. **Caulking and Sealants* —** (Optional, Not Shown) — A bead of acoustical sealant applied around the partition perimeter for sound control.
UNITED STATES GYPSUM CO — Type AS

11. **Lead Batten Strips —** (Not Shown, For Use With Item 5B) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5B) and optional at remaining stud locations. Required behind vertical joints.

11A. **Lead Batten Strips —** (Not Shown, For Use With Item 5H) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations.

12. **Lead Discs or Tabs —** (Not Shown, For Use With Item 5B) — Used in lieu of or in addition to the lead batten strips (Item 11) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5B) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

12A. **Lead Discs —** (Not Shown, for use with Item 5H) — Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

13. **Lead Batten Strips —** (Not Shown, For Use With Item 5E) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5E) and optional at remaining stud locations.

14. **Lead Tabs —** (Not Shown, For Use With Item 5E) — 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that

secures the gypsum boards, Item 5E) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

15. **Barrier Mesh —** (Optional, Not Shown) - Attached to steel studs on one or both sides of the wall using Barrier Mesh Clips spaced at maximum 12 inches on center vertically, using a flat head type screw penetrating through the steel at least 3/8 of an inch. For Steel Studs less than 0.033 inches in thickness, use self-piercing screws. For Steel Studs equal to or greater than 0.033 inches in thickness, use steel drill screws (self-tapping). Gypsum Board (Item 5) to be installed directly over the Barrier Mesh using prescribed screw patterns with lengths increased by a minimum 1/8 in. Barrier Mesh may be installed with the long dimension of the diamond pattern positioned vertically or horizontally. Barrier Mesh joints may occur as butt joints at the framing members and secured using the Barrier Mesh Clips or occur in between framing members as overlapping joints secured using 18 SWG wire ties spaced a maximum 12 in. on center.
CLARKDIETRICH BUILDING SYSTEMS — Barrier Mesh, Barrier Mesh Clips

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2023-12-28

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GORDON ROAD FIRE DEPARTMENT

UL DETAILS

Sheet No.
1.71

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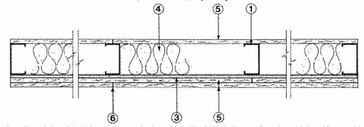
BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
See General Information for Fire resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U453

August 18, 2023

Nonbearing Wall Rating — 2 HR.
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Studs —** Channel-shaped, 3-1/2 in. wide by 1-1/4 in. deep with 5/16 in. folded back return flange legs. Fabricated from No. 20 MSG galv steel. Max stud spacing 24 in. OC. Studs to be cut 1 in. less than assembly height.

1A. **Framing Members* — Steel Studs —** *Not Shown* — As an alternate to Item 1 and for use with Item 2A - proprietary channel shaped, 3-1/25/8 in. wide by 1-1/4 in. deep. Fabricated from No. 20 MSG galv steel. Max stud spacing 24 in. OC. Studs to be cut 1 in. less than assembly height.
KIRII (HONG KONG) LTD — Type KIRII

2. **Floor and Ceiling Runners —** (Not Shown) — Channel-shaped runners, 3-5/8 in. wide by 1-1/4 in. deep, fabricated from No. 20 MSG galv steel. Attached to floor and ceiling with fasteners, 24 in. OC, max.

2A. **Floor and Ceiling Runners —** (Not Shown) — In lieu of Item 2 - For use with Item 1A - proprietary channel shaped runners, 3-5/8 in. wide by 1-1/4 in. deep, fabricated from No. 20 MSG galv steel. Attached to floor and ceiling with fasteners, 24 in. OC, max.
KIRII (HONG KONG) LTD — Type KIRII

3. **Resilient Channel —** 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws.

3A. **Steel Framing Members* —** (Not Shown) — As an alternate to Item 3, furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to studs (Item 1). Clips spaced 48 in. OC., and secured to studs with 1-5/8 in. wafer or hex head Type S steel screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75).

3B. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.Gypsum board attached to furring channels as described in Item 5.

b. **Steel Framing Members* —** Used to attach furring channels (Item 3Ba) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

3C. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 3Cb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 5.

b. **Steel Framing Members* —** Used to attach furring channels (Item 3Ca) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

3D. **Steel Framing Members* —** (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 5.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 3Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

3E. **Steel Framing Members* —** (Optional, Not Shown) — furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 5.

b. **Steel Framing Members* —** Used to attach furring channels (Item 3Ca) to studs. Clips spaced 48 in. OC., and secured to studs with No. 10 x 2 in. screw through the center hole. Furring channels are friction fit into clips.
MASON INDUSTRIES INC — Type CWC-50

4. **Batts and Blankets —** Placed to fill interior of stud cavity, 3 in. min thickness.
ROCKWOOL — Type AFB, min. density 1.8 pcf / 28.8 kg/m^3

THERMAFIBER INC — Type SAFB, SAFB FF.

5. **Gypsum Board —** 1/2 in. thick, 4 ft wide. Attached to resilient or furring channels, base layer with 1 in. Type S steel screws spaced 24 in. OC., face layer with 1-5/8 in. Type S screws spaced 12 in. OC. Wallboard on direct attached side attached with 1 in. Type S-12 steel screws spaced 12 in. OC. Wallboard joints oriented vertically, located over studs and offset between layers.
AMERICAN GYPSUM CO — Types AG-C.

CABOT MANUFACTURING ULC — Type C

CERTAINTEED GYPSUM INC — Type C.

CGC INC — Types C, IP-X2, IPC-AR, WRC.

CERTAINTEED GYPSUM INC — Type LGFC-C/A.

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C.

NATIONAL GYPSUM CO — Types eXP-C, FSK-C, FSW-C, FSMR-C.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C.

PANEL REY S A — Type PRC

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop MZTECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop MZTECH ACTIV'Air

THAI GYPSUM PRODUCTS PCL — Type C, MZTech Type C

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR, WRC

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR, WRC.

5A. **Gypsum Board* —** (Not Shown) - As an alternate to Item 5. 5/8 in. thick, 4 ft wide installed as described in Item 5.

CGC INC — Type ULIX.

UNITED STATES GYPSUM CO — Type ULIX

5B. **Gypsum Board* —** (Not Shown) - As an alternate to Item 5. 5/8 in. thick, 4 ft wide installed as described in Item 5 with screw lengths increased by min. 1/8 in. and 1/4 in. for base and face layers, respectively.

PANEL REY S A — Type PRX2

6. **Joint Tape and Compound —** Vinyl, dry or premixed joint compound, applied to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced.

7. **Caulking and Sealants* —** (Optional, Not Shown) — A bead of acoustical sealant applied around the partition perimeter for sound control.
UNITED STATES GYPSUM CO — Type AS.

8. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

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Last Updated on 2023-08-18

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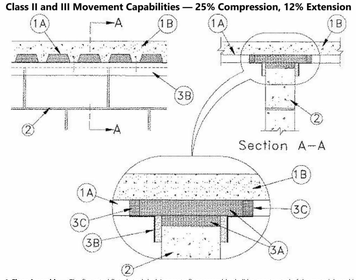
XHBN - Joint Systems

See General Information for Joint Systems

System No. HW-D-0009

July 20, 2000

Assembly Rating — 2 Hr
Nominal Joint Width — 1 in.
Class II and III Movement Capabilities — 25% Compression, 12% Extension



1. **Floor Assembly —** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
A. **Steel Floor and Form Units* —** Max 3 in. deep galv steel fluted floor units.

B. **Concrete —** Min 2 1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.

1A. **Roof Assembly —** As an alternate to Item 1, Floor Assembly, the fire-rated roof assembly shall be constructed of the materials and in the manner described in the individual P700, P800 or P900 series Roof-Ceiling Designs in the UL Fire Resistance Directory and shall contain max 1-1/2 in. deep galv steel fluted roof units. The hourly fire rating of the roof assembly shall be equal to or greater than the hourly fire rating of the wall assembly. In the case of spray-applied protection materials on the steel roof units, the joint system shall be installed prior to the spray-applied protection material.

1B. **Floor Assembly —** As an alternate to Item 1, Floor Assembly , min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete.

2. **Wall Assembly —** Min 4 1/2 in. thick reinforced lightweight or normal weight (100 - 150 pcf) structural concrete. Wall may also be constructed of any UL Classified **Concrete Blocks*.**
See **Concrete Blocks** (CAZT) category in the Fire Resistance directory for names of manufacturers.

3. **Joint System — Max separation between bottom of floor and top of wall (at time of installation of joint system) is 1 in. The joint system is designed to accommodate a max 25 percent compression and 12 percent extension from its installed width.** The joint system consists of a forming material and fill material in the flutes of the steel floor units, a forming material in the gap between the top of wall and bottom of floor and a "slip track" detail consisting of restraining angles, as follows:

A. **Forming Material* —** Min 4 pcf density mineral wool batt insulation compressed 25 to 50 percent in thickness and slid into joint opening to completely fill gap between top of wall and the bottom of the steel floor units or underside of flat concrete slab. Adjoining lengths of mineral wool batt forming material tightly-butted with butted joints spaced min 24 in. OC. Additional mineral wool batt insulation firmly packed into flutes of steel floor units above the compressed batt forming material after installation of the restraining angles (Item 3B). Forming material in flutes of steel floor units to be recessed min 1 in. from edge of restraining angle on each side of wall to accommodate fill material (Item 3C).
THERMAFIBER INC — Type SAF

B. **Restraining Angles —** Min 2-1/2 by 2-1/2 in. angle formed from min 25 ga galv steel with one leg lined with a 2-1/2 in. wide piece of nom 1/2 in. or 5/8 in. thick Gypsum Wallboard*, Gypsum Wallboard liner secured to steel angle with min 1 in. long self-drilling, self-tapping Type S bugle head steel screws spaced max 8 in. OC along longitudinal centerline of steel angle. Screws installed through face of wallboard such that excess screw length protrudes through leg of steel angle. Restraining angles installed along top of wall on each side of wall assembly with gypsum liner against wall surface and with horizontal leg of steel angle against valleys of steel floor units. Restraining angles secured to valleys of steel floor units with min 1/2 in. long powder-driven steel fasteners, or equivalent, spaced max 12 in. OC. See **Gypsum Board** (CKNX) category for names of manufacturers.

C. **Fill, Void or Cavity Material* —** Dry mix material mixed with water at a rate of 2.1 parts dry mix to 1 part water, by weight, in accordance with the accompanying installation instructions. A min 1 in. depth of fill material shall be applied within the recess of each steel floor unit flute above the horizontal leg of the restraining angle on each side of the wall.
UNITED STATES GYPSUM CO — Type FC

C1. **Fill, Void or Cavity Material* —** Not Shown — Used as an alternate to Item 3C. Ready-mixed component mixed with accelerator component at a rate of 66 parts of ready-mixed component to 1 part of accelerator component by weight in accordance with the accompanying installation instructions. A min 1 in. depth of fill material shall be applied within the recess of each steel floor unit above the horizontal leg of the restraining angle on each side of the wall.
UNITED STATES GYPSUM CO — Type RFC

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XHBN - Joint Systems
XHBN7 - Joint Systems Certified for Canada

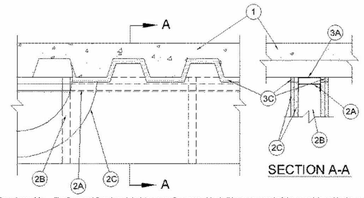
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0144

June 26, 2023

ANSI/UL2079	CAN/ULC S115
Assembly Rating — 1 and 2 Hr (See Item 2)	F Rating — 1 and 2 Hr (See Item 2)
Nominal Joint Width - 1 In.	FT Rating — 1 and 2 Hr (See Item 2)
Class II or III Movement Capabilities — 25% Compression	FH Rating — 1 and 2 Hr (See Item 2)
	FTH Rating — 1 and 2 Hr (See Item 2)
	Nominal Joint Width - 25 mm
	Class II or III Movement Capabilities — 25% Compression



1. **Floor Assembly —** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
A. **Steel Floor And Floor Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

1A. **Roof Assembly — (Not Shown) —** As an alternate to the floor assembly, a fire-rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:
A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the roof deck.

2. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2B). Ceiling runner to be provided with 3 in. (76 mm) flanges. When U shaped deflection channel (Item 3A) is used, ceiling runner is installed within the U-shaped deflection channel with 1 in. (25 mm) gap maintained between the top of ceiling runner and top of deflection channel. When deflection channel is not used, ceiling runner installed perpendicular to the direction of the fluted steel deck and secured to valleys with steel masonry anchors or weld spaced a max 12 in. (305 mm) OC.

A1. **Light Gauge Framing* —Slotted Ceiling Runner —** Slotted ceiling runner may be used as an alternate to the ceiling runner in Item 2A. Slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel floor deck and secured to valleys with steel masonry anchors spaced max 12 in. (305 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used.
SCAFCO STEEL STUD MANUFACTURING CO

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CEMCO, LLC — CST
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

TELLING INDUSTRIES L L C — True-Action Deflection Track

A2. **Light Gauge Framing* —Vertical Deflection Clip* —** (Optional) Steel clips can be used in conjunction with steel studs (Item 2B), ceiling runner (Item 2A) or deflection channel (Item 3A). Clips installed over the top of studs and inserted within the ceiling runner or deflection channel. Clip shall be secured to the ceiling runner or deflection channel with No. 8 self drilling, self tapping steel fasteners through holes provided within the clip. Clip may be secured to the stud with No. 6 pan head steel screw through holes provided within the clip. As an alternate, the legs of the clip may be installed over the top of the stud without attachment in accordance with manufacturer's installation instructions.
FLEX-ABILITY CONCEPTS L L C — Three Legged Dog Deflection Clip

A3. **Light Gauge Framing*- Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel floor deck and secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used.
OLMAR SUPPLY INC — Type SCR

B. **Studs —** Steel studs to be min 3-5/8 in. (92 mm) wide. Studs cut 3/4 in. (19 mm) less in length than assembly height with bottom nesting in and secured to floor runner. When deflection channel (Item 3A) is used, steel studs attached to ceiling runner (Item 2A) with sheet metal screws located 1/2 in. (13 mm) below bottom of deflection channel. When deflection channel is not used, studs to nest in ceiling runners without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC.

C. **Gypsum Board* —** Gypsum board sheets installed to a min total 5/8 or 1-1/4 in. (16 or 32 mm) thickness on each side of wall for a 1 or 2 hr fire-rated wall, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that the gypsum board is cut to fit the contour of the steel floor units with a nom 1 in. (25 mm) gap. In addition, the top row of screws shall be installed 1/2 to 1 in. (13 to 25 mm) below the bottom edge of the ceiling runner flange.
The hourly ratings of the joint system are equal to the hourly fire rating of the wall.

3. **Joint System — Max separation between bottom of floor and top of wall (at time of installation of joint system) is 1 in. (25 mm). The joint system is designed to accommodate a max 25 percent compression from it's installed width.** The joint system shall consist of a material with or without a deflection channel as follows:
A. **Deflection Channel —** (Optional) — Nom 3 in. (76 mm) deep by min 25 gauge galv steel U-shaped channel sized to accommodate ceiling runner(Item 2A). Deflection channel installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors or by welds spaced max 12 in. (305 mm) OC. The ceiling runner is installed within the deflection channel to maintain a 1 in. (25 mm) gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.

B. **Packing Material —** (Not Shown) — Optional in 2 hr fire rated assemblies, foam backer rod friction fitted into joint opening and recessed to accommodate the required thickness of fill material.

C. **Fill, Void or Cavity Material* — Sealant —** Min 5/8 in. (16 mm) thickness of fill material applied on each side of wall between the top of the gypsum board and all surfaces of the steel floor unit, flush with each surface of the wall. The use of bond breaker tape is dependent upon the type of fill material used within the joint system. If 900+ Sealant is used within the joint system, bond breaker tape is not required. If 1900 Sealant is used within the joint system, bond breaker tape shall be applied to the ceiling runner (Item 2A) or deflection channel (Item 3A) prior to the installation of fill material on both sides of the wall in 1 hr fire rated wall assemblies and in 2 hr fire rated wall assemblies where optional backer rod is not used.
RECTORSEAL — FlameSafe FS 900+ FS 1900 Metacaulk 1000, Metacaulk 350i, Metacaulk MC 150+, Biostop 350i, Biostop BF 150+, Biostop 500+

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2023-06-26

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XHEZ - Through-penetration Firestop Systems
XHEZ7 - Through-penetration Firestop Systems Certified for Canada

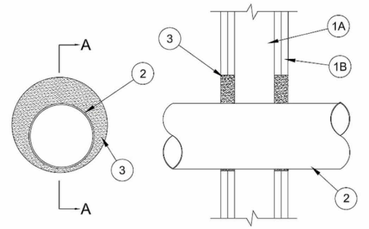
See General Information for Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems Certified for Canada

System No. W-L-1479

August 01, 2013

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 2 Hr	F Ratings — 2 Hr
T Rating — 1/2 Hr	T Rating — 1/2 Hr
L Rating at Ambient - Less than 1 CFM/sq ft	FH Ratings — 2 Hr
L Rating at 400 F - Less than 1 CFM/sq ft	FTH Rating — 1/2 Hr
	L Rating at Ambient - Less than 1 CFM/sq ft
	L Rating at 400 F - Less than 1 CFM/sq ft



Section A-A

1. **Wall Assembly —** The 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
A. **Studs —** Wall framing shall consist of min 3-1/2 in. (89 mm) wide steel studs spaced max 24 in. (610 mm) OC.

B. **Gypsum Board* —** Min two layers of 5/8 in. gypsum board attached to studs with fasteners, as specified in the individual U400, V400 or W400 Series design. Max diam of opening is 12-1/2 in. (318 mm).

2. **Through-Penetrant —** One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 1/2 in. (13 mm) to max 3-3/8 in. (86 mm). Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
A. **Steel Pipe —** Nom 8 in. (203 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe —** Nom 8 in. (203 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

C. **Conduit —** Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing.

D. **Copper Tubing —** Nom 4 in. (102 mm) diam (or smaller) Type L (or heavier) copper tubing.

E. **Copper Pipe —** Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. **Fill, Void or Cavity Material* — Foam —** Min 1-1/4 in. (32 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall.
3M COMPANY — Fire Barrier Rated Foam, FIP 1-Step

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Last Updated on 2013-08-01

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Checker
Revisions:

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NORTH CAROLINA

GORDON ROAD FIRE DEPARTMENT

UL DETAILS

Sheet No.
1.72

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BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U905

April 14, 2023

Bearing Wall Rating — 2 HR.
Nonbearing Wall Rating — 2 HR
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

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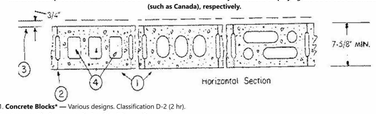

1. **Concrete Blocks* —** Various designs. Classification D-2 (2 hr).
See **Concrete Blocks** category for list of eligible manufacturers.

2. **Mortar —** Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

3. **Portland Cement Stucco or Gypsum Plaster —** Add 1/2 hr to classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. Attached to concrete blocks (Item 1).

4. **Loose Masonry Fill —** If all core spaces are filled with loose dry expanded slag, expanded clay or shale (Rotary Kiln Process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr to classification.

5. **Foamed Plastic* —** (Optional-Not Shown) — 1-1/2 in. thick max, 4 ft wide sheathing attached to concrete blocks (Item 1).
ATLAS ROOFING CORP — EnergyShield Pro Wall Insulation, EnergyShield Pro 2 Wall Insulation, EnergyShield CGF Pro, EnergyShield Ply Pro, EnergyShield® CGF, EnergyShield® PanelCast, EnergyShield® and "EnergyShield® XR

DUPONT DE NEMOURS, INC. — Types Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax XARMOR ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel, Thermax Heavy Duty Plus (HDP), TUFF-R™ ci Insulation, Thermax Butler Stylwall Insulation Board and Thermax Morton Heavy Duty Insulation Board

FIRESTONE BUILDING PRODUCTS CO L L C — "Enverge™ CI Foil Exterior Wall Insulation" and "Enverge™ CI Glass Exterior Wall Insulation"

HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — Types "Xci-Class A", "Xci Foil (Class A)", "Xci 286"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — Types "TSX-8500", "ECOMAXci FR", "TSX-8510", "ECOMAX xi FR White", "ECOMAXci", "ECOMAXci FR Air Barrier", "Thermasheath-XP", "Thermasheath", "Durasheath"

JOHNS MANVILLE — Type "AP Foil-Faced Foam Sheathing"

5A. **Building Units* —** As an alternate to Items 5, min. 1-in thick polyisocyanurate composite foamed plastic insulation boards, nom. 48 by 48 or 96 in.

ATLAS ROOFING CORP — EnergyShield® Ply

HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — "Xci NB", "Xci Ply"

RMAX, A BUSINESS UNIT OF SIKA CORPORATION — "Thermasheath-SI", "ECOBASEci", "ThermaBase-CI", "ECOMAXci FR Ply", "ECOMAXci Ply".

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See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U403

January 31, 2024

Nonbearing Wall Rating — 2 HR.
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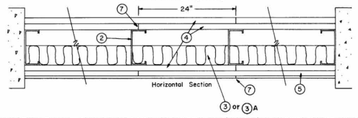

1. **Floor and Ceiling Runners —** Channel shaped, 1-1/4 in. wide by 3-5/8 in. deep, fabricated from min 0.020 in. thick (25 gauge) galv steel, attached to floor and ceiling with fasteners spaced 24 in. O.C.

1A. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2A, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
CEMCO, LLC — Viper20™Track

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™Track

IMPERIAL MANUFACTURING GROUP INC — Viper20™ track

1B. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2B, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1C. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2C, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™Track

1D. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2D, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
TELLING INDUSTRIES L L C — TRUE-TRACK™

1E. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2E, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
RESCUE METAL FRAMING, L L C — AlphaTRAK

1F. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 — For use with Item 2G, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
CRACO MFG INC — SmartTrack20™

STUDCO BUILDING SYSTEMS — CROCSTUD Track

1G. **Framing Members* — Floor and Ceiling Runner —** Not Shown — In lieu of Item 1 – For use with Item 2H, proprietary channel shaped runners, 1-1/4 in. wide by min. 3-5/8 in. deep fabricated from min 0.019 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC.

PANEL REY S A – SUPRA Track 20EQ/19 mil

2. **Steel Studs —** Channel shaped, 3-5/8 in. deep, min 0.020 in. thick (25 gauge) galv steel. Studs 3/8 in. less in lengths than assembly heights.

2A. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1A, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. less in length than assembly height.
CEMCO, LLC — Viper20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

IMPERIAL MANUFACTURING GROUP INC — Viper20™

2B. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1B, channel shaped steel studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced max 24 in. OC. Studs cut 3/8 in. less in length than assembly height.
CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2C. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1C, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.018 in. thick galv steel. Studs cut 3/8 in. less in length than assembly height.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

2D. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1D, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/8 in. less in length than assembly height.
TELLING INDUSTRIES L L C — TRUE-STUD™

2E. **Framing Members* — Steel Studs —** As an alternate to Item 2 — For use with Item 1A (3-5/8 in. wide track), channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 1-1/4 in. wide by 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™

2F. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1E, channel shaped steel studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced max 24 in. OC. Studs cut 3/8 in. less in length than assembly height.
RESCUE METAL FRAMING, L L C — AlphaSTUD

2G. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 — For use with Item 1F, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/8 in. less in length than assembly height.
CRACO MFG INC — SmartStud20™

STUDCO BUILDING SYSTEMS — CROCSTUD

2H. **Framing Members* — Steel Studs —** Not Shown — In lieu of Item 2 – For use with Item 1G, proprietary channel shaped steel studs, min 1-1/4 in. wide by min 3-5/8 in. deep with 1/4 in. return lips fabricated from min 0.019 in. thick galv steel. Studs cut 3/8 in. less in length than assembly height.

PANEL REY S A – SUPRA Stud 20EQ/19 mil

3. **Batts and Blankets* —** Optional — Mineral wool or glass fiber insulation, partially or completely filling stud cavity.
CERTAINTEED CORP

INDUSTRIAL INSULATION GROUP L L C — Type SAFB

JOHNS MANVILLE — Type SAFB

JOHNS MANVILLE

KNAUF INSULATION LLC

KNAUF INSULATION LLC

MANSON INSULATION INC

OWENS CORNING

ROCKWOOL — Type AFB, min. density 1.69 pcf / 27.0 kg/m^3

3A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.
Applegate Greenfiber Acquisition LLC — Insulmax and SANCTUARY for use with wet or dry application.

3B. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) and Item 3A - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

3C. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

3D. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 3) - Spray-applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. To facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the outer face the studs. The material shall reach equilibrium moisture content before the installation of materials on either face of the studs. The minimum dry density shall be 5.79 lbs/ft^3.
Applegate Greenfiber Acquisition LLC — Applegate Advanced Stabilized Cellulose Insulation

4. **Gypsum Board* —** 5/8 in. thick, 48 in. wide sheets. Inner layer applied vertically, attached to studs and floor and ceiling runners with 0.127 in. diam by 1 in. long self-drilling, self-tapping Phillips head steel screws spaced 32 in. O.C., joints located over studs. Outer layer on one side applied vertically and attached to studs and runners with 1-5/8 in. long self-drilling, self-tapping steel screws spaced 12 in. O.C. along ends and edges of boards and 24 in. O.C. in the field. Outer layer joints offset from inner layer joints and located over studs.
AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type C or SF-3

GEORGIA-PACIFIC GYPSUM L L C — Types DAPC, TG-C

THAI GYPSUM PRODUCTS PCL — Type C

5. **Gypsum Board* —** 1/2 in. thick, 48 in. wide sheets. Sheets applied vertically and attached to studs and runners with 1-5/8 in. long self-drilling, self-tapping steel screws spaced 12 in. O.C. along ends and edges of boards and 24 in. O.C. in the field. Joints offset from inner layer joints.
AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type C

GEORGIA-PACIFIC GYPSUM L L C — Types DAPC, TG-C

THAI GYPSUM PRODUCTS PCL — Type C

7. **Joints — (Not Shown) —** Outer layer joints on both sides of wall (finish layer only) covered with paper tape and joint compound. Screw heads covered with joint compound.

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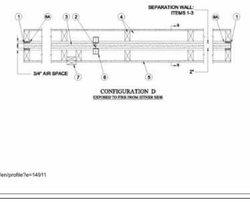
Design Criteria and Allowable Variances

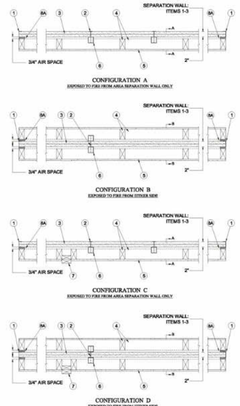
Design No. U336

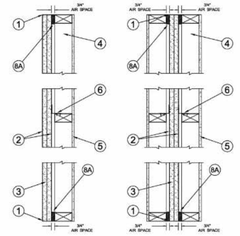
February 16, 2022

Exposed to fire from separation Wall side only
Nonbearing Wall Rating — 2 Hr (Separation Wall, See Items 1, 2 and 3)
Bearing Wall Rating - 2 Hr (Protected Wall, See Items 4 and 4A)
Nonbearing Wall Rating - 2 Hr (Protected Wall, See Item 4B)
Finish Rating — 120 Min

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**







SEPARATION WALL: (Max Height - 66 ft)

1. **Floor, Intermediate or Top Wall —** 2 in. wide channel shaped with 1 in. long legs formed from No. 25 MSG galv steel, secured with suitable fasteners spaced 24 in. OC.

2. **Metal Studs —** Steel members formed from No. 25 MSG galv steel having "H" -shaped flanged spaced 24 in. OC; overall depth 2 in. and flange width 1-3/8 in.

3. **Gypsum Board* —** Two layers of 1 in. thick gypsum board liner panels, supplied in nom 24 in. widths. Vertical edges of panels friction fitted into "H" -shaped studs.
CGC INC — Type SLX

UNITED STATES GYPSUM CO — Type SLX

USG BORAL DRYWALL SFZ LLC — Type SLX

USG MEXICO S A DE C V — Type SLX

PROTECTED WALL: (Bearing or Nonbearing Wall). When Bearing, Load Restricted for Canadian Applications — See Guide BXUV7.

4. **Wood Studs —** Nom 2 by 4 in, max spacing 24 in. OC. Studs cross braced at mid-height where necessary for clip attachment. Min 3/4 in. separation between wood framing and fire separation wall.

4A. **Steel Studs —** (As an alternate to Item 4, Not Shown) — For Bearing Wall Rating - Corrosion protected steel studs, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min 3-1/2 in. wide, min No. 20 GSG (0.036 in. thick) galv steel or No. 20 MSG (0.033 in. thick) primed steel, cold formed, shall be designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC. Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications. Top and bottom tracks shall consist of steel members, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min No. 20 GSG (0.036 in. thick) galv steel or No. 20 MSG (0.033 in. thick) primed steel, that provide a sound structural connection between steel studs, and to adjacent assemblies such as a floor, ceiling, and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. O.C. Studs cross-braced with stud framing at midheight where necessary for clip attachment. Min 3/4 in. separation between steel framing and area separation wall. Finish rating has not been evaluated for Steel Studs.

4B **Steel Studs —** As an alternate to Items 4 and 4A, for use in Configuration B only; Not Shown) — For Bearing Wall Rating - Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min 3-1/2 in. wide, min 1-1/4 in. flanges and 1/4 in. return, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height. Top and bottom tracks shall be channel shaped, fabricated from min 25 MSG corrosion-protected steel, min width to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max. Studs cross-braced with stud framing at midheight where necessary for clip attachment. Min 3/4 in. separation between steel framing and area separation wall. Finish rating has not been evaluated for Steel Studs.

5. **Gypsum Board —** Classified or Unclassified — Min 1/2 in. thick, 4 ft wide, applied either horizontally or vertically. Gypsum board attached to studs with 1-1/4 in. long steel drywall nails spaced 8 in. OC. Vertical joints located over studs. (Optional) Joints covered with paper tape and joint compound. Nail heads covered with joint compound.

6. **Attachment Clips —** Aluminum angle, 0.063 in. thick, 2 in. wide with 2 in. and 2-1/4 in. legs. Clips secured with Type S screws 3/8 in. long to "H" studs and with Type W screws 1-1/4 in. long to wood framing through holes provided in clip.

6A. Clip placement (Item 6) for separation walls up to 23 ft high. Space clips a max of 10 ft OC vertically between wood framing and "H" studs.

6B. Clip placement (Item 6) for separation walls up to 44 ft high. Space clips as described in Item 6A for upper 24 ft. Remaining wall area below requires clips spaced a max 5 ft OC vertically between wood framing and "H" studs.

6C. Clip placement (Item 6) for separation walls up to 66 ft high: Space clips as described in Item 6A for upper 24 ft. Space clips as described in item 6B for next 20 ft, below the upper 24 ft. Remaining wall area below requires clips spaced a max of 40 in. OC vertically between wood framing and "H" studs.

7. **Non-Bearing Wall Partition Intersection —** (Optional) — Two nominal 2 by 4 in. stud or nominal 2 by 6 in. stud nailed together with two 3in. long 10d nails spaced a max. 16 in. OC, vertically and fastened to one side of the minimum 2 by 4 in. stud with 3 in. long 10d nails spaced a max 16 in. OC, vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC, vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the wall.

8. **Caulking and Sealants* —** (Optional - Intended for use as an air barrier - Not evaluated as fireblocking) A bead of sealant applied around the partition perimeter, and at the interface between wood or steel framing and gypsum board panels to create an air barrier.
KNAUF INSULATION LLC — Type ECOSEAL™ Plus

8A. **Caulking and Sealants* —** (Optional - Intended for use as an air barrier - Not evaluated as fireblocking) - A bead of sealant applied around the partition perimeter in the 3/4 in. air space between wood framing (item 4) and shaftliner panels (item 3) to create an air barrier.
DUPONT DE NEMOURS, INC. — Great Stuff Gaps & Cracks, Great Stuff Pro Gaps & Cracks, Great Stuff Pro Window & Door

ICP CONSTRUCTION INC— Fireblock, Window & Door, Insulating Foam Sealant, Multi-Purpose, HC Sealants, Black Foam Sealant, Extreme, Window & Door Extreme, Fast Foam, Gun Foam, and Straw Foam

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2022-02-16

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GORDON ROAD FIRE DEPARTMENT

UL DETAILS

Sheet No.
1.73

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- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
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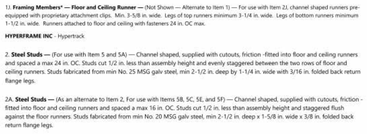
BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U493

November 14, 2023

Nonbearing Wall Rating — 1 or 2 Hr. (See Items 5, 5A, 5B)
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



HORIZONTAL SECTION

1. **Floor and Ceiling Runners —** (For use with Item 5 and 5A) — Channel shaped, attached to floor and ceiling in two rows, a min 1 in. apart, with steel fasteners spaced 24 in. OC. Runners fabricated from min No. 25 MSG galv steel, 1-1/4 in. wide and 2-1/2 in. deep.

1A. **Floor and Ceiling Runners —** (As an alternate to Item 1, For use with Item 5B and 5C) — Channel shaped, attached to floor and ceiling in two rows, a min 1 in. apart. Runners fabricated from min No. 20 MSG galv steel, 1-3/16 in. wide and 2-9/16 in. deep.

1B. **Framing Members* — Floor and Ceiling Runners —** (Not shown for use with Item 2B) — As an alternate to Item 1 - Channel shaped, min. 2-1/2 in. deep, attached to floor and ceiling with fasteners 24 in. OC, max.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

TELLING INDUSTRIES L L C — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

1C. **Framing Members* — Floor and Ceiling Runners —** (Not Shown) — As an alternate to Item 1 for a 2 hour rating only — For use with Item 2C, channel shaped, min 2-1/2 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.
CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1D. **Framing Members* — Floor and Ceiling Runners —** (Not Shown) — As an alternate to Item 1 - For use with Item 2D, channel shaped, min 2-1/2 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper20™ Track

1E. **Framing Members* — Floor and Ceiling Runners —** (Not Show

n) — As an alternate to Item 1 for a 2 hour rating only - For use with Item 2E, channel shaped, min 2-1/2 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper25™ Track

1F. **Framing Members* — Floor and Ceiling Runners —** Not Shown — As an alternate to Item 1 for use with Item 2F, proprietary channel shaped, min. 3-1/2 in. wide, fabricated from min. 0.018 in. (mnin bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC max.
RESCUE METAL FRAMING, L L C — AlphaTRAK

1G. **Framing Members* — Floor and Ceiling Runners —** (Not Shown) — As an alternate to Item 1 for use with Item 2G and for a 2 hour rating only. Channel shaped, min. 2-1/2 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D25

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D25

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D25

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D25

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D25

TELLING INDUSTRIES L L C — Type SUPREME D25

UNITED METAL PRODUCTS INC — Type SUPREME D25

1H. **Framing Members* — Floor and Ceiling Runners —** (Not Shown) — As an alternate to Item 1 for use with Item 2H and for a 2 hour rating only. Channel shaped, min. 2-1/2 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X Track.

1I. **Framing Members* — Floor and Ceiling Runner —** (Not Shown) — As an alternate to Item 1 for use with Item 2I. Proprietary channel shaped runners, 1-1/4 in. wide by min. 2-1/2 in. deep fabricated from min 0.019 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.
PANEL REY S A – SUPRA Track 20EQ/19 mil

1J. **Framing Members* — Floor and Ceiling Runner —** (Not Shown — Alternate to Item 1) — For use with Item 2J, channel shaped runners pre-equipped with proprietary attachment clips. Min. 3-5/8 in. wide. Legs of top runners minimum 3-1/4 in. wide. Legs of bottom runners minimum 1-1/2 in. wide. Runners attached to floor and ceiling with fasteners 24 in. OC max.
HYPERFRAME INC - Hypertrack

2. **Steel Studs —** (For use with Item 5 and 5A) — Channel shaped, supplied with cutouts, friction -fitted into floor and ceiling runners and spaced a max 24 in. OC. Studs cut 1/2 in. less than assembly height and evenly staggered between the two rows of floor and ceiling runners. Studs fabricated from min No. 25 MSG galv steel, min 2-1/2 in. deep by 1-1/4 in. wide with 3/16 in. folded back return flange legs.

2A. **Steel Studs —** (As an alternate to Item 2, For use with Items 5B, 5C, 5E, and 5F) — Channel shaped, supplied with cutouts, friction - fitted into floor and ceiling runners and spaced a max 16 in. OC. Studs cut 1/2 in. less than assembly height and staggered flush against the floor runners. Studs fabricated from min No. 20 MSG galv steel, min 2-1/2 in. deep x 1-5/8 in. wide x 3/8 in. folded back return flange legs.

2B. **Framing Members* — Steel Studs —** As an alternate to Item 2 — Channel shaped studs, min. 2-1/2 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D24/30EQD and Type SUPREME D20

OLMAR SUPPLY INC — PRIMESTUD

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D24/30EQD and Type SUPREME D20

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D24/30EQD and Type SUPREME D20

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D24/30EQD and Type SUPREME D20

TELLING INDUSTRIES L L C — Type SUPREME D24/30EQD and Type SUPREME D20

UNITED METAL PRODUCTS INC — Type SUPREME D24/30EQD and Type SUPREME D20

2C. **Framing Members* — Steel Studs —** As an alternate to Item 2 for a 2 hour rating only — For use with Item 1C, channel shaped studs, min 2-1/2 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2D. **Framing Members* — Steel Studs —** As an alternate to Item 2 — For use with Item 1D, channel shaped studs, min 2-1/2 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

IMPERIAL MANUFACTURING GROUP INC — Viper20™

2E. **Framing Members* — Steel Studs —** As an alternate to Item 2 for a 2 hour rating only — For use with Item 1E, channel shaped studs, min 2-1/2 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™

IMPERIAL MANUFACTURING GROUP INC — Viper25™

2F. **Framing Members* — Steel Studs —** As an alternate to Item 2, for use with Item 1F, proprietary channel shaped studs, min. 3-1/2 in. wide, fabricated from min. 0.018 in. (mnin bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
RESCUE METAL FRAMING, L L C — AlphaSTUD

2G. **Framing Members* — Steel Studs —** As an alternate to Item 2 for use Item 1G and for a 2 hour rating only — Channel shaped studs, min 2-1/2 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME D25

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME D25

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME D25

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME D25

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME D25

TELLING INDUSTRIES L L C — Type SUPREME D25

UNITED METAL PRODUCTS INC — Type SUPREME D25

2H. **Framing Members* — Steel Studs —** As an alternate to Item 2 for use Item 1H and for a 2 hour rating only — Channel shaped studs, min 2-1/2 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.
CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper X.

2I. **Framing Members* — Steel Studs —** As an alternate to Item 2 for use with Item 1I. Proprietary channel shaped steel studs, min 1-1/4 in. wide by min 2-1/2 in. deep with 1/4 in. return lips fabricated from min 0.019 in. thick galv steel, spaced 24 in. OC max. Studs cut 1/2 in. less in length than assembly height.
PANEL REY S A – SUPRA Stud 20EQ/19 mil

2J. **Framing Members* — Steel Studs —** (Not Shown — Alternate to Item 2, For use with Item 1J) — Channel shaped steel studs with attachment clips at top and bottom, min 3-5/8 in. depth, spaced a max of 24 in. OC. Studs clipped into floor and ceiling runners (Item 1J). Max 2-3/8 in. extension reveal from top of stud to inside of ceiling runner.
HYPERFRAME INC— Hyperstud

3. **Lateral Bracing —** The bracing shall be in accordance with the SSMA Technical Note Dated March 2000 Referencing Unsheathed Flange Bracing.

3A. **Lateral Bracing —** (Not Shown) — Right angle- shaped, supplied with notches spaced 12, 16, or 24 in. OC., friction-fitted to the cutouts in steel studs, supplied in 7/8 in. by 50 in. lengths. Lateral bracing bars fabricated from min. 20 MSG galvanized steel. The bracing shall be located a maximum of 5 ft on center in accordance with the manufacturers published literature.
CLARKDIETRICH BUILDING SYSTEMS — TradeReady Spazzer 9200 bar

4. **Batts and Blankets —** Optional — Glass fiber batts may be friction-fitted to completely fill the stud cavities on one or both rows of studs.
See **Batts and Blankets** Category (BZJZ) for names of manufacturers.

4A. Deleted.

4B. **Foamed Plastic* —(Optional)** — Not Shown — As an alternate to Item 4. For use with Item 5I. Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity. When foamed plastic is used, minimum stud depth shall be 3-1/2 in.
CARLISLE SPRAY FOAM INSULATION — Types SealTite ONE, SealTite Pro Closed Cell (CC), SealTite Pro Open Cell (OC), SealTite Pro OCX, SealTite Pro No Trim 21, SealTite Pro One Zero, Foamulate Closed Cell, Foamulate OCX, Foamulate 70, and Foamulate HFO.

5. **Gypsum Board* —** Nom 5/8 in. thick, 4 ft. wide, gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Single layer installed on each side of the steel studs for the 1-hr system; two layers installed on each side of the studs for the 2-hr system. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (2- hr system) staggered one stud cavity. Horizontal edge joints and horizontal butt joints need not be backed by framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (2- hr system) staggered a minimum of 6 in. Horizontal edge joints and horizontal butt joints in adjacent layers (2- hr system) need not be staggered with Type ULIX. For the single layer system: panels attached to steel studs and floor runner with 1 in. long Type S steel screws spaced 8 in. OC when applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when applied vertically. For the single layer system with ULIX, panels attached to steel studs and floor runners with 1 in. long Type S screws spaced 12 in. OC when applied vertically or horizontally. Horizontal joints need not be staggered on opposite sides of studs. For the double layer system: base layer panels attached to steel studs and floor runner with 1 in. long Type

S steel screws spaced 16 in., face layer panels attached to steel studs and floor runner with 1-5/8 in. long Type S steel screws spaced 12 in. When used in widths other than 48 in., gypsum panels to be installed horizontally.
When **Steel Framing Members*** (Item 7 or any alternate clips) are used: For the 1-hr system, gypsum panels attached vertically to furring channels with 1 in. long Type S-12 screws spaced 12 in. OC. Vertical joints offset min 12 in. from layer on other side of wall. For the 2-hr system, inner layer of gypsum panels attached vertically to furring channels with 1 in. Type S-12 screws spaced 16 in. OC, outer layer with 1-5/8 in. Type S-12 screws spaced 12 in. OC. Inner layer to be applied vertically. Outer layer to be applied vertically with joints offset a minimum 12 in. from inner layer joints.

CGC INC — Type SCX, SHX, IP-X1, WRX, AR, IP-AR, C, WRC, IP-X2, IPC-AR, ULIX, USGX (Joint tape and compound, Item 6, optional for use with Type USGX)

THE SIAM GYPSUM INDUSTRY (SONGKHLA) CO — Types C and SCX

UNITED STATES GYPSUM CO — Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SGX, SHX, ULIX, USGX, WRX, WRC (Joint tape and compound, Item 6, optional for use with Type USGX)

USG BORAL DRYWALL SFZ LLC — Types C, SCX, SGX, USGX (Joint tape and compound, Item 6, optional for use with Type USGX)

USG MEXICO S A DE C V — Type SCX, SHX, IP-X1, WRX, AR, IP-AR, C, WRC, IP-X2, or IPC-AR, USGX (Joint tape and compound, Item 6, optional for use with Type USGX)

5A. **Gypsum Board* —** (As an alternate to Item 5) — Single layer installed on each side of the steel studs for the 1-hr system, two layers installed on each side of the studs for the 2-hr system. Nom 3/4 in. thick, 4 ft wide, installed as described in Item 5 with screw length increased to 1-1/4 in. for base layer (or for 1 hr. configuration) 2-1/4 in. for face layer.
CGC INC — Types AR, IP-AR

UNITED STATES GYPSUM CO — Types AR, IP-AR

USG MEXICO S A DE C V — Types AR, IP-AR

5B. **Gypsum Board* —** (As an alternate to Item 5 may be used as the base layer on one or both sides of wall, For direct attachment only) — Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over min 20 MSG galvanized steel studs and staggered min 1 stud cavity on opposite sides of studs. See Item 2A. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 8) or Lead Discs or Tabs (see Item 9).
RAY-BAR ENGINEERING CORP — Type RB-LBG

5C. **Gypsum Board* —** (As an alternate to Item 5 may be used as the base layer on one or both sides of wall, For direct attachment only) — Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or #6 by 1-1/4 in. long bugle head fine-driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.
NEW ENGLAND LEAD BURNING CO INC, DBA NELCO — Nelco

5D. **Gypsum Board* —** (As an alternate to Item 5, not for use with Items 1C and 2C) — Nom. 5/8 in. thick, 4 ft. wide gypsum panels with beveled, square or tapered edges installed as described in Item 5.
CGC INC — Type ULX

UNITED STATES GYPSUM CO — Type ULX

USG MEXICO S A DE C V — Type ULX

5E. **Gypsum Board* —** (As an alternate to Item 5 may be used as the base layer on one or both sides of wall, For direct attachment only) Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over min 20 MSG galvanized steel studs and staggered min 1 stud cavity on opposite sides of studs. See Item 2A. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required

behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C."
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

5F. **Gypsum Board* —** (As an alternate to Items 4) — For Direct Application to studs Only — For use as the base layer or as the face layer. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and in the field when applied as the base layer. When applied as the face layer screw length to be increased to 2-1/2 in. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 10 ft long with a max thickness of 0.140 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, max 5/16 in. diam by max 0.140 in. thick compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grades "A, B, C or D". Fasteners for face layer gypsum panels (Items 5) when installed over lead backed board to be min 2-1/2 in. Type S-12 bugle head steel screws spaced as described in Item 5.
MAYCO INDUSTRIES INC — "X-Ray Shielded Gypsum"

5G. Deleted.

5H. **Gypsum Board* —** Nom 5/8 in. thick, 4 ft. wide, gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Single layer installed on each side of the steel studs for the 1-hr system, two layers installed on each side of the studs for the 2-hr system. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (2-hr system) staggered one stud cavity. Horizontal edge joints and horizontal butt joints need not be backed by framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (2-hr system) staggered a minimum of 6 in. For the single layer system: panels attached to steel studs and floor runner with 1 in. long Type S steel screws spaced 8 in. OC when applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when applied vertically. For the double layer system: base layer panels attached to steel studs and floor runner with 1 in. long Type S steel screws spaced 16 in., face layer panels attached to steel studs and floor runner with 1-5/8 in. long Type S steel screws spaced 12 in. When used in widths other than 48 in., gypsum panels to be installed horizontally.
When **Steel Framing Members*** (Item 7-7B) are used: For the 1-hr system, gypsum panels attached vertically to furring channels with 1 in. long Type S-12 screws spaced 12 in. OC. Vertical joints offset min 12 in. from layer on other side of wall. For the 2-hr system, inner layer of gypsum panels attached vertically to furring channels with 1 in. Type S-12 screws spaced 16 in. OC, outer layer with 1-5/8 in. Type S-12 screws spaced 12 in. OC. Inner layer to be applied vertically with joints offset a minimum 12 in. from inner layer joints.

NATIONAL GYPSUM CO — Riyadh, Saudi Arabia — Type FR.

5I. **Gypsum Board*** — (For use when Foam Plastic insulation (Item 4B) is used) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 5 above. Applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Gypsum panels secured to studs with 1 in. long Type S steel screws spaced 8 in. OC at perimeter and in the field. For 2 layer assemblies outer layer will be attached to studs over inner layer with the 1-5/8 in. long steel screws spaced 8 in. OC. All joints in outer layers staggered from joints in inner layers.

6. **Joint Tape and Compound —** (Not Shown) — Outer layer joints covered with joint compound and paper or mesh tape. Screw heads covered with joint compound. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.

7. **Steel Framing Members* —** (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 5. May not be used with items 5B, 5C, 5E or 5F.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7a) to studs (Item 2). Clips spaced max. 48 in. OC., and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75)

7A. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.Gypsum board attached to furring channels as described in Item 5. May not be used with items 5B, 5C, 5E or 5F.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Aa) to studs. Clips spaced 48 in. OC, and secured to studs 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

7B. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with a double strand of No. 18 AWG twisted steel wire. Gypsum board attached to furring channels as described in Item 5. May not be used with Items 5B, 5C, 5E, or 5F.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ba) to studs. Clips spaced 48 in. OC, and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

7C. **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 5. May not be used with Items 5B, 5C, 5E, or 5F.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 7Ca) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

7D **Steel Framing Members* —** (Optional, Not Shown, As an alternate to Item 7) — Furring channels and Steel Framing Members as described below.
a **Furring Channels —** Formed of No. 25 MSG galv steel, 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 5.

b **Steel Framing Members* —** Used to attach furring channels (Item 7Da) to studs. Clips spaced maximum 48 in. OC. Clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips.

CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

8. **Lead Batten Strips —** (Not Shown, For Use With Item 5B) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5B) and optional at remaining stud locations. Required behind vertical joints.

9. **Lead Discs or Tabs —** (Not Shown, For Use With Item 5B) — Used in lieu of or in addition to the lead batten strips (Item 8) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5B) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

10. **Lead Batten Strips —** (Not Shown, For Use With Item 5C) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5C) and optional at remaining stud locations.

11. **Lead Tabs —** (Not Shown, For Use With Item 5C) — 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 5C) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

12. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) — For use with Items 5 or 5A — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

13. **Barrier Mesh —** (Optional, Not Shown) - Attached to steel studs on one or both sides of the wall using Barrier Mesh Clips spaced at maximum 12 inches on center vertically, using a flat head type screw penetrating through the steel at least 3/8 of an inch. For Steel Studs less than 0.033 inches in thickness, use self-piercing screws. For Steel Studs equal to or greater than 0.033 inches in thickness, use steel drill screws (self-tapping). Gypsum Board (Item 5) to be installed directly over the Barrier Mesh using prescribed screw patterns with lengths increased by a minimum 1/8 in. Barrier Mesh may be installed with the long dimension of the diamond pattern positioned vertically or horizontally. Barrier Mesh joints may occur at butt joints at the framing members and secured using the Barrier Mesh Clips or occur in between framing members as overlapping joints secured using 18 SWG wire ties spaced a maximum 12 in. on center.
CLARKDIETRICH BUILDING SYSTEMS — Barrier Mesh, Barrier Mesh Clips

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2023-11-14

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL Solutions' Follow - Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL Solutions' Follow - Up Service. Always look for the Mark on the product.

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STEWART-COOPER-NEWELL ARCHITECTS, P.A. REGISTERED ARCHITECTURAL CORPORATION LIC.NO. 51313 NORTH CAROLINA GASTONIA, N.C.

719 East Second Avenue
Gastonia, NC 28054
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Stewart · Cooper · Newell Architects
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1.800.671.0621

Project No.
1737

Date:
3/29/2024 3:27:26 PM
Drawn by:
Author
Checked by:
Checker
Revisions:

GORDON ROAD FIRE DEPARTMENT

UL DETAILS

Sheet No.
1.74

100% CONSTRUCTION DOCUMENTS

GORDON ROAD FIRE STATION

NEW HANOVER COUNTY
GORDON ROAD, WILMINGTON, NORTH CAROLINA 28411

UTILITY / MUNICIPALITY CONTACTS:

A. NEW HANOVER COUNTY:
PLANNING AND LAND USE
CONTACT: ZACHARY DICKERSON
PHONE: (910) 798-7450
EMAIL: ZDICKERSON@NHCGOV.COM

B. BURIED CABLE LOCATION
NC 811

C. DUKE ENERGY
(866) 582-6345

D. CAPE FEAR PUBLIC UTILITY AUTHORITY
CONTACT: JEFF THEBERGE, PE
ENGINEERING MANAGER
235 GOVERNMENT CENTER DR.
WILMINGTON, NC 28403
PHONE: 910-332-6673
EMAIL: JEFF.THEBERGE@CFPUA.ORG

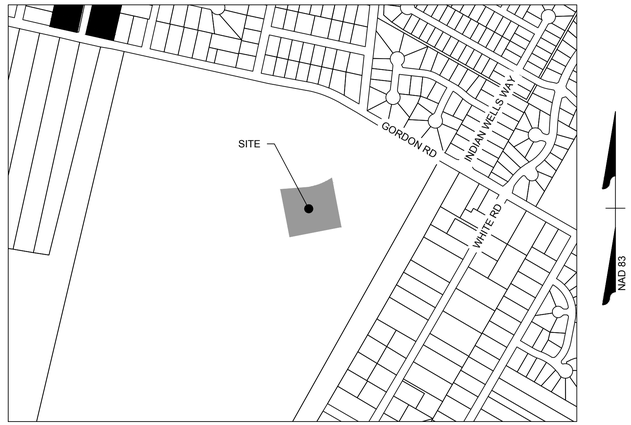
CONSULTANT CONTACTS:

OWNER
KEVIN CAISON
FACILITIES PROJECT MANAGER
NEW HANOVER COUNTY - FACILITIES MANAGEMENT
910-798-4338
KCAISON@NHCGOV.COM

SITE ENGINEER/ LANDSCAPE ARCHITECT
TIMMONS GROUP
CONTACT: WILL ALTMAN, PE
5410 TRINITY ROAD, SUITE 102
RALEIGH, NC 27607
PHONE: 919-866-4938

ARCHITECT
GREGORY SCOTT
PROJECT MANAGER
STEWART-COOPER-NEWELL ARCHITECTS, P.A.
719 EAST SECOND AVENUE
GASTONIA, NC 28054
704-865-6311

GENERAL NOTES:
1. ALL CONSTRUCTION SHALL CONFORM TO THE NEW HANOVER COUNTY DESIGN AND CONSTRUCTION STANDARDS.
2. THE MONUMENT CONTROL POINTS FOR THIS PROJECT ARE: RBC #200 COORDINATES N= 191,740.43' E= 2,346,211.57' ELEV.= 42.14' (NAVD '88 DATUM), RBC #201 COORDINATES N=192,059.79' E= 2,346,134.24 ELEV.= 43.75' (NAVD '88 DATUM).
3. IF THERE IS A GEODETIC MONUMENT LOCATED ON THIS SITE, IT MUST BE PROTECTED OR IF RELOCATION IS NEEDED IT WILL BE THE RESPONSIBILITY OF THE DEVELOPER TO RELOCATE IT WITH SURVEY ACCURACY.
4. ALL NEW UTILITY LINES (POWER, CABLE, ETC.) MUST BE UNDERGROUND



VICINITY MAP
1" = 500'

SITE DATA TABLE	
PID:	R04300-008-002-000
TOTAL SITE AREA:	2.77 AC
DISTURBED AREA	5.85 AC
ZONING:	R-15 RESIDENTIAL DISTRICT
WATERSHED:	SMITH CREEK
RIVER BASIN	CAPE FEAR
PROPOSED IMPERVIOUS	ONSITE: 1.22 AC DRIVEWAY TO SITE: 0.58 AC
MAXIMUM BUILDING HEIGHT:	40'
PROPOSED BUILDING HEIGHT	39' 11"
MINIMUM BUILDING SETBACK	FRONT: 25' SIDE (STREET): 15' SIDE (INTERIOR): 10' REAR: 20'
PROVIDED BUILDING SETBACK	FRONT: 25' SIDE: 20' REAR: 20'
MINIMUM LANDSCAPE BUFFERS	10'
TOTAL BUILDING FOOTPRINT AREA	14,461 SQFT
PARKING REQUIREMENTS	
TOTAL REQUIRED PARKING	2.5 SPACES / 1,000 SF (2.5 SPACES * 14,461 SF) / 1,000 SF = 37 SPACES
TOTAL PARKING SPACES PROVIDED	37 PARKING SPACES
REQUIRED ADA PARKING	2 SPACES
ADA SPACES PROVIDED	2 SPACES

Sheet List Table

Sheet Number	Sheet Title
C0.0	COVERSHEET
C0.1	KEY PLAN
C1.0	EXISTING CONDITIONS
C1.1	EXISTING CONDITIONS
C2.0	EC PHASE 1
C2.1	EC PHASE 1
C2.2	EC PHASE 2
C2.3	EC PHASE 2
C2.4	EC PHASE 3
C2.5	EC PHASE 3
C3.0	SITE PLAN
C3.1	UTILITY PLAN
C3.2	UTILITY PLAN
C3.3	UTILITY PLAN
C3.4	UTILITY PROFILES
C3.5	UTILITY PROFILES
C3.6	UTILITY PROFILES
C3.7	UTILITY PROFILES
C4.0	GRADING PLAN
C4.1	STRM PROFILES
C4.2	SCM DETAILS
C4.3	SW COMPLIANCE PLAN
C5.0	NOTES AND DETAILS
C5.1	NOTES AND DETAILS
C5.2	NOTES AND DETAILS
C5.3	NOTES AND DETAILS
C5.4	NOTES AND DETAILS
C5.5	NOTES AND DETAILS
C5.6	NOTES AND DETAILS
C5.7	NOTES AND DETAILS
C5.8	NOTES AND DETAILS
C5.9	NOTES AND DETAILS
L1.0	PLANTING PLAN
--	LIGHTING PLAN

GENERAL NOTE

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.

WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITHIN THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER OF WORK OR MATERIAL CALLED FOR, SHALL SUBMIT A WRITTEN STATEMENT WITH HIS PROPOSAL NOTING SUCH DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.

Project No.
56398

Date:
03/29/2024
Drawn by:
J GLAS
Checked by:
W ALTMAN
Revisions:

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TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.
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SCSW1-777

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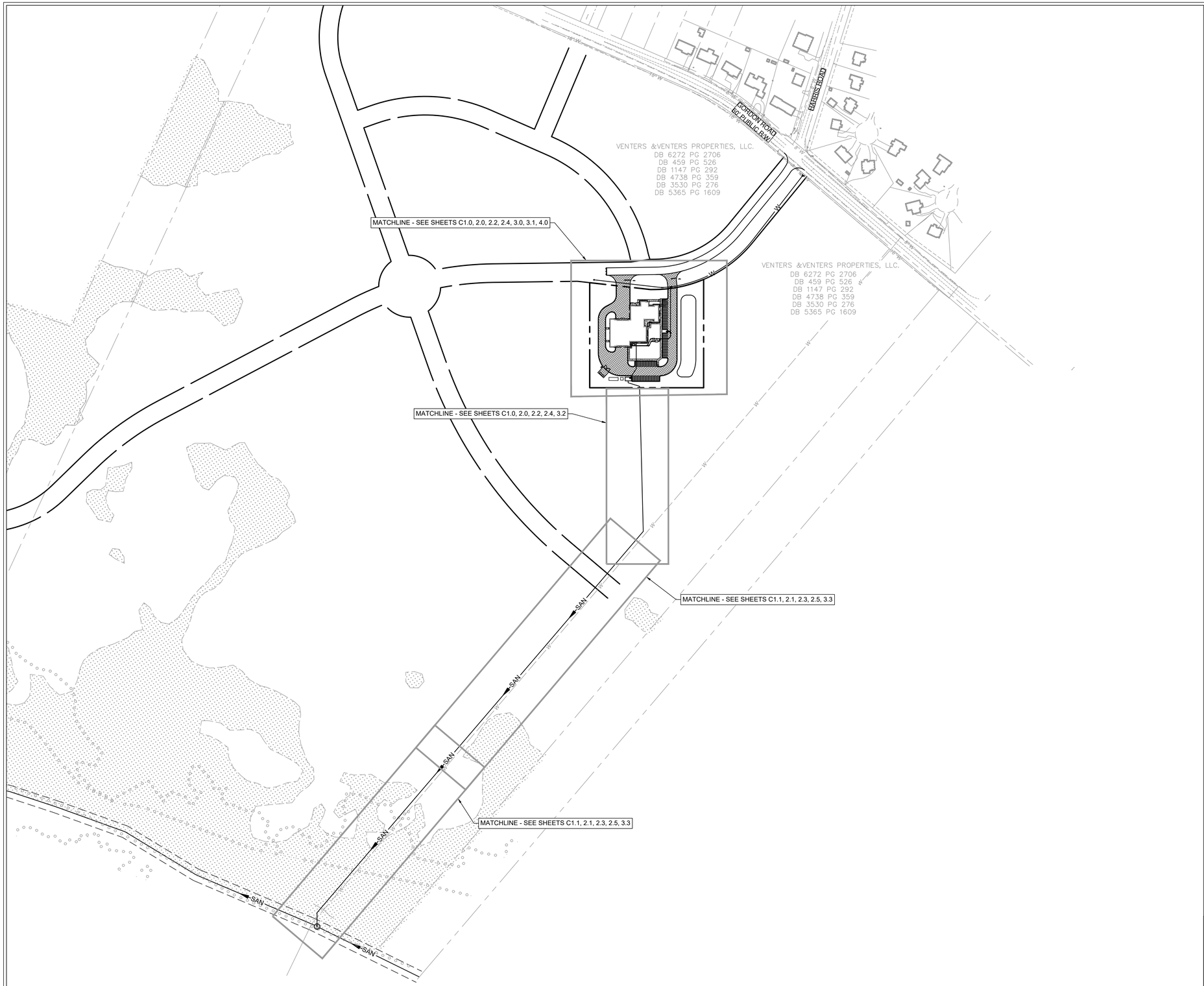
NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

COVERSHEET

Sheet No.
C0.0



SITE LAYOUT NOTES

1. ALL CONSTRUCTION WILL BE TO NEW HANOVER COUNTY OR NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS.
2. ALL DRIVEWAYS MUST BE INSTALLED TO THE MINIMUM NEW HANOVER COUNTY OR NCDOT STANDARDS.
3. ALL PROPOSED BUILDINGS, VEHICULAR AREAS, PEDESTRIAN AREAS, SIGNAGE AND LANDSCAPING WILL MEET CITY ARCHITECTURAL AND SITE DESIGN REQUIREMENTS, AS WELL AS THE DESIGN GUIDELINES THAT ACCOMPANY THE MASTER PLAN. WHERE THESE ARE NOT MET, WAIVERS WILL BE SUBMITTED FOR APPROVAL AT TIME OF THE DEVELOPMENT PLAN.
4. WHERE SIDEWALK IS PROPOSED AT THE BACK OF CURB SIDEWALK SHALL BE A MINIMUM OF 5' WIDE.
5. DOUBLE WHEELCHAIR RAMPS ARE TO BE INSTALLED AT ALL PUBLIC STREET INTERSECTIONS WHERE SIDEWALK IS REQUIRED. WHEN SIDEWALK IS NOT REQUIRED, CURB IS TO BE DEPRESSED AT ALL RAMP LOCATIONS.
6. ALL STREETS SHOWN ON THESE PLANS SHALL HAVE THE FULL WIDTH OF RIGHT-OF-WAY CLEARED AND GRUBBED WITHIN 50' OF ALL STREET INTERSECTIONS.
7. NO SIGHT OBSTRUCTING OR PARTIALLY OBSTRUCTING WALL, FENCE, FOLIAGE, BERM, SIGN, PARKED VEHICLE, OR OTHER OBJECTS BETWEEN THE HEIGHTS OF TWO FEET AND EIGHT FEET ABOVE THE CURB LINE ELEVATION (OR THE EDGE OF PAVEMENT IF NO CURB EXISTS) SHALL BE PLACED WITHIN SIGHT DISTANCE TRIANGLE.
8. LOCATION OF STREET TREES & STREET LIGHTING MUST BE FIELD COORDINATED TO ELIMINATE CONFLICT

SITE DATA TABLE

PID:	R04300-008-002-000
TOTAL SITE AREA:	2.77 AC
DISTURBED AREA	5.85 AC
ZONING:	R-15 RESIDENTIAL DISTRICT
WATERSHED:	SMITH CREEK
RIVER BASIN	CAPE FEAR
PROPOSED IMPERVIOUS	ONSITE: 1.22 AC DRIVEWAY TO SITE: 0.58 AC
MAXIMUM BUILDING HEIGHT:	40'
PROPOSED BUILDING HEIGHT	39' 11"
MINIMUM BUILDING SETBACK	FRONT: 25' SIDE (STREET): 15' SIDE (INTERIOR): 10' REAR: 20'
PROVIDED BUILDING SETBACK	FRONT: 25' SIDE: 20' REAR: 20'
MINIMUM LANDSCAPE BUFFERS	10'
TOTAL BUILDING FOOTPRINT AREA	14,461 SQFT
PARKING REQUIREMENTS	
TOTAL REQUIRED PARKING	2.5 SPACES / 1,000 SF (2.5 SPACES * 14,461 SF) / 1,000 SF = 37 SPACES
TOTAL PARKING SPACES PROVIDED	37 PARKING SPACES
REQUIRED ADA PARKING	2 SPACES
ADA SPACES PROVIDED	2 SPACES

HATCHING LEGEND

- LIGHT DUTY ASPHALT
- HEAVY DUTY CONCRETE
- CONCRETE SIDEWALK
- HEAVY DUTY ASPHALT

NAD 83

SCALE 1"=150'
0 150' 300'

GENERAL NOTE

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W ALTMAN
Revisions:

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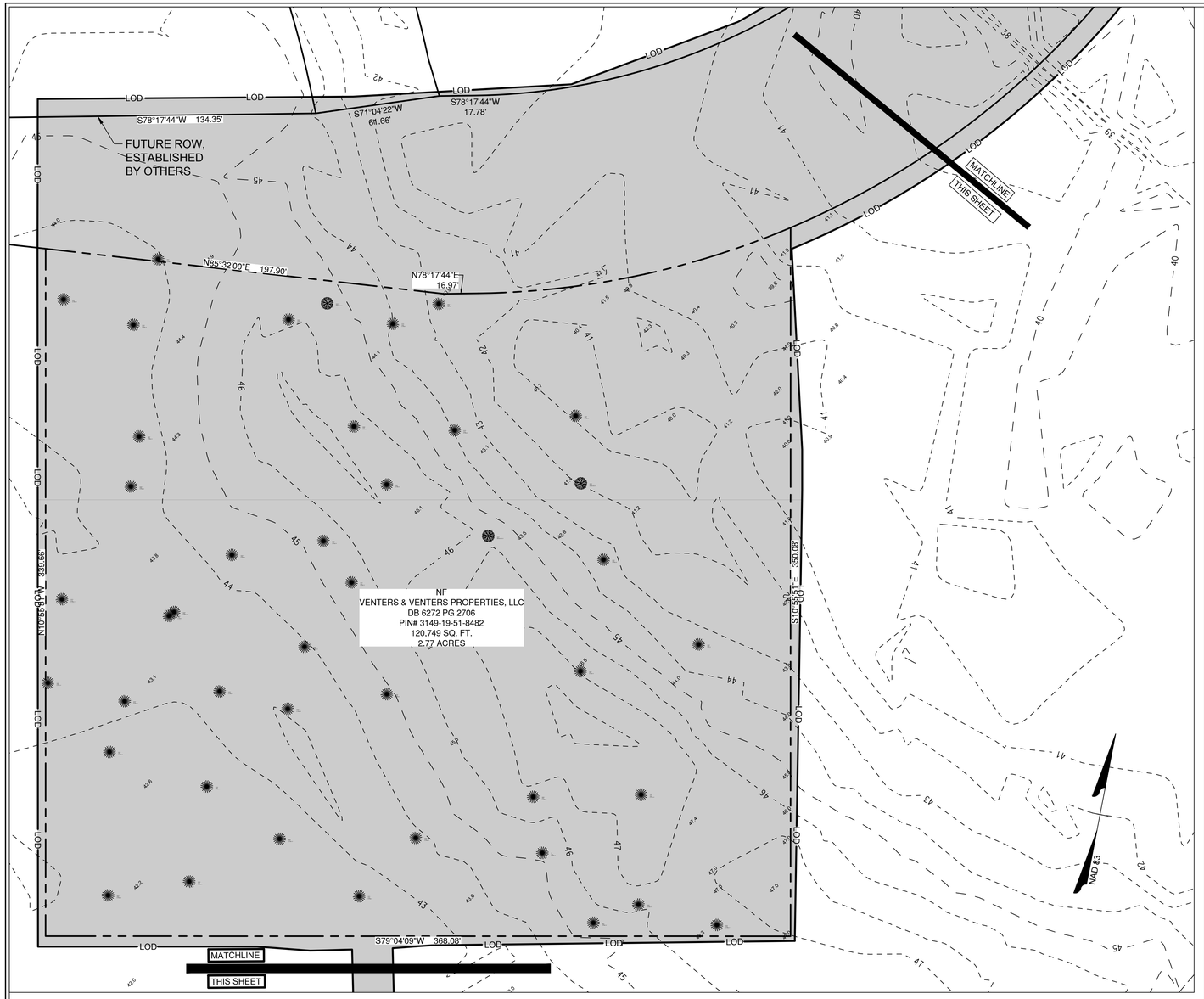
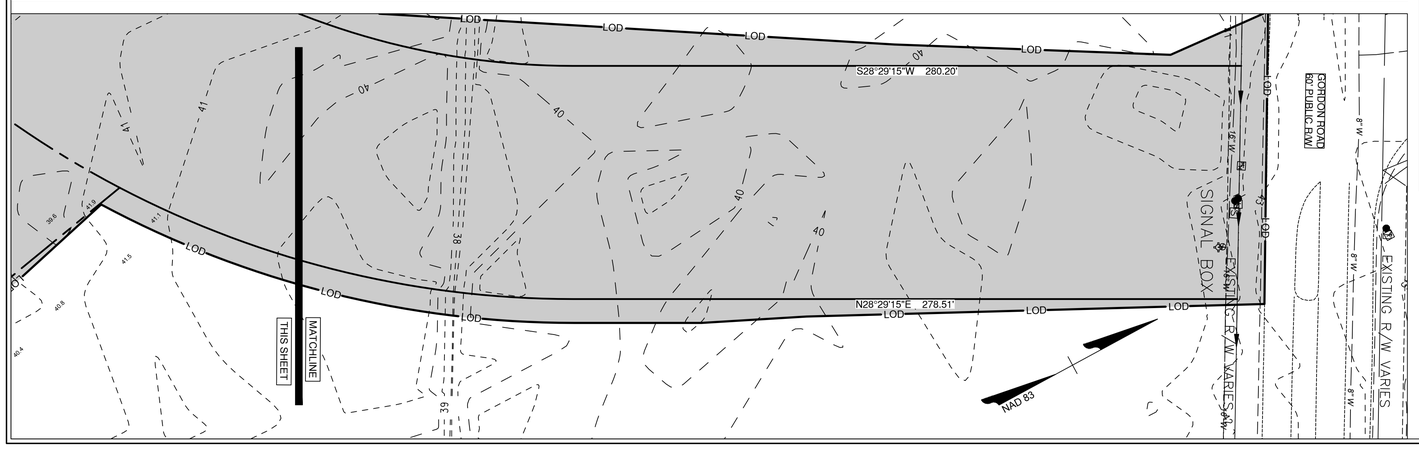
NORTH CAROLINA PROFESSIONAL SEAL 045892 LICENSED ENGINEER William P. Altman

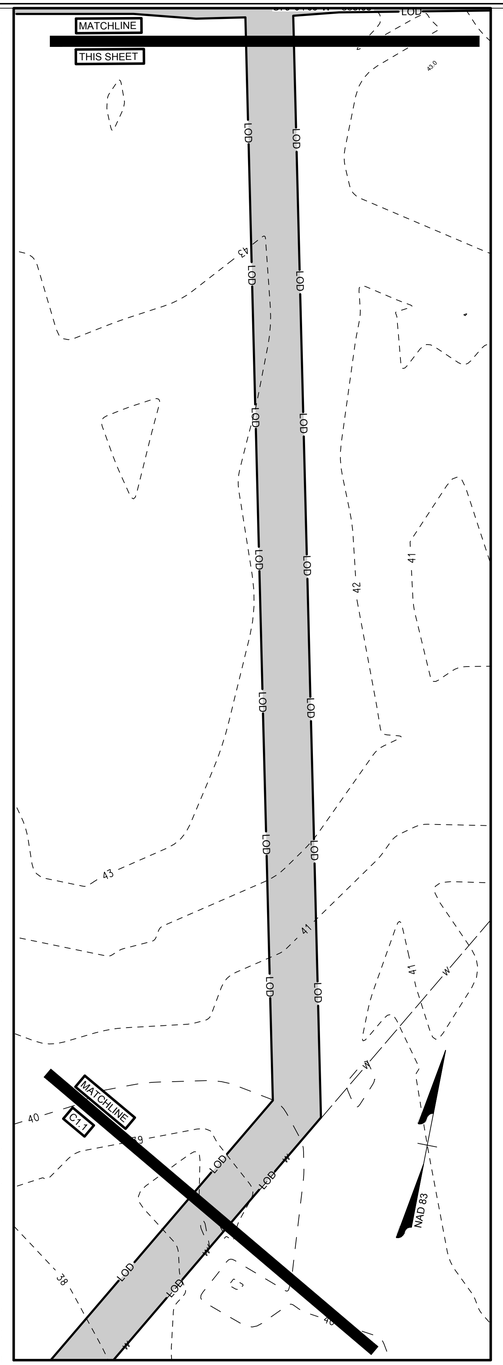
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

KEY PLAN

Sheet No.
C0.1







DEMOLITION NOTES:

1. NOTIFY OWNER AND ARCHITECT IMMEDIATELY OF UTILITY SERVICE INTERRUPTIONS TO NEIGHBORING PROPERTIES.
2. UTILITIES ENCOUNTERED THAT ARE NOT INCLUDED WITHIN THE EXISTING CONDITIONS PLANS SHALL BE REMOVED OR RELOCATED PER THE OWNER, ARCHITECT AND UTILITY PROVIDERS DIRECTION.
3. **EVERYTHING WITHIN THE LIMITS OF DISTURBANCE SCHEDULED TO BE DEMOLISHED SHALL ONLY PROCEED AFTER ALL TREE PROTECTION FENCE AND PERIMETER EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND INSPECTED PER THE EROSION CONTROL PLAN. INSTALL ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY TO PREVENT SEDIMENT LADEN RUNOFF FROM EXITING THE SITE.**
4. ALL TRASH AND MISCELLANEOUS DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANOR.
5. ALL WORK SHALL BE IN ACCORDANCE WITH THE STATE AND COUNTY STANDARDS.
6. OPEN BURNING OF TREES, LIMBS, STUMPS, AND CONSTRUCTION DEBRIS ASSOCIATED WITH THIS DEVELOPMENT IS PROHIBITED.
7. ALL EXISTING FIRE HYDRANTS TO REMAIN CLEAR AND OPERATIONAL DURING ALL PHASES OF CONSTRUCTION
8. CONTRACTOR RESPONSIBLE FOR ALL DEMOLITION REQUIRED WITHIN THE LIMITS OF WORK SHOWN.

LEGEND

NEW PROPERTY LINE	IPF - IRON PIPE FOUND
OLD LOT LINE	IRF - IRON ROD FOUND
LINE NOT SURVEYED	IRS- IRON ROD SET
FENCE	SANITARY MANHOLE
OHP OVERHEAD POWER LINE	TELE TELEPHONE PEDESTAL
G PAINTED GAS LINE	ELEC ELECTRIC PEDESTAL
UGP PAINTED POWER LINE	SIGN
UGT PAINTED TELEPHONE LINE	ELECTRIC METER
W PAINTED WATER LINE	POWER POLE
CATV PAINTED CABLE TV LINE	LIGHT POLE
UTL UTILITY LINE	GAS TEST LOCATION
EASEMENT LINE	BOLLARD
RIGHT OF WAY LINE	MAILBOX
EDGE OF PAVEMENT	YARD LIGHT
GRAVEL ROAD	GUY

DEMOLITION LEGEND

REMOVE

LOD LIMITS OF WORK

SURVEY NOTES:

1. ALL DISTANCES ARE HORIZONTAL GROUND IN U.S. SURVEY FEET UNLESS OTHERWISE SHOWN.
2. BEARINGS BASED ON NC GRID NAD 83/2011
3. REFERENCES: AS SHOWN ON MAP
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7. THE EXISTENCE OR NONEXISTENCE OF WETLANDS ON SUBJECT PROPERTY HAS NOT BEEN DETERMINED BY THIS SURVEY.
8. SUBJECT TO TALL EASEMENTS, RIGHT OF WAYS, AND OR ENCUMBRANCES THAT MAY EFFECT THIS PROPERTY

SCALE 1"=30'

0 30' 60'

GENERAL NOTE

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Project No.
56398

Date:
03/29/2024
Drawn by:
J GLAS
Checked by:
W ALTMAN
Revisions:

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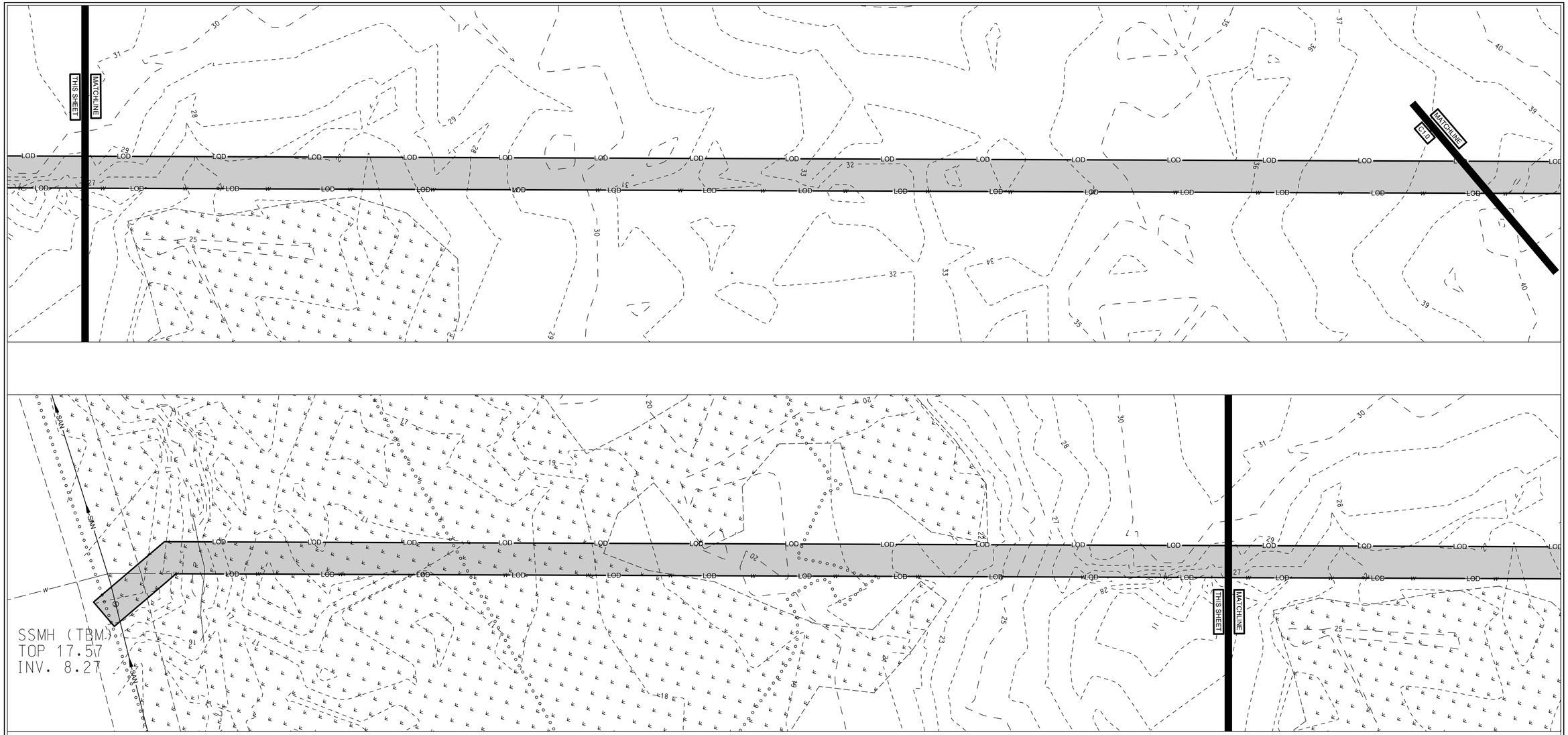
NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

EXISTING CONDITIONS

Sheet No.
C1.0



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EASEMENT LINE	BOLLARD
RIGHT OF WAY LINE	MAILBOX
EDGE OF PAVEMENT	YARD LIGHT
GRAVEL ROAD	GUY

DEMOLITION LEGEND

REMOVE

LOD — LIMITS OF WORK

SCALE 1"=30'

0 30' 60'

NAD 83

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GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

EXISTING CONDITIONS

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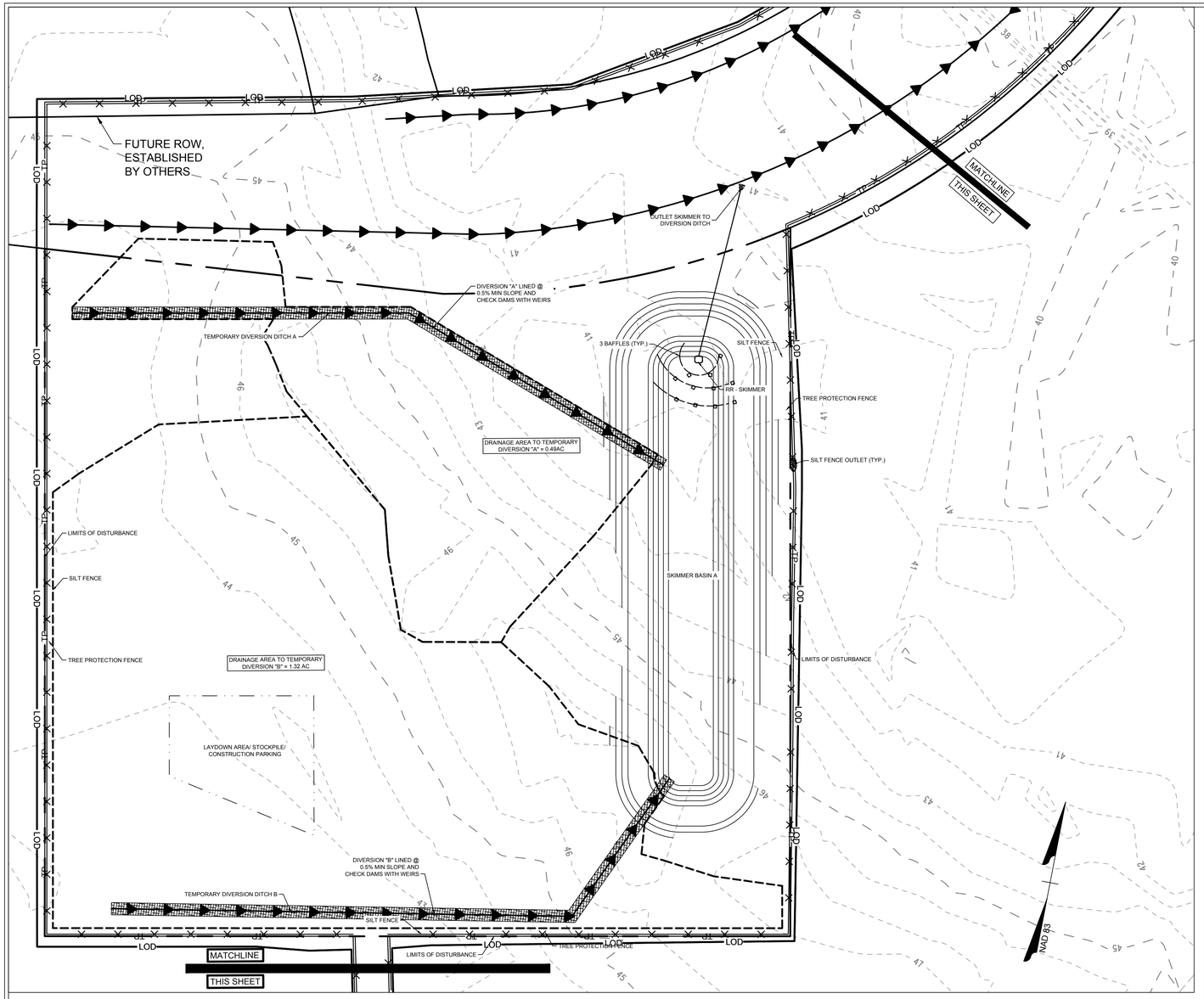

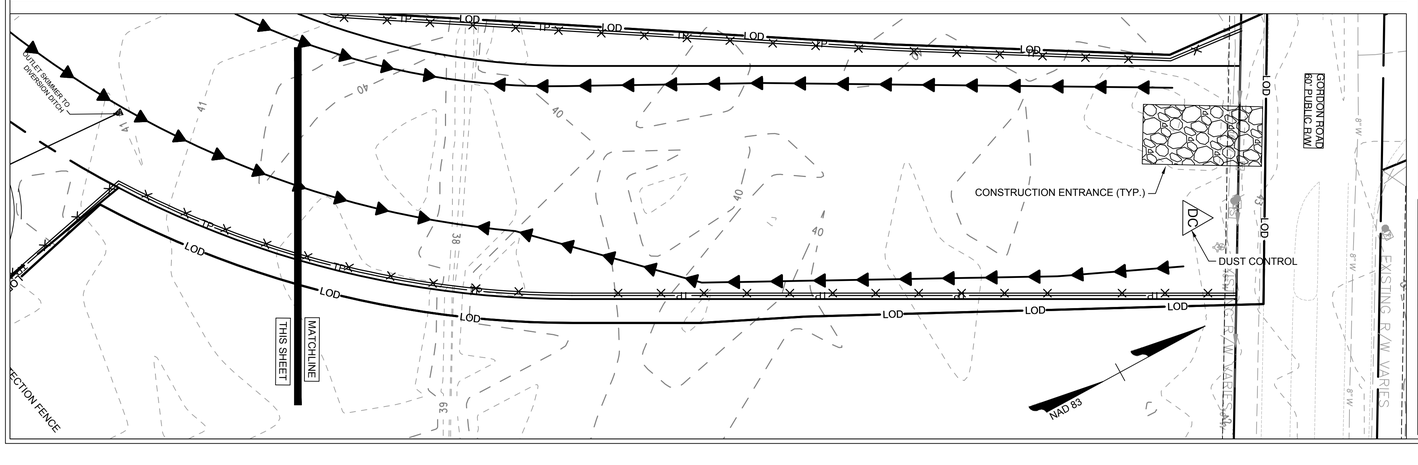

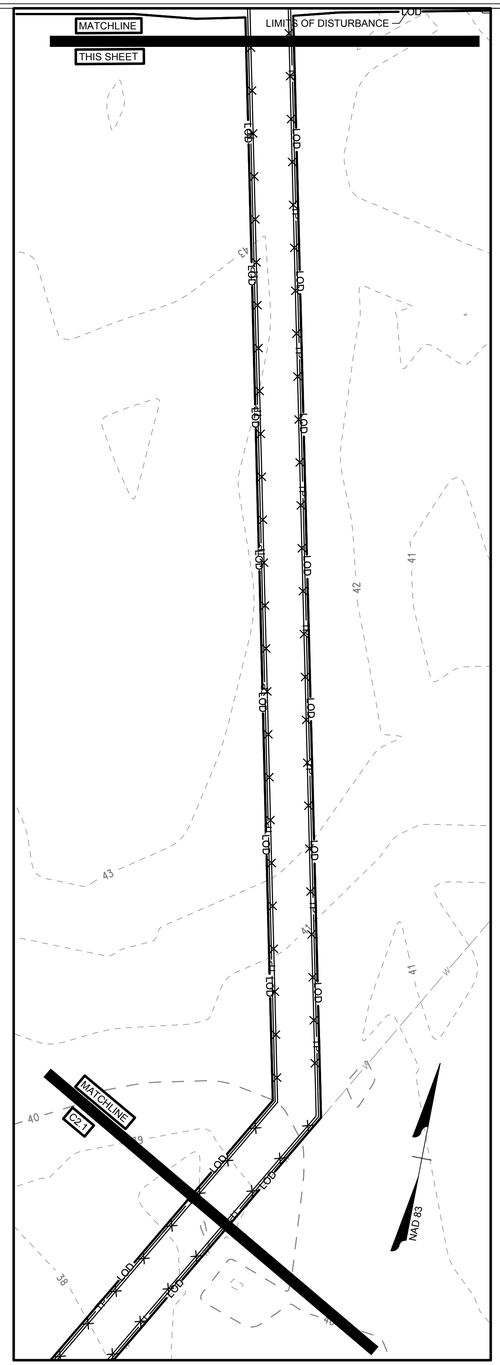

EROSION CONTROL LEGEND

- TEMPORARY CONSTRUCTION ENTRANCE
- SLOPE MATTING REQUIRED SOIL STABILIZATION WITHIN 7 DAYS
- SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- TEMPORARY DIVERSION
- STAGING AREA
- TP — TREE PROTECTION
- SILT FENCE OUTLET
- CHANNEL LINING
- DC — DUST CONTROL
- HARDWARE CLOTH & GRAVEL INLET PROTECTION
- EXCAVATED INLET PROTECTION
- COMPOST SOCK INLET PROTECTION
- CONCRETE WASHOUT AREA

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. ALL CONSTRUCTION SHALL COMPLY WITH NCDENR STANDARDS AND SPECIFICATIONS.
2. A COPY OF THE APPROVED EROSION CONTROL PLAN MUST BE ON FILE AT THE JOB SITE AT ALL TIMES.
3. FAILURE TO FOLLOW THE APPROVED PLAN SEQUENCE AND DETAILS COULD SUBJECT THE CONTRACTOR TO FINES AND PENALTIES ISSUED BY THE DWQ.
4. FIELD VERIFY ALL DIMENSIONS AND GRADES ON THESE PLANS PRIOR TO CONSTRUCTION. FAILURE TO NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH PLAN OR GRADE CHANGES, MAY RESULT IN NO EXTRA COMPENSATION PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY.
5. EXCAVATION AND EARTH MOVING OPERATIONS SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.
6. VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. EXISTING UTILITIES SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND FROM A SURVEY OF ABOVE GROUND FEATURES. NO WARRANTY IS GIVEN OR IMPLIED AS TO THE ACCURACY OF THE INFORMATION. ALL EXISTING UTILITIES SHOULD BE CONSIDERED APPROXIMATE IN LOCATION AND VERIFIED PRIOR TO COMMENCING ACTIVITY ON SITE.
7. ALL ADJACENT ROADS TO THE SITE ARE TO BE SWEPT AND WASHED AT THE END OF EACH WORK DAY TO ENSURE NO SEDIMENT COLLECTS ON THE ROADWAYS.
8. INSPECT AND PROPERLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER EVERY RAINFALL EVENT.
9. INSTALL ANY ADDITIONAL EROSION CONTROL MEASURES AS NECESSARY TO PREVENT SEDIMENT RUNOFF.
10. PROVIDE NCDENR-DWQ WITH THE LOCATION OF OFFSITE STOCKPILES USED TO STORE EXCAVATED SOIL FROM THE SITE. THE LOCATION OF OFFSITE STOCKPILES MUST BE AN UPLAND AREA. IF AN OFFSITE BORROW OR SPOIL SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE BORROW/SPOIL SITE MUST BE INCLUDED IN THE LAND DISTURBANCE PERMIT. THE CONTRACTOR WILL PROVIDE THE LOCATION OF ALL EXCAVATED SOILS USED FOR THIS PROJECT TO NCDENR-DWQ. THIS AREA MUST ALSO BE AN UPLAND AREA.

PHASE I EROSION CONTROL CONSTRUCTION SEQUENCE:

1. A LAND DISTURBANCE PRECONSTRUCTION MEETING IS REQUIRED PRIOR TO ANY DISTURBANCE ON SITE. INVITE THE LOCAL NCDENR INSPECTOR, OWNER, OWNERS ENGINEER, ARCHITECT, AND GRADING CONTRACTOR. SCHEDULE THE MEETING AT LEAST 48 HOURS PRIOR TO THE PRE-CONSTRUCTION MEETING AND LAND DISTURBANCE. NOTIFY LOCAL NCDENR REGIONAL OFFICE PRIOR TO ANY LAND DISTURBANCE.
2. INSTALL CONSTRUCTION ENTRANCE, BEGIN TREE CLEARING, AND PREPARE SITE FOR SOIL SURCHARGING AS INDICATED ON PLAN.
3. INSTALL TEMPORARY DIVERSION DITCHES "A", AND "B", AND THE SEDIMENT TRAP, CLEARING ONLY NECESSARY AREAS. CONSTRUCT THE SEDIMENT TRAP BY EXCAVATING THE AREA TO THE GRADES SHOWN AND CONSTRUCTING THE EMBANKMENT TO THE REQUIRED DENSITY. INSTALL THE SKIMMER DEVICE. STABILIZE ALL DISTURBED SOILS UPON COMPLETION OF THE SEDIMENT TRAP.
4. ENSURE PHASE 1 MEASURES HAVE BEEN COMPLETED, INSPECTED, AND APPROVED. ADJUST AS NEEDED DURING OBSERVATION PERIOD FOR THE SOIL SURCHARGING.

NPDES GROUND STABILIZATION:

SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:

1. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
2. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.

NOTE:

THE NPDES CONSTRUCTION PERMIT REQUIRES EROSION CONTROL DEVICES AND STORM WATER OUTFALLS BE INSPECTED WEEKLY (EVERY 7 CALENDAR DAYS) AND WITHIN 24 HRS OF A .5 INCH RAIN EVENT. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT THESE INSPECTIONS AND MAINTAIN RECORDS UNTIL THE AREA HAS STABILIZED, EVIDENT BY 95% VEGETATIVE GROWTH FOR AREAS PROVIDED SEEDING. TO FACILITATE RAINFALL MONITORING A RAIN GAUGE IS REQUIRED TO BE ON SITE. ADDITIONALLY THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING "SELF INSPECTIONS" INDICATING THE DATE BMPS ARE INSTALLED AND STABILIZATION MEASURES (SEEDING/MULCHING OR SOD) ARE INITIATED. THE "SELF INSPECTION" REPORTS WILL BE MAINTAINED ALONG WITH THE "NPDES" INSPECTION REPORTS. ONCE STABILIZATION HAS BEEN ACCOMPLISHED INSPECTION RECORDS ARE TO BE FORWARDED TO EAD AND ALL TEMPORARY EROSION/SEDIMENTATION CONTROL DEVICES REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING COMPLIANCE WITH ALL PERMITS AND PLANS, ANY CHANGES WILL BE APPROVED BY THE STATE PRIOR TO EXECUTION. A COPY OF THE EROSION AND SEDIMENTATION CONTROL PLAN, LETTER OF APPROVAL, AND NPDES CONSTRUCTION PERMIT WILL BE MAINTAINED BY THE CONTRACTOR AT THE ONSITE OFFICE. IF SOIL IS REMOVED FROM OR BROUGHT ONSITE, THE APPLICABLE SOLID WASTE MANAGEMENT PERMIT NUMBER, EROSION SEDIMENTATION PERMIT NUMBER OR MINE PERMIT NUMBER WILL BE DISCLOSED.

SILT FENCE OUTLETS ARE TO BE PROVIDED ALONG ALL LOW POINTS OF SILT FENCE AND AREAS WHERE RUNOFF MAY CONCENTRATE CAUSING DAMAGE TO SILT FENCE. CONTRACTOR TO INSTALL OUTLETS AS NECESSARY TO ENSURE SILT FENCE IS FULLY FUNCTIONAL THROUGHOUT THE DURATION OF CONSTRUCTION.

EROSION CONTROL PHASE I
LIMITS OF DISTURBANCE: 5.85 AC

SCALE 1"=30'
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EC PHASE 1

Sheet No.
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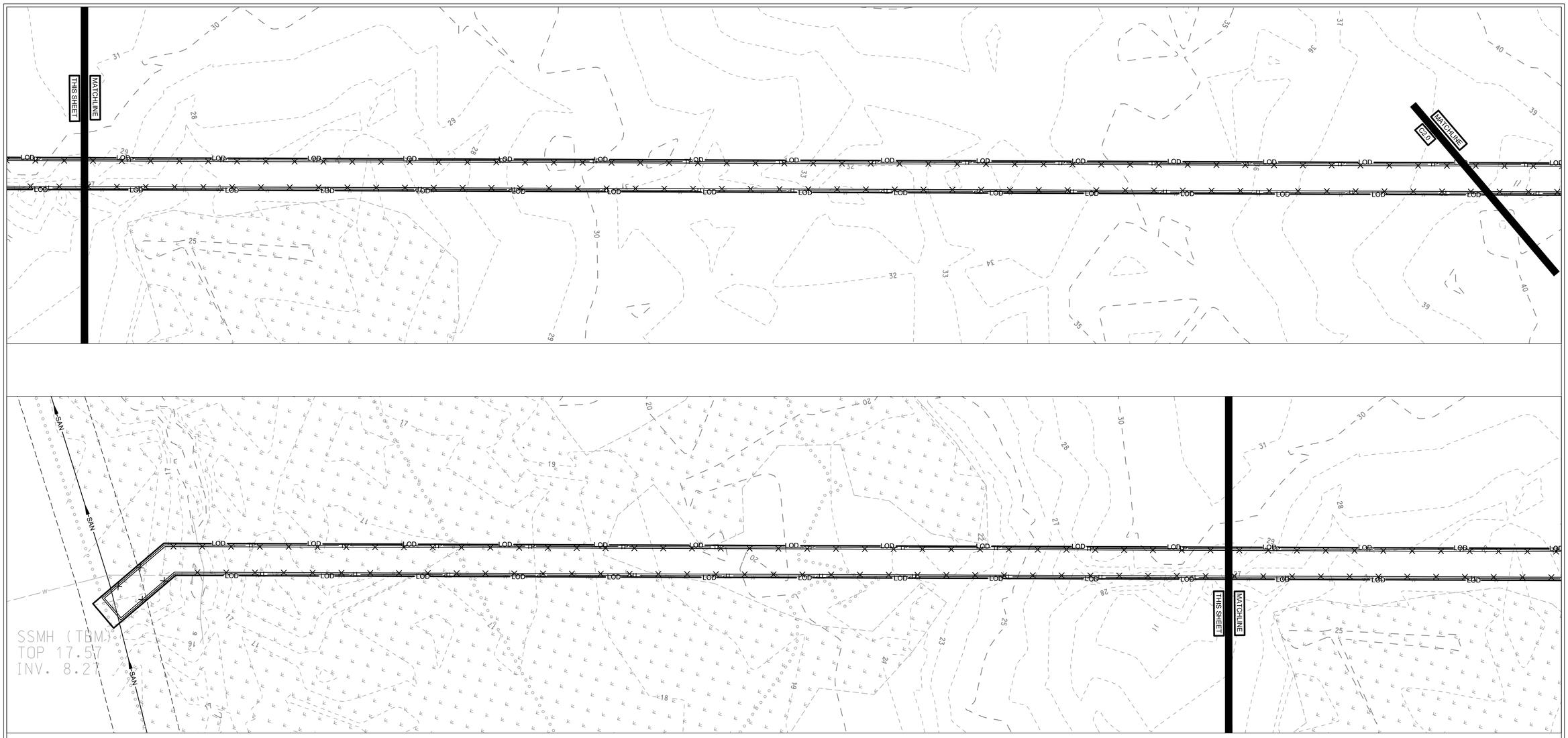

EROSION CONTROL LEGEND

- TEMPORARY CONSTRUCTION ENTRANCE
- SILT FENCE
- DUST CONTROL
- LIMIT OF DISTURBANCE
- TEMPORARY DIVERSION
- STAGING AREA
- TREE PROTECTION
- SILT FENCE OUTLET
- CHANNEL LINING
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4. FIELD VERIFY ALL DIMENSIONS AND GRADES ON THESE PLANS PRIOR TO CONSTRUCTION. FAILURE TO NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH PLAN OR GRADE CHANGES, MAY RESULT IN NO EXTRA COMPENSATION PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY.
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6. VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. EXISTING UTILITIES SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND FROM A SURVEY OF ABOVE GROUND FEATURES. NO WARRANTY IS GIVEN OR IMPLIED AS TO THE ACCURACY OF THE INFORMATION. ALL EXISTING UTILITIES SHOULD BE CONSIDERED APPROXIMATE IN LOCATION AND VERIFIED PRIOR TO COMMENCING ACTIVITY ON SITE.
7. ALL ADJACENT ROADS TO THE SITE ARE TO BE SWEPT AND WASHED AT THE END OF EACH WORK DAY TO ENSURE NO SEDIMENT COLLECTS ON THE ROADWAYS.
8. INSPECT AND PROPERLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER EVERY RAINFALL EVENT.
9. INSTALL ANY ADDITIONAL EROSION CONTROL MEASURES AS NECESSARY TO PREVENT SEDIMENT RUNOFF.
10. PROVIDE NCDENR-DWQ WITH THE LOCATION OF OFFSITE STOCKPILES USED TO STORE EXCAVATED SOIL FROM THE SITE. THE LOCATION OF OFFSITE STOCKPILES MUST BE AN UPLAND AREA. IF AN OFFSITE BORROW OR SPOIL SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE BORROW/SPOIL SITE MUST BE INCLUDED IN THE LAND DISTURBANCE PERMIT. THE CONTRACTOR WILL PROVIDE THE LOCATION OF ALL EXCAVATED SOILS USED FOR THIS PROJECT TO NCDENR-DWQ. THIS AREA MUST ALSO BE AN UPLAND AREA.

PHASE I EROSION CONTROL CONSTRUCTION SEQUENCE:

1. A LAND DISTURBANCE PRECONSTRUCTION MEETING IS REQUIRED PRIOR TO ANY DISTURBANCE ON SITE. INVITE THE LOCAL NCDENR INSPECTOR, OWNER, OWNERS ENGINEER, ARCHITECT, AND GRADING CONTRACTOR. SCHEDULE THE MEETING AT LEAST 48 HOURS PRIOR TO THE PRE-CONSTRUCTION MEETING AND LAND DISTURBANCE. NOTIFY LOCAL NCDENR REGIONAL OFFICE PRIOR TO ANY LAND DISTURBANCE.
2. INSTALL CONSTRUCTION ENTRANCE, BEGIN TREE CLEARING, AND PREPARE SITE FOR SOIL SURCHARGING AS INDICATED ON PLAN.
3. INSTALL TEMPORARY DIVERSION DITCHES "A", AND "B", AND THE SEDIMENT TRAP, CLEARING ONLY NECESSARY AREAS. CONSTRUCT THE SEDIMENT TRAP BY EXCAVATING THE AREA TO THE GRADES SHOWN AND CONSTRUCTING THE EMBANKMENT TO THE REQUIRED DENSITY. INSTALL THE SKIMMER DEVICE. STABILIZE ALL DISTURBED SOILS UPON COMPLETION OF THE SEDIMENT TRAP.
4. ENSURE PHASE 1 MEASURES HAVE BEEN COMPLETED, INSPECTED, AND APPROVED. ADJUST AS NEEDED DURING OBSERVATION PERIOD FOR THE SOIL SURCHARGING.

NPDES GROUND STABILIZATION:

SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:

1. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
2. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.

SILT FENCE OUTLETS ARE TO BE PROVIDED ALONG ALL LOW POINTS OF SILT FENCE AND AREAS WHERE RUNOFF MAY CONCENTRATE CAUSING DAMAGE TO SILT FENCE. CONTRACTOR TO INSTALL OUTLETS AS NECESSARY TO ENSURE SILT FENCE IS FULLY FUNCTIONAL THROUGHOUT THE DURATION OF CONSTRUCTION.

EROSION CONTROL PHASE I
LIMITS OF DISTURBANCE: 5.85 AC

NOTE:

THE NPDES CONSTRUCTION PERMIT REQUIRES EROSION CONTROL DEVICES AND STORM WATER OUTFALLS BE INSPECTED WEEKLY (EVERY 7 CALENDAR DAYS) AND WITHIN 24 HRS OF A .5 INCH RAIN EVENT. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT THESE INSPECTIONS AND MAINTAIN RECORDS UNTIL THE AREA HAS STABILIZED, EVIDENT BY 95% VEGETATIVE GROWTH FOR AREAS PROVIDED SEEDING. TO FACILITATE RAINFALL MONITORING A RAIN GAUGE IS REQUIRED TO BE ON SITE. ADDITIONALLY THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING "SELF INSPECTIONS" INDICATING THE DATE BMPS ARE INSTALLED AND STABILIZATION MEASURES (SEEDING/MULCHING OR SOD) ARE INITIATED. THE "SELF INSPECTION" REPORTS WILL BE MAINTAINED ALONG WITH THE "NPDES" INSPECTION REPORTS. ONCE STABILIZATION HAS BEEN ACCOMPLISHED INSPECTION RECORDS ARE TO BE FORWARDED TO EAD AND ALL TEMPORARY EROSION/SEDIMENTATION CONTROL DEVICES REMOVED. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING COMPLIANCE WITH ALL PERMITS AND PLANS, ANY CHANGES WILL BE APPROVED BY THE STATE PRIOR TO EXECUTION. A COPY OF THE EROSION AND SEDIMENTATION CONTROL PLAN, LETTER OF APPROVAL, AND NPDES CONSTRUCTION PERMIT WILL BE MAINTAINED BY THE CONTRACTOR AT THE ONSITE OFFICE. IF SOIL IS REMOVED FROM OR BROUGHT ONSITE, THE APPLICABLE SOLID WASTE MANAGEMENT PERMIT NUMBER, EROSION SEDIMENTATION PERMIT NUMBER OR MINE PERMIT NUMBER WILL BE DISCLOSED.

NAD 83

SCALE 1"=30'
0 30' 60'

GENERAL NOTE

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Project No.
56398

Date:
03/29/2024
Drawn by:
J GLAS
Checked by:
W ALTMAN
Revisions:

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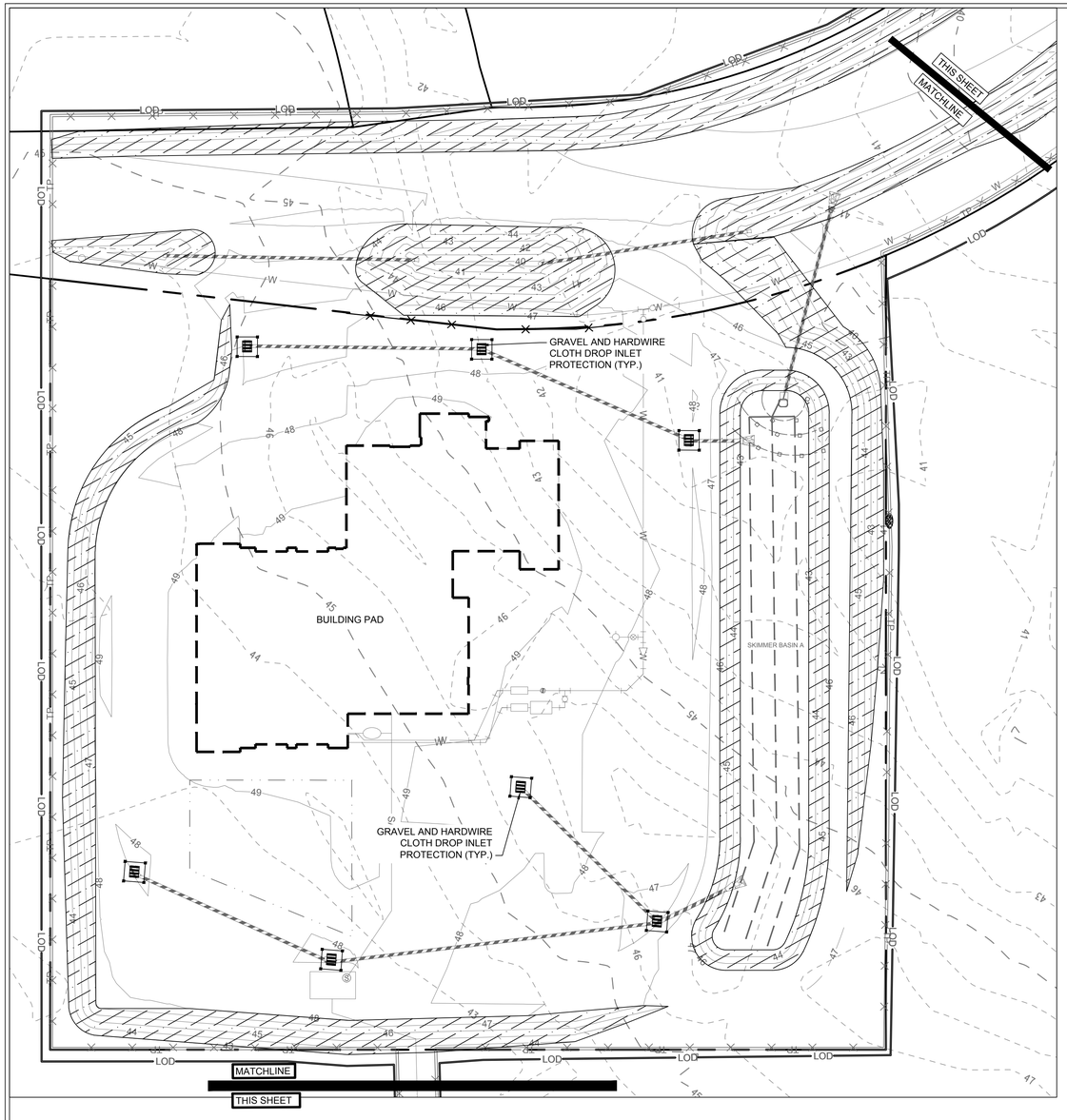
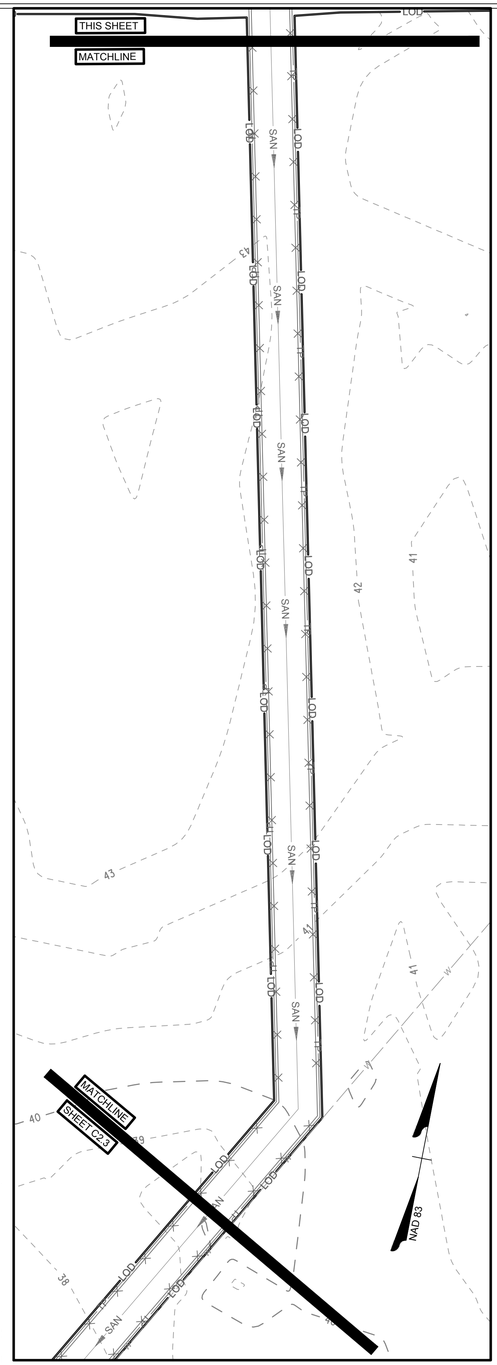
NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

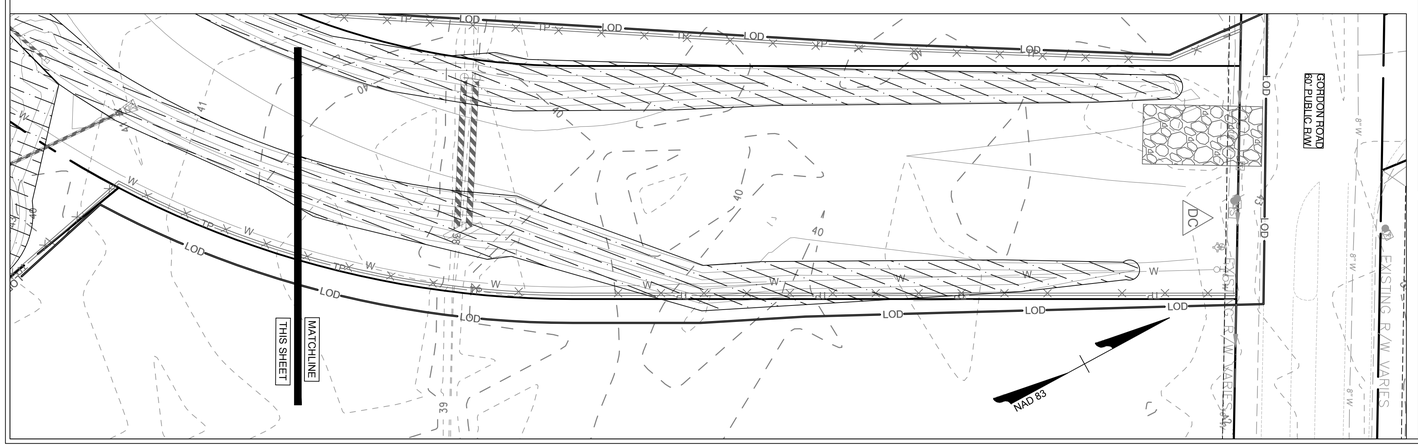
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

EC PHASE 1

Sheet No.
C2.1







EROSION CONTROL LEGEND

- TEMPORARY CONSTRUCTION ENTRANCE
- SLOPE MATTING REQUIRED SOIL STABILIZATION WITHIN 7 DAYS
- SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- TEMPORARY DIVERSION
- STAGING AREA
- TP — TREE PROTECTION
- SILT FENCE OUTLET
- CHANNEL LINING
- DC — DUST CONTROL
- HARDWARE CLOTH & GRAVEL INLET PROTECTION
- EXCAVATED INLET PROTECTION
- COMPOST SOCK INLET PROTECTION
- CONCRETE WASHOUT AREA

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. ALL CONSTRUCTION SHALL COMPLY WITH NCDENR STANDARDS AND SPECIFICATIONS.
2. A COPY OF THE APPROVED EROSION CONTROL PLAN MUST BE ON FILE AT THE JOB SITE AT ALL TIMES.
3. FAILURE TO FOLLOW THE APPROVED PLAN SEQUENCE AND DETAILS COULD SUBJECT THE CONTRACTOR TO FINES AND PENALTIES ISSUED BY THE DWQ.
4. FIELD VERIFY ALL DIMENSIONS AND GRADES ON THESE PLANS PRIOR TO CONSTRUCTION. FAILURE TO NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH PLAN OR GRADE CHANGES, MAY RESULT IN NO EXTRA COMPENSATION PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY.
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PHASE II EROSION CONTROL CONSTRUCTION SEQUENCE:

1. MAINTAIN ALL EXISTING EROSION CONTROL FEATURES PREVIOUSLY CONSTRUCTED AND ASSOCIATED WITH PHASE I EROSION CONTROL.
2. MAINTAIN EXISTING SKIMMER BASIN PER PLANS. CONTINUE BRINGING SITE TO ROUGH GRADE.
3. GRADING SHALL BE PERFORMED UNDER THE DIRECTION OF THE OWNERS GEOTECHNICAL ENGINEER. BRING SITE UP TO GRADE AND CONTINUE GRADING OF BUILDING PAD.
4. BEGIN UTILITY AND REMAINING STORM DRAINAGE INSTALLATION AS SHOWN ON DRAWINGS. AS STORM DRAINAGE PIPING AND CULVERTS ARE INSTALLED, CONSTRUCT HARDWARE CLOTH AND GRAVEL INLET PROTECTION AND ROCK PIPE INLET PROTECTION AS SHOWN AT ALL STORM INLETS.
5. STABILIZE SITE WITH TEMPORARY GROUNDCOVER AS AREAS ARE BROUGHT UP TO TEMPORARY FINISHED GRADE. DENUDED AREAS MUST BE SEEDED WITHIN FOURTEEN (14) DAYS OF COMPLETION OF ANY PHASE OF CONSTRUCTION FOR FLAT AREAS AND SEVEN (7) DAYS ON ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL.
6. SLOPE 3:1 AND GREATER SHALL BE HYDROSEEDED UNLESS OTHERWISE STABILIZED WITH EROSION CONTROL MATTING.
7. MAINTAIN EXISTING EROSION CONTROL FEATURES AND BEGIN PHASE III.

NPDES GROUND STABILIZATION:

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EROSION CONTROL PHASE II
LIMITS OF DISTURBANCE: 5.85 AC

SCALE 1"=30'
0 30' 60'

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Project No.
56398

Date:
03/29/2024
Drawn by:
J GLAS
Checked by:
W ALTMAN
Revisions:

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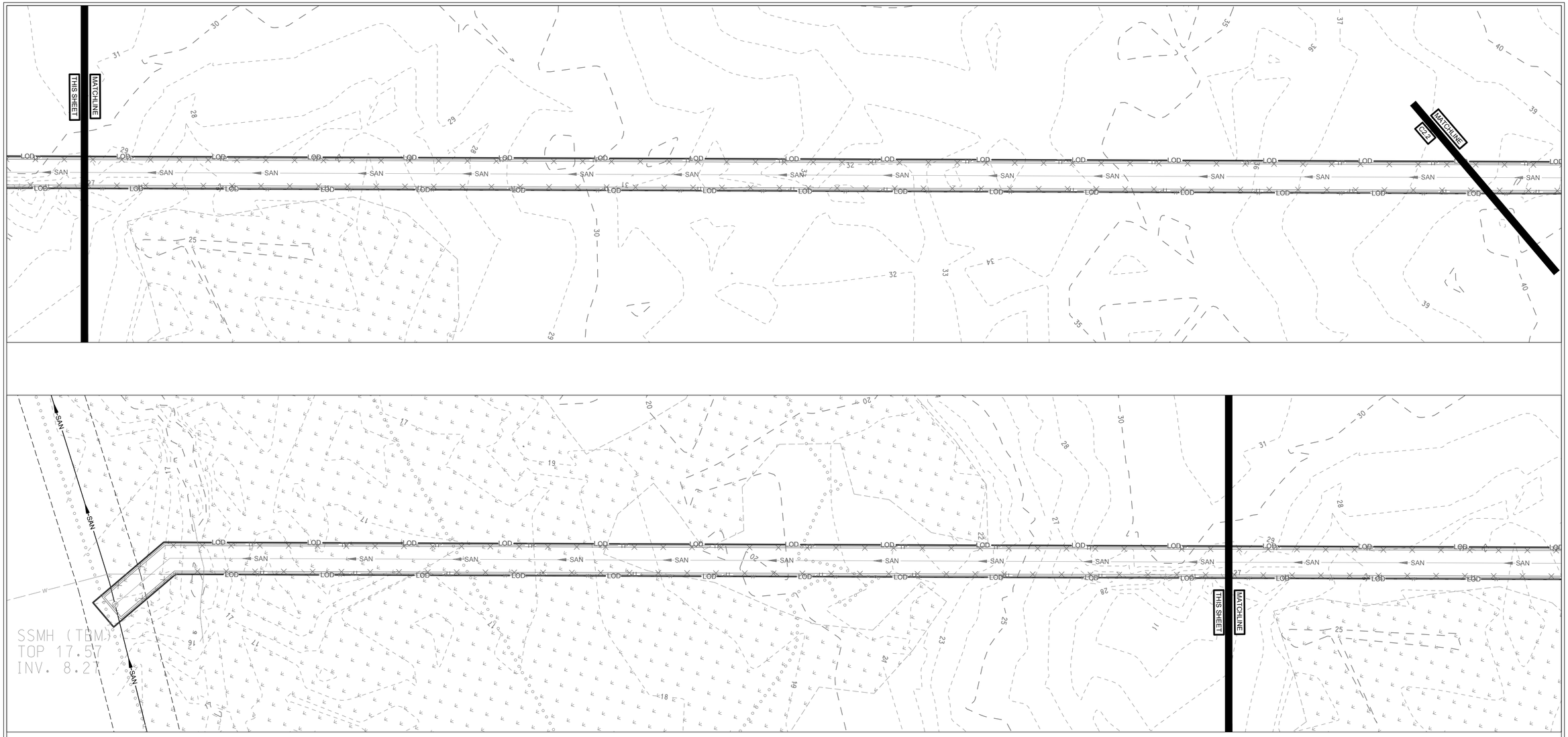
NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

EC PHASE 2

Sheet No.
C2.2



EROSION CONTROL LEGEND

- TEMPORARY CONSTRUCTION ENTRANCE
- SILT FENCE
- DC — DUST CONTROL
- LOD — LIMIT OF DISTURBANCE
- TEMPORARY DIVERSION
- STAGING AREA
- TP — TREE PROTECTION
- SILT FENCE OUTLET
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PHASE II EROSION CONTROL CONSTRUCTION SEQUENCE:

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EROSION CONTROL PHASE II
LIMITS OF DISTURBANCE: 5.85 AC

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NAD 83

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Project No.
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Date:
03/29/2024
Drawn by:
J GLAS
Checked by:
W ALTMAN
Revisions:

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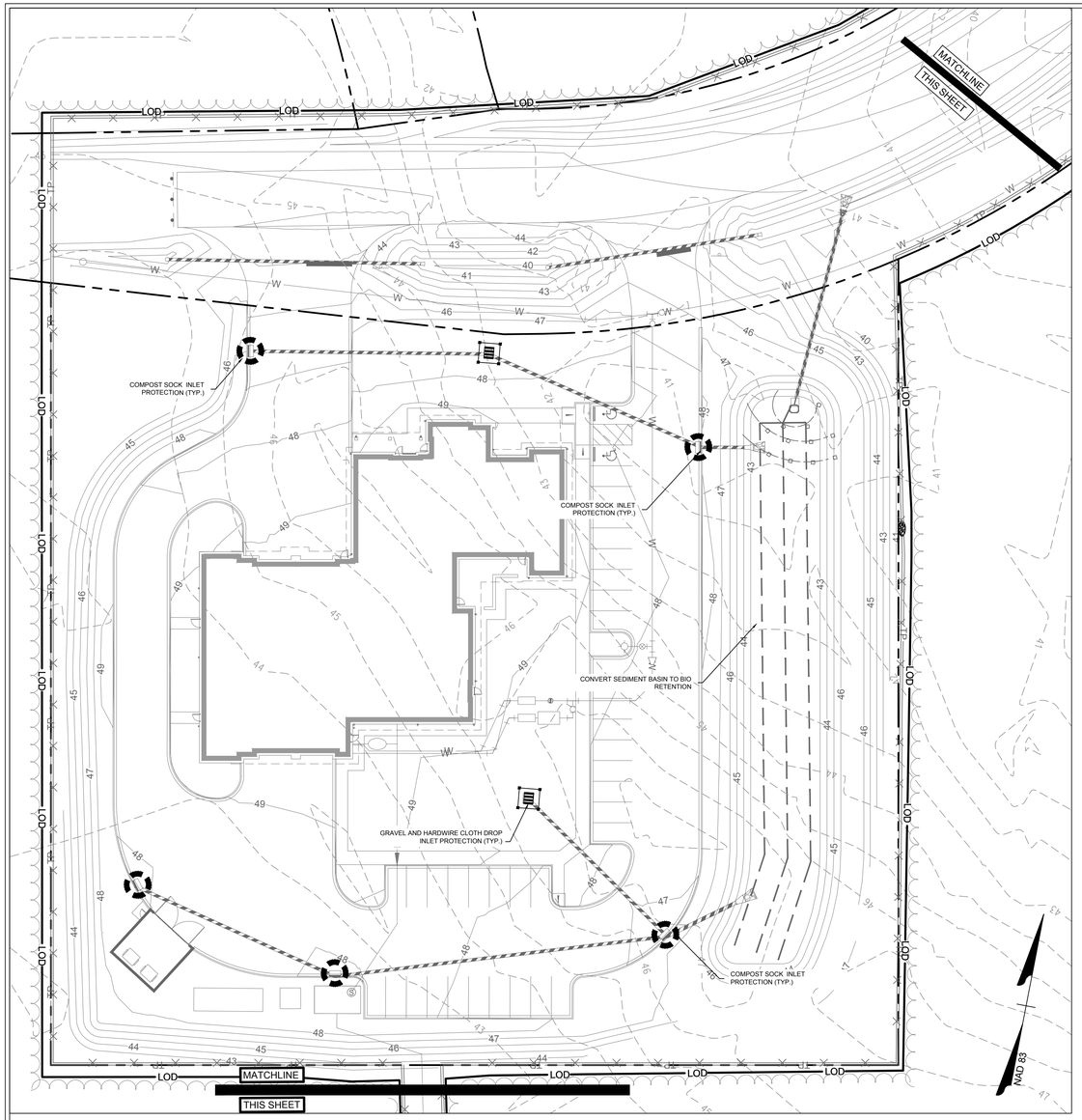
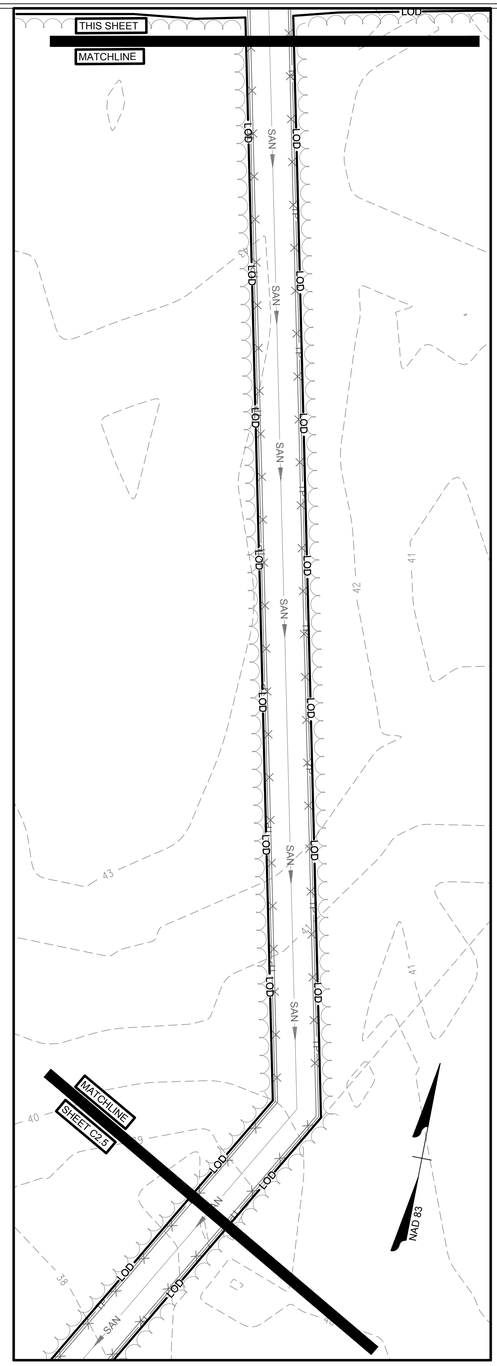
NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

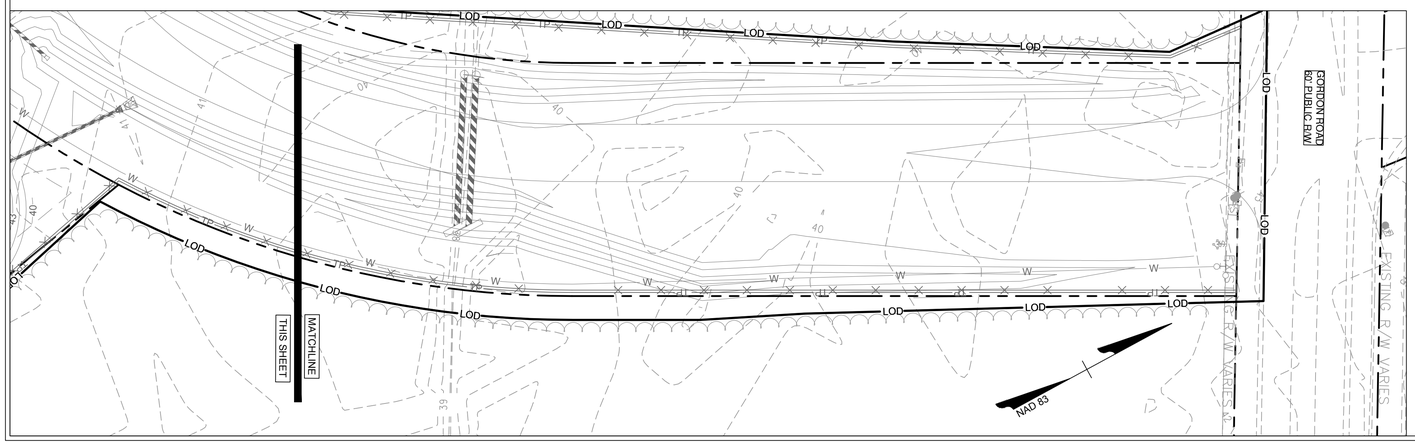
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

EC PHASE 2

Sheet No.
C2.3







EROSION CONTROL LEGEND

- TEMPORARY CONSTRUCTION ENTRANCE
- SLOPE MATTING REQUIRED SOIL STABILIZATION WITHIN 7 DAYS
- SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- TEMPORARY DIVERSION
- STAGING AREA
- TP — TREE PROTECTION
- SILT FENCE OUTLET
- CHANNEL LINING
- DC — DUST CONTROL
- HARDWARE CLOTH & GRAVEL INLET PROTECTION
- EXCAVATED INLET PROTECTION
- COMPOST SOCK INLET PROTECTION
- CONCRETE WASHOUT AREA

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. ALL CONSTRUCTION SHALL COMPLY WITH NCDENR STANDARDS AND SPECIFICATIONS.
2. A COPY OF THE APPROVED EROSION CONTROL PLAN MUST BE ON FILE AT THE JOB SITE AT ALL TIMES.
3. FAILURE TO FOLLOW THE APPROVED PLAN SEQUENCE AND DETAILS COULD SUBJECT THE CONTRACTOR TO FINES AND PENALTIES ISSUED BY THE DWQ.
4. FIELD VERIFY ALL DIMENSIONS AND GRADES ON THESE PLANS PRIOR TO CONSTRUCTION. FAILURE TO NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH PLAN OR GRADE CHANGES, MAY RESULT IN NO EXTRA COMPENSATION PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY.
5. EXCAVATION AND EARTH MOVING OPERATIONS SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.
6. VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. EXISTING UTILITIES SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND FROM A SURVEY OF ABOVE GROUND FEATURES. NO WARRANTY IS GIVEN OR IMPLIED AS TO THE ACCURACY OF THE INFORMATION. ALL EXISTING UTILITIES SHOULD BE CONSIDERED APPROXIMATE IN LOCATION AND VERIFIED PRIOR TO COMMENCING ACTIVITY ON SITE.
7. ALL ADJACENT ROADS TO THE SITE ARE TO BE SWEPT AND WASHED AT THE END OF EACH WORK DAY TO ENSURE NO SEDIMENT COLLECTS ON THE ROADWAYS.
8. INSPECT AND PROPERLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER EVERY RAINFALL EVENT.
9. INSTALL ANY ADDITIONAL EROSION CONTROL MEASURES AS NECESSARY TO PREVENT SEDIMENT RUNOFF.
10. PROVIDE NCDENR-DWQ WITH THE LOCATION OF OFFSITE STOCKPILES USED TO STORE EXCAVATED SOIL FROM THE SITE. THE LOCATION OF OFFSITE STOCKPILES MUST BE AN UPLAND AREA. IF AN OFFSITE BORROW OR SPOIL SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE BORROW/SPOIL SITE MUST BE INCLUDED IN THE LAND DISTURBANCE PERMIT. THE CONTRACTOR WILL PROVIDE THE LOCATION OF ALL EXCAVATED SOILS USED FOR THIS PROJECT TO NCDENR-DWQ. THIS AREA MUST ALSO BE AN UPLAND AREA.

PHASE III EROSION CONTROL CONSTRUCTION SEQUENCE:

1. AS BUILDING CONSTRUCTION PROGRESSES, BEGIN FINAL GRADING OPERATIONS FOR THE NEW PARKING LOTS AND ASSOCIATED ACCESS DRIVES AND INFRASTRUCTURE.
2. FINE GRADE PARKING AREAS AND INSTALL CURB AND GUTTER AND CRUSHED STONE SUBGRADE.
3. FINISH FINE GRADING OF SITE AND COMPLETE UTILITY INSTALLATION. INSTALL ASPHALT IN THE PARKING LOTS. ADJUST HARDWARE CLOTH AND GRAVEL INLET PROTECTION ON STORM INLETS AS THEY ARE BROUGHT UP TO FINAL GRADE. UTILIZE COMPOST SOCK IN IMPERVIOUS AREAS AS NEEDED.
4. STABILIZE ALL DISTURBED SOILS ON SITE PER THE PERMANENT SEEDING SPECIFICATION.
5. ONCE SITE IS PAVED AND STABILIZED, BEGIN CONVERSION OF SKIMMER BASIN 1 TO FINAL SCM CONDITIONS. REFER TO CONVERSION SEQUENCE ON SCM DETAILS SHEET.
6. ONCE NCDENR INSPECTORS HAVE GIVEN FINAL INSPECTION AND APPROVAL, REMOVE REMAINING EROSION CONTROL FEATURES. REMOVE SILT FENCE, TEMPORARY CONSTRUCTION ENTRANCES, AND OTHER MEASURES. ENSURE PERMANENT STABILIZATION PER THE SEEDING SPECIFICATION.

NPDES GROUND STABILIZATION:

SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:

1. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
2. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.

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EROSION CONTROL PHASE III
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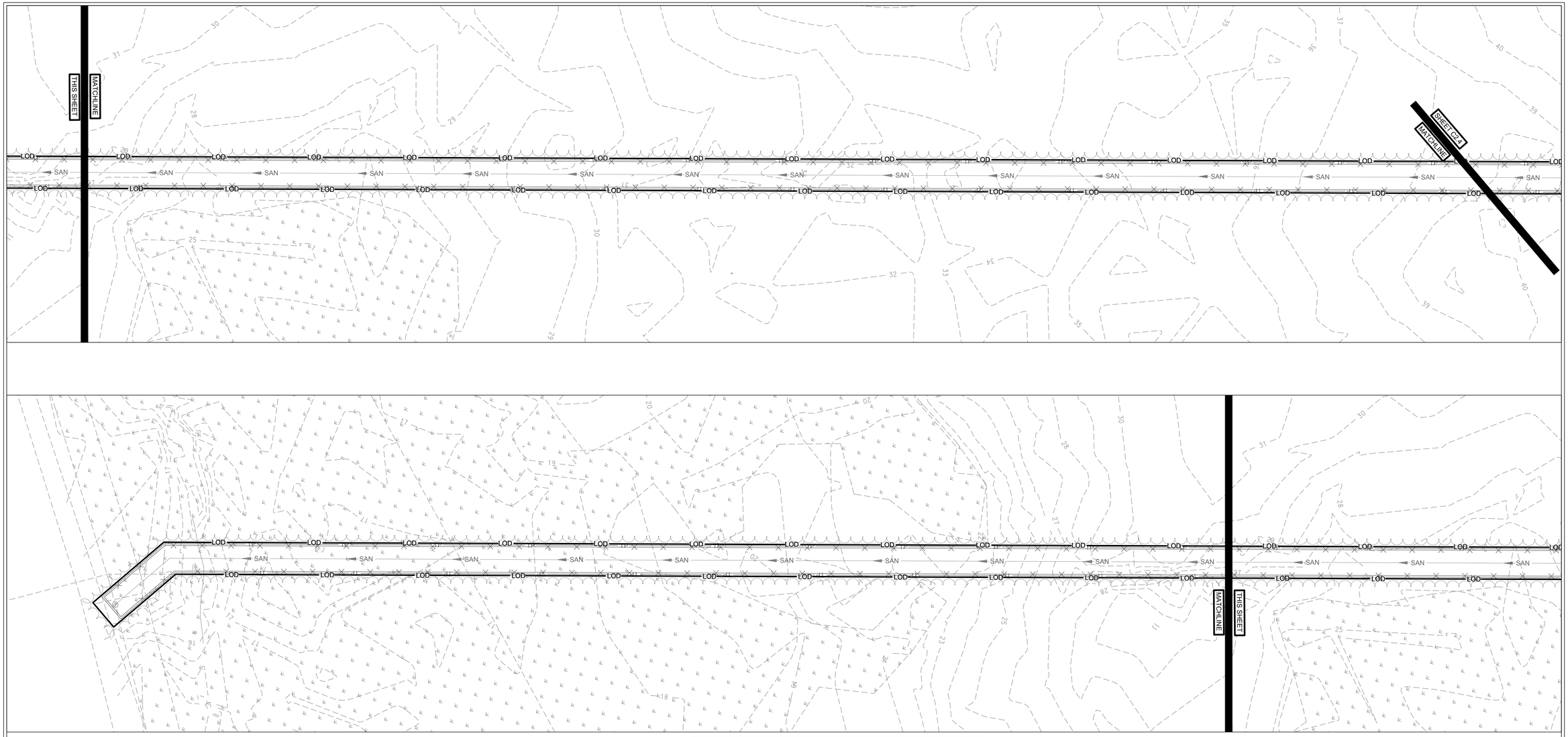
NEW HANOVER COUNTY FIRE DEPARTMENT

EC PHASE 3

Sheet No.
C2.4



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EROSION CONTROL PHASE III
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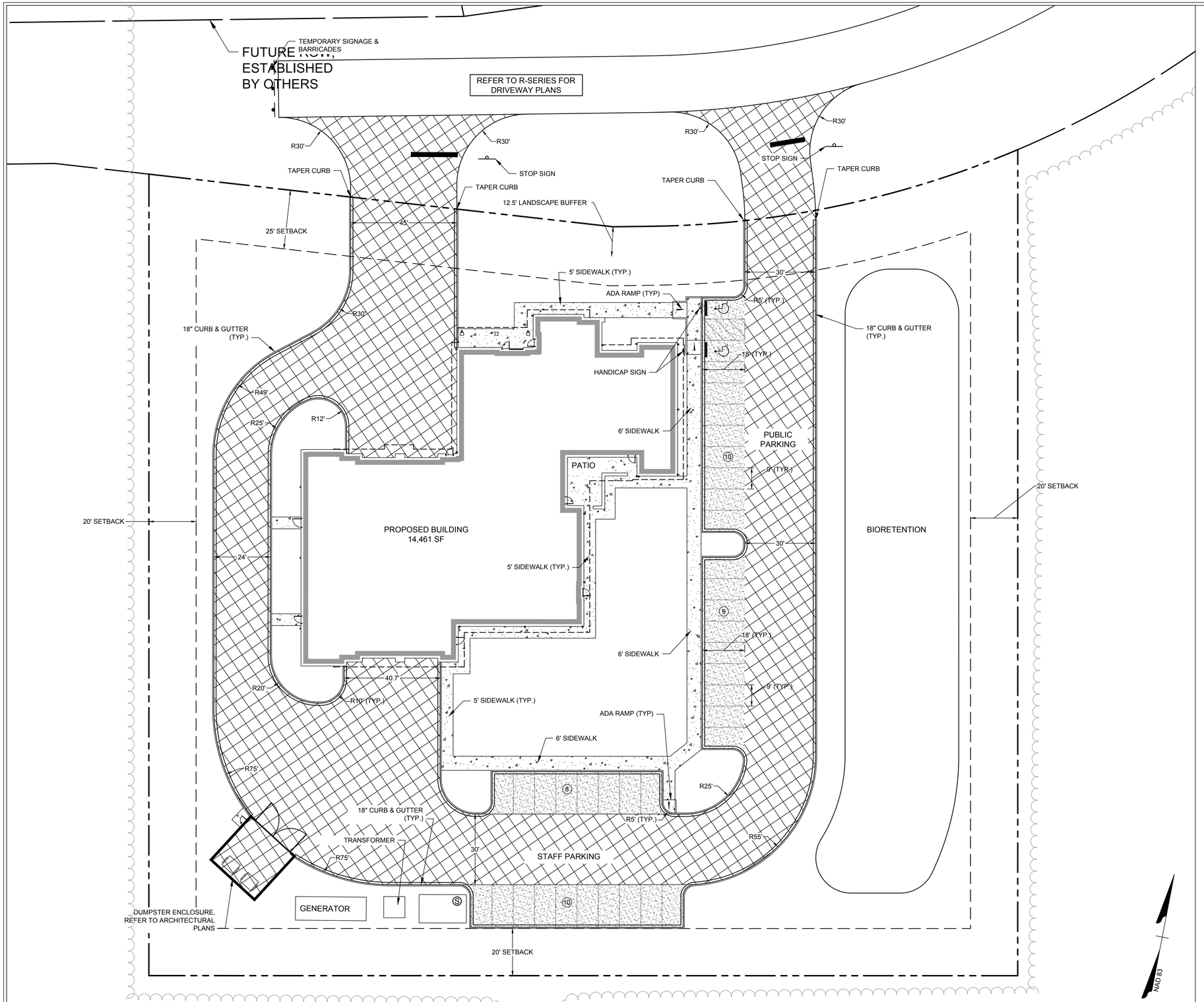

SITE LAYOUT NOTES

1. ALL CONSTRUCTION WILL BE TO NEW HANOVER COUNTY OR NCDOT STANDARDS, SPECIFICATIONS, AND DETAILS.
2. ALL DRIVEWAYS MUST BE INSTALLED TO THE MINIMUM NEW HANOVER COUNTY OR NCDOT STANDARDS.
3. ALL PROPOSED BUILDINGS, VEHICULAR AREAS, PEDESTRIAN AREAS, SIGNAGE AND LANDSCAPING WILL MEET COUNTY ARCHITECTURAL AND SITE DESIGN REQUIREMENTS, AS WELL AS THE DESIGN GUIDELINES THAT ACCOMPANY THE MASTER PLAN. WHERE THESE ARE NOT MET, WAIVERS WILL BE SUBMITTED FOR APPROVAL AT TIME OF THE DEVELOPMENT PLAN.
4. WHERE SIDEWALK IS PROPOSED AT THE BACK OF CURB SIDEWALK SHALL BE A MINIMUM OF 5' WIDE.
5. DOUBLE WHEELCHAIR RAMPS ARE TO BE INSTALLED AT ALL PUBLIC STREET INTERSECTIONS WHERE SIDEWALK IS REQUIRED. WHEN SIDEWALK IS NOT REQUIRED, CURB IS TO BE DEPRESSED AT ALL RAMP LOCATIONS.
6. ALL STREETS SHOWN ON THESE PLANS SHALL HAVE THE FULL WIDTH OF RIGHT-OF-WAY CLEARED AND GRUBBED WITHIN 50' OF ALL STREET INTERSECTIONS.
7. NO SIGHT OBSTRUCTING OR PARTIALLY OBSTRUCTING WALL, FENCE, FOLIAGE, BERM, SIGN, PARKED VEHICLE, OR OTHER OBJECTS BETWEEN THE HEIGHTS OF TWO FEET AND EIGHT FEET ABOVE THE CURB LINE ELEVATION (OR THE EDGE OF PAVEMENT IF NO CURB EXISTS) SHALL BE PLACED WITHIN SIGHT DISTANCE TRIANGLE.
8. LOCATION OF STREET TREES & STREET LIGHTING MUST BE FIELD COORDINATED TO ELIMINATE CONFLICT

SITE DATA TABLE

PID:	R04300-008-002-000
TOTAL SITE AREA:	2.77 AC
DISTURBED AREA	5.85 AC
ZONING:	R-15 RESIDENTIAL DISTRICT
WATERSHED:	SMITH CREEK
RIVER BASIN	CAPE FEAR
PROPOSED IMPERVIOUS	ONSITE: 1.22 AC DRIVEWAY TO SITE: 0.58 AC
MAXIMUM BUILDING HEIGHT:	40'
PROPOSED BUILDING HEIGHT	39' 11"
MINIMUM BUILDING SETBACK	FRONT: 25' SIDE (STREET): 15' SIDE (INTERIOR): 10' REAR: 20'
PROVIDED BUILDING SETBACK	FRONT: 25' SIDE: 20' REAR: 20'
MINIMUM LANDSCAPE BUFFERS	10'
TOTAL BUILDING FOOTPRINT AREA	14,461 SQFT
PARKING REQUIREMENTS	
TOTAL REQUIRED PARKING	2.5 SPACES / 1,000 SF (2.5 SPACES * 14,461 SF) / 1,000 SF = 37 SPACES
TOTAL PARKING SPACES PROVIDED	37 PARKING SPACES
REQUIRED ADA PARKING	2 SPACES
ADA SPACES PROVIDED	2 SPACES

SCALE 1"=20'
0 20' 40'

HATCHING LEGEND

- LIGHT DUTY ASPHALT
- HEAVY DUTY CONCRETE
- CONCRETE SIDEWALK
- HEAVY DUTY ASPHALT

GENERAL NOTE

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W ALTMAN
Revisions:

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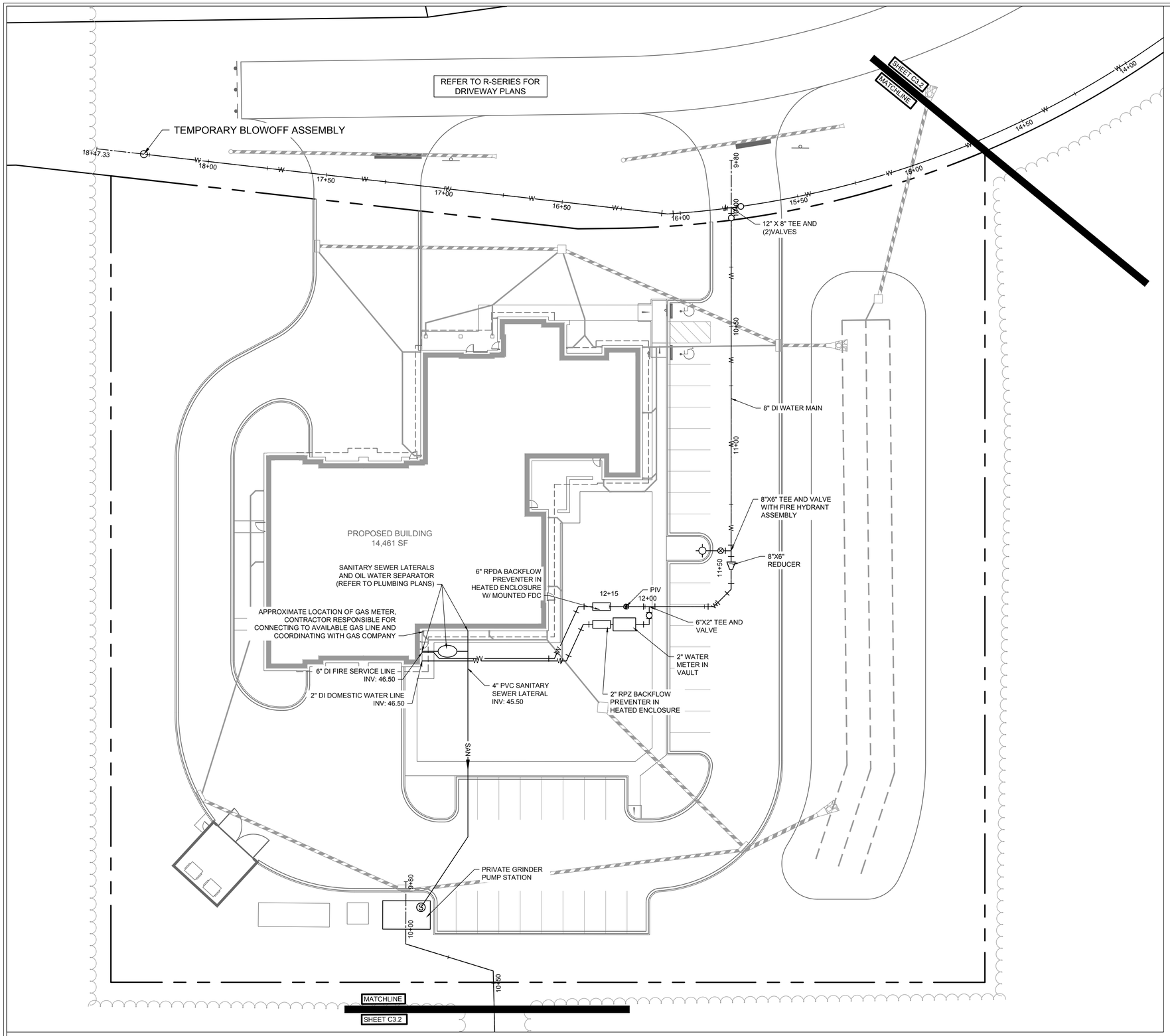
NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

SITE PLAN

Sheet No.
C3.0



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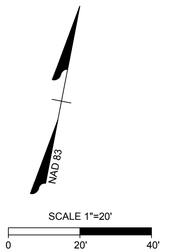

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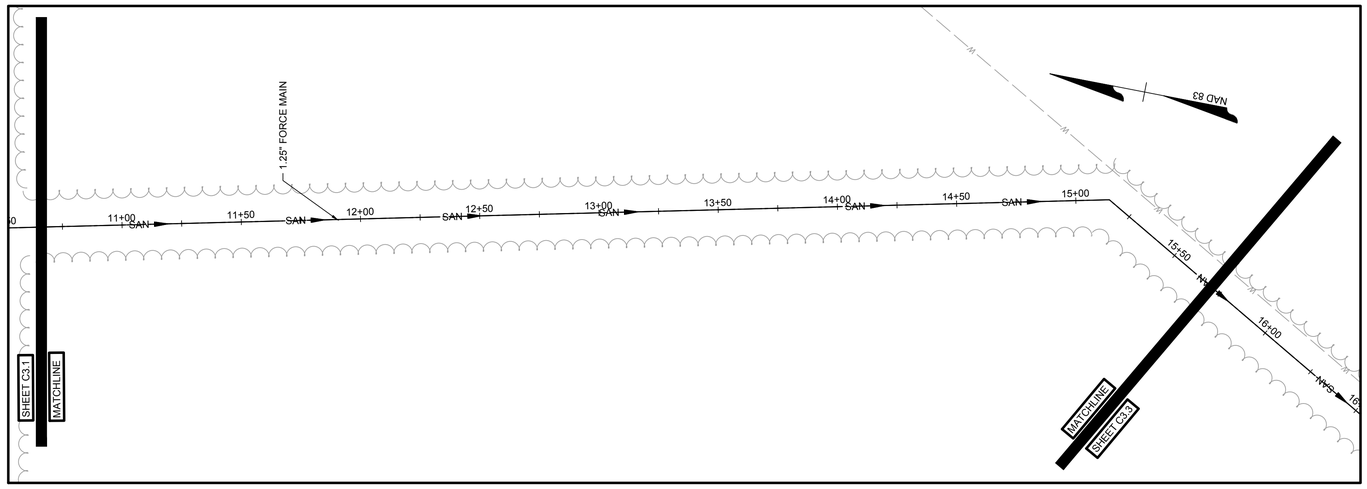
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

UTILITY PLAN

Sheet No.
C3.1



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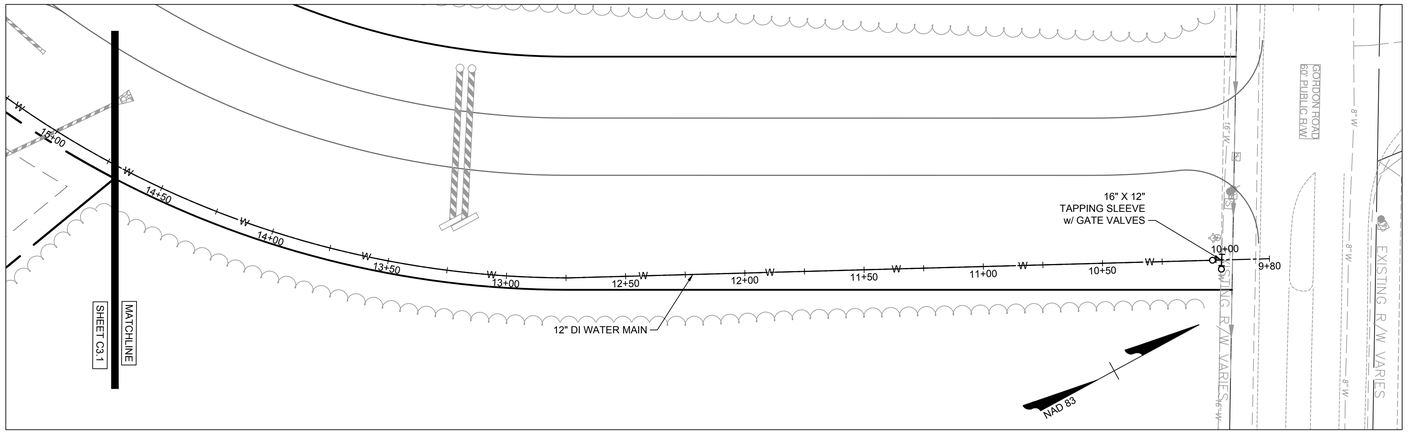

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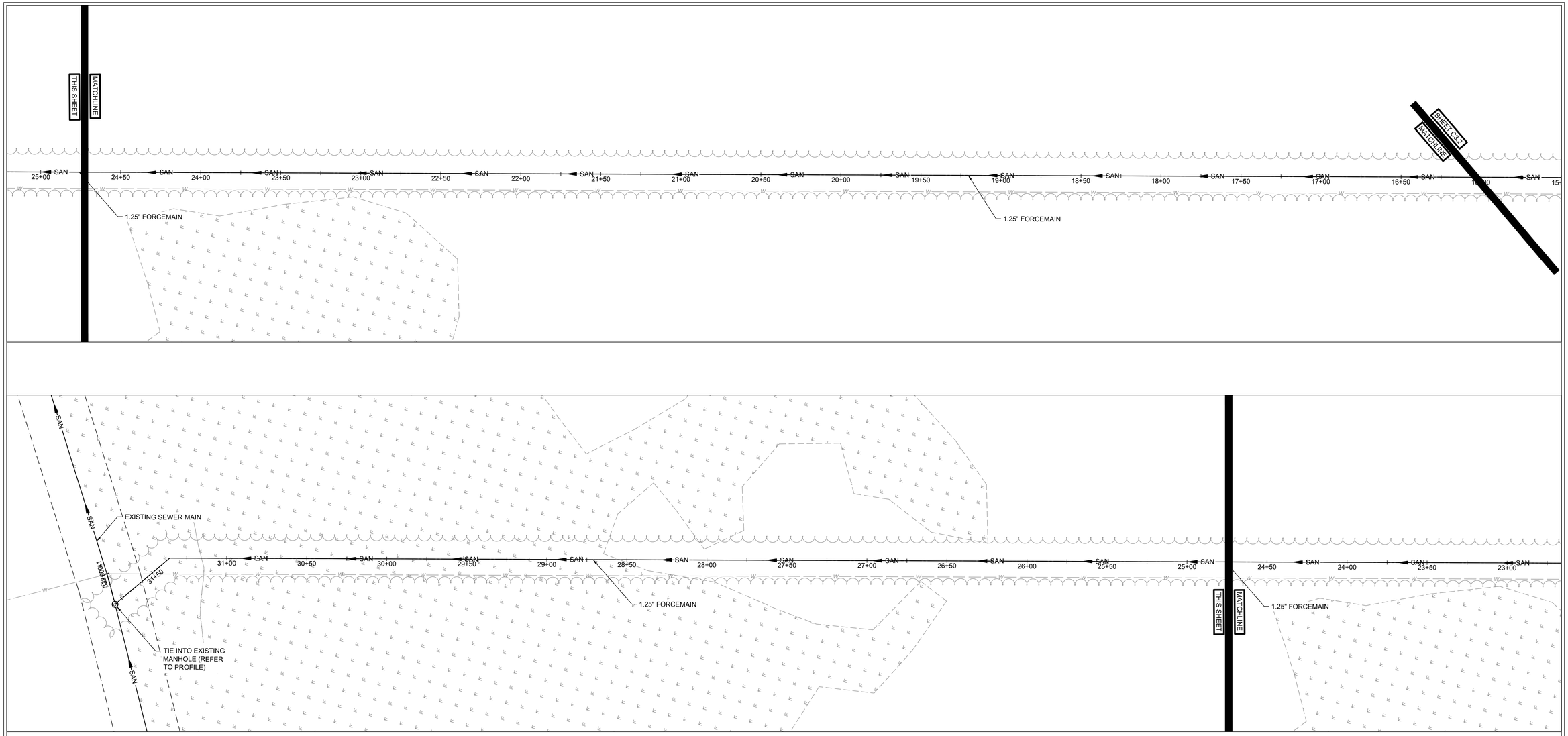
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

UTILITY PLAN

Sheet No.
C3.2



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NAD 83

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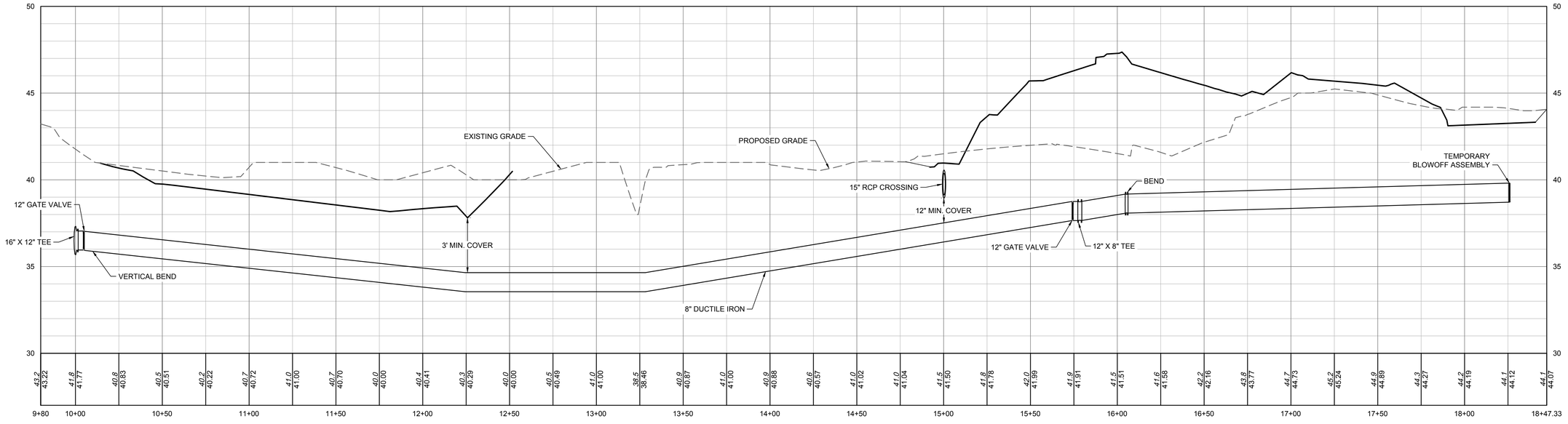
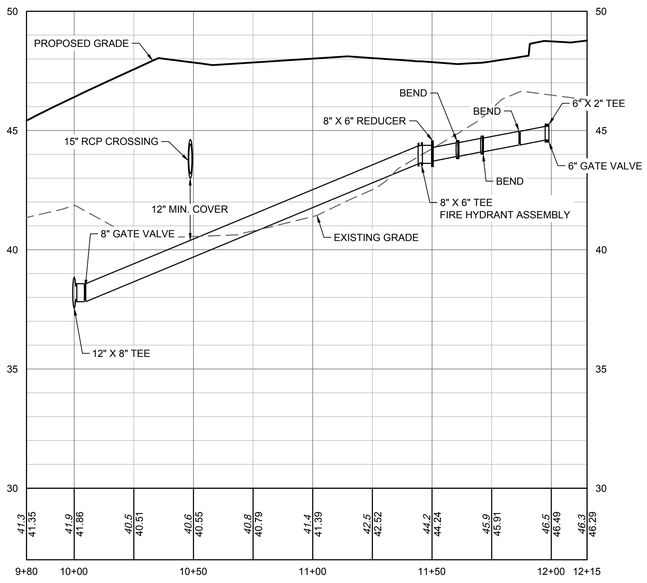
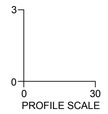
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

UTILITY PLAN

Sheet No.
C3.3







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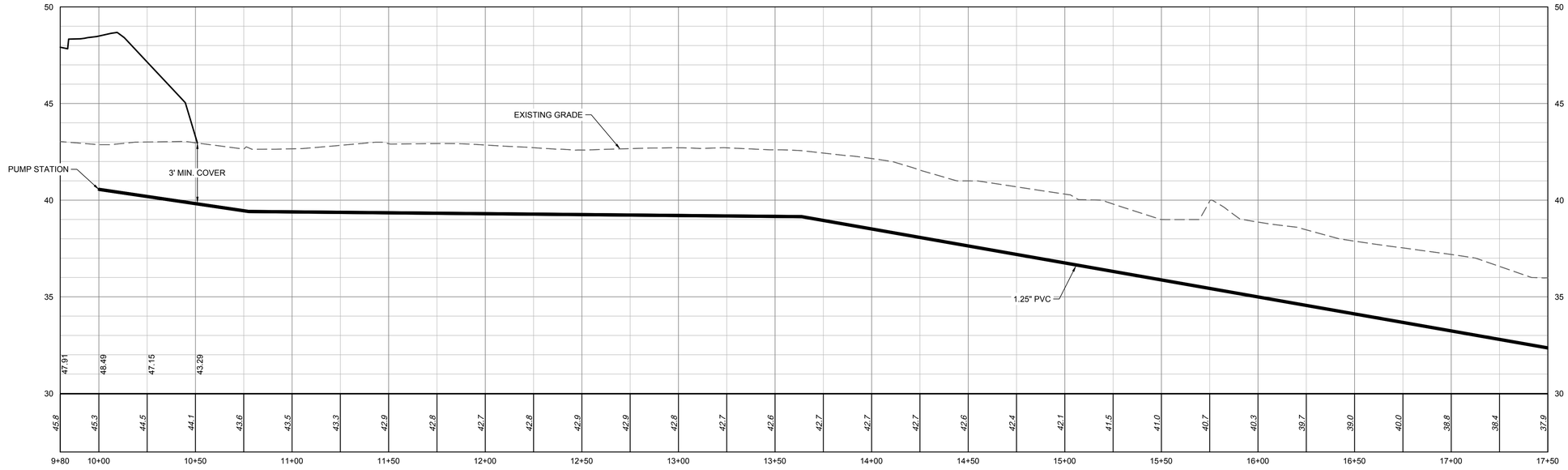

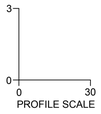

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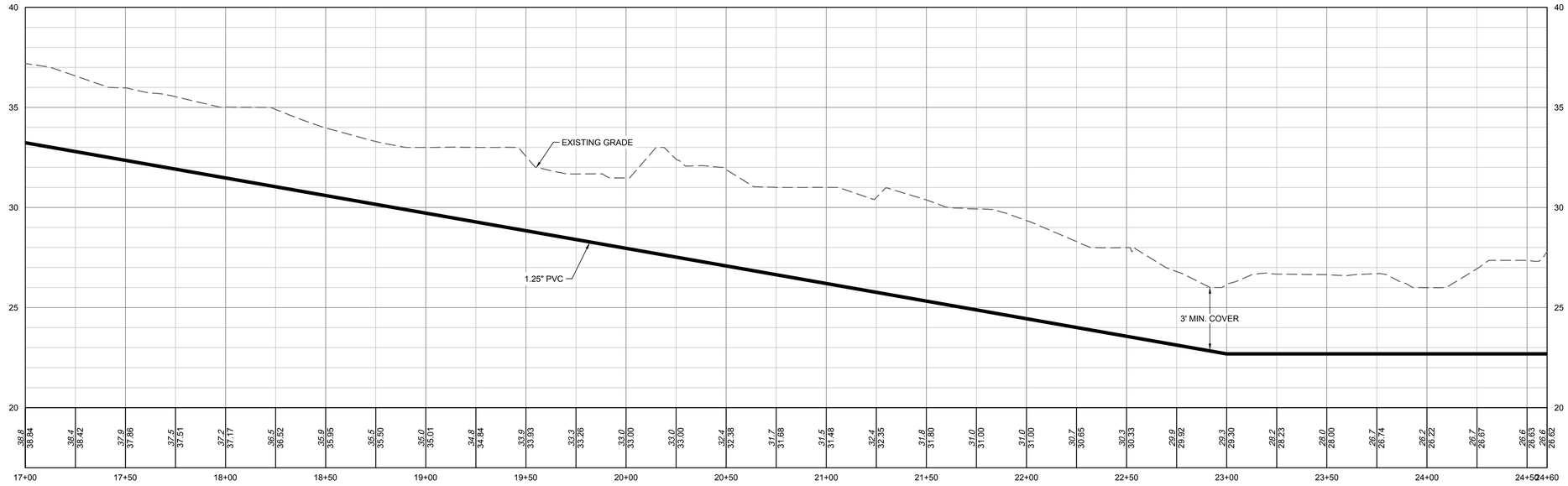
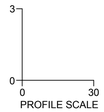
NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

UTILITY PROFILES

Sheet No.
C3.5





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Project No.
56398

Date:
03/29/2024
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Checked by:
W ALTMAN
Revisions:

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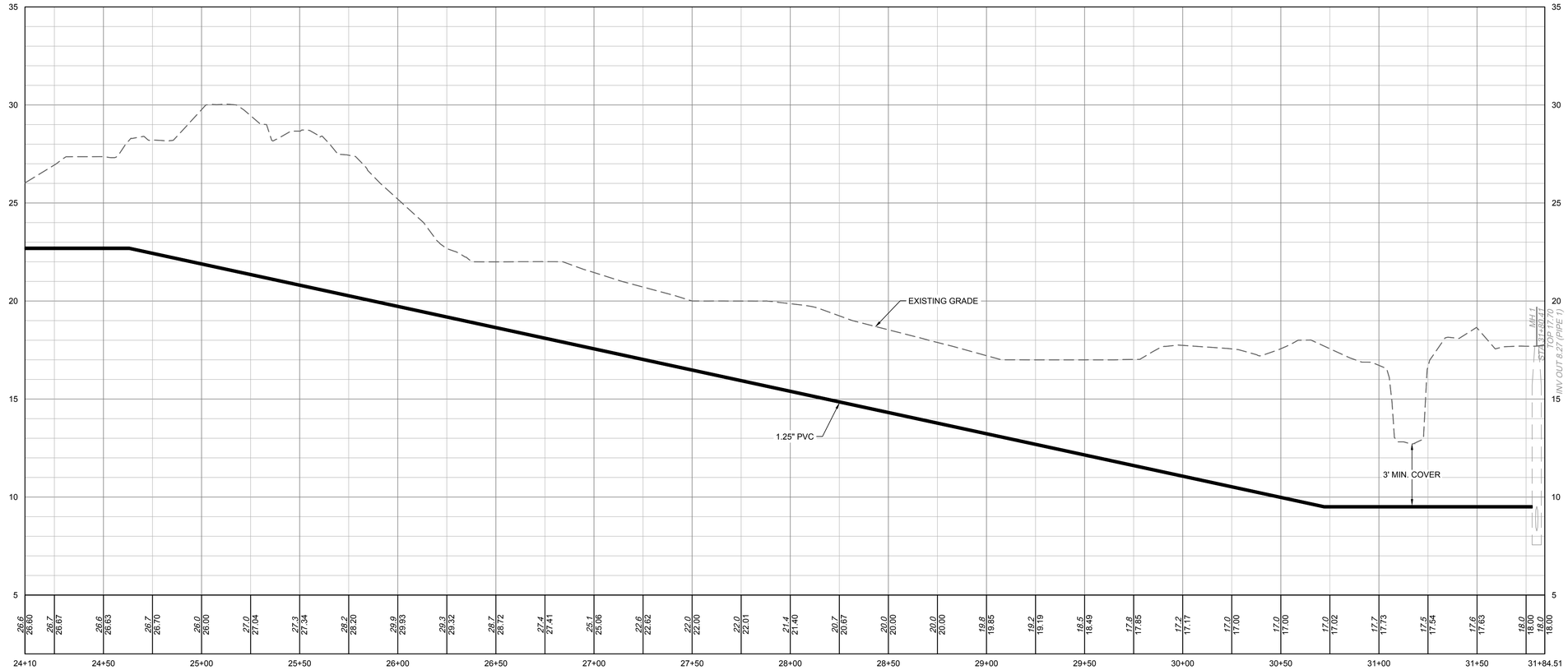
UTILITY PROFILES

Sheet No.
C3.6



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PROFILE SCALE

GENERAL NOTE

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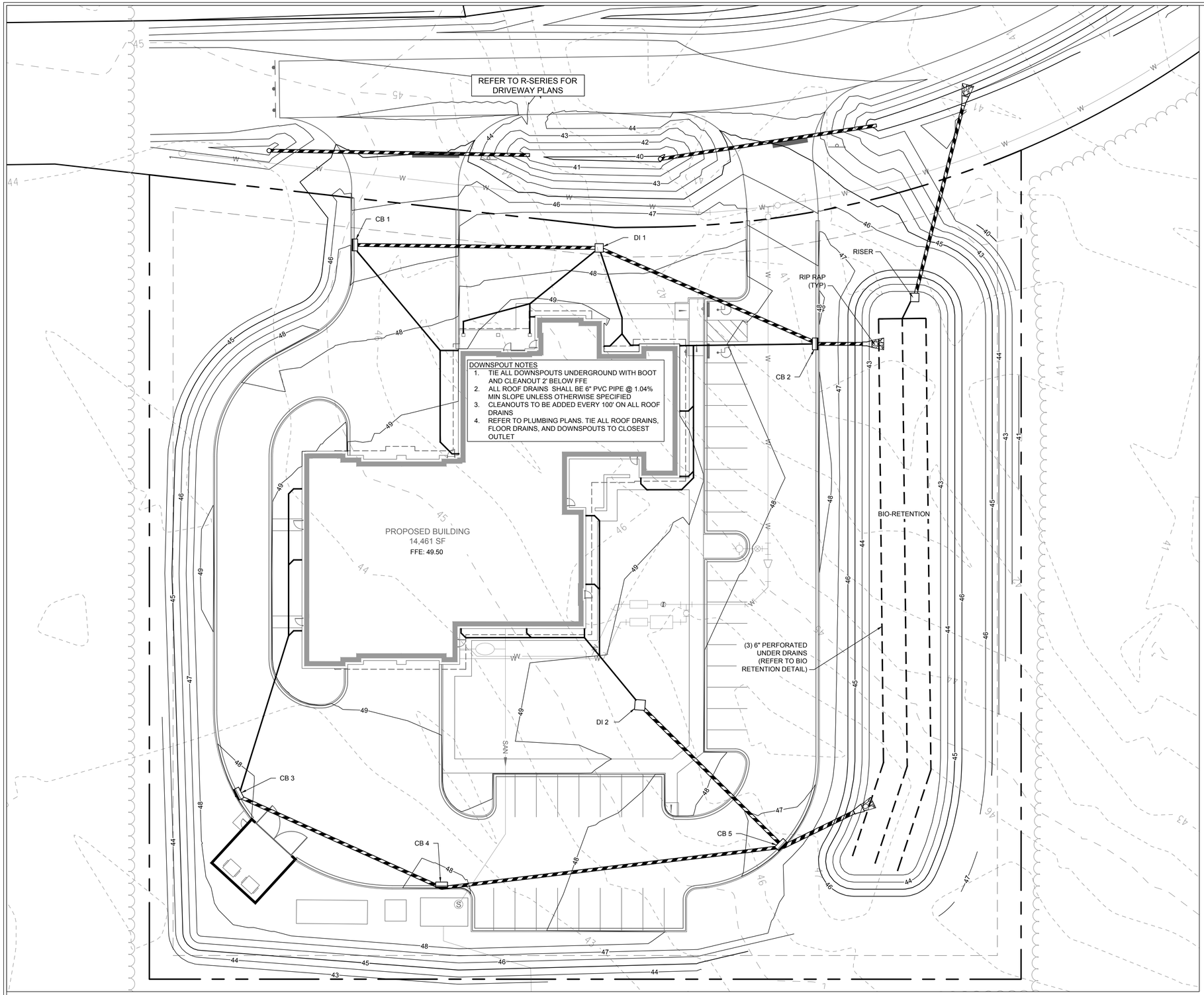
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

UTILITY PROFILES

Sheet No.
C3.7



GRADING AND STORM DRAINAGE NOTES

1. CONTRACTOR SHALL CALL "NORTH CAROLINA ONE CALL" (811) AT LEAST 3-12 BUSINESS DAYS PRIOR TO DIGGING TO HAVE EXISTING UTILITIES LOCATED. REPORT ANY DISCREPANCIES TO THE ENGINEER.
2. CONTRACTOR TO COORDINATE ACTIVITIES WITH UTILITY COMPANIES INVOLVED IN ANY RELATED RELOCATION (I.E. POWER POLES, TELEPHONE PEDESTALS, WATER METERS, ETC.).
3. EXISTING UTILITIES SHOWN ARE BASED ON FIELD SURVEYS AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE PLANS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
4. THE CATCH BASINS AND YARD INLETS SHALL BE CONSTRUCTED IN THE LOCATIONS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR REPORTING ANY DISCREPANCIES IN THE CATCH BASIN ELEVATIONS OR THE PROPOSED PIPE SLOPES TO THE ENGINEER. THE CONTRACTOR IS ALSO RESPONSIBLE TO REPORT ANY CONFLICTS BETWEEN ANY UTILITY, STORM DRAIN LINE, WATER LINE, SEWER LINE OR ANY OTHER PROPOSED OR EXISTING STRUCTURE TO THE ENGINEER.
5. A LAND DISTURBING PERMIT WILL BE REQUIRED PRIOR TO THE COMMENCEMENT OF ANY LAND-DISTURBING ACTIVITIES.
6. ALL EXISTING VAULTS, MANHOLES, STORM DRAIN STRUCTURES, VALVE BOXES, CLEANOUTS, ETC. SHALL BE ADJUSTED AS NEEDED TO MATCH FINISHED GRADE.
7. ALL BACKFILL, COMPACTION, SOILS TESTING, ETC. SHALL BE PERFORMED BY THE OWNER'S INDEPENDENT TESTING LABORATORY.
8. ALL SPOT ELEVATIONS INDICATED ARE AT TOP OF CURB UNLESS NOTED OTHERWISE. ALL ELEVATIONS ARE BASED ON VERTICAL DATUM NAVD88.
9. A PRE-CONSTRUCTION MEETING MUST BE SCHEDULED PRIOR TO ANY WORK, GRADING OR INSTALLATION OF EROSION CONTROL MEASURES.
10. ALL HANDICAP PARKING SPACES AND STRIPED ACCESSIBILITY AISLES ARE TO HAVE NO MORE THAN A 1:50 (2.0%) SLOPE IN ALL DIRECTIONS. ALL SIDEWALKS ARE TO HAVE NO MORE THAN A 1:20 (5.0%) SLOPE FOR THE LENGTH OF THE SIDEWALK AND NO MORE THAN A 1:50 (2.0%) SLOPE FOR THE WIDTH OF THE SIDEWALK.
11. CONTRACTOR TO IDENTIFY ALL NECESSARY SPILL CURB SECTION LOCATIONS AND INSTALL TO ENSURE POSITIVE DRAINAGE TO STORM STRUCTURES.
12. IF CONTRACTOR NOTICES ANY DISCREPANCIES IN ANY OF THESE SLOPE REQUIREMENTS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNER PRIOR TO POURING ANY CONCRETE SO THAT A SOLUTION CAN BE FOUND.
13. SPOT ELEVATIONS ARE GIVEN AT THE MAJORITY OF THE MAJOR BREAK POINTS BUT IT SHOULD NOT BE ASSUMED THAT ALL NECESSARY SPOT ELEVATIONS ARE SHOWN. DUE TO SPACE LIMITATIONS, THERE MAY BE OTHER CRITICAL SPOTS NOT LABELED THAT SHOULD BE TAKEN INTO CONSIDERATION. THE CONTRACTOR SHALL REVIEW THE GRADING PLAN IN DETAIL AND SHALL ENSURE THAT ALL CRITICAL GRADE POINTS ARE STAKED AND FOLLOWED TO PROVIDE POSITIVE DRAINAGE.
14. EXISTING VEGETATION WITHIN TREE PROTECTIVE AREAS SHALL REMAIN UNDISTURBED UNLESS NOTED OTHERWISE. ANY AND ALL LANDSCAPING AND EXISTING TREES AND SHRUBS TO REMAIN WHICH ARE DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR USING A LICENSED LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
15. THE GRADING CONTRACTOR SHALL COMPLY WITH ALL STATE CODES IN OBSERVING EROSION CONTROL MEASURES BOTH ON AND OFF-SITE. THE GRADING CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES AFTER EACH RAINFALL EVENT OR AS DIRECTED BY THE EROSION CONTROL INSPECTOR OR THE ENGINEER.
16. THE GRADING CONTRACTOR SHALL BE RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL CLEARING AND GRADING WASTE MATERIALS GENERATED DURING CONSTRUCTION AND FOR OBTAINING ALL APPLICABLE PERMITS FOR OFF-SITE STOCKPILES AND/OR WASTE AREAS.
17. ALL CATCH BASINS MUST BE MARKED "DUMP NO WASTE DRAINS TO STREAM" OR EQUIVALENT.

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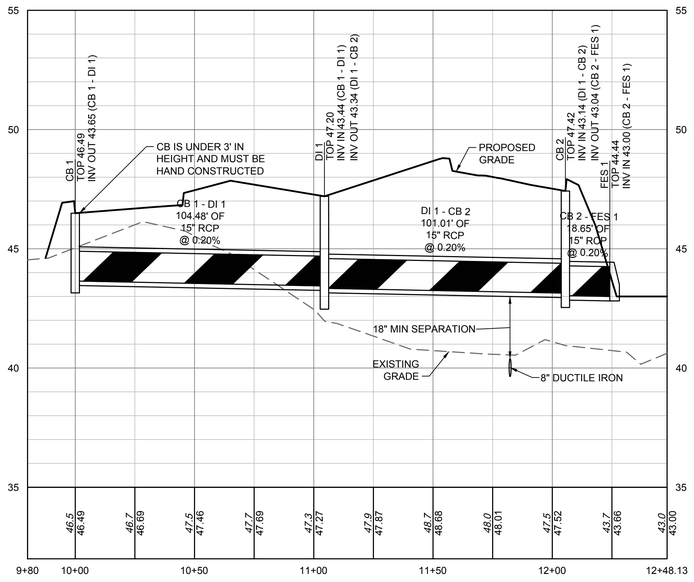
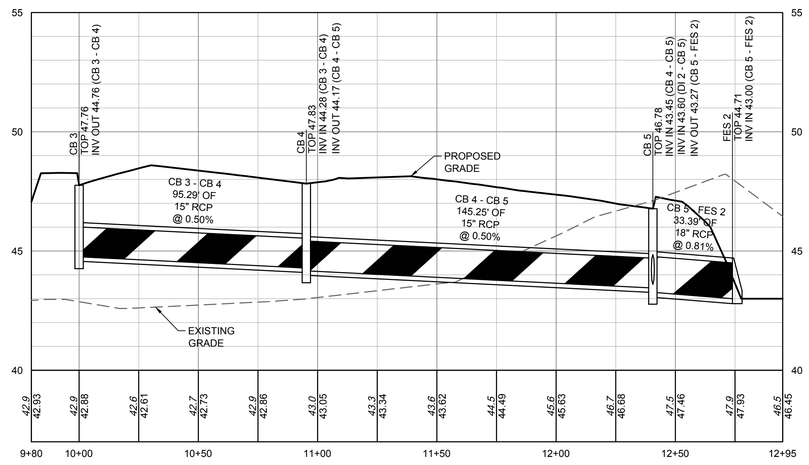
GRADING PLAN

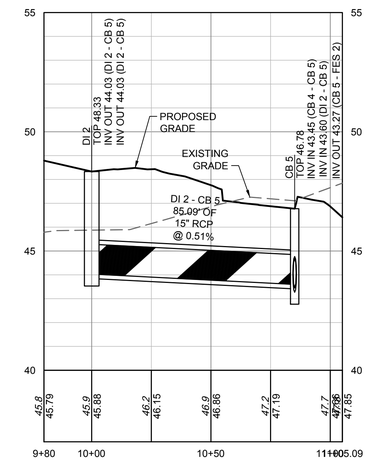
Sheet No.
C4.0



STORMWATER PROFILE
CB 1 - FES 1



STORMWATER PROFILE
CB 3 - FES 2



STORMWATER PROFILE
DI 2 - CB 5

STORM STRUCTURE TABLE

STRUCTURE #	TOP	STRUCTURE HEIGHT	DESCRIPTION
CB 1	46.49	2.84'	NCDOT 840.02 CONCRETE CATCH BASIN
CB 2	47.42	4.39'	NCDOT 840.02 CONCRETE CATCH BASIN
CB 3	47.76	3.00'	NCDOT 840.02 CONCRETE CATCH BASIN
CB 4	47.83	3.66'	NCDOT 840.02 CONCRETE CATCH BASIN
CB 5	46.78	3.51'	NCDOT 840.02 CONCRETE CATCH BASIN
DI 1	47.20	3.86'	NCDOT 840.02 CONCRETE CATCH BASIN
DI 2	48.33	4.30'	24 x 24 inch Rectangular Structure
FES 1	44.44		ES-1 for 15 inch Pipe
FES 2	44.71		NCDOT ES-1 for 18 inch Pipe

STORM PIPE TABLE

PIPE #	DIA	FROM - TO	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DESCRIPTION
CB 1 - DI 1	15"	CB 1 - DI 1	43.65	43.44	0.20%	104.48 LF	15 inch RCP
CB 2 - FES 1	15"	CB 2 - FES 1	43.04	43.00	0.20%	18.65 LF	15 inch RCP
CB 3 - CB 4	15"	CB 3 - CB 4	44.76	44.28	0.50%	95.29 LF	15 inch RCP
CB 4 - CB 5	15"	CB 4 - CB 5	44.17	43.45	0.50%	145.25 LF	15 inch RCP
CB 5 - FES 2	18"	CB 5 - FES 2	43.27	43.00	0.81%	33.39 LF	18 inch RCP
DI 1 - CB 2	15"	DI 1 - CB 2	43.34	43.14	0.20%	101.01 LF	15 inch RCP
DI 2 - CB 5	15"	DI 2 - CB 5	44.03	43.60	0.51%	85.09 LF	15 inch RCP

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GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

STRM PROFILES

Sheet No.
C4.1

BIORETENTION MEDIA SPECIFICATIONS:

THE MEDIA SHOULD BE A HOMOGENEOUS MIX OF THE FOLLOWING:

A. 75% - 85% MEDIUM TO COARSE WASHED SAND
B. 8% - 10% FINES (SILT & CLAY; CLAY CONTENT NOT TO EXCEED 8%)
C. 5% - 10% ORGANIC MATTER (SUCH AS PINE BARK FINES)
D. PHOSPHORUS INDEX NOT TO EXCEED 25
E. HYDRAULIC CONDUCTIVITY IS TO BE 1 INCH/HOUR

BIORETENTION MEDIA TO BE TOPPED WITH GRASS SOD. THE SOD MUST NOT BE GROWN IN SOIL WITH AN IMPERMEABLE (CLAY) LAYER.

UNDERDRAIN NOTES:

UNDERDRAIN SYSTEMS: OTHER TYPES OF UNDERDRAIN PIPE CAN BE UTILIZED AS LONG AS THE PIPE HAS AN EQUIVALENT OR GREATER AREA OF OPENINGS (0.884 IN²/FT). THE OPENINGS ARE SIZED SUFFICIENTLY TO PREVENT THE ADHERENCE OF MINERALS AND BACTERIA WHICH WILL RESTRICT FREE FLOW, AND THE STRUCTURAL INTEGRITY WILL HANDLE ALL ANTICIPATED LOADING CONDITIONS. FILTER FABRIC AND PIPE SOCKS ARE NOT ALLOWED ON UNDERDRAINS.

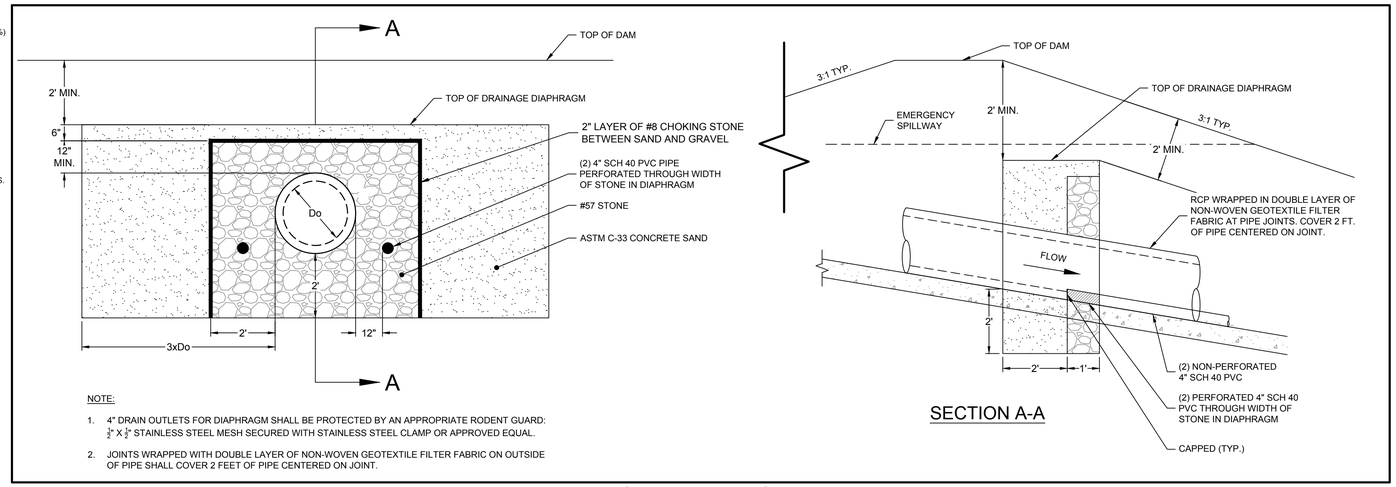
UNDERDRAIN PERFORATION PATTERN: A MINIMUM OF 4 ROWS OF PERORATIONS SHOULD BE PROVIDED AROUND THE DIAMETER OF THE PIPE, AND THE PERFORATIONS SHOULD BE 6 INCHES ON CENTER WITHIN EACH ROW FOR THE ENTIRE LENGTH OF PIPE. PERFORATIONS SHALL BE ⅜ INCH DIAMETER HOLES.

UNDERDRAIN PIPES: SMOOTH WALL SCH 40 OR SDR-35 PVC.

CLEANOUTS: NON-PERFORATED 6" PVC, WATER-TIGHT WITH GLUED JOINTS AND SCREW ON CAP ELEVATED 8" ABOVE SURFACE OF MEDIA.

CONSTRUCTION NOTES:

1. PRIOR TO PLACEMENT OF BIORETENTION STONE, SAND, AND MEDIA, ALL AREAS DRAINING TOWARD THE BIORETENTION SHALL BE PERMANENTLY STABILIZED WITH PAVEMENT, GRASS, MULCH, AND/OR LANDSCAPING, AND THE STORM PIPE SYSTEM AND UNDERGROUND DETENTION SHALL BE COMPLETELY INSTALLED.
2. CONTRACTOR SHALL WATER ALL PLANTS, GRASS AND SOD AS NEEDED UNTIL AFTER PROJECT CONSTRUCTION IS COMPLETE, AND AFTER THE SCM HAS BEEN AS-BUILT SURVEYED, PE CERTIFIED AND ACCEPTED BY THE CITY.
3. CONTRACTOR SHALL PROVIDE AS-BUILT TOPOGRAPHIC SURVEY PERFORMED BY A PROFESSIONAL LAND SURVEYOR CERTIFYING STORMWATER SCM AREA DIMENSIONS, ELEVATIONS, OUTLET STRUCTURE INVERTS, ORIFICE DIAMETER, PIPE SIZES AND CLEANOUT LOCATIONS. TOPOGRAPHY SHALL EXTEND 20 FEET OUTSIDE LIMITS OF SCM.

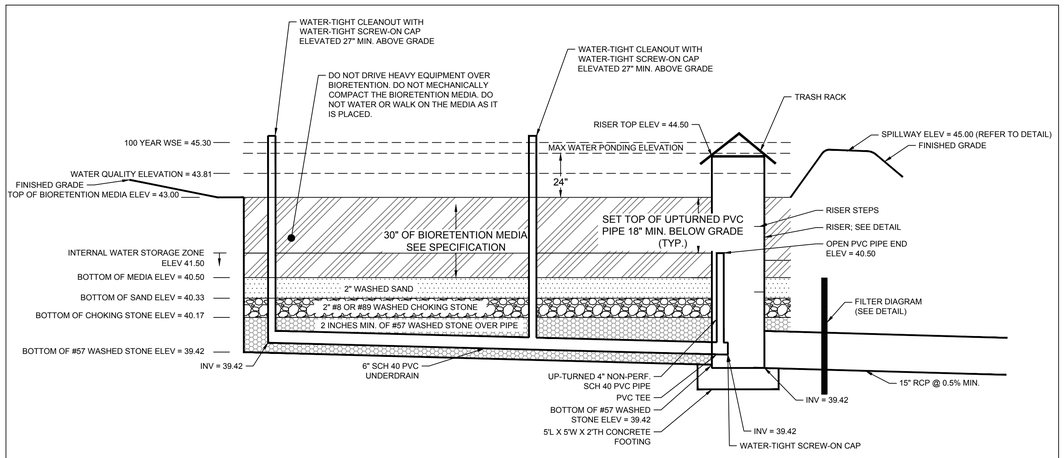


SECTION A-A

NOTE:

1. 4" DRAIN OUTLETS FOR DIAPHRAGM SHALL BE PROTECTED BY AN APPROPRIATE RODENT GUARD: ¼" X ¾" STAINLESS STEEL MESH SECURED WITH STAINLESS STEEL CLAMP OR APPROVED EQUAL.
2. JOINTS WRAPPED WITH DOUBLE LAYER OF NON-WOVEN GEOTEXTILE FILTER FABRIC ON OUTSIDE OF PIPE SHALL COVER 2 FEET OF PIPE CENTERED ON JOINT.

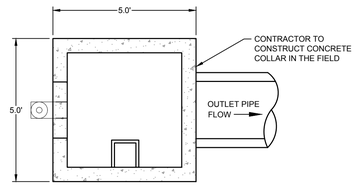
DRAINAGE FILTER DIAPHRAGM DETAIL
N.T.S.

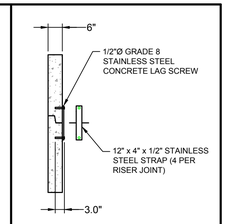


BIORETENTION PROFILE VIEW
NTS

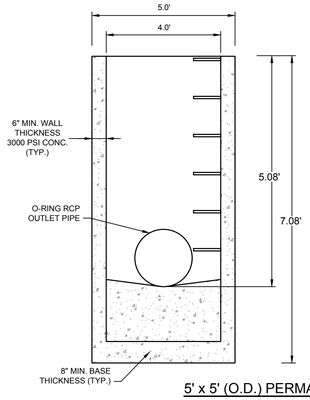
NOTES:

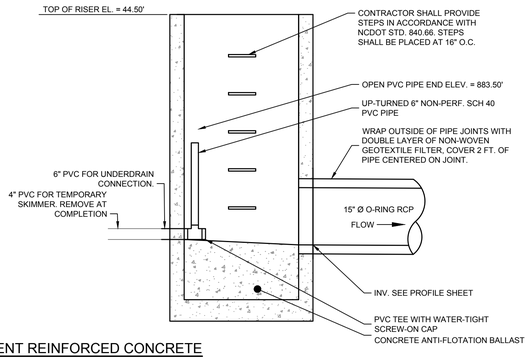
1. MANUFACTURER SHALL HAVE STRUCTURAL ENGINEER DESIGN CONCRETE REINFORCEMENT TO SUPPORT WEIGHT OF ANTI-FLOTATATION BALLAST.
2. CONCRETE ANTI-FLOTATION BALLAST SHALL BE A MINIMUM OF 140 PCF.
3. TRASH RACK FOR RISER NOT SHOWN FOR CLARITY.
4. REINFORCED CONCRETE STRENGTH TO BE 3,000 PSI.



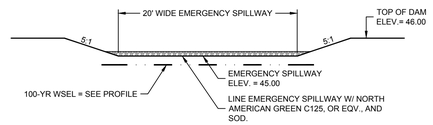


RISER JOINT CONNECTION DETAIL
N.T.S.





5' x 5' (O.D.) PERMANENT REINFORCED CONCRETE OUTLET STRUCTURE DETAILS
N.T.S.



EMERGENCY SPILLWAY TYPICAL SECTION
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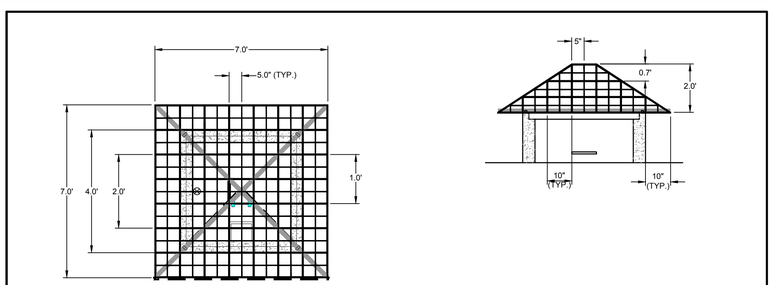

RISER TRASH RACK DETAIL
N.T.S.

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Project No.
56398

Date:
03/29/2024
Drawn by:
J GLAS
Checked by:
W ALTMAN
Revisions:

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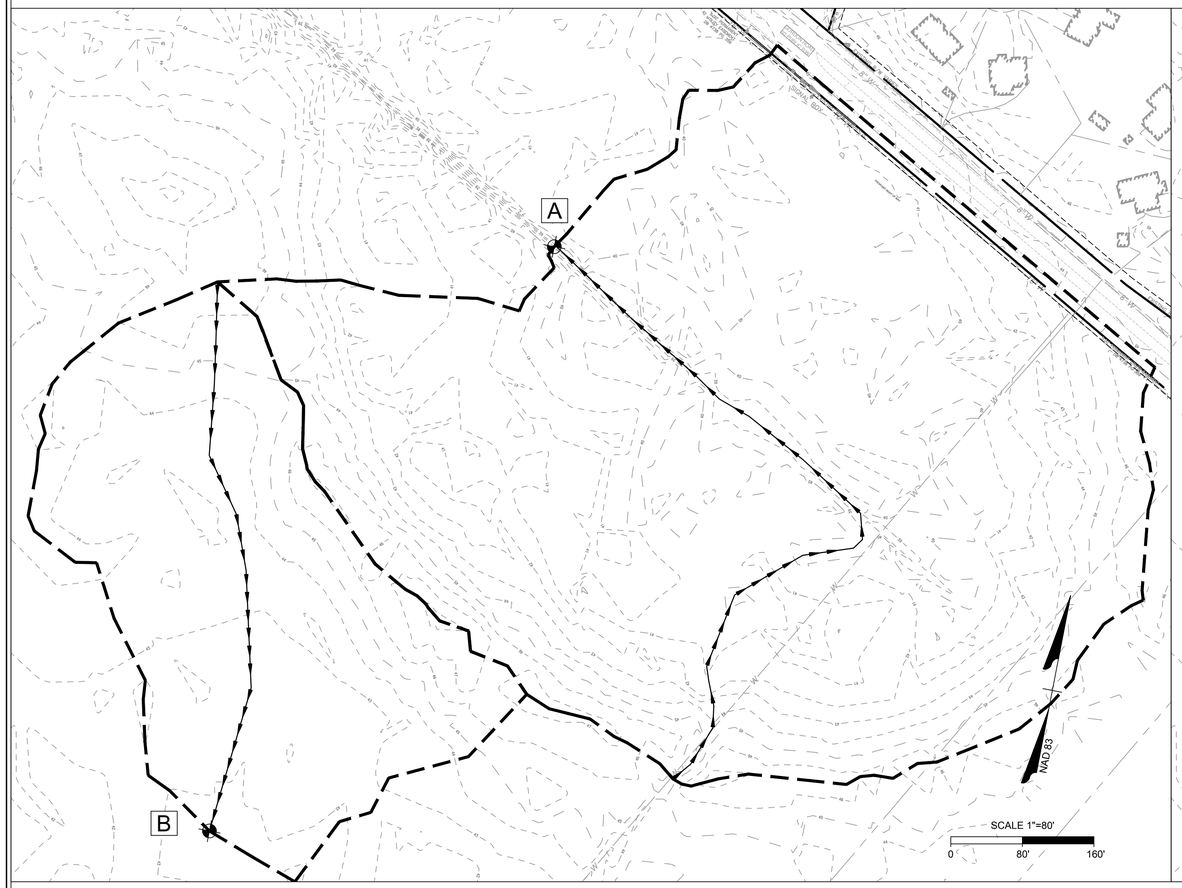
NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

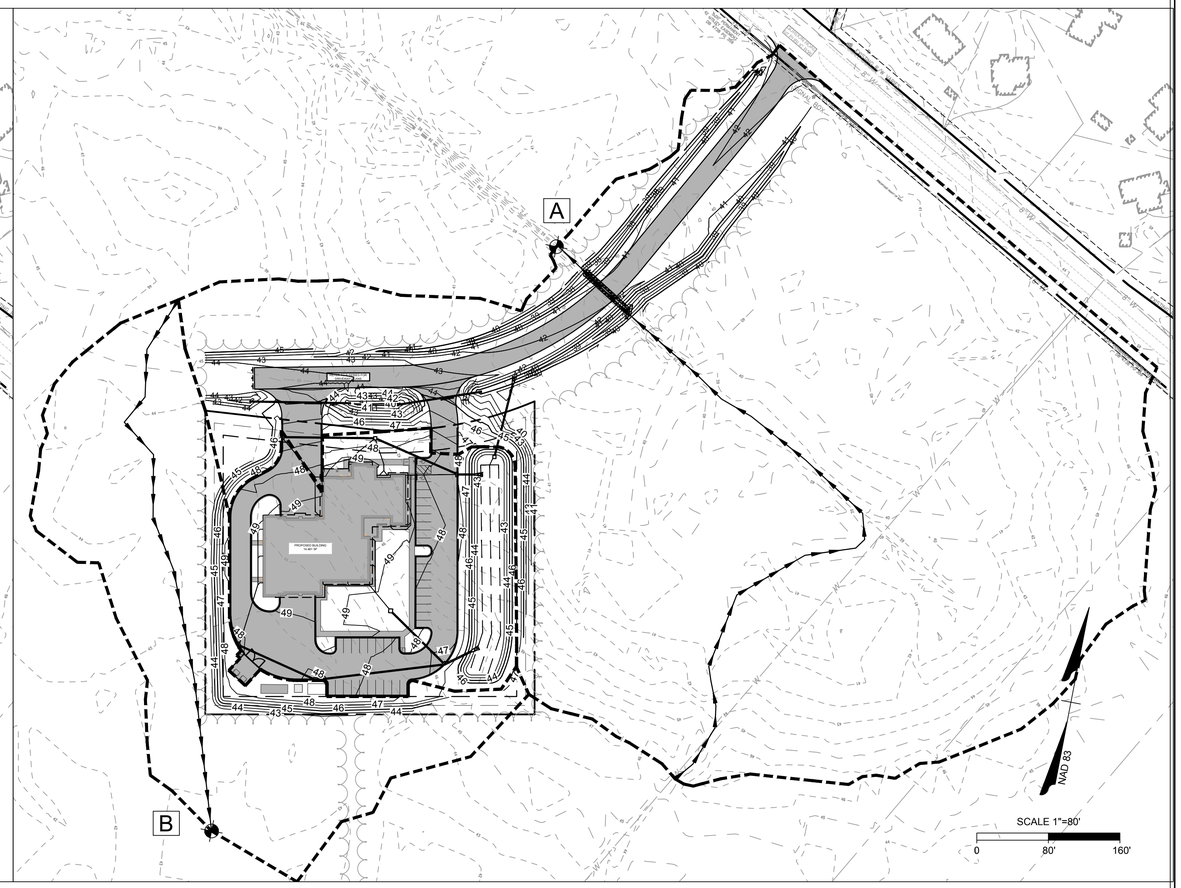
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

SCM DETAILS

Sheet No.
C4.2



PRE-DEVELOPED SITE



POST-DEVELOPED SITE

STORMWATER QUALITY CALCULATIONS

PRE DEVELOPMENT ONSITE IMPERVIOUS SURFACES = 0.00 ACRES

POST DEVELOPMENT ONSITE IMPERVIOUS SURFACES = 1.22 ACRES
DRIVEWAY TO SITE= 0.58 ACRES

IMPERVIOUS AREA BEING TREATED: BIORETENTION = 1.22 ACRES

LEGEND

IMPERVIOUS

TIME OF CONCENTRATION PATH

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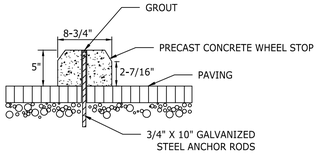
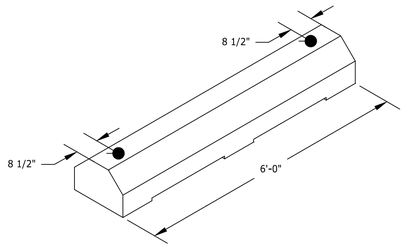
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

SW COMPLIANCE PLAN

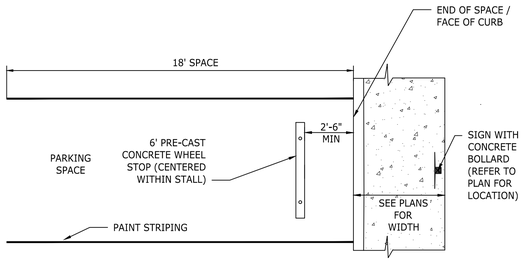
Sheet No.
C4.3



SECTION



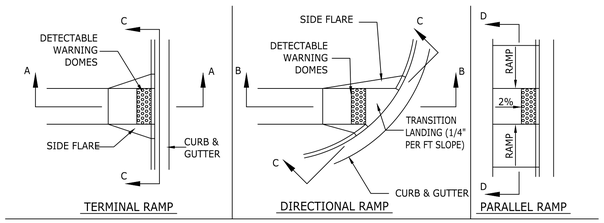
ISOMETRIC

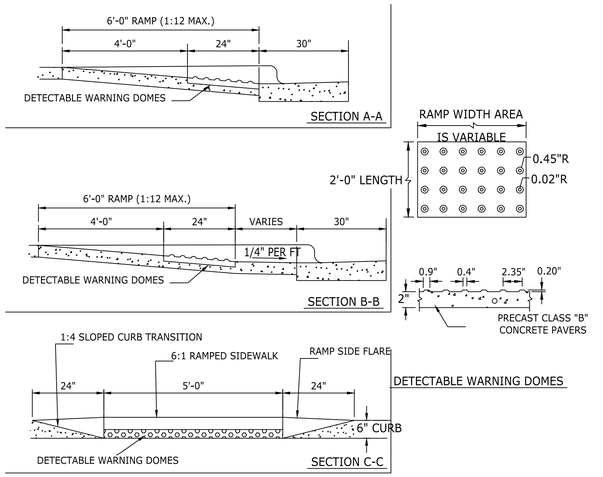


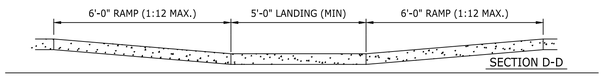
WHEEL STOP POSITION WITHIN PARKING STALL

PRE-CAST CONCRETE WHEELSTOP

NO SCALE





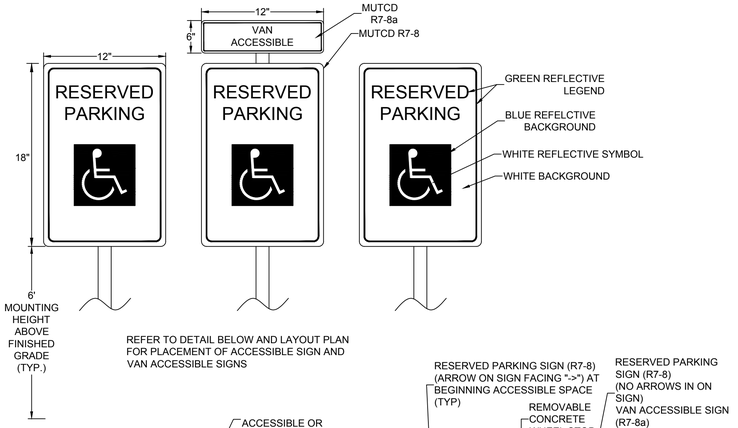


NOTES:

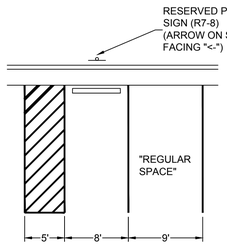
1. NO SLOPE ON THE SIDEWALK ACCESS RAMP SHALL EXCEED 1"/1' (1:12) IN RELATIONSHIP TO THE GRADE OF THE STREET.
2. IN NO CASE SHALL THE WIDTH OF THE ACCESS RAMP BE LESS THAN 48" (4'-0")
3. DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN.

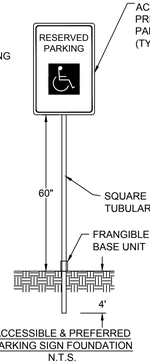
ACCESSIBLE CURB RAMPS

NO SCALE

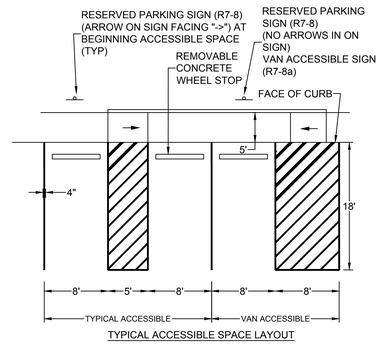


REFER TO DETAIL BELOW AND LAYOUT PLAN FOR PLACEMENT OF ACCESSIBLE SIGN AND VAN ACCESSIBLE SIGNS





ACCESSIBLE & PREFERRED
PARKING SIGN FOUNDATION
N.T.S.



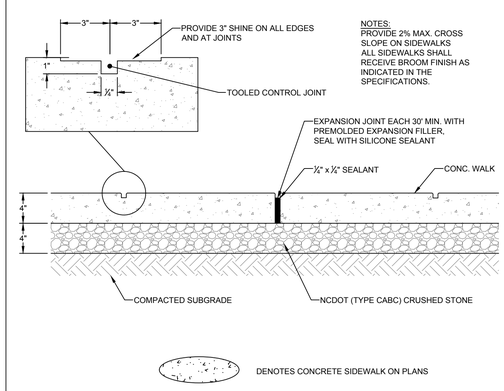
TYPICAL ACCESSIBLE SPACE LAYOUT

NOTE:

1. VERIFY WITH SITE PLANS FOR NON-TYPICAL ACCESSIBLE SPACES.
2. FOR SPACES LABELED 'VAN' PROVIDE MUTCD R7-8 SIGN AND ADDITIONAL R7-8a.

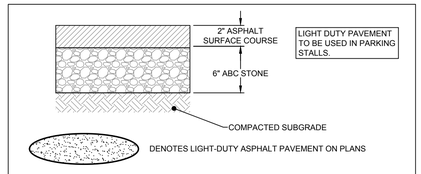
ACCESSIBLE PARKING SPACE MARKINGS AND SIGNAGE

NO SCALE



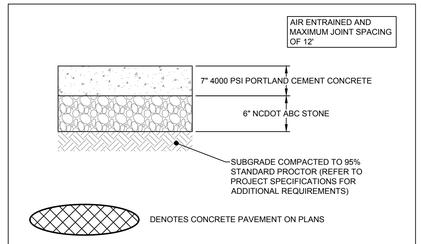
CONCRETE SIDEWALK

NO SCALE



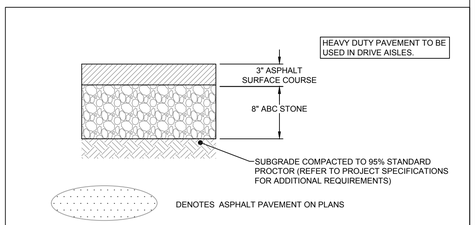
LIGHT-DUTY ASPHALT

NO SCALE



HEAVY DUTY CONCRETE PAVEMENT

NO SCALE



HEAVY DUTY ASPHALT

NO SCALE

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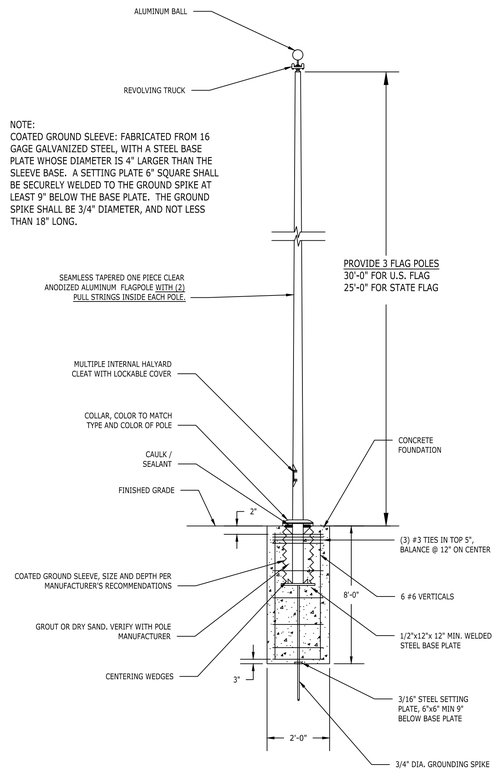
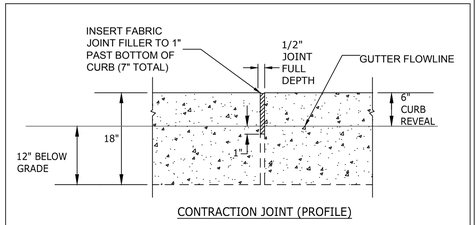
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

NOTES AND DETAILS

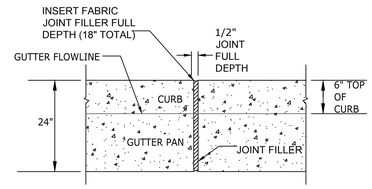
Sheet No.
C5.0



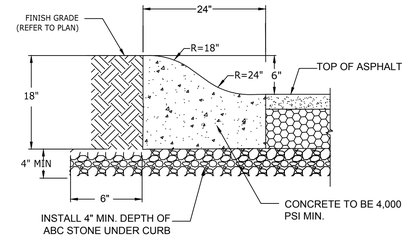
FLAG POLE
NO SCALE



CONTRACTION JOINT (PROFILE)



CONTRACTION JOINT (PLAN)



ROLLED FACE CURB & GUTTER (SECTION)

NOTES:
1. LOCATE CONTRACTION JOINTS 10' MAXIMUM APART IN CURB & GUTTER
2. INSERT FIBERBOARD STRIPS INTO EACH CONTRACTION JOINT.
3. PROVIDE 1/8" RADIUS ON EACH SIDES OF JOINT.
4. REFER TO SPECIFICATION SECTION 32 13 13 FOR ADDITIONAL INFORMATION.

24" ROLL FACE CURB & GUTTER
NO SCALE

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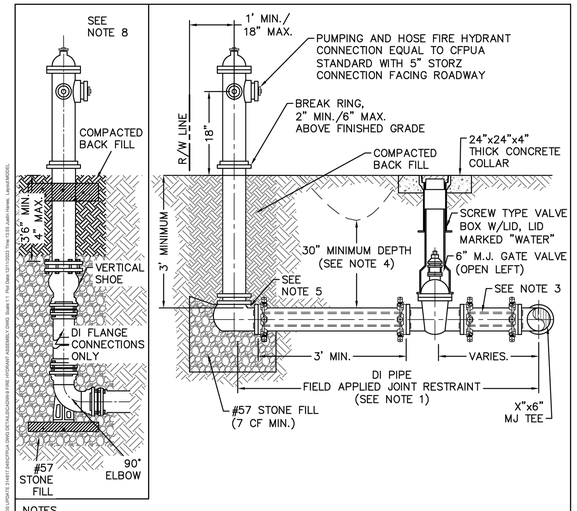
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

NOTES AND DETAILS

Sheet No.
C5.1



NOTES

1. JOINT RESTRAINT SYSTEMS SHALL BE WEDGE ACTION STYLE FOR DI.
2. WHEN HYDRANT LEGS REQUIRE FULL LENGTH PIPE SECTIONS, OVER BELL RESTRAINT SYSTEM SHALL HAVE 316 STAINLESS STEEL HARNESS AND FASTENERS.
3. CONTINUOUS 316 STAINLESS STEEL RODS (TEE TO VALVE AND VALVE TO HYDRANT) MAY BE USED WITH 316 STAINLESS STEEL MJ T–BOLT AND GASKET KITS, AS AN ALTERNATIVE.
4. HYDRANT AND VALVE SHALL BE PLACED OUTSIDE DITCH LIMITS.
5. WEEP HOLES OPEN AND UNBLOCKED TO DRAIN.
6. MJ TEE SHALL BE RESTRAINED ON EACH SIDE OF MAIN PLUS MAIN VALVES, FITTING, OR JOINTS WITHIN 10–FEET OF MJ TEE.
7. TRACING WIRE SHALL EXTEND ALONG HYDRANT LATERAL AND UP TO FINISHED GRADE WITH 2–FEET EXTENDED ABOVE THE BREAK RING OF HYDRANT.
8. HYDRANT TO UTILIZE A VERTICAL SHOE WHEN INSTALLED 5' IN DEPTH OR GREATER.

DETAIL:	DETAIL NO:
FIRE HYDRANT ASSEMBLY	**W-9**
SCALE: NOT TO SCALE / CFPUA DETAIL DATE: 01/01/2024	SHEET NO: -

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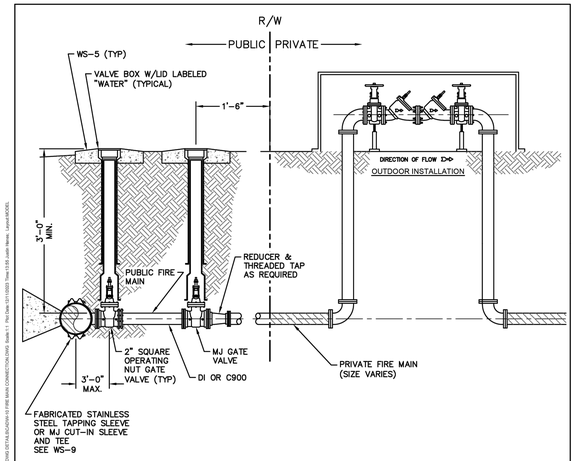

NOTES:

1. A GATE VALVE IS REQUIRED AT THE CFPUA FIRE MAIN TAP LOCATION.
2. WHEN THE FIRE MAIN IS FROM OPPOSITE SIDE OF NC–DOT ROAD OR CITY STREET, A SECOND VALVE IS REQUIRED 18" INSIDE PUBLIC R/W.
3. IF TAPPING VALVE IS LESS THAN 5–FEET FROM R/W THEN SECOND VALVE AT R/W IS NOT REQUIRED.

DETAIL:	DETAIL NO:
FIRE MAIN CONNECTION	**W-10**
SCALE: NOT TO SCALE / CFPUA DETAIL DATE: 01/01/2024	SHEET NO: -

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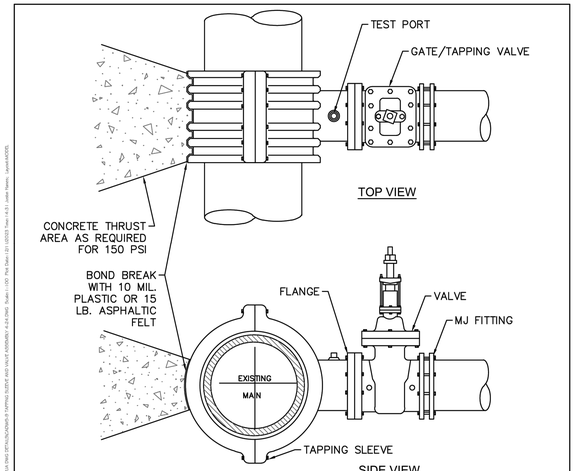

NOTES:

1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. PIPE & FITTING TO BE WRAPPED IN 10 MIL. PLASTIC OR 15 LB. ASPHALTIC FELT PRIOR TO THRUST BLOCK BEING POURED.
3. TEST PRESSURE SHALL NOT BE APPLIED FOR A MINIMUM OF 7 DAYS AFTER THRUST BLOCK PLACEMENT.
4. BRANCH SHALL NOT EQUAL RUN DIAMETER UNLESS APPROVED BY CFPUA ENGINEERING.

DETAIL:	DETAIL NO:
TAPPING SLEEVE AND VALVE ASSEMBLY (4"–24")	**WS-9**
SCALE: NOT TO SCALE / CFPUA DETAIL DATE: 01/01/2024	SHEET NO: -

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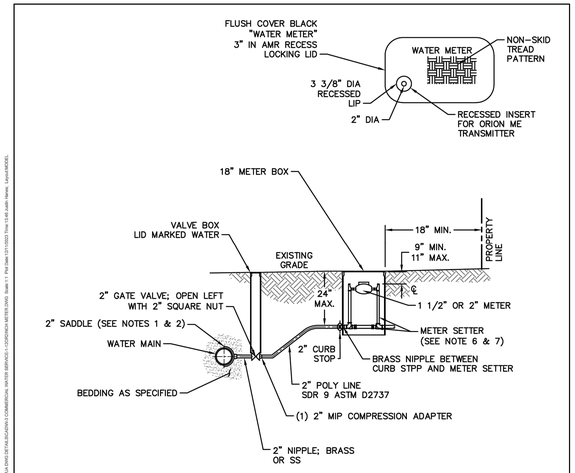

NOTES:

1. WATER SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN AND TERMINATE 18" INSIDE THE RIGHT–OF–WAY LINE.
2. SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY.
3. METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS.
4. NON–TRAFFIC METER BOXES SHALL BE PER CFPUA STANDARD MATERIAL.
5. 3" CLEAN FILL REQUIRED ALL AROUND 2" POLY SERVICE LINE.
6. 1 1/2" METER – NL METER SETTER SHALL BE PER CFPUA STANDARD MATERIAL.
7. 2" METER – NL METER SETTER SHALL BE PER CFPUA STANDARD MATERIAL.
8. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNERS.
9. SERVICE PIPING AND METER SETTER TO BE CENTERED IN THE METER BOX.
7. TRACING WIRE SHALL BE INSTALLED WITH ADHESIVE TAPE AT 12' INTERVALS AND EXTEND A MINIMUM OF 2' OUTSIDE OF METER BOX PER CFPUA DETAIL WS–6.

DETAIL:	DETAIL NO:
COMMERCIAL WATER SERVICE - 1 1/2 OR 2-INCH METERS	**W-3**
SCALE: NOT TO SCALE / CFPUA DETAIL DATE: 01/01/2024	SHEET NO: -

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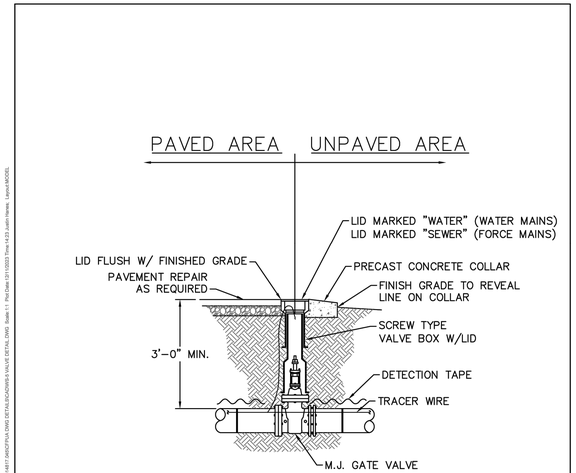

NOTES:

1. TRACER WIRE SHALL PENETRATE VALVE BOX THROUGH DRILLED HOLE APPROX. 6" BELOW GRADE WITH MINIMUM 2–FEET EXTRA LENGTH COILED IN THE VALVE BOX. SEE WS–6.

DETAIL:	DETAIL NO:
VALVE DETAIL	**WS-5**
SCALE: NOT TO SCALE / CFPUA DETAIL DATE: 01/01/2024	SHEET NO: -

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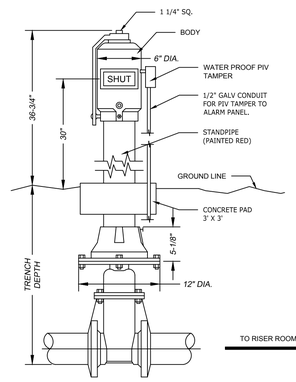

FIELD ADJUSTMENT INSTRUCTIONS

1. REMOVE THE BODY FROM THE TOP OF THE INDICATOR POST ASSEMBLY.
2. CUT THE REQUIRED LENGTH OFF THE BOTTOM OF THE STANDPIPE FOR THE GROUND LINE TO MATCH UP WITH STANDPIPE GROUND LINE MARK.
3. CUT THE 1" SQ. EXTENSION AT A DISTANCE OF 9" ABOVE THE TOP OF THE STANDPIPE.
4. SET THE "OPEN" AND "SHUT" TARGETS FOR THE APPROPRIATE VALVE SIZE.
5. RE-ATTACH THE BODY TO THE TOP OF THE INDICATOR POST ASSEMBLY.
6. ALL PIV(s) SHALL BE INSTALLED WITH AN ELECTRONICALLY CONTROLLED TAMPER SWITCH.

POST INDICATOR VALVE & TAPPING SLEEVE
NO SCALE

GENERAL NOTE

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Project No.
56398

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03/29/2024
Drawn by:
J GLAS
Checked by:
W ALTMAN
Revisions:

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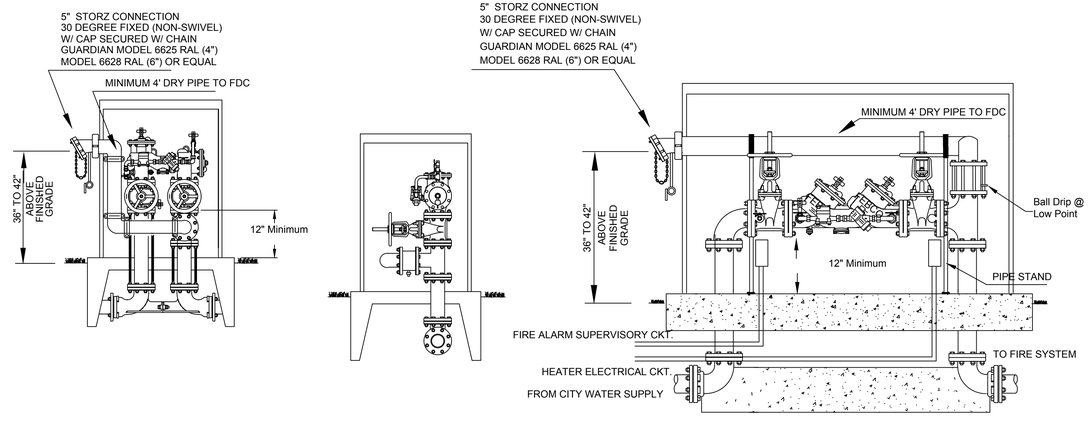
NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

NOTES AND DETAILS

Sheet No.
C5.2

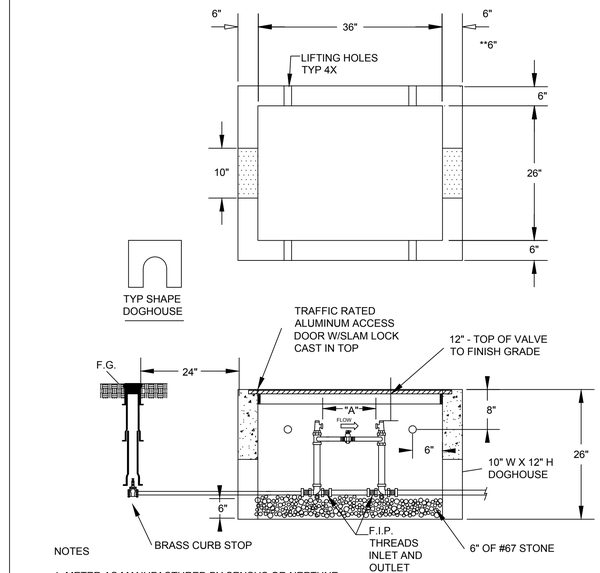


HOTBOX BACKFLOW W/ FDC MOUNTED

NOT TO SCALE

TYPICAL NOTES:

1)-ALL PIPING AND FITTINGS TO BE DUCTILE IORN, GALVANIZED BRASS, STAINLESS STEEL, OR ALUMINIUM
2)-40' MAX. FROM FDC TO APPARATUS ACCESS LOCATION
3)-FDC TO FACE FIRE APPARATUS ACCESS LOCATION (DRIVEWAY)
4)-DO NOT BLOCK APPARATUS ACCESS TO BUILDING WITH HOSE LAY FROM HYDRANT TO FDC
5)-MINIMUM DISTANCE 3 FEET BEHIND CURB, PROTECT FROM VEHICLES
6)-PROVIDE HEAT AND ALARM SUPERVISION TO HOT BOX (2 CONDUITS)
7)-COMPLY WITH PUBLIC UTILITIES HANDBOOK REQUIREMENTS



NOTES

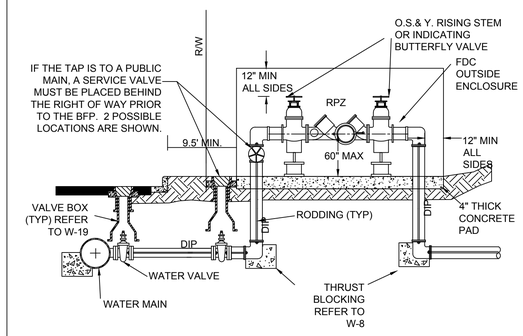
1. METER AS MANUFACTURED BY SENSUS OR NEPTUNE.
2. BACKFILL TAMPED IN 6" LIFTS.
3. REINFORCEMENT: #4 @ 6" OCEW
4. CONCRETE: 4,000 PSI @ 28 DAYS
5. ALL RPZ BACKFLOW PREVENTION DEVICES MUST BE INSTALLED PRIOR TO METER BEING SET.
6) ALL COPPER SETTERS ARE TO HAVE A BALL TYPE SHUT OFF VALVE ON BOTH SIDES OF COPPER SETTER WITH HIGH RISE BYPASS THAT IS MANUFACTURED BY FORD, MUELLER, OR AY McDONALD. (NO EXCEPTIONS)

DIMENSION "A"	
1½" METER	13 ¾"
2" METER	17 ¼"

** TRAFFIC RATED VAULT WALL THICKNESS

TYPICAL 1 1/2"- 2" WATER METER BOX INSTALLATION

NOT TO SCALE

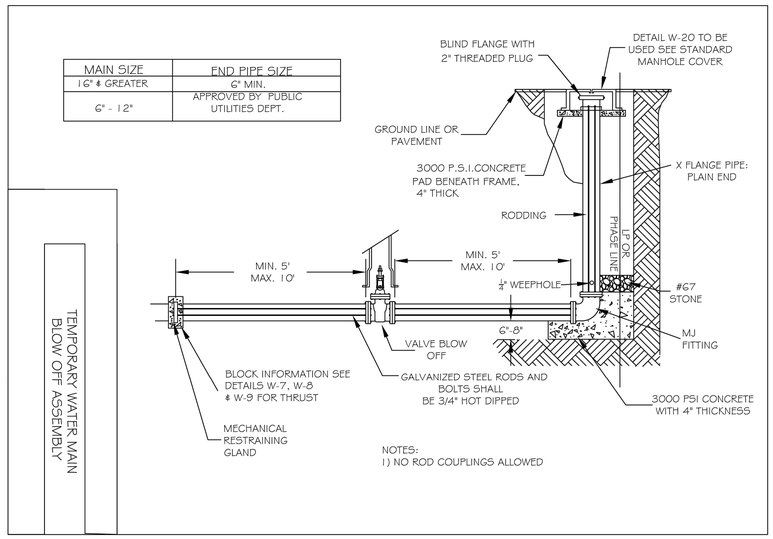


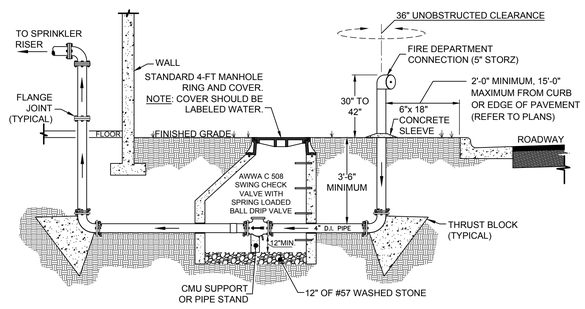
1. ALL ABOVE GROUND ENCLOSURES MUST HAVE ADEQUATE DRAINAGE (TWICE THE DIAMETER OF THE SUPPLY PIPE) TO DAYLIGHT ABOVE GRADE.
2. REDUCED PRESSURE BACKFLOW PRESENTERS MAY BE LOCATED IN A BUILDING PROVIDED THERE ARE NO OTHER UNPROTECTED TAPS BETWEEN THE MAIN AND THE BUILDING. DRAINAGE IN A BUILDING MUST BE TWICE THE DIAMETER OF THE SUPPY PIPE.
3. ABOVE GROUND INSULATED VAULTS MUST BE ASSE 1060 APPROVED ABOVE GROUND ENCLOSURES. SEE CROSS CONNECTION MANUAL FOR ENCLOSURE FREEZE PROTECTION AND CERTIFICATION REQUIREMENTS.
4. RESIDENTIAL LAWN IRRIGATION R.P. ASSEMBLIES THAT ARE REMOVED TO PREVENT FREEZING IN THE WINTER MONTHS MUST BE CAPPED OFF. ALL ABOVE GROUND ASSEMBLIES, EXCEPT RESIDENTIAL LAWN IRRIGATION ASSEMBLIES, MUST BE PROTECTED FROM FROST.
6. FOR ENCLOSURE DIMENSIONS SEE DETAIL W-34.
7. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
8. ALL ASSEMBLIES MUST BE ON THE CURRENT APPROVAL LIST.

TYPICAL REDUCED PRESSURE ZONE BACKFLOW PREVENTER ASSEMBLY

NOT TO SCALE

MAIN SIZE	END PIPE SIZE
16" & GREATER	6" MIN.
6" - 12"	APPROVED BY PUBLIC UTILITIES DEPT.





NOTES:
1. STORZ FIRE DEPARTMENT CONNECTION MUST BE WITHIN 50 FEET OF A FIRE HYDRANT.
2. TWO 3/4 INCH STAINLESS STEEL RODS ON EACH PIPE SEGMENT MAY BE SUBSTITUTED FOR WEDGE ACTION RESTRAINTS.
3. SPRING LOADED BALL DRIP VALVE SHALL BE INSTALLED VERTICALLY IN FRONT OF CHECK VALVE DISC. AN ADDITIONAL FITTING MAY BE REQUIRED SO THAT DRIP VALVE IS VERTICAL.

FIRE DEPARTMENT CONNECTION AND WATER MANHOLE

NO SCALE

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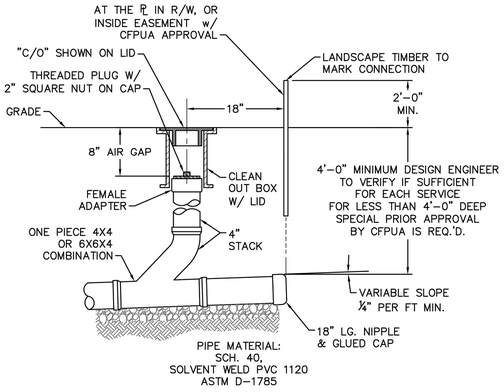
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

NOTES AND DETAILS

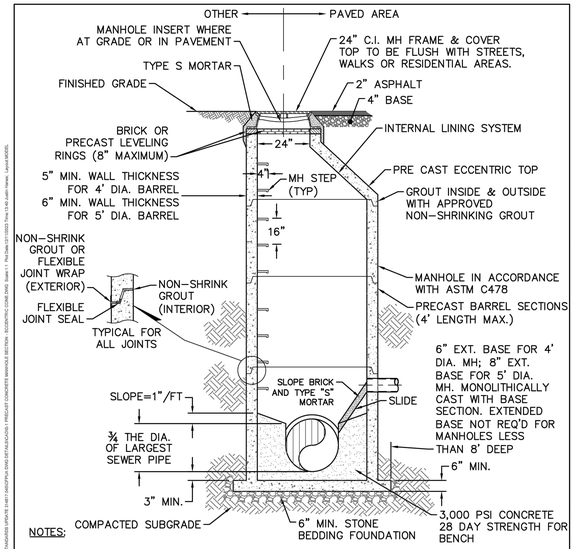
Sheet No.
C5.3



NOTES:

1. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO SYSTEM AND AT THE PROPERTY LINE, WITH REQUIRED EASEMENT.
2. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 6 FEET FROM ALL PROPERTY CORNERS.

DETAIL: SEWER SERVICE CONNECTION - TYPICAL CLEAN-OUT	CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560 Stewardship. Sustainability. Service.	DETAIL NO: S-13
SCALE: NOT TO SCALE	CFPUA DETAIL DATE: 01/01/2024	SHEET NO: -

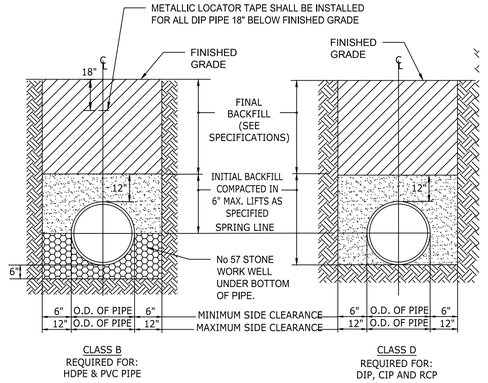


NOTES:

1. FOR MANHOLES UP TO 12 FEET IN DEPTH MINIMUM BARREL DIAMETER SHALL BE 4 FEET. MANHOLES GREATER THAN 12 FEET IN DEPTH SHALL BE A MINIMUM OF 5 FEET IN DIAMETER.
2. PROVIDE A MINIMUM DISTANCE OF SIX (6) INCHES BETWEEN EDGE OF MANHOLE CORE HOLES AND MANHOLE BARREL JOINTS. PROVIDE A MINIMUM OF SIX (6) INCHES BETWEEN EDGES OF CORE HOLES. CORING THE MANHOLE CONE IS NOT ALLOWED.
3. ALL MANHOLE MAIN LINE AND SERVICE PIPING TO BE INSTALLED AT A MINIMUM OF CROWN TO CROWN OF THE LARGEST DIAMETER PIPE.

FOR LESS THAN 30" INSIDE DROP

DETAIL: PRECAST CONCRETE MANHOLE SECTION - ECCENTRIC CONE	CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560 Stewardship. Sustainability. Service.	DETAIL NO: S-1
SCALE: NOT TO SCALE	CFPUA DETAIL DATE: 01/01/2024	SHEET NO: -

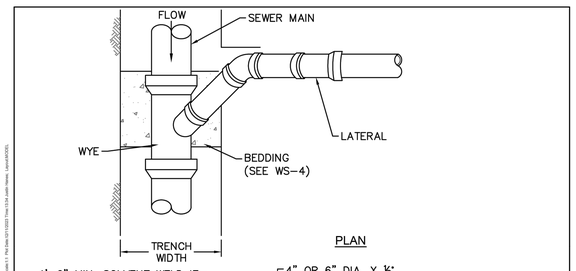


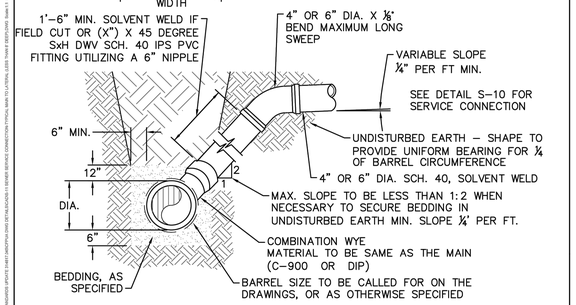
NOTES

1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LAYERS.
5. IF ROCK IS ENCOUNTERED AT BOTTOM OF TRENCH, OVER EXCAVATE ROCK A MIN. OF 6" AND BACK FILL WITH NO. 57 STONE TO THE BOTTOM OF PIPE.

SEWER PIPE BEDDING

NO SCALE

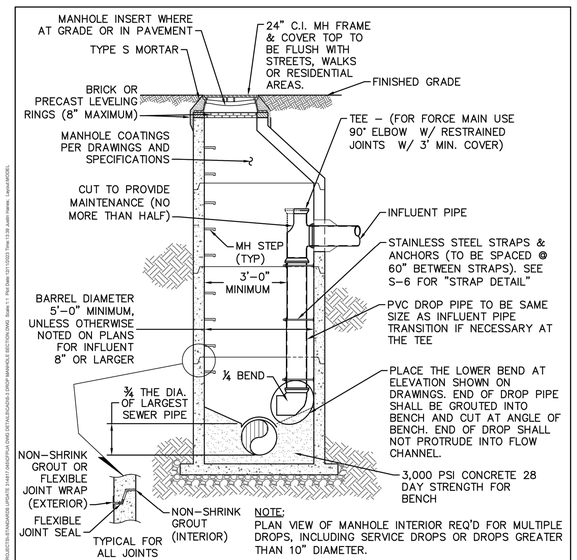




NOTES:

1. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO SYSTEM AND AT THE PROPERTY LINE, WITH REQUIRED EASEMENT.
2. ALL SERVICES CONNECTING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF DIP, WITH PROTECTIVE LINING.

DETAIL: SEWER SERVICE CONNECTION - MAIN to LATERAL (LESS THAN 8' DEEP)	CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560 Stewardship. Sustainability. Service.	DETAIL NO: S-11
SCALE: NOT TO SCALE	CFPUA DETAIL DATE: 01/01/2024	SHEET NO: -



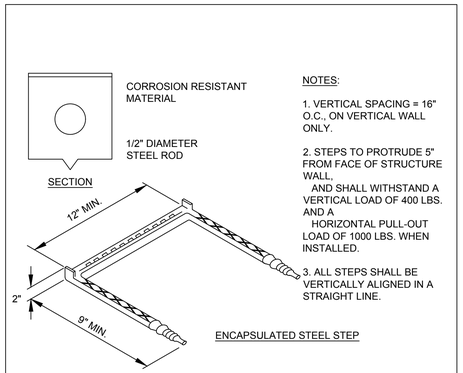
NOTE:
PLAN VIEW OF MANHOLE INTERIOR REQ'D FOR MULTIPLE DROPS, INCLUDING SERVICE DROPS OR DROPS GREATER THAN 10" DIAMETER.

NOTES:

1. PROVIDE A MINIMUM DISTANCE OF SIX (6) INCHES BETWEEN EDGE OF MANHOLE CORE HOLES AND MANHOLE BARREL JOINTS. PROVIDE A MINIMUM OF SIX (6) INCHES BETWEEN EDGES OF CORE HOLES. CORING THE MANHOLE CONE IS NOT ALLOWED.
2. ALL MANHOLE MAIN LINE AND SERVICE PIPING TO BE INSTALLED AT A MINIMUM OF CROWN TO CROWN OF THE LARGEST DIAMETER PIPE.

FOR MORE THAN 30" INSIDE DROP

DETAIL: DROP MANHOLE SECTION	CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560 Stewardship. Sustainability. Service.	DETAIL NO: S-3
SCALE: NOT TO SCALE	CFPUA DETAIL DATE: 01/01/2024	SHEET NO: -



NOTES:

1. VERTICAL SPACING = 16" O.C., ON VERTICAL WALL ONLY.
2. STEPS TO PROTRUDE 5" FROM FACE OF STRUCTURE WALL, AND SHALL WITHSTAND A VERTICAL LOAD OF 400 LBS. AND A HORIZONTAL PULL-OUT LOAD OF 1000 LBS. WHEN INSTALLED.
3. ALL STEPS SHALL BE VERTICALLY ALIGNED IN A STRAIGHT LINE.

MANHOLE STEPS

NO SCALE

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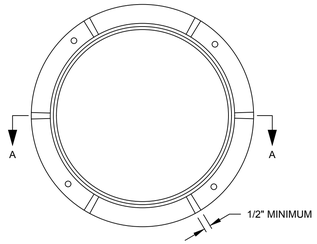
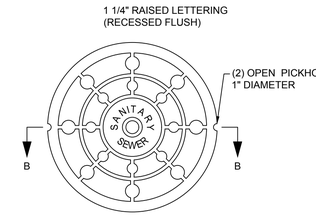
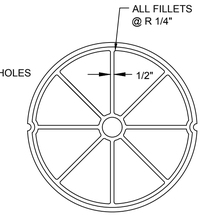
Sheet No.
C5.4



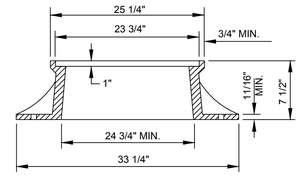
RING TOP VIEW



COVER TOP VIEW

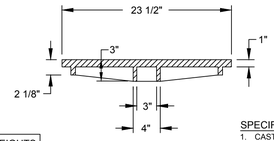


COVER BOTTOM VIEW

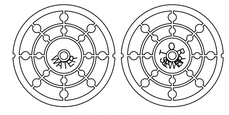


SECTION "A-A"

MINIMUM WEIGHTS	
RING	180
COVER	120
TOTAL	300



SECTION "B-B"



ALTERNATE LETTERING

SPECIFICATIONS:

1. CASTINGS TO BE GREY IRON MEETING ASTM A48 CLASS 30.
2. CASTINGS TO BE PAINTED IN BLACK ENAMEL PAINT.
3. ALL LETTERING SHALL BE CLEAN, CRISP, AND CLEARLY LEGIBLE.
4. DOMESTICALLY MADE & MANUFACTURED IN THE USA.

STANDARD MANHOLE RING AND COVER

NO SCALE

GENERAL NOTE

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.

WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITHIN THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER OF WORK OR MATERIAL CALLED FOR, SHALL SUBMIT A WRITTEN STATEMENT WITH HIS PROPOSAL NOTING SUCH DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.

Project No.
56398

Date:
03/29/2024
Drawn by:
J GLAS
Checked by:
W ALTMAN
Revisions:

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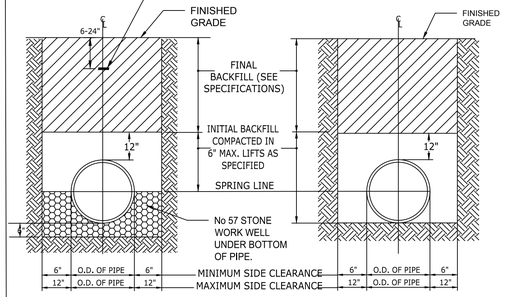
NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

NOTES AND DETAILS

Sheet No.
C5.5



CLASS B
REQUIRED FOR:
HDPE & PVC PIPE

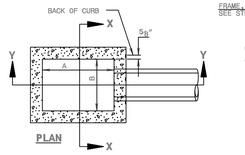
CLASS D
REQUIRED FOR:
DIP, CIP AND RCP

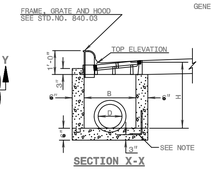
NOTES

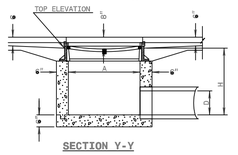
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LAYERS.
5. IF ROCK IS ENCOUNTERED AT BOTTOM OF TRENCH, OVER EXCAVATE ROCK A MIN. OF 6"CHS AND BACK FILL WITH NO. 67 STONE TO THE BOTTOM OF PIPE.

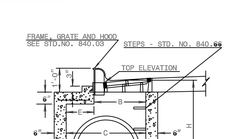
STORM SEWER TRENCHES

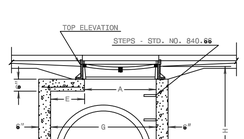
NO SCALE

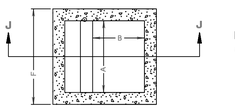


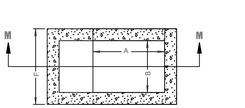












GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.

CONSTRUCT WITH PIPE CROWNS MATCHING.

CHAMFER ALL EXPOSED CORNERS 1".

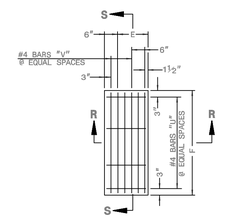
DRAWING NOT TO SCALE.

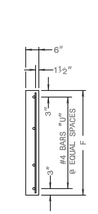
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

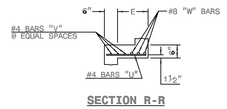
1-18

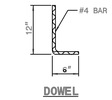
ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

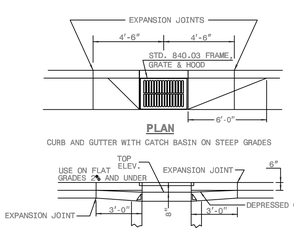
SHEET 1 OF 2
840.02

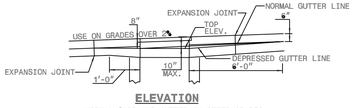












MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN(BASED ON MIN. HEIGHT, H, WITH NO RISER) *

DIMENSIONS OF BOX AND PIPE						COVER DIMENSION		BARS-U		BARS-V		BARS-W				CU.YDS. CONC. IN BOX		DEDUCTIONS ONE PIPE	
PIPE ⓓ	SPAN A	WIDTH B	WIDTH C	SPAN G	MIN. HEIGHT H	E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	TOTAL LBS.	TOP SLAB	BOTTOM SLAB	12" CONC. EQ. HEIGHT, H	C.M.	R.C.
12"	3'-0"	2'-2"	--	--	2'-9"	--	--	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"			3'-0"											0.235	0.829	0.023	0.036
18"	3'-0"	2'-2"			3'-3"											0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"			3'-9"											0.235	1.001	0.059	0.085
30"	3'-0"	2'-2"	3'-4"		4'-3"	1'-2"	4'-0"	4	1'-5"	2	3'-9"	3	3'-9"	39	0.123	0.321	1.433	0.092	0.127
36"	3'-0"	2'-2"	3'-10"		4'-9"	1'-8"	4'-0"	4	1'-11"	3	3'-9"	3	3'-9"	43	0.161	0.358	1.714	0.132	0.178
42"	3'-0"	2'-2"		4'-5"	5'-3"	1'-5"	3'-2"	4	1'-8"	2	2'-11"	3	2'-11"	32	0.112	0.318	1.738	0.180	0.243
48"	3'-0"	2'-2"		5'-0"	5'-9"	2'-0"	3'-2"	4	2'-3"	3	2'-11"	3	2'-11"	35	0.145	0.352	2.052	0.235	0.317
54"	3'-0"	2'-2"		5'-7"	6'-3"	2'-7"	3'-2"	4	2'-10"	5	2'-11"	3	2'-11"	41	0.180	0.386	2.387	0.297	0.401

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

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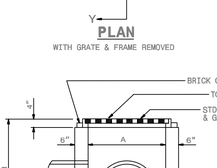
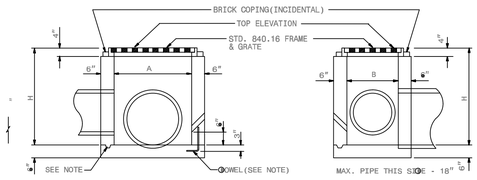
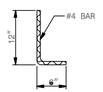
ROADWAY STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

SHEET 2 OF 2
840.02







GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.

INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.

INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

ⓓDIMENSIONS AND ⓑ QUANTITIES FOR ⓒDROP INLET(BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX & PIPE				CUBIC YARDS CONC. IN BOX			DEDUCTIONS FOR ONE PIPE	
ⓓ	A	B	H	BOTTOM SLAB	WALL PER FT. HT.	TOTAL FOR MINIMUM HEIGHT, H	C.M.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.5●	0.015	0.026
15"	"	"	2'-3"	"	"	0.●48	0.023	0.036
18"	"	"	2'-6"	"	"	0.703	0.033	0.049
24"	"	"	3'-0"	"	"	0.814	0.059	0.085
30"	3'-0"	2'-0"	3'-6"	0.222	0.222	0.925	0.092	0.127

STATE OF NORTH CAROLINA
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ROADWAY STANDARD DRAWING FOR
CONCRETE DROP INLET
12" THRU 30" PIPE

SHEET 1 OF 1
840.14

GENERAL NOTES

USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.

USE ASTM A615 GRADE 60 REINFORCING STEEL. USE ASTM A1064 WELDED WIRE FABRIC (WWF).

FABRICATE, ASSEMBLE AND DESIGN PRECAST MANHOLE COMPONENTS ACCORDANCE WITH AASHTO M199.

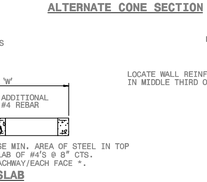
ASSEMBLE RISER AND GRADE RINGS WITH THE STEPS SPACED 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.

WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, CONSTRUCT THE TOP OF THE MANHOLE FLUSH WITH THE GROUND AND A MINIMUM OF 9" ABOVE THE GROUND AT OTHER LOCATIONS.

LIMIT DEPTH OF FILL TO 30'-0" FROM FINISH GRADE TO TOP OF BOTTOM SLAB.

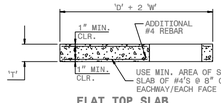
THE MIN. SLAB THICKNESS 'T' IS THE DIMENSION OF THE THINNEST PORTION OF THE TOP/BOTTOM SLAB.

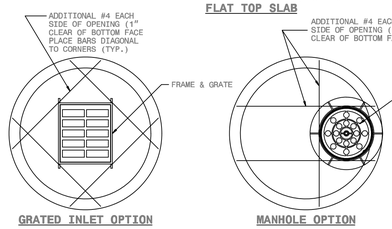
* TOP MAT OF REINFORCEMENT MAY BE NEGLECTED IF TOP SLAB HAS A DISTINGUISHABLE TOP AND BOTTOM.

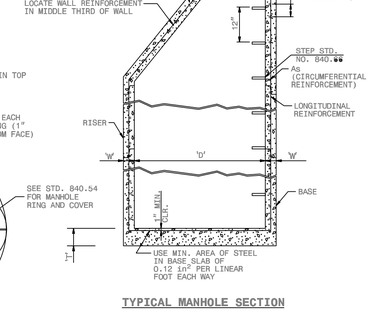


D	W	T	As
INTERNAL DIAMETER (FT.)	MIN. WALL THICKNESS (IN.)	MIN. TOP/BOTTOM SLAB THICKNESS (IN.)	MIN. CIRCUMFERENTIAL AREA OF STEEL PER VERTICAL FT. (SQ. IN.)
4	4	●	0.12
5	5	8	0.15
●	●	8	0.18

FRAME AND GRATES	STD. NO.
TRAFFIC BEARING	840.37
NONTRAFFIC BEARING	840.22
	840.24
	840.30
	840.39
	840.33







STATE OF NORTH CAROLINA
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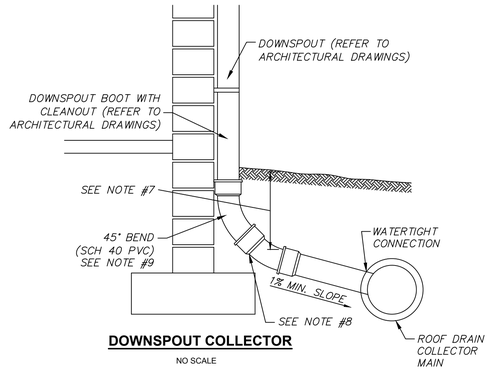
1-18

ROADWAY STANDARD DRAWING FOR
PRECAST MANHOLE 4', 5' AND 6' DIAMETER
12" THRU 48" PIPE

SHEET 1 OF 1
840.52



ROOF DRAIN COLLECTOR

NO SCALE

DOWNSPOUT COLLECTOR

NO SCALE

DOWNSPOUT COLLECTOR NOTES:

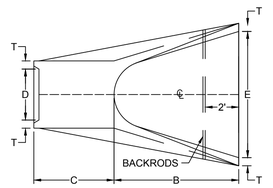
1. CONNECT ALL BUILDING DOWNSPOUTS INTO THE ROOF DRAIN COLLECTOR SYSTEM OR DIRECTLY INTO THE STORM SEWER SYSTEM.
2. THE ROOF DRAIN COLLECTOR SYSTEM IS SMOOTH-LINED, CORRUGATED POLYETHYLENE PIPE LAID AT MINIMUM SLOPES AS INDICATED.
3. PIPES CONNECTING TO INDIVIDUAL DOWNSPOUTS ARE 6" PROVIDE MINIMUM 6" PIPE SIZE 5' OUTSIDE BUILDING. ALL OTHER DRAIN PIPES ARE SIZED AS INDICATED INCREASING IN SIZE FROM UPSTREAM TO DOWNSTREAM.
4. PROVIDE CLEANOUTS AS INDICATED AND AS REQUIRED BY LOCAL BUILDING CODE.
5. MAKE CONNECTIONS INTO CONCRETE PIPES WITH A FLEXIBLE WATERTIGHT TEE CONNECTOR THAT IS MECHANICALLY EXPANDED INTO A CORDED OPENING. CONNECTOR SHALL BE KOR-N-TEE OR APPROVED EQUAL.
6. MAINTAIN ADEQUATE OUTFALL FOR ROOF DRAIN DURING AND AFTER THE COMPLETION OF CONSTRUCTION.
7. MINIMUM DEPTH OF COVER SHALL BE ONE (1) FOOT. FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, FLEXIBLE PIPE MAY BE USED. REFER TO SPECIFICATIONS FOR ALLOWABLE PIPE TYPES.
8. MAINTAIN A WATERTIGHT CONNECTION AT ALL PIPE CONNECTIONS BELOW GRADE.
9. INSTALL THE DOWNSPOUT COLLECTOR DRAIN BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING. THE SITE WORK CONTRACTOR IS RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE 45° BEND. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF DOWNSPOUTS ON BUILDING EXTERIOR WALLS.

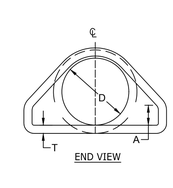
DIMENSIONS FOR END SECTIONS								
D	T	A	B	C	E	F	H:V	WT.
12"	1 7/8"	"	2'-0"	4'-1"	2'-0"	6'-1"	3:1	730
15"	1 7/8"	6"	2'-3"	3'-10"	2'-6"	6'-1"	3:1	730
18"	2"	9"	2'-3"	3'-10"	3'-0"	6'-1"	3:1	1190
24"	2 3/4"	10"	3'-8"	2'-6"	4'-0"	6'-2"	3:1	1770
30"	2 3/4"	1'-0"	4'-6"	1'-8"	5'-0"	6'-2"	3:1	2380
36"	3"	1'-3"	5'-3"	2'-11"	6'-0"	8'-2"	3:1	5320
42"	3 1/4"	1'-10"	5'-3"	2'-11"	6'-6"	8'-2"	3:1	5920
48"	4"	2'-1"	6'-0"	2'-2"	7'-0"	8'-2"	3:1	7470
54"	5 1/4"	2'-4"	5'-3"	3'-2"	8'-0"	8'-5"	3:1	8810
60"	6"	2'-7"	5'-0"	3'-5"	8'-6"	8'-5"	3:1	11180

FLARED END SECTIONS - REINFORCEMENT			
D	QTY. & DIM. OF RODS	STEEL #'S	FABRIC
12"	(2) #3X4'-0" SIDE RODS	3.0	18" 2X8 - X2.1 X Y1.7
15"	(2) #3X4'-0" SIDE RODS	3.0	18" 2X8 - X2.1 X Y1.7
18"	(2) #3X4'-0" SIDE RODS	3.0	18" 2X8 - X2.1 X Y1.7
24"	(2) #3X6'-0" SIDE RODS	4.5	24" 2X8 - X2.9 X Y2.9
30"	(2) #4X6'-0" SIDE RODS	8.0	30" 2X8 - X4.0 X Y2.9
36"	(2) #4X8'-0" SIDE RODS	10.7	42" 2X8 - X4.0 X Y2.9
42"	(2) #4X8'-0" SIDE RODS	10.7	48" 2X8 - X4.5 X Y2.9
48"	(2) #4X6'-0" SIDE RODS	10.7	48" 2X8 - X4.5 X Y2.9

FLARED END SECTION

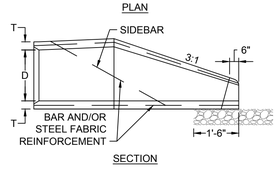
NO SCALE





GENERAL NOTES:

1. END SECTIONS TO BE USED AS SHOWN BY PLANS OR AS DIRECTED BY THE ENGINEER.
2. CHAMFER ALL EXTERIOR CORNERS 1"
3. FLARED END SECTIONS ARE NORMALLY USED ON PIPES WITH SKEW ANGLES FROM 75° TO 105°.
4. FLARED END SECTIONS - END CONFIGURATION
5. INLET LOCATION - TONGUE
6. OUTLET LOCATION - GROOVE



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Project No.
56398

Date:
03/29/2024
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Revisions:

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GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

NOTES AND DETAILS

Sheet No.
C5.6

TEMPORARY SEEDING SPECIFICATIONS

COMPLETE GRADING BEFORE PREPARING SEEDBEDS, AND INSTALL ALL NECESSARY EROSION CONTROL PRACTICES SUCH AS, DIKES, WATERWAYS, AND BASINS. MINIMIZE STEEP SLOPES BECAUSE THEY MAKE SEEDBED PREPARATION DIFFICULT AND INCREASE THE EROSION HAZARD. IF SOILS BECOME COMPACTED DURING GRADING, LOOSEN THEM TO A DEPTH OF 6-8 INCHES USING A RIPPER, HARROW, OR CHISEL PLOW.

SEEDBED PREPARATIONS

GOOD SEEDBED PREPARATION IS ESSENTIAL TO SUCCESSFUL PLANT ESTABLISHMENT. A GOOD SEEDBED IS WELL-PULVERIZED, LOOSE, AND UNIFORM. WHERE HYDROSEEDING METHODS ARE USED, THE SURFACE MAY BE LEFT WITH A MORE IRREGULAR SURFACE OF LARGE CLODS AND STONES.

- **LIMING -** APPLY LIME ACCORDING TO SOIL TEST RECOMMENDATIONS. IF THE PH (ACIDITY) OF THE SOIL IS NOT KNOWN, AN APPLICATION OF GROUND AGRICULTURAL LIMESTONE AT THE RATE OF 1 TO 1 1/2 TONS/ACRE ON COARSE-TEXTURED SOILS AND 2-3 TONS/ACRE ON FINE-TEXTURED SOILS IS USUALLY SUFFICIENT. APPLY LIMESTONE UNIFORMLY AND INCORPORATE INTO THE TOP 4-6 INCHES OF SOIL. SOILS WITH A PH OF 6 OR HIGHER NEED NOT BE LIMED.
- **FERTILIZER -** BASE APPLICATION RATES ON SOIL TESTS. WHEN THESE ARE NOT POSSIBLE, APPLY A 10-10-10 GRADE FERTILIZER AT 700-1,00 LB/ACRE. BOTH FERTILIZER AND LIME SHOULD BE INCORPORATED INTO THE TOP 4-6 INCHES OF SOIL. IF A HYDRAULIC SEEDER IS USED, DO NOT MIX SEED AND FERTILIZER MORE THAN 30 MINUTES BEFORE APPLICATION.
- **SURFACE ROUGHENING -** IF RECENT TILLAGE OPERATIONS HAVE RESULTED IN A LOOSE SURFACE, ADDITIONAL ROUGHENING MAY NOT BE REQUIRED, EXCEPT TO BREAK UP LARGE CLODS. IF RAINFALL CAUSES THE SURFACE TO BECOME SEALED OR CRUSTED, LOOSEN IT JUST PRIOR TO SEEDING BY DISKING, RAKING, HARROWING, OR OTHER SUITABLE METHODS. GROOVE OR FURROW SLOPES STEEPER THAN 3:1 ON THE CONTOUR BEFORE SEEDING (REFER TO THE NCDEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, PRACTICE 6.03, SURFACE ROUGHENING).

PLANT SELECTION

- SELECT AN APPROPRIATE SPECIES OR SPECIES MIXTURE FROM TABLE 6.10A FOR SEEDING IN LATE WINTER AND EARLY SPRING, TABLE 6.10B FOR SUMMER, AND TABLE 6.10C FOR FALL.
- IN THE MOUNTAINS, DECEMBER AND JANUARY SEEDING HAVE POOR CHANCES OF SUCCESS. WHEN IT IS NECESSARY TO PLANT AT THESE TIMES, USE RECOMMENDATIONS FOR FALL AND A SECURELY TACKED MULCH.

SEEDING

- EVENLY APPLY SEED USING A CYCLONE SEEDER (BROADCAST), DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. USE SEEDING RATES GIVEN IN TABLES 6.10A-6.10C. BROADCAST SEEDING AND HYDROSEEDING ARE APPROPRIATE FOR STEEL SLOPES WHERE EQUIPMENT CANNOT BE DRIVEN. HAND BROADCASTING IS NOT RECOMMENDED BECAUSE OF THE DIFFICULTY IN ACHIEVING A UNIFORM DISTRIBUTION.
- SMALL GRAINS SHOULD BE PLANTED NO MORE THAN 1 INCH DEEP, AND GRASSES AND LEGUMES NO MORE THAN 1/2 INCH. BROADCAST SEED MUST BE COVERED BY RAKING OR CHAIN DRAGGING, AND THEN LIGHTLY FIRMED WITH A ROLLER OR CULTIPACKER. HYDROSEEDED MIXTURES SHOULD INCLUDE A WOOD FIBER (CELLULOSE) MULCH.

MULCHING

THE USE OF AN APPROPRIATE MULCH WILL HELP ENSURE ESTABLISHMENT UNDER NORMAL CONDITIONS, AND IS ESSENTIAL TO SEEDING SUCCESS UNDER HARSH SITE CONDITIONS (REFER TO THE NCDEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, PRACTICE 6.14, MULCHING). HARSH SITE CONDITIONS INCLUDE:

- SEEDING IN FALL FOR WINTER COVER (WOOD FIBER MULCHES ARE NOT CONSIDERED ADEQUATE FOR THIS USE),
- SLOPES STEEPER THAN 3:1,
- EXCESSIVELY HOT OR DRY WEATHER,
- ADVERSE SOILS (SHALLOW, ROCKY, OR HIGH IN CLAY OR SAND), AND
- AREAS RECEIVING CONCENTRATED FLOW.

IF THE AREA TO BE MULCHED IS SUBJECT TO CONCENTRATED WATERFLOW, AND IN CHANNELS, ANCHOR MULCH WITH NETTING (REFER TO THE NCDEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, PRACTICE 6.14, MULCHING).

TEMPORARY SEEDING MAINTENANCE

RESEED AND MULCH AREAS WHERE SEEDING EMERGENCE IS POOR, OR WHERE EROSION OCCURS, AS SOON AS POSSIBLE. DO NOT MOW. PROTECT FROM TRAFFIC AS MUCH AS POSSIBLE.

TEMPORARY SEED SCHEDULE (Jan 1 - May 1)

GRASS SPECIES BLEND	PLANTING RATE	MIN. % PURE SEED	MAX. % WEED SEED
ANNUAL RYE GRASS	50-LBS PER 1-ACRE	85%	1%

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,00LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

TEMPORARY SEED SCHEDULE (May 1 - Sept 30)

GRASS SPECIES BLEND	PLANTING RATE	MIN. % PURE SEED	MAX. % WEED SEED
GERMAN MILLET	30-LBS PER 1-ACRE	85%	1%

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,00LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

NOTES:
1. PERMANENT SEEDING FOR THIS PROJECT SHALL OCCUR BETWEEN MAY 1-AUGUST 15. ADJUSTED AS NECESSARY FOR ADEQUATE GROUND TEMPERATURES. GROUND TEMPERATURES SHALL BE IN THE RANGE OF 60-80 DEGREES FOR GERMINATION.
2. REFER TO SPECIFICATION SECTION 329200

TEMPORARY/PERMANENT SEEDING
NO SCALE

TEMPORARY SEED SCHEDULE (Oct 1 - Dec 30)

GRASS SPECIES BLEND	PLANTING RATE	MIN. % PURE SEED	MAX. % WEED SEED
ANNUAL RYE GRASS	50-LBS PER 1-ACRE	85%	1%

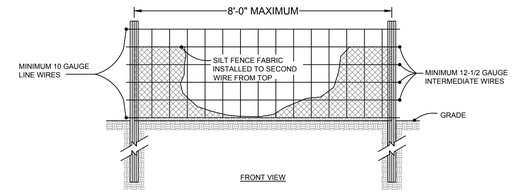
SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,00LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1,000 LB/ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REPAIR AND REFERTILIZE DAMAGES AREAS IMMEDIATELY. TOPDRESS WITH 50 LB/ACRE OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/ACRE KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

PERMANENT SEED SCHEDULE (MAY 1-AUGUST 15)

GRASS SPECIES BLEND	PLANTING RATE	MIN. % PURE SEED	MAX. % WEED SEED
HULLED SUNSTAR OR RIVIERA BERMUDA	200-LBS PER 1-ACRE	98%	1%



NOTE:
USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.

MAINTENANCE
INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

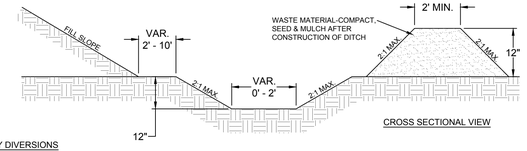
REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.

REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SILT FENCE
NO SCALE

NOTES:
1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR BMP.
2. SILT SHALL BE REMOVED WHEN DITCH IS ONE-HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAC, AND/OR EROSION CONTROL NETTING.

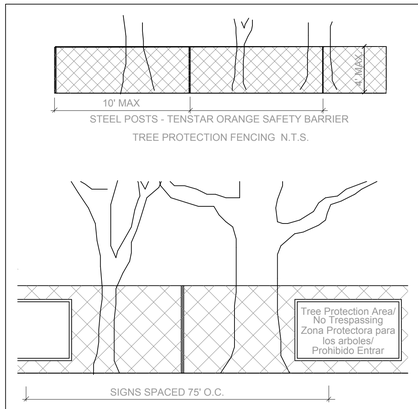
MAINTENANCE
INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.



TEMPORARY DIVERSIONS

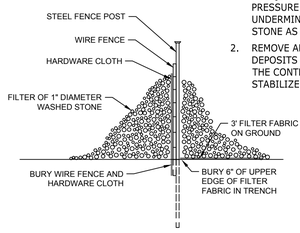
DIVERSION DITCH
NO SCALE

DITCH	TOTAL FLOW (CFS)	SLOPE (%)	BOTTOM WIDTH (FT)	RIGHT SLOPE (H:V)	LEFT SLOPE (H:V)	FLOW DEPTH (FT)	TEMPORARY LINER

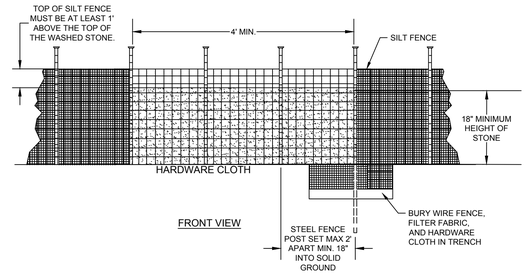


TREE PROTECTION FENCE
NO SCALE

MAINTENANCE NOTES:
1. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE/OUTLET. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT. REMOVE & REPLACE STONE AS NECESSARY AS IT BECOMES CLOGGED WITH SEDIMENT.
2. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

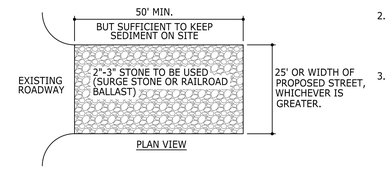


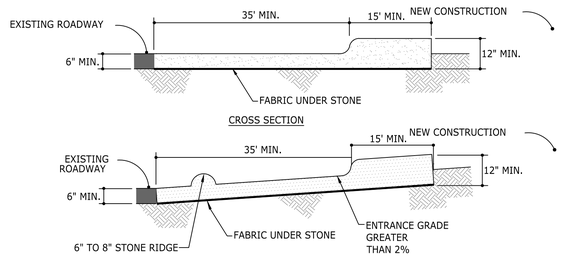
NOTES:
1. INSTALL SILT FENCE PER STD. SILT FENCE DETAIL.
2. LOCATE REINFORCED OUTLET AT LOW POINTS OF SILT FENCE BARRIER.
3. PLACE RIP RAP WITH CARE. DO NOT TEAR SILT FENCE FABRIC.



REINFORCED SILT FENCE OUTLET
NO SCALE

NOTES:
1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
3. MAINTAIN GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING CONSTRUCTION SITE. ENTRANCE WILL REQUIRE PERIODIC REMOVAL OF SEDIMENT-LADEN STONE AND REPLACEMENT WITH FRESH STONE.





MAINTENANCE
MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH TWO-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

GRAVEL CONSTRUCTION ENTRANCE
NO SCALE

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NOTES AND DETAILS

Sheet No.
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GOOD SEEDBED PREPARATION IS ESSENTIAL TO SUCCESSFUL PLANT ESTABLISHMENT. A GOOD SEEDBED IS WELL-PULVERIZED, LOOSE, AND UNIFORM. WHERE HYDROSEEDING METHODS ARE USED, THE SURFACE MAY BE LEFT WITH A MORE IRREGULAR SURFACE OF LARGE CLODS AND STONES.

- **LIMING -** APPLY LIME ACCORDING TO SOIL TEST RECOMMENDATIONS. IF THE PH (ACIDITY) OF THE SOIL IS NOT KNOWN, AN APPLICATION OF GROUND AGRICULTURAL LIMESTONE AT THE RATE OF 1 TO 1 1/2 TONS/ACRE ON COARSE-TEXTURED SOILS AND 2-3 TONS/ACRE ON FINE-TEXTURED SOILS IS USUALLY SUFFICIENT. APPLY LIMESTONE UNIFORMLY AND INCORPORATE INTO THE TOP 4-6 INCHES OF SOIL. SOILS WITH A PH OF 6 OR HIGHER NEED NOT BE LIMED.
- **FERTILIZER -** BASE APPLICATION RATES ON SOIL TESTS. WHEN THESE ARE NOT POSSIBLE, APPLY A 10-10-10 GRADE FERTILIZER AT 700-1,00 LB/ACRE. BOTH FERTILIZER AND LIME SHOULD BE INCORPORATED INTO THE TOP 4-6 INCHES OF SOIL. IF A HYDRAULIC SEEDER IS USED, DO NOT MIX SEED AND FERTILIZER MORE THAN 30 MINUTES BEFORE APPLICATION.
- **SURFACE ROUGHENING -** IF RECENT TILLAGE OPERATIONS HAVE RESULTED IN A LOOSE SURFACE, ADDITIONAL ROUGHENING MAY NOT BE REQUIRED, EXCEPT TO BREAK UP LARGE CLODS. IF RAINFALL CAUSES THE SURFACE TO BECOME SEALED OR CRUSTED, LOOSEN IT JUST PRIOR TO SEEDING BY DISKING, RAKING, HARROWING, OR OTHER SUITABLE METHODS. GROOVE OR FURROW SLOPES STEEPER THAN 3:1 ON THE CONTOUR BEFORE SEEDING (REFER TO THE NCDEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, PRACTICE 6.03, SURFACE ROUGHENING).

PLANT SELECTION

- SELECT AN APPROPRIATE SPECIES OR SPECIES MIXTURE FROM TABLE 6.10A FOR SEEDING IN LATE WINTER AND EARLY SPRING, TABLE 6.10B FOR SUMMER, AND TABLE 6.10C FOR FALL.
- IN THE MOUNTAINS, DECEMBER AND JANUARY SEEDING HAVE POOR CHANCES OF SUCCESS. WHEN IT IS NECESSARY TO PLANT AT THESE TIMES, USE RECOMMENDATIONS FOR FALL AND A SECURELY TACKED MULCH.

SEEDING

- EVENLY APPLY SEED USING A CYCLONE SEEDER (BROADCAST), DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. USE SEEDING RATES GIVEN IN TABLES 6.10A-6.10C. BROADCAST SEEDING AND HYDROSEEDING ARE APPROPRIATE FOR STEEL SLOPES WHERE EQUIPMENT CANNOT BE DRIVEN. HAND BROADCASTING IS NOT RECOMMENDED BECAUSE OF THE DIFFICULTY IN ACHIEVING A UNIFORM DISTRIBUTION.
- SMALL GRAINS SHOULD BE PLANTED NO MORE THAN 1 INCH DEEP, AND GRASSES AND LEGUMES NO MORE THAN 1/2 INCH. BROADCAST SEED MUST BE COVERED BY RAKING OR CHAIN DRAGGING, AND THEN LIGHTLY FIRMED WITH A ROLLER OR CULTIPACKER. HYDROSEEDED MIXTURES SHOULD INCLUDE A WOOD FIBER (CELLULOSE) MULCH.

MULCHING

THE USE OF AN APPROPRIATE MULCH WILL HELP ENSURE ESTABLISHMENT UNDER NORMAL CONDITIONS, AND IS ESSENTIAL TO SEEDING SUCCESS UNDER HARSH SITE CONDITIONS (REFER TO THE NCDEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, PRACTICE 6.14, MULCHING). HARSH SITE CONDITIONS INCLUDE:

- SEEDING IN FALL FOR WINTER COVER (WOOD FIBER MULCHES ARE NOT CONSIDERED ADEQUATE FOR THIS USE),
- SLOPES STEEPER THAN 3:1,
- EXCESSIVELY HOT OR DRY WEATHER,
- ADVERSE SOILS (SHALLOW, ROCKY, OR HIGH IN CLAY OR SAND), AND
- AREAS RECEIVING CONCENTRATED FLOW.

IF THE AREA TO BE MULCHED IS SUBJECT TO CONCENTRATED WATERFLOW, AND IN CHANNELS, ANCHOR MULCH WITH NETTING (REFER TO THE NCDEQ EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL, PRACTICE 6.14, MULCHING).

TEMPORARY SEEDING MAINTENANCE

RESEED AND MULCH AREAS WHERE SEEDING EMERGENCE IS POOR, OR WHERE EROSION OCCURS, AS SOON AS POSSIBLE. DO NOT MOW. PROTECT FROM TRAFFIC AS MUCH AS POSSIBLE.

TEMPORARY SEED SCHEDULE (Jan 1 - May 1)

GRASS SPECIES BLEND	PLANTING RATE	MIN. % PURE SEED	MAX. % WEED SEED
ANNUAL RYE GRASS	50-LBS PER 1-ACRE	85%	1%

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,00LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

TEMPORARY SEED SCHEDULE (May 1 - Sept 30)

GRASS SPECIES BLEND	PLANTING RATE	MIN. % PURE SEED	MAX. % WEED SEED
GERMAN MILLET	30-LBS PER 1-ACRE	85%	1%

SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,00LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

NOTES:
1. PERMANENT SEEDING FOR THIS PROJECT SHALL OCCUR BETWEEN MAY 1-AUGUST 15. ADJUSTED AS NECESSARY FOR ADEQUATE GROUND TEMPERATURES. GROUND TEMPERATURES SHALL BE IN THE RANGE OF 60-80 DEGREES FOR GERMINATION.
2. REFER TO SPECIFICATION SECTION 329200

TEMPORARY/PERMANENT SEEDING
NO SCALE

TEMPORARY SEED SCHEDULE (Oct 1 - Dec 30)

GRASS SPECIES BLEND	PLANTING RATE	MIN. % PURE SEED	MAX. % WEED SEED
ANNUAL RYE GRASS	50-LBS PER 1-ACRE	85%	1%

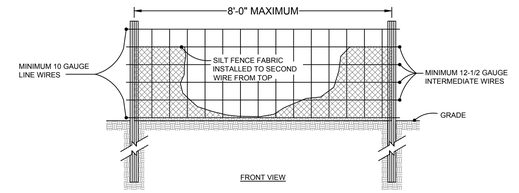
SOIL AMENDMENTS:
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,00LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 1,000 LB/ACRE 10-10-10 FERTILIZER.

MULCH:
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE:
REPAIR AND REFERTILIZE DAMAGES AREAS IMMEDIATELY. TOPDRESS WITH 50 LB/ACRE OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/ACRE KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

PERMANENT SEED SCHEDULE (MAY 1-AUGUST 15)

GRASS SPECIES BLEND	PLANTING RATE	MIN. % PURE SEED	MAX. % WEED SEED
HULLED SUNSTAR OR RIVIERA BERMUDA	200-LBS PER 1-ACRE	98%	1%



NOTE:
USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.

MAINTENANCE
INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

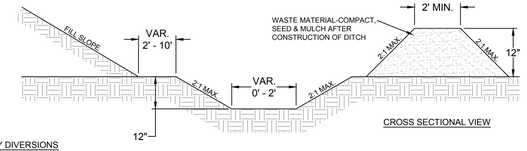
REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.

REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SILT FENCE
NO SCALE

NOTES:
1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR BMP.
2. SILT SHALL BE REMOVED WHEN DITCH IS ONE-HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAC, AND/OR EROSION CONTROL NETTING.

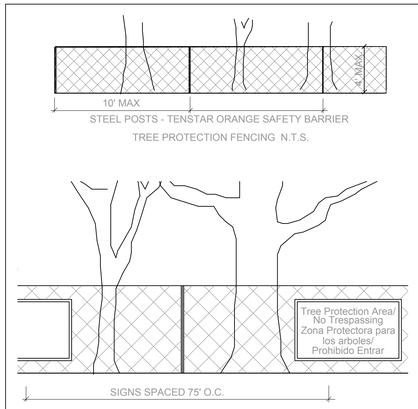
MAINTENANCE
INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.



TEMPORARY DIVERSIONS

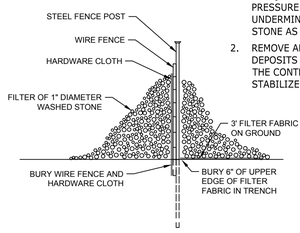
DIVERSION DITCH
NO SCALE

DITCH	TOTAL FLOW (CFS)	SLOPE (%)	BOTTOM WIDTH (FT)	RIGHT SLOPE (H:V)	LEFT SLOPE (H:V)	FLOW DEPTH (FT)	TEMPORARY LINER

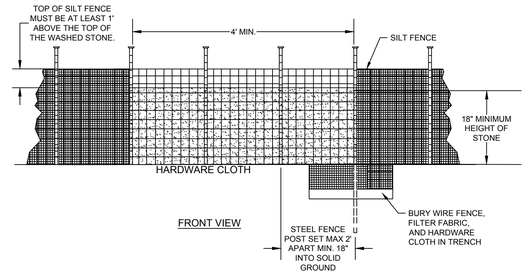


TREE PROTECTION FENCE
NO SCALE

MAINTENANCE NOTES:
1. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE/OUTLET. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT. REMOVE & REPLACE STONE AS NECESSARY AS IT BECOMES CLOGGED WITH SEDIMENT.
2. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

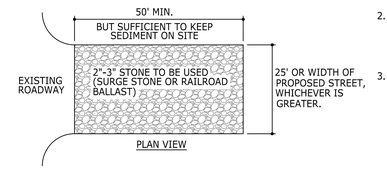


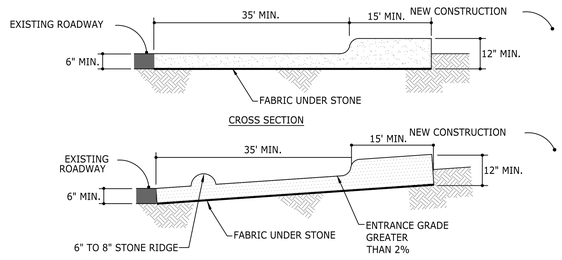
NOTES:
1. INSTALL SILT FENCE PER STD. SILT FENCE DETAIL.
2. LOCATE REINFORCED OUTLET AT LOW POINTS OF SILT FENCE BARRIER.
3. PLACE RIP RAP WITH CARE. DO NOT TEAR SILT FENCE FABRIC.



REINFORCED SILT FENCE OUTLET
NO SCALE

NOTES:
1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
3. MAINTAIN GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING CONSTRUCTION SITE. ENTRANCE WILL REQUIRE PERIODIC REMOVAL OF SEDIMENT-LADEN STONE AND REPLACEMENT WITH FRESH STONE.





MAINTENANCE
MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH TWO-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

GRAVEL CONSTRUCTION ENTRANCE
NO SCALE

GENERAL NOTE

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.

WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITHIN THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER OF WORK OR MATERIAL CALLED FOR, SHALL SUBMIT A WRITTEN STATEMENT WITH HIS PROPOSAL NOTING SUCH DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.

Project No.
56398

Date:
03/29/2024
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Revisions:

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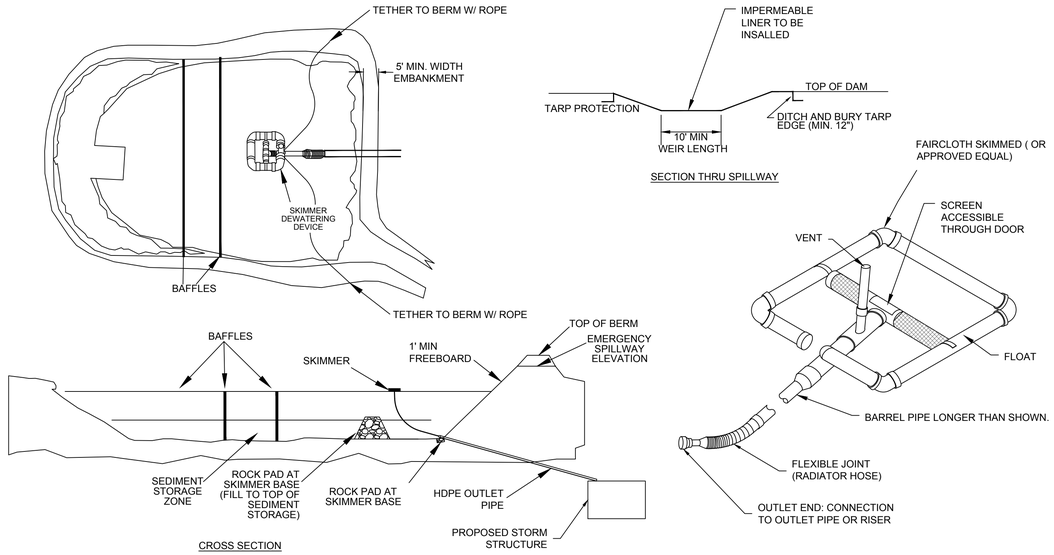
NEW HANOVER COUNTY FIRE DEPARTMENT

NOTES AND DETAILS

Sheet No.
C5.7



CROSS SECTION

SECTION THRU SPILLWAY

BASIN NUMBER	DRAIN AREA(ACRES)	DISTB. AREA(ACRES)	PEAK FLOW(CFS)	BASIN SURFACE AREA(SF)	REQUIRED SURFACE AREA(SF)	BASIN VOLUME (CF)	REQUIRED BASIN VOLUME (CF)	SPILLWAY LENGTH (FT)	SKIMMER ORIFICE DIAMETER (IN.)	TOP OF BERM ELEV.	EMERGENCY SPILLWAY ELEV.	BOTTOM OF BASIN ELEV.	SIDE SLOPES	DEWATERING TIME (DAYS)

BASIN SIDES AND WEIR SHALL HAVE MAXIMUM SLOPES OF 2:1 OR FLATTER. DIMENSIONS SHOWN ARE AT WEIR ELEVATION OF BASIN VOLUMES PROVIDED ARE BASED ON AVAILABLE VOLUME AT THE PRINCIPAL SPILLWAY

SEDIMENT BASIN WITH STANDARD SKIMMER
NO SCALE

MAINTENANCE NOTES:

INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (ONE-HALF INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FIRST BAFFLE. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN, NOT JUST AROUND THE SKIMMER OR THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.

REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM. IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK, PULL THE SKIMMER OVER TO THE SIDE OF THE BASIN AND REMOVE THE DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER TO SEE IF IT IS CLOGGED; IF SO REMOVE THE DEBRIS.

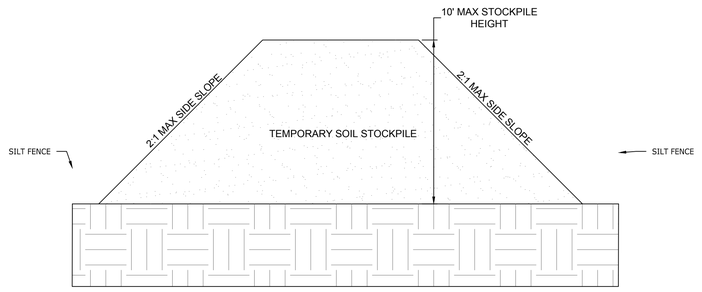
IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.

CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS.

FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.

CONSTRUCTION SEQUENCE

1. CLEAR, GRUB, AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER AND STOCKPILE OR DISPOSE OF IT PROPERLY. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW BASIN AS NEEDED.
2. ENSURE THAT FILL MATERIAL FOR THE EMBANKMENT IS FREE OF ROOTS, WOODY VEGETATION, ORGANIC MATTER, AND OTHER OBJECTIONABLE MATERIAL. PLACE THE FILL IN LIFTS NOT TO EXCEED 9 INCHES, AND MACHINE COMPACT IT. OVER FILL THE EMBANKMENT 6 INCHES TO ALLOW FOR SETTLEMENT.
3. SHAPE THE BASIN TO THE SPECIFIED DIMENSIONS. PREVENT THE SKIMMING DEVICE FROM SETTLING INTO THE MUD BY EXCAVATING A SHALLOW PIT UNDER THE SKIMMER OR PROVIDING A LOW SUPPORT UNDER THE SKIMMER OF STONE OR TIMBER.
4. PLACE THE BARREL (TYPICALLY 4-INCH SCHEDULE 40 PVC PIPE) ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PERVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS BACKFILL AROUND THE PIPE. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4-INCH LAYERS AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM THE FIRM CONTACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE HAUNCHES. PLACE A MINIMUM DEPTH OF 2 FEET OF COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.
5. ASSEMBLE THE SKIMMER FOLLOWING THE MANUFACTURERS INSTRUCTIONS, OR AS DESIGNED.
6. LAY THE ASSEMBLED SKIMMER ON THE BOTTOM OF THE BASIN WITH THE FLEXIBLE JOINT AT THE INLET OF THE BARREL PIPE. ATTACH THE FLEXIBLE JOINT TO THE BARREL PIPE AND POSITION THE SKIMMER OVER THE EXCAVATED PIT OR SUPPORT. BE SURE TO ATTACH A ROPE TO THE SKIMMER AND ANCHOR IT TO THE SIDE OF THE BASIN. THIS WILL BE USED TO PULL THE SKIMMER TO THE SIDE FOR MAINTENANCE.
7. EARTHEN SPILLWAYS--INSTALL THE SPILLWAY IN UNDISTURBED SOIL TO THE GREATEST EXTENT POSSIBLE. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE SPILLWAY. THE SPILLWAY SHOULD BE LINED WITH LAMINATED PLASTIC OR IMPERMEABLE GEOTEXTILE FABRIC. THE FABRIC MUST BE WIDE AND LONG ENOUGH TO COVER THE BOTTOM AND SIDES AND EXTEND ONTO THE TOP OF THE DAM FOR ANCHORING IN A TRENCH. THE EDGES MAY BE SECURED WITH 8-INCH STAPLES OR PINS. THE FABRIC MUST BE LONG ENOUGH TO EXTEND DOWN THE SLOPE AND EXIT ONTO STABLE GROUND. THE WIDTH OF THE FABRIC MUST BE ONE PIECE, NOT JOINED OR SPLICED; OTHERWISE WATER CAN GET UNDER THE FABRIC. IF THE LENGTH OF THE FABRIC IS INSUFFICIENT FOR THE ENTIRE LENGTH OF THE SPILLWAY, MULTIPLE SECTIONS, SPANNING THE COMPLETE WIDTH, MAY BE USED. THE UPPER SECTION(S) SHOULD OVERLAP THE LOWER SECTION(S) SO THAT WATER CANNOT FLOW UNDER THE FABRIC. SECURE THE UPPER EDGE AND SIDES OF THE FABRIC IN A TRENCH WITH STAPLES OR PINS. (ADAPTED FROM "A MANUAL FOR DESIGNING, INSTALLING AND MAINTAINING SKIMMER SEDIMENT BASINS." FEBRUARY, 1999. J. W. FAIRCLOTH & SON.).
8. INLETS--DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE TEMPORARY SLOPE DRAINS OR DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT- LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY (REFERENCES: RUNOFF CONTROL MEASURES AND OUTLET PROTECTION).
9. EROSION CONTROL--CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINCIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION (REFERENCES: SURFACE STABILIZATION).
10. INSTALL POROUS BAFFLES AS SPECIFIED IN PRACTICE 6.65
11. AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND STABILIZE PROPERLY (REFERENCES: SURFACE STABILIZATION).



CROSS SECTIONAL VIEW

NOTES:

1. SEDIMENT BARRIERS: USE SEDIMENT FENCES OR OTHER BARRIERS WHERE NECESSARY TO RETAIN SEDIMENT.
2. TEMPORARY SEEDING: PROTECT TOPSOIL STOCKPILES BY TEMPORARILY SEEDING AS SOON AS POSSIBLE, NO MORE THAN 7 CALENDAR DAYS AFTER THE FORMATION OF THE STOCKPILE (NCG01 GROUND STABILIZATION).
3. PERMANENT VEGETATION: IF STOCKPILES WILL NOT BE USED WITHIN 90 DAYS THEY MUST BE STABILIZED WITH PERMANENT VEGETATION TO CONTROL EROSION AND WEED GROWTH (PRACTICE 6.11, PERMANENT SEEDING).
4. INSTALL SILT FENCE OUTLETS AT LOW POINTS AS NEEDED.
5. HEIGHT OF STOCKPILE CAN BE NO MORE THAN 10' MAX

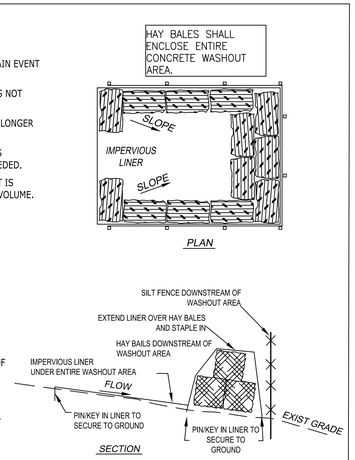
TEMPORARY SOIL STOCKPILE
NOT TO SCALE

MAINTENANCE NOTES:

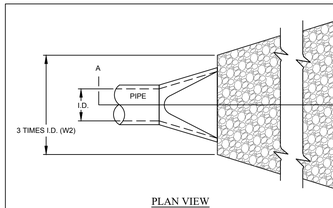
1. INSPECT AREA REGULARLY AND AFTER EACH RAIN EVENT AND MAKE REPAIRS PROMPTLY.
2. ENSURE CONCRETE IS BEING CAPTURED AND IS NOT FLOWING THROUGH OR AROUND BARRIERS.
3. REPLACE HAY BALES AND SILT FENCE THAT NO LONGER DRAIN OR FILTER EFFICIENTLY.
4. REPLACE OR PATCH IMPERVIOUS LINER THAT IS BECOMES DAMAGED. RE-ANCHOR LINER AS NEEDED.
5. REMOVE ACCUMULATED DRIED CONCRETE THAT IS IMPEDING DRAINAGE OR REDUCING STORAGE VOLUME. DISPOSE OF WASTE CONCRETE PROPERLY.

NOTES:

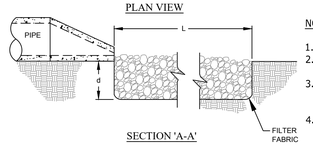
1. LOCATE WASH-OUT AREA AT LEAST 50' FROM OPEN WATERS AND DRAINAGE INLETS.
2. LINE LIMITS OF TEMP CONCRETE WASH OUT AREA WITH IMPERVIOUS LINER OF 8-MIL LAMINATED PLASTIC GEOTEXTILE FABRIC (DURA-SKRIM 8BW OR APPROVED EQUAL).
3. ADD STRAW BAILS ON DOWN-GRADIENT END OF LINER.
4. PROPERLY DISPOSE OF DRIED CONCRETE AND RESTORE AREA TO FINAL GRADES AND SURFACES AT COMPLETION OF CONSTRUCTION.



CONCRETE WASHOUT AREA
NO SCALE



MAINTENANCE
RIP RAP SHOULD BE INSPECTED PERIODICALLY FOR SCOUR OR DISLODGED STONES. CONTROL OF WEED AND BRUSH GROWTH MAY BE NEEDED IN SOME LOCATIONS.



NOTES:

1. L = THE LENGTH OF THE RIPRAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (INCHES).
3. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.
4. MAINTAIN ENERGY DISSIPATERS INSTALLED DURING EARLY SITE WORK THROUGHOUT THE CONSTRUCTION AREA.

ENERGY DISSIPATER SCHEDULE

	PIPE SIZE	W1 (FT)	W2 (FT)	LENGTH (FT)	THICKNESS (IN). (d)	D50 SIZE (IN.)	STONE CLASS

RIPRAP OUTLET PROTECTION
NO SCALE

GENERAL NOTE

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.

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Project No.
56398

Date:
03/29/2024
Drawn by:
J GLAS
Checked by:
W ALTMAN
Revisions:

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NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

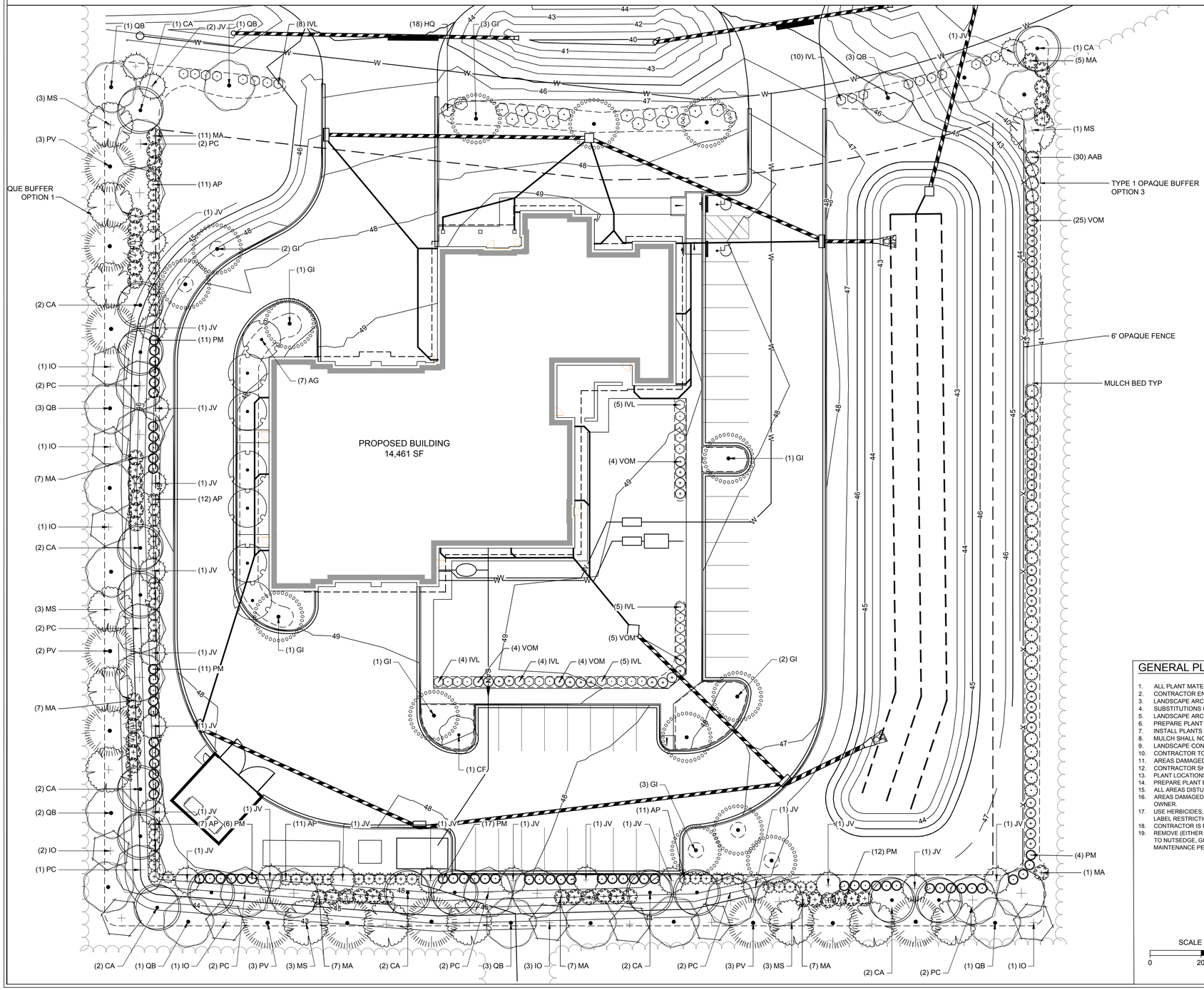
GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

NOTES AND DETAILS

Sheet No.
C5.8

PLANT SCHEDULE							
CODE	QTY	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	ROOT	TYPE	TYPE
TREES							
AG	7	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE APPLE SERVICEBERRY	6` HT. MIN.	B&B OR CONTAINER	UNDERSTORY TREE	NATIVE
CA	16	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2" CAL., 6` HT. MIN.	B&B OR CONTAINER	CANOPY TREE	NATIVE
CF	1	CORNUS FLORIDA	FLOWERING DOGWOOD	6` HT. MIN.	B&B OR CONTAINER	UNDERSTORY TREE	NATIVE
GI	14	GLEDITSIA TRIACANTHOS INERMIS	THORNLESS HONEY LOCUST	2" CAL., 6` HT. MIN.	B&B OR CONTAINER	CANOPY TREE	NATIVE
IO	10	ILEX OPACA	AMERICAN HOLLY	6` HT. MIN.	B&B OR CONTAINER	UNDERSTORY TREE	NATIVE
JV	22	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	6` HT. MIN.	B&B OR CONTAINER	UNDERSTORY TREE	NATIVE
MS	13	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	6` HT. MIN.	B&B OR CONTAINER	UNDERSTORY TREE	NATIVE
PV	11	PINUS VIRGINIANA	VIRGINIA PINE	2" CAL., 6` HT. MIN.	B&B OR CONTAINER	CANOPY TREE	NATIVE
PC	15	PRUNUS CAROLINIANA	CAROLINA CHERRY LAUREL	6` HT. MIN.	B&B OR CONTAINER	UNDERSTORY TREE	NATIVE
QB	15	QUERCUS BICOLOR	SWAMP WHITE OAK	2" CAL., 6` HT. MIN.	B&B OR CONTAINER	CANOPY TREE	NATIVE

PLANT SCHEDULE								
CODE	QTY	BOTANICAL NAME	COMMON NAME	MIN. INSTALLED SIZE	ROOT	TYPE	TYPE	SPACING
SHRUBS								
AP	52	AGARISTA POPULIFOLIA	PIPESTEM	24" HT./SPRD.	CONTAINER	EVERGREEN	NATIVE	60" o.c.
AAB	30	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'	BRILLIANT RED CHOKEBERRY	18" HT./SPRD.	CONTAINER	DECIDUOUS	NATIVE	60" o.c.
HQ	18	HYDRANGEA QUERCIFOLIA	OAKLEAF HYDRANGEA	24" HT./SPRD.	CONTAINER	DECIDUOUS	NATIVE	60" o.c.
IVL	41	ITEA VIRGINICA 'LITTLE HENRY'	VIRGINIA SWEETSPIRE	18" HT./SPRD.	CONTAINER	DECIDUOUS	NATIVE	48" o.c.
MA	52	MYRICA CERIFERA	SOUTHERN WAX MYRTLE	60" HT.	B&B OR CONTAINER	EVERGREEN	NATIVE	72" o.c.
PM	61	PODOCARPUS MACROPHYLLUS	YEW PODOCARPUS	60" HT.	B&B OR CONTAINER	EVERGREEN		48" o.c.
VOM	42	VIBURNUM OBOVATUM 'MRS. SCHILLER'S DELIGHT'	MRS. SCHILLERS DELIGHT WALTER'S VIBURNUM	18" HT./SPRD.	CONTAINER	EVERGREEN	NATIVE	48" o.c.



LANDSCAPE CALCULATIONS

TRANSITIONAL BUFFER
SEC. 5.4.3

- INSTALLED ALONG STREETS SANS AREAS USED FOR DRIVEWAYS, INGRESS, AND EGRESS.
- WIDTH OF BUFFER IN PARTICULAR LOCATIONS MAY BE REDUCED BY UP TO 50 PERCENT AS LONG AS TOTAL AREA OF LANDSCAPE BUFFER PROVIDED IS THE SAME AS IF THE WIDTH WERE NOT REDUCED

TYPE A OPAQUE BUFFER REQUIREMENTS :

OPTION 1: VEGETATION ONLY
- MIN. DEPTH: 20 FEET
- MINIMUM OF THREE ROWS OF PLANTED MATERIAL
- PLANTED MATERIALS SHALL BE A MINIMUM OF SIX FEET IN HEIGHT AND PROVIDE APPROXIMATELY FULL OPACITY WITHIN ONE YEAR OF PLANTING

OPTION 3: COMBINATION FENCING AND VEGETATION
- MIN. DEPTH: 50 PERCENT OF MINIMUM REQUIRED SETBACK (12 FEET)
- FENCING SHALL BE BETWEEN 6 AND 10 FEET IN HEIGHT
- PLANTED MATERIALS SHALL BE LOCATED BETWEEN THE FENCE AND COMMON PROPERTY LINE
- IF SOLID FENCING IS USED, PLANTED MATERIAL SHALL BE A MINIMUM OF THREE FEET IN HEIGHT AND PROVIDE A MINIMUM OF 50 PERCENT VISUAL OPACITY AT INSTALLATION

STREET YARD
SEC. 5.4.6

- STREET YARD LANDSCAPING SHALL BE REQUIRED ALONG ALL STREET FRONTAGES
- ONLY THE PRIMARY STREET FRONTAGE SHALL BE REQUIRED TO CONTAIN THE FULL AMOUNT; SECONDARY STREET FRONTAGES ARE REQUIRED TO CONTAIN 50 PERCENT OF STREET YARD AREA
- AREAS OF DRIVEWAYS, WALKWAYS, AND PEDESTRIAN FACILITIES ARE NOT INCLUDED IN LINEAR STREET FRONTAGE
- MIN WIDTH : 8 FEET
- MAX WIDTH : 18 FEET

REQUIREMENTS :
12 SQUARE FEET FOR EVERY LINEAR FOOT OF STREET YARD FRONTAGE

CANOPY TREES PER 600 SF: 1 OR 3 UNDERSTORY TREES IF UNDER POWER LINES
SHRUBS REQUIRED PER 600 SF: 6

RD FRONTAGE (374 LF) - DRIVEWAYS (45 + 30 LF) = 298 LF

REQUIRED:	PROVIDED:
6 CANOPY TREES	6 CANOPY TREES
36 SHRUBS	36 SHRUBS

PARKING LOT - SCREENING
SEC. 5.4.5

- A LANDSCAPED STRIP SHALL BE REQUIRED ALONG ANY SIDE OF A PARKING LOT ABUTTING LAND IN A RESIDENTIAL ZONING DISTRICT
- THE PERIMETER LANDSCAPING STRIP SHALL BE A MINIMUM OF TEN FEET IN WIDTH
- MINIMUM OF ONE TREE FOR EVERY 20 LINEAR FEET OF PLANTING STRIP
- PERIMETER LANDSCAPE STRIP MAY BE USED AS PART OF A TRANSITIONAL BUFFER

PARKING LOT - INTERIOR AREA LANDSCAPING

- LANDSCAPED AREA IN THE INTERIOR OF PARKING LOTS SHALL BE EQUAL TO 8 PERCENT OF TOTAL AREA TO BE USED FOR VEHICULAR USE
- LANDSCAPE ISLANDS SHALL BE A MINIMUM OF 12 FEET BACK OF CURB TO BACK OF CURB
- INTERIOR LANDSCAPED AREAS SHALL BE EQUAL TO 8 PERCENT OF TOTAL VEHICULAR USE AREA
- ONE TREE SHALL BE REQUIRED PER EVERY 144 SQUARE FEET, WITH A MINIMUM OF ONE TREE PER ISLAND

VEHICULAR AREA USE = 34,620 SF 34,620 X .08 = 2,769.6 SF INTERIOR LANDSCAPED AREA
2,769.6 / 144 = 19 TREES REQUIRED

FOUNDATION PLANTINGS
SEC. 5.4.7

- FOUNDATION PLANTING AREA SHALL BE MINIMUM OF 12 PERCENT OF THE BUILDING FACE ADJACENT TO THE PARKING AREA OR INTERNAL DRIVE

SOUTHERN FACE = 3,383 SF EASTERN FACE = 2,354 SF TOTAL = 5,958 SF

5,737 X 0.12 = 688 SF FOUNDATION PLANTING AREA REQUIRED
700 SF PROVIDED

GENERAL PLANTING NOTES

1. ALL PLANT MATERIALS TO COMPLY WITH AMERICAN STANDARD FOR NURSERY STOCK ANSI.Z60.
2. CONTRACTOR ENGAGED IN LANDSCAPE IMPLEMENTATION SHALL BE A LANDSCAPE CONTRACTOR LICENSED IN THE STATE OF NORTH CAROLINA.
3. LANDSCAPE ARCHITECT TO APPROVE BED LAYOUT IN FIELD PRIOR TO PLANT INSTALLATION.
4. SUBSTITUTIONS OF PLANT MATERIALS SPECIFIED CAN ONLY OCCUR WITH PRIOR APPROVAL BY LANDSCAPE ARCHITECT.
5. LANDSCAPE ARCHITECT RESERVES RIGHT TO REJECT ANY PLANT MATERIAL THAT DOES NOT MEET THE SPECIFICATIONS.
6. PREPARE PLANT BEDS PER SPECIFICATIONS.
7. INSTALL PLANTS AND MULCH BEDS WITH 3" OF TRIPLE-SHREDDED HARDWOOD MULCH EXCEPT WHERE SPECIFIED DIFFERENTLY.
8. MULCH SHALL NOT EXCEED 3" IN DEPTH NOR COME INTO CONTACT WITH TREE TRUNK.
9. LANDSCAPE CONTRACTOR TO GUARANTEE PLANT MATERIALS FOR A ONE YEAR PERIOD FOLLOWING SUBSTANTIAL COMPLETION PER SPECIFICATIONS.
10. CONTRACTOR TO MAINTAIN PLANT MATERIAL PER SPECIFICATIONS.
11. AREAS DAMAGED BY LANDSCAPE CONTRACTOR TO BE REPAIRED AT NO ADDITIONAL COST TO OWNER.
12. CONTRACTOR SHALL INSURE THAT ALL PLANT MATERIAL IS FREE OF FIRE ANTS PRIOR TO INSTALLATION.
13. PLANT LOCATIONS TO BE APPROVED IN FIELD PRIOR TO INSTALLATION. NO TREES MAY BE INSTALLED BETWEEN APRIL 1ST AND OCTOBER 1ST.
14. PREPARE PLANT BEDS PER SPECIFICATIONS.
15. ALL AREAS DISTURBED AND NOT NOTED FOR IMPROVEMENTS, PLANT BEDS OR SOD SHALL BE SEEDED AND STRAWED WITH AN APPROVED TALL FESCUE SEED MIX.
16. AREAS DAMAGED FROM PLANT RELOCATION OR OTHER ACTIVITIES OF LANDSCAPE CONTRACTOR TO BE RESEEDED AND ESTABLISHED AT NO ADDITIONAL COST TO THE OWNER.
17. USE HERBICIDES, PESTICIDES, AND FERTILIZER IN A MANNER CONSISTENT WITH THE FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT AND IN ACCORDANCE WITH LABEL RESTRICTIONS.
18. CONTRACTOR IS RESPONSIBLE FOR IMPORTING, TESTING, AND PREPARING THE SOIL ON SITE PER THE SPECIFICATIONS
19. REMOVE (EITHER MANUALLY OR WITH PESTICIDE TREATMENT) ALL WEEDS IN MULCH AREAS, PLANT BEDS, TREE RINGS, AND HARDSCAPE AREAS: INCLUDING BUT NOT LIMITED TO NUTSEDGE, GRASSES, INVASIVE PLANTS, AND ANY NON-DESIRABLE PLANT MATERIAL. THIS TREATMENT SHALL OCCUR MONTHLY UNTIL THE END OF THE WARRANTY / MAINTENANCE PERIOD.

SCALE 1"=20'
0 20' 40'
NAD 83

GENERAL NOTE

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Revisions:

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NORTH CAROLINA PROFESSIONAL SEAL 045892 ENGINEER William P. Altman

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY FIRE DEPARTMENT

PLANTING PLAN

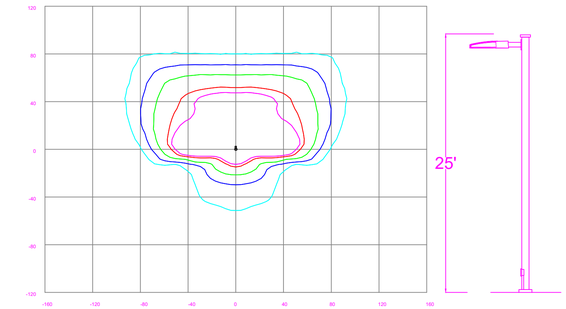
Sheet No.
L1.0

ISOFOOTCANDLE CURVES

FIXTURE: LED150W SHOEBOX
MOUNTING HEIGHT: 25 FT
LIGHT SOURCE: LED'S, 3000K, 70 CRI
LUMENS - 16176
PATTERN: TYPE IV B2-U0-G3 (zero light at or above 90 degrees)

NOTE: THE FOOTCANDLE READINGS BELOW ARE MAINTAINED AND HAVE BEEN DEPRECIATED FOR LED LUMEN DEPRECIATION AND LUMINAIRE DIRT DEPRECIATION. FOR INITIAL FOOTCANDLES, DIVIDE THE READINGS BELOW BY .85.

ASSY# LFIX-SBX-LED-150-BLK-IV-3000K-____-P
POLE ASSY# LPOLE-AB-STL-25FT-BLK-SQ-____-P (BLACK)
BRACKET ASSY# LBKT-SIDE-12IN-BLK-UNV-STL-____-P (BLACK)



LEGEND (OUTER to INNER): 0.10 , 0.25 , 0.50 , 1.00 , 1.25

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking	+	1.1 fc	2.4 fc	0.3 fc	8.0:1	3.7:1

Schedule

Symbol	Label	Quantity	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor
	A	3	LED 150w Shoebox - Type IV - 3000K	48	337	0.85

NO.	DATE	REVISION	BY

DISTANCE CALIBRATION (INCHES)
0 0.5 1.0 2.0 3.0 4.0

LIGHTING DESIGN TOLERANCE

The calculated footcandle light levels in this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy. Any inaccuracies in the supplied information, differences in luminaire installation, lighted area geometry including elevation differences, reflective properties of surrounding surfaces, obstructions (foliage or otherwise) in the lighted area, or lighting from sources other than listed in this design may produce different results from the predicted values. Normal tolerances of voltage, lamp output, and ballast and luminaire manufacture will also affect results.

DUKE ENERGY® PROGRESS

PROPRIETARY & CONFIDENTIAL

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FIRE STATION
Castle Hayne, NC
SITE LIGHTING ARRANGEMENT
Designed by DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by N. Johnson Scale 1" = 30'
Date 03/22/2024 Size Drawing size "D"
Description LED Shoebox
Drawing No. 24-0108A Sht. 1 OF 1

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

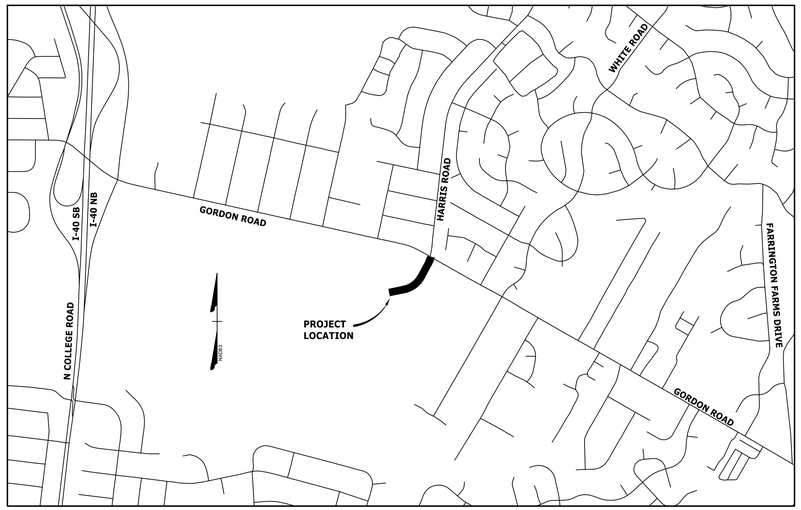
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GORDON ROAD FIRE STATION
OFFSITE IMPROVEMENTS
GORDON ROAD
NEW HANOVER COUNTY, NORTH CAROLINA

DATE: 03/29/2024

SHEET INDEX

COVER SHEET	R1.00
GENERAL NOTES, DETAILS & CONVENTIONAL SYMBOLS	R2.00
TYPICAL SECTIONS	R2.01
EXISTING CONDITIONS & PLAN & STRIPING SHEET	R3.01
GRADING & PROFILE SHEET	R3.02
STORM PROFILES & DRAINAGE DESCRIPTIONS	R6.01
EROSION & SEDIMENT CONTROL	R7.00
CROSS SECTIONS	R9.01 - R9.03



VICINITY MAP
SCALE: 1" =1000'

SURVEY NOTES:

1. HORIZONTAL CONTROL (BASIS OF THE BEARINGS) IS BASED ON NC STATE GRID, NAD'83 (2011); VERTICAL CONTROL IS BASED ON NAVD'88, AS ESTABLISHED BY GPS. ALL DISTANCES SHOWN HERON ARE GROUND DISTANCES.
2. CONTOUR INTERVALS ARE 1'.
3. THE LOCATION OF SUB SURFACE UTILITIES AS SHOWN HEREON, IF ANY, ARE BASED ON FIELD LOCATION OF SURFACE FEATURES AND MARKINGS PROVIDED BY NC 811 AND ARE APPROXIMATE. OTHER SUB SURFACE UTILITIES MAY EXIST ON THIS SITE THAT ARE NOT INCLUDED IN THIS SURVEY.
4. THIS MAP CONSTITUTES NEITHER A SUBDIVISION NOR A RECOMBINATION PLAT OF THE PARCELS OF LAND SHOWN HEREON. THIS MAP HAS NOT BEEN PREPARED IN ACCORDANCE WITH NC G.S. 47-30 AND IS NOT SUITABLE FOR RECORDING.
5. THERE ARE NO RECOVERABLE NGS MONUMENTS WITHIN 2000' OF THIS PROPERTY.

EXISTING CONDTIONS NOTES:

1. OTHER SOURCES OF INFORMATION INCLUDE TOWN GIS AND AERIAL IMAGERY.
2. THE UTILITIES ON THESE PLANS ARE APPROXIMATE ONLY, AND ARE NOT ACCURATE FOR CONSTRUCTION PURPOSES. FOR FIELD MARKS CALL 811.

DEMOLITION NOTES:

1. ALL UTILITIES OR STRUCTURES NOT INDICATED FOR REMOVAL OR MODIFICATION ARE TO REMAIN AND BE PROTECTED FROM DAMAGE.
2. ALL WASTE MATERIAL GENERATED FROM CLEARING AND DEMOLITION ACTIVITIES SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE RULES AND REGULATIONS.
3. REMOVE TOPSOIL AND STOCKPILE APPROPRIATELY ON-SITE. ON-SITE TEMPORARY STOCKPILES SHALL BE LOCATED WITHIN CONSTRUCTION LIMITS.
4. ALL PAVEMENT OR CONCRETE TO BE REMOVED SHALL BE SAW CUT TO PROVIDE A STRAIGHT AND UNIFORM JOINT WITH NEW CONSTRUCTION. ANY EXISTING PAVEMENT, SIDEWALK, CURB & GUTTER, ETC. THAT MUST BE REMOVED TO ALLOW NEW CONSTRUCTION SHALL BE REMOVED AND REPAIRED PER THE SPECIFICATIONS AND DETAILS OR TO MATCH EXISTING CONDITIONS (WHETHER OR NOT SHOWN ON THE DRAWINGS TO BE REMOVED). UTILITY INSTALLATIONS MAY UTILIZE OPEN CUT OF PAVEMENTS UNLESS INDICATED OTHERWISE. TRENCH IN EXISTING ASPHALT SHALL BE PATCHED PER PAVEMENT REPAIR DETAIL.
5. PROTECT ALL ADJACENT PROPERTIES, THE GENERAL PUBLIC AND ALL OF THE OWNER'S FACILITIES. SHOULD DAMAGE OCCUR, NOTIFY ENGINEER IMMEDIATELY.
6. THE CONTRACTOR SHALL USE NC ONE CALL (811) TO LOCATE ALL UNDERGROUND UTILITIES.
7. VERIFY ALL ILLUSTRATED KNOWN UNDERGROUND ELEMENTS. EXERCISE REASONABLE EFFORTS TO PROTECT ANY UNKNOWN UNDERGROUND ELEMENTS. NOTIFY THE ENGINEER IMMEDIATELY IF UNKNOWN ELEMENTS ARE DISCOVERED THAT WOULD NECESSITATE MODIFICATION TO THE PROPOSED DESIGN.
8. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND OSHA REGULATIONS.
9. EXISTING MANHOLES, VALVE BOXES, VAULTS, CLEANOUTS, UTILITY POLES ETC. TO REMAIN WITHIN THE GRADING LIMITS SHALL BE ADJUSTED AS NEEDED TO FUNCTION PROPERLY WITH THE PROPOSED FINISHED GRADES (WHETHER OR NOT INDICATED TO BE MODIFIED).
10. GENERAL CONTRACTOR TO COORDINATE ALL PEDESTRIAN ACCESS PATHS, LOCATIONS, LIGHTING ETC. WITH THE OWNER.
11. CONTRACTOR TO COORDINATE ALL WORK AS NEEDED WITH UTILITY COMPANIES, MUNICIPALITY, AND INSPECTORS.
12. CONTRACTOR TO COORDINATE ALL DEMOLITION WORK AS NEEDED WITH UTILITY COMPANIES AND MUNICIPALITIES. ALL WORK SHALL BE IN COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.
13. CONTRACTOR TO CONFIRM LOCATION OF ALL ONSITE UTILITY SERVICES AND COORDINATE REMOVAL AS NEEDED.

GRADING AND STORM DRAINAGE NOTES:

1. CONTRACTOR SHALL CALL "NORTH CAROLINA ONE CALL" (1-800-632-4949) AT LEAST 48 HOURS PRIOR TO DIGGING TO HAVE EXISTING UTILITIES LOCATED. REPORT ANY DISCREPANCIES TO THE ENGINEER.
2. CONTRACTOR TO COORDINATE ACTIVITIES WITH UTILITY COMPANIES INVOLVED IN ANY RELATED RELOCATION (I.E. POWER POLES, TELEPHONE PEDESTALS, WATER METERS, ETC.).
3. EXISTING UTILITIES SHOWN ARE BASED ON FIELD SURVEYS AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE PLANS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
4. ALL EXISTING VAULTS, MANHOLES, STORM DRAIN STRUCTURES, VALVE BOXES, CLEANOUTS, ETC. SHALL BE ADJUSTED AS NEEDED TO MATCH FINISHED GRADE.
5. ALL BACKFILL, COMPACTION, SOILS TESTING, ETC. SHALL BE PERFORMED BY THE CONTRACTOR'S INDEPENDENT TESTING LABORATORY.
6. A PRE-CONSTRUCTION MEETING MUST BE SCHEDULED PRIOR TO ANY WORK, GRADING OR INSTALLATION OF EROSION CONTROL MEASURES.
7. IF CONTRACTOR NOTICES ANY DISCREPANCIES IN ANY OF THESE SLOPE REQUIREMENTS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE ENGINEER PRIOR TO POURING ANY ASPHALT SO THAT A SOLUTION CAN BE FOUND.
8. SPOT ELEVATIONS ARE GIVEN AT THE MAJORITY OF THE MAJOR BREAK POINTS BUT IT SHOULD NOT BE ASSUMED THAT ALL NECESSARY SPOT ELEVATIONS ARE SHOWN. DUE TO SPACE LIMITATIONS, THERE MAY BE OTHER CRITICAL SPOTS NOT LABELED THAT SHOULD BE TAKEN INTO CONSIDERATION. THE CONTRACTOR SHALL REVIEW THE GRADING PLAN IN DETAIL AND SHALL ENSURE THAT ALL CRITICAL GRADE POINTS ARE STAKED AND FOLLOWED TO PROVIDE POSITIVE DRAINAGE.
9. EXISTING VEGETATION WITHIN TREE PROTECTIVE AREAS SHALL REMAIN UNDISTURBED UNLESS NOTED OTHERWISE. ANY AND ALL LANDSCAPING AND EXISTING TREES & SHRUBS TO REMAIN WHICH ARE DAMAGED DURING DEMOLITION OR CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR USING A LICENSED LANDSCAPE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
10. THE GRADING CONTRACTOR SHALL COMPLY WITH ALL STATE CODES IN OBSERVING EROSION CONTROL MEASURES BOTH ON AND OFF-SITE. THE GRADING CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES AFTER EACH RAINFALL EVENT OR AS DIRECTED BY THE EROSION CONTROL INSPECTOR OR THE ARCHITECT.
11. THE GRADING CONTRACTOR SHALL BE RESPONSIBLE FOR OFF-SITE DISPOSAL OF ALL CLEARING AND GRADING WASTE MATERIALS GENERATED DURING CONSTRUCTION AND FOR OBTAINING ALL APPLICABLE PERMITS FOR OFF-SITE STOCKPILES AND/OR WASTE AREAS.

ALL CONSTRUCTION SHALL CONFORM WITH THE LATEST VERSION OF NCDOT STANDARDS AND SPECIFICATIONS.

811 Know what's **below.** **Call** before you dig.

DESIGN DATA

PROPOSED SITE ROAD
STA. 11+50 TO 19+59
Vd = 30 mph
F.C. = LOCAL

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TIMMONS GROUP

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY, NC
TITLE SHEET

JOB NO. 56398
SHEET NO. R1.00

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GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

GRADING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED OR FUTURE SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

SURFACING:

THE ROUGH GRADING AND STRUCTURES ON THIS PROJECT HAVE BEEN DONE OR ARE NOW BEING DONE UNDER A PREVIOUS CONTRACT. THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N.C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
838.01	Concrete Endwall for Single and Double Pipe Culverts
904.50	Mounting of Type 'D', 'E' and 'F' Signs on 'U' Channel Posts
1205.01	Pavement Markings - Line Types and Offsets

Horizontal Alignment Report

****
Alignment Name: GORD
Station Range: Start: 10+00.00, End: 13+00.00
Description:
****

Begin GORD
N 192,670.7602 E 2,346,624.5197 10+00.00

Line (1)
S60° 27' 27.82"E 300.000'
N 192,522.8405 E 2,346,885.5174 13+00.00
Line (1)

N 192,522.8405 E 2,346,885.5174 13+00.00
End GORD

****
Alignment Length: 300.000'
****

Horizontal Alignment Report

****
Alignment Name: SITE
Station Range: Start: 10+00.00, End: 20+75.00
Description:
****

Begin SITE
N 192,070.2595 E 2,346,027.0429 10+00.00

Line (1)
N78° 18' 00.58"E 362.811'
N 192,143.8320 E 2,346,382.3162 13+62.81
Line (1)

Curve (2)
BC N 192,143.8320 E 2,346,382.3162 13+62.81
CTR N 192,486.5602 E 2,346,311.3416
PI N 192,176.7833 E 2,346,541.4341

Direction Back N78° 18' 00.58"E
Radius 350.000'
Delta 49°48'28"(LT)
Length 304.259'
Tangent 162.494'
Chord Direction N53° 23' 46.33"E Distance 294.769'
Direction Ahead N28° 29' 32.08"E

EC N 192,319.5962 E 2,346,618.9502 16+67.07
Curve (2)

Line (3)
N28° 29' 32.08"E 219.807'
N 192,512.7807 E 2,346,723.8070 18+86.88
Line (3)

Curve (4)
BC N 192,512.7807 E 2,346,723.8070 18+86.88
CTR N 192,661.6171 E 2,346,449.5959
PI N 192,566.3685 E 2,346,752.8934

Direction Back N28° 29' 32.08"E
Radius 312.000'
Delta 22°06'55"(LT)
Length 120.428'
Tangent 60.973'
Chord Direction N17° 26' 04.43"E Distance 119.681'
Direction Ahead N6° 22' 36.78"E

EC N 192,626.9639 E 2,346,759.6655 20+07.31
Curve (4)

Line (5)
N6° 22' 36.78"E 67.695'
N 192,694.2398 E 2,346,767.1842 20+75.00
Line (5)

N 192,694.2398 E 2,346,767.1842 20+75.00
End SITE

****
Alignment Length: 1,075.000'
****

INCOMPLETE PLANS
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EXISTING CONDITIONS

IPF - IRON PIPE FOUND
IRF - IRON ROD FOUND
IPS - IRON PIPE SET
PT - CALCULATED POINT
CM - CONCRETE MONUMENT
FIRE HYDRANT
ELECTRIC BOX
TELEPHONE PEDESTAL
CABLE TV PEDESTAL
POWER POLE
GUY
LIGHT POLE
YARD LIGHT
WELL
R / W - RIGHT-OF-WAY
P / L - PROPERTY LINE
C / L - CENTERLINE
NTS - NOT TO SCALE
CB - CATCH BASIN
GI - GRATE INLET
YI - YARD INLET
CI - CURB INLET
EP - EDGE OF PAVING
TBC - TOP BACK OF CURB
DB - DEED BOOK
PB - PLAT BOOK PG - PAGE
SF - SQUARE FEET
(T) - INDICATES POINTS SET BY TIMMONS GROUP IN 2009
CALCULATED POINT UNLESS OTHERWISE NOTED
MAILBOX
MH GREASE
BOLLARD
MH STORM SEWER
MH SANITARY SEWER
MH ELECTRIC
MH TELEPHONE
MH WATER
SPRINKLER BOX
ELECTRIC METER
CLEAN OUT
WATER METER
WATER VALVE
ROOF DRAIN
TRAFFIC SIGNAL POLE
SIGN
SPRINKLER HEAD
SPRINKLER VALVE
GAS METER
GAS VALVE
FLAG POLE
GROUND LAMP
BRICK
CONCRETE
STORM LINE
SANITARY LINE
FENCE
OVERHEAD POWER LINE
PAINTED GAS LINE
PAINTED POWER LINE
PAINTED TELEPHONE LINE
PAINTED WATER LINE
EDGE OF SHRUBBERY
EDGE OF WOODS
RCP - REINFORCED CONCRETE PIPE
CMP - CORRUGATED METAL PIPE
CPP - CORRUGATED PLASTIC PIPE
DIP - DUCTILE IRON PIPE
VCP - VITRIFIED CLAY PIPE
HDPE - HIGH DENSITY POLYETHYLENE PIPE
HVAC - HEATING, VENTILATION AND AIR CONDITIONING
C / A - CONTROLLED ACCESS

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GORDON ROAD FIRE STATION
NEW HANOVER COUNTY, NC
GENERAL NOTES, DETAILS, AND CONVENTIONAL SYMBOLS

JOB NO. 56398
SHEET NO. R2.00

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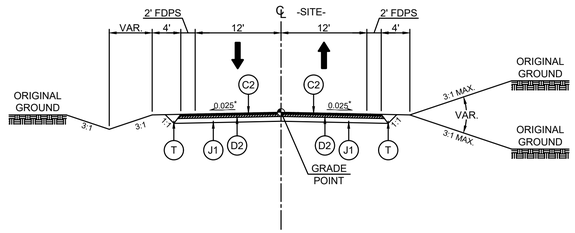
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
C3	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YARD, PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
D3	PROP. VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD, PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
J1	PROP. 8" AGGREGATE BASE COURSE
J2	PROP. VAR. DEPTH AGGREGATE BASE COURSE
R1	2'-6" NCDOT CONCRETE CURB AND GUTTER
R2	5" MONOLITHIC CONCRETE ISLAND
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W1	WEDGING (VARIABLE DEPTH)

SITE ROAD
TYPICAL SECTION

FROM -SITE- STA. 11+50.00 TO -SITE- STA. 19+58.66



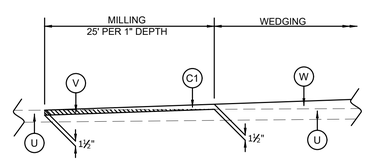
NOTE:

* OR AS CONTROLLED BY PROPOSED CROSS SLOPES, SEE CROSS SECTIONS FOR FURTHER DETAILS

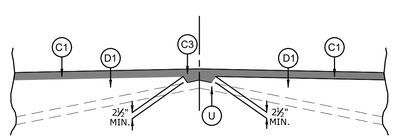
** USE PAVEMENT SECTION E1, INSTEAD OF J2, WHEN PAVEMENT WIDTHS ARE LESS THAN 6' WIDE

*** MILL OR OVERLAY EXISTING PAVEMENT AS NECESSARY TO ACHIEVE REQUIRED CROSS SLOPE PER CROSS SECTIONS AND SUPERELEVATION TRANSITIONS, BUILD UP WITH ASPHALT CONCRETE INTERMEDIATE TYPE I19.0c AT VARIABLE DEPTH DEPENDING ON EXISTING CIRCUMSTANCES. REFER TO NCDOT ROAD DESIGN MANUAL FOR MINIMUM PAVEMENT LIFTS AND WEDGING REQUIREMENTS.

ASPHALT MILLING TIE-IN DETAIL



WEDGING DETAIL W1***



DETAIL SHOWING METHOD OF WEDGING

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TIMMONS GROUP

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY, NC
TYPICAL SECTIONS

JOB NO. 56398
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EXIST CONDITIONS

PLAN

STRIPING

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SITE CURVE 1	SITE CURVE 2	DWRT CURVE 3
Δ = 49°48'28"	Δ = 22°06'55"	Δ = 7°39'24"
R = 350.00	R = 312.00	R = 115.00
T = 162.49	T = 60.97	T = 7.70
L = 304.26	L = 120.43	L = 15.37
C = 294.77	C = 119.68	C = 15.36
PC = 13+62.81	PC = 18+86.88	PC = 10+35.52
PI = 15+25.31	PI = 19+47.85	PI = 10+43.21
PT = 16+67.07	PT = 20+07.31	PT = 10+50.89
DS = 30 MPH	DS = 30 MPH	
ed = 3.8% (4% MAX)	ed = NC (4% MAX)	
Lr = 69'		
Lt = 46'		

BEGIN PROJECT SITE STA. 11+50.00'
END PROJECT SITE STA. 19+68.77'
SITE STA. 12+57.79' = DWLT STA.11+10.22'
SITE STA. 14+10.27' = DWRT STA.10+97.38'
SITE STA. 19+76.86' = GORD STA.11+49.76'
SITE DRIVE
GORDON ROAD
PROP. 2' FDPS
15" RCP
R30'
18.4' TYP.
SIGNAL POLE AND SIGNAL BOX TO BE RELOCATED
PROPOSED CONC. INLET HEADWALL FOR DOUBLE 18"x29" PIPES (NCDOT STD. 838.04)
N78° 18' 00.58"E
N26° 29' 32.08"E
S60° 27' 27.92"E
N6° 22' 36"
N10° 55' 50.54"W
N18° 35' 20.05"W
0401 0402 0403 0404 0405 0406 0407 0408
OM4-1
T1 T4 T13 T61

SCALE 1"=50'
0 50' 100'
NAD 83

PAVEMENT MARKING LEGEND: (XX)

T1 - WHITE EDGELINE (4", 90 MIL)
T4 - 3 FT. - 9 FT./SP WHITE MINISKIP (4", 90 MIL)
T13 - YELLOW DOUBLE CENTER (4", 90 MIL)
T61 - WHITE STOPBAR (24", 90 MIL)

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GORDON ROAD FIRE STATION
NEW HANOVER COUNTY, NC
EXISTING, PLAN, & STRIPING

JOB NO. 56398
SHEET NO. R3.01

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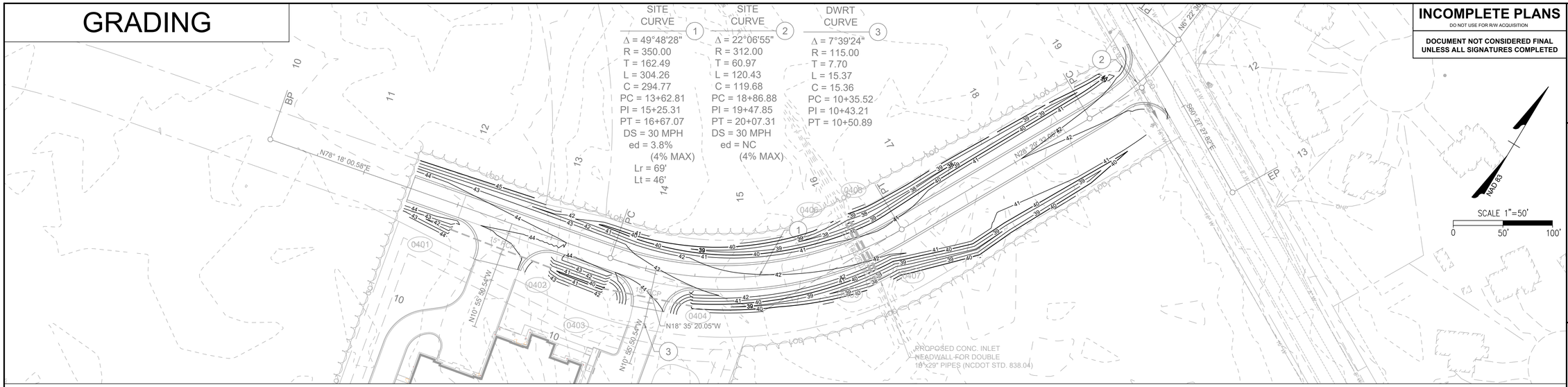
GRADING



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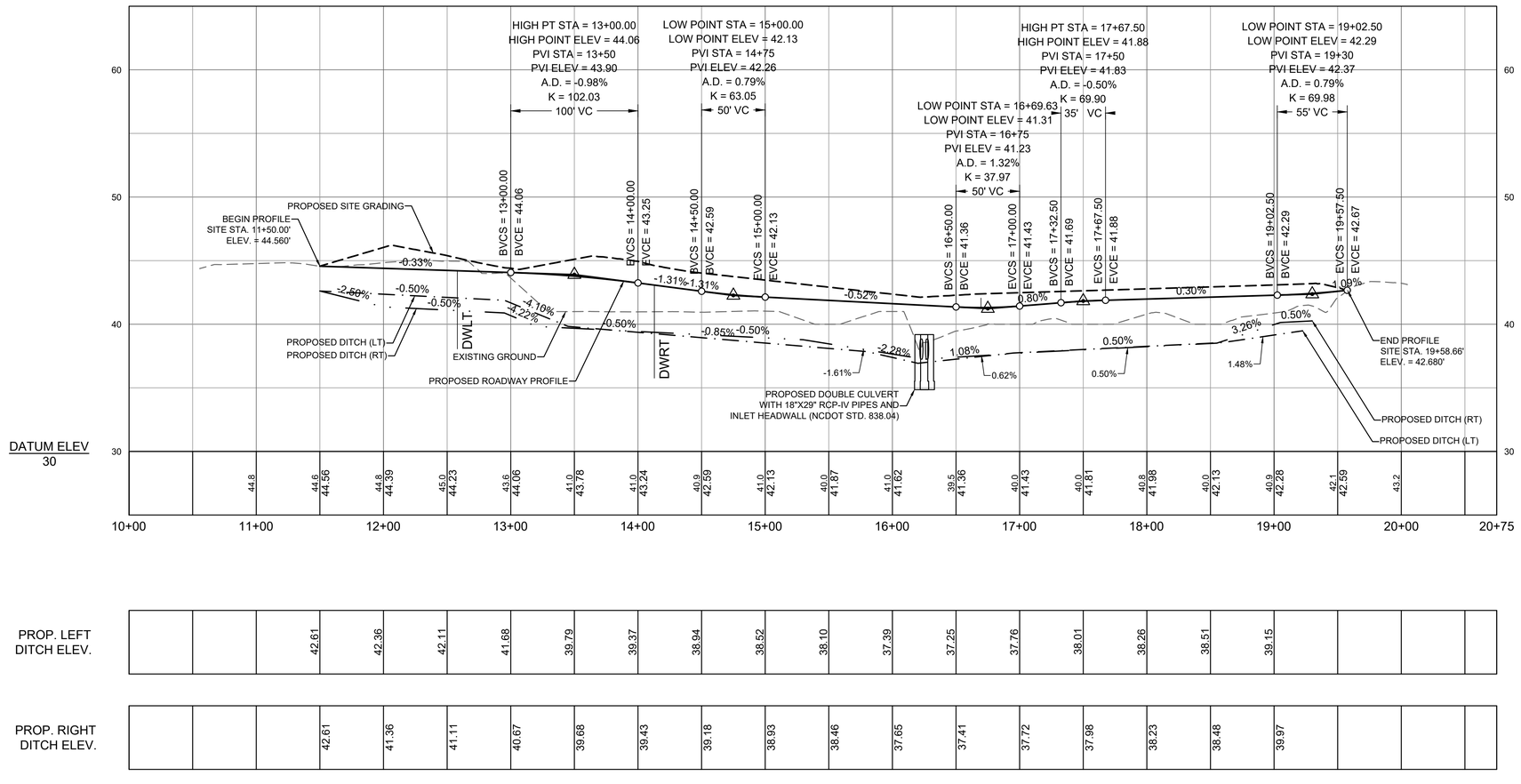
SITE PROFILE



	44.8	44.6	44.56	44.8	44.39	45.0	44.23	43.6	44.06	41.0	43.78	41.0	43.24	40.8	42.59	41.0	42.13	40.0	41.87	41.0	41.62	39.5	41.36	40.0	41.43	40.0	41.81	40.8	41.98	40.0	42.13	40.8	42.28	42.1	42.59	43.2
PROP. LEFT DITCH ELEV.			42.61		42.36		42.11		41.68		39.79		39.37		38.94		38.52		38.10		37.39		37.25		37.76		38.01		38.26		38.51		39.15				
PROP. RIGHT DITCH ELEV.			42.61		41.36		41.11		40.67		39.68		39.43		39.18		38.93		38.46		37.65		37.41		37.72		37.98		38.23		38.48		39.97				

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DESIGNED BY
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GORDON ROAD FIRE STATION
NEW HANOVER COUNTY, NC
GRADING & PROFILE

JOB NO.
56398
SHEET NO.
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INCOMPLETE PLANS
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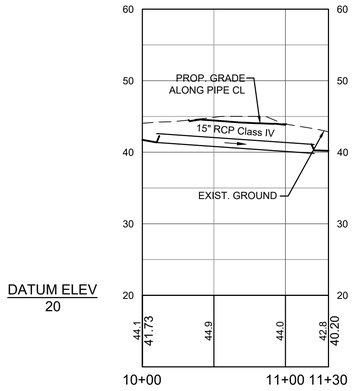
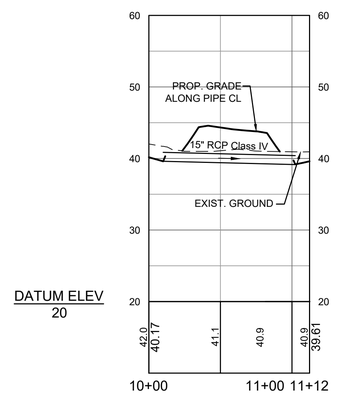


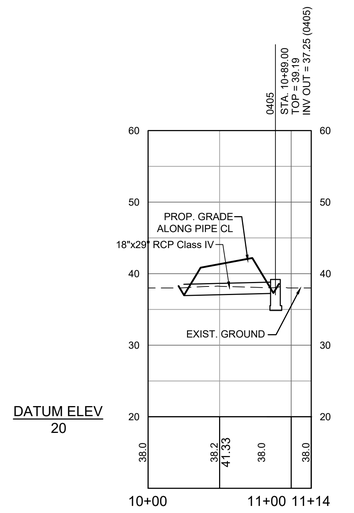
STRM - 0401 TO 0402

STORM PIPE TABLE							
PIPE #	DIA	FROM - TO	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DESCRIPTION
0401	15"	0401 - 0402	41.36	39.83	1.39%	110.03 LF	15" RCP Class IV



STRM - 0403 TO 0404

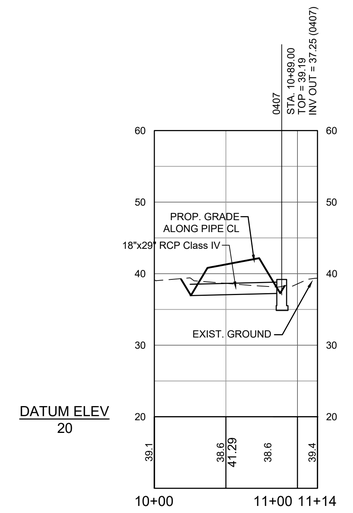
STORM PIPE TABLE							
PIPE #	DIA	FROM - TO	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DESCRIPTION
0403	15"	0403 - 0404	39.61	39.15	0.50%	92.29 LF	15" RCP Class IV



STRM - 0405 TO 0406

STORM STRUCTURE TABLE			
STRUCTURE #	TOP	STRUCTURE HEIGHT	DESCRIPTION
0405	39.19	0.00'	Inlet Headwall NCDOT Std. 838.04
0406	38.89	???'	Outlet

STORM PIPE TABLE							
PIPE #	DIA	FROM - TO	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DESCRIPTION
0405	30"	0405 - 0406	37.25	36.93	0.50%	64.00 LF	18"x29" RCP Class IV



STRM - 0407 TO 0408

STORM STRUCTURE TABLE			
STRUCTURE #	TOP	STRUCTURE HEIGHT	DESCRIPTION
0407	39.19	39.63'	Inlet Headwall NCDOT Std. 838.04
0408	38.89	???'	Outlet

STORM PIPE TABLE							
PIPE #	DIA	FROM - TO	UPSTREAM INVERT	DOWNSTREAM INVERT	SLOPE	LENGTH	DESCRIPTION
0407	30"	0407 - 0408	37.25	36.93	0.50%	64.00 LF	18"x29" RCP Class IV

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TIMMONS GROUP

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY, NC
STORM PROFILES AND DRAINAGE DESCRIPTIONS

JOB NO.
56398
SHEET NO.
R6.01

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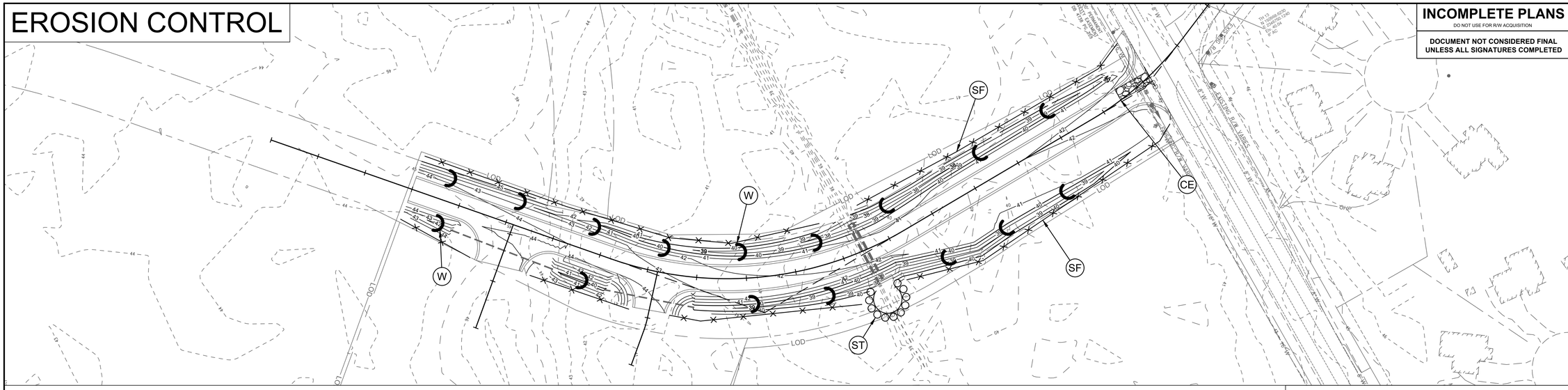
EROSION CONTROL



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NOTES

EROSION AND SEDIMENT CONTROL MEASURES:

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION EROSION AND SEDIMENT CONTROL DESIGN AND CONSTRUCTION MANUAL. THE MINIMUM STANDARDS SET FORTH BY THIS MANUAL SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE.

EROSION CONTROL SEQUENCE OF CONSTRUCTION

A SINGLE-PHASED EROSION CONTROL APPROACH IS PROVIDED BELOW TO DESCRIBE GENERAL MEASURES REQUIRED TO MAINTAIN THE SITE THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL APPLY PHASE I AS DESCRIBED HEREIN TO THE VARIOUS WORK AREAS ASSOCIATED WITH THIS PROJECT. DUE TO THE NATURE OF WORK AREAS, THE CONTRACTOR SHALL ENSURE EROSION CONTROL MEASURES ARE PROVIDED AS DESCRIBED THROUGH PROJECT COMPLETION AND ACCEPTANCE.

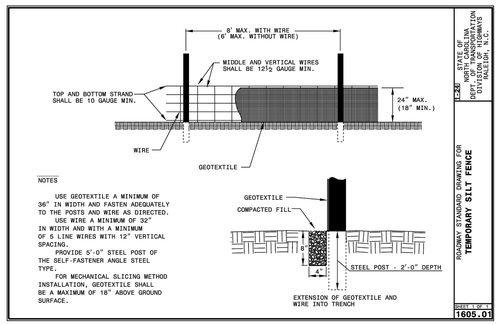
PHASE I:

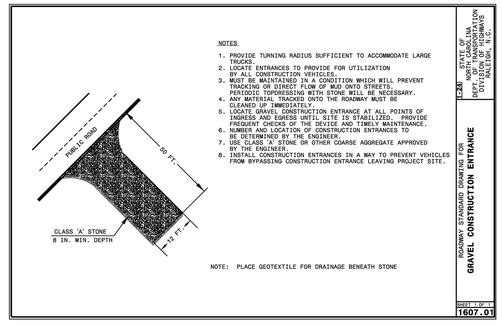
1. PROVIDE MINIMAL CLEARING TO INSTALL SILT FENCE AS SHOWN ON THE PLANS. INSTALL CULVERT PROTECTION AS REQUIRED FOR EXISTING PIPES. INSTALL GRAVEL CONSTRUCTION ENTRANCE. TAKE SPECIAL CARE TO KEEP SOIL BUILD-UP FROM ENTERING THE EXISTING ROAD PAVEMENT.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING DUST CONTROL AT THE CONSTRUCTION ENTRANCE.
3. THE CONTRACTOR WILL NOTIFY THE INSPECTOR OF THE PERMITTED LOCATION EXCESS SOIL MATERIAL IS HAULED TO OR BORROW MATERIAL IS BROUGHT IN FROM.
4. CLEAR AND GRUB AS INDICATED IN THE PLANS. MAINTAIN ACCESS ALONG EXISTING ROADS AND TO EXISTING DRIVEWAYS AT ALL TIMES.
5. TEMPORARY GRADING AND SEEDING IS REQUIRED FOR ALL AREAS WHEN DIRECTED:
   - 5.1. WHEN IT IS IMPOSSIBLE OR IMPRACTICAL TO BRING AN AREA TO THE FINAL LINE, GRADE AND FINISH SO THAT PERMANENT SEEDING AND MULCHING OPERATIONS CAN BE PERFORMED WITHOUT SUBSEQUENT SERIOUS DISTURBANCE BY ADDITIONAL GRADING
   - 5.2. WHEN EROSION OCCURS OR IS CONSIDERED TO BE POTENTIALLY SUBSTANTIAL ON AREAS OF GRADED ROADBED WHERE CONSTRUCTION OPERATIONS ARE TEMPORARILY SUSPENDED OR WHEN THE GRADING OF THE ROADBED HAS BEEN COMPLETED SUBSTANTIALLY IN ADVANCE OF THE PAVING CONSTRUCTION
   - 5.3. DURING SEASONS OF THE YEAR WHEN PERMANENT SEEDING AND MULCHING IS PROHIBITED BY THE CONTRACT
   - 5.4. WHEN AN IMMEDIATE COVER WOULD BE DESIRABLE TO MINIMIZE EROSION, SILTATION OR POLLUTION ON ANY AREA
   - 5.5. 7/14-DAY SOIL STABILIZATION REQUIREMENTS APPLY TO ANY SECTION OF THE PROJECT WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED AND SHALL SUPERSEDE ANY LESS STRINGENT STABILIZATION REQUIREMENTS ON THE PLANS. [G.S. 143-215.1]
6. CONTRACTOR SHALL REMOVE AND REPLACE ANY DAMAGED EROSION CONTROL MEASURES UNTIL FINAL APPROVAL OF CONSTRUCTION.
7. THE SITE SHALL BE PERMANENTLY STABILIZED AFTER ALL GRADING HAS BEEN COMPLETED BY SEEDING ALL DISTURBED AREAS.
8. UPON CONSTRUCTION COMPLETION, THE CONTRACTOR MUST CONTACT THE INSPECTOR FOR EROSION CONTROL INSPECTION OF SLOPE STABILITY. EROSION CONTROL MEASURES MAY NOT BE REMOVED WITHOUT AUTHORIZATION BY THE ASSIGNED INSPECTOR.
9. UPON APPROVAL CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES.

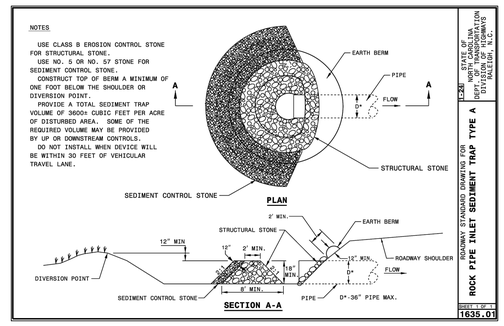
EROSION CONTROL NOTES & DETAILS

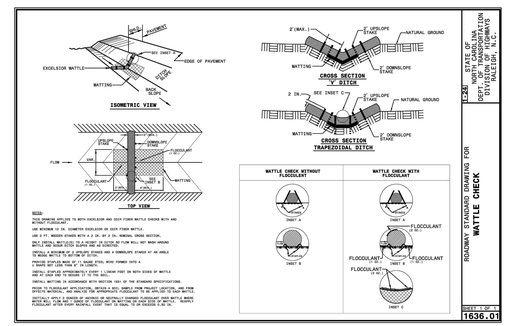
EROSION & SEDIMENT CONTROL LEGEND

LOD——	LD	LIMITS OF DISTURBANCE
-×-×-	SF	TEMPORARY SILT FENCE (NCDOT ST'D. 1605.01)
	W	WATTLE CHECK (NCDOT ST'D. 1636.01)
	ST	ROCK PIPE INLET SEDIMENT TRAP, TYPE A (NCDOT ST'D. 1635.01)
	CE	GRAVEL CONSTRUCTION ENTRANCE (NCDOT ST'D. 1607.01)









TIMMONS GROUP

GORDON ROAD FIRE STATION
NEW HANOVER COUNTY, NC
EROSION AND SEDIMENT CONTROL

JOB NO.
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GORDON ROAD FIRE STATION
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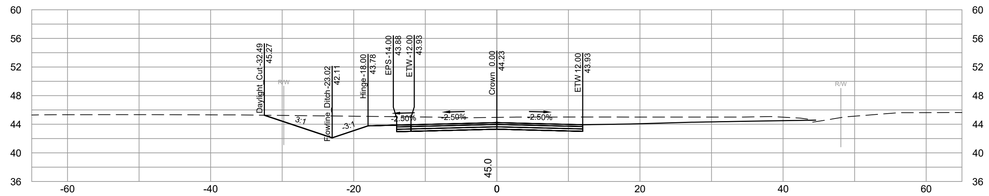

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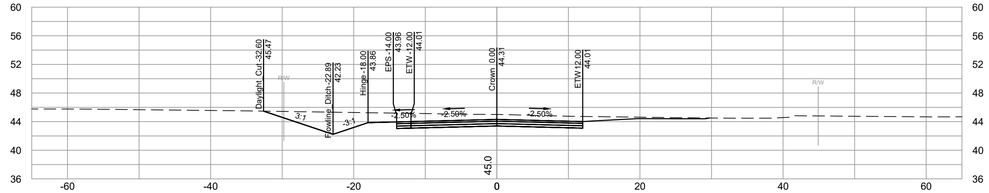

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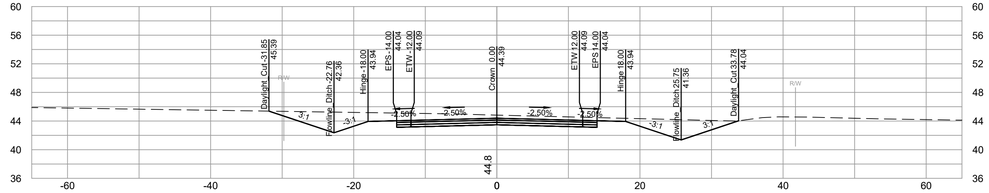

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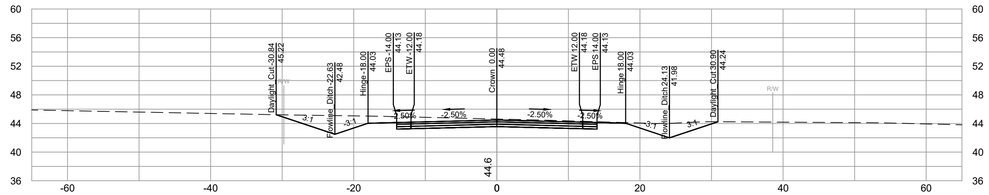

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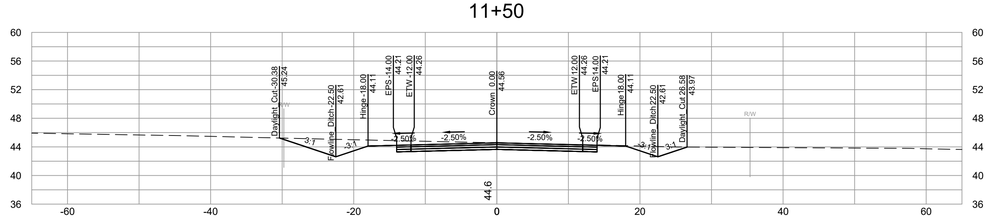

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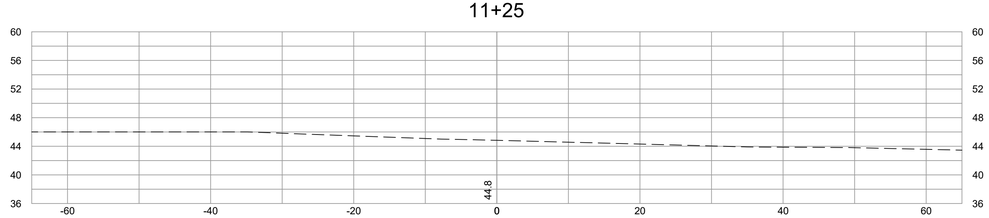

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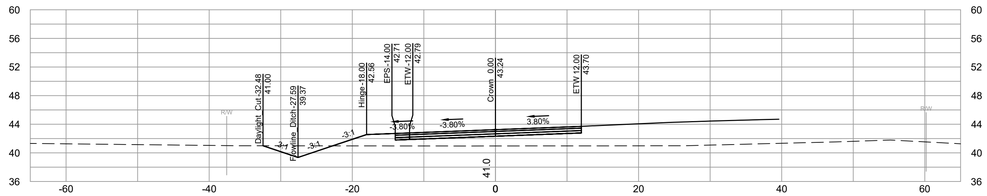

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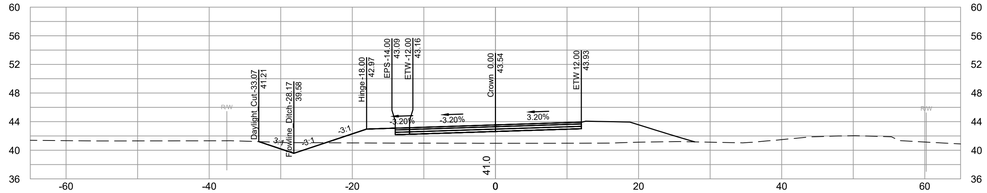

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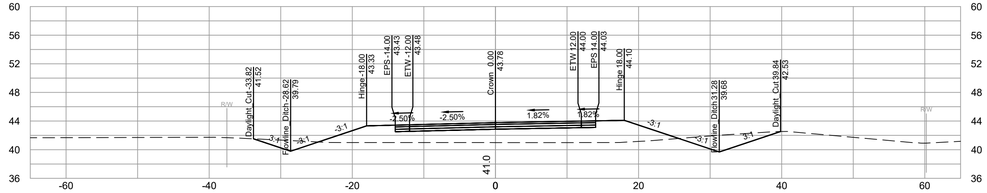

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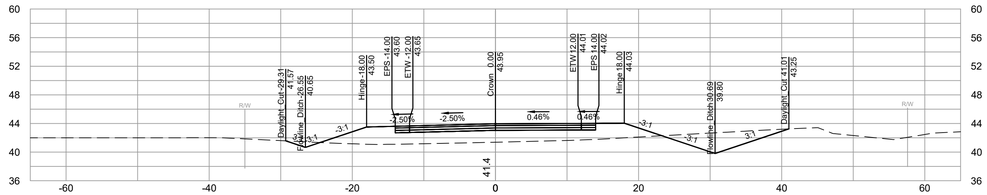

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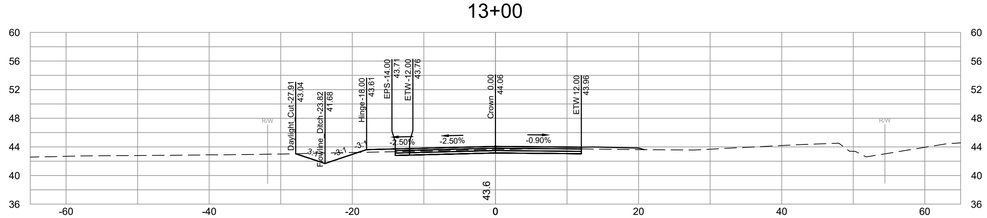

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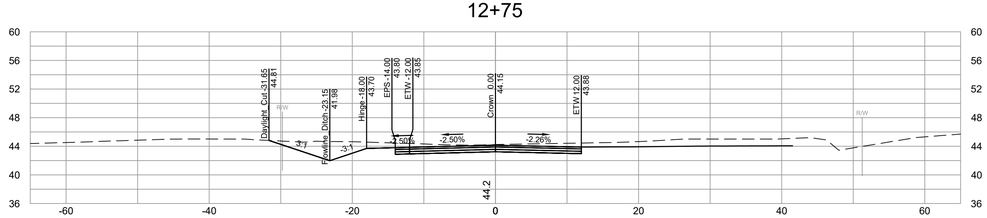

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GORDON ROAD FIRE STATION
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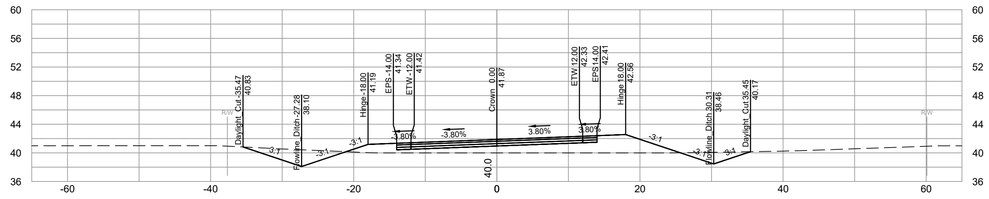

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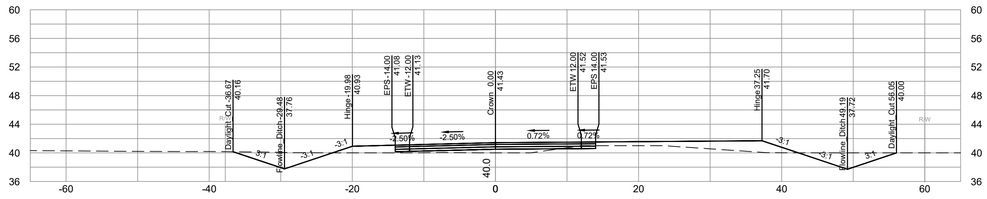

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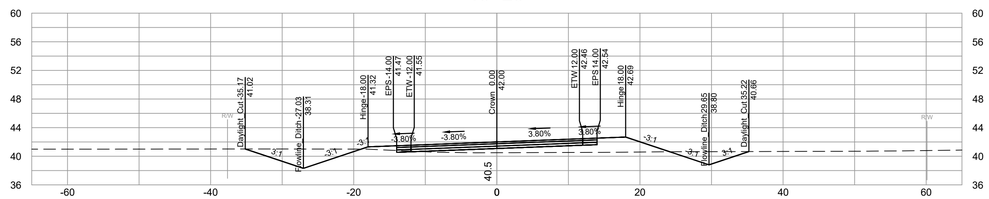

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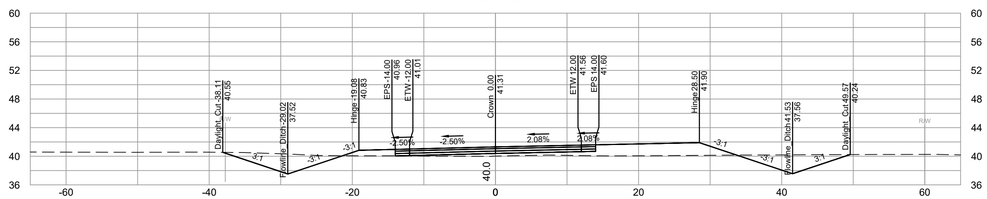

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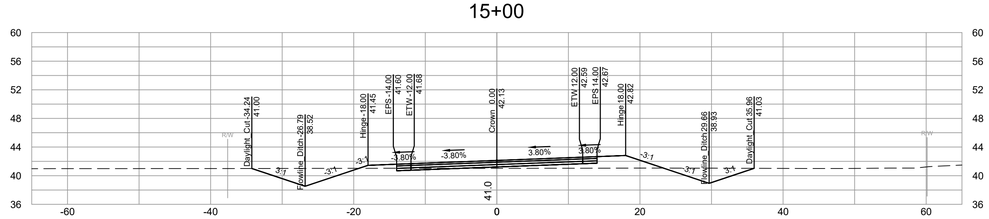

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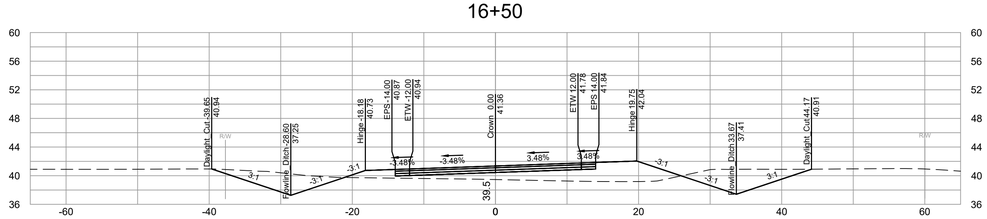

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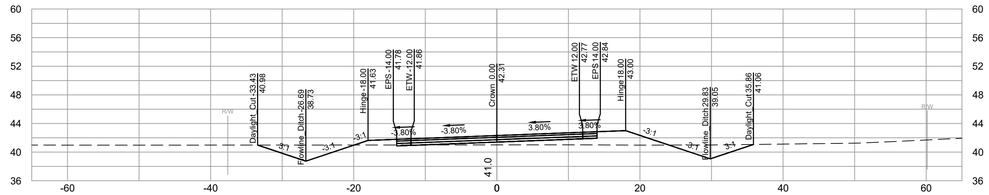

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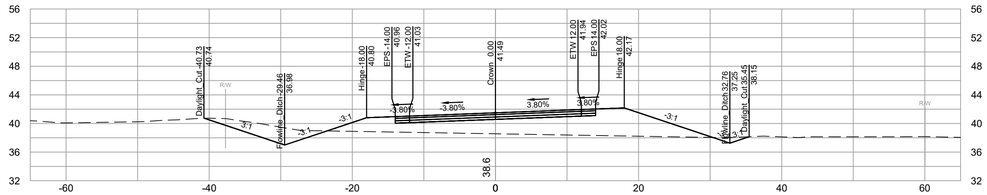

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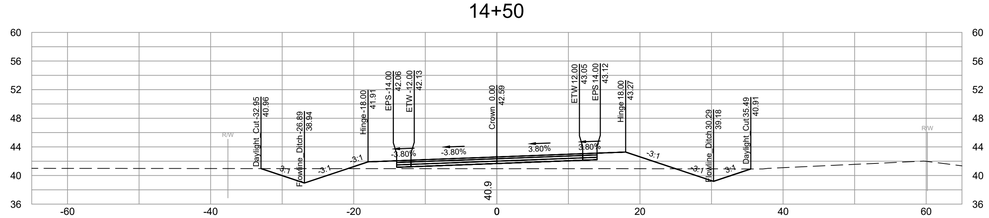

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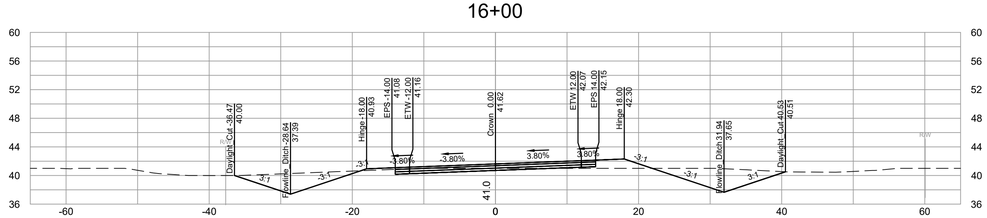

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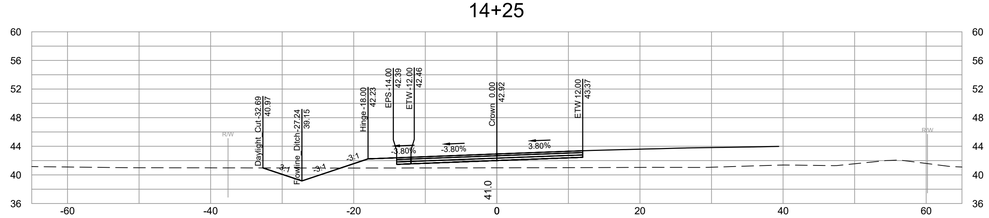

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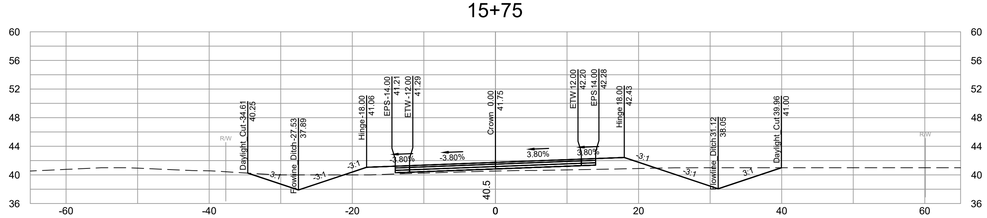

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NEW HANOVER COUNTY, NC

GENERAL NOTES, DETAILS, AND CONVENTIONAL SYMBOLS

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R9.03

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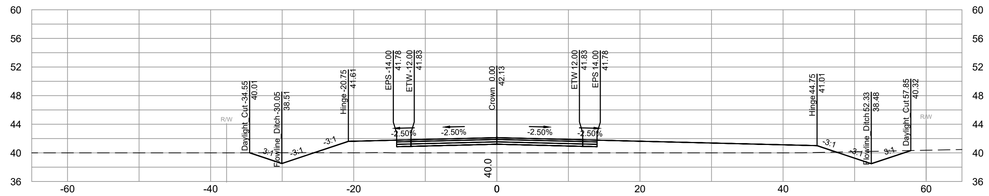

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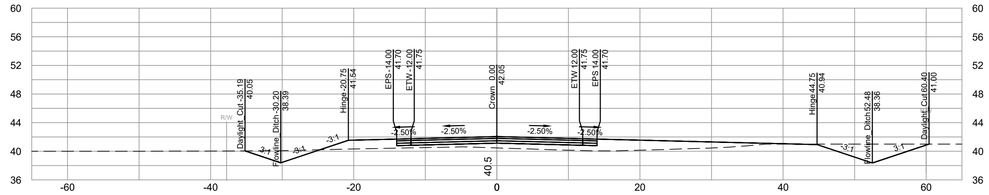

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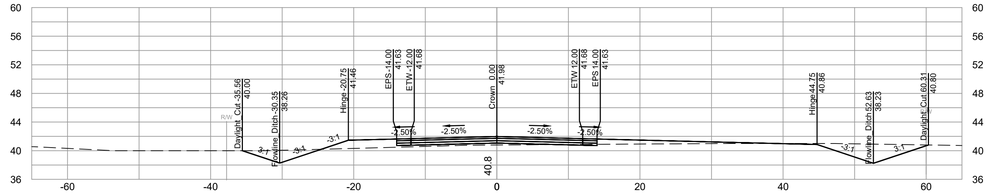

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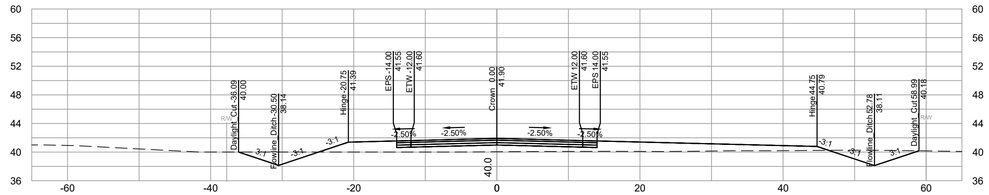

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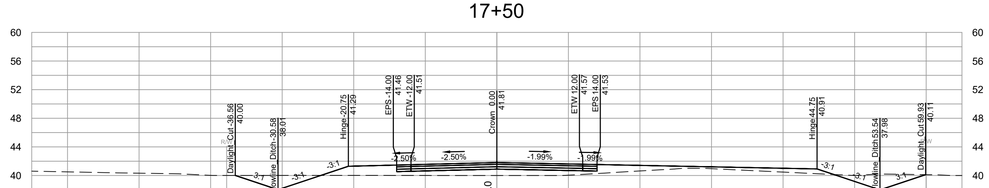

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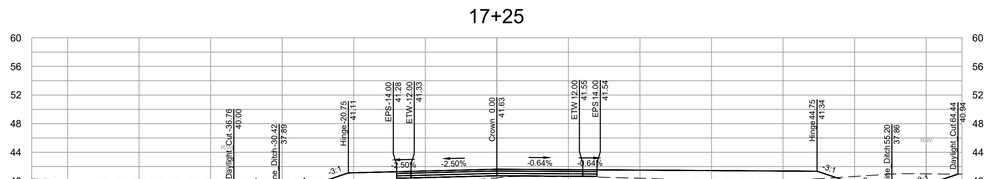

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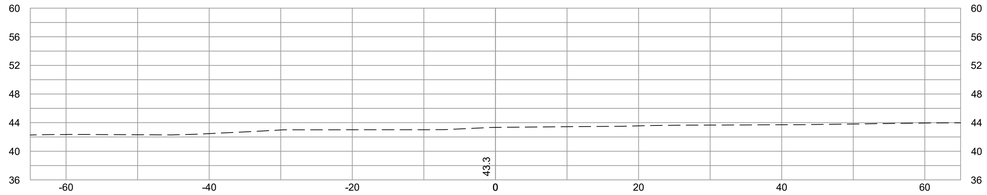

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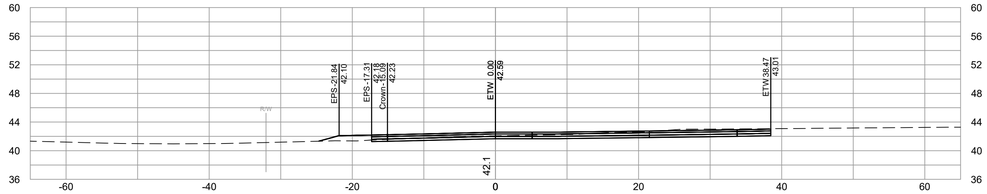

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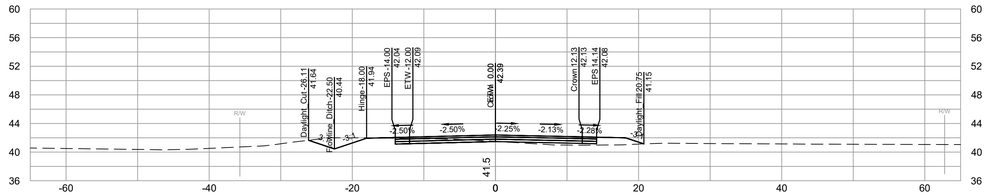

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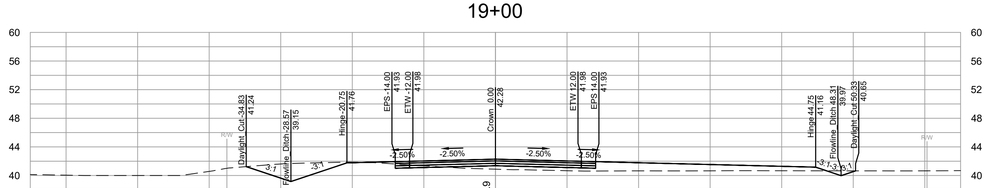

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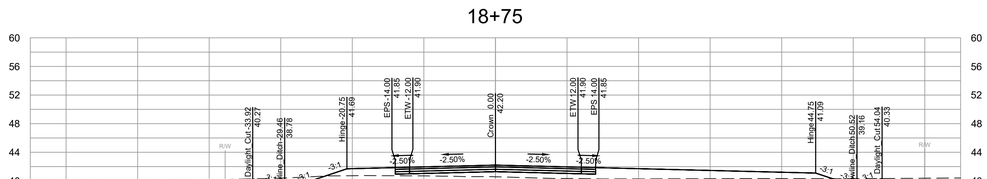


GENERAL NOTES

FOUNDATION NOTES:

AN ALLOWABLE SOIL BEARING PRESSURE OF 3000 PSF WAS USED FOR THE FOUNDATION DESIGN; BASED ON THE SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING REPORT DATED FEBRUARY 6, 2024 AND PREPARED BY S&ME, Inc (S&ME PROJECT NUMBER 23060170).

IF EXISTING CONDITIONS OR TESTS INDICATE THAT THE SOIL IS SOFT OR OTHERWISE QUESTIONABLE, PLEASE CONTACT THE ENGINEER OR ARCHITECT BEFORE PLACING CONCRETE.

THE SOILS ENGINEER OR HIS REPRESENTATIVE SHALL INSPECT ALL SUBGRADE WORK PRIOR TO THE PLACEMENT OF ANY REINFORCING STEEL OR CONCRETE AND SHALL PERFORM TESTS TO VERIFY THAT SUCH WORK IS IN CONFORMANCE WITH THE PROCEDURES NOTED IN THE CONTRACT DOCUMENTS.

GENERAL NOTES:

COMPLETE SHOP DRAWINGS FOR CONSTRUCTION OF ALL SPECIALTY ITEMS INCLUDING, BUT NOT LIMITED TO: PRECAST CONCRETE, HOLLOWCORE CONCRETE PLANKS, CURTAIN WALL GLAZING SYSTEMS, LIGHT GAUGE STEEL ROOF AND WALL FRAMING, HEAVY TIMBER TRUSSES, GEOPIERS (FOUNDATIONS IMPROVEMENTS), GUARDRAILS AND STAIRS, SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA AND SHALL BE MADE AVAILABLE AT THE JOB SITE DURING TIMES OF INSPECTION.

STRUCTURAL DRAWINGS DEFER DESIGN AND CALCULATIONS FOR LIGHT GAUGE FRAMING, WOOD/METAL PAN FRAMED STAIRS, WOOD FLOOR I-JOISTS, AND WOOD ROOF TRUSSES.

SUBMITTALS:

SUBMIT FOR REVIEW: SUBMITTALS FOR SHOP DRAWINGS, PRODUCT DATA, AND MILL TESTS ARE REQUIRED FOR ITEMS NOTED IN THE INDIVIDUAL MATERIALS SECTIONS AND FOR BIDDER DESIGNED ELEMENTS.

SUBMITTAL REVIEW PERIOD: SUBMITTALS SHALL BE MADE IN TIME TO PROVIDE A MINIMUM OF (2) WEEKS OR (10) WORKING DAYS TO REVIEW BY THE ARCHITECT/ENGINEER PRIOR TO THE ONSET OF FABRICATION.

GENERAL CONTRACTORS PRIOR REVIEW: PRIOR TO THE SUBMISSION TO THE ARCHITECT/ENGINEER, THE CONTRACTOR SHALL REVIEW THE SUBMITTAL FOR COMPLETENESS. DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE EOR, AND THEREFORE, MUST BE VERIFIED BY THE GENERAL CONTRACTOR. CONTRACTOR SHALL PROVIDE ANY NECESSARY DIMENSIONAL DETAILS REQUESTED BY THE DETAILER AND PROVIDE THE CONTRACTOR'S REVIEW STAMP AND SIGNATURE BEFORE FORWARDING TO THE ARCHITECT/ENGINEER.

SHOP DRAWINGS DEVIATIONS: WHEN SHOP DRAWINGS (COMPONENT DESIGN DRAWINGS) DIFFER FROM OR ADD TO THE REQUIREMENTS OF THE STRUCTURAL DRAWINGS, THEY SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED.

DEFERRED SUBMITTALS:

BIDDER DESIGNED ELEMENTS: SUBMIT "BIDDER-DESIGNED" DEFERRED SUBMITTALS TO THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD FOR REVIEW. THE DEFERRED SUBMITTAL SHALL ALSO BE SUBMITTED TO THE CITY FOR APPROVAL, IF REQUIRED BY THE CITY.

DESIGN OF PREFABRICATED, "BIDDER-DESIGNED", MANUFACTURED, PRE-ENGINEERED, OR OTHER FABRICATED PRODUCTS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS.

1. DESIGN CONSIDERS TRIBUTARY DEAD, LIVE, WIND, AND EARTHQUAKE LOADS IN COMBINATIONS REQUIRED BY IBC 2015.
2. DESIGN WITHIN THE DEFLECTION LIMITS NOTED HEREIN AND AS SPECIFIED OR REFERENCED IN IBC 2015.
3. DESIGN SHALL CONFORM TO THE SPECIFICATIONS AND REFERENCE STANDARDS OF THE GOVERNING CODE.
4. SUBMITTAL SHALL INCLUDE:
   - 4.a. CALCULATIONS PREPARED, STAMPED, AND SIGNED BY THE SPECIALTY STRUCTURAL ENGINEER (SSE) DEMONSTRATING CODE CONFORMANCE.
   - 4.b. ENGINEERED COMPONENT DESIGN DRAWINGS, ARE PREPARED, STAMPED, AND SIGNED BY THE SSE.
   - 4.c. PRODUCT DATA, TECHNICAL INFORMATION, AND MANUFACTURER'S WRITTEN REQUIREMENTS AND AGENCY APPROVAL AS APPLICABLE.
   - 4.d. SSE MAY SUBMIT TO THE ARCHITECT/ENGINEER, A REQUEST TO UTILIZE RELEVANT ALTERNATE DESIGN CRITERIA OF SIMILAR NATURE AND GENERAL EQUIVALENCY WHICH IS RECOGNIZED BY THE CODE AND ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION. SUBMIT ADEQUATE DOCUMENTATION OF DESIGN.

DEFLECTION LIMITS FOR SSE/BIDDER DESIGNED ELEMENTS

VERTICAL	LIMIT
*ROOF MEMBERS, DEAD + LIVE OR RAIN, SNOW, OR WIND TOTAL LOAD (TL) DEFLECTION	L/240 (WHERE L IS SPAN LENGTH IN INCHES)
ROOF LIVE OR RAIN OR SNOW OR WIND LOAD (LLR) DEFLECTION	L/360 (WHERE L IS SPAN LENGTH IN INCHES)
FLOOR MEMBERS TOTAL LOAD (TL), UNLESS OTHERWISE NOTED, DEFLECTION	L/480 (WHERE L IS SPAN LENGTH IN INCHES)
FLOOR MEMBERS LIVE LOAD (LL), UNLESS OTHERWISE NOTED, DEFLECTION	L/600 (WHERE L IS SPAN LENGTH IN INCHES)
MEMBERS SUPPORTING MASONRY (DL ONLY)	L/1200 OR ½" MAX. (WHERE L IS SPAN LENGTH IN INCHES)
OPERABLE PARTITION SUPPORT MEMBERS	L/600 OR ¼" MAX. (WHERE L IS SPAN LENGTH IN INCHES)
HORIZONTAL	**LIMIT**
MEMBERS SUPPORTING BRITTLE FINISHES	L/240 *(NOTE 1) (WHERE L IS SPAN LENGTH IN INCHES)
MEMBERS SUPPORTING FLEXIBLE FINISHES	L/180 *(NOTE 1) (WHERE L IS SPAN LENGTH IN INCHES)
MEMBERS SUPPORTING MASONRY AT 0.7 TIMES CLADDING WIND OR 0.7E	L/600 *(NOTE 1) (WHERE L IS SPAN LENGTH IN INCHES)
INTERSTORY DRIFT	0.020 x STORY HEIGHT (WHERE SPAN LENGTH IN INCHES)

*ROOF MEMBERS SHALL BE DESIGNED TO CONTROL PONDING SUCH THAT CHORD MEMBER STRESSES DO NOT EXCEED LIMITS INDICATED ON PLANS UNDER DEAD + RAIN LOADING.

(NOTE 1): WIND LOAD IS REDUCIBLE TO 0.42 TIMES COMPONENT AND CLADDING LOADS PER TABLE 1604.3, FOOTNOTE f.

GENERAL CONTRACTOR'S PRIOR REVIEW: ONCE THE CONTRACTOR HAS COMPLETED HIS REVIEW OF THE SSE COMPONENT DRAWINGS, THE EOR WILL REVIEW THE SUBMITTAL FOR GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING AND WILL STAMP THE SUBMITTAL ACCORDINGLY. REVIEW OF THE SPECIALTY STRUCTURAL ENGINEER'S (SSE) SHOP DRAWINGS (COMPONENT DESIGN DRAWINGS) IS FOR COMPLIANCE WITH DESIGN CRITERIA AND COMPATIBILITY WITH THE DESIGN OF THE PRIMARY STRUCTURE AND DOES NOT RELIEVE THE SSE OF RESPONSIBILITY FOR THAT DESIGN. ALL NECESSARY BRACING, TIES, ANCHORAGE, PROPRIETARY PRODUCTS SHALL BE FURNISHED AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS OR THE SSE'S DESIGN DRAWINGS AND CALCULATIONS. THE ELEMENTS INCLUDE BUT ARE NOT LIMITED TO:

- STEEL STAIRS
- HANDRAIL, GUARDRAIL, CATWALK FRAMING, BALCONY RAIL ANCHORAGES
- METAL DECK EDGE FORMS
- EXTERIOR CLADDING SYSTEMS, CURTAIN WALL SYSTEMS, PRE-ENGINEERED PANELS
- WINDOW WASHING SYSTEM TIE-DOWN ANCHORAGE
- TEMPORARY SHORING SYSTEMS
- COLD-FORMED METAL STUDS – EXTERIOR WALL ASSEMBLIES
- COLD-FORMED METAL STUDS – FRAMING INTERIOR WALLS INCLUDING PARTIAL HEIGHT
- COLD-FORMED METAL STUDS & JOISTS FRAMING OVERHEAD SOFFITS
- TILT-UP WALL PANELS INCLUDING BUT NOT LIMITED TO PANEL-TO-PANEL CONNECTIONS, FOUNDATION CONNECTIONS, CONNECTIONS BETWEEN OTHER STRUCTURAL ELEMENTS (BEAMS, JOISTS, ETC.) AND EMBEDMENTS.
- SOIL IMPROVEMENTS (RAMMED-AGGREGATE PIERS, RIGID INCLUSIONS, GROUT INJECTIONS, ETC.) TO MEET THE REQUIREMENTS OF THE GEOTECHNICAL REPORT.

CONCRETE NOTES:

CONCRETE DESIGN IS IN ACCORDANCE WITH ACI 318-14 CONCRETE PLACEMENT AND QUALITY: PER RECOMMENDATIONS IN ACI SP-15.

RESULTS FOR ALL CONCRETE COMPRESSIVE STRENGTH TEST SHALL BE AVAILABLE ON THE THE JOB SITE FOR REVIEW BY THE INSPECTOR.

DEBRIS: REMOVE ALL DEBRIS FROM FORMS BEFORE PLACING CONCRETE.

SEGREGATION OF AGGREGATES: DO NOT DROP CONCRETE THROUGH REINFORCING STEEL SO AS TO CAUSE SEGREGATION OF AGGREGATES.

INSERTS: SECURELY POSITION ALL ITEMS TO BE CAST IN CONCRETE SUCH AS REINFORCING DOWELS, BOLTS, ANCHORS, PIPES AND SLEEVES IN THE FORMS BEFORE PLACING CONCRETE.

CONSTRUCTION JOINTS: OBTAIN THE ARCHITECTS APPROVAL OF JOINT LOCATIONS IN ALL SLABS, BEAMS, AND SHEAR WALLS. REMOVE LAITANCE AND CLEAN SURFACE OF CONCRETE CONSTRUCTION JOINTS

PIPES: DO NOT EMBED PIPES OTHER THAN ELECTRICAL CONDUITS IN STRUCTURAL CONCRETE EXCEPT WHERE SPECIFICALLY APPROVED BY THE ARCHITECT. MAXIMUM PIPE SIZE SHALL BE 1/3 OF THE SLAB THICKNESS AND LOCATED AT THE MID DEPTH. MINIMUM SPACING SHALL BE 3 TIMES THE PIPE DIAMETER. PIPES SHALL NOT IMPAIR THE STRENGTH OF THE MEMBER. ANY PIPES OF ALUMINUM ARE PROHIBITED IN STRUCTURAL CONCRETE.

PROVIDE WELDABLE REBAR AT ALL LOCATIONS WHERE REBAR IS ATTACHED TO STRUCTURAL STEEL BY MEANS OF WELDING. ANY REBAR THAT IS NOT DESIGNATED AS WELDABLE SHALL NOT BE WELDED. WELDED REBAR SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 AND SHALL BE WELDED IN ACCORDANCE WITH AWS D1.4, STRUCTURAL WELDING CODE.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 GRADE 60 OR 70. PLACEMENT IN CONCRETE SHALL BE IN THE CENTER OF THE SLAB.

REBAR GRADES: ALL REINFORCING STEEL TO BE NEW STOCK DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60. ALL ACCESSORIES ARE TO BE INCLUDED. BARS ARE TO BE COLD BENT IN SHOP. BAR SUPPORTS ARE TO BE SPACED IN ACCORDANCE WITH ACI 315 AND CRSI. ALL BAR SPLICES ARE TO BE CONSIDERED AS CLASS 'B' – CLASS 'B' SPLICES ARE TO BE LAPPED A DISTANCE OF 1.3 L_d. COMPRESSION REINFORCING SHALL BE LAPPED A MIN. OF 40 BAR DIAMETERS. SEE TABLE ON SHEET SO.1.

REBAR COVER: ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS "CLEAR" ARE TO CENTER OF STEEL MINIMUM REBAR COVER (CLEAR) FOR NON-PRESTRESSED CONCRETE SHALL BE AS FOLLOWS:

LOCATION	MIN. COVER (CLEAR)	TOLERANCES
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3"	3/8"
EXPOSED TO EARTH OR WEATHER:		
#5 AND SMALLER BARS	1-1/2"	3/8"
#6 AND LARGER BARS	2"	3/4"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND:		
STRUCTURAL SLABS AND WALLS	3/4"	1/8"
BEAMS AND COLUMNS (PRIMARY REINFORCEMENT, TIES, STIRRUPS AND SPIRALS)	1-1/2"	3/8"
SLABS ON GRADE	1-1/2"	1/4"

TOLERANCES OF REBAR PLACEMENT: TOLERANCE FOR LONGITUDINAL LOCATION OF BENDS AND ENDS OF REINFORCEMENT SHALL BE PLUS OR MINUS 2" EXCEPT AT DISCONTINUING ENDS OF MEMBERS WHERE TOLERANCES SHALL BE ±½".

CONCRETE QUALITY:

CONCRETE USE	STRENGTH AT 28 DAYS	SLUMP	AIR	AGGREGATE SIZE	AGGREGATE TYPE
FOUNDATIONS	3000 psi	4"	–	1-1/2"	ASTM C33
EXTERIOR SLABS	3000 psi	4"	4-6%	1"	ASTM C33
STRUCTURAL WALLS	4000 psi	3"	–	1"	ASTM C33
YARD WALLS	4000 psi	3"	–	1-1/2"	ASTM C33
SLAB ON GRADE	3000 psi	4"	–	1"	ASTM C33
ELEVATED SLABS	4000 psi (NORMAL WT.)	4"	–	1"	ASTM C33

DO NOT ADD WATER TO CONCRETE MIX AT SITE UNLESS APPROVED BY ARCHITECT.

CONCRETE: NORMAL WEIGHT CONCRETE SHALL HAVE A MINIMUM UNIT WEIGHT OF 145 POUNDS PER CUBIC FOOT.

AGGREGATE: NORMAL WEIGHT AGGREGATE CONFORMING TO ASTM C33.
AGGREGATE SIZE CONFORMING TO:
3/4" ASTM C67
1" ASTM C67
1-1/2" ASTM C67

CEMENT: TYPE I

CONCRETE AGE: NO MORE THAN 90 MINUTES SHALL ELAPSE BETWEEN CONCRETE BATCHING AND CONCRETE PLACEMENT UNLESS APPROVED BY ARCHITECT.

STRUCTURAL STEEL:

THE DESIGN, DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS." AND "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS"

STEELS: STRUCTURAL STEEL IS TO CONFORM TO THE FOLLOWING SPECIFICATIONS:
STRUCTURAL W-SHAPES: ASTM A992
STRUCTURAL TUBING: ASTM A500 GRADE B Fy=46ksi
STRUCTURAL L-SHAPES: ASTM A36
STRUCTURAL PLATES: ASTM A36

WELDING: ALL WELDING IS TO CONFORM TO ANSI/AWS D1.1 STRUCTURAL WELDING CODE USING 370XX ELECTRODES. ALL WELDING IS TO BE DONE BY WELDERS QUALIFIED UNDER ANSI/AWS D1.1. EVIDENCE OF QUALIFICATION SHALL BE PROVIDED TO ARCHITECT AND SHALL BE AVAILABLE AT JOB SITE DURING TIMES OF INSPECTION.

ALL SHOP FABRICATED STAIRS SHALL BE DESIGNED, FABRICATED, AND INSTALLED IN ACCORDANCE WITH THE STANDARD BUILDING CODE. DESIGN AND FABRICATION DRAWINGS SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN NORTH CAROLINA. THESE DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW BEFORE INSTALLATION OF THE MEMBERS. ALL SHOP DRAWINGS SHALL BE AVAILABLE ON SITE AT TIMES OF INSPECTION

BOLTS: ALL BOLTED CONNECTIONS ARE TO BE MADE USING ¾"ø A325 BOLTS IN BEARING TYPE CONNECTIONS UNLESS SHOWN OR NOTED OTHERWISE ON THE DRAWINGS. ALL BOLTED CONNECTIONS SHALL BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC-2000. A307 BOLTS MAY BE USED FOR ERECTION BOLTS.

ANCHOR RODS: ANCHOR RODS ARE TO BE OF ASTM F1554 GRADE 36 MATERIAL. ALL ANCHOR RODS ARE TO BE SET WITH A TEMPLATE PRIOR TO POURING CONCRETE.

ROOF METAL DECK:
ROOF DECK TO BE 1 1/2" DEEP, 6" WIDE RIB, PRIME PAINTED, VULCRAFT 1.5B 22 GA. OR EQUAL.

MEZZANINE COMPOSITE FLOOR DECK:
COMPOSITE FLOOR DECK TO BE VULCRAFT 2.0 VLI 20 GAUGE GALVANIZED OR EQAUL. ATTACH TO SUPPORTS BY WELDING THROUGH DECK TO SUPPORTS AT 12"oc WITH 5/8" DIAMETER PUDDLE WELDS or USE OF SHEAR STUDS. WHERE DECK SPANS ARE 5'-0" OR MORE PROVIDE SIDELAP FASTENERS AT 36"oc MAX. SIDELAP FASTENERS MAY BE WELDS, #10 SCREWS OR CRIMPS. ATTACH PERIMETER EDGES OF DECK TO SUPPORTS WITH 5/8" PUDDLE WELDS AT 12"oc.

APPENDIX B

OFFICE / LIVING QUARTERS

STRUCTURAL DESIGN IS BASED ON THE 2018 N.C. STATE BUILDING CODE

DESIGN LOADS:

IMPORTANCE FACTORS: SNOW (I_S) 1.20; SEISMIC (I_E) 1.50

LIVE LOADS: ROOF 20 psf; MEZZ. FLOOR N/A psf; MAIN FLOOR 100 psf

SNOW LOAD: 10 psf
FLAT-ROOF SNOW LOAD, P_f = 10 PSF
SNOW EXPOSURE FACTOR, C_e = 1.0
THERMAL FACTOR, C_t = 1.0

WIND LOAD: BASIC WIND SPEED 155 mph (ASCE 7-10) / 120 mph Vasd
EXPOSURE CATEGORY C
WIND BASE SHEARS (FOR MWFRS): Vx = 80 KIPS Vy = 55 KIPS

SEISMIC DESIGN CATEGORY A
COMPLIANCE WITH SECTION 1616.4 ONLY? ☐ YES ☒ NO

SEISMIC DESIGN CATEGORY ☐ B ☐ C ☒ D

SEISMIC DESIGN CATEGORY B, C & D
PROVIDE THE FOLLOWING SEISMIC DESIGN PARAMETERS:
OCCUPANCY CATEGORY IV
SPECTRAL RESPONSE ACCELERATION S_S 21 %g S_1 9 %g
SPECTRAL RESPONSE COEFFICIENTS S_{DS} 22.4 %g S_{D1} 14.4 %g
SEISMIC RESPONSE COEFFICIENT, C_S = 0.075
RESPONSE MODIFICATION FACTOR, R = 4.5
SITE CLASSIFICATION D ☒ FIELD TEST ☐ PRESUMPTIVE ☐ HISTORICAL DATA
BASIC STRUCTURAL SYSTEM (CHECK ONE)
_____ BEARING WALL _____ DUAL W/ SPECIAL MOMENT FRAME
_____ BUILDING FRAME _____ DUAL W/ INTERMEDIATE R/C OR SPECIAL STEEL
X MOMENT FRAME _____ INVERTED PENDULUM
SEISMIC BASE SHEAR: Vx = 36 KIPS Vy = 36 KIPS
ANALYSIS PROCEDURE ____ SIMPLIFIED X EQUIVALENT LATERAL FORCE ____ MODAL
ARCHITECTURAL, MECHANICAL, COMPONENTS ANCHORED? YES

LATERAL DESIGN CONTROL? EARTHQUAKE _____ WIND X

SOIL BEARING CAPACITIES:
FIELD TEST (PROVIDE COPY OF TEST REPORT): 3000 PSF
PRESUMPTIVE BEARING CAPACITY _____
PILE SIZE, TYPE, AND CAPACITY _____

APPARATUS BAY

STRUCTURAL DESIGN IS BASED ON THE 2018 N.C .STATE BUILDING CODE

DESIGN LOADS:

IMPORTANCE FACTORS: SNOW (I_S) 1.20; SEISMIC (I_E) 1.50

LIVE LOADS: ROOF 20 psf; MEZZ. FLOOR 100 psf; MAIN FLOOR 200 psf

SNOW LOAD: 10 psf
FLAT-ROOF SNOW LOAD, P_f = 10 PSF
SNOW EXPOSURE FACTOR, C_e = 1.0
THERMAL FACTOR, C_t = 1.0

WIND LOAD: BASIC WIND SPEED 155 mph Vult (ASCE 7-10) / 120 mph Vasd
EXPOSURE CATEGORY C
WIND BASE SHEARS (FOR MWFRS): Vx = 85 KIPS Vy = 50 KIPS

SEISMIC DESIGN CATEGORY A
COMPLIANCE WITH SECTION 1616.4 ONLY? ☐ YES ☒ NO

SEISMIC DESIGN CATEGORY ☐ B ☐ C ☒ D

SEISMIC DESIGN CATEGORY B, C & D
PROVIDE THE FOLLOWING SEISMIC DESIGN PARAMETERS:
OCCUPANCY CATEGORY IV
SPECTRAL RESPONSE ACCELERATION S_S 21 %g S_1 9 %g
SPECTRAL RESPONSE COEFFICIENTS S_{DS} 22.4 %g S_{D1} 14.4 %g
SEISMIC RESPONSE COEFFICIENT, C_S = 0.067
RESPONSE MODIFICATION FACTOR, R = 5
SITE CLASSIFICATION D ☒ FIELD TEST ☐ PRESUMPTIVE ☐ HISTORICAL DATA
BASIC STRUCTURAL SYSTEM (CHECK ONE)
X BEARING WALL _____ DUAL W/ SPECIAL MOMENT FRAME
_____ BUILDING FRAME _____ DUAL W/ INTERMEDIATE R/C OR SPECIAL STEEL
_____ MOMENT FRAME _____ INVERTED PENDULUM
SEISMIC BASE SHEAR: Vx = 100 KIPS Vy = 100 KIPS
ANALYSIS PROCEDURE ____ SIMPLIFIED X EQUIVALENT LATERAL FORCE ____ MODAL
ARCHITECTURAL, MECHANICAL, COMPONENTS ANCHORED? YES

LATERAL DESIGN CONTROL? EARTHQUAKE X WIND _____

SOIL BEARING CAPACITIES:
FIELD TEST (PROVIDE COPY OF TEST REPORT): 3000 PSF
PRESUMPTIVE BEARING CAPACITY _____
PILE SIZE, TYPE, AND CAPACITY _____

MASONRY NOTES:

CODES: MASONRY DESIGN AND CONSTRUCTION IS BASED ON AND SHALL CONFORM TO THE PROVISIONS OF ACI 530-LATEST EDITION/ASCE 5-LATEST EDITION/TMS 402-LATEST EDITION INCLUDING SEISMIC REQUIREMENTS OF APPENDIX A.

MASONRY: TYPE "N" CONCRETE UNITS CONFORMING TO:
ASTM C90 FOR HOLLOW LOADBEARING UNITS
ASTM C145 FOR SOLID LOADBEARING UNITS
ASTM C55 FOR CONCRETE BRICK
MINIMUM F'm = 1900 psi

ANY CMU MASONRY WITH COMPRESSIVE STRENGTH OF GREATER THAN 1900 psi SHALL BE VERIFIED BY TEST ACCORDING TO ASTM C1314 OR BY ASTM C140. THESE TEST RESULTS SHALL BE AVAILBLE TO THE BUILDING INSPECTOR.

MASONRY COURSING TO BE A RUNNING BOND, PERPENDICULAR JOINTS SHALL BE TOOTHED TOGETHER.

8" CMU SHALL BE 7⅝"x7⅝"x15⅝" w/ ⅜" JOINTS

MORTAR AND GROUT: USE MORTAR FOR MASONRY CONFORMING TO ASTM C270 TYPE S. GROUT SHALL CONFORM TO ASTM C476 MIN. Fg = 3000psii GROUT SHALL CONSIST OF 1 PART PORTLAND CEMENT 2 PARTS SAND, 2 PARTS COARSE AGGREGATE (MAX SIZE ⅜") AND WATER AS REQUIRED TO BRING TO DESIRED CONSISTENCY.

REINFORCEMENT: COLD DRAWN STEEL WIRE CONFORMING TO ASTM A-82; MASONRY WALLS MADE OF CMU TO BE REINFORCED USING ⅜" TRUSS TYPE REINFORCEMENT (GALVANIZED AFTER FABRICATION) AT 16"oc REBAR SHALL CONFORM TO ASTM A-615 GRADE 60.

ALL FILLED CELL MASONRY TO BE BUILT TO PRESERVE THE UNOBSTRUCTED VERTICAL CONTINUITY OF OF THE CELLS TO BE FILLED. LAY UNITS WITH FULL FACE SHELL MORTAR BEDS AND CROSS WEBS ADJACENT TO VERTICAL CORES TO BE FILLED.

FILL CELLS WITH GROUT TO MAXIMUM OF 8 FEET. IF TOTAL POUR IS GREATER THAN 8 FEET, POUR IN FOUR FOOT LIFTS STOPPING ½" BELOW OF UPPERMOST UNIT FOR CONSTRUCTION JOINTS.

BACK-FILL AT RETAINING WALLS SHALL BE DONE UNDER CONTROLLED CONDITIONS ONLY AFTER WALL HAS SETUP.

REINFORCING BARS SHOWN IN MASONRY WALLS SHALL BE LAPPED AS FOLLOWS, ALL LAP SPLICES SHALL BE ACCORDING TO IBC SECTION 2107.2.3
#3 BARS-LAP 18" MIN
#4 BARS-LAP 24" MIN
#5 BARS-LAP 36" MIN
#6 BARS-LAP 56" MIN
#7 BARS-LAP 76" MIN
#8 BARS-LAP 107" MIN

REINFORCING BARS SHALL CONFORM TO ASTM A-615 GRADE 60.

GENERAL LIGHT GAUGE METAL NOTES:

ALL LIGHT GAUGE METAL AND ACCESSORIES ARE TO BE DESIGNED BY AN ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA. ALL SIZES SHOWN ON STRUCTURAL DRAWINGS SHALL BE CONSIDERED A MINIMUM FOR THE LOCATION SHOWN. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL TO THE ARCHITECT AND ENGINEER OF RECORD PRIOR TO FABRICATION AND/OR ERECTION.

ALL STRUCTURAL MEMBERS SHALL BE DESIGNED IN ACCORDANCE w/ AISI "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STRUCTURAL MEMBERS," LATEST ADDITION.

ALL FRAMING SHALL BE FORMED FROM CORROSION-RESISTANT STEEL, MEETING THE REQUIREMENTS OF ASTM A446 w/ A MINIMUM STRENGTH OF 40ksi FOR SJ STUDS AND 33ksi FOR CR RUNNERS.

FASTENING OF COMPONENTS SHALL BE MADE w/ SELF-DRILLING SCREWS OR WELDING. SCREWS TO BE OF SUFFICIENT SIZE TO INSURE THE STRENGTH OF THE CONNECTION. ALL WELDS TO BE TOUCHED UP w/ ZINC PAINT.

STUDS ARE TO BEAR DIRECTLY ON THE CR RUNNERS SO THAT FASTENERS DO NOT SUPPORT THE FULL SHEAR STRENGTH OF THE CONNECTION.

JOISTS AND RAFTERS TO BEAR DIRECTLY OVER BEARING STUDS.

END BLOCKING SHALL BE PROVIDED WHERE JOIST ENDS ARE NOT OTHERWISE RESTRAINED FROM ROTATION.

METAL STUDS & MASONRY BACKING SHALL MEET SBC TABLE 1604.3 REQUIREMENTS.

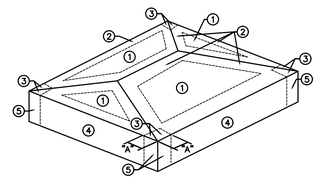
ALL HILTI "XU" POWDER ACTUATED FASTENERS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION AND HAVE A MIN. EMBEDMENT OF ¾" INTO CONCRETE.

TEMPORARY BRACING SHALL BE PROVIDED UNTIL ERECTION IS COMPLETE.

COMPONENTS AND CLADDING

	ROOF AND WALLS	
ZONE	ULTIMATE WIND PRESSURES	
1	33 (PSF)	-52 (PSF)
2	33 (PSF)	-90 (PSF)
3	33 (PSF)	-132 (PSF)
4	56 (PSF)	-61 (PSF)
5	52 (PSF)	-94 (PSF)

TABULATED PRESSURES ARE AT ULTIMATE LEVEL AND ASSUME AN EFFECTIVE WIND LOADED AREA OF 10 SQ. FT. TABULATED PRESSURES MAY BE MULTIPLIED BY 0.6 TO OBTAIN DP RATING.



HIP ROOF (h=20')

GENERAL NOTE

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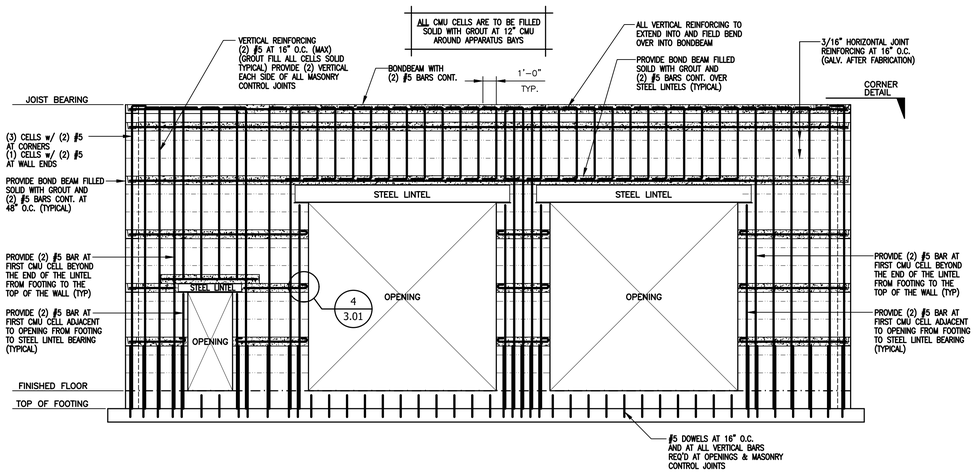
NORTH CAROLINA PROFESSIONAL SEAL 056654 ENGINEER WILLIAM D. LANTSCH
03.28.2024

GORDON ROAD FIRE DEPARTMENT
WILMINGTON, NC

GENERAL NOTES

sheet
3.00

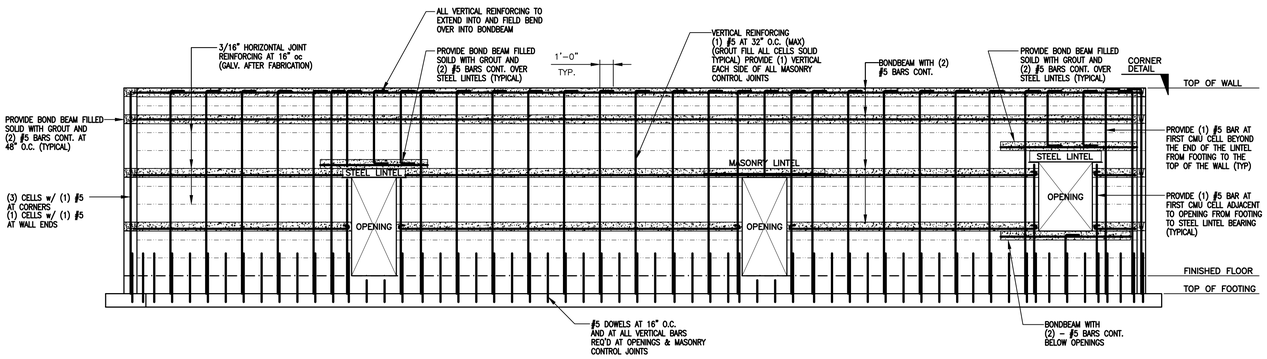


1 / 3.01 TYPICAL SPECIAL REINFORCED MASONRY SHEAR WALL REINFORCING (12" CMU WALLS)

SCALE: NTS

REINFORCING NOTES:

1. INSTALL (2) #5 CONTINUOUS HORIZONTAL IN BOND BEAMS AT FLOOR LEVEL AND AT LOCATIONS SHOWN.
2. INSTALL (3) CELLS WITH (2) #5 VERTICALS AT CORNERS AND (2) #5 VERTICAL WITHIN 8" EACH SIDE OF MOVEMENT JOINTS, WITHIN 8" OF THE WALL ENDS, AND AT A MAXIMUM SPACING OF 16" O.C. ALONG THE WALL LENGTH.
3. INSTALL (2) #5 HORIZONTAL IN BOND BEAM AT THE TOP AND BOTTOM OF WALL OPENINGS, EXTEND BEYOND THE OPENING 48 BAR DIAMETERS OR 24" MINIMUM.
4. INSTALL (2) #5 VERTICAL AT THE FIRST OPEN CELL EACH SIDE OF OPENINGS, DOWEL AT TOP AND BOTTOM INTO ADJACENT LEVEL BOND BEAM AND/OR FOUNDATIONS.
5. INSTALL HORIZONTAL JOINT REINFORCING SPACED NOT MORE THAN 16" O.C.
6. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS & SIZES OF ALL OPENINGS.
7. WHERE STEEL LINTELS ARE USED PROVIDE (2) #5 VERTICAL AT THE FIRST OPEN CMU CELL ADJACENT TO THE OPENING FROM FOOTING UP TO THE LINTEL BEARING. PROVIDE (2) #5 VERTICAL IN FIRST OPEN CMU CELL BEYOND THE END OF THE LINTEL FROM THE FOOTING TO THE ADJACENT LEVEL BOND BEAM.

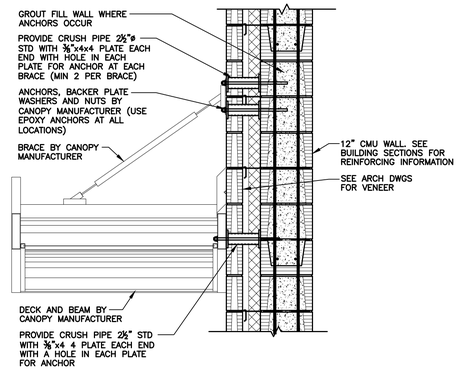


2 / 3.01 TYPICAL SPECIAL REINFORCED MASONRY WALL REINFORCING (8" CMU WALLS) (INTERIOR)

SCALE: NTS

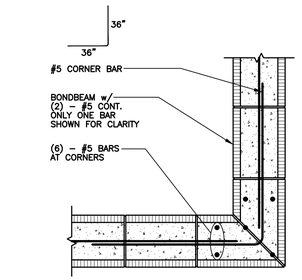
REINFORCING NOTES:

1. INSTALL (2) #5 CONTINUOUS HORIZONTAL IN BOND BEAMS AT FLOOR LEVEL AND AT LOCATIONS SHOWN.
2. INSTALL (3) #5 VERTICALS AT CORNERS AND (1) #5 VERTICAL WITHIN 8" EACH SIDE OF MOVEMENT JOINTS, WITHIN 8" OF THE WALL ENDS, AND AT A MAXIMUM SPACING OF 32" O.C. ALONG THE WALL LENGTH.
3. INSTALL (2) #5 HORIZONTAL IN BOND BEAM AT THE TOP AND BOTTOM OF WALL OPENINGS, EXTEND BEYOND THE OPENING 48 BAR DIAMETERS OR 24" MINIMUM.
4. INSTALL (1) #5 VERTICAL AT THE FIRST OPEN CELL EACH SIDE OF OPENINGS, DOWEL AT TOP AND BOTTOM INTO ADJACENT LEVEL BOND BEAM AND/OR FOUNDATIONS.
5. INSTALL HORIZONTAL JOINT REINFORCING SPACED NOT MORE THAN 16" O.C.
6. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS & SIZES OF ALL OPENINGS.
7. WHERE STEEL LINTELS ARE USED PROVIDE (1) #5 VERTICAL AT THE FIRST OPEN CMU CELL ADJACENT TO THE OPENING FROM FOOTING UP TO THE LINTEL BEARING. PROVIDE (1) #5 VERTICAL IN FIRST OPEN CMU CELL BEYOND THE END OF THE LINTEL FROM THE FOOTING TO THE ADJACENT LEVEL BOND BEAM.

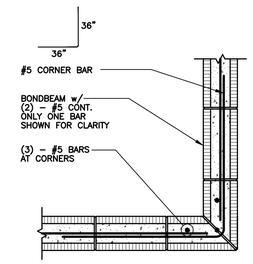


5 / 3.01 TYP. PREFAB. CANOPY SUPPORT DETAIL - CMU WALL

SCALE: 3/4" = 1'-0"



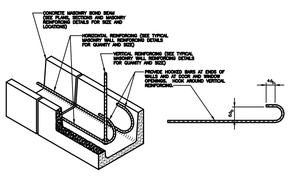
12" CMU WALLS



8" CMU WALLS

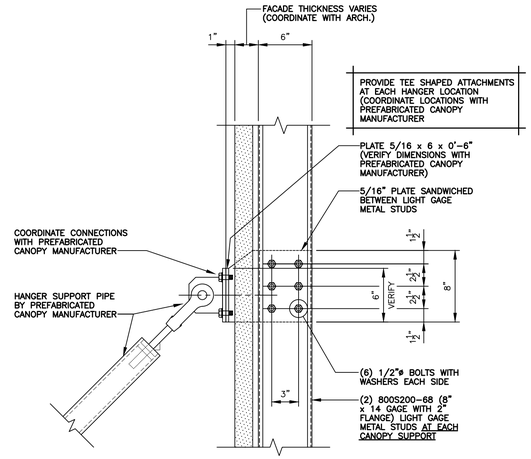
3 / 3.01 CORNER DETAILS

SCALE: NTS

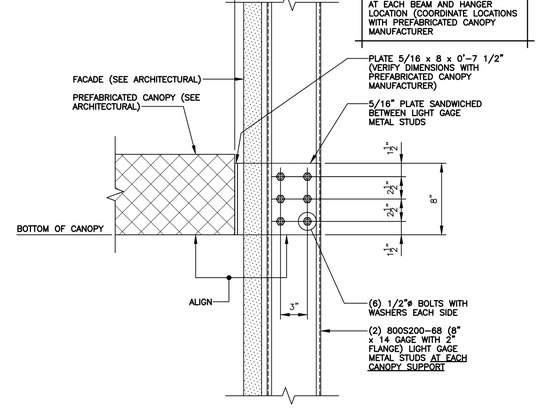


4 / 3.01 TERMINATION DETAIL

SCALE: NTS



(ENTRY) HANGER SUPPORT ATTACHMENT



(ENTRY) HANGER SUPPORTED CANOPY DETAIL

6 / 3.01 TYP. PREFAB. CANOPY SUPPORT DETAIL - LG WALL

SCALE: 1 1/2" = 1'-0"

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NORTH CAROLINA PROFESSIONAL SEAL 056654 ENGINEER WILLIAM D. LAATSCH
03.28.2024

GORDON ROAD FIRE DEPARTMENT
WILMINGTON, NC

TYPICAL CMU WALL REINFORCING DETAILS

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LINTEL SCHEDULE FOR MASONRY WALLS

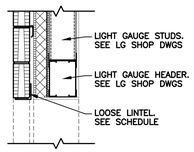
MARK	LINTEL SIZE	BEARING	DETAIL
L1	W8x15 & 3/8" x 11" BOTTOM PLATE w/ HEADED STUDS	8" MIN.	SEE DETAIL BELOW
L2	W8x18 & 3/8" x 19" BOTTOM PLATE w/ STIFFENERS AND HEADED STUDS	8" MIN.	SEE DETAIL BELOW
L3	W16x50 & 3/8" x 19" BOTTOM PLATE w/ STIFFENERS AND HEADED STUDS	10"	SEE DETAIL BELOW
L4	W16x26 & 3/8" x 11" BOTTOM PLATE w/ HEADED STUDS	10"	SEE DETAIL BELOW
L5	W8x15 & 3/8" x 7" BOTTOM PLATE w/ HEADED STUDS	8" MIN.	SEE DETAIL BELOW
LX[1]	W8x15 & 3/8" x (WALL WIDTH −1") BOTTOM PLATE w/ HEADED STUDS	8" MIN.	SEE DETAIL BELOW

1. 'LX' INDICATES LINTEL AT MECHANICAL OPENINGS UP TO 6'−0". COORDINATE OPENINGS AND LOCATIONS WITH MEP AND ARCH DWGS

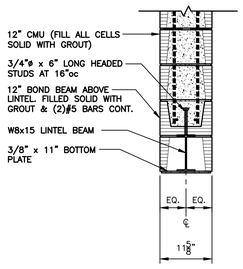
LOOSE LINTEL SCHEDULE FOR BRICK VENEER

OPENING	LINTEL SIZE	MIN. BEARING
<6'−0"	L3 1/2 x 3 1/2 x 5/16"	8" MIN.
<8'−6"	L6 x 3 1/2 x 5/16" LLV	8" MIN.

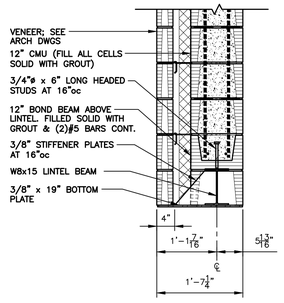
− SPANS GREATER THAN 8'−6" REQUIRE PL7 1/2 x 7 1/2 x 5/16" BENT PLATE w/ 5/8"ø THRU BOLTS AT 24"oc IN LIGHT GAUGE HEADER



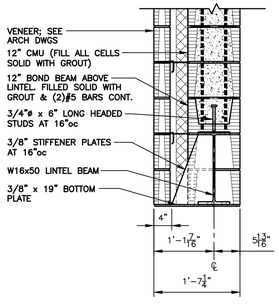
TYP. LOOSE LINTEL DETAIL



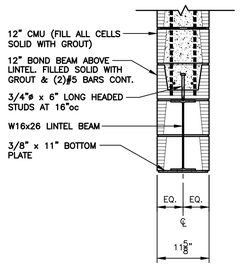
LINTEL 'L1'



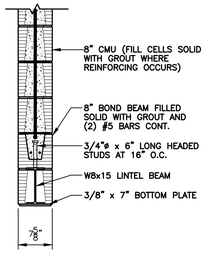
LINTEL 'L2'



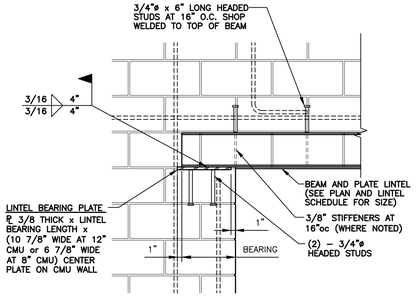
LINTEL 'L3'



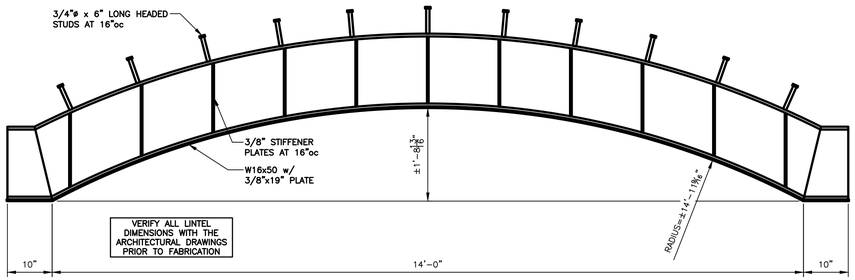
LINTEL 'L4'



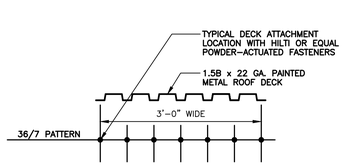
LINTEL 'L5'



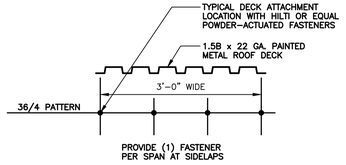
TYPICAL STEEL LINTEL BEARING DETAIL



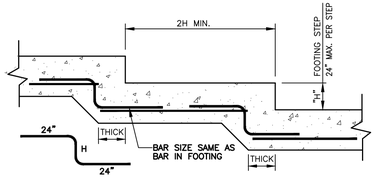
LINTEL 'L3'



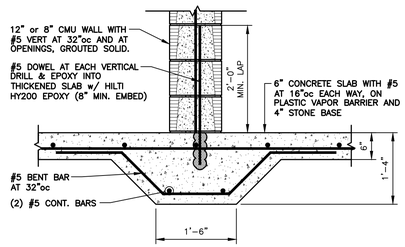
DECK ATTACHMENT AT APPARATUS BAY



DECK ATTACHMENT AT LIVING QUARTERS

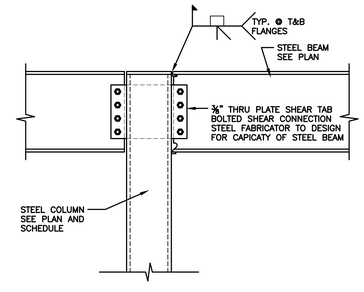


TYPICAL STEPPED FOOTING DETAIL

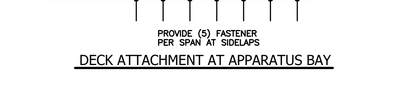


1 / 3.02 THICKENED SLAB 'TS1.5'

SCALE: 3/4" = 1'−0"

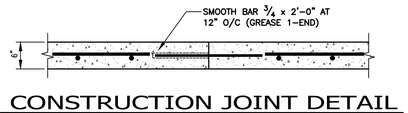


TYPICAL RIGID CONNECTION DETAIL



CONTROL JOINT DETAIL

CONTROL JOINT SPACING IS TO BE NO MORE THAN 24 - 36 x SLAB DEPTH

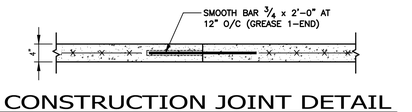


CONSTRUCTION JOINT DETAIL

CONSTRUCTION JOINTS ARE TO OCCUR WHERE CONCRETE POURS STOP AND START

CONTROL JOINT DETAIL

CONTROL JOINT SPACING IS TO BE NO MORE THAN 24 - 36 x SLAB DEPTH



CONSTRUCTION JOINT DETAIL

CONSTRUCTION JOINTS ARE TO OCCUR WHERE CONCRETE POURS STOP AND START

WALL FOOTING SCHEDULE

MARK	FOOTING SIZE	CONT. BARS	TRANSVERSE BARS
WF2.5	2'−6" WIDE x 14" DEEP	(3) #5 BARS CONT.	#5 BARS AT 32"oc
WF3.0	3'−0" WIDE x 14" DEEP	(4) #5 BARS CONT.	#5 BARS AT 32"oc
WF3.5	3'−6" WIDE x 18" DEEP	(4) #5 BARS CONT.	#5 BARS AT 32"oc
TS1.5	1'−6" WIDE x 16" DEEP	(2) #5 BARS CONT.	#5 BARS AT 32"oc

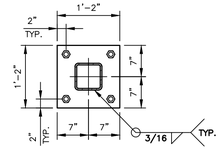
COLUMN FOOTING SCHEDULE

MARK	FOOTING SIZE	REINFORCING
F3	3'−0" x 3'−0" x 18" DEEP	(4) − #5 BARS E.W. HOOKED ENDS (BOTTOM)
F4	4'−0" x 4'−0" x 18" DEEP	(6) − #5 BARS E.W. (TOP) (6) − #5 BARS E.W. HOOKED ENDS (BOTTOM)
F5	5'−0" x 5'−0" x 18" DEEP	(7) − #5 BARS E.W. (TOP) (7) − #5 BARS E.W. HOOKED ENDS (BOTTOM)
F585	5'−0" x 8'−6" x 18" DEEP	(7) − #5 BARS T&B (SHORT FACE) (10) − #5 BARS T&B (LONG FACE)
F6	6'−0" x 6'−0" x 18" DEEP	(8) − #5 BARS E.W. TOP & BOTTOM
F7	7'−0" x 7'−0" x 18" DEEP	(9) − #5 BARS E.W. TOP & BOTTOM

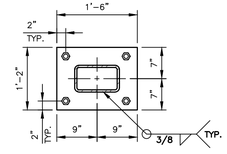
COLUMN SCHEDULE

MARK	COLUMN SIZE	BASE PLATE SIZE	ANCHOR BOLTS
C6	HSS 6 x 6 x 1/2	℄ 1" x 14" x 14"	(4) 1ø *
C106	HSS 10 x 6 x 1/2	℄ 1−1/4" x 18" x 14"	(4) 1ø *
HP1	HSS 4 x 4 x 3/8	N/A	N/A

* SEE DETAILS BELOW FOR ANCHOR BOLT LENGTHS AND EMBEDMENT



C6



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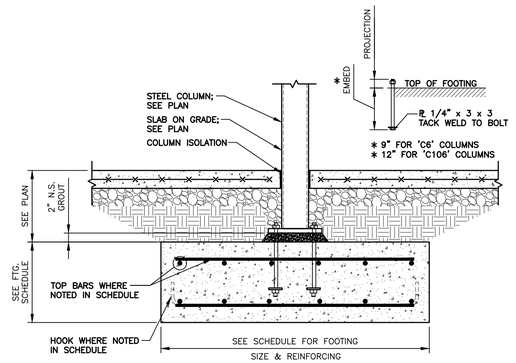

TYPICAL COLUMN FOOTING DETAIL

GENERAL NOTE

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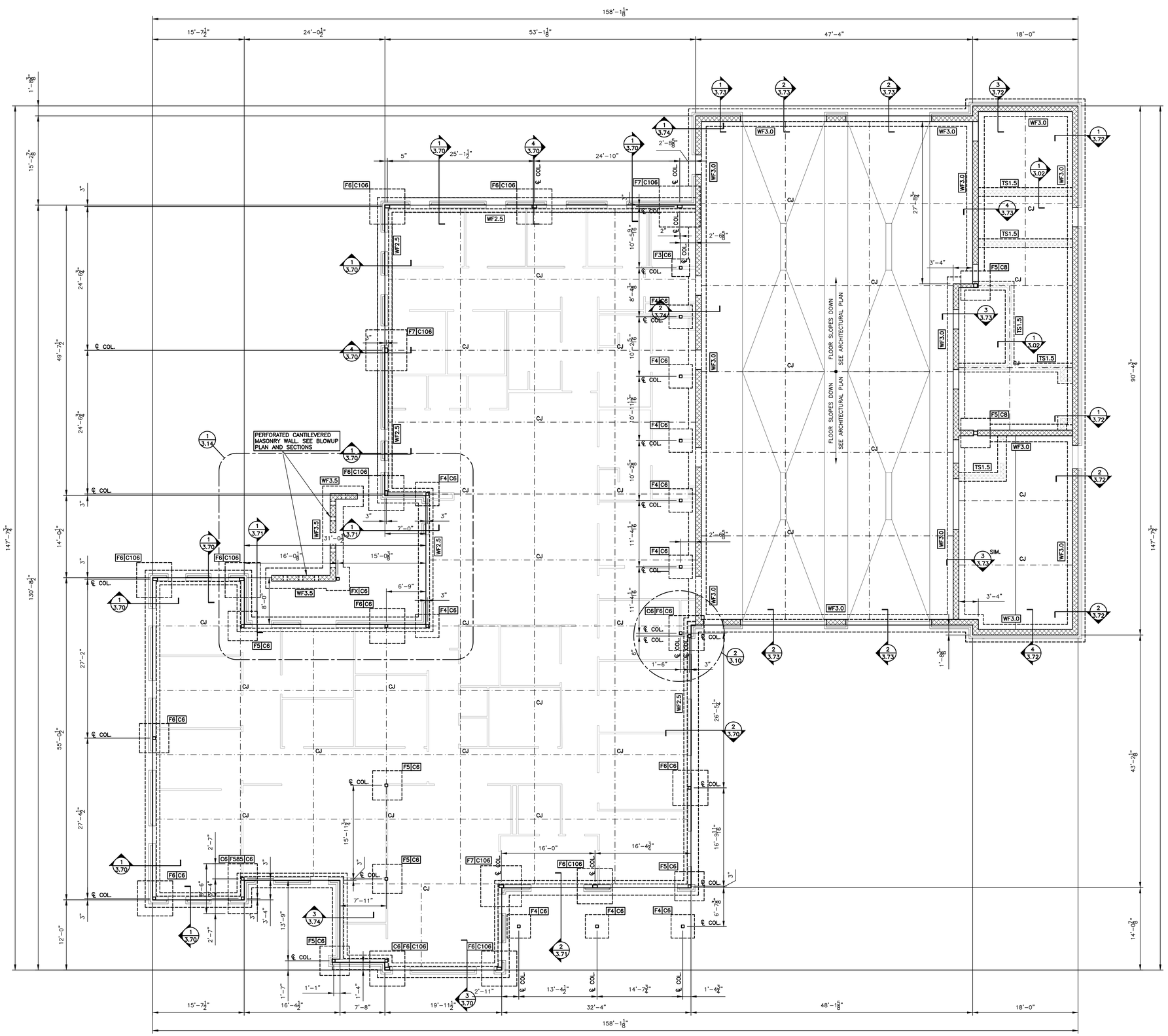
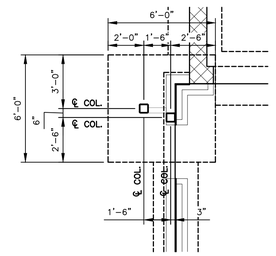
WILMINGTON, NC

SCHEDULES AND TYPICAL DETAILS

sheet
3.02





2 / 3.10 **FOOTING BLOWUP PLAN**
SCALE: 1/4" = 1'-0"

1 / 3.10 **FOUNDATION PLAN**
SCALE: 1/8" = 1'-0"

- TOP OF FOOTING ELEVATION TO BE (-1'-4") BELOW FINISHED FLOOR SLAB ON GRADE (+0'-0") UNLESS OTHERWISE NOTES THUS 'TF(-X'-X")'
- LIVING QUARTER SHALL BE 4" CONCRETE SLAB ON GRADE WITH 6x6-W1.4xW1.4 WWM ON VAPOR BARRIER PER ARCHITECT AND 4" STONE BASE.
- APPARATUS BAY SHALL BE 6" CONCRETE SLAB ON GRADE WITH #5 AT 12"oc E.W. ON VAPOR BARRIER PER ARCHITECT AND 4" STONE BASE.
- 'CJ' INDICATES CONSTRUCTION JOINT; SEE TYPICAL DETAIL ON SHEET 3.02.
- 'FX' INDICATES CONCRETE FOOTING; SEE FOOTING SCHEDULE ON SHEET 3.02 FOR SIZE AND REINFORCING, TYPICAL.
- 'CX' INDICATES STEEL COLUMN; SEE COLUMN SCHEDULE ON SHEET 3.02 FOR SIZE AND DETAILS, TYPICAL.
- 'WFX.X' INDICATES WALL FOOTING; SEE FOOTING SCHEDULE ON SHEET 3.02 FOR SIZE AND REINFORCING, TYPICAL.
- ALL DIMENSIONS TO BE VERIFIED/COORDINATED WITH ARCHITECTURAL DRAWINGS. IN EVENT OF CONFLICT, ARCHITECTURAL DRAWINGS TO GOVERN.
- GC COORDINATE FOOTING STEPS AND LOCATIONS WITH CIVIL AND ARCH DRAWINGS; SEE TYPICAL FOOTING STEP DETAIL ON SHEET 3.02.
- GC TO STEP FOOTING SUCH THAT TOP OF FOOTING IS BELOW PLUMBING/MECH LINES. COORDINATE FOOTING ELEVATIONS WITH MECH/PLUMBING LINES. MAX. FOOTING STEP IS 24" PER STEP, SEE SHEET 3.02 FOR TYPICAL FOOTING STEP DETAIL.

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WILMINGTON, NC

FOUNDATION PLAN

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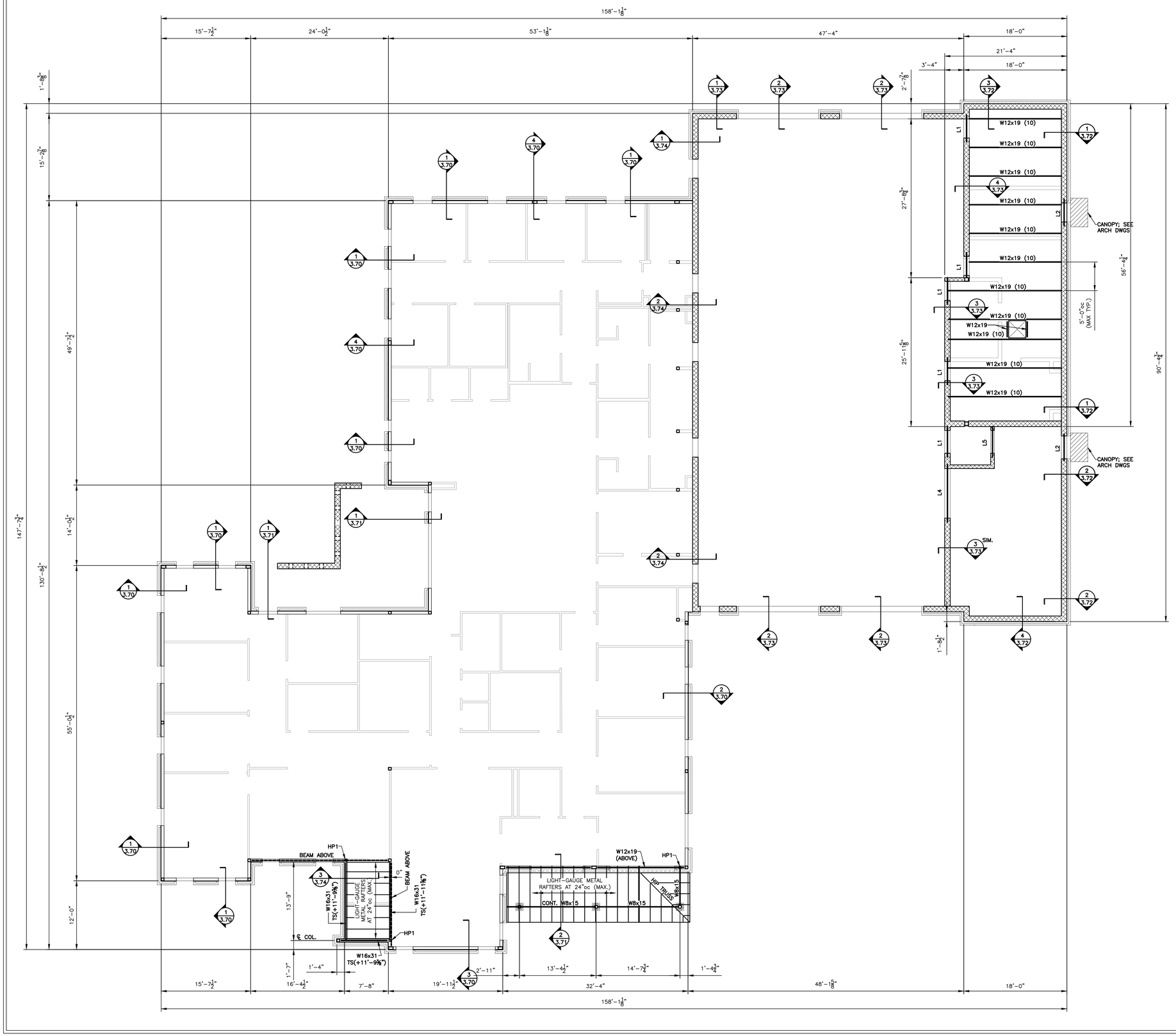

MEZZANINE & CANOPY FRAMING PLAN

1 / 3.11

SCALE: 1/8" = 1'-0"

- APPARATUS BAY: MEZZANINE TOP OF STEEL TO BE (+10'-11") ABOVE FLOOR SLAB ON GRADE (+0'-0") UNLESS OTHERWISE NOTED.
- APPARATUS BAY: MEZZANINE FLOOR TO BE 5" NORMAL WEIGHT (4000PSI) COMPOSITE SLAB WITH 6x6-W1.4xW1.4 WWM ON 2VLI20 GALVANIZED COMPOSITE DECK
- LIVING QUARTERS CANOPY: TOP OF STEEL TO BE (+8'-10") ABOVE FLOOR SLAB ON GRADE (+0'-0") UNLESS OTHERWISE NOTED.
- LIVING QUARTERS CANOPY: ROOF DECK TO BE 1.5B x 22 GA. GALVANIZED METAL ROOF DECK. SEE SHEET 3.03 FOR ATTACHMENT
- "LX" DENOTES LINTEL TYPE. SEE SHEET 3.03 FOR LINTEL SCHEDULE AND DETAILS. SEE ARCH DWGS FOR OPENING INFORMATION.
- "HX" DENOTES LIGHT GAUGE HEADER AT WALL OPENINGS DESIGNED AND FURNISHED BY LIGHT GAUGE MANUFACTURER. SEE ARCHITECTURAL DRAWINGS FOR OPENING SIZES AND LOCATIONS.
- • "LL" DENOTES LOOSE BRICK LINTEL. SEE LINTEL SCHEDULE ON SHEET 3.02 FOR DETAILS.
- UPLIFT BRIDGING/CONNECTIONS BY L.G. TRUSS DESIGNER. ROOF TRUSSES SHALL BE DESIGNED FOR A NET UPLIFT OF 35 PSF.
- ALL DIMENSIONS TO BE VERIFIED/COORDINATED WITH ARCHITECTURAL DRAWINGS. IN EVENT OF CONFLICT, ARCHITECTURAL DRAWINGS TO GOVERN.

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MEZZANINE & CANOPY FRAMING PLAN

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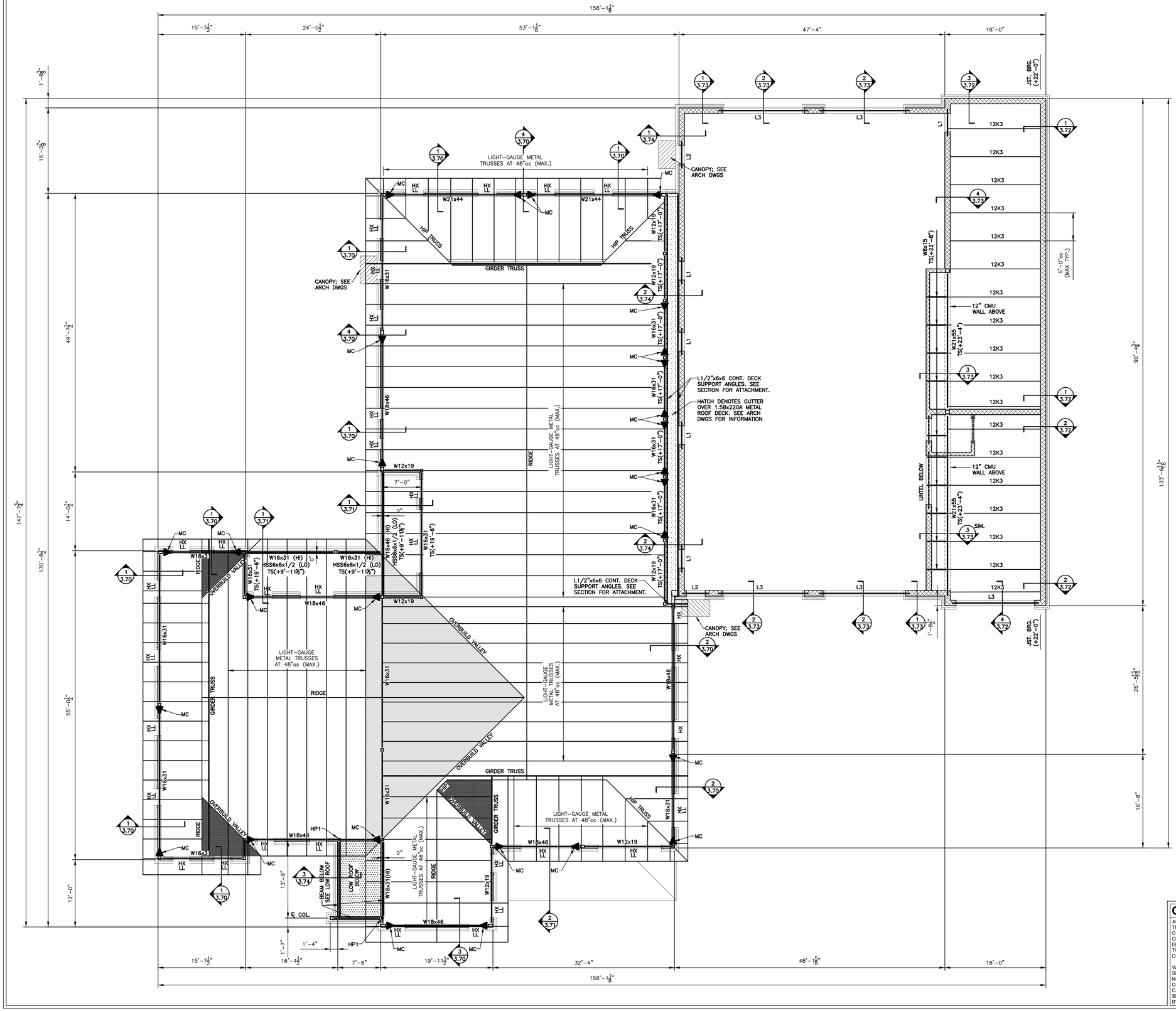

1 3.12 LOW ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

- APPARATUS BAY: ROOF JOIST BEARING TO BE (+22'-4") ABOVE FLOOR SLAB ON GRADE (+0'-0") UNLESS OTHERWISE NOTED.
- LIVING QUARTERS: TOP OF STEEL TO BE (+16'-0¼") ABOVE FLOOR SLAB ON GRADE (+0'-0") UNLESS OTHERWISE NOTED.
- ROOF DECK TO BE 1.5B x 22 GA. GALVANIZED METAL ROOF DECK. SEE SHEET 3.02 FOR ATTACHMENT DETAIL.
- "LX" DENOTES LINTEL TYPE. SEE SHEET 3.03 FOR LINTEL SCHEDULE AND DETAILS. SEE ARCH DWGS FOR OPENING INFORMATION.
- "HX" DENOTES LIGHT GAUGE HEADER AT WALL OPENINGS DESIGNED AND FURNISHED BY LIGHT GAUGE MANUFACTURER. SEE ARCHITECTURAL DRAWINGS FOR OPENING SIZES AND LOCATIONS.
- "LL" DENOTES LOOSE BRICK LINTEL. SEE LINTEL SCHEDULE ON SHEET 3.02 FOR DETAILS.
- "MC" DENOTES RIGID CONNECTION. SEE TYPICAL RIGID CONNECTION DETAIL ON SHEET 3.02.
- UPLIFT BRIDGING/CONNECTIONS BY L.G. TRUSS DESIGNER. ROOF TRUSSES SHALL BE DESIGNED FOR A NET UPLIFT OF 35 PSF.
- LIGHT GAUGE WALL AND ROOF FRAMING AND HEADERS TO BE DESIGNED BY OTHER. ALL SIZES SHOWN SHALL BE PRELIMINARY SIZES.
- ALL DIMENSIONS TO BE VERIFIED/COORDINATED WITH ARCHITECTURAL DRAWINGS. IN EVENT OF CONFLICT, ARCHITECTURAL DRAWINGS TO GOVERN.
- SEE SECTIONS 5/3.01 & 6/3.01 FOR TYPICAL PREFABRICATED CANOPY SUPPORT DETAILS.

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LOW ROOF FRAMING PLAN

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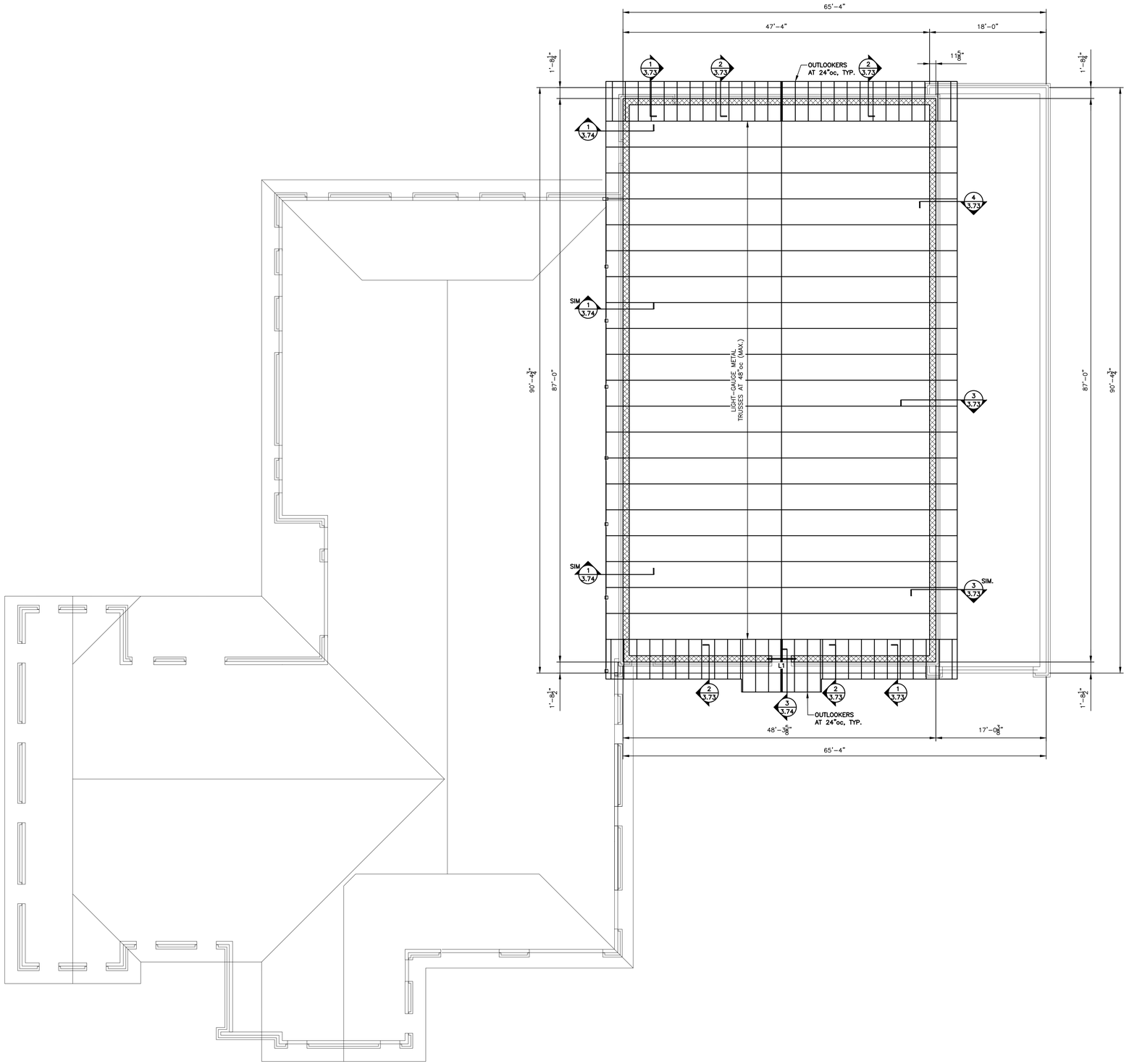

1/3.13 HIGH ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

- HIGH ROOF TRUSS BEARING TO BE (+26'-4") ABOVE FLOOR SLAB ON GRADE (+0'-0") UNLESS OTHERWISE NOTED.
- ROOF DECK TO BE 1.5B x 22 GA. GALVANIZED METAL ROOF DECK. SEE SHEET 3.03 FOR ATTACHMENT DETAIL.
- "LX" DENOTES LINTEL TYPE. SEE SHEET 3.03 FOR LINTEL SCHEDULE AND DETAILS. SEE ARCH DWGS FOR OPENING INFORMATION
- UPLIFT BRIDGING/CONNECTIONS BY L.G. TRUSS DESIGNER. ROOF TRUSSES SHALL BE DESIGNED FOR A NET UPLIFT OF 35 PSF.
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HIGH ROOF FRAMING PLAN

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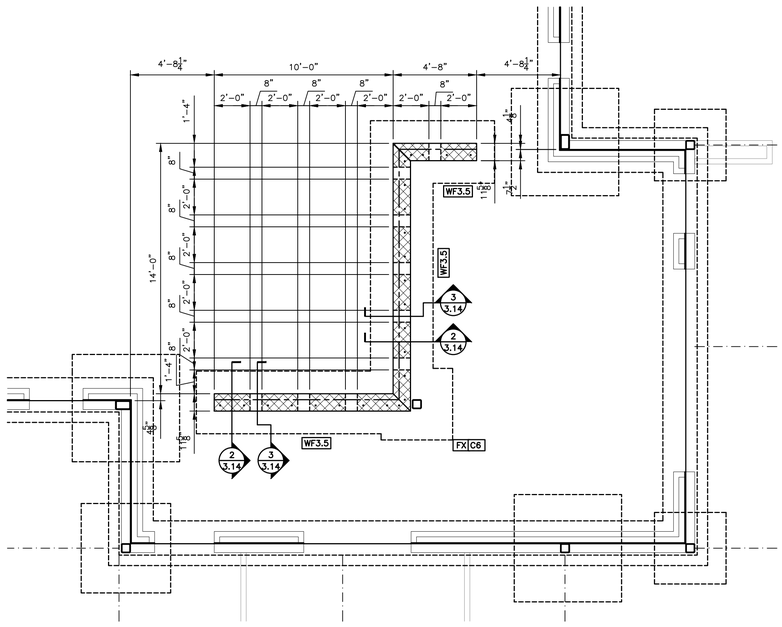
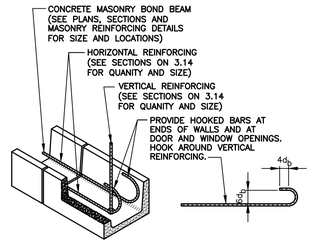


1 3.14 PATIO BLOWUP PLAN

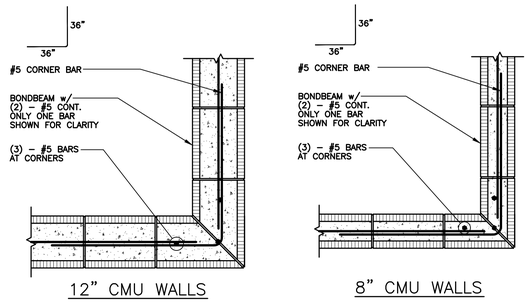
SCALE: 1/4" = 1'-0"

- TOP OF FOOTING ELEVATION TO BE (-1'-4") BELOW FINISHED FLOOR SLAB ON GRADE (+0'-0") UNLESS OTHERWISE NOTES THUS 'TF(-X'-X")'
- LIVING QUARTER SHALL BE 4" CONCRETE SLAB ON GRADE WITH 6x6-W1.4xW1.4 WWM ON VAPOR BARRIER PER ARCHITECT AND 4" STONE BASE.
- APPARATUS BAY SHALL BE 6" CONCRETE SLAB ON GRADE WITH #5 AT 12"oc E.W. ON VAPOR BARRIER PER ARCHITECT AND 4" STONE BASE.
- 'CJ' INDICATES CONSTRUCTION JOINT; SEE TYPICAL DETAIL ON SHEET 3.02.
- 'FX' INDICATES CONCRETE FOOTING; SEE FOOTING SCHEDULE ON SHEET 3.02 FOR SIZE AND REINFORCING, TYPICAL.
- 'CX' INDICATES STEEL COLUMN; SEE COLUMN SCHEDULE ON SHEET 3.02 FOR SIZE AND DETAILS, TYPICAL.
- 'WFX.X' INDICATES WALL FOOTING; SEE FOOTING SCHEDULE ON SHEET 3.02 FOR SIZE AND REINFORCING, TYPICAL.
- ALL DIMENSIONS TO BE VERIFIED/COORDINATED WITH ARCHITECTURAL DRAWINGS. IN EVENT OF CONFLICT, ARCHITECTURAL DRAWINGS TO GOVERN.
- GC COORDINATE FOOTING STEPS AND LOCATIONS WITH CIVIL AND ARCH DRAWINGS; SEE TYPICAL FOOTING STEP DETAIL ON SHEET 3.02



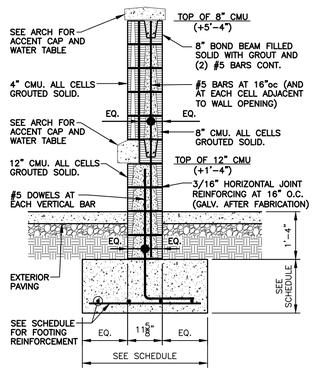
4 3.14 TERMINATION DETAILS

SCALE: NTS



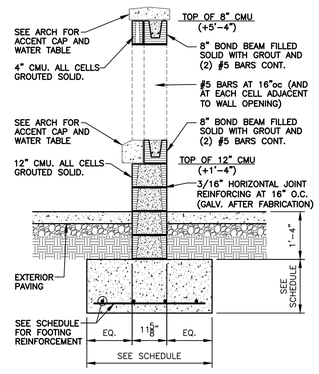
5 3.14 CORNER DETAILS

SCALE: NTS



2 3.14 WALL SECTION

SCALE: 1/2" = 1'-0"



3 3.14 WALL SECTION

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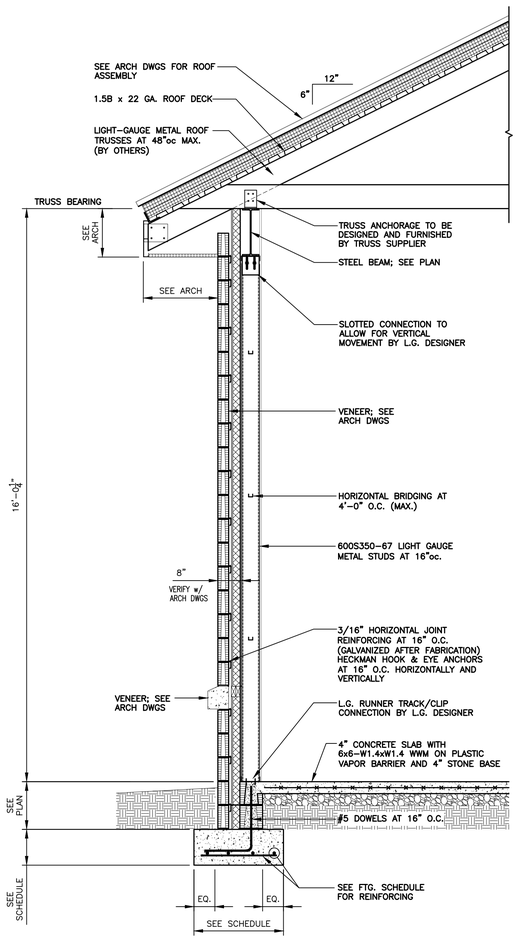
NORTH CAROLINA PROFESSIONAL SEAL 056654 ENGINEER WILLIAM D. LANTSCH
05.28.2024

GORDON ROAD FIRE DEPARTMENT
WILMINGTON, NC

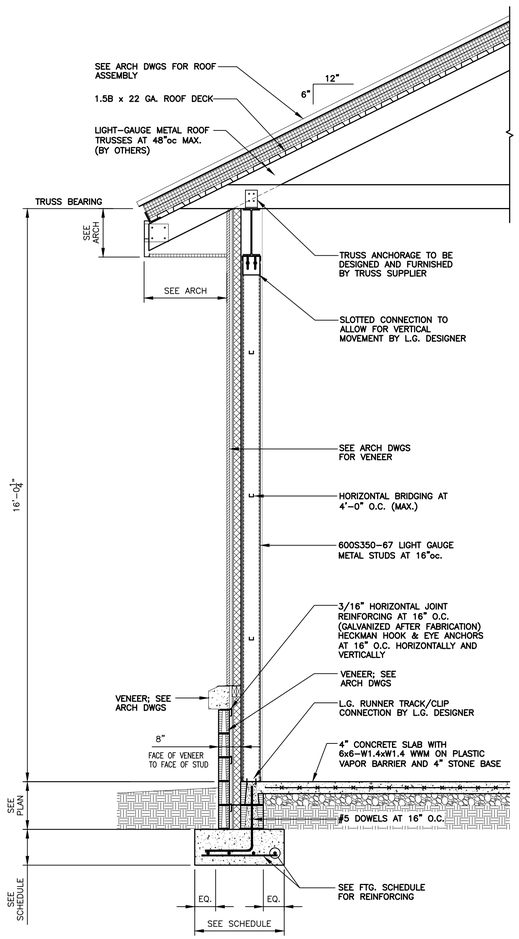
PATIO PLAN BLOWUP AND SECTIONS

sheet
3.14



1 / 3.70 WALL SECTION

SCALE: 1/2" = 1'-0"



2 / 3.70 WALL SECTION

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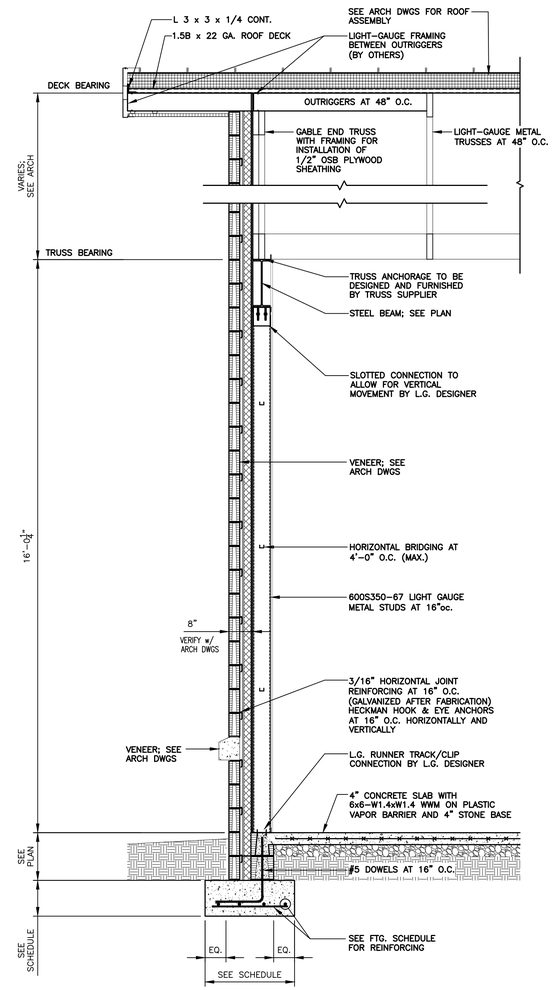

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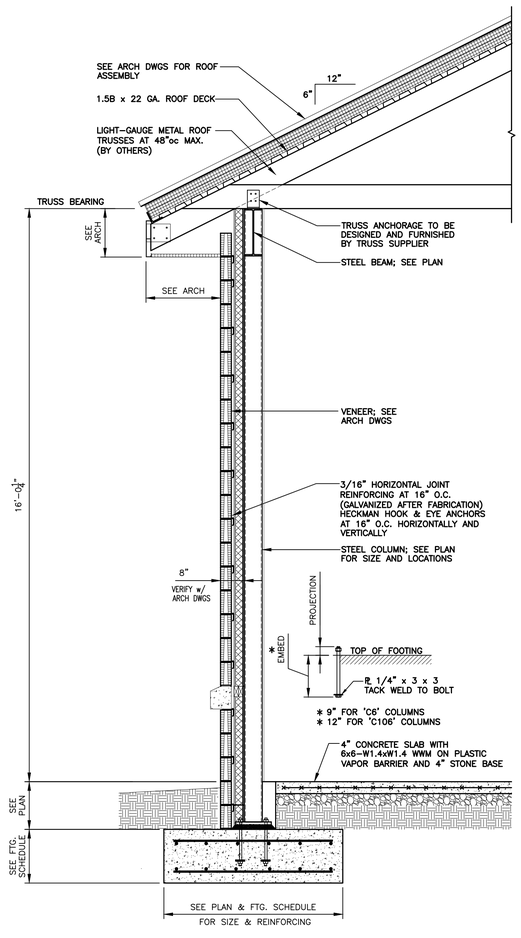

4 / 3.70 WALL SECTION

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GENERAL NOTE

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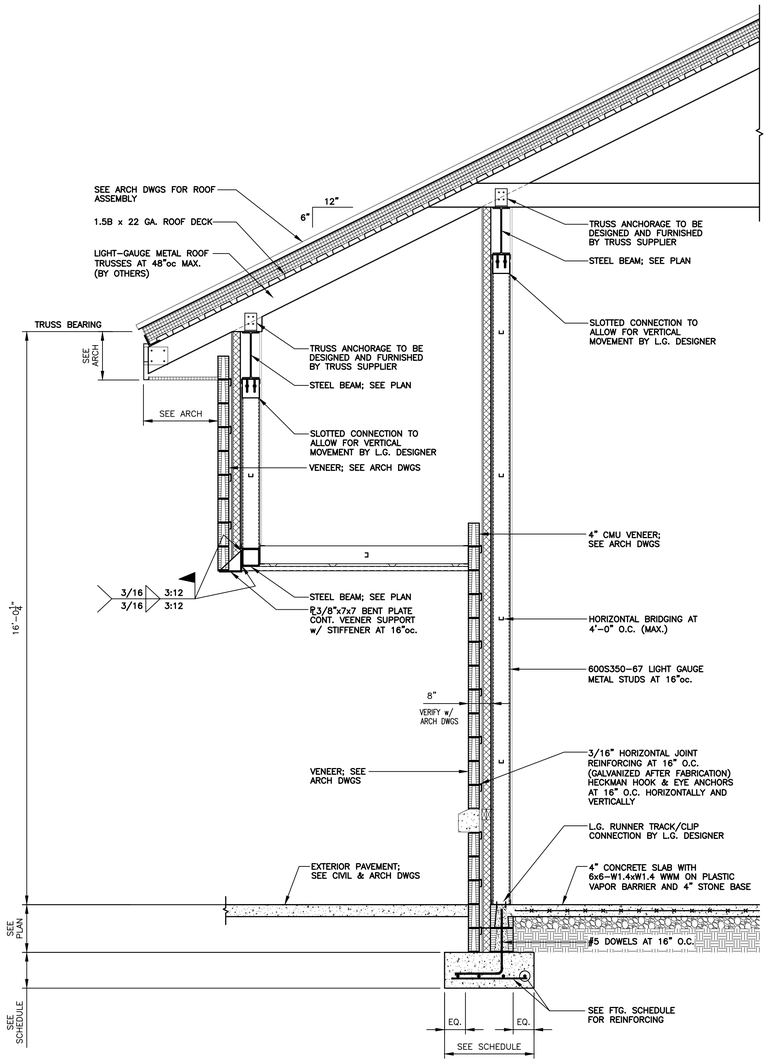
GORDON ROAD FIRE DEPARTMENT
WILMINGTON, NC

FRAMING SECTIONS

sheet
3.70



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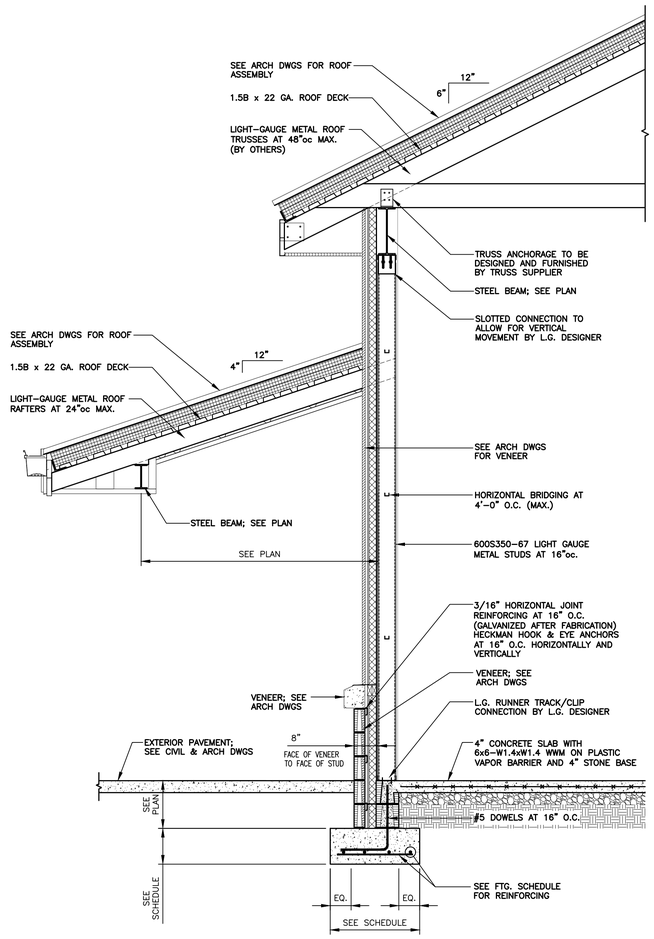

2 / 3.71 WALL SECTION

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NORTH CAROLINA PROFESSIONAL SEAL 056654 ENGINEER WILLIAM D. LANTSCH
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GORDON ROAD FIRE DEPARTMENT
WILMINGTON, NC

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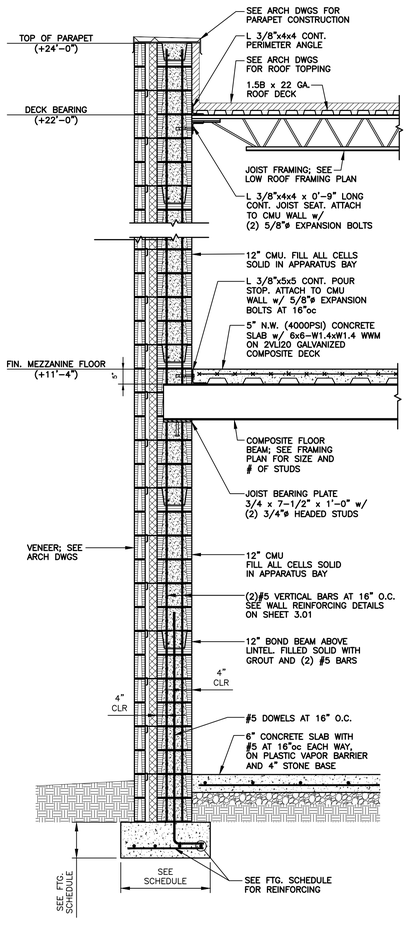
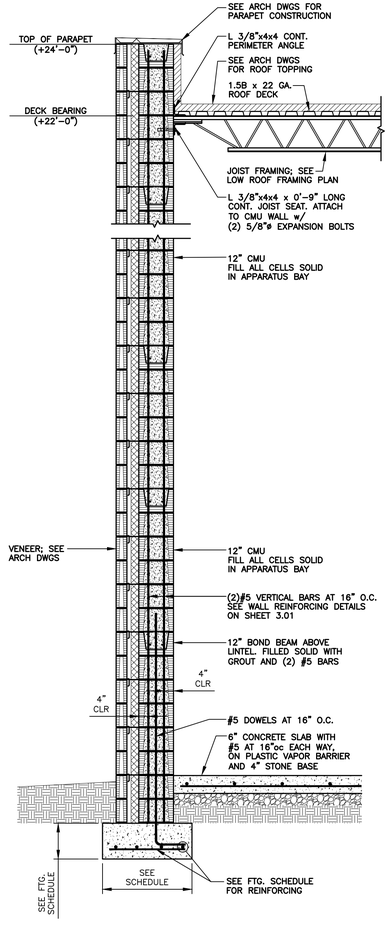
sheet
3.71



1 3.72 **WALL SECTION**
SCALE: 1/2" = 1'-0"



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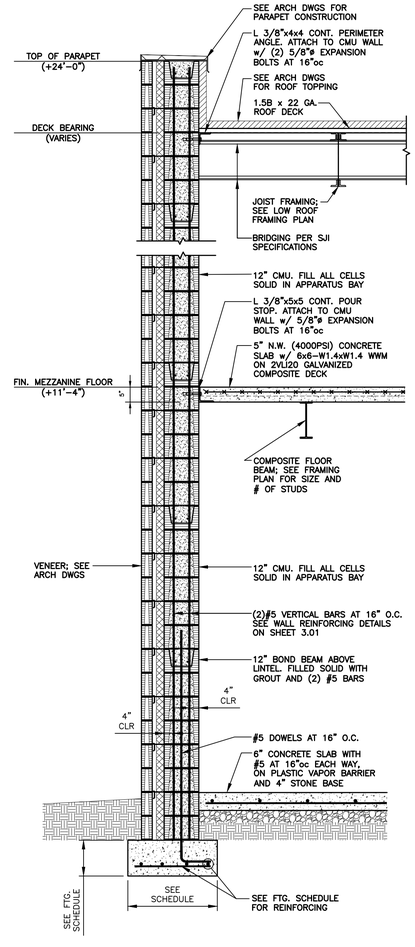

3 3.72 **WALL SECTION**
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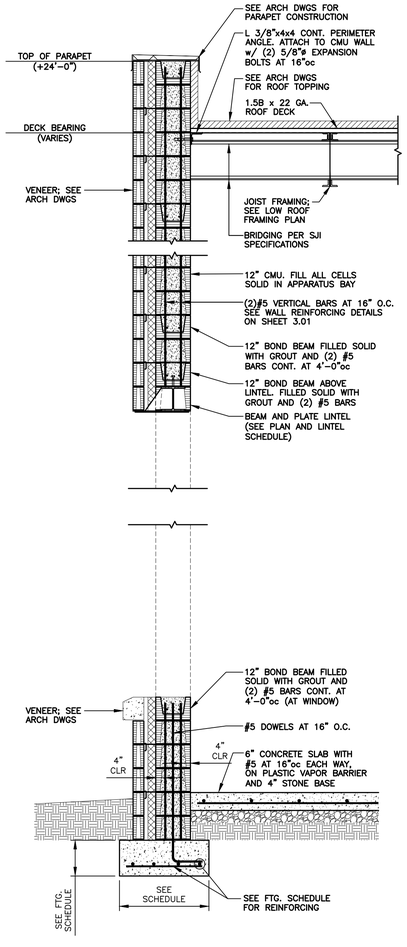

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GORDON ROAD FIRE DEPARTMENT
WILLMINGTON, NC

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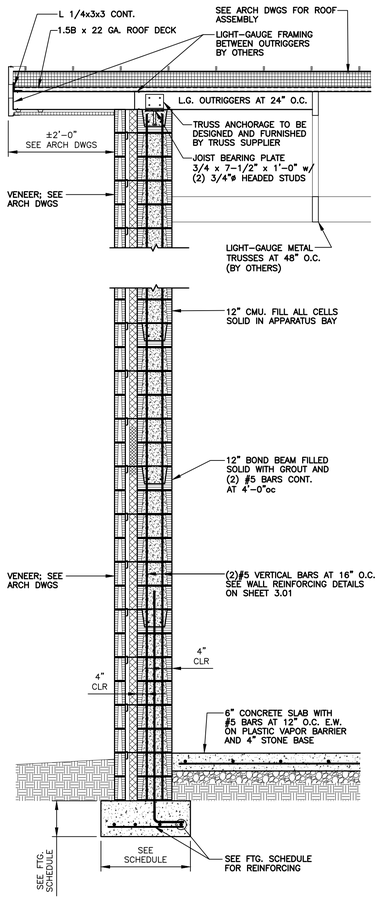

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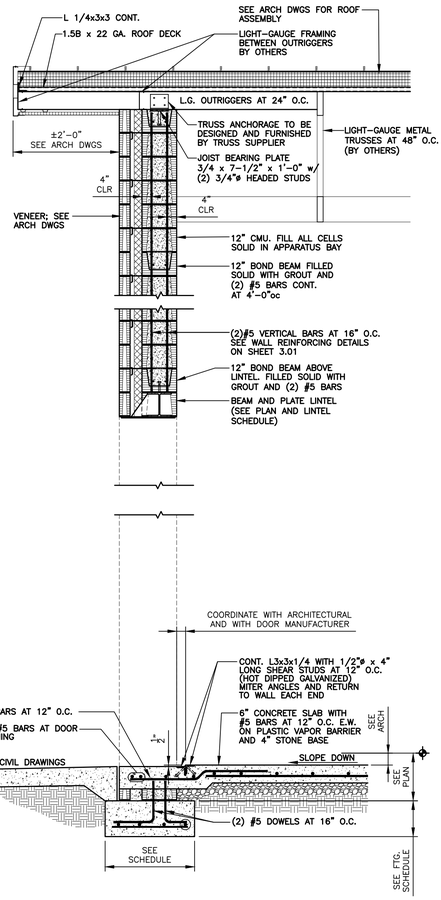

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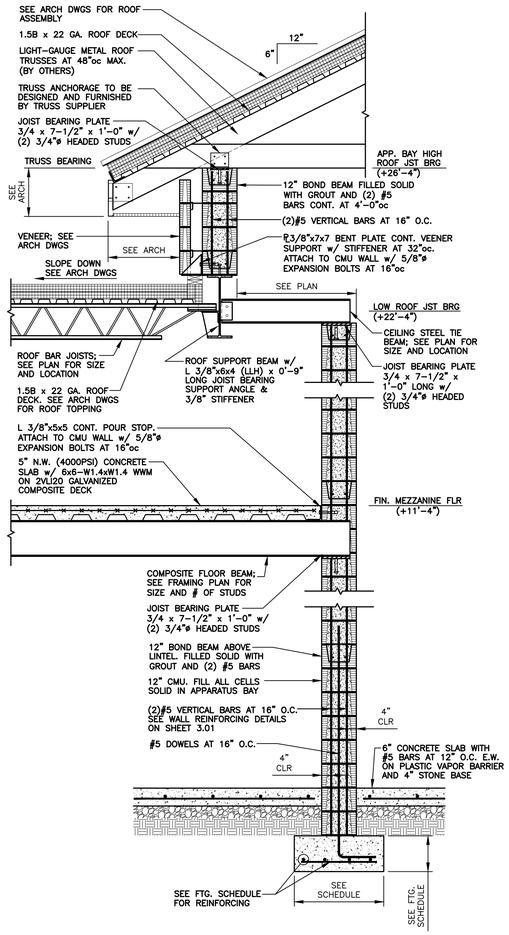

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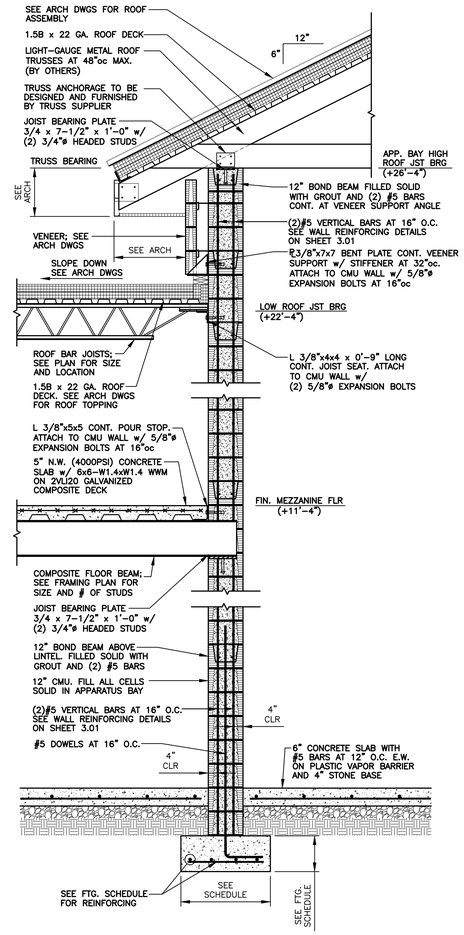

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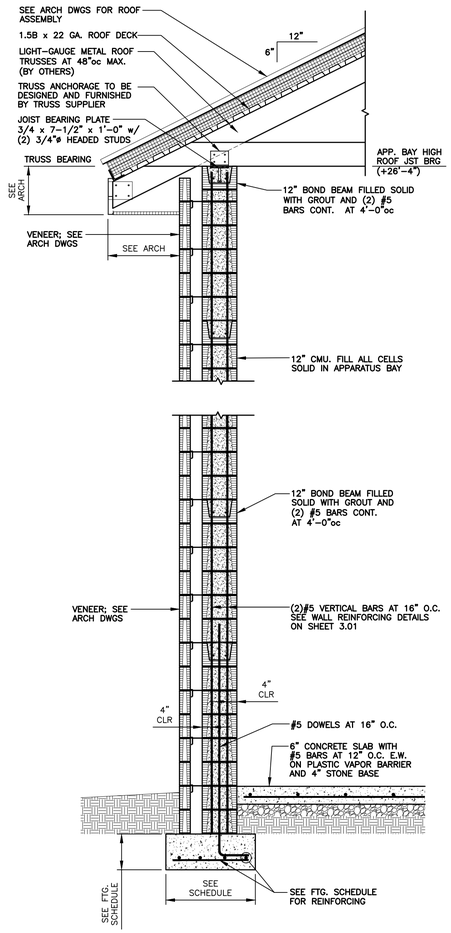

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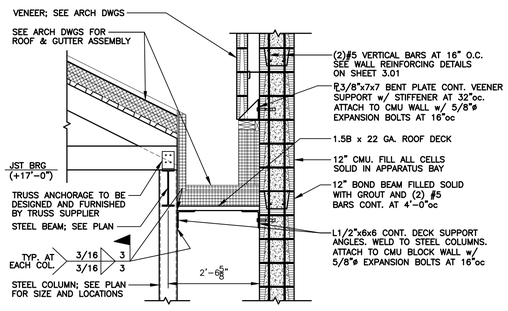

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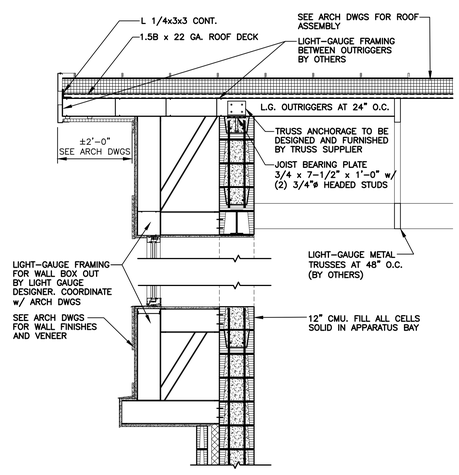

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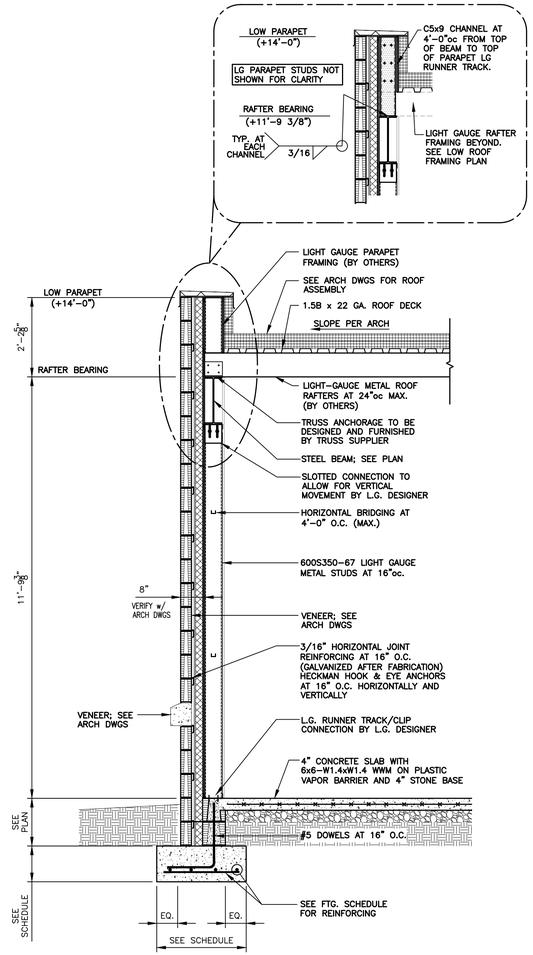

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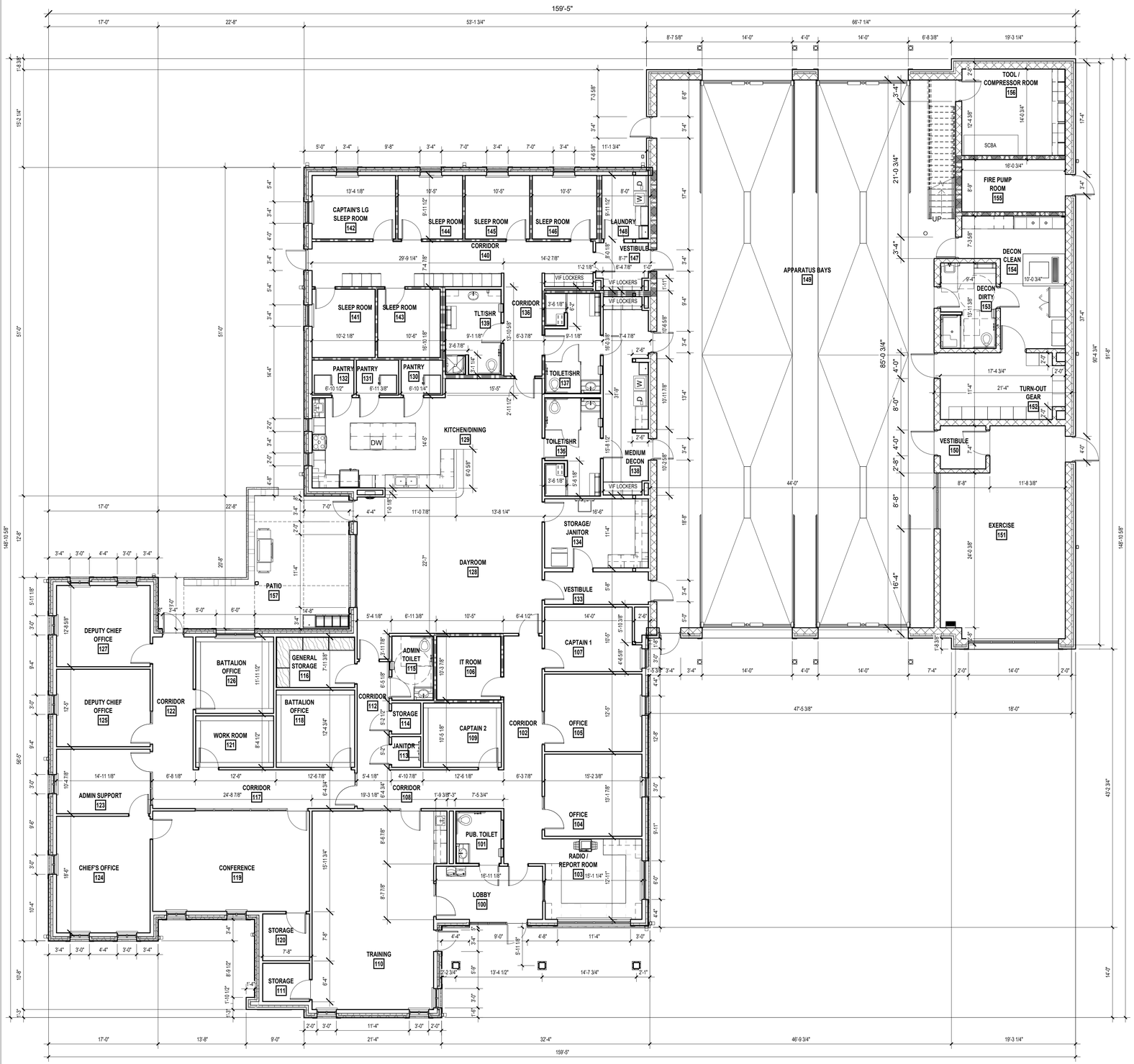

1 FIRST FLOOR DIMENSION PLAN
1/8" = 1'-0"

2 MEZZANINE DIMENSION PLAN
1/8" = 1'-0"

GENERAL NOTES

1. ALL CONTRACTORS MUST MAKE ON SITE VISITATIONS TO PROJECT SITE PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES WITH THE EXTENT OF CONSTRUCTION.
2. DISCREPANCIES: THE CONTRACTOR SHALL INFORM THE ARCHITECT IN WRITING OF ANY DISCREPANCIES OR OMISSIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS OR OF ANY VARIATIONS NEEDED IN ORDER TO CONFORM TO CODES, RULES AND REGULATIONS. UPON RECEIPT OF SUCH INFORMATION, THE ARCHITECT WILL SEND WRITTEN INSTRUCTION TO ALL CONCERNED. ANY SUCH DISCREPANCY, OMISSION OR VARIATION NOT REPORTED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WORK SHALL BE PERFORMED IN A MANNER DIRECTED BY THE ARCHITECT.
3. EXISTING CONDITIONS: ALL EXISTING INFORMATION WAS TAKEN FROM DRAWINGS FURNISHED BY OTHERS WHICH MAY OR MAY NOT BE CORRECT. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE JOB SITE. ANY DISCREPANCIES OR VARIATIONS FROM THE CONDITIONS SHOWN ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN WRITING.
4. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONS USING THE SURROUNDING FACILITIES WHO COME INTO CONTACT WITH THE AREA OF CONSTRUCTION. HE SHALL PROPERLY BARRICADE THE AREA TO PREVENT INTRUSION BY PERSONS NOT ASSOCIATED WITH CONSTRUCTION.
5. DRAWING SCALES: THESE DRAWINGS ARE PREPARED TO THE SCALE NOTED, HOWEVER, DIMENSIONS ARE NOT TO BE DERIVED BY SCALING THE PLANS, SECTIONS OR DETAILS. IF THERE IS ANY QUESTIONS ABOUT DIMENSIONS OR DETAILS, CONTACT THE ARCHITECT FOR INFORMATION PRIOR TO STARTING WORK.
6. ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES.
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8. CONTRACTORS SHALL MEET WITH THE ARCHITECT PRIOR TO CONSTRUCTION OF THE PROJECT TO REVIEW ALL EXISTING CONDITIONS AND THE EXACT EXTENT OF THE WORK TO BE COMPLETED.
9. ALL WORK SHALL BE IN ACCORDANCE WITH THE NC 2018 BUILDING CODE AND ALL OTHER LOCAL CODES AND REGULATIONS HAVING JURISDICTION.
10. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING CONSTRUCTION AROUND THE SITE WHICH WILL REMAIN. ANY DAMAGES SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT NO COST.
11. SLOPE ALL EXTERIOR LANDINGS, WALKS, PORCHES, STEPS, ETC. 1/8" : 12" AWAY FROM THE BUILDING FOR DRAINAGE UNLESS NOTED OR SHOWN OTHERWISE.
12. FRAMING LUMBER IN CONTACT WITH MASONRY, CONCRETE OR STEEL SHALL BE PRESSURE TREATED.
13. GENERAL CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS LOOSE STEEL LINTELS AS REQUIRED WHERE MECHANICAL, PLUMBING OR ELECTRICAL EQUIPMENT PASS THRU WALLS OR OVER ANY BUILT-IN ITEMS IN MASONRY WALLS.
14. SLOPE FLOOR TO FLOOR DRAINS. COORDINATE ALL FLOOR DRAINS WITH PLUMBING CONTRACTOR.
15. PROVIDE WEEP HOLES @ 24" O.C. OVER ALL MASONRY OPENINGS.
16. PROVIDE FIRE TREATED LUMBER AS REQUIRED BY THE BUILDING CODE.
17. FIRE PENETRATION NOTES APPLY TO ALL TRADES.
18. PROVIDE BLOCKING IN METAL STUD WALLS AS REQUIRED FOR ALL SUSPENDED ITEMS INCLUDING BUT NOT LIMITED TO E.W.C., TOILET ACCESSORIES, PLUMBING, MECHANICAL, ELECTRICAL & E.T.C. - COORDINATE WITH OTHER TRADES.
19. SEE ELEVATIONS FOR EXTERIOR WALL MASONRY CONTROL JOINTS (CJ) LOCATIONS. CONTROL JOINTS TO BE IN MASONRY JOINTS. LOCATE WALL CONTROL JOINTS AS INDICATED.
20. FURR WALLS AS REQUIRED FOR MECHANICAL AND PLUMBING VENTS.
21. DO NOT CUT ANY LAY-IN ACOUSTICAL CEILING PANELS LESS THAN 6" UNLESS INSTRUCTED BY THE ARCHITECT. LAY-IN CEILING PANELS TO BE EQUALLY SPACED IN AREA.
22. DIMENSIONS SHOWN ON FLOOR PLANS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
23. UNLESS NOTED OTHERWISE, CARRY ALL FIRE RATED WALLS AND PARTITIONS TO STRUCTURE ABOVE.
24. NO CORE OF BLOCKS SHOULD BE EXPOSED. USE SOLID BLOCK WHERE REQUIRED TO KEEP CORES FROM BEING VISIBLY EXPOSED.
25. CMU WALLS DIMENSIONED 8" OR 12" NOM U.N.O.
26. WALL TO TERMINATE 12" ABOVE HIGHEST ADJACENT CEILING U.N.O.
27. THERE SHALL BE NO EXPOSED CONDUIT ON THE EXPOSED CMU OR ANY OTHER WALLS.

GENERAL NOTE

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES . IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.

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Project No.
1737

Date:
03.29.2024
Drawn by:
AJP/GAS
Checked by:
KCN
Revision #:

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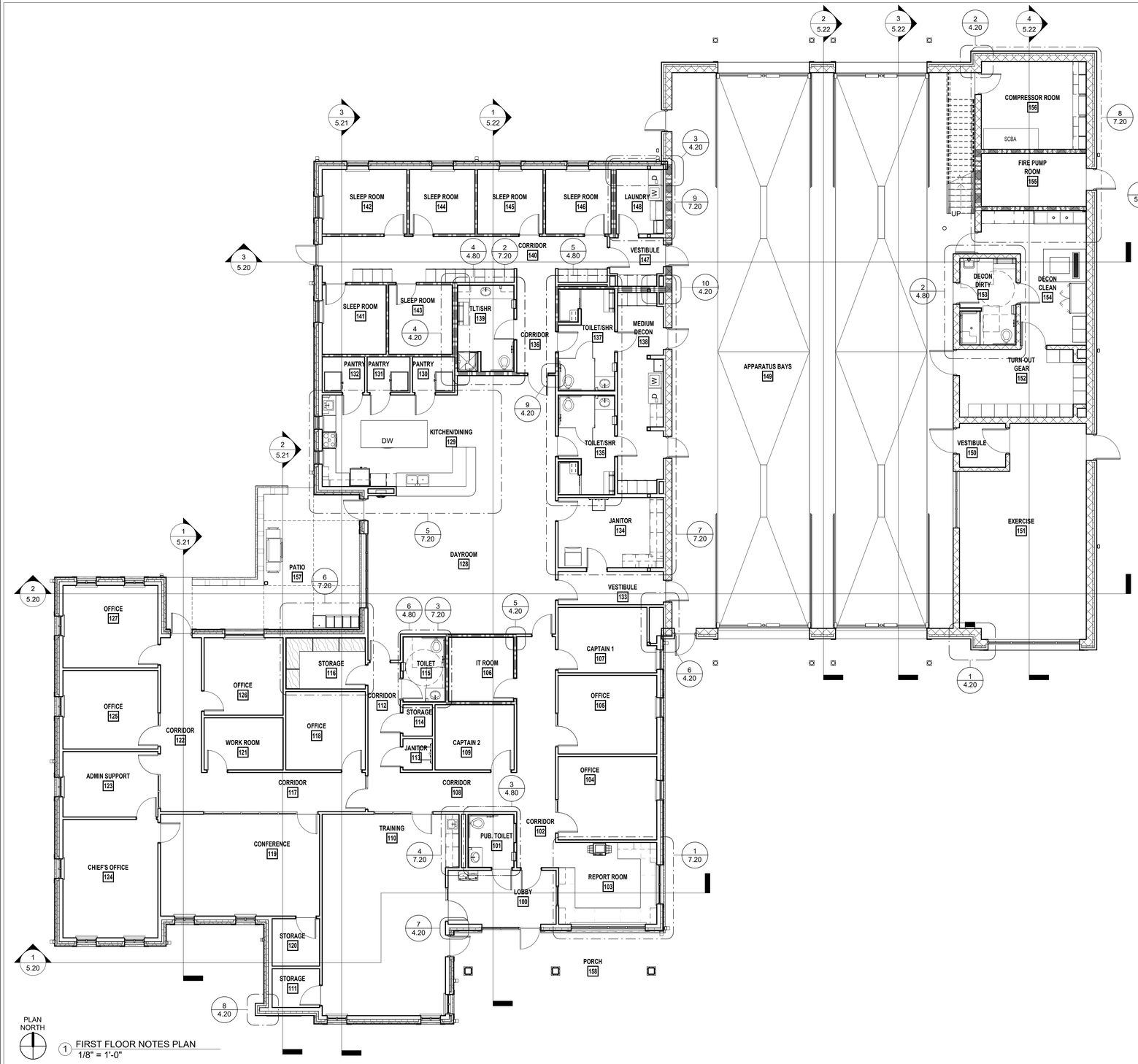
KENNETH C. ALLEN REGISTERED ARCHITECT 6205 NORTH CAROLINA
03.29.2024

GORDON ROAD FIRE DEPARTMENT

DIMENSION PLANS

Sheet No.
4.10



1 FIRST FLOOR NOTES PLAN
1/8" = 1'-0"

2 MEZZANINE NOTES PLAN
1/8" = 1'-0"

GENERAL NOTES

1. ALL CONTRACTORS MUST MAKE ON SITE VISITATIONS TO PROJECT SITE PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES WITH THE EXTENT OF CONSTRUCTION.
2. DISCREPANCIES: THE CONTRACTOR SHALL INFORM THE ARCHITECT IN WRITING OF ANY DISCREPANCIES OR OMISSIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS OR OF ANY VARIATIONS NEEDED IN ORDER TO CONFORM TO CODES, RULES AND REGULATIONS. UPON RECEIPT OF SUCH INFORMATION, THE ARCHITECT WILL SEND WRITTEN INSTRUCTION TO ALL CONCERNED. ANY SUCH DISCREPANCY, OMISSION OR VARIATION NOT REPORTED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WORK SHALL BE PERFORMED IN A MANNER DIRECTED BY THE ARCHITECT.
3. EXISTING CONDITIONS: ALL EXISTING INFORMATION WAS TAKEN FROM DRAWINGS FURNISHED BY OTHERS WHICH MAY OR MAY NOT BE CORRECT. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE JOB SITE. ANY DISCREPANCIES OR VARIATIONS FROM THE CONDITIONS SHOWN ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN WRITING.
4. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONS USING THE SURROUNDING FACILITIES WHO COME INTO CONTACT WITH THE AREA OF CONSTRUCTION. HE SHALL PROPERLY BARRICADE THE AREA TO PREVENT INTRUSION BY PERSONS NOT ASSOCIATED WITH CONSTRUCTION.
5. DRAWING SCALES: THESE DRAWINGS ARE PREPARED TO THE SCALE NOTED, HOWEVER, DIMENSIONS ARE NOT TO BE DERIVED BY SCALING THE PLANS, SECTIONS OR DETAILS. IF THERE IS ANY QUESTIONS ABOUT DIMENSIONS OR DETAILS, CONTACT THE ARCHITECT FOR INFORMATION PRIOR TO STARTING WORK.
6. ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES.
7. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADE. EACH CONTRACTOR IS REQUIRED TO KEEP FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS/HERS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.
8. CONTRACTORS SHALL MEET WITH THE ARCHITECT PRIOR TO CONSTRUCTION OF THE PROJECT TO REVIEW ALL EXISTING CONDITIONS AND THE EXACT EXTENT OF THE WORK TO BE COMPLETED.
9. ALL WORK SHALL BE IN ACCORDANCE WITH THE NC 2018 BUILDING CODE AND ALL OTHER LOCAL CODES AND REGULATIONS HAVING JURISDICTION.
10. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING CONSTRUCTION AROUND THE SITE WHICH WILL REMAIN. ANY DAMAGES SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT NO COST.
11. SLOPE ALL EXTERIOR LANDINGS, WALKS, PORCHES, STEPS, ETC. 1/8" : 12" AWAY FROM THE BUILDING FOR DRAINAGE UNLESS NOTED OR SHOWN OTHERWISE.
12. FRAMING LUMBER IN CONTACT WITH MASONRY, CONCRETE OR STEEL SHALL BE PRESSURE TREATED.
13. GENERAL CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS LOOSE STEEL LINTELS AS REQUIRED WHERE MECHANICAL, PLUMBING OR ELECTRICAL EQUIPMENT PASS THRU WALLS OR OVER ANY BUILT-IN ITEMS IN MASONRY WALLS.
14. SLOPE FLOOR TO FLOOR DRAINS. COORDINATE ALL FLOOR DRAINS WITH PLUMBING CONTRACTOR.
15. PROVIDE WEEP HOLES @ 24" O.C. OVER ALL MASONRY OPENINGS.
16. PROVIDE FIRE TREATED LUMBER AS REQUIRED BY THE BUILDING CODE.
17. FIRE PENETRATION NOTES APPLY TO ALL TRADES.
18. PROVIDE BLOCKING IN METAL STUD WALLS AS REQUIRED FOR ALL SUSPENDED ITEMS INCLUDING BUT NOT LIMITED TO E.W.C., TOILET ACCESSORIES, PLUMBING, MECHANICAL, ELECTRICAL & E.T.C. - COORDINATE WITH OTHER TRADES.
19. SEE ELEVATIONS FOR EXTERIOR WALL MASONRY CONTROL JOINTS (CJ) LOCATIONS. CONTROL JOINTS TO BE IN MASONRY JOINTS. LOCATE WALL CONTROL JOINTS AS INDICATED.
20. FURR WALLS AS REQUIRED FOR MECHANICAL AND PLUMBING VENTS.
21. DO NOT CUT ANY LAY-IN ACOUSTICAL CEILING PANELS LESS THAN 6" UNLESS INSTRUCTED BY THE ARCHITECT. LAY-IN CEILING PANELS TO BE EQUALLY SPACED IN AREA.
22. DIMENSIONS SHOWN ON FLOOR PLANS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
23. UNLESS NOTED OTHERWISE, CARRY ALL FIRE RATED WALLS AND PARTITIONS TO STRUCTURE ABOVE.
24. NO CORE OF BLOCKS SHOULD BE EXPOSED. USE SOLID BLOCK WHERE REQUIRED TO KEEP CORES FROM BEING VISIBLY EXPOSED.
25. CMU WALLS DIMENSIONED 8" OR 12" NOM U.N.O.
26. WALL TO TERMINATE 12" ABOVE HIGHEST ADJACENT CEILING U.N.O.
27. THERE SHALL BE NO EXPOSED CONDUIT ON THE EXPOSED CMU OR ANY OTHER WALLS.

GENERAL NOTE

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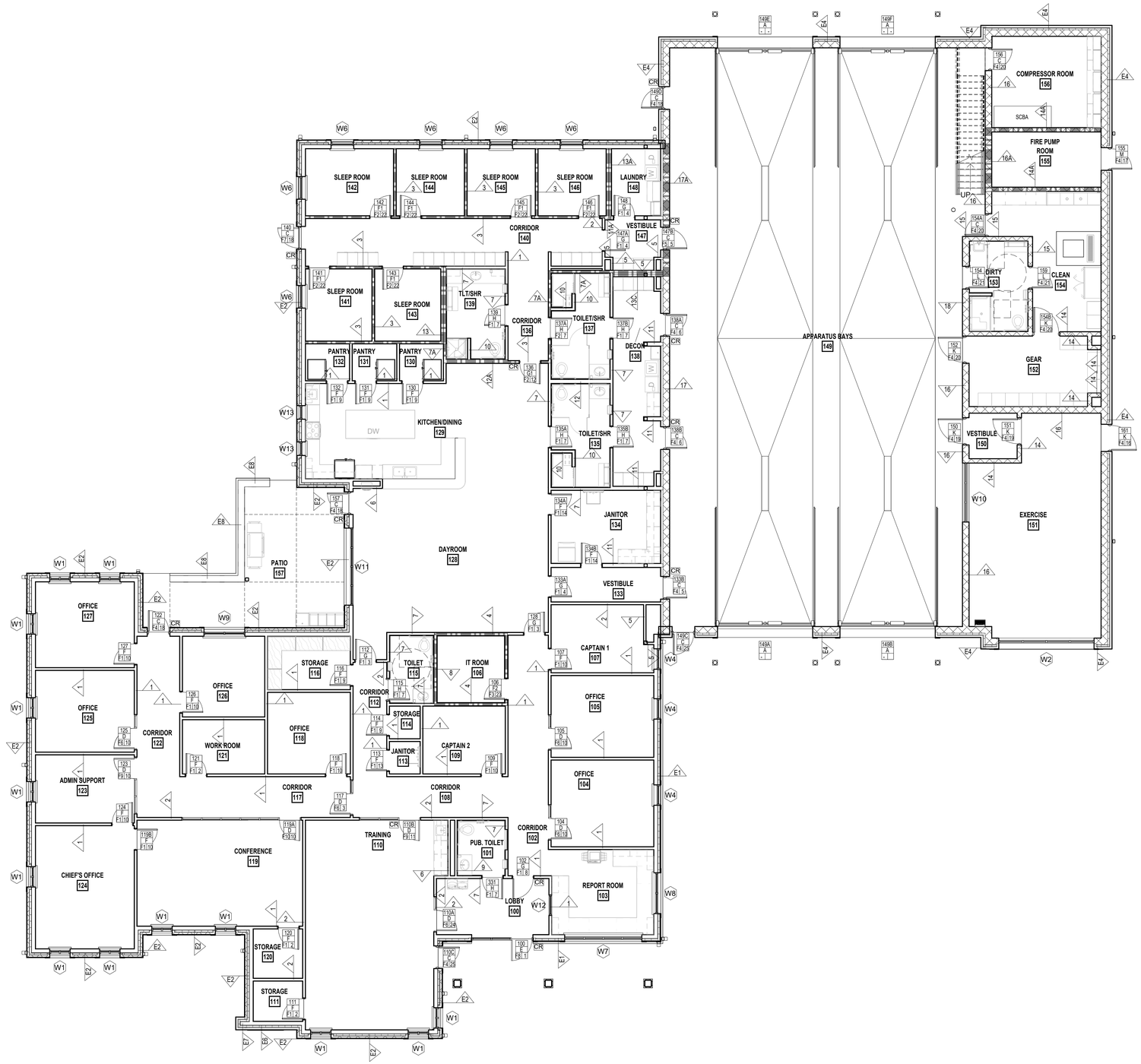
KEVIN C. NEWELL
REGISTERED ARCHITECT
6205
NORTH CAROLINA
03.29.2024

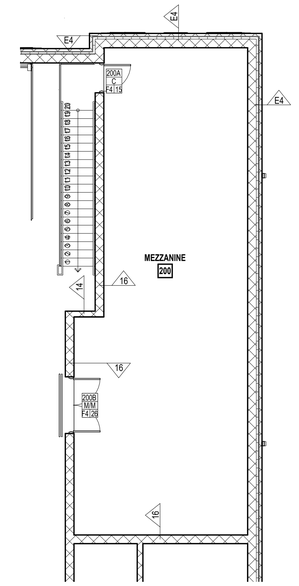
GORDON ROAD FIRE DEPARTMENT

NOTES PLAN

Sheet No.
4.11



1 FIRST FLOOR DOOR, WINDOW, WALL TAGS PLAN
1/8" = 1'-0"



2 MEZZANINE DOOR, WINDOW, WALL TAGS PLAN
1/8" = 1'-0"

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KENNETH C. NEWELL REGISTERED ARCHITECT 6205 NORTH CAROLINA

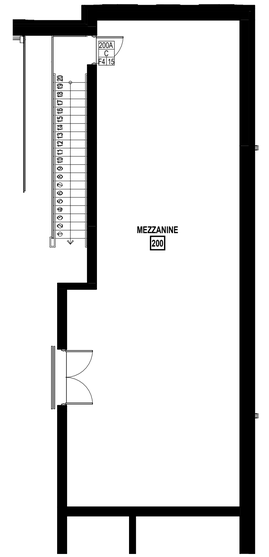
03.29.2024

GORDON ROAD FIRE DEPARTMENT

DOOR, WINDOWS, AND WALL TAGS PLAN

Sheet No.
4.12

1 First Floor Furniture Plan
1/8" = 1'-0"



2 MEZZANINE FURNITURE PLAN
1/8" = 1'-0"

Project No.
1737

Date:
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Author
Checked by:
Checker
Revisions:

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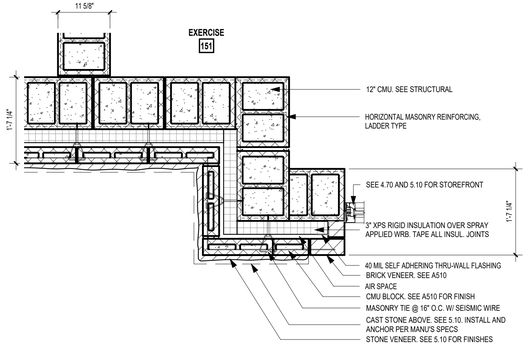
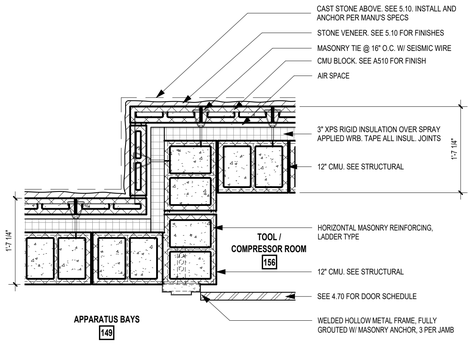
GORDON ROAD FIRE DEPARTMENT

FURNITURE PLAN

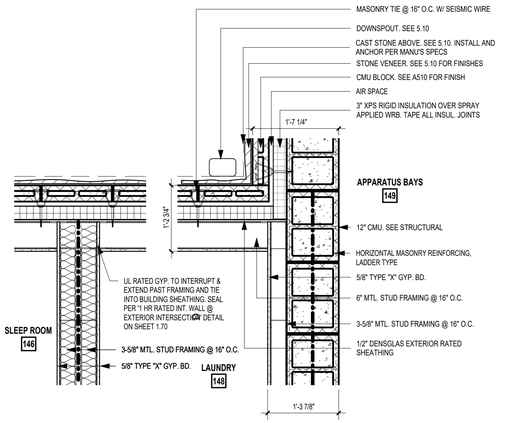
Sheet No.
4.13



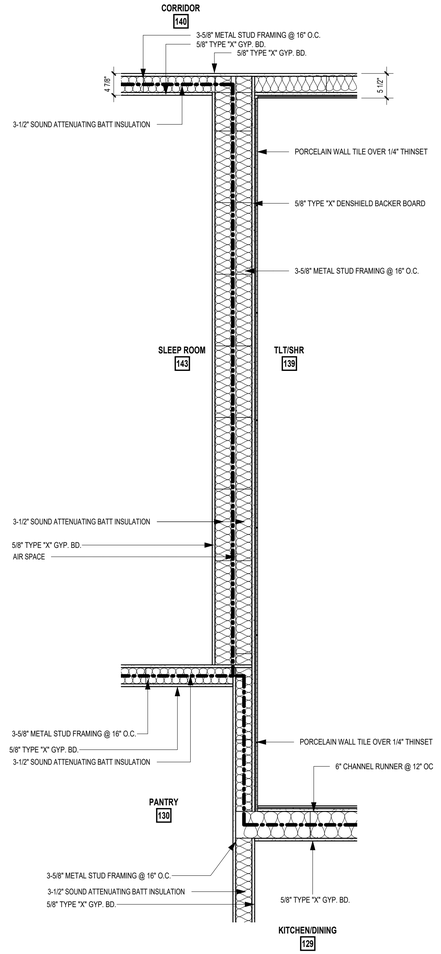
1 PLAN DTL. @ EXERCISE ROOM
3/4" = 1'-0"



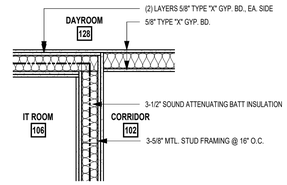
2 PLAN DTL. @ TOOL ROOM
3/4" = 1'-0"

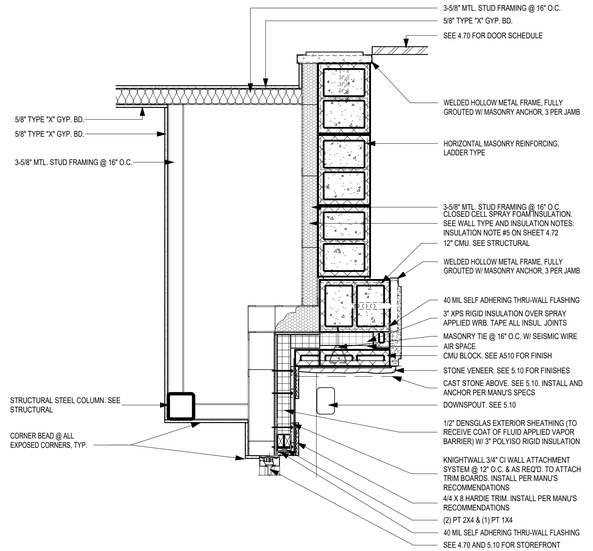


3 PLAN DTL. @ LAUNDRY ROOM
3/4" = 1'-0"



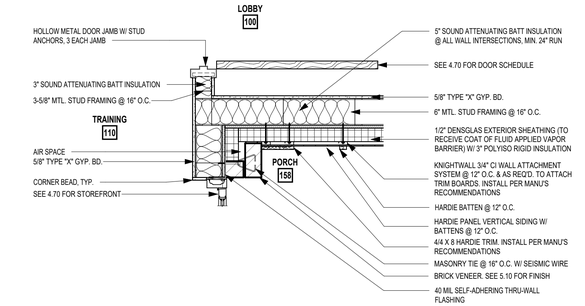
4 PLAN DTL. @ TOILET/SHOWER
3/4" = 1'-0"



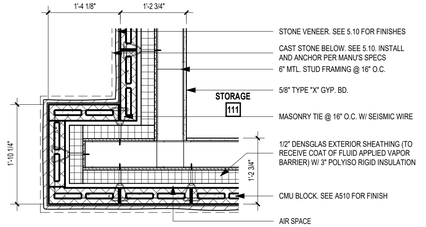


5 PLAN DTL. @ IT ROOM
3/4" = 1'-0"

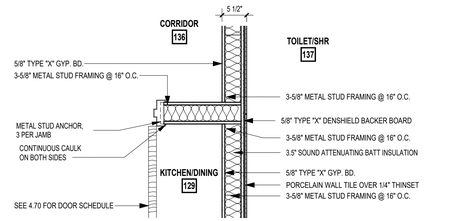
6 PLAN DTL. @ EXT APP BAY WALL
3/4" = 1'-0"



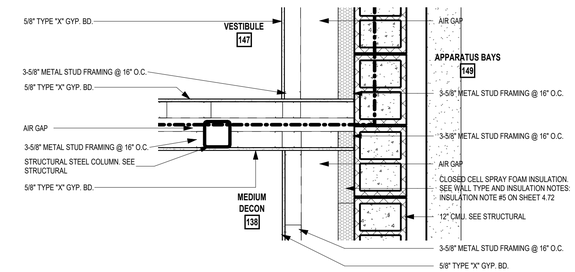
7 PLAN DTL. @ EXT LOBBY
3/4" = 1'-0"



8 PLAN DT. @ EXT. STORAGE ROOM
3/4" = 1'-0"



9 PLAN DTL. @ CORRIDOR
3/4" = 1'-0"



10 PLAN DTL. @ MEDIUM DECON
3/4" = 1'-0"

Project No.
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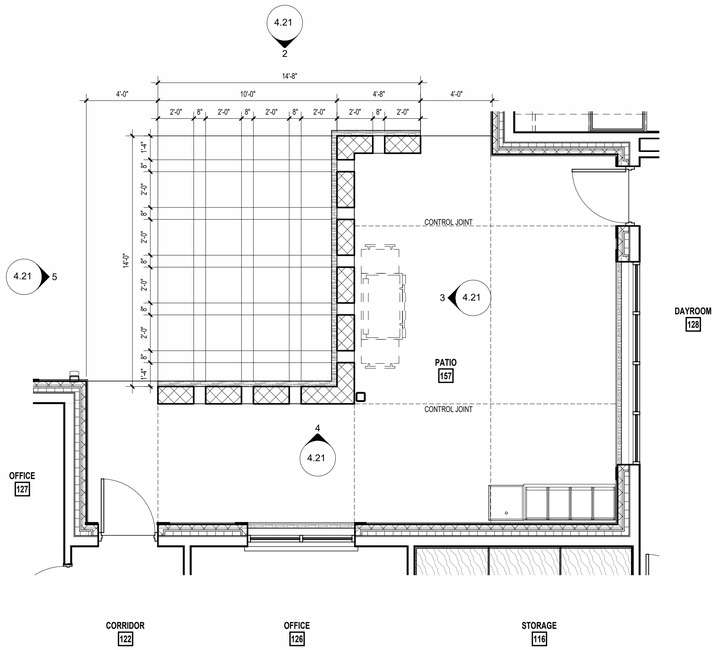
JENNIFER C. NEWELL REGISTERED ARCHITECT 6205 CALIFORNIA

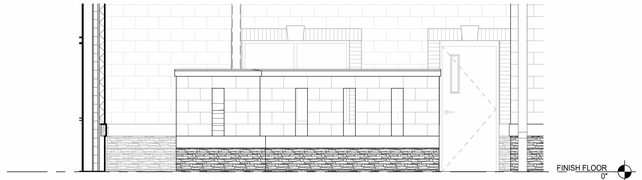
GORDON ROAD FIRE DEPARTMENT

PLAN DETAILS

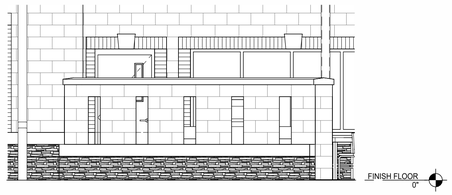
Sheet No.
4.20



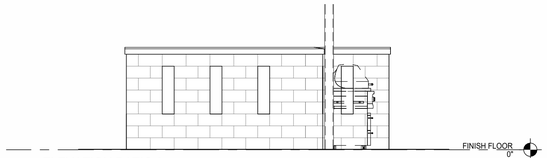
1 PATIO FLOOR PLAN
1/4" = 1'-0"



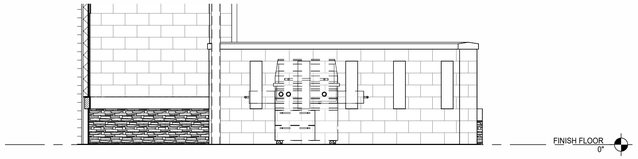
2 ELEVATION PATIO 1
1/4" = 1'-0"



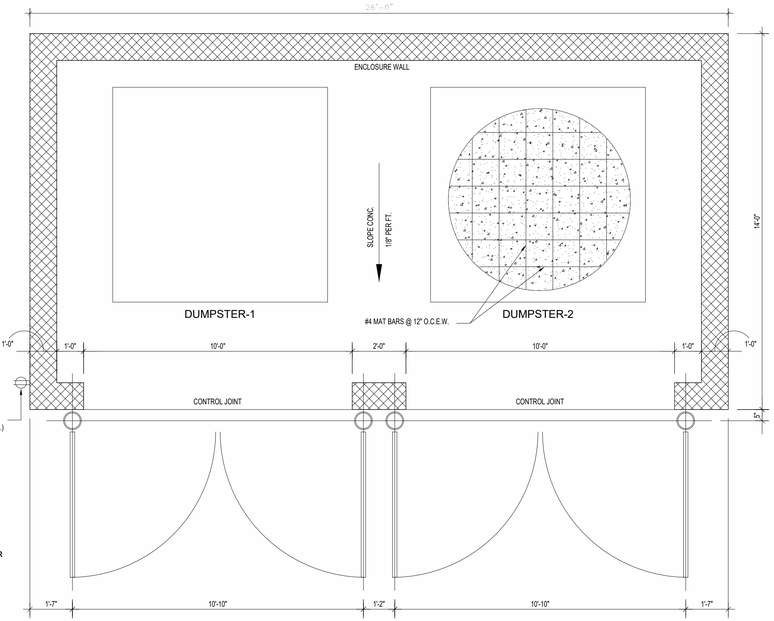
5 ELEVATION PATIO 4
1/4" = 1'-0"



4 ELEVATION PATIO 3
1/4" = 1'-0"

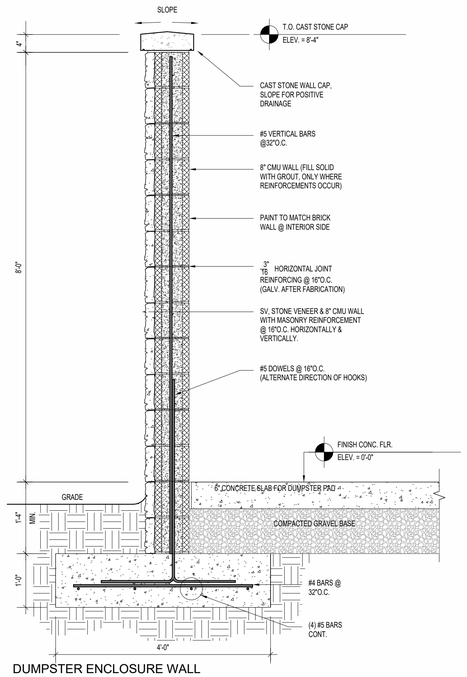


3 ELEVATION PATIO 2
1/4" = 1'-0"

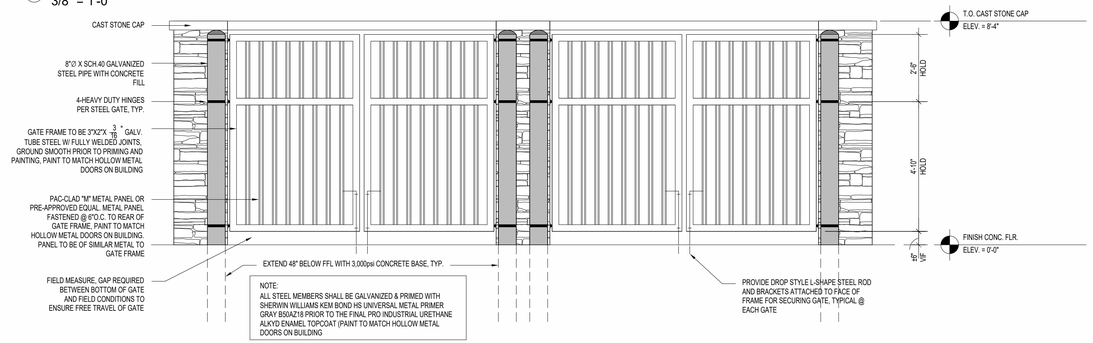


NOTE: COORDINATE DUMPSTER SIZE WITH COUNTY SOLID WASTE DEPARTMENT

9 DUMPSTER ENCLOSURE PLAN
3/8" = 1'-0"

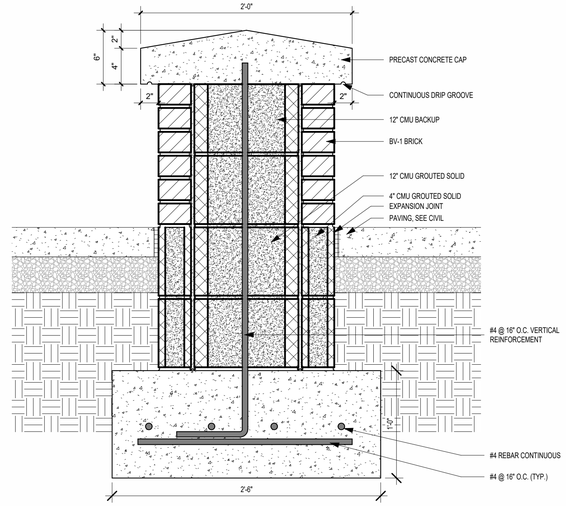


7 DUMPSTER ENCLOSURE WALL SECTION
3/4" = 1'-0"

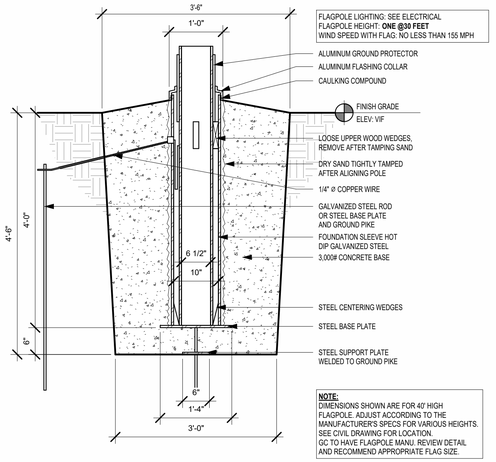


NOTE:
ALL STEEL MEMBERS SHALL BE GALVANIZED & PRIMED WITH SHERWIN WILLIAMS KEM BOND HS UNIVERSAL METAL PRIMER GRAY B50AZ18 PRIOR TO THE FINAL PRO INDUSTRIAL URETHANE ALKYD ENAMEL TOPCOAT (PAINT TO MATCH HOLLOW METAL DOORS ON BUILDING

8 DUMPSTER ENCLOSURE ELEVATION
3/8" = 1'-0"



10 SEAT WALL DETAIL
1 1/2" = 1'-0"



NOTE:
DIMENSIONS SHOWN ARE FOR 40' HIGH FLAGPOLE. ADJUST ACCORDING TO THE MANUFACTURER'S SPECS FOR VARIOUS HEIGHTS. SEE CIVIL DRAWING FOR LOCATION. GC TO HAVE FLAGPOLE MANU. REVIEW DETAIL AND RECOMMEND APPROPRIATE FLAG SIZE.

6 FLAGPOLE FOUNDATION DETAIL
3/4" = 1'-0"

Project No.
1737

Date:
3/29/2024 3:36:25 PM
Drawn by:
Author
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Checker
Revisions:

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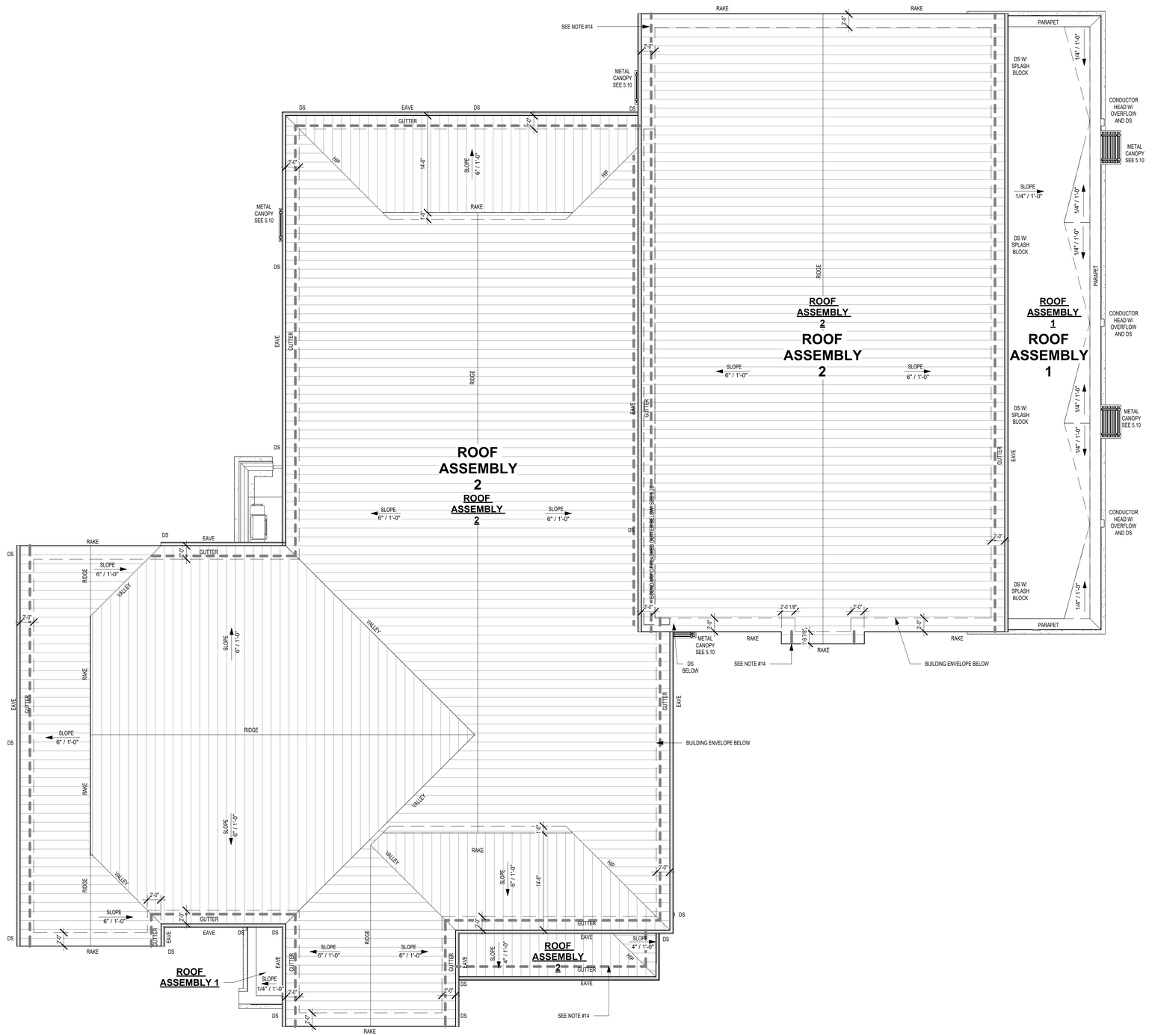
GORDON ROAD FIRE DEPARTMENT

PATIO AND EXTERIOR DETAILS

Sheet No.
4.21



8 ROOF PLAN
1/8" = 1'-0"

ROOF DETAILS TO BE CONFIRMED BY ROOF INSTALLER AND MANUFACTURER

ROOF ASSEMBLY 1 (R-1)
FULLY ADHERED & MECHANICALLY FASTENED AS REQUIRED SARNAFIL 80 MIL PVC MEMBRANE ROOFING OVER 1/4" DENSDECK PRIME ROOF BOARD OVER 2 LAYERS 2.5" RIGID INSULATION BOARD ABOVE METAL DECK (SEE STRUCTURAL FOR DECK SPECS)
(STAGGER JOINTS IN LAYERS OF INSULATION & TAPE TOP LAYER W/ MANUFACTUER APPROVED TAPE TO CREATE A VAPOR BARRIER)

ROOF ASSEMBLY 2 (R-2)
STANDING SEAM METAL ROOF. **MP-1** OVER 2 LAYERS 2.5" RIGID INSULATION BOARD ABOVE METAL DECK (SEE STRUCTURAL FOR DECK SPECS)
(STAGGER JOINTS IN LAYERS OF INSULATION & TAPE TOP LAYER W/ MANUFACTUER APPROVED TAPE TO CREATE A VAPOR BARRIER)

GC TO PROVIDE DOCUMENTATION THAT THE BUILDING ENVELOPE IS COMPLETELY SEALED FROM THE EXTERIOR PERIMETER.

ROOF PLAN NOTES

1. ROOF TO BE DESIGNED FOR APPROPRIATE WIND SPEEDS. SEE STRUCTURAL
2. PROVIDE ALL FLASHING MATERIALS AND METHODS AS APPROVED BY THE MANUFACTURER FOR A FULL WATERPROOF SYSTEM.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW OTHER DRAWINGS FOR ROOF PENETRATIONS NOT SHOWN.
4. DO NOT ALLOW ROOF PENETRATIONS OF MECHANICAL AND/OR PLUMBING EQUIPMENT TO EXCEED THE HEIGHT OF THE PARAPET WALLS. NOTIFY THE ARCHITECT OF ANY DISCREPANCY PRIOR TO ANY ROOF TOP INSTALLATION. FOR SLOPED ROOFS, NO ROOF PENETRATIONS ALLOWED ON ROOFS SLOPING TOWARDS THE FRONT ELEVATION OF THE BUILDING. IF PME PLANS SHOW PENETRATIONS ON THESE LOCATIONS, IT SHOULD BE RE-ROUTED AT THE BACK OF THE ROOF.
5. SEE MECH.,PLUMB., & ELECT. DRAWINGS FOR OTHER ROOF PENETRATIONS. ROOFING CONTRACTOR SHALL FLASH ALL PENETRATIONS. PENETRATIONS SHOWN ARE APPROX AND MAY NOT BE ALL REQUIRED.
6. SEE PLUMBING DRAWINGS FOR ROOF DRAINS AND PIPING
7. PAINT ALL ROOF PENETRATION PIPES TO MATCH ROOF COLOR.
8. PROVIDE CRICKETS AT ALL ROOF TOP MECHANICAL UNITS AND OTHER ROOF PENETRATIONS. ALSO PROVIDE CRICKETS ALONG PERIMETER OF ROOF AND ELSEWHERE SHOWN ON ROOF PLAN.
9. GC TO COORDINATE EXACT LOCATIONS OF EACH DOWNSPOUT (DS) ON ELEVATIONS ON SHEET 5.10 WITH ALL UNDERGROUND STORM WATER CONNECTIONS.
10. ALL EXPOSED EXTERIOR SOFFIT/OVERHANG SHALL BE OF MP-2. SEE RCP @ 6.10 FOR METAL SOFFIT NOT SHOWN ON THIS SHEET. OVERHANG DIMENSIONS SHOWN ABOVE ARE PROJECTING FROM THE OUTSIDE FACE OF THE BRICK VENEER WALL TO THE FACE OF THE METAL FASCIA FRAMING. SEE WALL SECTIONS.
11. PROVIDE CONTINUOUS ICE & WATER SHIELD UNDERLAYMENT THROUGHOUT.
12. PROVIDE PERFORATED ALUMINUM LEAF GUARD IN ALL GUTTERS.
13. ALL DIMENSIONS TO BE VIF PRIOR TO ROOF FABRICATION & INSTALLATION.
14. PROVIDE ICE AND SNOW GUARDS AS SHOWN ON ROOF PLAN (STD. 1" SNO BARRICADE, CLAMP & BAR; COLOR TO MATCH ROOF COLOR

GENERAL NOTE

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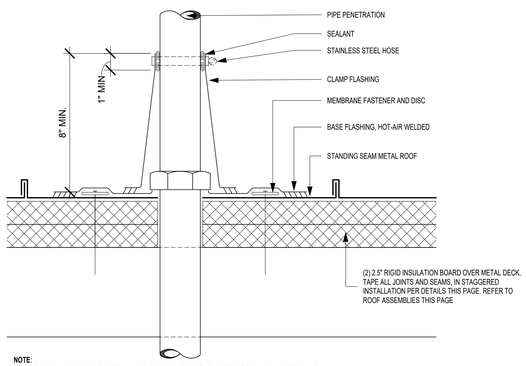
03.29.2024

GORDON ROAD FIRE DEPARTMENT

ROOF PLAN

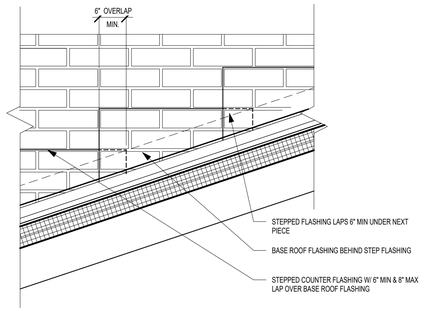
Sheet No.
4.30



NOTE:
1. ROOF PANEL INSTALLER TO FLASH ALL PENETRATIONS THROUGH ROOF AS PER METAL ROOF PANEL MANUFACTURER'S STD. DETAIL TO MAINTAIN A WEATHER TIGHT SEAL.
2. SEE PLUMBING & MECHANICAL DRAWINGS FOR LOCATION.

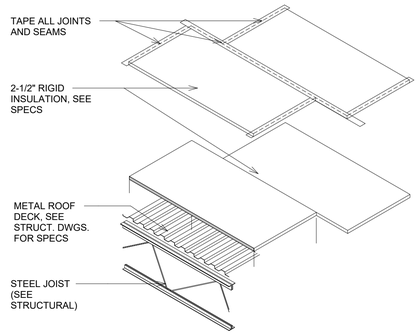
1 TYP. ROOF PENETRATIONS @ MTL. ROOF
1/8" = 1'-0"

FLASHING NOTES:
1. STEP FLASHING COVERS BASE ROOF FLASHING 6" MIN. VERT.
2. STEP FLASHING NOT TO EXCEED 8" MAX. VERT.
3. BASE ROOF FLASHING EXTENDS 4" MIN. UP THE WALL AND ONTO THE ROOF.
4. STEP FLASHING MUST INSTALLED IN CONJUNCTION W/ MASONRY INSTALLATION. SAW CUTTING IN THE FLASHING IS NOT ALLOWED.



3 STEP FLASHING
3/4" = 1'-0"

NOTE:
OFFSET INSULATION BOARD 1/2 WIDTH OF LENGTH BETWEEN TOP AND BOTTOM LAYERS. TAPE TOP LAYER OF INSULATION.



6 ROOF INSUL. EXPLODED ASSEMBLY VIEW
1 1/2" = 1'-0"

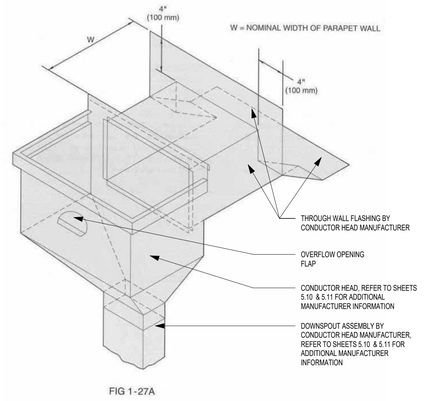
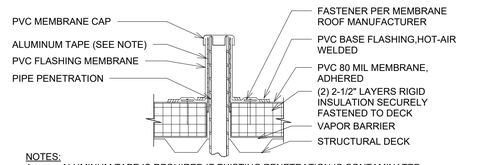


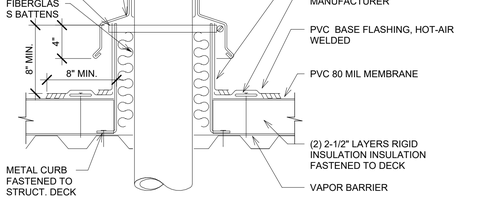
FIG 1-27A

8 CONDUCTOR HEAD - THRU-WALL FLASHING/SCUPPER DTL.
1" = 1'-0"

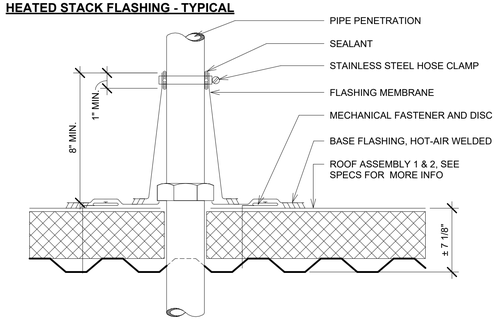


NOTES:
1. ALUMINUM TAPE IS REQUIRED IF EXISTING PENETRATION IS CONTAMINATED.
2. VAPOR BARRIER SHALL BE SEALED AT EDGES

VENT STACK FLASHING - TYPICAL



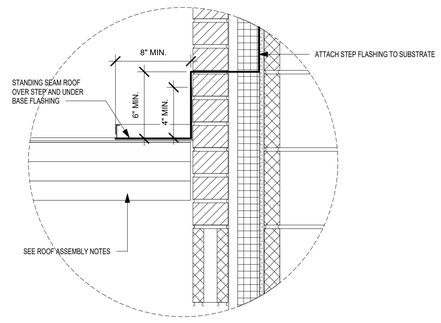
HEATED STACK FLASHING - TYPICAL



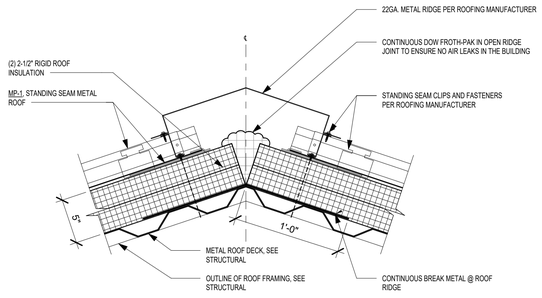
TYPICAL CONE FLASHING @ PENETRATION

NOTE:
1. ROOF PANEL INSTALLER TO FLASH ALL PENETRATIONS THROUGH ROOF AS PER METAL ROOF PANEL & PVC ROOF MANUFACTURER'S STD. DETAIL TO MAINTAIN A WEATHER TIGHT SEAL.
2. SEE PLUMBING & MECHANICAL DRAWINGS FOR LOCATIONS.
3. SEE ELECTRICAL DRAWINGS FOR BDA PENETRATION LOCATION.

2 TYP. ROOF PENETRATIONS @ MEMBRANE
1 1/2" = 1'-0"

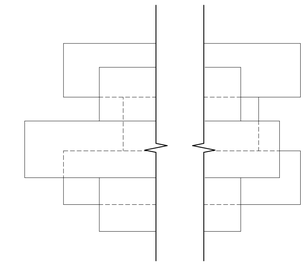


4 STEP FLASHING DTL.
3/4" = 1'-0"

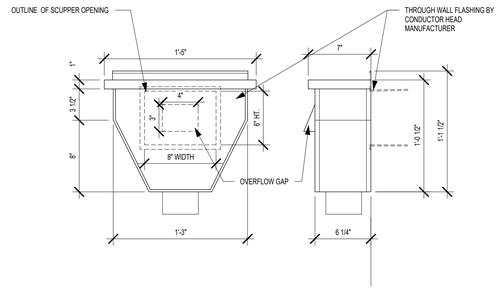


NOTES:
1. GC TO FOAM ALL EXTERIOR JOINTS AS REQUIRED TO HAVE AN AIR TIGHT EXTERIOR BUILDING ENVELOPE.
2. RIDGE INSULATION TO START @ RIDGE.

5 TYP. RIDGE CAP DETAILS
1 1/2" = 1'-0"



7 ROOF INSULATION LAYOUT PATTERN
1/2" = 1'-0"



9 CONDUCTOR HEAD DETAIL
1 1/2" = 1'-0"

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03.29.2024

GORDON ROAD FIRE DEPARTMENT

MISC. ROOF DETAILS

Sheet No.
4.31

HARDWARE MANUFACTURERS:

LOCK - LATCH	SARGENT
HINGES	HAGAR, MCKINNEY, STANLEY
CLOSERS	LCN, SARGENT
CLOSER / HOLDERS	LCN, SARGENT
EXIT DEVICES	VON DUPRIN
PUSH - PULLS	ROCKWOOD
PUSH PLATES	ROCKWOOD
FLUSH BOLTS	GLYNN-JOHNSON, ROCKWOOD, IVES
STOPS	GLYNN-JOHNSON, ROCKWOOD, IVES, SARGENT
KICKPLATES	ROCKWOOD
SILENCERS	GLYNN-JOHNSON, IVES
LOCK GUARDS	GLYNN-JOHNSON, IVES
THRESHOLDS	ZERO, REESE, NATIONAL GUARD
WEATHERSTRIPPING	ZERO, NATIONAL GUARD

***G.C. ALL CORES TO COMPATIBILITY WITH EXISTING CORES USED BY OWNER ON CITY FACILITIES**

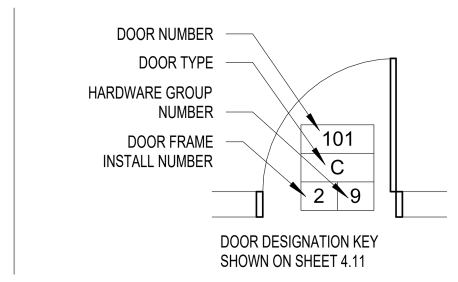
HARDWARE NOTES:

1. THE FOLLOWING LIST OF HARDWARE ITEMS AND THEIR RESPECTIVE MANUFACTURERS ARE REPRESENTED BY SPECIFIC CATALOG NUMBERS IN THE HARDWARE SCHEDULE. HARDWARE ITEMS NOT SHOWN HERE WILL BE SPECIFICALLY CALLED OUT BY MANUFACTURER AND CATALOG NUMBER IN THE ACTUAL HARDWARE GROUP.
2. WHERE REQUIRED, HARDWARE SHALL MEET THE REQUIREMENTS OF THE ADA.
3. WHERE REQUIRED, PROVIDE HARDWARE AND ACCESSORIES THAT COMPLY WITH THE FIRE RATINGS OF THE OPENINGS OR WALLS IN WHICH THEY ARE LOCATED WHETHER INDICATED OR NOT.
4. SUBMIT MANUFACTURERS CUT SHEETS FOR ALL HARDWARE. HARDWARE WILL NOT BE REVIEWED BY THE ARCHITECT WITHOUT CUT SHEETS FOR ALL ITEMS SCHEDULED OR PROVIDED.
5. ALL HARDWARE SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.
6. MISCELLANEOUS REQUIRED HARDWARE ITEMS: CONTRACTOR AND HARDWARE SUPPLIER SHALL FURNISH ALL THE ITEMS INCLUDED HEREIN AS REQUIRED EVEN IF NOT LISTED IN THE HARDWARE GROUP SCHEDULE.
   A. HARDWARE FINISHES SHALL BE:
      1. INTERIOR - US26D
      2. EXTERIOR - US32D
   B. HINGES SHALL BE:
      1. INTERIOR - HAGAR AB700 X US26D
      2. EXTERIOR - HAGAR AB800 X US32D
   C. CLOSERS SHALL BE:
      1. LCN 4040 SERIES X US26D IN REGULAR MOUNT OR PARALLEL ARM AS REQUIRED.
      2. CLOSERS AND CLOSER / HOLDERS SHALL BE MOUNTED ON THE ROOM SIDE OF DOORS TO THE GREATEST EXTENT POSSIBLE. CLOSERS SHALL NOT BE MOUNTED ON CORRIDOR SIDE OF DOORS.
   D. DOOR STOPS SHALL BE:
      1. WALL STOPS: IVES WS401CVX X US26D OR IVES WS402CVX X US26D
      2. FLOOR STOPS: IVES FS436 X US26D OR IVES FS438 X 426D AS REQUIRED
      3. EXTERIOR STOPS: IVES FS185 OR FS18L AS REQUIRED
      4. PROVIDE FLOOR OR WALL STOPS FOR ALL DOORS AS REQUIRED. PROVIDE OVERHEAD STOPS WHERE FLOOR OR WALL STOPS ARE NOT APPLICABLE OR PRACTICAL. PROVIDE FLOOR STOPS OR OVERHEAD STOPS FOR ALL OUTSWINGING EXTERIOR DOORS.
   E. THRESHOLDS SHALL BE:
      1. ZERO #566A - PLACE IN FULL BED OF SILICONE SEALANT. PROVIDE THRESHOLD AT ALL EXTERIOR DOORS AND AT ALL INTERIOR DOORS THAT ARE SUBJECT TO WATER MIGRATION FROM ONE SPACE TO ANOTHER SUCH AS BETWEEN MECHANICAL ROOMS AND ADJACENT ROOMS OR SUCH AS BETWEEN VEHICLE BAYS AND ADJACENT ROOMS.
   F. WEATHER STRIPPING SHALL BE:
      1. ZERO #328AA - PROVIDE WEATHER-STRIPPING AT HEADS AND JAMBS OF ALL EXTERIOR DOORS.
   G. DOOR BOTTOM SWEEPS SHALL BE:
      1. ZERO #39A - PROVIDE DOOR BOTTOM SWEEPS AT ALL EXTERIOR OUTSWINGING DOORS.
   H. WATER SHEDS SHALL BE:
      1. ZERO #142A - PROVIDE WATER SHEDS AT ALL EXTERIOR DOORS EXPOSED TO WEATHER. ATTACH TO HEAD OF DOOR FRAME AND SET IN FULL BED OF SILICONE SEALANT.
   I. PROVIDE ZERO #188N DOOR SEALS FOR SMOKE STOPPING ON ALL RATED DOORS AS REQUIRED BY CODE.
   J. PROVIDE IVES SR64 SILENCERS AT ALL HOLLOW METAL DOOR FRAMES IN QUANTITY AS REQUIRED.

DOOR & FRAME NOTES:

1. ALL WOOD DOORS SHALL HAVE GRAIN TO MATCH AND COLOR SHADE TO BE CONSISTENT IN APPEARANCE.
2. PROVIDE LABELED FRAMES AND HARDWARE TO MATCH LABELED DOORS.
3. ALL EXTERIOR HOLLOW METAL DOORS NOT COVERED BY OVERHANG SHALL HAVE PEMKO INTERLOCKING WATER SHED (EXTRUDED ALUMINUM) CONSISTING OF PEMKO #347 AR AND PEMKO #68 AR ATTACHED TO THE HEAD OF THE DOOR.
4. WHEN SUBMITTING HARDWARE SHOP DRAWINGS, HARDWARE SUPPLIER SHALL FURNISH CUT SHEETS ON ALL ITEMS THAT DIFFER FROM THE MANUFACTURER THAT HAS BEEN SPECIFIED IN THESE ARCHITECTURAL DOCUMENTS.
5. PROVIDE STOPS FOR ALL DOORS. PROVIDE OVERHEAD STOP WHERE WALL OR FLOOR STOP IS NOT PRACTICAL OR APPLICABLE.
6. PROVIDE LOCK GUARD FOR ALL EXTERIOR HOLLOW METAL DOORS.
7. ALL SOLID CORE WOOD VENEER DOORS SHALL BE ROTARY SLICED WHITE BIRCH WITH FINISH TO MATCH ARCHITECTURAL SAMPLE.
8. ALL HOLLOW METAL DOORS TO BE HEAVY DUTY 1 3/4" METAL W/ CLOSED TOP & BOTTOM (SEE SPECS).
9. ALL CLOSERS SHALL BE IN ROOM & NOT IN CORRIDOR UNLESS OTHERWISE NOTED.
10. PROVIDE LABELED HOLLOW METAL FRAMES WHERE SCHEDULED, WHERE INSTALLED IN RATED WALLS OR REQ'D BY CODE.
11. SPECIAL HOLLOW METAL FRAMES SHALL BE AS DETAILED OR AS NOTED.
12. HOLLOW METAL FRAMES, DOORS & HARDWARE SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

DOOR TAG LEGEND



GLASS NOTES:

THE FOLLOWING SCHEDULE OF GLAZING TYPES SHALL NOT BE DEEMED ALL INCLUSIVE. PROVIDE ANY OTHER ITEMS OF GLASS NOT LISTED HEREIN OR SHOWN ON THE DRAWINGS AS REQ'D FOR A COMPLETE PROJECT. GLASS IS DESIGNATED BY "G - " NUMBERS AND SHOWN ON THE PLANS AND ELEVATIONS.

1. PPG INDUSTRIES IS USED AS THE BASIS OF DESIGN.
2. ALL INTERIOR GLASS ON DOORS AND WINDOWS TO BE G - 2 (UNLESS NOTED OTHERWISE).
3. ALL EXTERIOR GLASS ON DOORS AND WINDOWS TO BE G - 1 (UNLESS NOTED OTHERWISE).
4. COORDINATE GLAZING BASED ON ALUMINUM STOREFRONT MANUFACTURER RECOMMENDATIONS.
5. CONSULT ARCHITECT ON TINTED GLAZING COLOR.
6. ALL EXTERIOR DOOR & WINDOW ASSEMBLIES TO BE THERMALLY BROKEN.

GLASS SCHEDULE

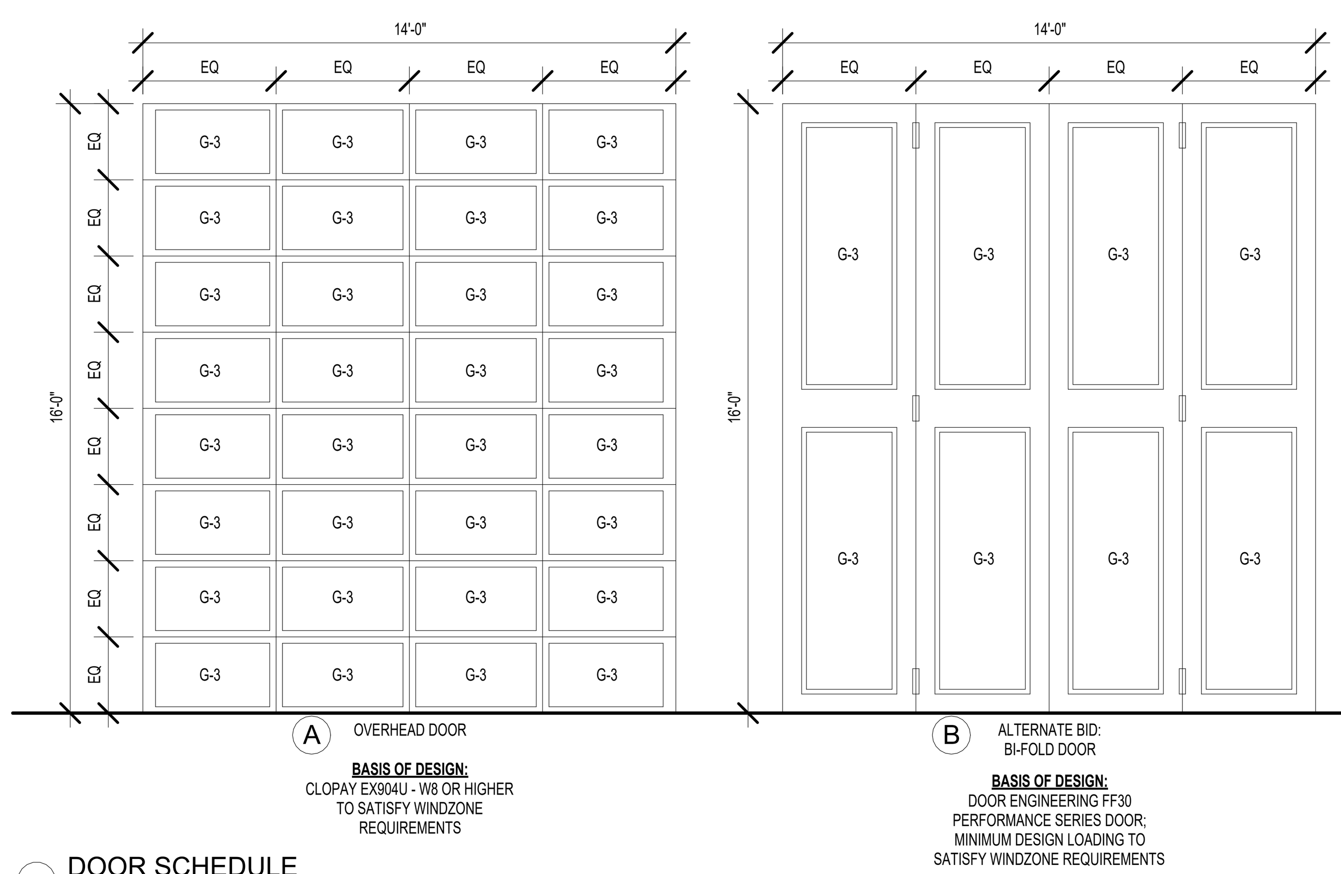
Glass Type	Glass Description
G-1	±5/16" LAMINATED INSULATED UNIT W/ TWO PIECES OF ±1/8" THICK, HEAT STRENGTHENED W/ A ±.090" POLYVINYL BUTYRAL INTERLAYER, ±1/2" AIR SPACE, AND ±3/16" THICK, HEAT STRENGTHENED SACRIFICIAL LITE. DELEGATED DESIGN MAY CHANGE DIMENSION OF MAKEUP SO THAT FINAL PRODUCT WITHSTANDS THE WINDLOAD AND IMPACT REQUIREMENTS. COLOR TO MATCH SOLARBAN 60 SOLARGRAY.
G-2	1/4" THICK CLEAR TEMPERED POLISHED PLATE GLASS AS MANUFACTURED BY VITRO INDUSTRIES
G-3	OVERHEAD DOOR GLAZING - MANUFACTURER'S UV TINTED INSULATED LAMINATED UNITS TO MATCH VITRO GLAZINGS, TINTED LIGHT GRAY GLASS. GLASS SHALL BE DESIGNED TO WITHSTAND WIND LOADS AND IMPACT LOAD REQUIREMENTS FOR WIND ZONE.
G-4	±5/16" LAMINATED INSULATED UNIT W/ TWO PIECES OF ±1/8" THICK, HEAT STRENGTHENED W/ A ±.090" POLYVINYL BUTYRAL INTERLAYER, ±1/2" AIR SPACE, AND ±3/16" THICK, HEAT STRENGTHENED SACRIFICIAL LITE. DELEGATED DESIGN MAY CHANGE DIMENSION OF MAKEUP SO THAT FINAL PRODUCT WITHSTANDS THE WINDLOAD AND IMPACT REQUIREMENTS. COLOR TO MATCH SOLARBAN 60 SOLARGRAY. (INNER LITE TO RECEIVE OPACI-COAT-300 #3-1371 WEST LAKE - VITRO CLEAR 6mm OR APPROVED EQUAL)
G-5	SAFTI SUPERSECURE II-XLS 90 MIN FIRE RATED GLASS WITH LEVEL 3 BALLISTIC RATING IN 90 MIN RATED WINDOW/DOOR ASSEMBLY
G-6	SAFTI SUPERSECURE II-XLS 45 MIN FIRE RATED GLASS WITH LEVEL 3 BALLISTIC RATING IN 45 MIN RATED WINDOW/DOOR ASSEMBLY

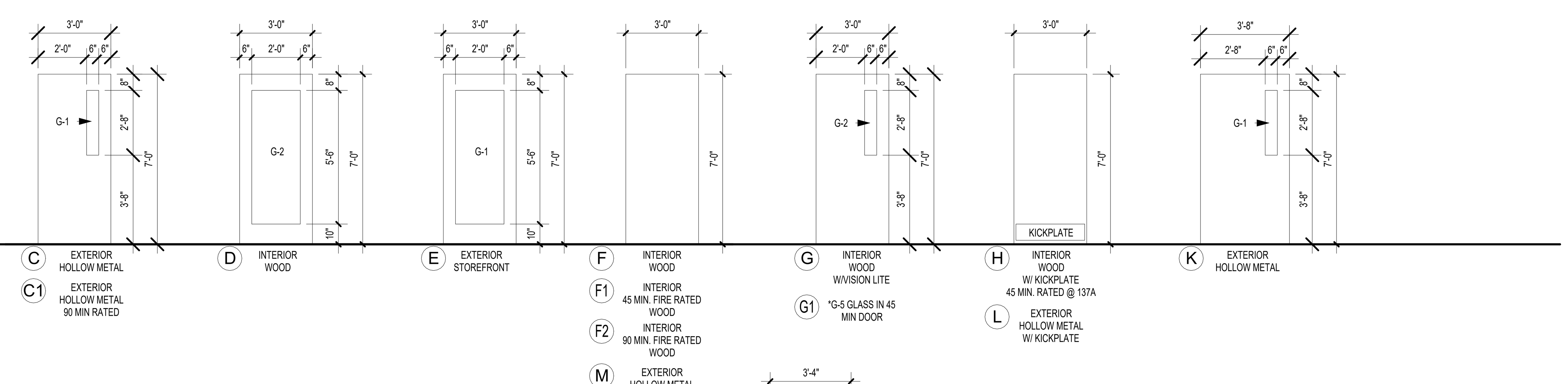
HARDWARE SCHEDULE

HARDWARE GROUP	HARDWARE TYPE	SET	COMPONENTS
1	EXTERIOR ENTRANCE SINGLE DOOR STOREFRONT CARD READER	PIVOT CYLINDER EXIT DEVICE PULL CLOSER W/ STOP WEATHERSTRIPPING BOTTOM RAIL SWEEP WEATHER SWEEPS THRESHOLD STRIKE CARD READER	KAWNEER TOP, INTERMEDIATE & BOTTOM OFFSET PIVOTS X MATCH STOREFRONT FINISH CORBIN RUSSWIN AS REQUIRED TO WORK WITH EXIT DEVICE (US32D) (1) ADAMS RITE 8400 X US32D W/ CYLINDER DOGGING (1) ADAMS RITE 3080 X US32D (1) LCN 4040XP CUSH X US32D KAWNEER #69-177 CONT APPLIED DOOR STOPS W/ CONT PILE AND WEATHERSWEEPS KAWNEER #38-560 (MOUNT ON BOTTOM RAIL OF DOOR) X MATCH STOREFRONT FINISH KAWNEER TOP, INTERMEDIATE & BOTTOM X MATCH STOREFRONT FINISH KAWNEER ALUMINUM (SET IN WATERPROOF MASTIC) (1) ELECTRIC STRIKE - FAIL SECURE - BY OWNER (STAINLESS STEEL) (1) CARD READER BY OWNER - PROVIDE CONDUIT, J-BOX & COVER PLATE
2	INTERIOR PASSAGE SINGLE DOOR WOOD	PUSH/PULL HINGES SILENCERS	(1) SARGENT - 8215 LW1J X US26D (1-1/2" PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (3) IVES - SR64
3	INTERIOR PASSAGE SINGLE DOOR WOOD	PUSH/PULL HINGES CLOSER W/HOLD OPEN SILENCERS	(1) SARGENT - 8215 LW1J X US26D (1-1/2" PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES X US32D W/ HOLD OPEN (3) IVES - SR64
4	INTERIOR PASSAGE SINGLE DOOR WOOD	LOCK-LATCH HINGES CLOSER W/ STOP WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) VON DUPRIN 9875 X 626AM (1) VON DUPRIN 996-L TRIM X 626AM (1-1/2" PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES X US32D W/ OVERHEAD STOP KAWNEER #69-177 CONT APPLIED DOOR STOPS W/ CONT PILE AND WEATHERSWEEPS (1) ZERO #365AA
5	INTERIOR ENTRY SINGLE DOOR HOLLOW METAL CARD READER	LOCK-LATCH HINGES CLOSER W/ STOP STRIKE CARD READER THRESHOLD WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) VON DUPRIN 9875 X 626AM (1) VON DUPRIN 996-NL TRIM X 626AM (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES X US32D W/ OVERHEAD STOP (1) ELECTRIC STRIKE - FAIL SECURE - BY OWNER (STAINLESS STEEL) (1) CARD READER BY OWNER - PROVIDE CONDUIT, J-BOX & COVER PLATE (1) ZERO #566A ALUMINUM (1) ZERO #328 ALUMINUM (HEAD & JAMBS) (1) ZERO #365AA
6	INTERIOR ENTRY SINGLE DOOR HOLLOW METAL CARD READER	LOCK-LATCH HINGES CLOSER W/ STOP STRIKE CARD READER THRESHOLD WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) SARGENT - 8255 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES X US32D W/ OVERHEAD STOP (1) ELECTRIC STRIKE - FAIL SECURE - BY OWNER (STAINLESS STEEL) (1) CARD READER BY OWNER - PROVIDE CONDUIT, J-BOX & COVER PLATE (1) ZERO #566A ALUMINUM (1) ZERO #328 ALUMINUM (HEAD & JAMBS) (1) ZERO #365AA
7	TOILET ROOM SINGLE DOOR WOOD	LOCK-LATCH HINGES CLOSER W/ STOP KICKPLATE WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) SARGENT - 8265 LW1J X US26D W/ OCCUPANCY DISPLAY (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES X US32D W/ OVERHEAD STOP (1) ROCKWOOD K1062 X 34" X 16" X US26D (1) ZERO #328 ALUMINUM (HEAD & JAMBS) (1) ZERO #365AA
8	INTERIOR ENTRANCE SINGLE DOOR WOOD CARD READER	LOCK-LATCH HINGES STOPS CLOSER W/ STOP SILENCERS STRIKE CARD READER	(1) SARGENT - 8256 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) IVES NO. WS401CVX OR WS402CVX X US26D WALL STOP (1) LCN 4010 OR 4110 SERIES X US32D W/ OVERHEAD STOP (3) IVES SR64 (1) ELECTRIC STRIKE - FAIL SECURE - BY OWNER (STAINLESS STEEL) (1) CARD READER BY OWNER - PROVIDE CONDUIT, J-BOX & COVER PLATE
9	INTERIOR STOREROOM SINGLE DOOR WOOD	LOCK-LATCH HINGES SILENCERS	(1) SARGENT - 8255 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (3) IVES - SR64
10	OFFICE SINGLE DOOR WOOD	LOCK-LATCH HINGES STOPS SILENCERS	(1) SARGENT - 8255 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) IVES NO. WS401CVX OR WS402CVX X US26D WALL STOP (3) IVES - SR64
11	INTERIOR ENTRANCE WOOD CARD READER	LOCK-LATCH HINGES CLOSER STOPS SILENCERS STRIKE CARD READER	(1) SARGENT - 8205 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES (1) IVES NO. WS401CVX OR WS402CVX X US26D WALL STOP (3) IVES - SR64 (1) ELECTRIC STRIKE - FAIL SECURE - BY OWNER (STAINLESS STEEL) (1) CARD READER BY OWNER - PROVIDE CONDUIT, J-BOX & COVER PLATE
12	INTERIOR ENTRANCE WOOD CARD READER	LOCK-LATCH HINGES CLOSER STOPS WEATHERSTRIPPING AUTO. DOOR BOTTOM STRIKE CARD READER	(1) SARGENT - 8205 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES (1) IVES NO. WS401CVX OR WS402CVX X US26D WALL STOP (1) ZERO #328 ALUMINUM (HEAD & JAMBS) (1) ZERO #365AA (1) ELECTRIC STRIKE - FAIL SECURE - BY OWNER (STAINLESS STEEL) (1) CARD READER BY OWNER - PROVIDE CONDUIT, J-BOX & COVER PLATE

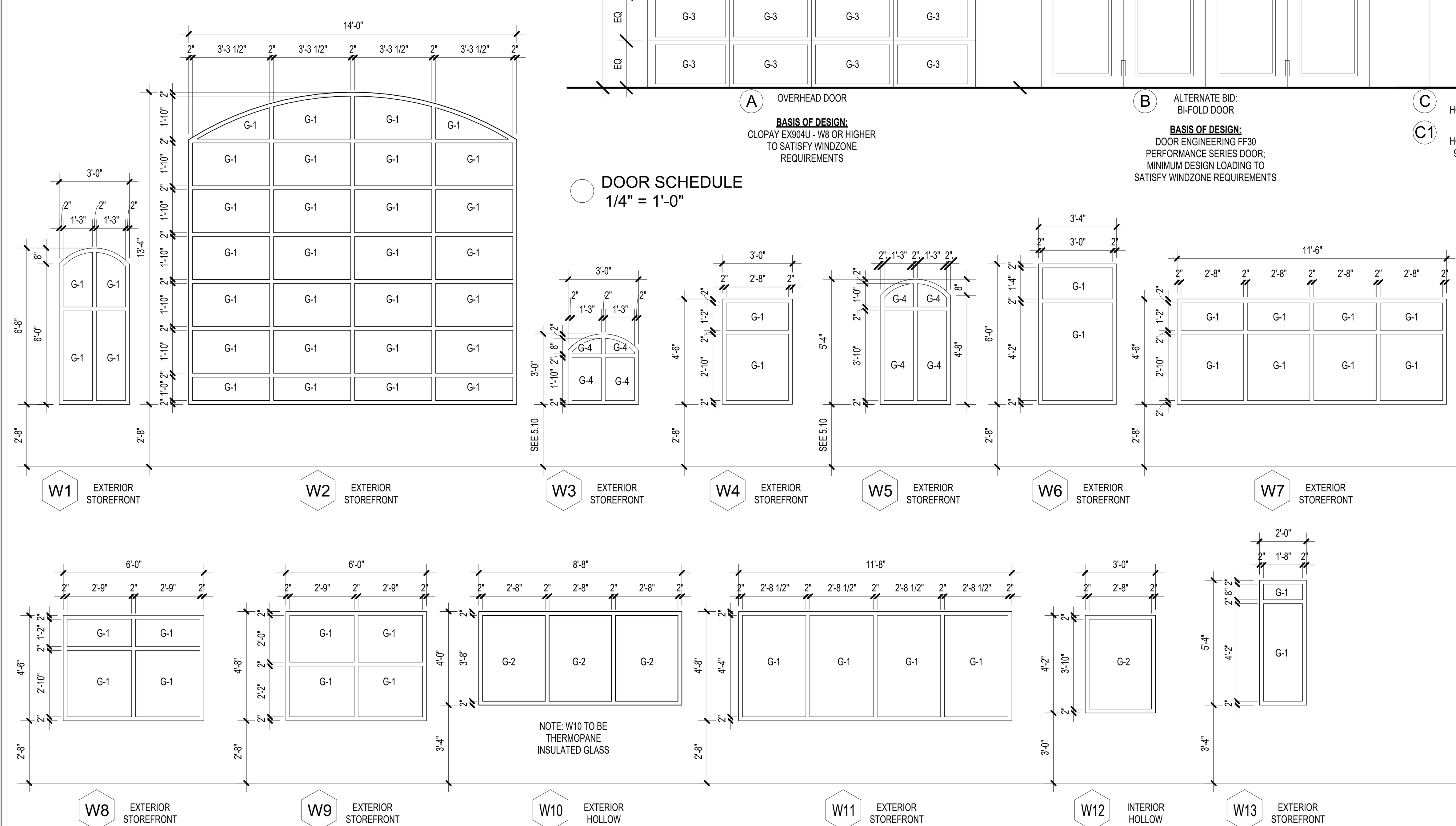
HARDWARE SCHEDULE

HARDWARE GROUP	HARDWARE TYPE	SET	COMPONENTS
13	INTERIOR STOREROOM SINGLE DOOR WOOD	LOCK-LATCH HINGES CLOSER W/ STOP WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) SARGENT - 8215 LW1J X US26D (1-1/2 PR.) HAGER - 5" X 5" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES W/ OVERHEAD STOP ZERO #188BIO GY (1) ZERO #365AA
14	INTERIOR STOREROOM SINGLE DOOR WOOD	LOCK-LATCH HINGES CLOSER W/ STOP WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) SARGENT - 8255 LW1J X US26D (1-1/2 PR.) HAGER - 5" X 5" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES W/ OVERHEAD STOP ZERO #188BIO GY (1) ZERO #365AA
15	EXTERIOR STOREROOM SINGLE DOOR HOLLOW METAL	LOCK-LATCH HINGES CLOSER W/ STOP SILENCERS	(1) SARGENT - 8237 LW1J X US26D W/ MICROSHIELD (1-1/2 PR.) HAGER - 5" X 5" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES W/ OVERHEAD STOP (3) IVES - SR64
16	EXTERIOR ENTRANCE SINGLE DOOR HOLLOW METAL	LOCK-LATCH HINGES CLOSER W/ STOP SILENCERS	(1) SARGENT - 8237 LW1J X US26D W/ MICROSHIELD (1-1/2 PR.) HAGER - 5" X 5" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES W/ OVERHEAD STOP (3) IVES - SR64
17	EXTERIOR STOREROOM SINGLE DOOR HOLLOW METAL	LOCK-LATCH HINGES CLOSER W/ STOP SILENCERS	(1) SARGENT - 8237 LW1J X US26D W/ MICROSHIELD (1-1/2 PR.) HAGER - 5" X 5" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES W/ OVERHEAD STOP (3) IVES - SR64
18	EXTERIOR ENTRANCE SINGLE DOOR HOLLOW METAL	LOCK-LATCH HINGES CLOSER STOPS SILENCERS STRIKE CARD READER LATCH GUARD	(1) VON DUPRIN 9875 X 626AM (1) VON DUPRIN 996-NL TRIM X 626AM (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES (1) IVES NO. WS401CVX OR WS402CVX X US26D WALL STOP (3) IVES - SR64 (1) ELECTRIC STRIKE - FAIL SECURE - BY OWNER (STAINLESS STEEL) (1) CARD READER BY OWNER - PROVIDE CONDUIT, J-BOX & COVER PLATE IVES LG7 X US26D
19	EXTERIOR PASSAGE SINGLE DOOR HOLLOW METAL	LOCK-LATCH HINGES CLOSER W/ STOP KICKPLATE WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) SARGENT - 8215 LW1J X US26D (1-1/2" PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES X US32D W/ OVERHEAD STOP (1) ROCKWOOD 1050 X 34" X 16" X US26D (1) ZERO #328 ALUMINUM (HEAD & JAMBS) (1) ZERO #365AA
20	EXTERIOR ENTRANCE SINGLE DOOR HOLLOW METAL	LOCK-LATCH HINGES CLOSER W/ STOP WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) SARGENT - 8239 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES X US32D W/ OVERHEAD STOP (1) ZERO #328 ALUMINUM (HEAD & JAMBS) (1) ZERO #365AA
21	EXTERIOR TOILET SINGLE DOOR HOLLOW METAL	LOCK-LATCH HINGES CLOSER STOPS KICKPLATE WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) SARGENT - 8265 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES X US32D (1) IVES NO. WS401CVX OR WS402CVX X US26D (1) ROCKWOOD 1050 X 34" X 16" X US26D (1) ZERO #328 ALUMINUM (HEAD & JAMBS) (1) ZERO #365AA
22	INTERIOR OFFICE SINGLE DOOR WOOD RATED	LOCK-LATCH HINGES CLOSER STOPS KICKPLATE WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) SARGENT - 8256 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES X US32D (1) IVES NO. WS401CVX OR WS402CVX X US26D (1) ROCKWOOD 1050 X 34" X 16" X US26D (1) ZERO #328 ALUMINUM (HEAD & JAMBS) (1) ZERO #365AA
23	INTERIOR STOREROOM SINGLE DOOR WOOD RATED	LOCK-LATCH HINGES CLOSER STOPS WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) SARGENT - 8255 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES X US32D (1) IVES NO. WS401CVX OR WS402CVX X US26D (1) ZERO #328 ALUMINUM (HEAD & JAMBS) (1) ZERO #365AA
24	INTERIOR CLASSROOM SINGLE DOOR WOOD	LOCK-LATCH HINGES STOPS SILENCERS	(1) SARGENT - 8238 LW1J X US26D (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) IVES NO. WS401CVX OR WS402CVX X US26D WALL STOP (3) IVES - SR64
25	EXTERIOR ENTRANCE SINGLE DOOR HOLLOW METAL	LOCK-LATCH HINGES CLOSER STOPS SILENCERS LATCH GUARD	(1) VON DUPRIN 9875 X 626AM (1) VON DUPRIN 996-NL TRIM X 626AM (1-1/2 PR.) HAGER - 4-1/2" X 4-1/2" - AB700 X US26D (1) LCN 4010 OR 4110 SERIES (1) IVES NO. WS401CVX OR WS402CVX X US26D WALL STOP (3) IVES - SR64 IVES LG7 X US26D
26	MEZZANINE PAIR OF DOORS HOLLOW METAL	LOCK-LATCH HINGES STOPS THRESHOLD WEATHERSTRIPPING AUTO. DOOR BOTTOM	(1) SARGENT - 8227 LW1J X US32D (1) SARGENT - 8294 LW1J X US32D (PROVIDE IVES FP51P X US32D TOP & BOTTOM FLOOR BOLTS IN INACTIVE LEAF) (3 PR.) HAGER - 4-1/2" X 4-1/2" - AB750 X US32D (2) OVERHEAD - SARGENT 1540 SERIES (1) ZERO #566A ALUMINUM (1) ZERO #328 ALUMINUM (HEAD & JAMBS) (2) ZERO #365AA





DOOR SCHEDULE
1/4" = 1'-0"



WINDOW SCHEDULE
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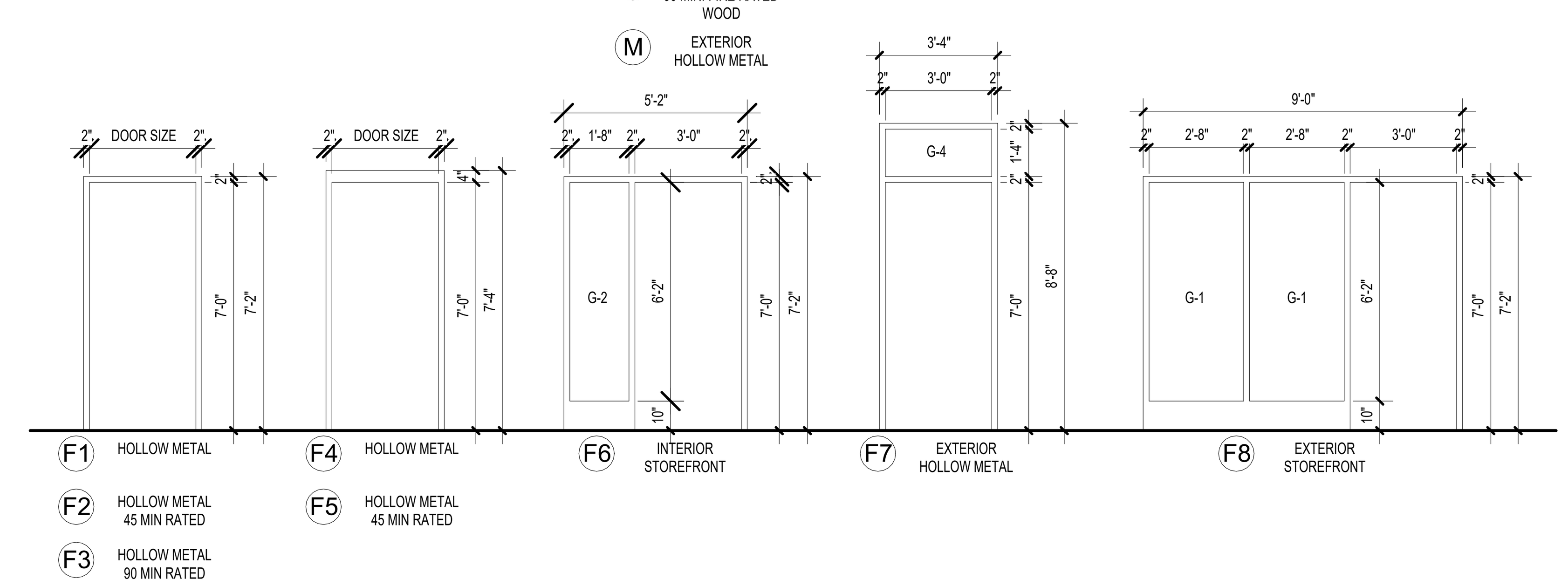
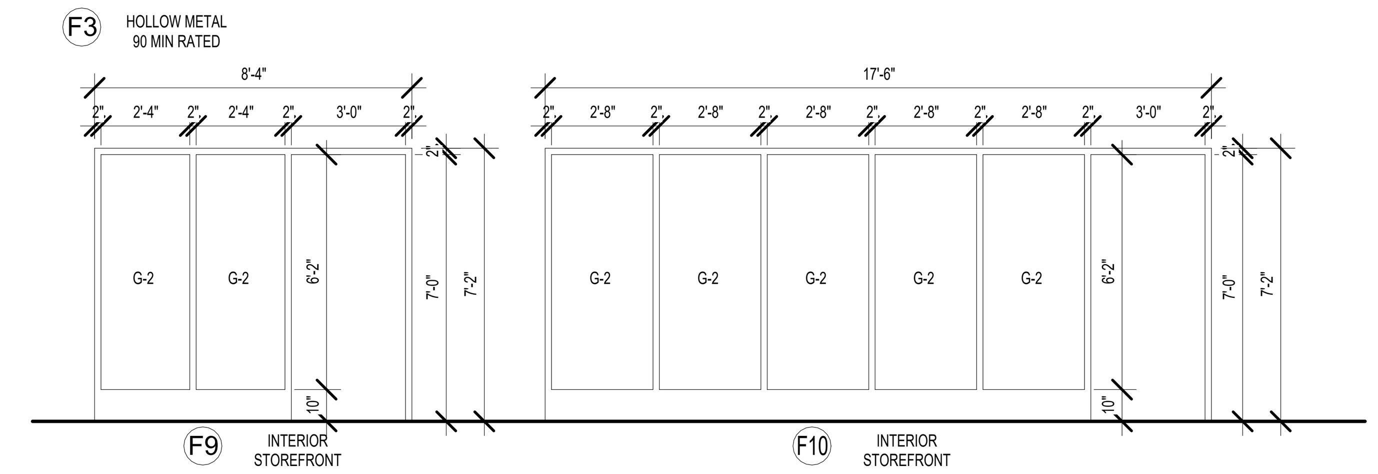


NOTE:
FOR ALL HOLLOW METAL DOORS AND FRAMES:
PRIME WITH SHERWIN WILLIAMS KEM BOND HS UNIVERSAL METAL PRIMER GRAY B50AZ18;

FRAMES: MARINE GRADE FINISH COAT TBD
DOORS: FINISH COAT TO MATCH FRAMES



FRAME SCHEDULE
1/4" = 1'-0"

GENERAL NOTE

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.

WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITHIN THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER OF WORK OR MATERIAL CALLED FOR, SHALL SUBMIT A WRITTEN STATEMENT WITH HIS PROPOSAL NOTING SUCH DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.

Project No.
1737

Date:
03.29.2024
Drawn by:
AJP/GAS
Checked by:
KCN
Revision #:

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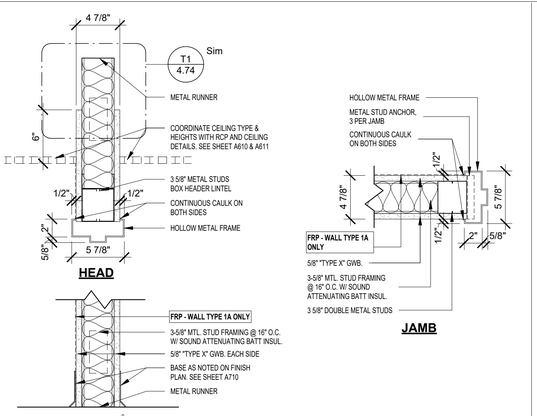
KENNETH C. NEWELL REGISTERED ARCHITECT 6205 NORTH CAROLINA GASTONIA, NC
03.29.2024

GORDON ROAD FIRE DEPARTMENT

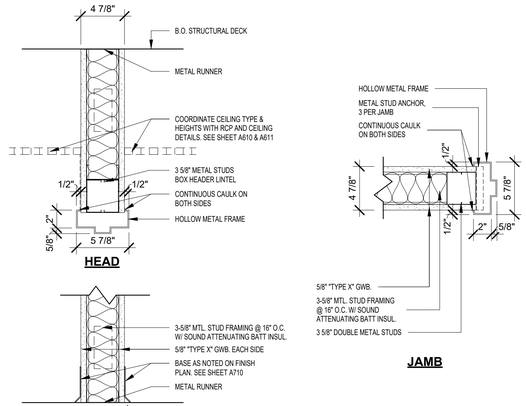
DOOR AND WINDOW SCHEDULE

Sheet No.
4.70

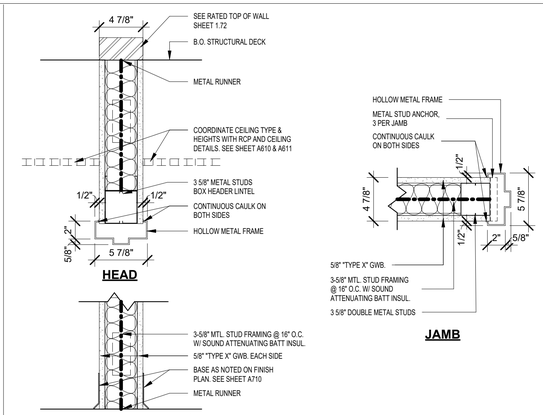


1 3-5/8" STUD WALL W/ GYP.
SCALE: 1-1/2" = 1'-0"

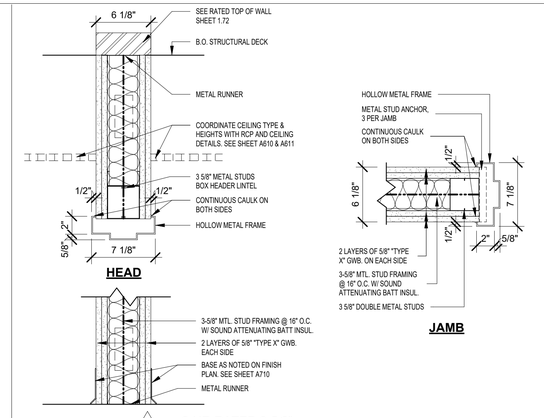
1A 3-5/8" STUD WALL W/ GYP & FRP
SCALE: 1-1/2" = 1'-0"



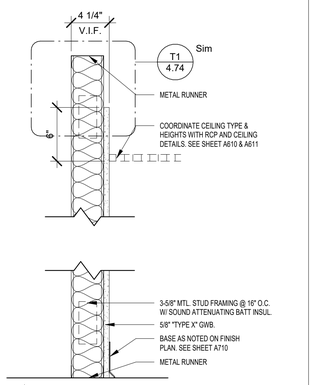
2 3-5/8" STUD WALL W/ GYP.
SCALE: 1-1/2" = 1'-0"



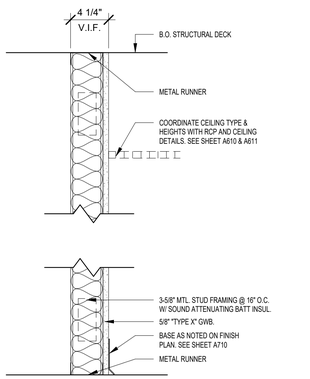
3 1-HR RATED 3-5/8" STUD WALL W/ GYP.
SCALE: 1-1/2" = 1'-0" UL U-419



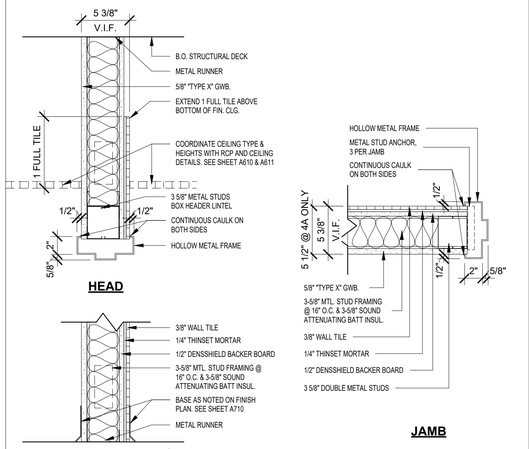
4 2-HR RATED 3-5/8" STUD WALL W/ GYP.
SCALE: 1-1/2" = 1'-0" UL U-419



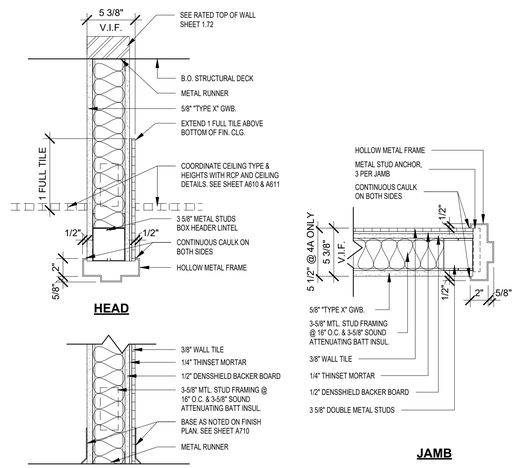
5 CAVITY
3-5/8" STUD WALL W/ GYP.
SCALE: 1-1/2" = 1'-0"



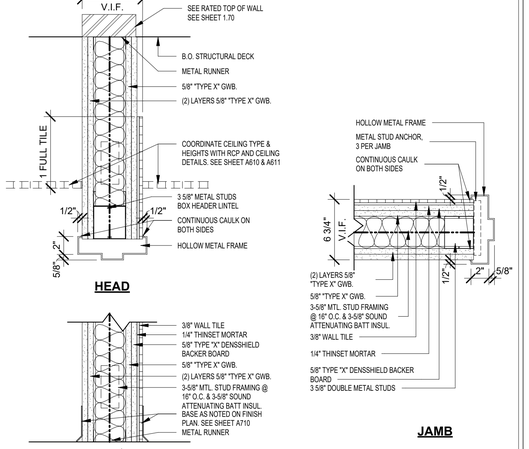
6 CAVITY
3-5/8" STUD WALL W/ GYP.
SCALE: 1-1/2" = 1'-0"



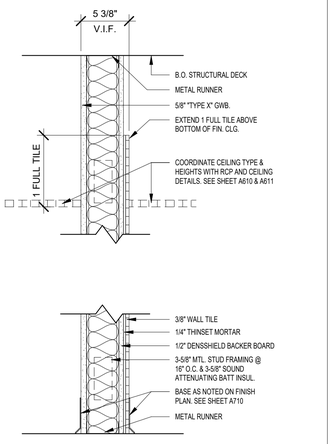
7 3-5/8" STUD WALL
W/ GYP. AND TILE ON ONE SIDE
SCALE: 1-1/2" = 1'-0"



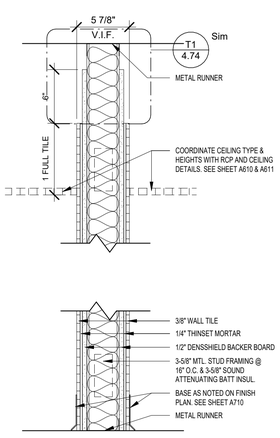
7A 1-HR. RATED 3-5/8" STUD WALL
W/ GYP. AND TILE ON ONE SIDE
SCALE: 1-1/2" = 1'-0" UL U-419



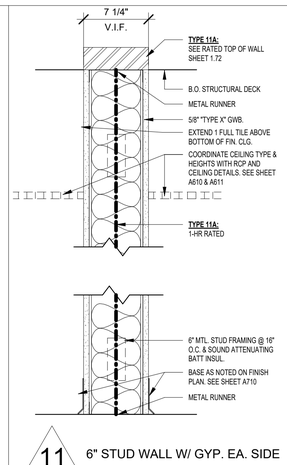
8 2-HR RATED 3-5/8" STUD WALL
W/ GYP., TILE ON ONE SIDE
SCALE: 1-1/2" = 1'-0" UL U-419



9 3-5/8" STUD
WALL W/ GYP. AND TILE ON ONE SIDE
SCALE: 1-1/2" = 1'-0"

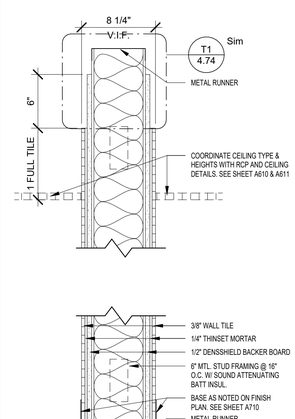


10 3-5/8" STUD WALL W/
TILE ON BOTH SIDES
SCALE: 1-1/2" = 1'-0"

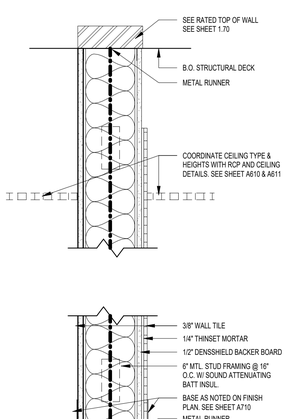


11 6" STUD WALL W/ GYP. EA. SIDE
SCALE: 1-1/2" = 1'-0"

11A 1-HR RATED
6" STUD WALL W/ GYP. EA. SIDE
SCALE: 1-1/2" = 1'-0" UL U-419



12 6" STUD WALL W/ GYP.
AND TILE ON BOTH SIDES
SCALE: 1-1/2" = 1'-0"



12A 1-HR RATED 6" STUD WALL W/ GYP.
AND TILE ON ONE SIDE
SCALE: 1-1/2" = 1'-0" UL U-419

GENERAL NOTES:

1. GC TO PROVIDE SOLUTION FOR WALL AND JOIST COLLISIONS. WHERE WALLS ARE TO BE TO DECK AND JOISTS RUNNING IN SAME DIRECTION OVERLAP, EITHER BY ADJUSTING TOP OF WALL TO MISS JOIST OR ENCASE JOIST.

WALL TYPE & INSULATION NOTES

WALL TYPE NOTES

1. ALL CORRIDORS AND LOBBY WALLS TO RECEIVE 5/8" "TYPE X" ABUSE RESISTANT GYPSUM BOARD (SEE SPECIFICATION). PROVIDE EXPANSION JOINTS AS RECOMMENDED BY MANUFACTURER FOR ALL WALL BOARD INSTALLATION. COORDINATE WITH THE ARCHITECT & OWNER FOR THE AESTHETIC PURPOSES.
2. INSTALL ALL GYPSUM BOARD VERTICALLY.
3. ELEVATE GYPSUM BOARD 5/8" ABOVE FINISH FLOOR AT NON-RATED WALLS.
4. FILL AND TAPE ALL JOINTS AND FIRESTOP AROUND ALL PIPE, CONDUIT, DUCTWORK AND ANY OTHER PENETRATIONS THROUGH RATED WALLS.
5. ALL GYPSUM BOARD AT WALLS AND CEILINGS SHALL BE 5/8" "TYPE X" GYPSUM BOARD.
6. ALL TILE BACKER BOARDS SHALL BE 5/8" "TYPE X" DENS-SHIELD.
7. FUR WALLS AROUND FIRE EXTINGUISHER CABINETS AS REQ'D. SEE SHEET 1.10 FOR LOCATIONS. ALL FIRE RATINGS TO BE CONTINUOUS.
8. COORDINATE ALL WALL BOARD INSTALLATION WITH THE FINISH SCHEDULE SHEET 7.10.
9. WHERE BULKHEADS OCCUR AT FIRE RATED WALLS, BULKHEAD STRUCTURE SHALL BE INDEPENDENT OF FIRE RATED WALL STRUCTURE. FIRE RATED TREATMENT OF WALL SHALL BE CONTINUOUS PRIOR TO INSTALLATION OF STRUCTURALLY INDEPENDENT BULKHEAD.

INSULATION NOTES

1. EXTERIOR WALLS
   A. INSULATION AT ALL EXTERIOR WALLS SHALL BE AS NOTED ON WALL TYPES SHEET 1.70.
2. INTERIOR WALLS
   A. ALL INTERIOR 2 1/2" MTL. STUD WALLS SHALL HAVE 2" THICK UNFACED FIBERGLASS SOUND BATT INSULATION PER WALL TYPES THIS SHEET.
   B. ALL INTERIOR 3 5/8" MTL. STUD WALLS SHALL HAVE 3" THICK UNFACED FIBERGLASS SOUND BATT INSULATION PER WALL TYPES THIS SHEET.
   C. ALL INTERIOR 6" MTL. STUD WALLS SHALL HAVE TWO LAYERS OF 3" THICK UNFACED FIBERGLASS SOUND BATT INSULATION PER WALL TYPES THIS SHEET.
   D. WALLS OF VARYING THICKNESS SHALL HAVE UNFACED FIBERGLASS BATT INSULATION IN THE THICKNESS INDICATED FOR THE PARTICULAR WALL TYPE.
3. PROVIDE 6" SOUND BATT INSULATION ABOVE ALL TOILETS - FACED SIDE OF INSULATION TO ROOM.
4. PROVIDE SOUND BATT INSULATION AT ALL OTHER LOCATIONS INDICATED ON RCP.
5. ALL EXPOSED THERMOPLASTICS (RIGID AND FOAM INSULATION) SHALL BE COVERED BY 5/8" TYPE "X" GYPSUM BOARD. A CODE COMPLIANT THERMAL BARRIER OR THERMAL RESISTIVE SPRAY COATING MAY BE SUBMITTED FOR USE I.L.O. GYPSUM BOARD.

Project No.
1737

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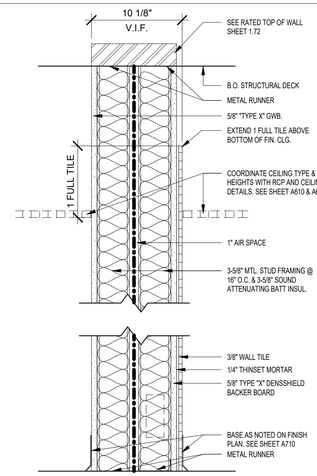
KENNETH C. ALEXANDER REGISTERED & LICENSED 6205 ARCHITECT NORTH CAROLINA

GORDON ROAD FIRE DEPARTMENT

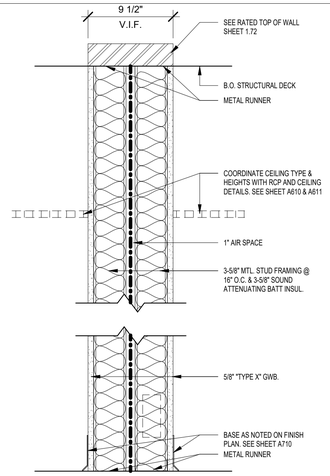
WALL TYPES AND DOOR DETAILS

Sheet No.
4.72



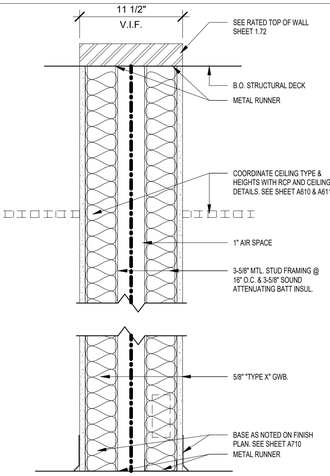
13 1-HR RATED SPACED 3-5/8" STUD WALL W/ GYP. AND TILE ON ONE SIDE

SCALE: 1-1/2" = 1'-0" UL U-419



13A 1-HR RATED SPACED 3-5/8" STUD WALL W/ GYP. ON BOTH SIDES

SCALE: 1-1/2" = 1'-0" UL U-419



13C 1-HR RATED SPACED 3-5/8" STUD WALL W/ GYP. ON BOTH SIDES

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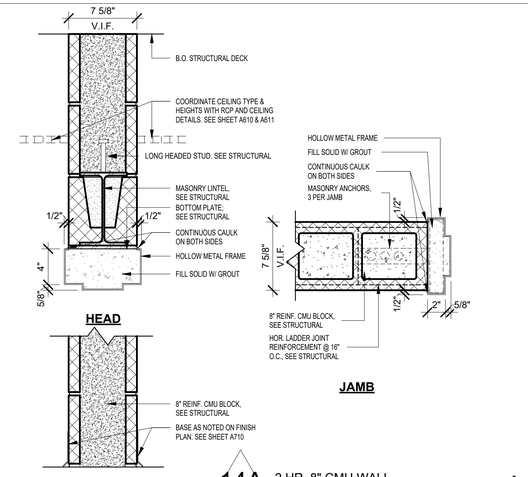


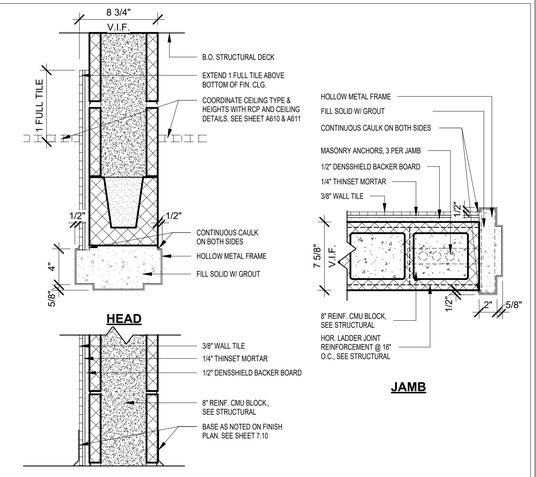
HEAD JAMB

14 8" CMU WALL

SCALE: 1-1/2" = 1'-0"

14A 2 HR. 8" CMU WALL

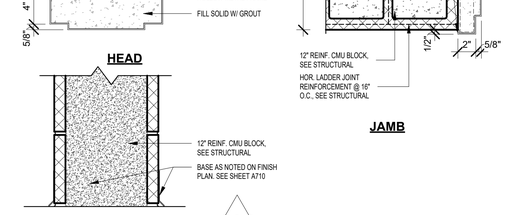
SCALE: 1-1/2" = 1'-0" UL U-419



HEAD JAMB

15 8" CMU WALL W/ TILE ON ONE SIDE

SCALE: 1-1/2" = 1'-0"



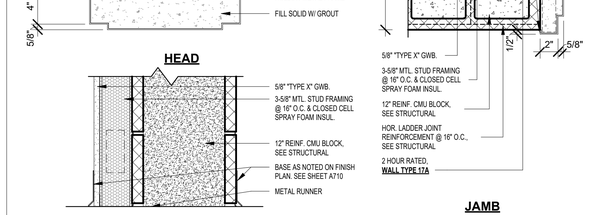
HEAD JAMB

16 12" CMU WALL

SCALE: 1-1/2" = 1'-0"

16A 2 HR. 12" CMU WALL

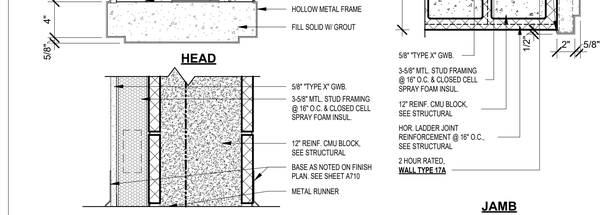
SCALE: 1-1/2" = 1'-0" UL U-419



HEAD JAMB

17 12" CMU WALL W/ 3-5/8" CAVITY WALL W/ GYP.

SCALE: 1-1/2" = 1'-0"



HEAD JAMB

17A 2-HR. RATED 12" CMU WALL W/ 3-5/8" CAVITY WALL W/ GYP.

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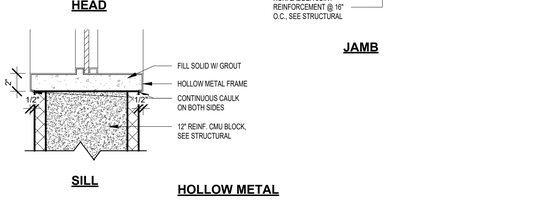
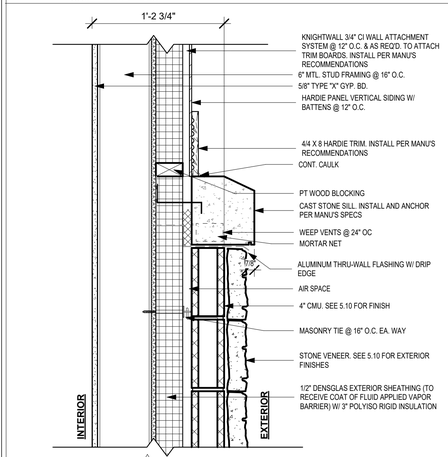


HEAD JAMB SILL HOLLOW METAL

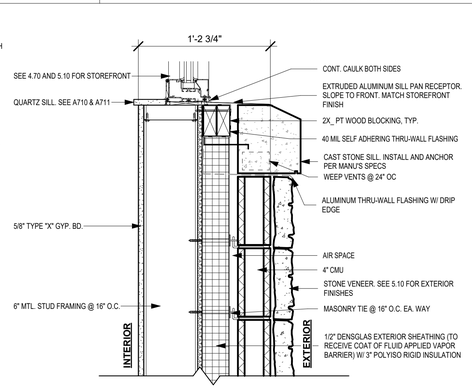
16 HM. WINDOW 12" CMU WALL

SCALE: 1-1/2" = 1'-0"



E1 EXTERIOR BRICK VENEER ON MTL. STUD WALL

SCALE: 1-1/2" = 1'-0"



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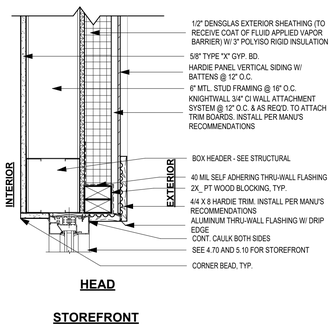
STOREFRONT



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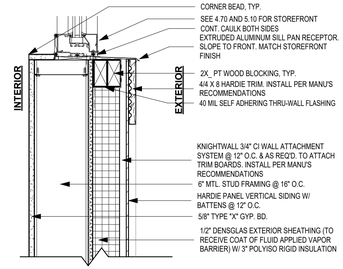
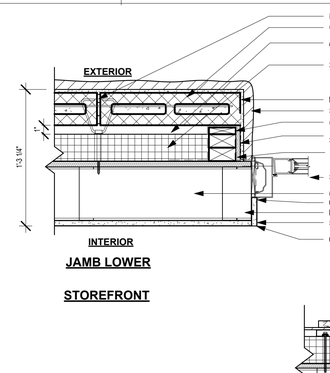


SILL

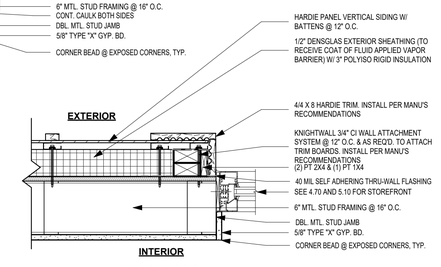
HIGH WINDOWS ONLY

STOREFRONT



JAMB LOWER

STOREFRONT



JAMB UPPER

STOREFRONT

Project No.
1737

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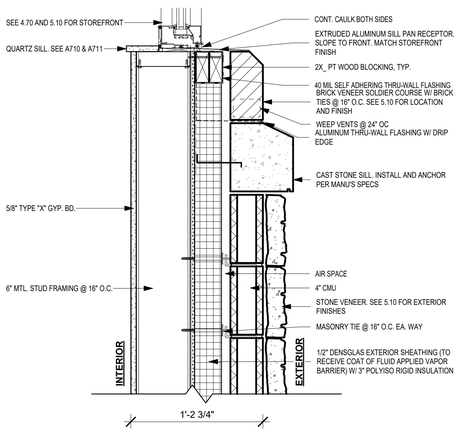
CHARLES C. ALBERT REGISTERED ARCHITECT 6205 CALIFORNIA

GORDON ROAD FIRE DEPARTMENT

WALL TYPES, DOOR & WINDOW DETAILS

Sheet No.
4.73



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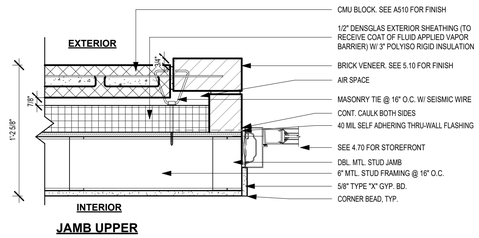

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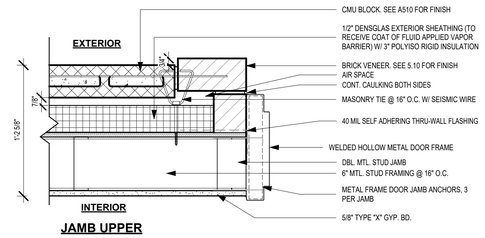

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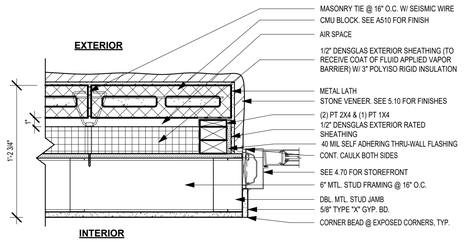

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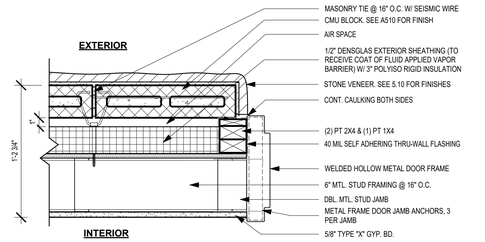

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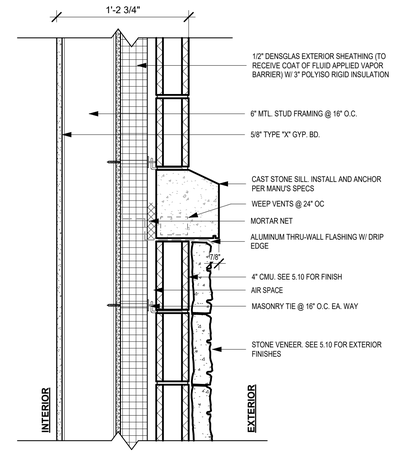
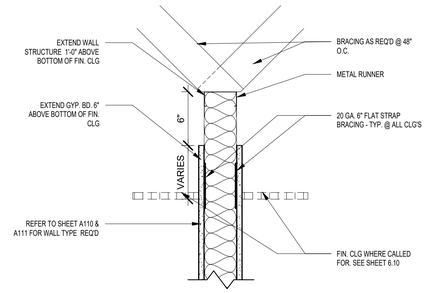
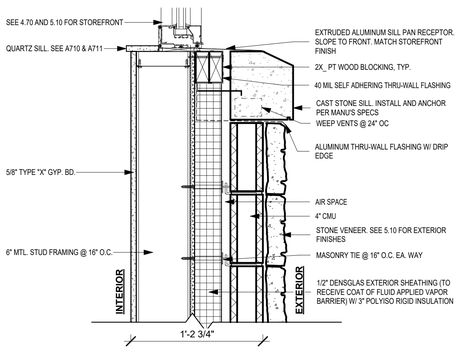




T1 TYP. INTERIOR WALL/CLG. DTL.
1 1/2" = 1'-0"



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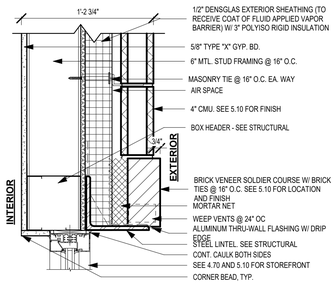

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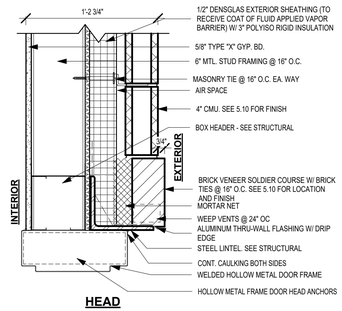
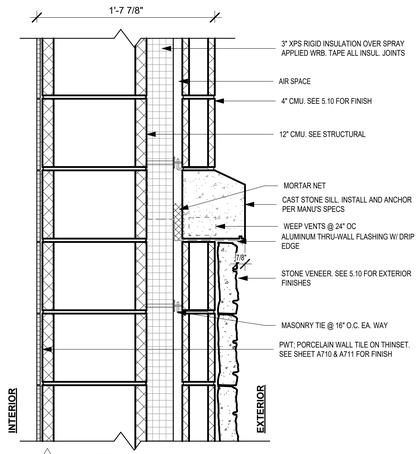


HEAD

STOREFRONT

E2 EXTERIOR
BRICK VENEER ON MTL. STUD WALL
SCALE: 1-1/2" = 1'-0"



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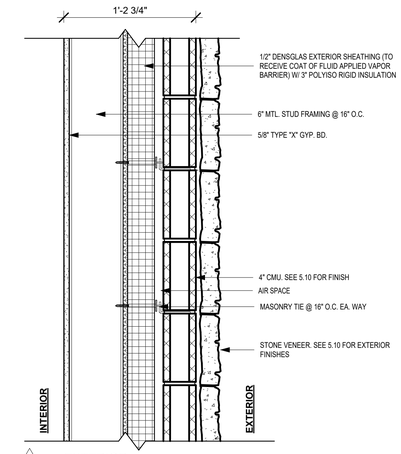

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BRICK VENEER ON MTL. STUD WALL
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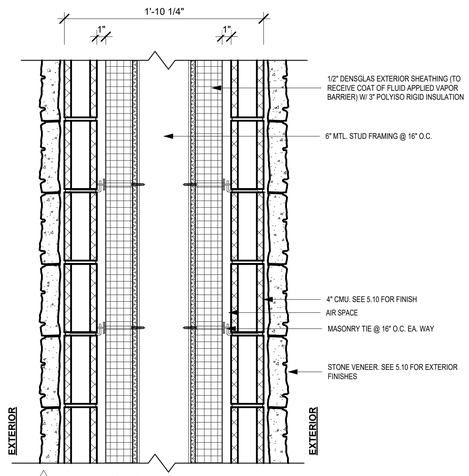

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BRICK VENEER ON MTL. STUD WALL
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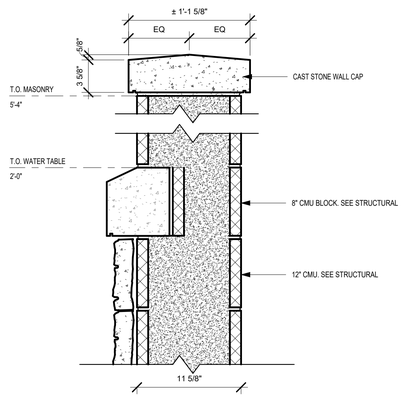

E8 EXTERIOR
PATIO WALL
SCALE: 1-1/2" = 1'-0"

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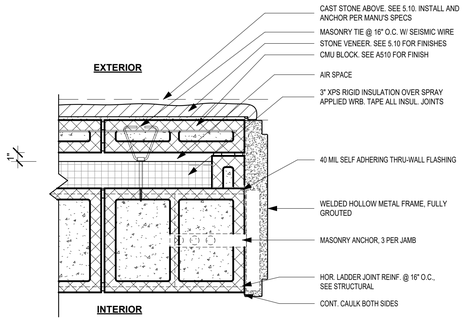
KENNETH C. STEWART REGISTERED ARCHITECT 6205 CALIFORNIA

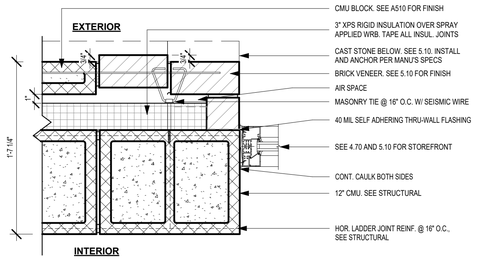
GORDON ROAD FIRE DEPARTMENT

WALL TYPES, DOOR & WINDOW DETAILS

Sheet No.
4.74



JAMB



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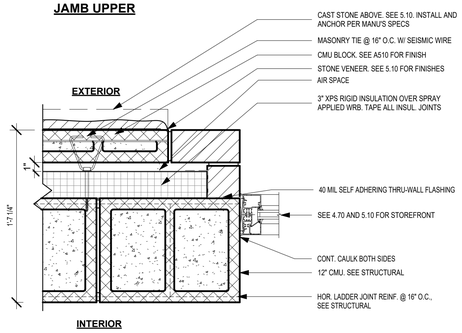

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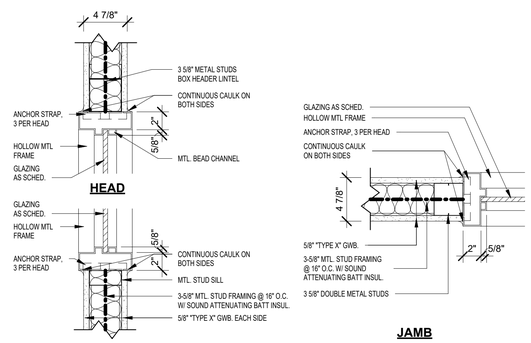
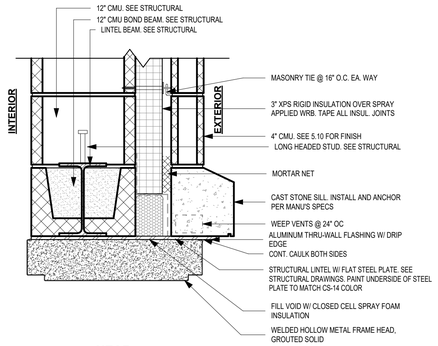


HOLLOW METAL **STOREFRONT**

TYPICAL STOREFRONT WINDOWS
3-5/8" STUD WALL W/ GYP.
SCALE: 1-1/2" = 1'-0"

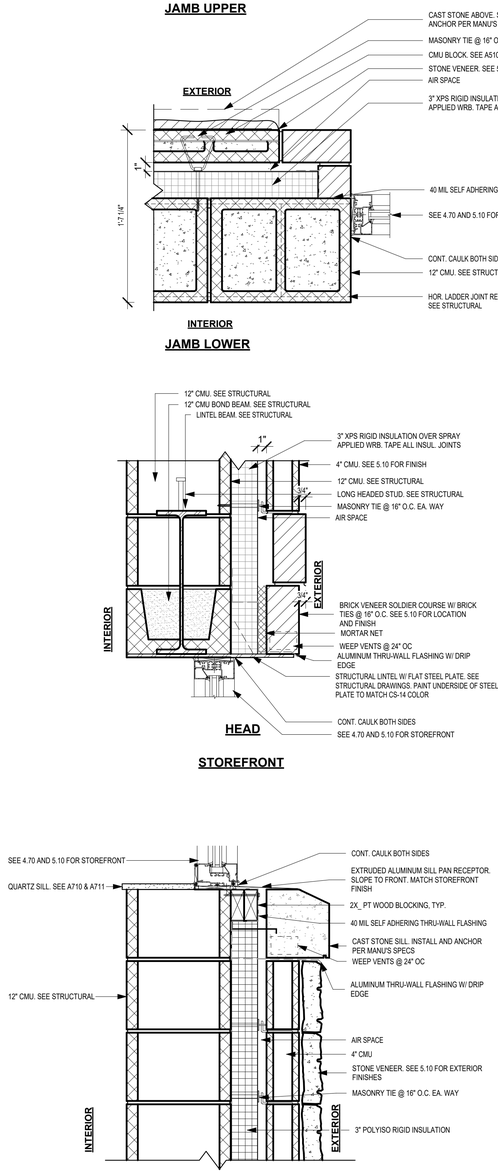


HEAD

HOLLOW METAL

HEAD

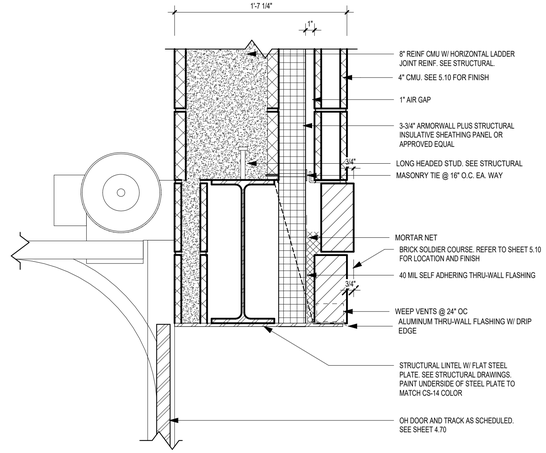
STOREFRONT



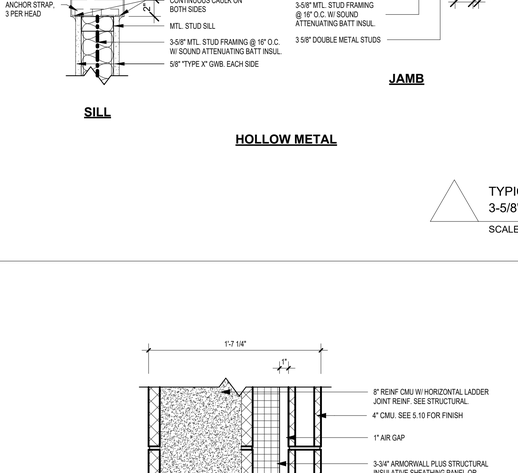
SILL

STOREFRONT

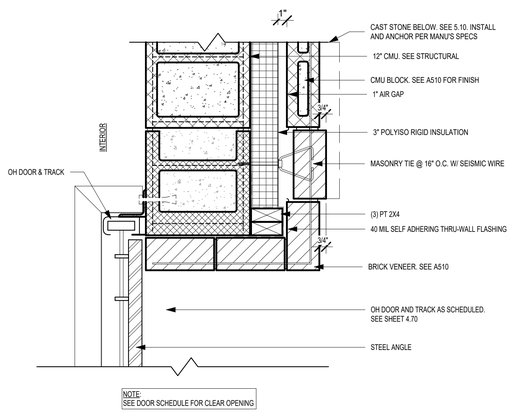
E4 EXTERIOR
BRICK VENEER ON MTL. STUD WALL
SCALE: 1-1/2" = 1'-0"



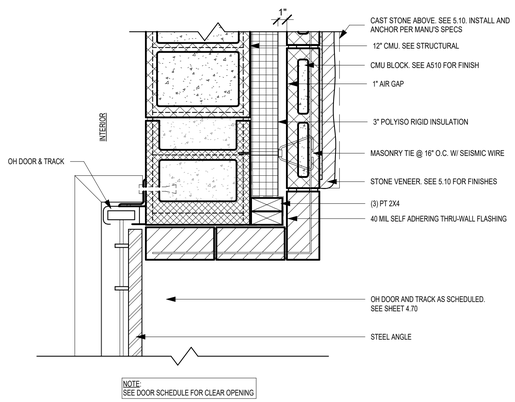
O.H. DOOR HEAD



O.H. DOOR SILL



O.H. DOOR JAMB UPPER



O.H. DOOR JAMB LOWER

Project No.
1737

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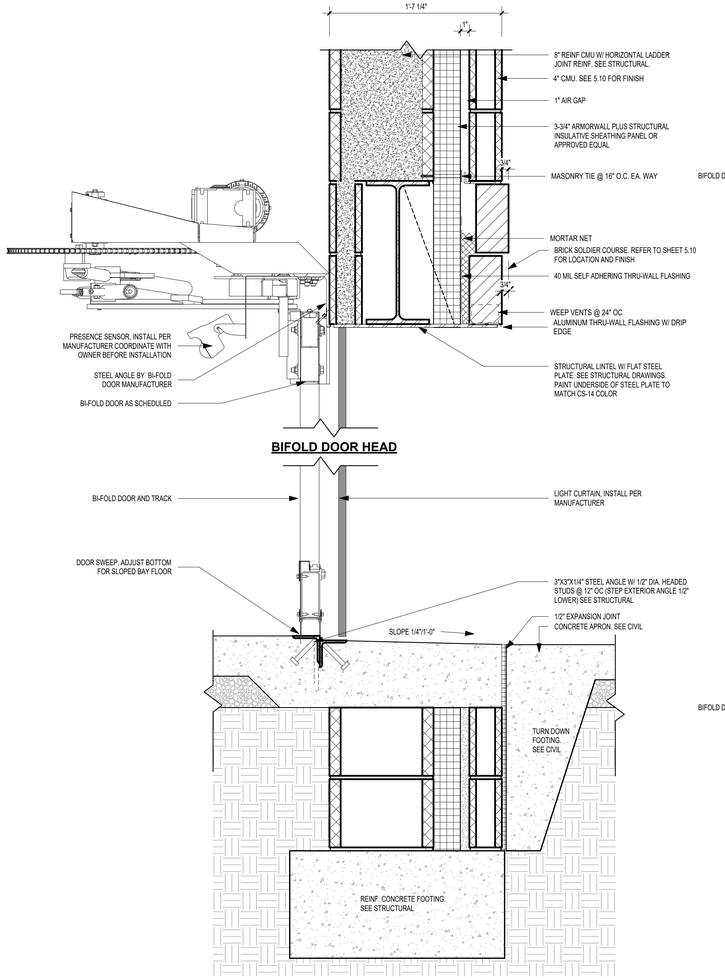
GORDON ROAD FIRE DEPARTMENT

WALL TYPES, DOOR & WINDOW DETAILS

Sheet No.
4.75



1 ALT BID A-1 BIFOLD DOORS
1 1/2" = 1'-0"

Project No.
1737

Date:
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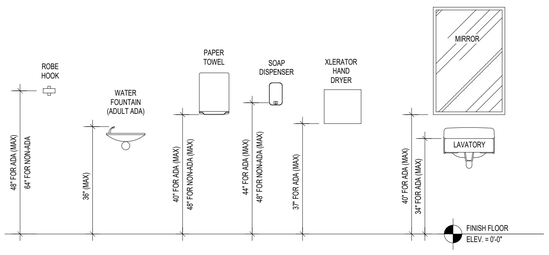
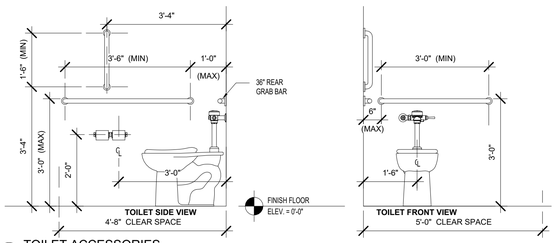
GORDON ROAD FIRE DEPARTMENT

ALTERNATE BID A-1

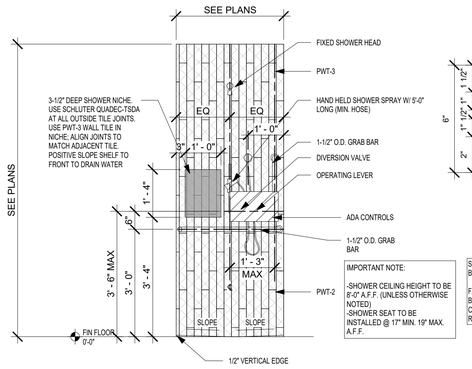
Sheet No.
4.76

TOILET ACCESSORY MOUNTING HEIGHTS FOR HANDICAPPED

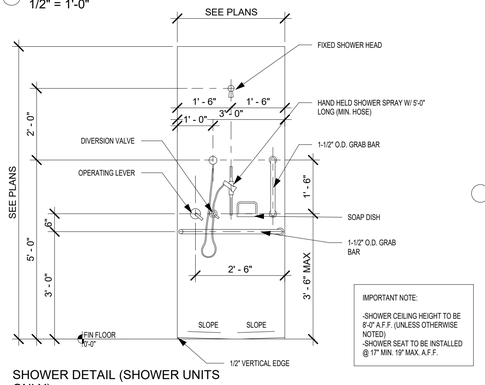




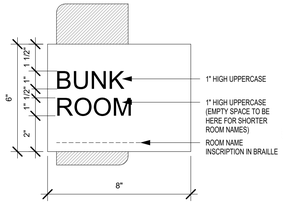
TOILET ACCESSORIES
1/2" = 1'-0"



SHOWER DETAIL (TILED ONLY)
1/2" = 1'-0"

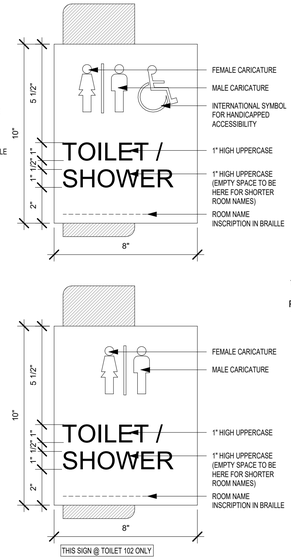


SHOWER DETAIL (SHOWER UNITS ONLY)
1/2" = 1'-0"

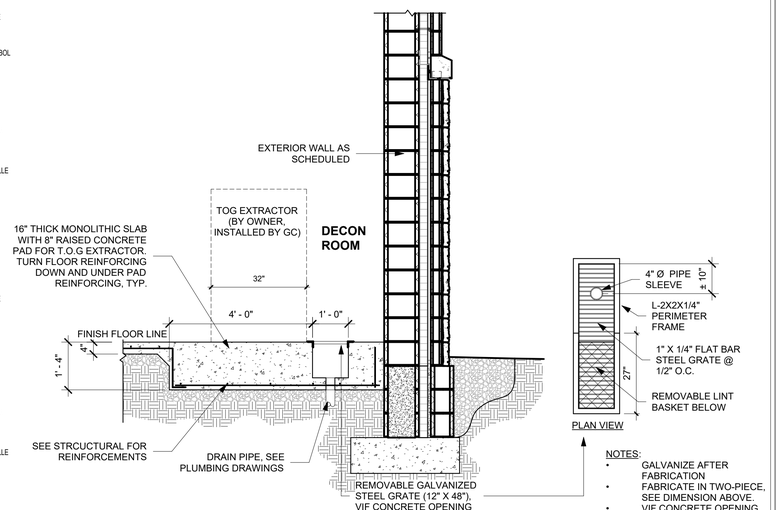


SIGNAGE NOTE:
BASIS OF DESIGN - INPRO SIGNSCAPE MADISON COLLECTION

FACE-PLATE TO MATCH SHERWIN WILLIAMS 7031 MEGA GREIGE
BACK-PLATE TO MATCH WILSONART HIBISCUS CHERRY 7988-38
COUNTY LOGO TO BE BLACK 0152
ROOM NAMES AND BRAILLE INSCRIPTIONS TO BE BLACK 0152



DOOR SIGNS NICE
3" = 1'-0"



NOTES:
- GALVANIZE AFTER FABRICATION
- FABRICATE IN TWO-PIECE, SEE DIMENSION ABOVE.
- VIF CONCRETE OPENING PRIOR TO FABRICATION.

1 T.O.G. EXTRACTOR PAD SECTION
1/2" = 1'-0"

TOILET ACCESSORY SCHEDULE:

SPECIFICATIONS SECTION 10800 TOILET AND BATH ACCESSORIES GENERAL NOTES:

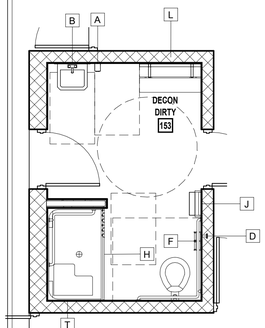
PRODUCTS AS MANUFACTURED BY THE FOLLOWING WILL BE ACCEPTED AS EQUAL:

AMERICAN SPECIALTIES, INC.
BOBRICK WASHROOM EQUIPMENT, INC.
BRADLEY CORPORATION
GENERAL ACCESSORY MAUFACTURING CO. (GAMCO)

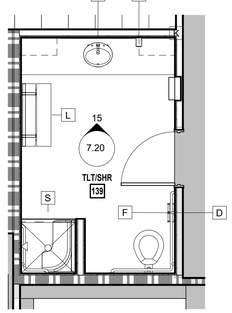
TOILET ACCESSORIES SHALL BE STAINLESS STEEL UNLESS NOTED OTHERWISE.
TO THE GREATEST EXTENT POSSIBLE, USE TOILET ACCESSORIES MANUFACTURED BY ONE COMPANY.
PROVIDE 2X8 MIN. FRT WOOD BLOCKING IN ALL WALLS BEHIND ALL TOILET ACCESSORIES.
INSTALL ALL TOILET ACCESSORIES AS REQUIRED TO COMPLY WITH GOVERNING CODE REQUIRING ACCESS FOR THE HANDICAPPED.
INSTALL TOILET ACCESSORIES IN STRICT ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.
PROVIDE BACKING AS REQ'D BY ACCESSORY MANUFACTURER.

TOILET ACCESSORY SCHEDULE

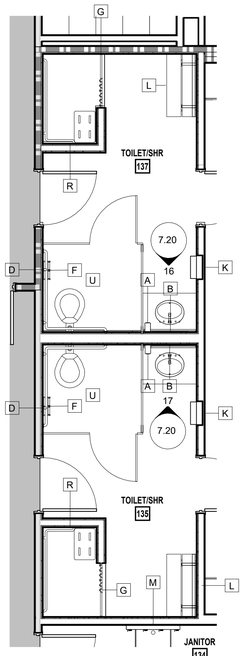
Mark	Item	Specifications
A	SOAP DISPENSER	BOBRICK B-26617 WALL-MOUNTED SOAP DISPENSER
B	MIRROR OVER VANITY	BOBRICK B-165 2436 CHANNEL FRAME MIRROR. SIZE: 24" WIDE X 36" HIGH
C	MIRROR OVER VANITY	BOBRICK B-165 4836 CHANNEL FRAME MIRROR. SIZE: 48" WIDE X 36" HIGH
D	TOILET GRAB BARS.	BOBRICK B-5806X18 STRAIGHT PEENED GRAB BAR (VERTICAL ON SIDEWALL) BOBRICK B-6806X36 (OVER TOILET) BOBRICK B-6906-42 (ON SIDEWALL)
E	ROBE HOOK	BOBRICK B-672 SURFACE MOUNTED DOUBLE ROBE HOOK (WALL MOUNTED)
F	DBL. TOILET ROLL DISPENSER	BOBRICK B-2740 DOUBLE ROLL TOILET TISSUE DISPENSER
G	SHOWER CURTAIN, ROD & HOOKS	BOBRICK B-207X36 SHOWER CURTAIN ROD WITH B204-2 WHITE VINYL SHOWER CURTAIN (72" HEIGHT) AND B204-1 SS SHOWER CURTAIN HOOKS
H	SHOWER CURTAIN, ROD & HOOKS	BOBRICK B-207X36 SHOWER CURTAIN ROD WITH B204-2 WHITE VINYL SHOWER CURTAIN (72" HEIGHT) AND B204-1 SS SHOWER CURTAIN HOOKS
J	SURFACE MOUNTED PAPER TOWEL DISPENSER & WASTE RECEPTACLE	BOBRICK B-3979 SURFACE MOUNTED CONVERTIBLE TOWEL DISPENSER W/ WASTE RECEPTACLE
K	RECESSED MOUNTED PAPER TOWEL DISPENSER AND WASTE RECEPTACLE	BOBRICK B-3944 RECESSED MOUNTED CONVERTIBLE TOWEL DISPENSER W/ WASTE RECEPTACLE
L	ADA SHOWER BENCH	ROBINSON STEEL CO. ADA STAINLESS STEEL WALL MOUNTED BENCH ADAWMB-SS 42"X20" OR APPROVED EQUAL. (PROVIDED BY OWNER)
M	MOP & BROOM HOLDER	BOBRICK B-239x34 SHELF WITH MOP AND BROOM HOLDERS AND HOOKS
N	WATER COOLER W/ BOTTLE FILLER	ELKAY EZH20 BOTTLE FILLING STATION & BI-LEVEL ADA COOLER; MODEL LZSTL8WSVRSK
O	SURFACE MOUNTED BOTTLE FILLER	ELKAY EZH20 BOTTLE FILLING STATION; MODEL LZ8WSSSMC
P	RECESSED MOUNTED BOTTLE FILLER	ELKAY EZH20 BOTTLE FILLING STATION; MODEL LZESM8K
Q	RECESSED MOUNTED CHANGING STATION	KOALA KARE KB1110-SSRE HORIZONTAL RECESSED MOUNTED STAINLESS STEEL BABY CHANGING STATION. INSTALL PER MANU. SPECS
R	TILED SHOWER & ACCESSORIES	ADA SHOWER W/ BOBRICK B-6861 TWO-WALL SHOWER GRAB BAR AND BOBRICK B-5806x18 STRAIGHT PEENED GRAB BAR (VERTICAL) AS LOCATED IN DRAWINGS, AND BOBRICK B-5191 FOLDING SHOWER SEAT
S	TILED SHOWER & ACCESSORIES	ADA SHOWER W/ BOBRICK B-6861 TWO-WALL SHOWER GRAB BAR AND BOBRICK B-5806x18 STRAIGHT PEENED GRAB BAR (VERTICAL) AS LOCATED IN DRAWINGS, AND BOBRICK B-5191 FOLDING SHOWER SEAT
T	FIBERGLASS SHOWER & ACCESSORIES	ADA SHOWER UNIT (FIBERGLASS) SEE PLUMBING DRAWINGS
U	PLASTIC TOILET PARTITION	ASI TOILET PARTITIONS. COLOR TO BE SELECTED FROM MANUFACTURER'S FULL RANGE



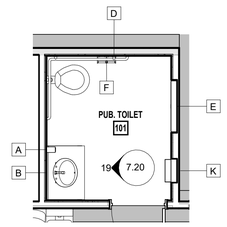
2 DECON. TLT/SHR 155
1/4" = 1'-0"



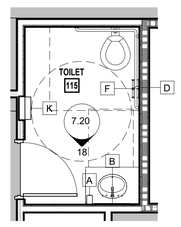
4 TLT/SHR 139
1/4" = 1'-0"



5 TLT/SHR 135, 137
1/4" = 1'-0"



3 PUB. TLT 101
1/4" = 1'-0"



6 TOILET 115
1/4" = 1'-0"

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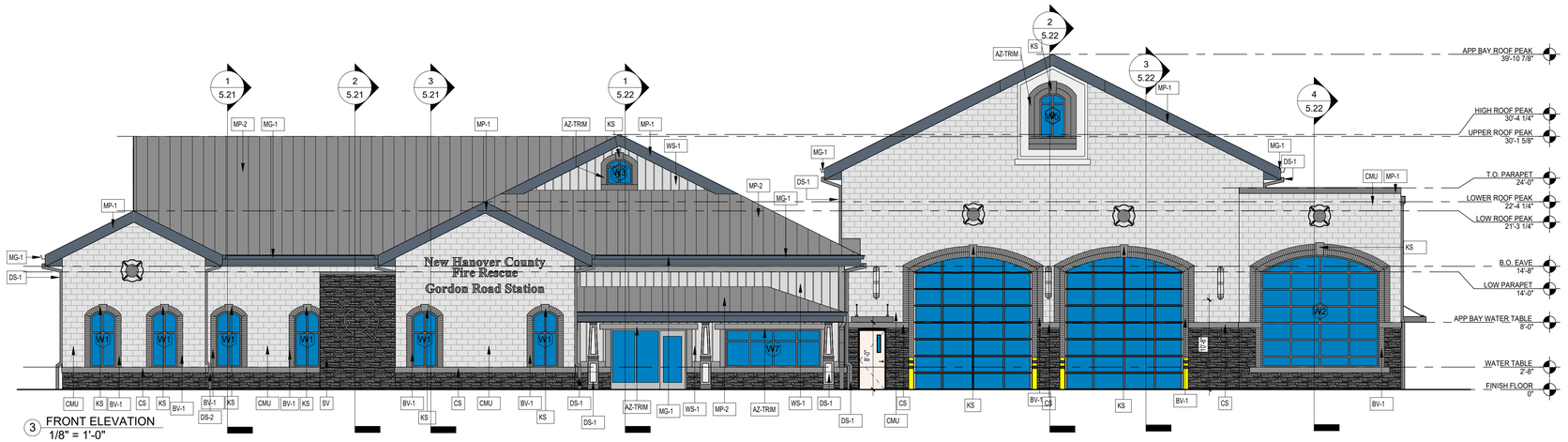
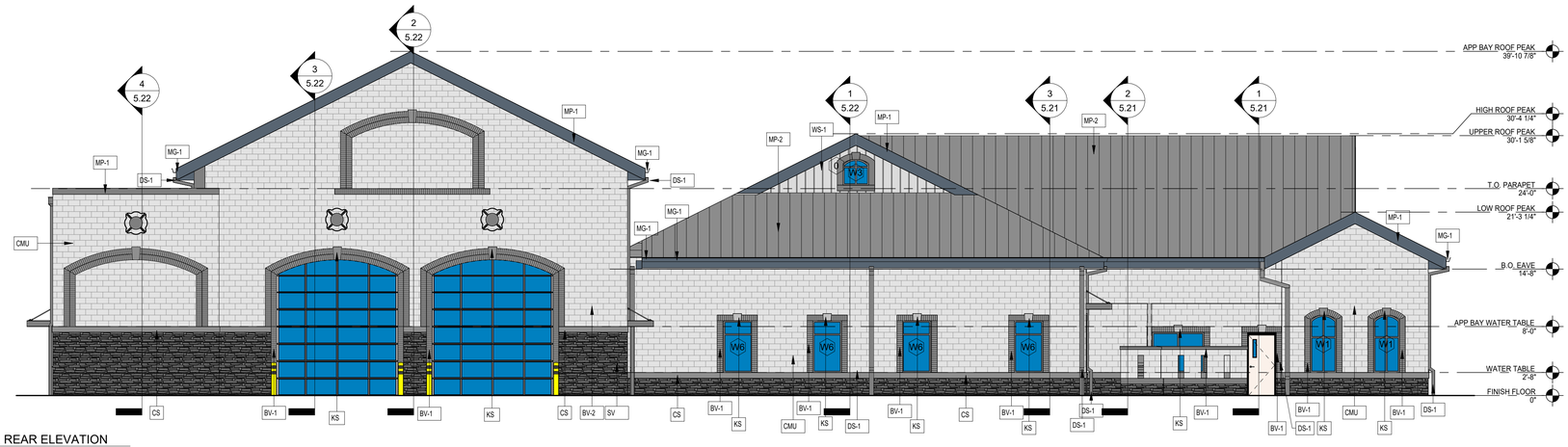
GORDON ROAD FIRE DEPARTMENT

ENLARGED TOILET PLAN AND ACCESSORIES

Sheet No.
4.80



3 FRONT ELEVATION
1/8" = 1'-0"



1 REAR ELEVATION
1/8" = 1'-0"

EXTERIOR FINISH MATERIALS:

BRICK VENEER ACCENT TRIM
BV-1 INTERSTATE BRICK; COLOR: MIDNIGHT BLACK, MODULAR WIRECUT

WALL SIDING
WS-1 JAMES HARDIE PRODUCTS; PANEL VERTICAL SIDING (SMOOTH); COLOR: TBD

METAL ROOF
MP-1 METAL ROOFING SYSTEMS, INC. .040 ALUMININUM MRS2500 PROFILE W/ CONCEALED FASTENERS; COLOR: SLATE GRAY (TRIMS)

MP-2 METAL ROOFING SYSTEMS, INC. .040 ALUMININUM MRS2500 PROFILE W/ CONCEALED FASTENERS;COLOR: TUNDRA (ROOF PANELS)

CLG-9 METAL ROOFING SYSTEMS, INC. .040 ALUMINUM FLUSH PANEL METAL SOFFIT W/ CONCEALED FASTENERS; COLOR: MATCH MP-2

AZ -TRIM
AZ-TRIM TRIM TO BE AZEC TRADITIONAL 2X12 TRIM OR APPROVED EQUAL; COLOR; HIGH REFLECTIVE WHITE. FOLLOW MANUFACTUER'S GUDELINES FOR INSTALLATION TO E NSURE PROPER JOINT PLACEMENTS FOR EXPANSION AND CONTRACTION.

SIGNAGE
SG-1 BACKLIT REVESE PAN LETTER ON 2" SPACES; PAINTED TO MATCH MP-2 , COLOR: TBD. LETTERS ARE TO BE INDIVIDUALLT MOUNTED WITHOUT A RAIL

KEYSTONE
KS CAST STONE KEYSTONE; CUSTOM COLORED TO MATCH BV-1 (INTEGRAL WATER REPELLENT)

FIREFIGHTER EMBLEM
EMB REVERSE PAN BACKLIT METAL EMBLEM

CAST STONE
CS COLOR: TO MATCH BV-1 (INTEGRAL WATER REPELLENT & STONE ANCHORS REQUIRED)

EXTERIOR MASONRY WALLS
CMU OLD CASTLE SMOOTH FACE BLOCK. COLOR: 4205
CMU TO HAVE INTEGRAL WATER REPELLANT. SEE SPECS

HOLLOW METAL EXTERIOR FRAMES
PRIMED WITH SHERWIN WILLIAMS KEM BOND HS UNIVERSAL METAL PRIMER GRAY B50AZ18; PRO INDUSTRIAL URETHANE ALKYD ENAMEL FINISH COAT COLOR:TBD

METAL GUTTERS & DOWNSPOUTS
MG-1 METAL ROOFING SYSTEMS "STYLE D" GUTTER. SIZE 7" X .040 ALUMINUM. FOLLOW PROFI;E SHOWN ON ELEVATIONS PROVIDE PERFORATED ALUMINIM LEAF GUARD FOR ALL GUTTERS

DS-1 DOWNSPOUT - SIZE 4" X 5" X .040 ALUMINUM. FOLLOW PROFILE SHOWN ON ELEVATIONS

FASCIA TRIM
FT COLOR: TO MATCH MP-1

OVERHEAD DOORS
COMMERCIAL SECTIONAL INSULATED OVERHEAD DOOR SEE SPECIFICATION WITH IMPACT GLASS

BIFOLD DOORS
COMMERCIAL INSULATED BYFOLD DOORS

OVERHEAD DOOR FRAMES
PAINT WITH EPOXY; COLOR TO MATCH MP-2

STOREFRONT DOORS & WINDOWS
ALUMINUM STOREFRONT; COLOR: ANODIZED BLACK

PVC ROOFING MEMBRANE
SARNAFIL FULLY ADHERED 80 MIL. PVC ROOFING. COLOR TO BE GRAY TO MATCH MP-2

METAL CANOPY
ML-1 MAPES LUMISHADE (5' W x 3' D); COLOR TO MATCH MP-1

STONE VENEER
SV CORONADO STONE ARTISAN LEDGE PANEL - COLOR: HURON HAND-LAID DRY STACKED

MORTAR - TYPE 'S'
FOR STONE AND BRICK: SUBMIT STANDARD COLOR SAMPLES FOR APPROVAL
FOR CAST STONE: MORTAR JOINT COLOR TO MATCH CAST STONE.
JOINTS TO BE CONCAVE ROUND TOOLED JOINTS

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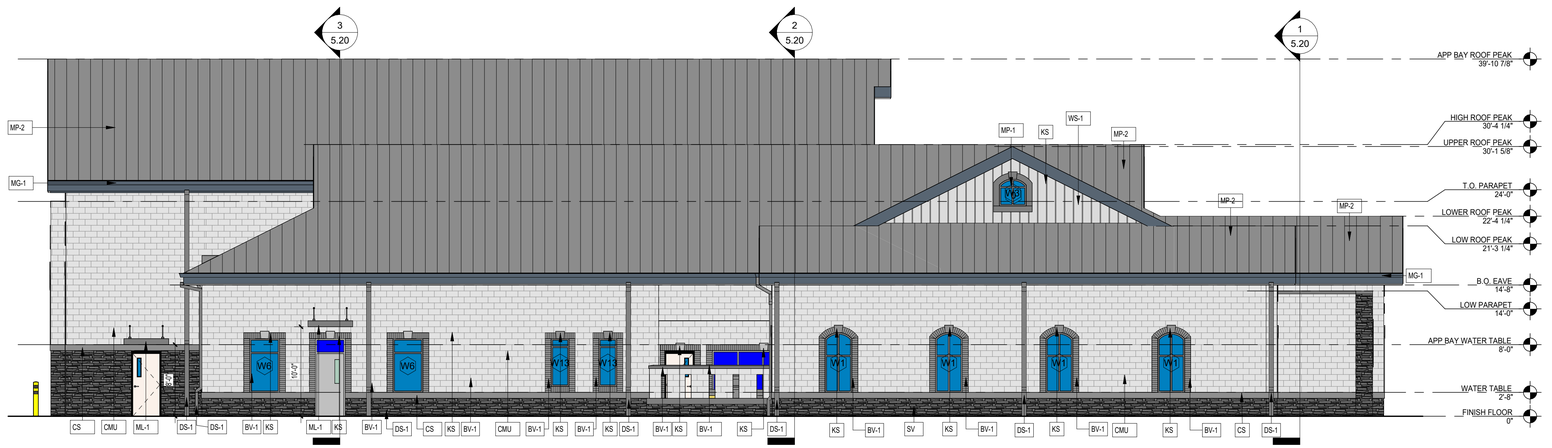
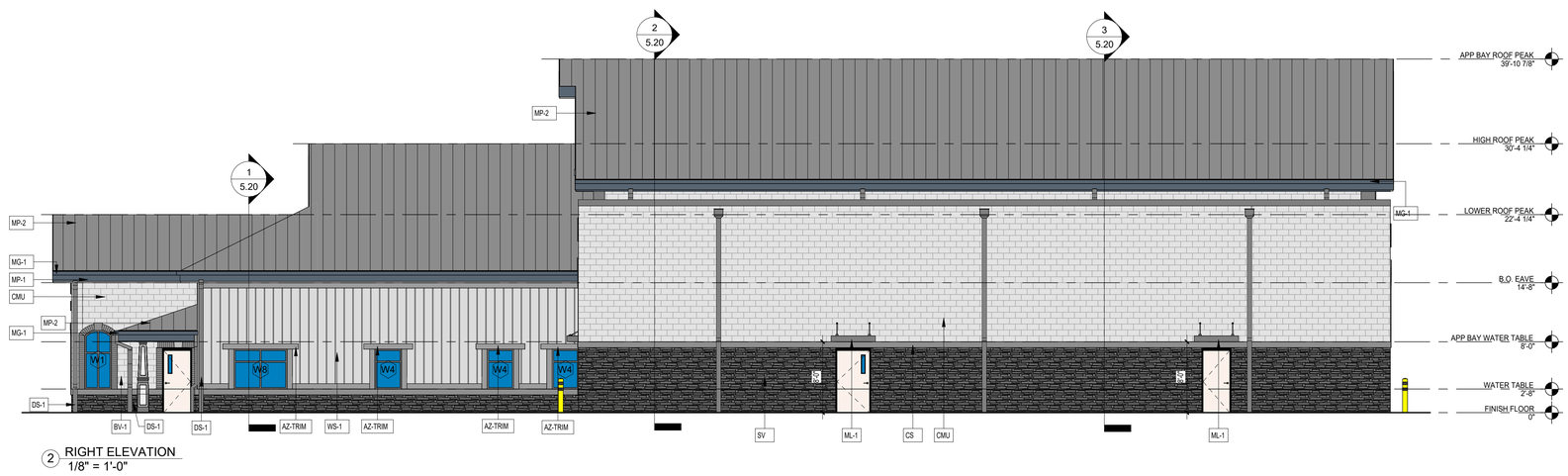
GORDON ROAD FIRE DEPARTMENT

ELEVATIONS COLORED

Sheet No.
5.10



1 LEFT ELEVATION
1/8" = 1'-0"



2 RIGHT ELEVATION
1/8" = 1'-0"

EXTERIOR FINISH MATERIALS:

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BV-1 INTERSTATE BRICK; COLOR: MIDNIGHT BLACK, MODULAR WIRECUT

WALL SIDING

WS-1 JAMES HARDIE PRODUCTS; PANEL VERTICAL SIDING (SMOOTH); COLOR: TBD

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AZ-TRIM TRIM TO BE AZEC TRADITIONAL 2X12 TRIM OR APPROVED EQUAL; COLOR; HIGH REFLECTIVE WHITE. FOLLOW MANUFACTUER'S GUDELINES FOR INSTALLATION TO E NSURE PROPER JOINT PLACEMENTS FOR EXPANSION AND CONTRACTION.

SIGNAGE

SG-1 BACKLIT REVESE PAN LETTER ON 2" SPACES; PAINTED TO MATCH MP-2 . COLOR: TBD. LETTERS ARE TO BE INDIVIDUALLT MOUNTED WITHOUT A RAIL

KEYSTONE

KS CAST STONE KEYSTONE; CUSTOM COLORED TO MATCH BV-1 (INTEGRAL WATER REPELLENT)

FIREFIGHTER EMBLEM

EMB REVERSE PAN BACKLIT METAL EMBLEM

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CMU TO HAVE INTEGRAL WATER REPELLANT. SEE SPECS

HOLLOW METAL EXTERIOR FRAMES

PRIMED WITH SHERWIN WILLIAMS KEM BOND HS UNIVERSAL METAL PRIMER GRAY B50AZ18; PRO INDUSTRIAL URETHANE ALKYD ENAMEL FINISH COAT COLOR:TBD

METAL GUTTERS & DOWNSPOUTS

MG-1 METAL ROOFING SYSTEMS "STYLE D" GUTTER. SIZE 7" X .040 ALUMINUM. FOLLOW PROFI;E SHOWN ON ELEVATIONS PROVIDE PERFORATED ALUMINIM LEAF GUARD FOR ALL GUTTERS

DS-1 DOWNSPOUT - SIZE 4" X 5" X .040 ALUMINUM. FOLLOW PROFILE SHOWN ON ELEVATIONS

FASCIA TRIM

FT COLOR: TO MATCH MP-1

OVERHEAD DOORS

COMMERCIAL SECTIONAL INSULATED OVERHEAD DOOR SEE SPECIFICATION WITH IMPACT GLASS

BIFOLD DOORS

COMMERCIAL INSULATED BYFOLD DOORS

OVERHEAD DOOR FRAMES

PAINT WITH EPOXY; COLOR TO MATCH MP-2

STOREFRONT DOORS & WINDOWS

ALUMINUM STOREFRONT; COLOR: ANODIZED BLACK

PVC ROOFING MEMBRANE

SARNAFIL FULLY ADHERED 80 MIL. PVC ROOFING. COLOR TO BE GRAY TO MATCH MP-2

METAL CANOPY

ML-1 MAPES LUMISHADE (5' W x 3' D); COLOR TO MATCH MP-1

STONE VENEER

SV CORONADO STONE ARTISAN LEDGE PANEL - COLOR: HURON HAND-LAID DRY STACKED

MORTAR - TYPE 'S'

FOR STONE AND BRICK: SUBMIT STANDARD COLOR SAMPLES FOR APPROVAL
FOR CAST STONE: MORTAR JOINT COLOR TO MATCH CAST STONE.
JOINTS TO BE CONCAVE ROUND TOOLED JOINTS

Project No.
1737

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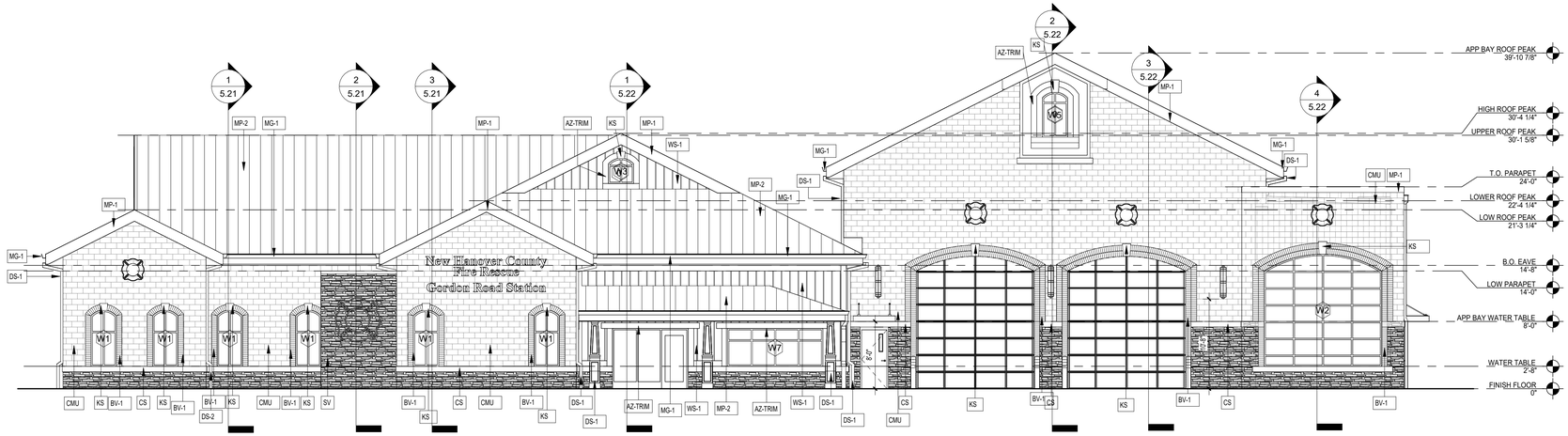
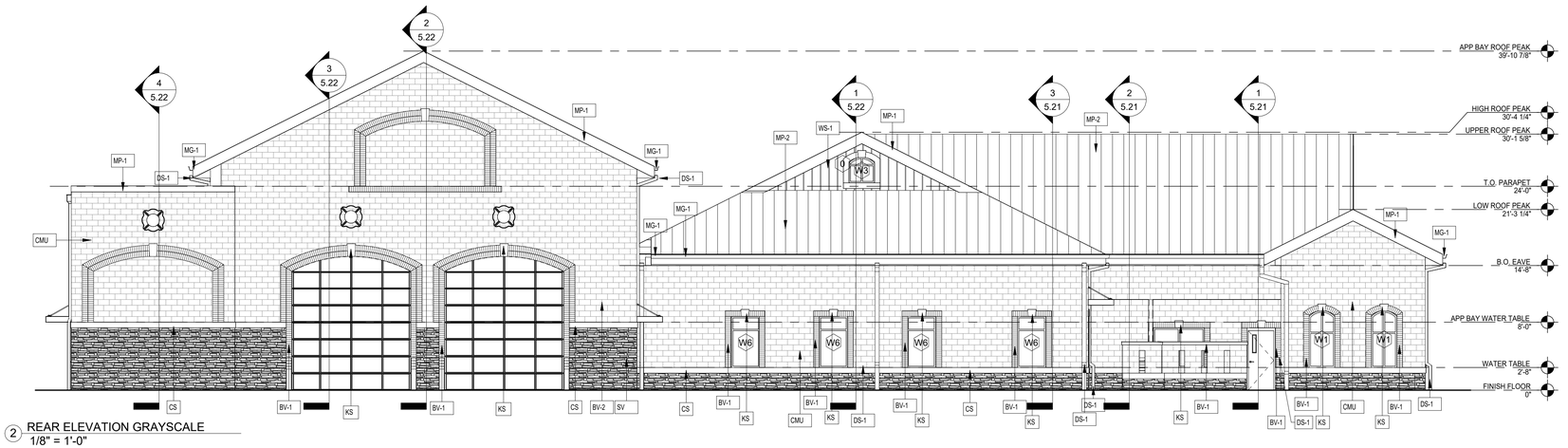
GORDON ROAD FIRE DEPARTMENT

ELEVATIONS COLORED

Sheet No.
5.11



1 FRONT ELEVATION GRAYSCALE
1/8" = 1'-0"



2 REAR ELEVATION GRAYSCALE
1/8" = 1'-0"

EXTERIOR FINISH MATERIALS:

BRICK VENEER ACCENT TRIM
BV-1 INTERSTATE BRICK; COLOR: MIDNIGHT BLACK, MODULAR WIRECUT

WALL SIDING
WS-1 JAMES HARDIE PRODUCTS; PANEL VERTICAL SIDING (SMOOTH); COLOR: TBD

METAL ROOF
MP-1 METAL ROOFING SYSTEMS, INC. .040 ALUMININUM MRS2500 PROFILE W/ CONCEALED FASTENERS; COLOR: SLATE GRAY (TRIMS)

MP-2 METAL ROOFING SYSTEMS, INC. .040 ALUMININUM MRS2500 PROFILE W/ CONCEALED FASTENERS;COLOR: TUNDRA (ROOF PANELS)

CLG-9 METAL ROOFING SYSTEMS, INC. .040 ALUMINUM FLUSH PANEL METAL SOFFIT W/ CONCEALED FASTENERS; COLOR: MATCH MP-2

AZ -TRIM
AZ-TRIM TRIM TO BE AZEC TRADITIONAL 2X12 TRIM OR APPROVED EQUAL; COLOR: HIGH REFLECTIVE WHITE. FOLLOW MANUFACTUER'S GUDELINES FOR INSTALLATION TO E NSURE PROPER JOINT PLACEMENTS FOR EXPANSION AND CONTRACTION.

SIGNAGE
SG-1 BACKLIT REVESE PAN LETTER ON 2" SPACES; PAINTED TO MATCH MP-2 . COLOR: TBD. LETTERS ARE TO BE INDIVIDUALLT MOUNTED WITHOUT A RAIL

KEYSTONE
KS CAST STONE KEYSTONE; CUSTOM COLORED TO MATCH BV-1 (INTEGRAL WATER REPELLENT)

FIREFIGHTER EMBLEM
EMB REVERSE PAN BACKLIT METAL EMBLEM

CAST STONE
CS COLOR: TO MATCH BV-1 (INTEGRAL WATER REPELLENT & STONE ANCHORS REQUIRED)

EXTERIOR MASONRY WALLS
CMU OLD CASTLE SMOOTH FACE BLOCK. COLOR: 4205
CMU TO HAVE INTEGRAL WATER REPELLANT. SEE SPECS

HOLLOW METAL EXTERIOR FRAMES
PRIMED WITH SHERWIN WILLIAMS KEM BOND HS UNIVERSAL METAL PRIMER GRAY B50AZ18; PRO INDUSTRIAL URETHANE ALKYD ENAMEL FINISH COAT COLOR:TBD

METAL GUTTERS & DOWNSPOUTS
MG-1 METAL ROOFING SYSTEMS "STYLE D" GUTTER. SIZE 7" X .040 ALUMINUM. FOLLOW PROFI;E SHOWN ON ELEVATIONS PROVIDE PERFORATED ALUMINIM LEAF GUARD FOR ALL GUTTERS

DS-1 DOWNSPOUT - SIZE 4" X 5" X .040 ALUMINUM. FOLLOW PROFILE SHOWN ON ELEVATIONS

FASCIA TRIM
FT COLOR: TO MATCH MP-1

OVERHEAD DOORS
COMMERCIAL SECTIONAL INSULATED OVERHEAD DOOR SEE SPECIFICATION WITH IMPACT GLASS

BIFOLD DOORS
COMMERCIAL INSULATED BYFOLD DOORS

OVERHEAD DOOR FRAMES
PAINT WITH EPOXY; COLOR TO MATCH MP-2

STOREFRONT DOORS & WINDOWS
ALUMINUM STOREFRONT; COLOR: ANODIZED BLACK

PVC ROOFING MEMBRANE
SARNAFIL FULLY ADHERED 80 MIL. PVC ROOFING. COLOR TO BE GRAY TO MATCH MP-2

METAL CANOPY
ML-1 MAPES LUMISHADE (5' W x 3' D); COLOR TO MATCH MP-1

STONE VENEER
SV CORONADO STONE ARTISAN LEDGE PANEL - COLOR: HURON HAND-LAID DRY STACKED

MORTAR - TYPE 'S'
FOR STONE AND BRICK: SUBMIT STANDARD COLOR SAMPLES FOR APPROVAL
FOR CAST STONE: MORTAR JOINT COLOR TO MATCH CAST STONE.
JOINTS TO BE CONCAVE ROUND TOOLED JOINTS

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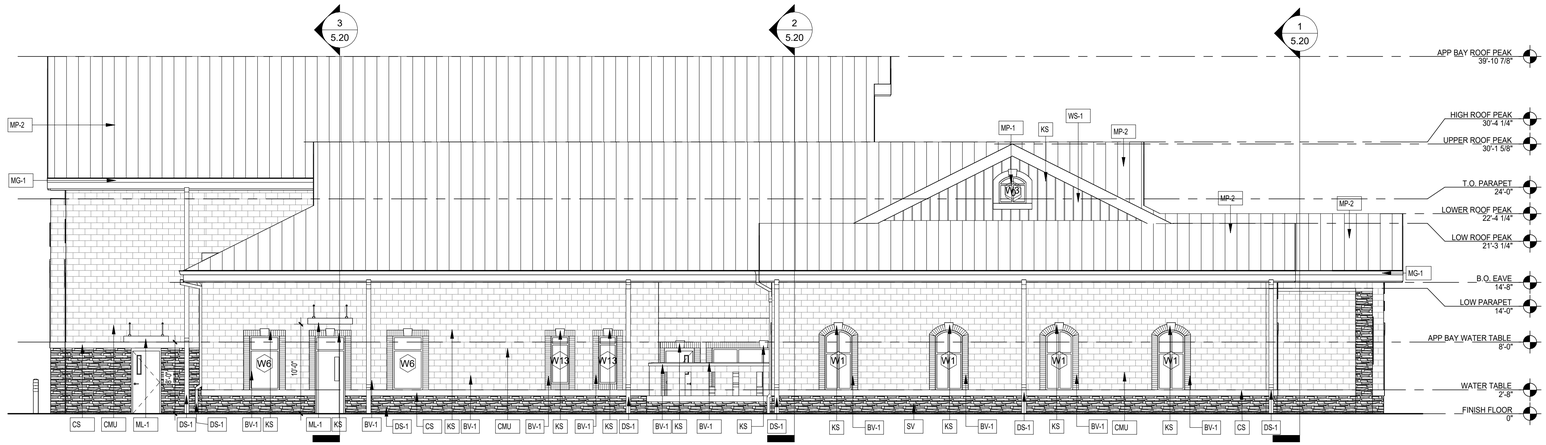
KENNETH C. NEWELL REGISTERED ARCHITECT 6205 CALIFORNIA

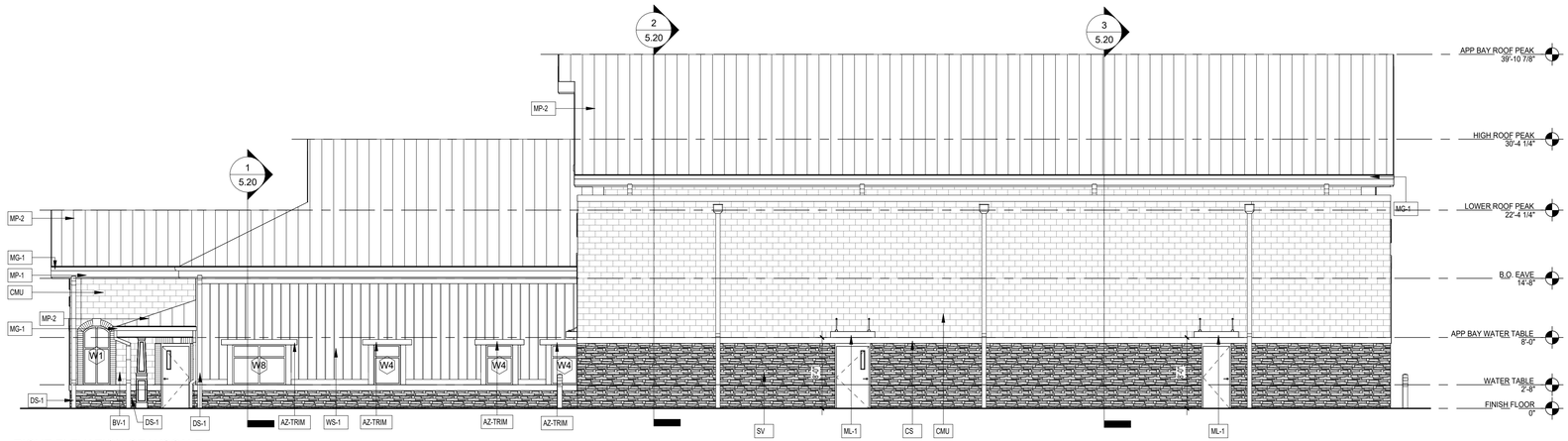
GORDON ROAD FIRE DEPARTMENT

ELEVATIONS GRAYSCALE

Sheet No.
5.12



1 LEFT ELEVATION GRAYSCALE
1/8" = 1'-0"



2 RIGHT ELEVATION GRAYSCALE
1/8" = 1'-0"

EXTERIOR FINISH MATERIALS:

BRICK VENEER ACCENT TRIM
BV-1 INTERSTATE BRICK; COLOR: MIDNIGHT BLACK, MODULAR WIRECUT

WALL SIDING
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KS CAST STONE KEYSTONE; CUSTOM COLORED TO MATCH BV-1 (INTEGRAL WATER REPELLENT)

FIREFIGHTER EMBLEM
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PAINT WITH EPOXY; COLOR TO MATCH MP-2

STOREFRONT DOORS & WINDOWS
ALUMINUM STOREFRONT; COLOR: ANODIZED BLACK

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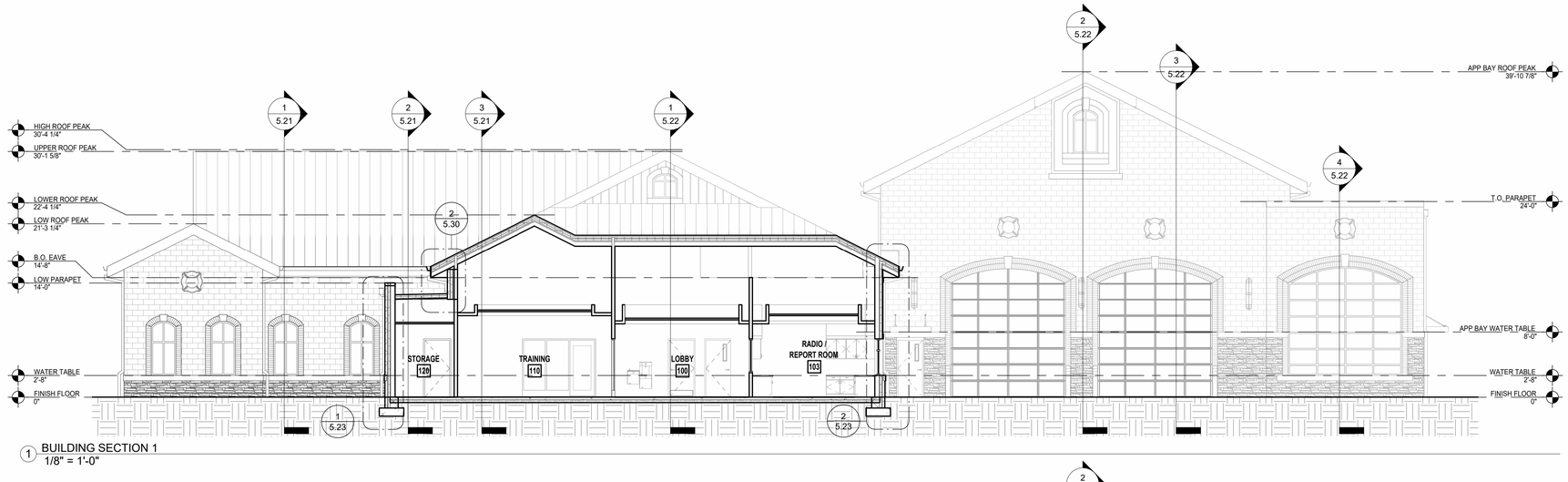
EDWARD H. C. NEWELL REGISTERED ARCHITECT 6205 CALIFORNIA

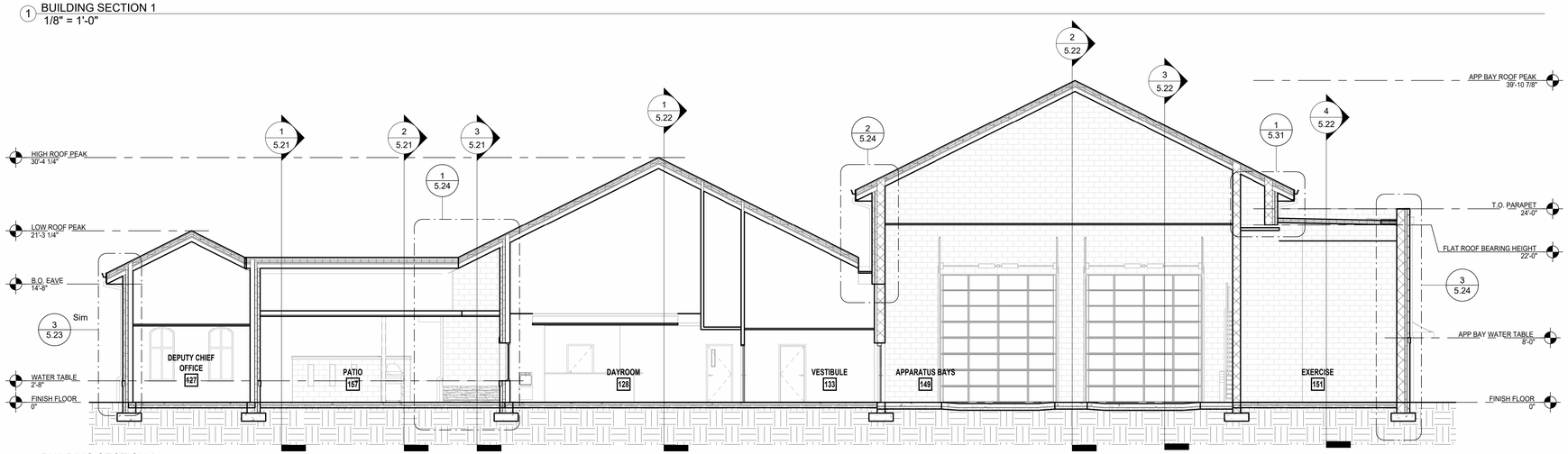
GORDON ROAD FIRE DEPARTMENT

ELEVATIONS GRAYSCALE

Sheet No.
5.13



1 BUILDING SECTION 1
1/8" = 1'-0"



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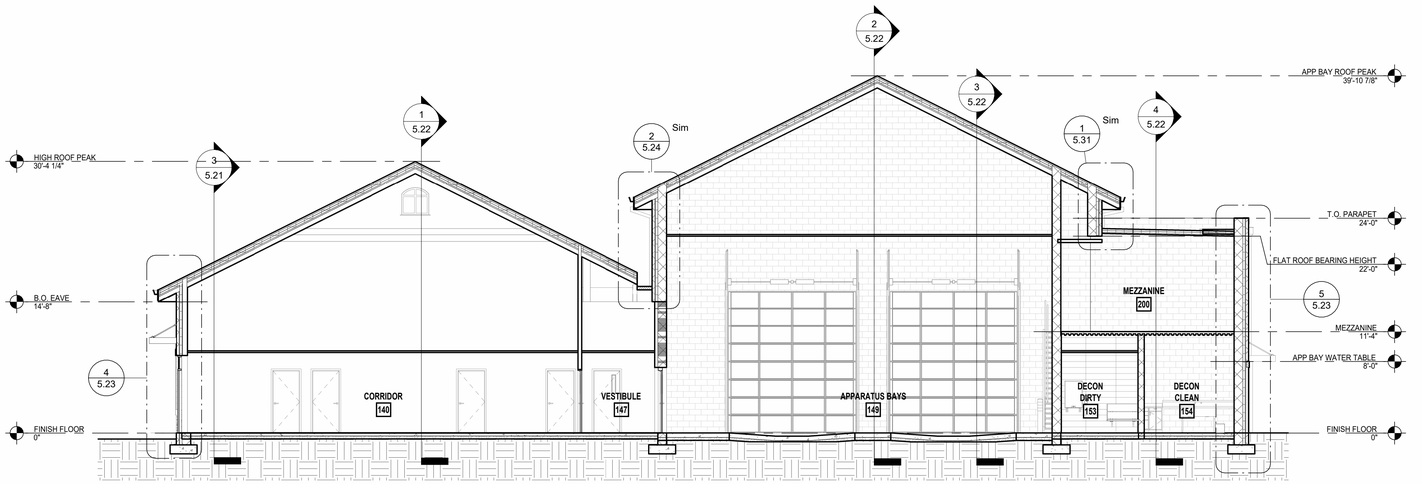
1/8" = 1'-0"



3 BUILDING SECTION 3
1/8" = 1'-0"

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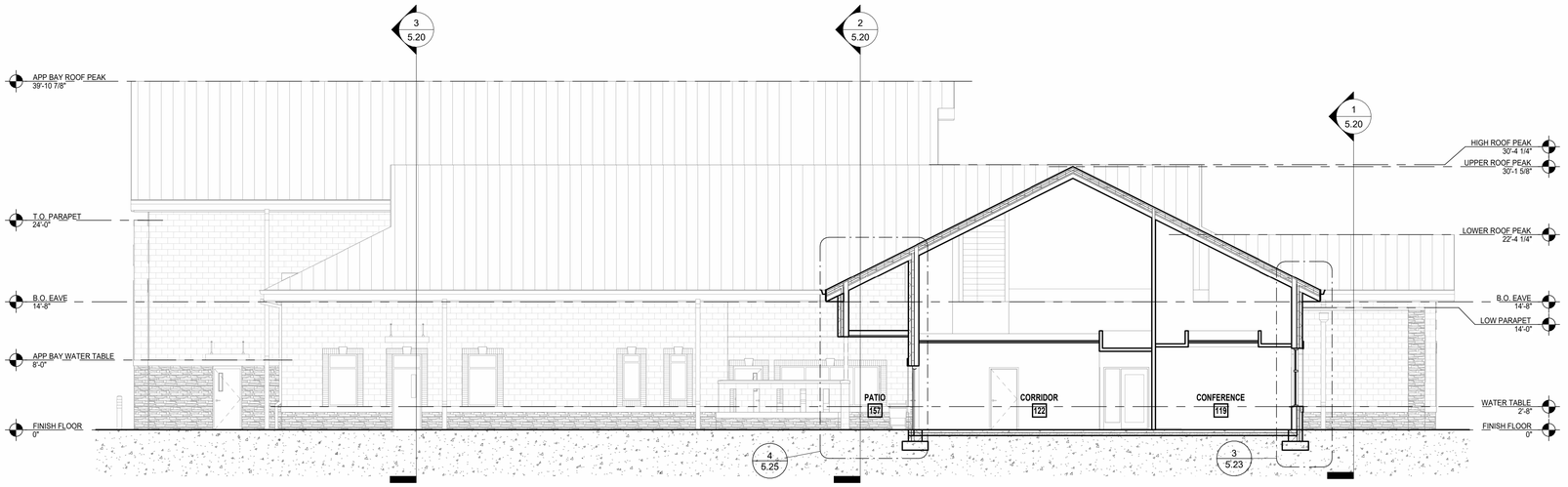
GORDON ROAD FIRE DEPARTMENT

BUILDING SECTIONS

Sheet No.
5.20



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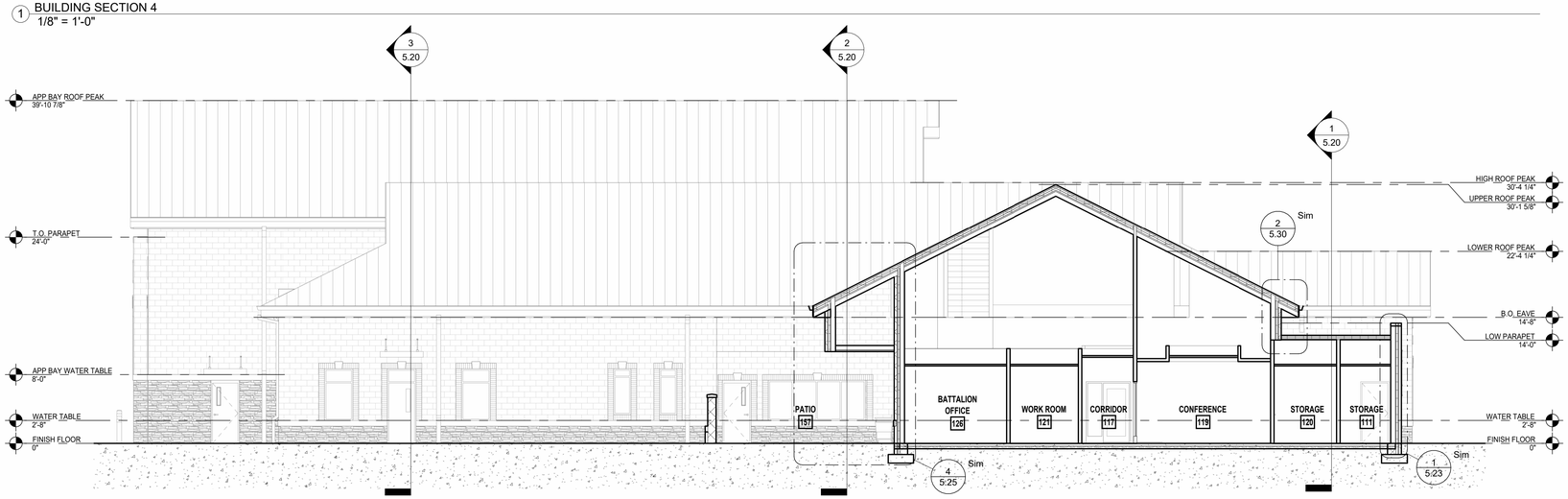

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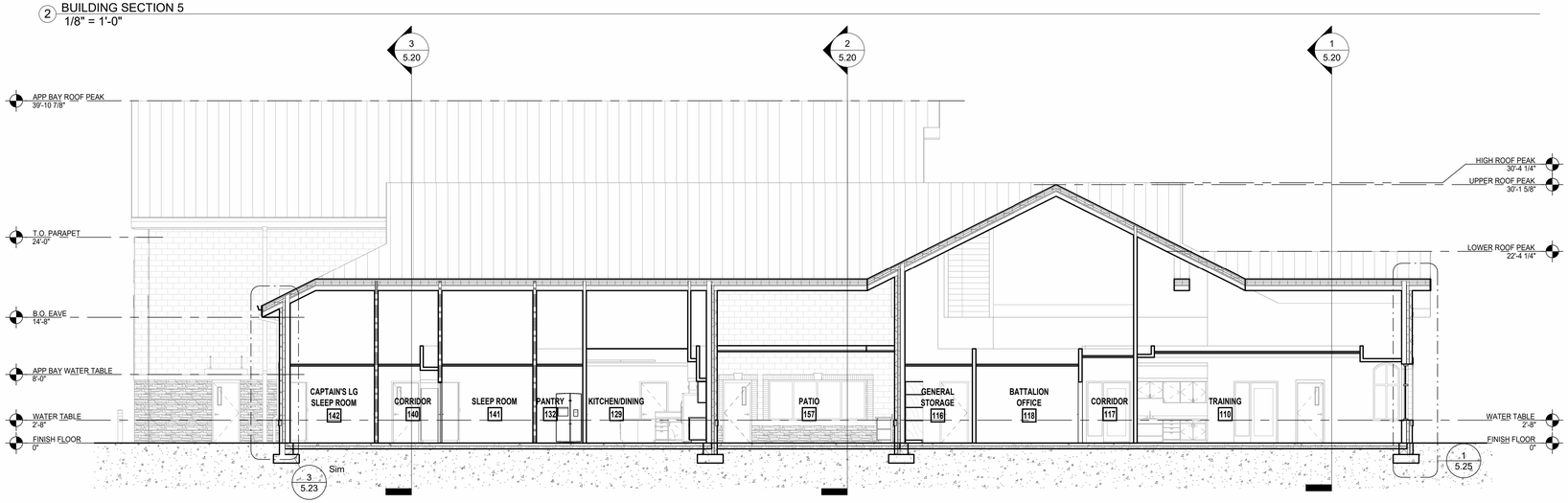

3 BUILDING SECTION 6
1/8" = 1'-0"

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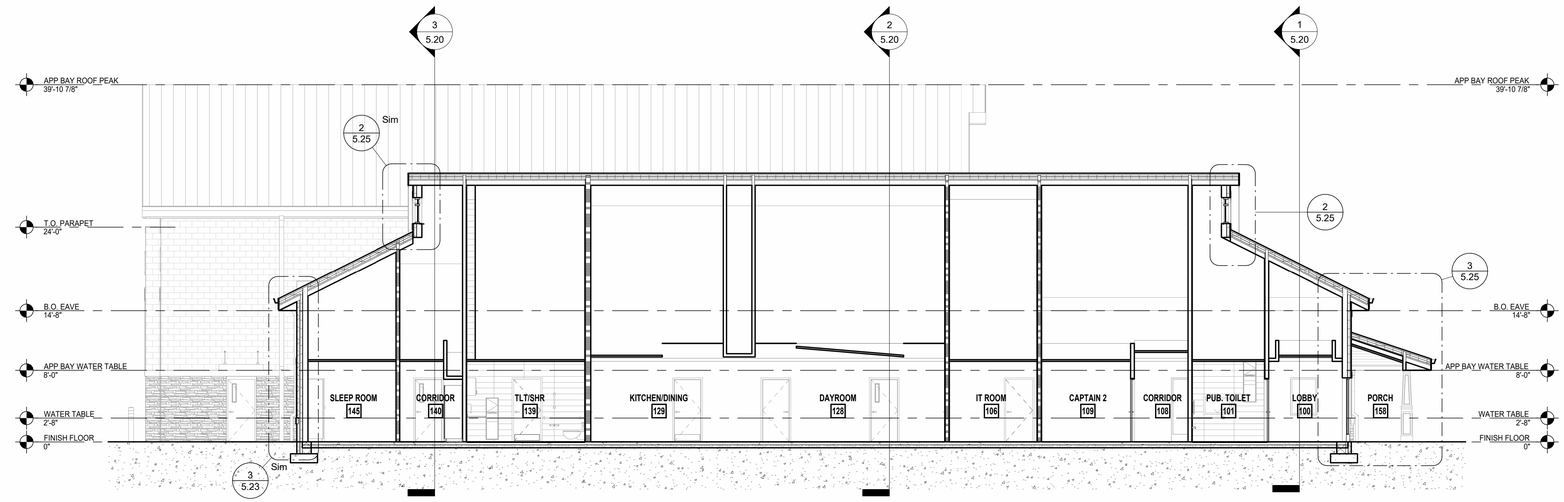
CHARLES H. ALBERT
REGISTERED ARCHITECT
6205
NORTH CAROLINA

GORDON ROAD FIRE DEPARTMENT

BUILDING SECTIONS

Sheet No.
5.21



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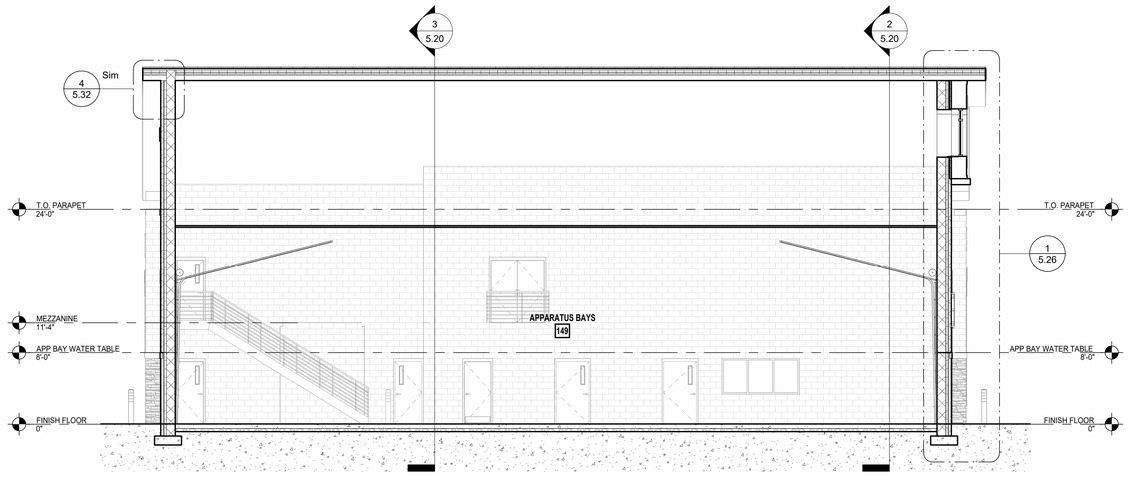

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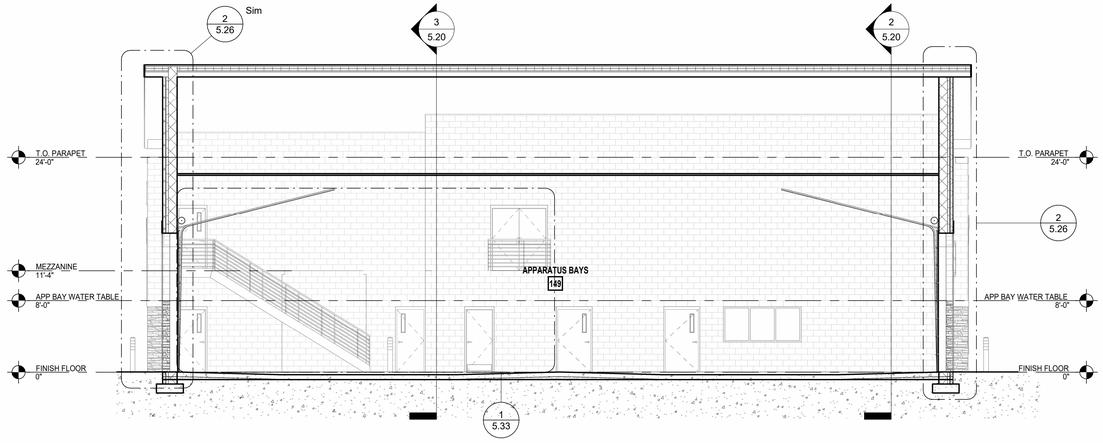
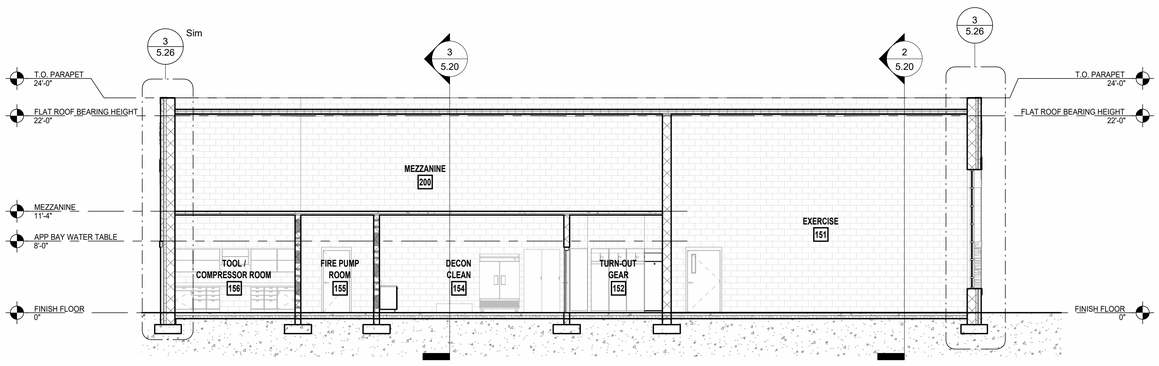


3 BUILDING SECTION 10
1/8" = 1'-0"



4 BUILDING SECTION 9
1/8" = 1'-0"

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KCN
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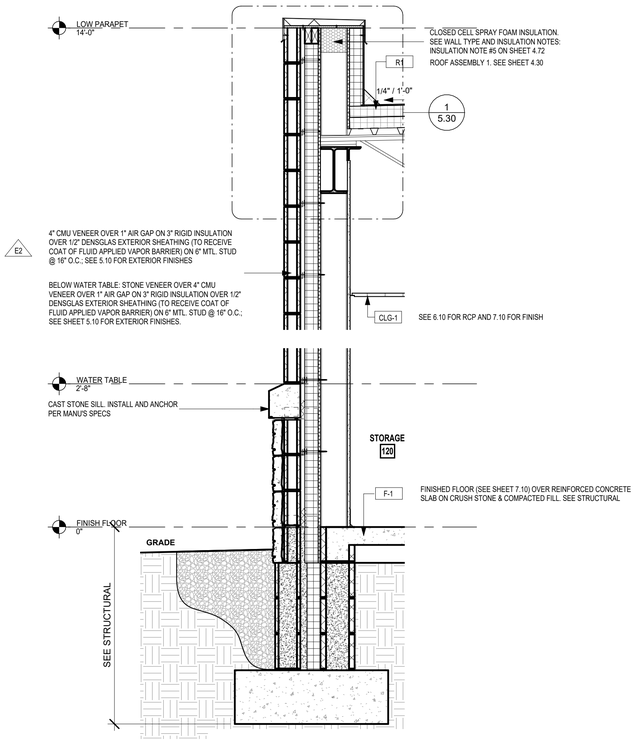
REGISTERED ARCHITECT
6205
NORTH CAROLINA
GASTONIA

03.29.2024

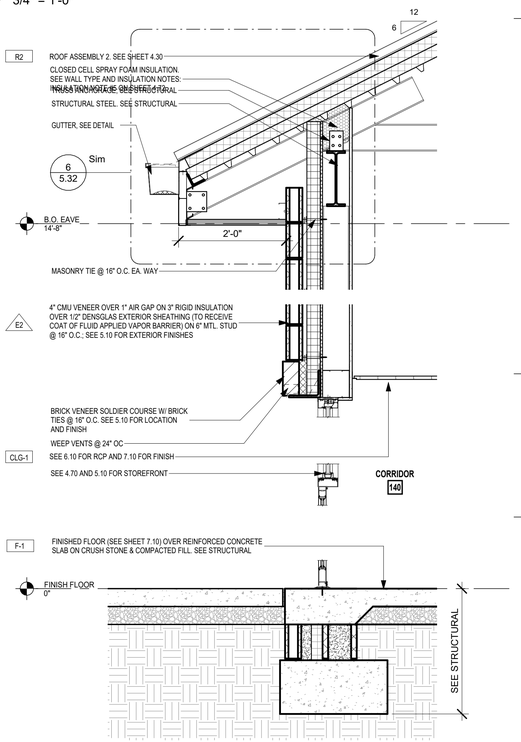
GORDON ROAD FIRE DEPARTMENT

BUILDING SECTIONS

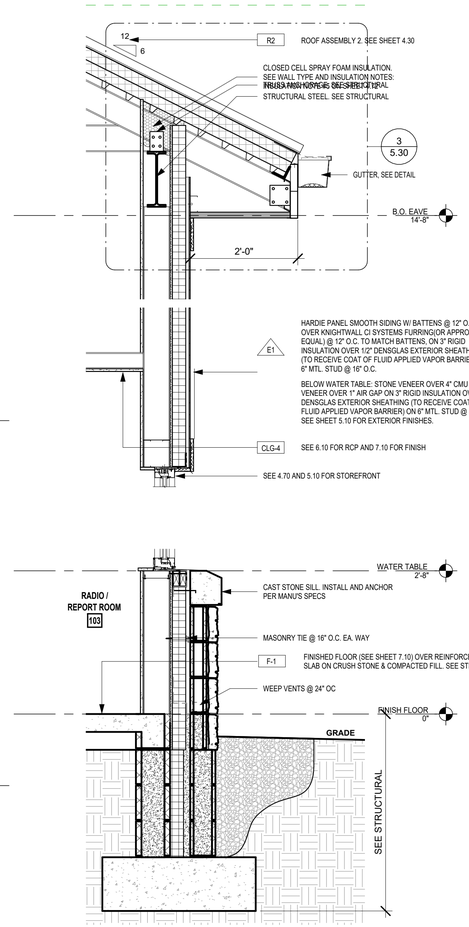
Sheet No.
5.22



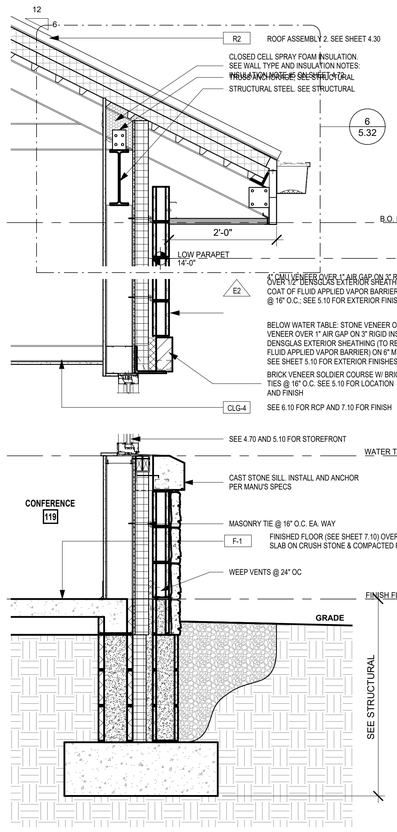
1 WALL SECTION @ STORAGE
3/4" = 1'-0"



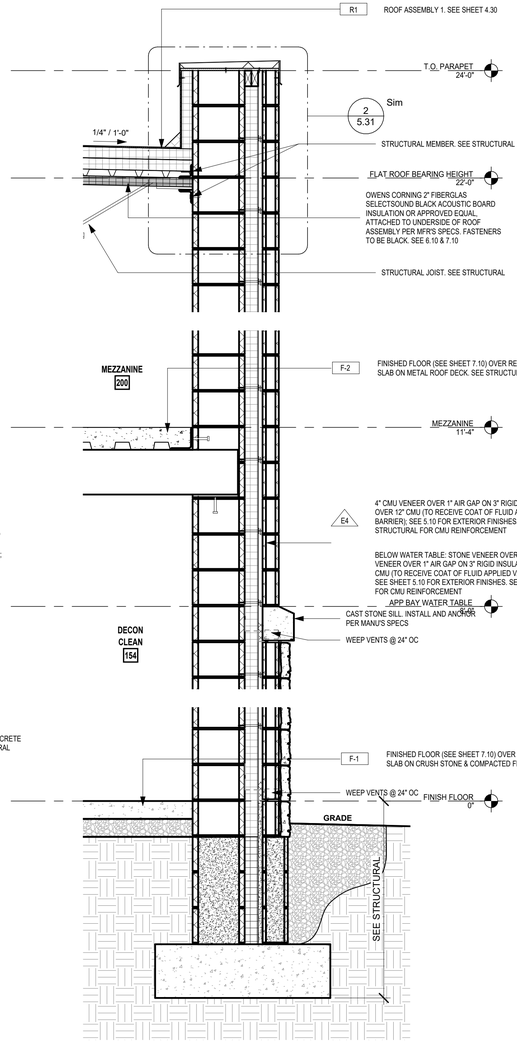
4 WALL SECTION @ CORRIDOR 140
3/4" = 1'-0"



2 WALL SECTION @ RADIO/ REPORT ROOM
3/4" = 1'-0"



3 WALL SECTION @ CONFERENCE
3/4" = 1'-0"



5 Detail 0
3/4" = 1'-0"

Project No.
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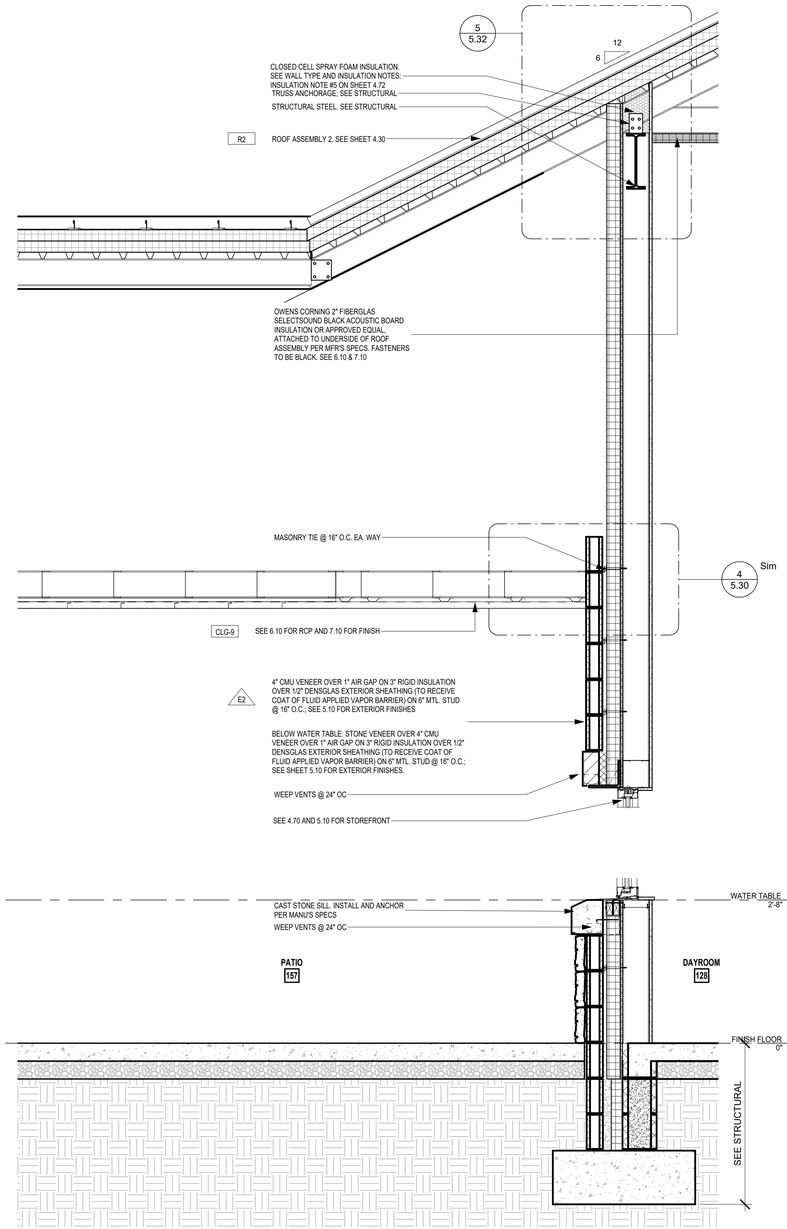
KENNETH C. KUBAL REGISTERED ARCHITECT 6205 CALIFORNIA

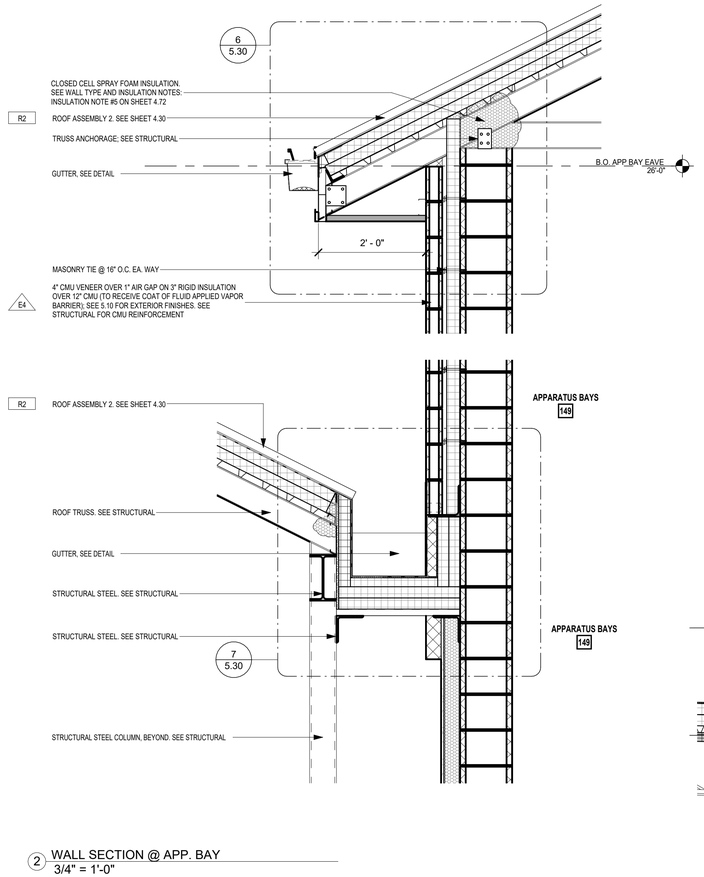
GORDON ROAD FIRE DEPARTMENT

WALL SECTIONS

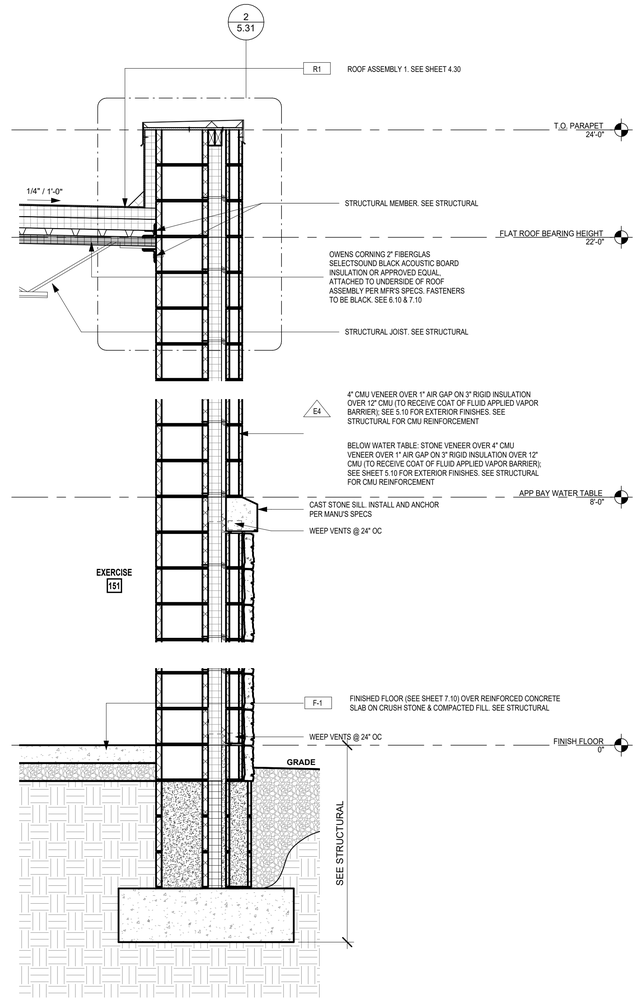
Sheet No.
5.23



1 WALL SECTION @ PATIO/ DAYROOM
3/4" = 1'-0"



2 WALL SECTION @ APP. BAY
3/4" = 1'-0"



3 WALL SECTION @ EXERCISE
3/4" = 1'-0"

Project No.
1737

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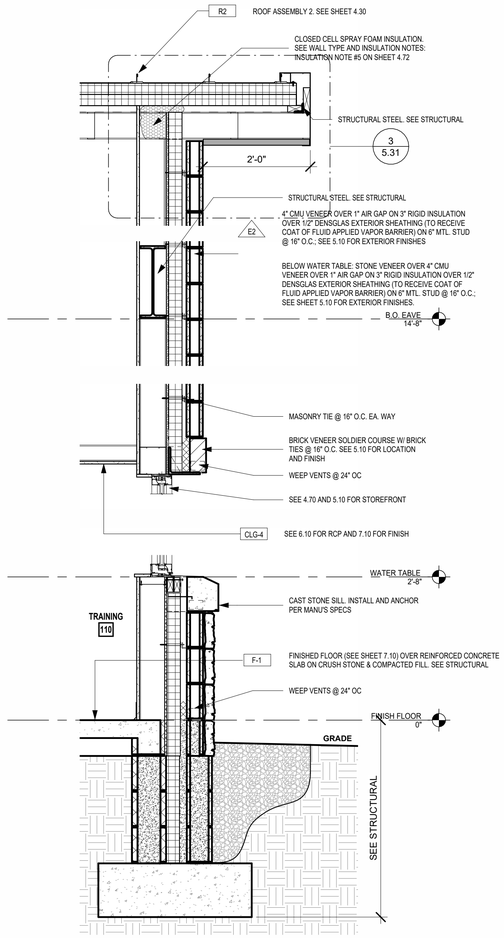
REGISTERED ARCHITECT
6205
GASTONIA, N.C.

GORDON ROAD FIRE DEPARTMENT

WALL SECTIONS

Sheet No.
5.24



1 WALL SECTION @ TRAINING
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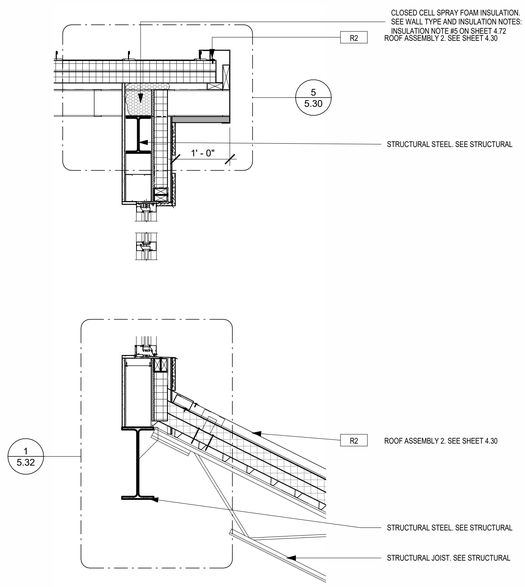
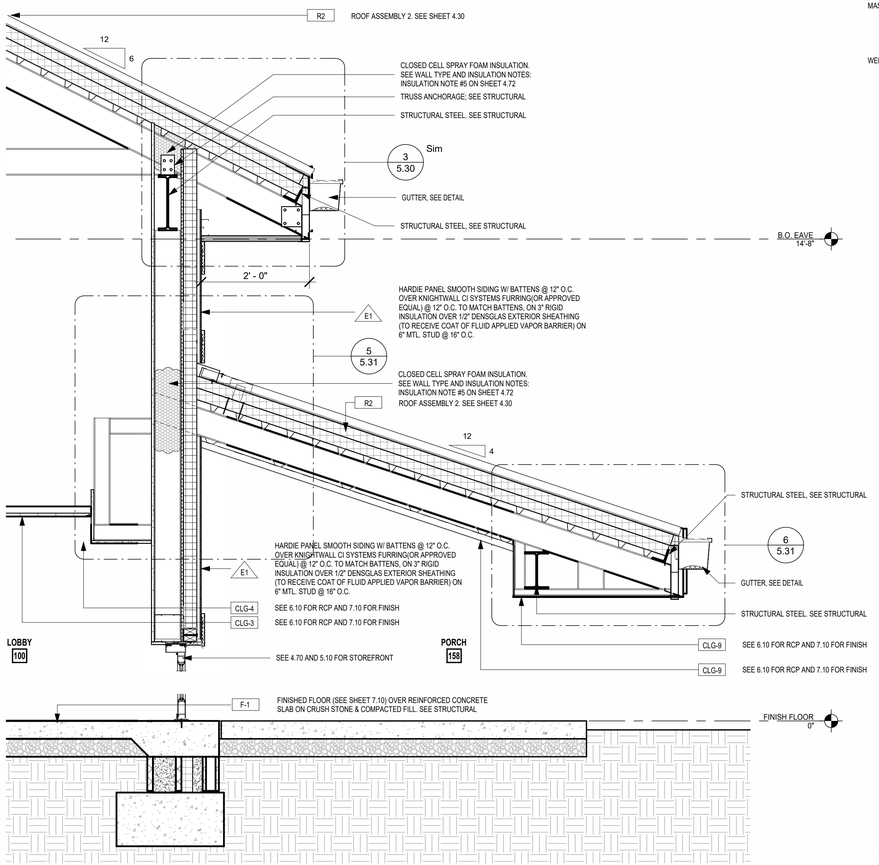
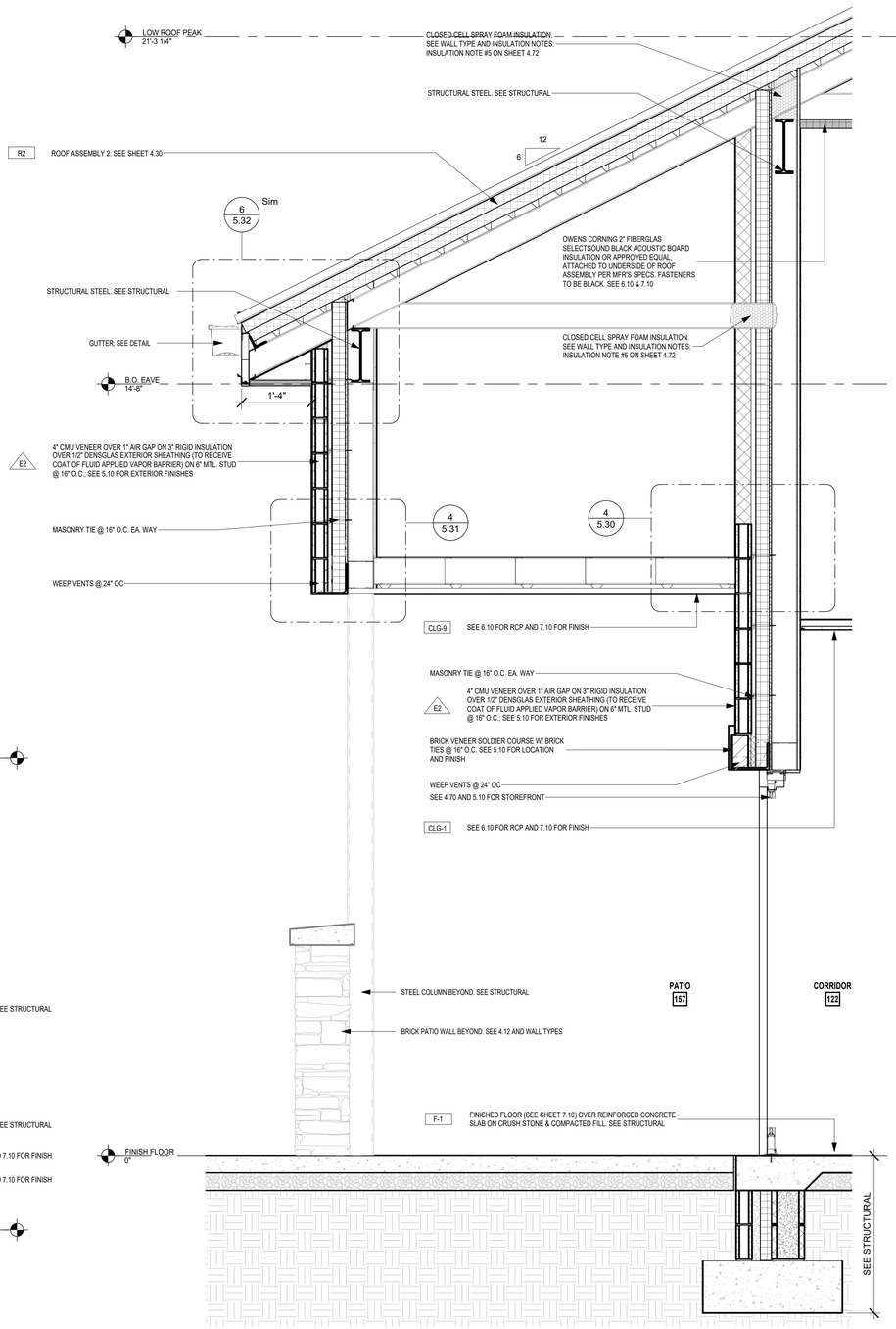


2 WALL SECTION @ PUBLIC TOILET
3/4" = 1'-0"



3 WALL SECTION @ PORCH/ LOBBY
3/4" = 1'-0"



4 WALL SECTION @ PATIO/ CORRIDOR
3/4" = 1'-0"

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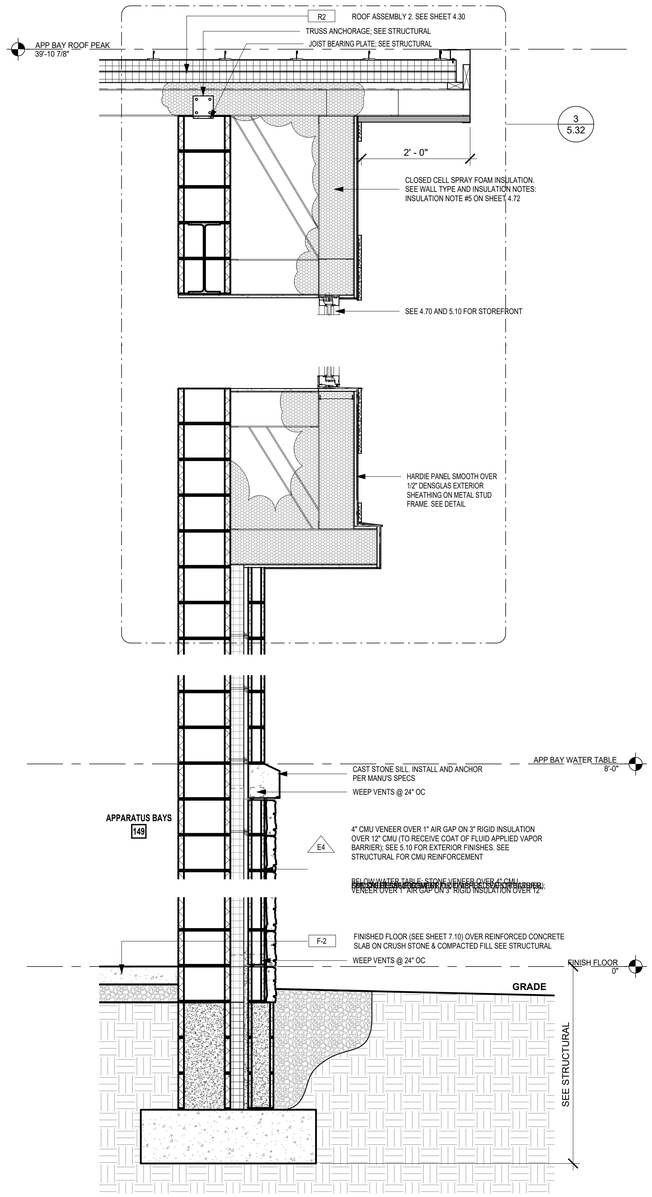
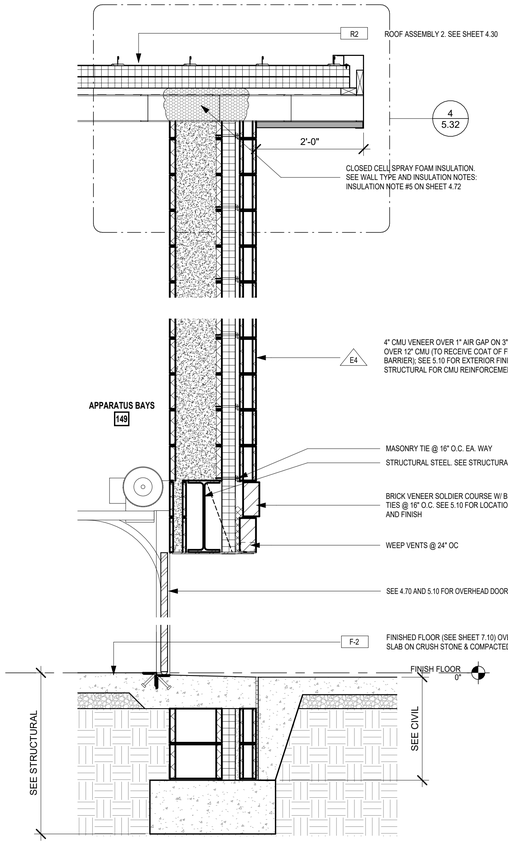
GORDON ROAD FIRE DEPARTMENT

WALL SECTIONS

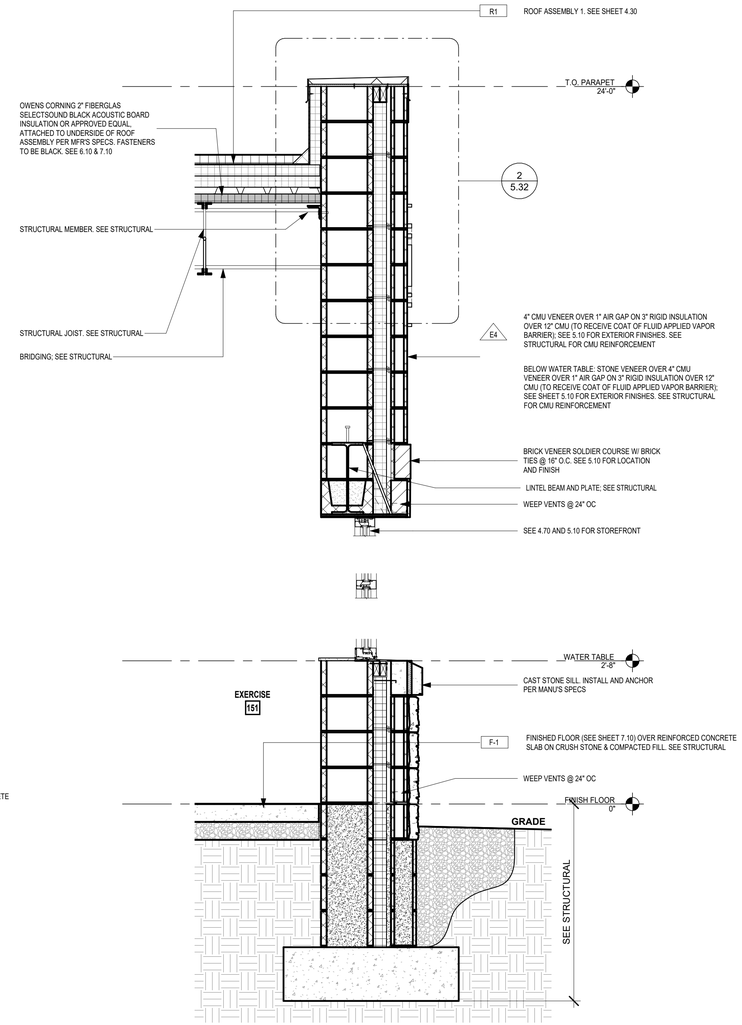
Sheet No.
5.25



1 WALL SECTION @ EXT. APP. BAY
3/4" = 1'-0"



2 WALL SECTION @ 12" CMU/ BAY DOORS
3/4" = 1'-0"



3 WALL SECTION @ EXERCISE WINDOW
3/4" = 1'-0"

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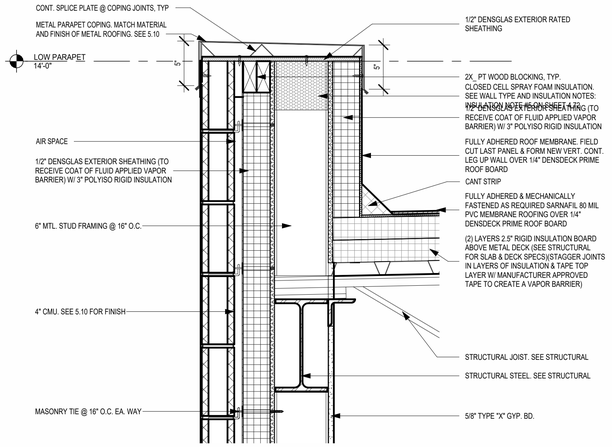
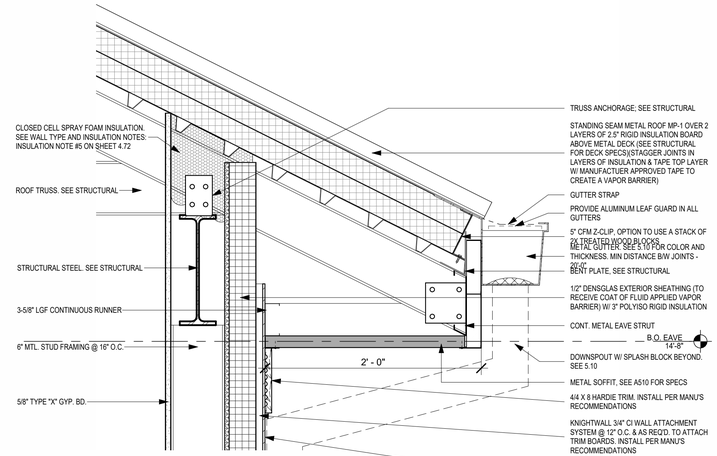
GORDON ROAD FIRE DEPARTMENT

WALL SECTIONS

Sheet No.
5.26



1 SECTION DET. @ STORAGE
1 1/2" = 1'-0"



3 SECTION DET. @ RADIO/ REPORT
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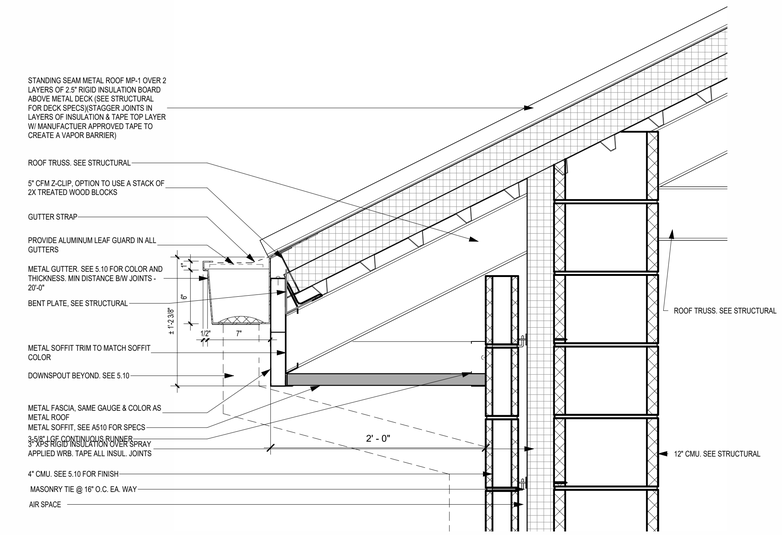
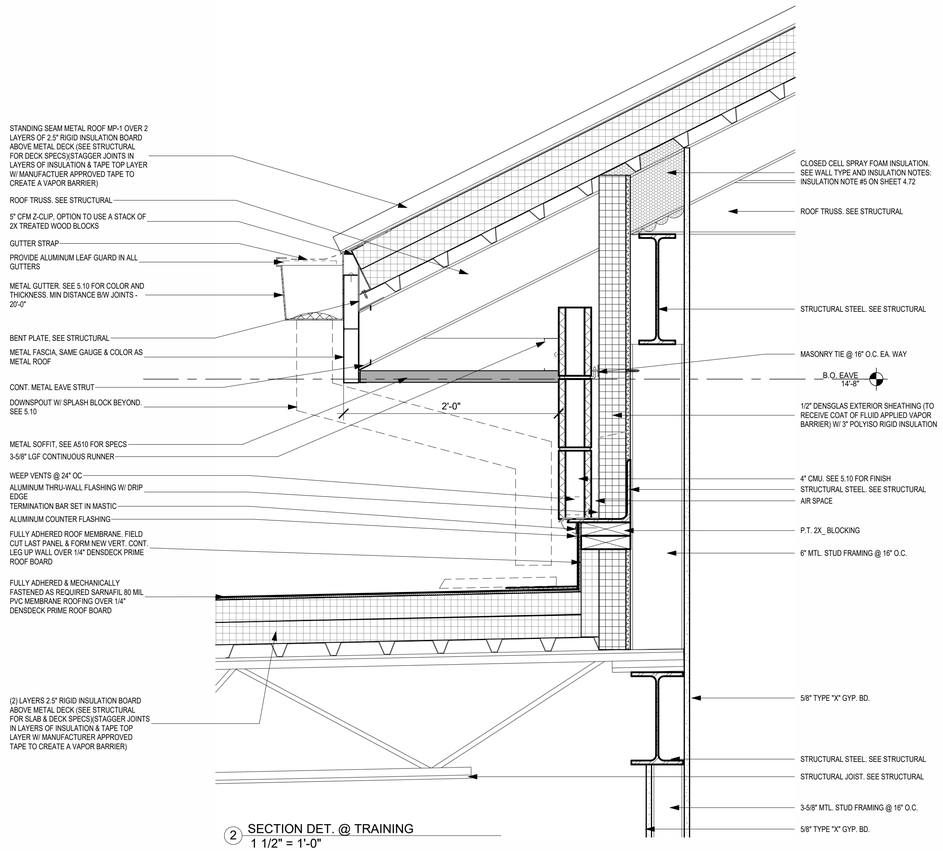


6 SECTION DET. @ APP. BAY ROOF
1 1/2" = 1'-0"



2 SECTION DET. @ TRAINING
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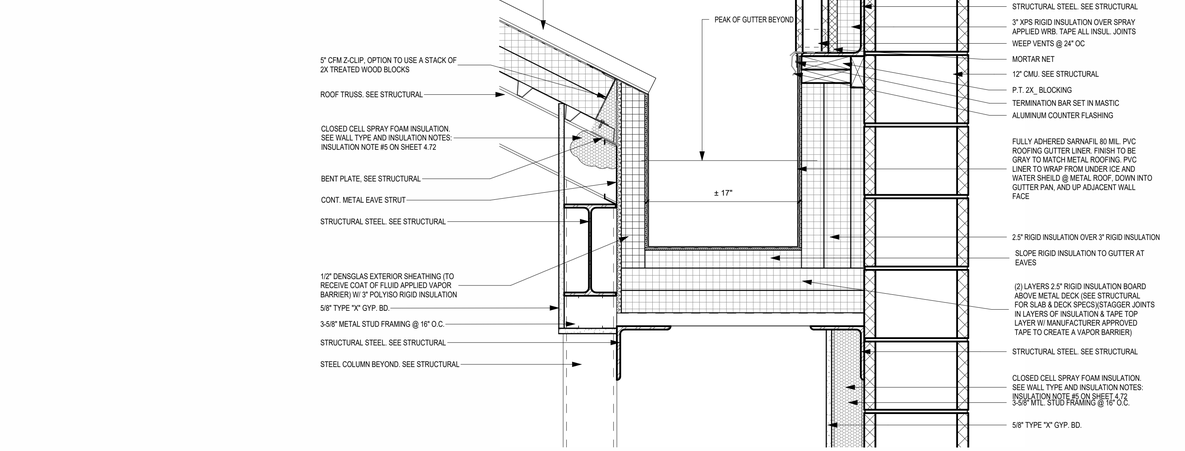

7 SECTION DET. @ APP. BAY GUTTER
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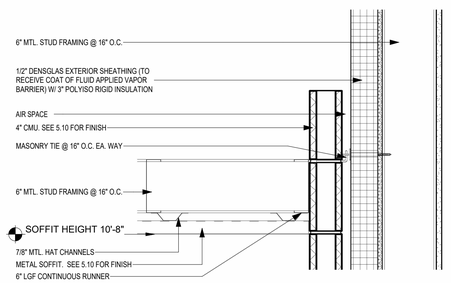

4 SECTION DET. @ DAYROOM CEILING
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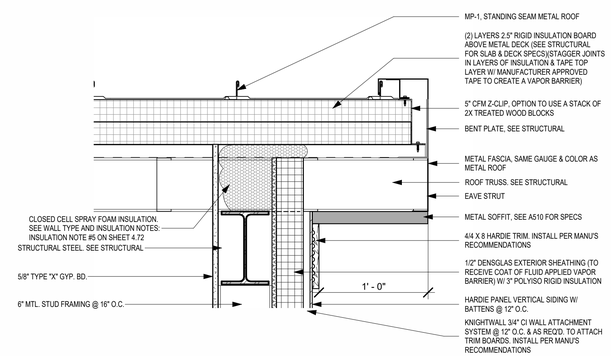

5 SECTION DET. @ PUBLIC TOILET ROOF
1 1/2" = 1'-0"

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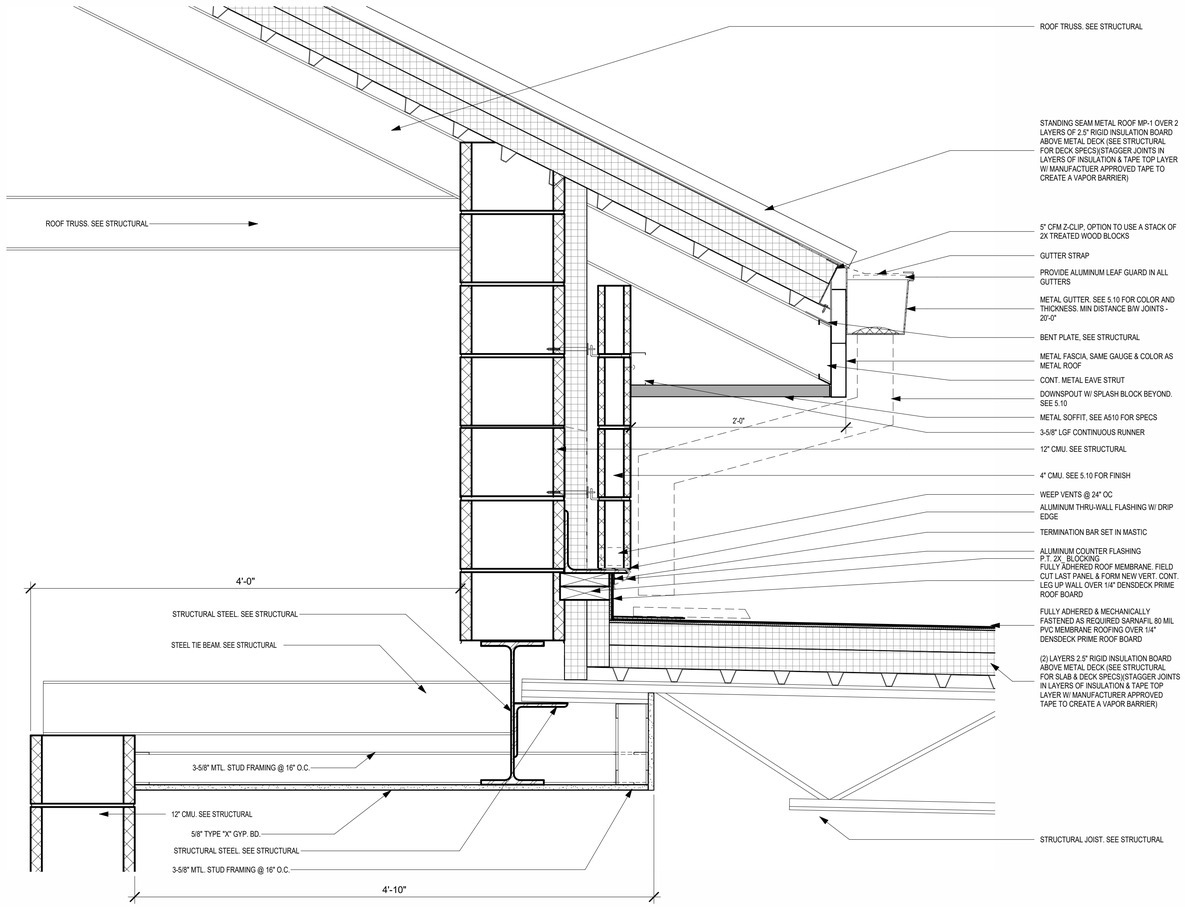
ALEXANDER C. NEWELL REGISTERED ARCHITECT 6205 CALIFORNIA

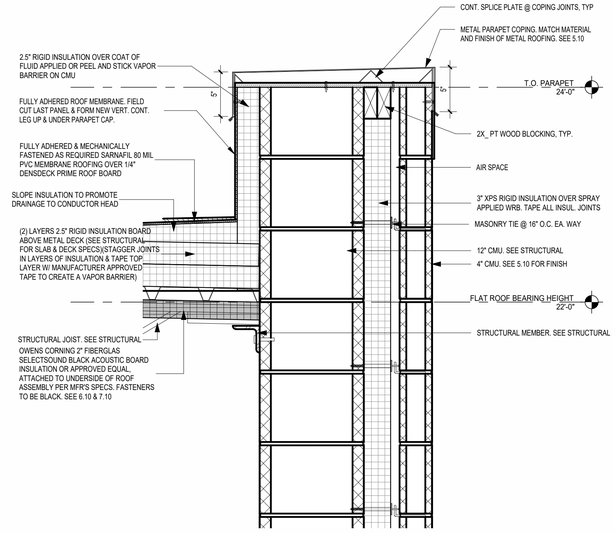
GORDON ROAD FIRE DEPARTMENT

WALL SECTION DETAILS

Sheet No.
5.30

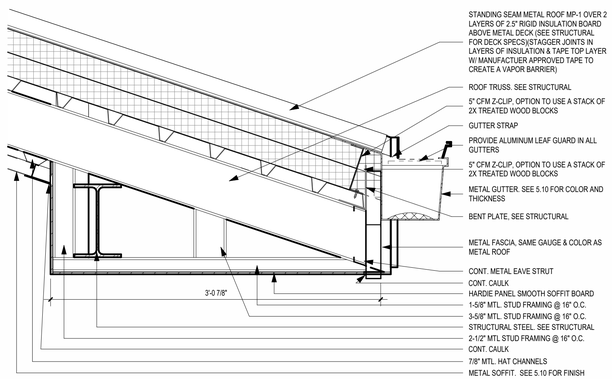


1 SECTION DET. @ EXERCISE ROOF
1 1/2" = 1'-0"

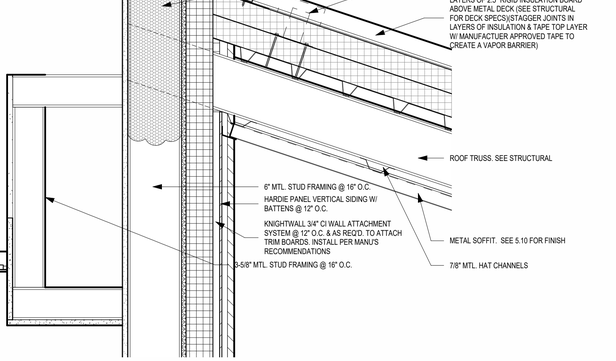


2 SECTION DET. @ EXERCISE ROOF
1 1/2" = 1'-0"

3 SECTION DET. @ TRAINING
1 1/2" = 1'-0"



6 SECTION DET. @ PORCH
1 1/2" = 1'-0"



4 SECTION DET. @ PATIO ROOF
1 1/2" = 1'-0"

5 SECTION DET. @ LOBBY/PORCH
1 1/2" = 1'-0"

Project No.
1737

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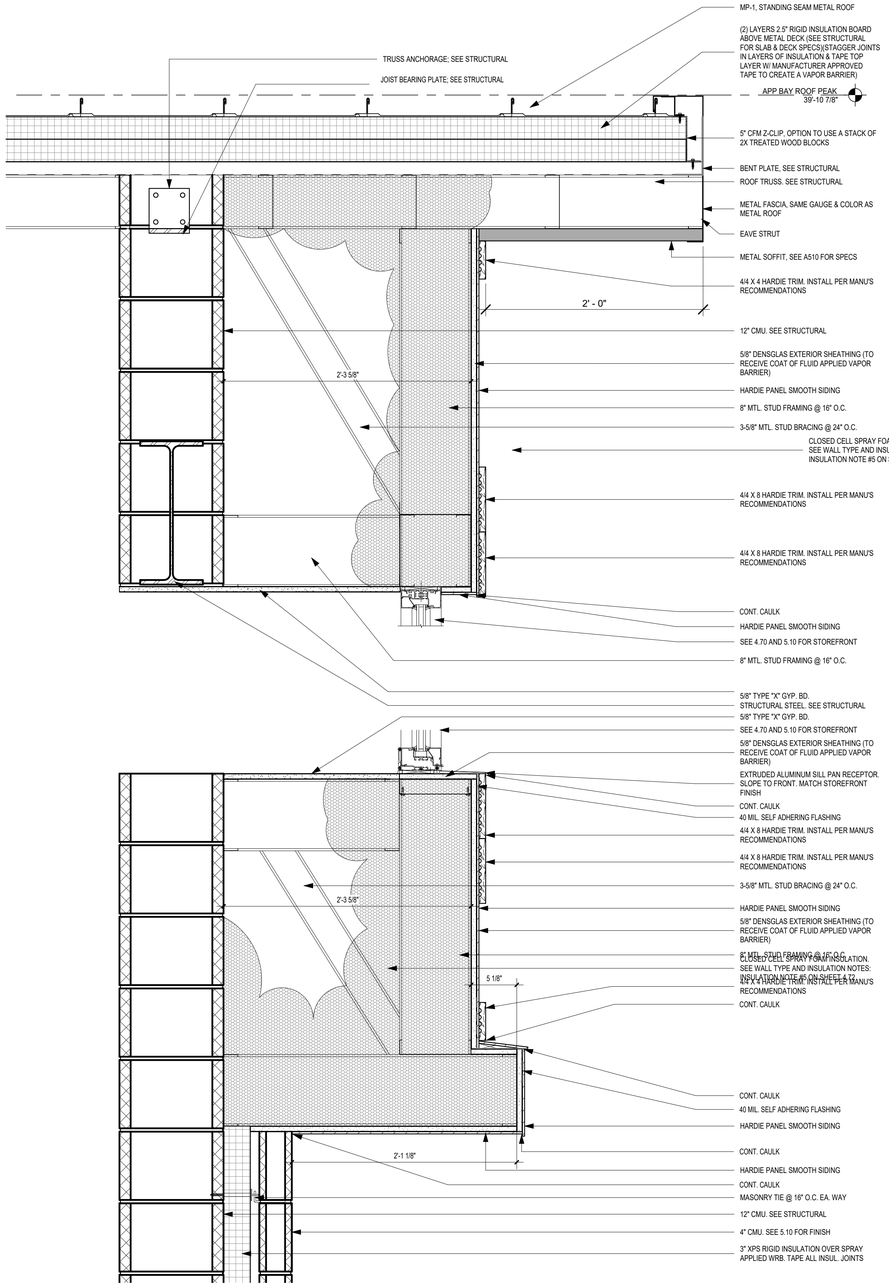
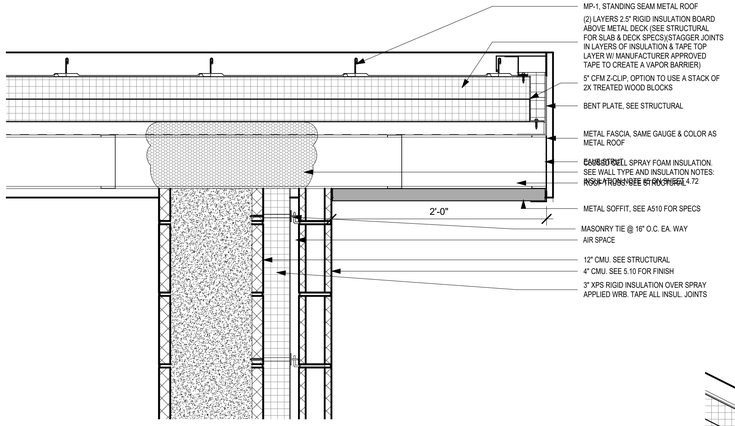
GORDON ROAD FIRE DEPARTMENT

WALL SECTION DETAILS

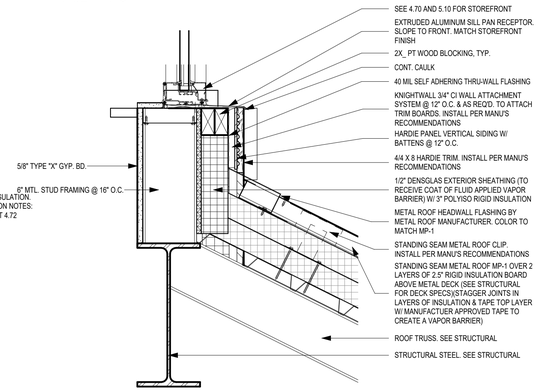
Sheet No.
5.31



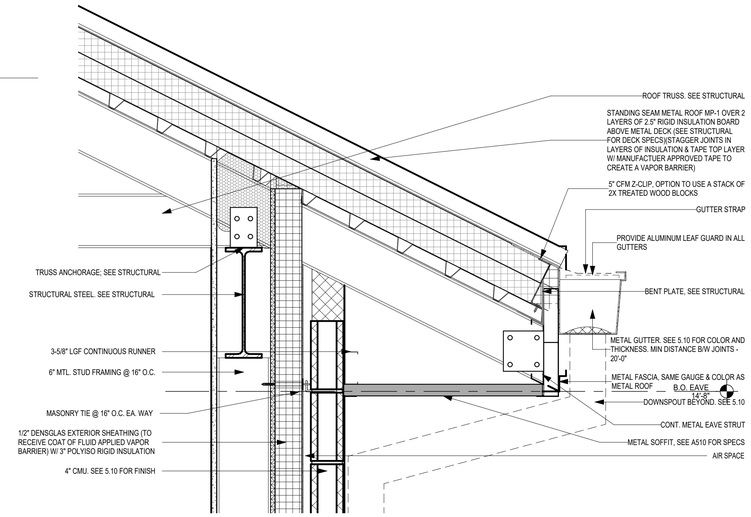
3 SECTION DET. @ APP. BAY
1 1/2" = 1'-0"



4 SECTION DET. @ APP BAY ROOF
1 1/2" = 1'-0"



1 SECTION DET. @ PUBLIC TOILET
1 1/2" = 1'-0"



6 WALL SECTION @ CONFERENCE ROOF
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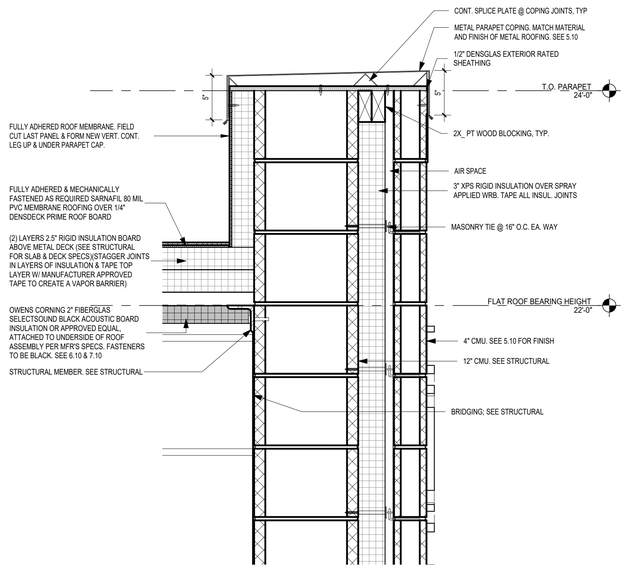

2 SECTION DET. @ EXERCISE
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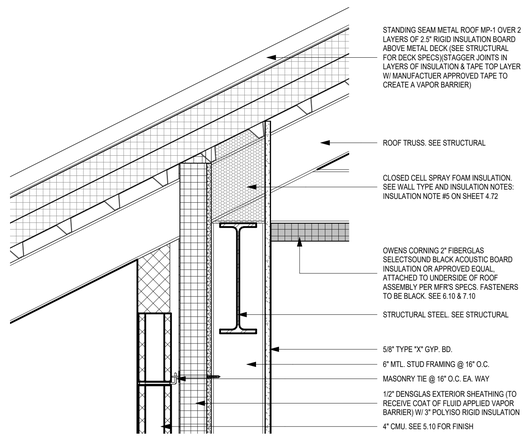

5 SECTION DET. @ PATIO
1 1/2" = 1'-0"

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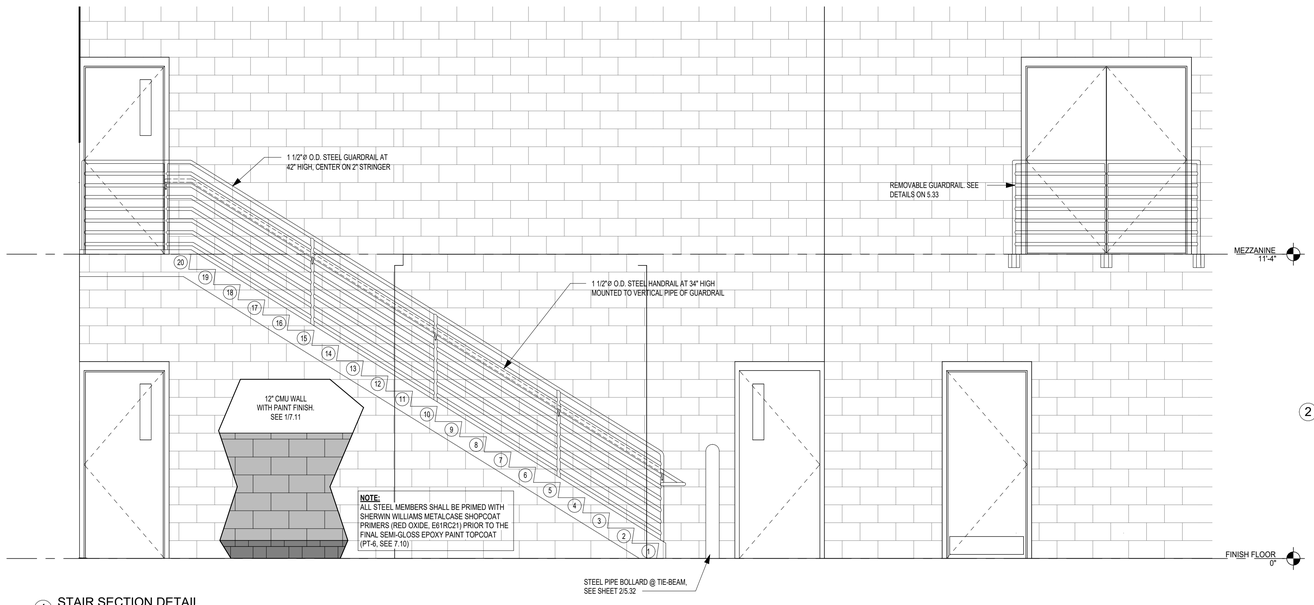
KENNETH C. ROBERTS REGISTERED PROFESSIONAL ENGINEER 6205 NORTH CAROLINA

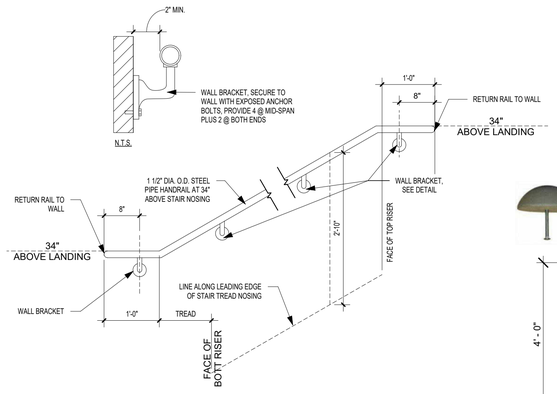
GORDON ROAD FIRE DEPARTMENT

WALL SECTION DETAILS

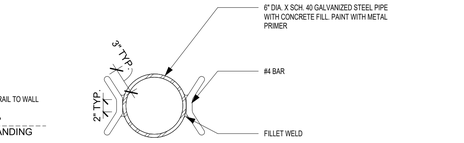
Sheet No.
5.32



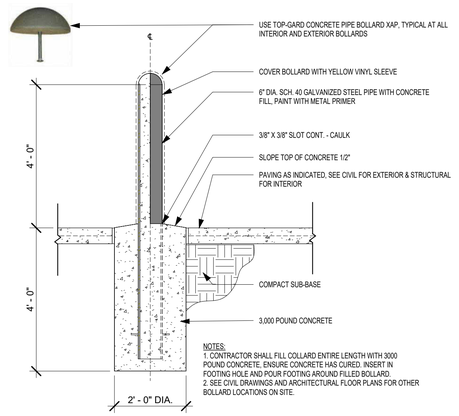
1 STAIR SECTION DETAIL
3/8" = 1'-0"



2 STAIR HANDRAIL DETAIL
3/4" = 1'-0"



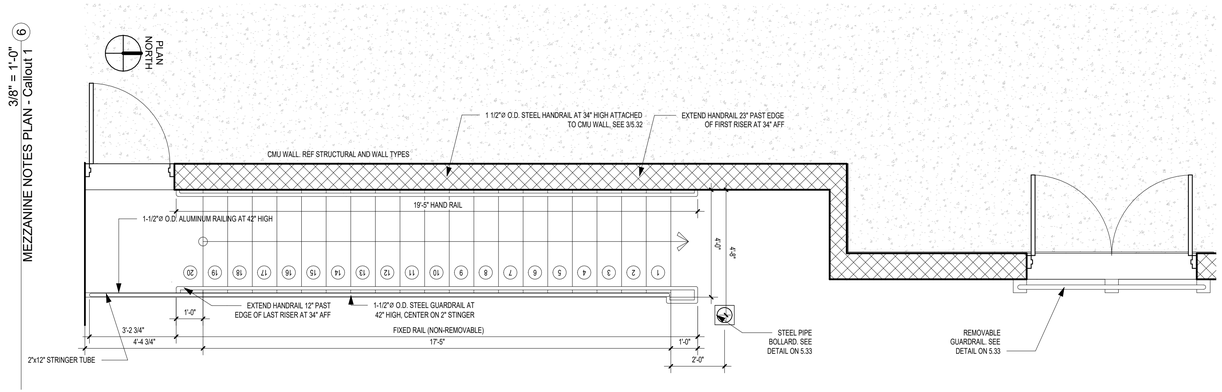
BOLLARD PLAN SECTION



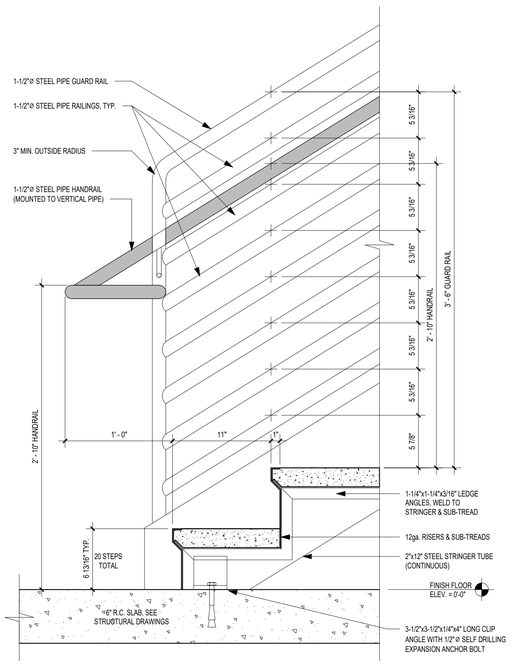
NOTES:
1. CONTRACTOR SHALL FILL COLLARD ENTIRE LENGTH WITH 3000 POUND CONCRETE. ENSURE CONCRETE HAS CURED. INSERT IN FOOTING HOLE AND POUR FOOTING AROUND FILLED BOLLARD.
2. SEE CIVIL DRAWINGS AND ARCHITECTURAL FLOOR PLANS FOR OTHER BOLLARD LOCATIONS ON SITE.

STEEL BOLLARD SECTION

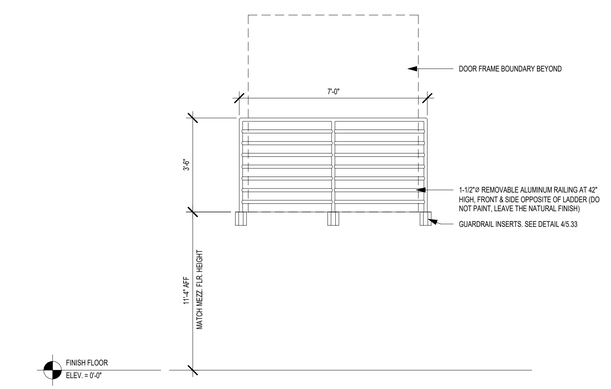
3 STEEL BOLLARD
1/2" = 1'-0"



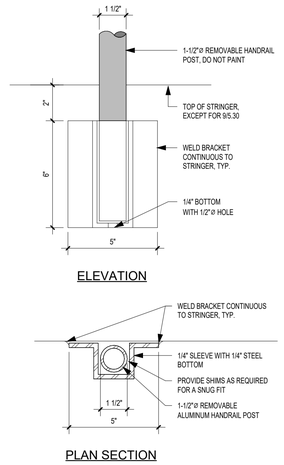
6 MEZZANINE NOTES PLAN - Callout 1
3/8" = 1'-0"



5 STAIR RAIL DETAIL
1 1/2" = 1'-0"



7 GUARDRAIL @ MEZZANINE
3/8" = 1'-0"



4 REMOVABLE GUARDRAIL DETAIL
3" = 1'-0"

GENERAL NOTE

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.

WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITHIN THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER OF WORK OR MATERIAL CALLED FOR, SHALL SUBMIT A WRITTEN STATEMENT WITH HIS PROPOSAL NOTING SUCH DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.

Project No.
1737

Date:
03.29.2024
Drawn by:
AJP/GAS
Checked by:
KCN
Revision #:

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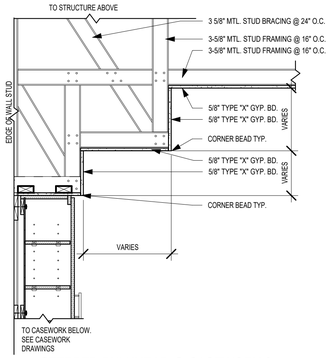
KENNETH C. NEWELL REGISTERED & ROPERLY 6205 CAROLINA
03.29.2024

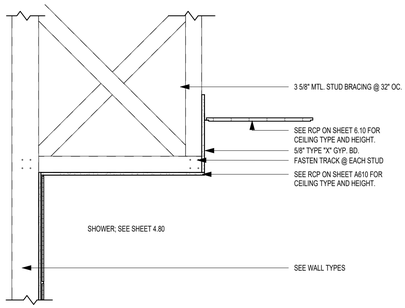
GORDON ROAD FIRE DEPARTMENT

STAIRCASE, BOLLARD, AND SITE DETAILS

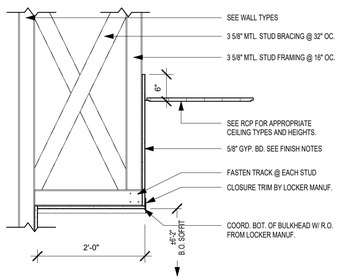
Sheet No.
5.33



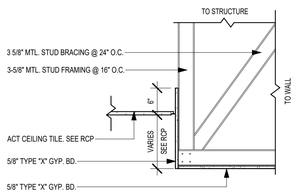
8 STEPPED BULKHEAD @ CASEWORK & HARD CEILING
3/4" = 1'-0"



7 SHOWER BULKHEAD TYP.
3/4" = 1'-0"



5 BULKHEAD @ LOCKERS
3/4" = 1'-0"



3 BULKHEAD @ DROP CEILING, TYP.
3/4" = 1'-0"

9 STEPPED BULKHEAD @ EXPOSED CEILING
3/4" = 1'-0"

1 First Floor
1/8" = 1'-0"

4 BULKHEAD @ HARD CEILING, TYP.
3/4" = 1'-0"

6 INTERMEDIATE BULKHEAD, TYP.
3/4" = 1'-0"

2 Mezzanine
1/8" = 1'-0"

REFLECTED CEILING PLAN NOTES

1. GENERAL CONTRACTOR SHALL COORDINATE THE INSTALLATION AND PROPER LOCATION OF ALL CEILING MOUNTED AND INSTALLED ELEMENTS. REFERENCE MECHANICAL, FIRE PROTECTION AND ELECTRICAL DRAWINGS FOR CEILING MOUNTED AND INSTALLED ELEMENTS. CEILING GRID MAY BE SUBJECT TO CHANGE TO ASSURE PROPER CENTERING AND PLACEMENT OF LIGHTS IN ROOMS.
2. NO LAY-IN TYPE CEILING PANELS ARE TO MEASURE LESS THAN 6" IN EITHER DIRECTION UNLESS DIRECTED BY THE ARCHITECT.
3. PROVIDE VINYL COATED LAY-IN CEILING PANELS IN DAMP AREAS SCHEDULED TO RECEIVE LAY-IN CEILING PANELS; INCLUDING BUT NOT LIMITED TO SHOWERS AND KITCHENS. REFERENCE FINISH PLANS FOR SCHEDULE AND LOCATIONS OF CEILING TYPES.
4. PRIOR TO INSTALLATION OF SPRINKLER HEADS, CONTRACTOR TO VERIFY ALL CEILING HEIGHTS WITH DOORS, WINDOWS AND MECHANICAL DUCTWORK. ALL HEADS TO BE CENTERED IN CEILING GRIDS.
5. SOFFIT WIDTH TO BE 2'-0" FROM FACE OF GWB TO FACE OF GWB UNLESS DIMENSIONED OTHERWISE ON THE REFLECTED CEILING PLAN OR CEILING DETAILS.
6. CEILING FRAMING PER DELEGATED DESIGN.
7. REFER TO NOTE 9 ON SHEET 4.72 **WALL TYPE AND INSULATION NOTES** : WALL TYPE NOTES
8. REFER TO SHEET 7.10 FOR CEILING FINISHES

Project No.
1737

Date:
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Drawn by:
Author
Checked by:
Checker
Revisions:

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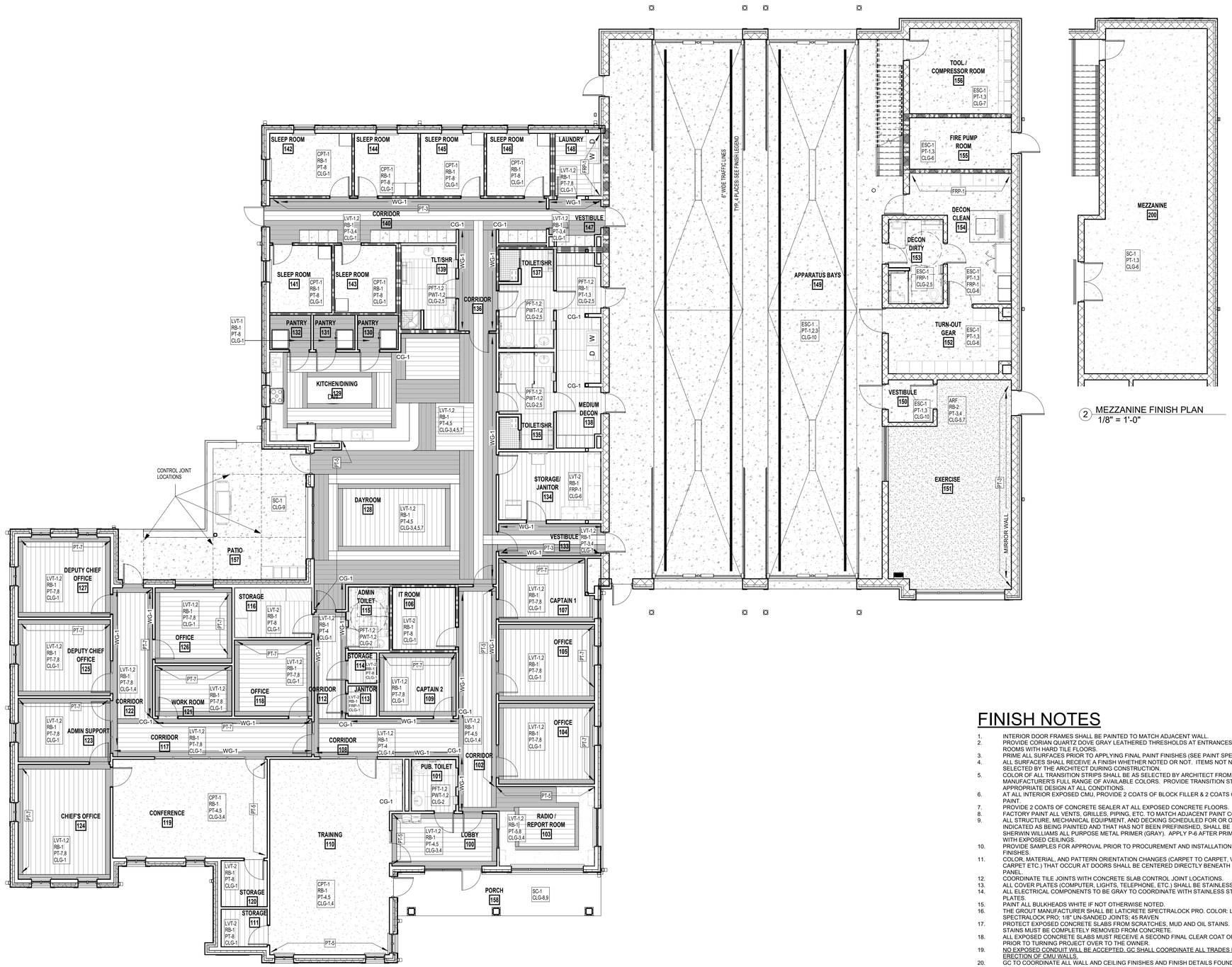
GORDON ROAD FIRE DEPARTMENT

REFLECTED CEILING PLAN

Sheet No.
6.10



1 FIRST FLOOR FINISH PLAN
1/8" = 1'-0"

2 MEZZANINE FINISH PLAN
1/8" = 1'-0"

PORCELAIN FLOOR TILE (4X4 MOSAIC)
PORCELAIN FLOOR TILE
LUXURY VINYL TILE
J&J KINETEX (CARPET TILE)
NORA 9MM ATHLETIC FLOORING

FINISH LEGEND (COLORS)
1/4" = 1'-0"

FINISH LEGEND:

CARPET TILE (NOTED AS CPT - #)

CPT-1 J+J FLOORING: KINETEX: SOUNDTRACK MODULAR 1847, COLOR: ALBUM 3017 18"x36" TILE (OR PRIOR APPROVED EQUAL); HERRINGBONE PATTERN. FULLY ADHERE PER MANUFACTURER'S SPECS

PORCELAIN FLOOR TILE (NOTED AS PFT - #)

PFT-1 BEST TILE: CAESAR CERAMICS: WHISPER COLLECTION; COLOR: ASH, HONED; SIZE: 8"x40", 1/8" JOINT WIDTH UN-SANDED
PFT-2 BEST TILE: STONE PEAK CERAMICS: WAVE COLLECTION; COLOR: ASH USG12M9278, HONED; SIZE: 4"x4"; MOSAIC; 1/8" JOINT WIDTH UN-SANDED (@DESIGNATED ROOMS & ALL SHOWERS)
GROUT LATICRETE: SPECTRALOCK PRO EPOXY GROUT; COLOR: #45 RAVEN

PORCELAIN WALL TILE (NOTED AS PWT - #) ALIGN JOINTS TO PFT

PWT-1 CAESAR CERAMICS: WHISPER COLLECTION; COLOR: BREEZE 303649, HONED; SIZE: 8"x40", 1/8" JOINT WIDTH UN-SANDED
PWT-2 BEST TILE: BAMBUSA COLLECTION; COLOR: GRIGIO, HONED; SIZE: 2.5"x19", 1/8" JOINT WIDTH UN-SANDED (@DESIGNATED ROOMS & ALL SHOWERS)
PWT-3 BEST TILE: BAMBUSA COLLECTION; COLOR: BIANCO, HONED; SIZE: 2.5"x19", 1/8" JOINT WIDTH UN-SANDED (@DESIGNATED ROOMS & ALL SHOWERS)
GROUT LATICRETE: SPECTRALOCK PRO EPOXY GROUT; COLOR: #45 RAVEN

PAINT (NOTED AS PT - #)

PT-1 SHERWIN WILLIAMS PAINTS; COLOR 6258 TRICORN BLACK; EPOXY EGGSHELL FINISH
PT-2 SHERWIN WILLIAMS PAINTS; COLOR 7026 GRIFFIN; EPOXY EGGSHELL FINISH
PT-3 SHERWIN WILLIAMS PAINTS; COLOR 7031 MEGA GREIGE; EPOXY EGGSHELL FINISH
PT-4 SHERWIN WILLIAMS PAINTS; COLOR 7029 AGREEABLE GRAY; EPOXY EGGSHELL FINISH
PT-5 SHERWIN WILLIAMS PAINTS; COLOR 6335 FIRED BRICK; EPOXY EGGSHELL FINISH (APPARATUS BAY ONLY. SEE SHEET 7.10 FOR LOCATION AND 7.11 FOR DETAIL
PT-6 SHERWIN WILLIAMS PAINTS; COLOR 6335 FIRED BRICK; EPOXY SEMI-GLOSS FINISH (STAIRCASE, RAILING, & TRAINING PLATFORM IN APPARATUS BAY; SEE NOTE ON 5.32/5.33 (STAIR DTLS)
PT-7 SHERWIN WILLIAMS PAINTS; COLOR 7031 MEGA GREIGE; EGGSHELL FINISH
PT-8 SHERWIN WILLIAMS PAINTS; COLOR 7029 AGREEABLE GRAY; EGGSHELL FINISH
PT-9 SHERWIN WILLIAMS PAINTS DRYFALL; COLOR 6258 TRICORN BLACK; FLAT FINISH @ EXPOSED CEILINGS ONLY (CLG-5, CLG-7)
PT-10 SHERWIN WILLIAMS PAINTS; COLOR 7006 EXTRA WHITE; SATIN FINISH @ GYP. BD. CEILINGS ONLY (CLG-3, CLG-4)
PT-11 SEE SHEET 5.10 FOR THE EPOXY PAINT COLORS OF HOLLOW METAL DOORS & FRAMES, METAL BRACKETS AND EXPOSED LOOSE LINTELS

CEILING / CEILING TILE (NOTED AS CLG - #)

CLG-1 ARMSTRONG CALLA 2820 (WHITE); LAY IN; TILE SIZE: 24"X24" W/ SUPRAFINE XL 9/16" EXPOSED TEE, SEE SHEET 6.10
CLG-2 ARMSTRONG ULTIMA HEALTH ZONE 1936 (WHITE); LAY IN; TILE SIZE: 24"X24"; SEE SHEET 6.10 W/ SUPRAFINE XL 9/16" EXPOSED TEE
CLG-3 ARMSTRONG METAL WORKS TEGULAR EFFECTS (MICROPERFORATED AT KITCHEN AND DAY ROOM CEILING ONLY) CUSTOM COLOR TO MATCH DOOR WD-1; IN ARMSTRONG 9/16" CLOUD SYSTEM (NO CLOUD AT TRAINING ROOM ENTRANCE, KEEP WOOD LOOK TILES); TILE SIZE: 24"X24"; CLG-7 BEYOND. SEE SHEET 6.10 BLACK CEILING GRID AT ALL CLOUD LOCATIONS AXIOM KNIFE EDGE TRIM AT ALL CLOUD LOCATIONS
CLG-4 PAINTED GYPSUM BOARD, P-10; SEE SHEET 6.10
CLG-5 PAINTED MOISTURE RESISTANT GYPSUM BOARD, PT-10; SEE SHEET 6.10
CLG-6 EXPOSED TO STRUCTURE - SEE GENERAL PAINTING & FINISH NOTE #9; PT-9
CLG-7 EXPOSED TO STRUCTURE - SEE GENERAL PAINTING AND FINISH NOTE #9. CEILING TO RECEIVE OWENS CORNING 2" FIBERGLAS SELECTSOUND BLACK ACOUSTIC BOARD INSULATION OR APPROVED EQUAL, ATTACHED TO THE UNDERSIDE OF ROOF ASSEMBLY & INSTALLED PER MFR'S SPECS. SEE SHEET 4.30 FOR ROOF ASSEMBLY. FASTENERS TO BE BLACK; FASTENERS NOT TO PENETRATE LAYER OF INSULATION CLOSEST TO METAL ROOF PANEL.
CLG-8 ARMSTRONG METAL WORKS FOR DESIGN FLEX TEGULAR .SQUARES & RECTANGLES 24"X24" WHITE M15 PERFORATED W/ SUPRAFINE XL 9/16" EXPOSED TEE
CLG-9 EXTERIOR SOFFIT. SEE SHEET 5.10
CLG-10 ARMSTRONG KITCHENZONE (BLACK); LAY IN; TILE SIZE: 24"X24" W/ SUPRAFINE XL 9/16" EXPOSED TEE (BLACK); PROVIDE PANEL CLIPS; SEE SHEET 6.10

AX-1 ARMSTRONG AXIOM KNIFE EDGE TRIM 5" ALL VISIBLE EDGES AND FACES FACTORY FINISH TO MATCH CLOUD CEILING GRID

RESILIENT BASE (NOTED AS RB - #)

RB-1 ROPPE VINYL WALL BASE W/ TOE; COLOR: 147 LIGHT BROWN; 4" HEIGHT
RB-2 ROPPE VINYL WALL BASE W/ TOE; COLOR: 100 BLACK; 4" HEIGHT

LUXURY VINYL TILE FLOORING (NOTED AS LVT - #)

LVT-1 J+J FLOORING; STYLE: CLASSICS V5000; COLOR: 1009 HERITAGE; SIZE: 9"x48", 20 MIL; STAGGER PLANKS 1/3 OF LENGTH (TYP.), SEE SHEET 7.10. FULLY ADHERE PER MANUFACTURER'S SPECS
LVT-2 J+J FLOORING; STYLE: CLASSICS V5000; COLOR: 1000 NOTABLE; SIZE: 9"x48", 20 MIL; STAGGER PLANKS 1/3 OF LENGTH (TYP.), SEE SHEET 7.10. FULLY ADHERE PER MANUFACTURER'S SPECS

FIBERGLASS REINFORCED PLASTIC (NOTED AS FRP - #)

FIBERGLASS REINFORCED PLASTIC
FRP-1 CRANE COMPOSITES; VARIETEX COLLECTION; COLOR: PEPPERDUST 8044; STYLE: LINEN

WINDOW BLINDS (NOTED AS WB - #)

WB-1 BLACKOUT ROLLER SHADES (MANUAL) APERTURE CONTRACT, INC.; VERONA 1%, COLOR: IRONITE; @ SLEEP ROOMS ONLY. DIRECT MOUNT WITH SEALED HEM BAR AND SIDE CHANNELS

WB-2 SWFCONTRACT; BRUSHED ALUMINUM 121; 2" HERITAGE

CORNER AND WALL GUARDS (NOTED AS CG- & WG- #)

CG-1 FLUSH MOUNTED CORNER GUARD, NON-RATED, INPRO 150F OR PAWLING CGT-7, COLOR TO BE SELECTED DURING CONSTRUCTION FROM THE FULL RANGE OF MANUFACTURER'S COLORS, SEE 7.11

CG-2 FLUSH MOUNTED CORNER GUARD, 1-HR. FIRE-RATED, INPRO 150FR1 OR PAWLING CGFT-7, COLOR TO BE SELECTED DURING CONSTRUCTION FROM THE FULL RANGE OF MANUFACTURER'S COLORS, SEE 7.11

CG-3 FLUSH MOUNTED END WALL GUARD, NON-RATED, INPRO 140D OR PAWLING CGT-888, COLOR TO BE SELECTED DURING CONSTRUCTION FROM THE FULL RANGE OF MANUFACTURER'S COLORS, SEE 7.11

WG-1 SURFACE MOUNTED WALL GUARD, INPRO 1600 OR PAWLING WG-6, PROVIDE ALL NECESSARY COMPONENTS (END CAP, INSIDE & OUTSIDE CORNERS, ETC.) COLOR TO BE SELECTED DURING CONSTRUCTION FROM THE FULL RANGE OF MANUFACTURER'S COLORS, SEE 7.11

MISCELLANEOUS

SC-1 SEALED CONCRETE
SC-2 LIGHT-BROOMED FINISHED CONCRETE
ESC-1 SIKA MMA (METHYL METHACRYLATE) TRAFFIC 2900 COATIND SYSTEM; PIGMENTED; FLOORING AND STRIPING COLORS BY OWNER

DOORS
WD-1 VT INDUSTRIES; WALNUT; COLOR: SERENGETI SE18

CASEWORK -
WOOD: KEWAUNEE SCIENTIFIC WOOD CASEWORK. CUSTOM COLOR TO MATCH WD-1
STEEL: KEWAUNEE SCIENTIFIC STEEL CASEWORK. MATERIAL CONSTRUCTION AND COLOR TO BE STAINLESS STEEL

FULLY WELDED LOCKERS
CONTACT ERNIE TAYLOR @ PENCO PRODUCTS. 703-819-6061 ERNIE.TAYLOR@PENCOPRODUCTS.COM
LK-1 BASIS OF DESIGN: PENCO PATRIOT FULLY FRAMED GEAR LOCKER OR PRIOR APPROVED EQUAL; LOCKER TO RECEIVE FACTORY FINISH CUSTOM COLOR TO MATCH PT-7. REFER TO 25/7.11

COUNTERTOPS & SILLS
CTR-1 CORIAN QUARTZ; COLOR: BIANCO MARMOR
CTR-2 STAINLESS STEEL COUNTERTOP @ EXTERIOR CASEWORK, #4 SATIN FINISH
CTR-3 SOLID WOOD BUTCHER BLOCK WITH 2 COATS OF WOOD SEALER (TOOL SHOP COUNTERTOP ONLY)
SILL CORIAN QUARTZ; COLOR: BIANCO MARMOR

ATHLETIC RUBBER FLOORING (ARF-1) - NORAMENT 992 GRANO 5304 BLACK PEPPER; 9mm THICK FOR FLOORING; 3.5mm THICK FOR WALL RETURN

BACKSPLASH
BS-1 SEE PWT-3
BS-2 STAINLESS STEEL BACKSPLASH, FINISH TO MATCH CTR-2
BS-3 CORIAN QUARTZ BACKSPLASH; COLOR: BIANCO MARMOR

TRANSITIONS ARE NOT TO BE USED BETWEEN LIKE MATERIALS AT THE SAME LEVEL UNLESS NOTED OTHERWISE. SEE SHEET 7.11 FOR TRANSITION AND THRESHHOLD DETAILS

ALL EXTERIOR OR UNFINISHED PAINTED METAL TO RECEIVE PRO INDUSTRIAL URETHANE ALKYD ENAMEL B54, ARCHITECT TO CONFIRM COLOR.

FINISH NOTES

1. INTERIOR DOOR FRAMES SHALL BE PAINTED TO MATCH ADJACENT WALL.
2. PROVIDE CORIAN QUARTZ DOVE GRAY LEATHERED THRESHOLDS AT ENTRANCES TO ALL ROOMS WITH HARD TILE FLOORS.
3. PRIME ALL SURFACES PRIOR TO APPLYING FINAL PAINT FINISHES (SEE PAINT SPECS).
4. ALL SURFACES SHALL RECEIVE A FINISH WHETHER NOTED OR NOT. ITEMS NOT NOTED WILL BE SELECTED BY THE ARCHITECT DURING CONSTRUCTION.
5. COLOR OF ALL TRANSITION STRIPS SHALL BE AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF AVAILABLE COLORS. PROVIDE TRANSITION STRIP OF APPROPRIATE DESIGN AT ALL CONDITIONS.
6. AT ALL INTERIOR EXPOSED CMU, PROVIDE 2 COATS OF BLOCK FILLER & 2 COATS OF ACRYLIC PAINT.
7. PROVIDE 2 COATS OF CONCRETE SEALER AT ALL EXPOSED CONCRETE FLOORS.
8. FACTORY PAINT ALL VENTS, GRILLES, PIPING, ETC. TO MATCH ADJACENT PAINT COLOR.
9. ALL STRUCTURE, MECHANICAL EQUIPMENT, AND DECKING SCHEDULED FOR OR OTHERWISE INDICATED AS BEING PAINTED AND THAT HAS NOT BEEN PREFINISHED, SHALL BE PRIMED WITH SHERWIN WILLIAMS ALL PURPOSE METAL PRIMER (GRAY). APPLY P-6 AFTER PRIMER IN ROOMS WITH EXPOSED CEILINGS.
10. PROVIDE SAMPLES FOR APPROVAL PRIOR TO PROCUREMENT AND INSTALLATION OF ALL FINISHES.
11. COLOR, MATERIAL, AND PATTERN ORIENTATION CHANGES (CARPET TO CARPET, VCT TO CARPET ETC.) THAT OCCUR AT DOORS SHALL BE CENTERED DIRECTLY BENEATH THE DOOR PANEL.
12. COORDINATE TILE JOINTS WITH CONCRETE SLAB CONTROL JOINT LOCATIONS.
13. ALL COVER PLATES (COMPUTER, LIGHTS, TELEPHONE, ETC.) SHALL BE STAINLESS STEEL.
14. ALL ELECTRICAL COMPONENTS TO BE GRAY TO COORDINATE WITH STAINLESS STEEL COVER PLATES.
15. PAINT ALL BULKHEADS WHITE IF NOT OTHERWISE NOTED.
16. THE GROUT MANUFACTURER SHALL BE LATICRETE SPECTRALOCK PRO. COLOR: LATICRETE SPECTRALOCK PRO; 1/8" UN-SANDED JOINTS; 45 RAVEN
17. PROTECT EXPOSED CONCRETE SLABS FROM SCRATCHES, MUD AND OIL STAINS. ALL MUD STAINS MUST BE COMPLETELY REMOVED FROM CONCRETE.
18. ALL EXPOSED CONCRETE SLABS MUST RECEIVE A SECOND FINAL CLEAR COAT OF SEALER PRIOR TO TURNING PROJECT OVER TO THE OWNER.
19. NO EXPOSED CONDUIT WILL BE ACCEPTED. GC SHALL COORDINATE ALL TRADES PRIOR TO ERECTION OF CMU WALLS.
20. GC TO COORDINATE ALL WALL AND CEILING FINISHES AND FINISH DETAILS FOUND ON SHEETS 7.10 AND 7.11 WITH SHEETS 6.10.
21. FEATHER FLOOR AS REQUIRED AT TRANSITIONS BETWEEN DIFFERENT FLOORS SO FLOOR IS LEVEL.
22. THERE WILL BE NO CARPET OR LVT UNDER FIXED MILLWORK. PROVIDE SCHEDULED FLOOR FINISHES AT ACCESSIBLE ADA COMPLIANT MILLWORK WHERE OCCURS.
23. ALL MUDSET PORCELAIN TILE SHALL BE ON 2" SETTING BED.
24. ALL CEILING TILE TO BE CLG-1 UNLESS NOTED OTHERWISE. ANY GYPSUM CEILING REQUIRING PAINT SHALL BE PT-10.
25. SHOWER FLOORS TO BE PFT-2 UNLESS NOTED OTHERWISE.
26. SEE SHEET 4.80 & 6.10 FOR ADDITIONAL FINISH DESIGNATIONS AT SHOWERS.
27. ANY TOILET ACCESSORY THAT BRIDGES THE WAINSCOT TILE MUST BE SHIMMED.
28. ALL LOBBIES, CORRIDORS, TRAINING ROOM TO HAVE ABUSE RESISTANT 'TYPE X' GYPSUM BOARD TO 8'-0" A.F.F.
29. BRACE CLG-1, CLG-2, CLG-3, & CLG-4 PER SEISMIC CODE REQUIREMENTS & COORDINATE WITH ARCHITECT PRIOR TO CONSTRUCTION. PAINT ALL SEISMIC BRACING P-6 (REFER TO NOTE #11 THIS SHEET).
30. WALLS IN CORRIDORS, DAYROOM, AND TRAINING ROOM TO RECEIVE LEVEL-5 FINISH.
31. SEE **WALL TYPE AND INSULATION NOTES:** INSULATION NOTE #5 ON SHEET 4.72

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Project No. 1737

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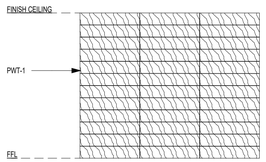
Revisions:

GORDON ROAD FIRE DEPARTMENT

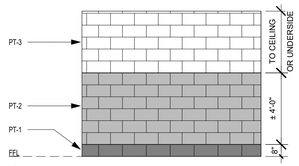
FINISH PLAN

Sheet No. 7.10



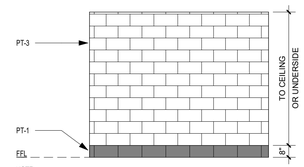
NOTE:
- GROUT LINES @ WALL TILES TO ALIGN WITH FLOOR GROUT LINES @ FLOOR TILES
- ALL SIDES OF TOILET & SHOWER WALLS SHALL HAVE PORCELAIN TILES FROM FLOOR TO CEILING, SEE SHEETS 1.10 & 1.70
- PROVIDE SCHLUTER JOLLY @ OUTSIDE VERTICAL CORNERS. COLOR TO MATCH PWT-1 TILE.

1 TILED WALL ELEV. BATHROOM
1/4" = 1'-0"



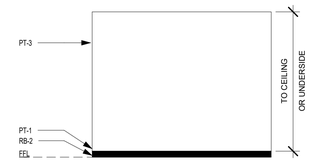
NOTE:
- ALIGN COLOR TRANSITION TO THE CMU JOINT.
- PROVIDE CONTINUOUS PERIMETER CAULK BETWEEN THE FLOORS & WALLS, USE "DOWSIL NS PARKING STRUCTURE SEALANT".

2 APPARATUS BAY WALL ELEV.
1/4" = 1'-0"



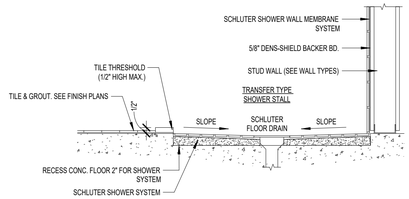
NOTE:
- ALIGN COLOR TRANSITION TO THE CMU JOINT.
- PROVIDE CONTINUOUS PERIMETER CAULK BETWEEN THE FLOORS & WALLS, USE "DOWSIL NS PARKING STRUCTURE SEALANT".

3 TYP. SUPPORT ELEVATION
1/4" = 1'-0"

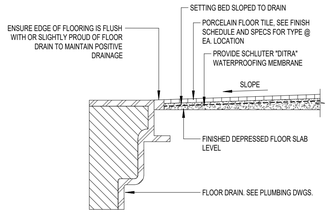


NOTE:
- ALIGN COLOR TRANSITION TO THE CMU JOINT ON ADJACENT WALL. PROVIDE CONTINUOUS PERIMETER CAULK BETWEEN THE FLOORS & WALLS BEHIND FURRING, USE "DOWSIL NS PARKING STRUCTURE SEALANT".

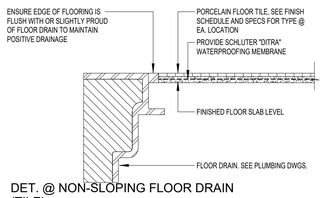
4 FURRED SUPPORT ELEVATION
1/4" = 1'-0"



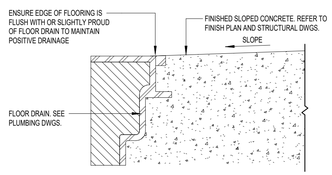
5 SHOWER PAN
1/2" = 1'-0"



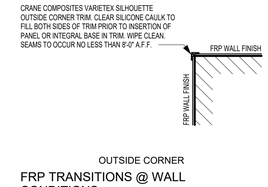
6 DET. @ SLOPED FLOOR DRAIN (TILE)
1/2" = 1'-0"



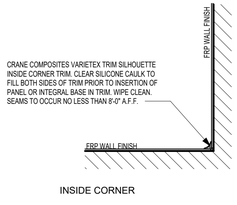
7 DET. @ NON-SLOPING FLOOR DRAIN (TILE)
1/2" = 1'-0"



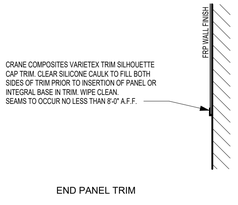
8 DET. @ SLOPED FLOOR DRAIN (CONC.)
1/2" = 1'-0"



OUTSIDE CORNER

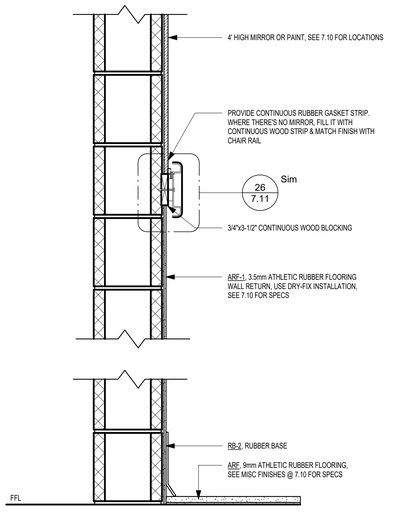


INSIDE CORNER

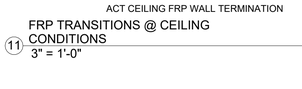


END PANEL TRIM

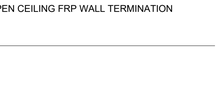
10 FRP TRANSITIONS @ WALL CONDITIONS
3" = 1'-0"



9 EXERCISE ROOM WAINSCOT SECTION
1 1/2" = 1'-0"



ACT CEILING FRP WALL TERMINATION



OPEN CEILING FRP WALL TERMINATION

11 FRP TRANSITIONS @ CEILING CONDITIONS
3" = 1'-0"

LOCATION: WHERE INDICATED

12 CORNER GUARD (CG-1)
3" = 1'-0"

LOCATION: CORNER OF BUNK ROOM

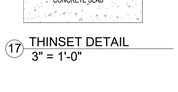
13 CORNER GUARD (CG-2)
3" = 1'-0"

LOCATION: WHERE INDICATED

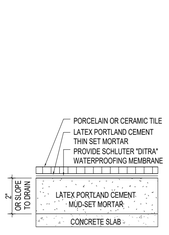
14 WALL GUARD (WG-1)
3" = 1'-0"

15 PFT TO PWT TILE
3" = 1'-0"

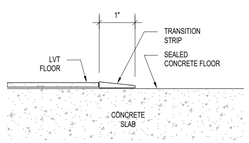
16 PFT TO PFT @ WALL CORNERS
3" = 1'-0"



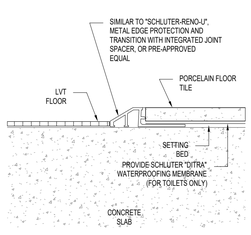
17 THINSET DETAIL
3" = 1'-0"



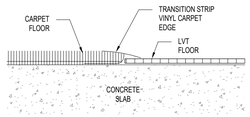
18 MUDSET DETAIL
3" = 1'-0"



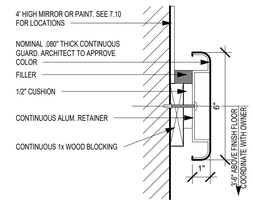
20 LVT TO SEALED CONC.
6" = 1'-0"



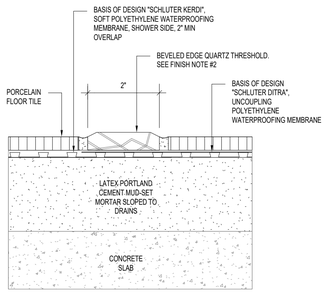
21 LVT TO PFT
6" = 1'-0"



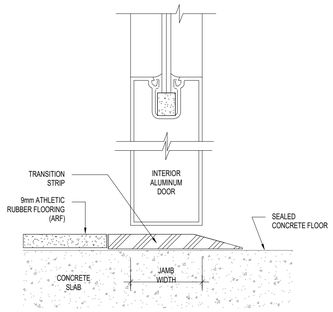
22 CPT TO LVT
6" = 1'-0"



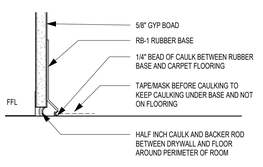
26 WALL IMPACT BUMPER
3" = 1'-0"



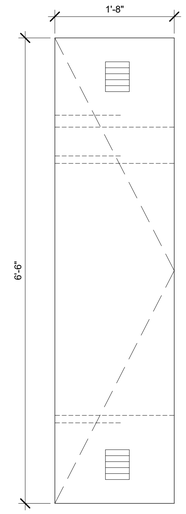
19 PFT TO PFT (SHOWER)
6" = 1'-0"



23 ARF TO SEALED CONC.
6" = 1'-0"



24 RUBBER BASE INSIDE BUNKROOMS
3" = 1'-0"



BASIS OF DESIGN:
PENCO PATRIOT FULLY FRAMED GEAR LOCKER (OR PRIOR APPROVED EQUAL)

LOCKLERS TO RECEIVE FACTORY FINISH CUSTOM COLOR TO MATCH P-2

FEATURES:
SIZE 16"x24"x78"±
- ACRYLIC MIRROR
- CELL PHONE/KEY TRAY
- COAT ROD WITH HOOKS
- (2) FULL WIDTH SHELF

25 18"W LK LOCKER(TYP.)
1" = 1'-0"

Project No.
1737

Date:
3/29/2024 3:39:20 PM
Drawn by:
Author
Checked by:
Checker
Revisions:

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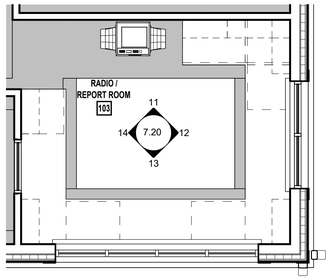
www.scn-architects.com

KENNETH C. NEWELL REGISTERED ARCHITECT 6205 NORTH CAROLINA

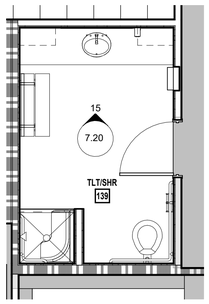
GORDON ROAD FIRE DEPARTMENT

FINISH DETAILS

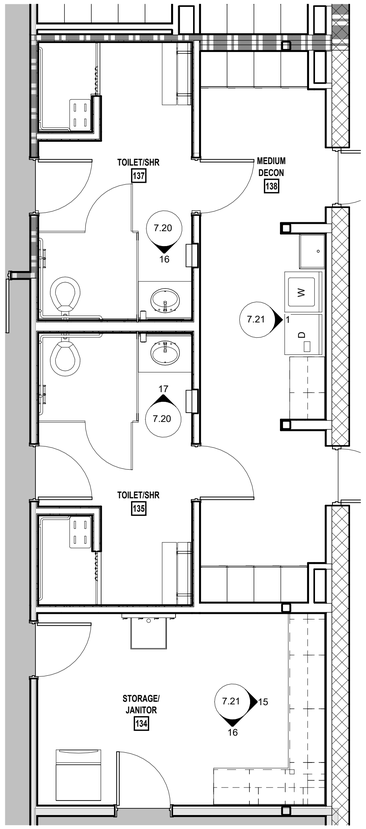
Sheet No.
7.11



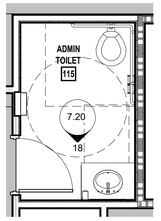
1 ENLARGED PLAN @ REPORT ROOM 103
1/4" = 1'-0"



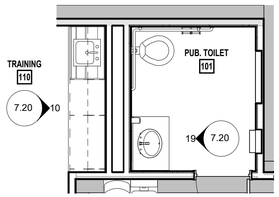
2 ENLARGED PLAN @ TOILET 139
1/4" = 1'-0"



7 ENLARGED PLAN @ DECON 138
1/4" = 1'-0"

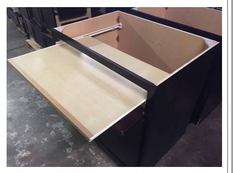


3 ENLARGED PLAN @ TOILET 115
1/4" = 1'-0"



4 ENLARGED PLAN @ TOILET 101
1/4" = 1'-0"

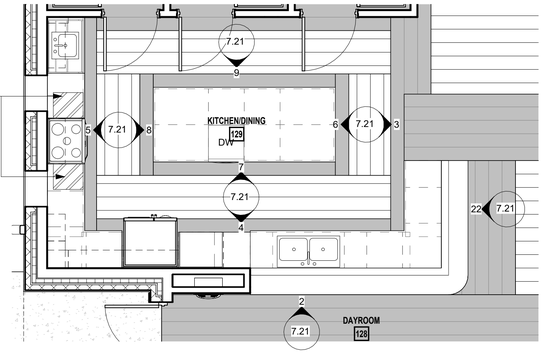
SAMPLE IMAGES ABOVE FOR REFERENCE ONLY



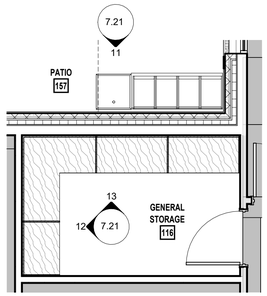
SAMPLE IMAGES ABOVE FOR REFERENCE ONLY

USE METAL SHELF SUPPORT
WITH CLEAR VINYL COATING

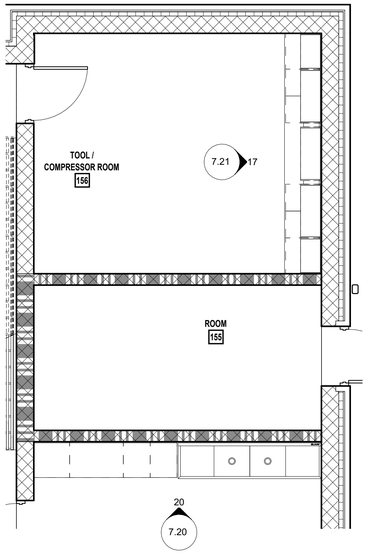
CABINET & DRAWER PULL SPECS:
4007-128-SS, 5" CC (8-1/2" LONG)
SOLID EURO BAR PULL, GILDERITE HARDWARE



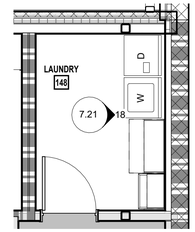
5 ENLARGED PLAN @ KITCHEN 129
1/4" = 1'-0"



6 ENLARGED PLAN @ STORAGE 116
1/4" = 1'-0"



8 ENLARGED PLAN @ TOOL ROOM 156
1/4" = 1'-0"



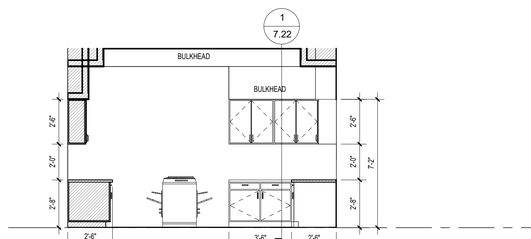
9 ENLARGED PLAN @ LAUNDRY 148
1/4" = 1'-0"

APPLIANCE NOTES

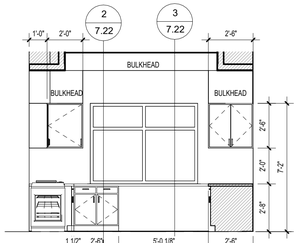
1. SEE SPECS FOR APPLIANCE SCHEDULE

CASEWORK NOTES

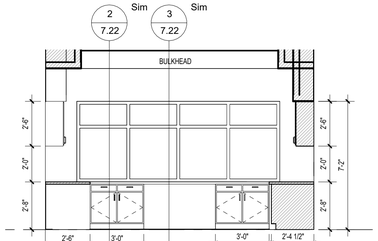
1. SEE FINISH LEGEND ON SHEET 7.10 FOR FINISH TAG REFERENCE.
2. ALL CASEWORK FINISHES DESIGNATED ON SHEET 7.10
3. USE HEAVY DUTY STAINLESS STEEL RPC 454 DOOR HINGES.
4. DRAWERS: STAINLESS STEEL SOFT CLOSING FULL OVER-TRAVEL EXTENSION TYPE WITH STEEL BALL BEARINGS
5. CABINET CATCHES: MAGNETIC TYPE W/ ADJUSTMENT (FINISH: US 28).
6. IF THERE ARE ANY DISCREPANCIES, GC TO SEEK CLARIFICATION IN THE FORM OF RFI(s) FROM THE ARCHITECT PRIOR TO EXECUTION OF WORK.
7. COORDINATE ELECTRICAL POWER PLACEMENT W/ THE ELECTRICAL PLAN.
8. COORDINATE PLUMBING STUB OUTS FOR WATER AND WASTE LINES W/ THE PLUMBING PLAN.
9. ALIGN HINGES WITH ADJACENT CABINET HINGES
10. GC TO COORDINATE ALL TRADES AFFECTING CASEWORK TO ACHIEVE ACCEPTABLE OUTCOME
11. CASEWORK CODES ON DRAWINGS CORRESPOND TO BASIS OF DESIGN: KEWAUNEE SCIENTIFIC CASEWORK



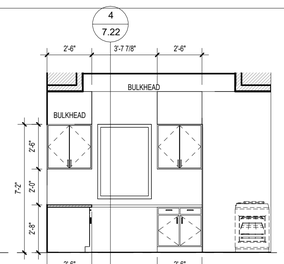
11 REPORT ROOM ELEV. 1
1/4" = 1'-0"



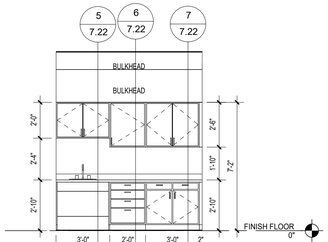
12 REPORT ROOM ELEV 2
1/4" = 1'-0"



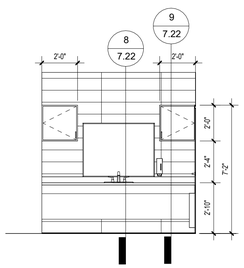
13 REPORT ROOM ELEV. 3
1/4" = 1'-0"



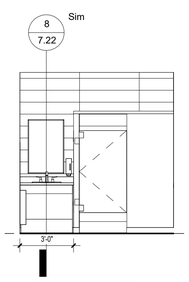
14 REPORT ROOM ELEV. 4
1/4" = 1'-0"



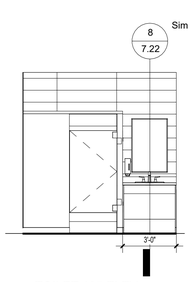
10 TRAINING 110 ELEV.
1/4" = 1'-0"



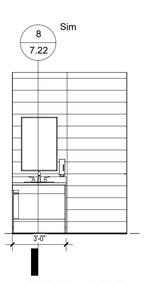
15 TOILET 139 ELEV
1/4" = 1'-0"



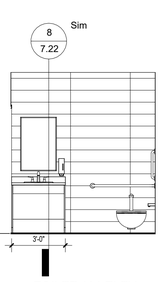
16 TOILET 137 ELEV
1/4" = 1'-0"



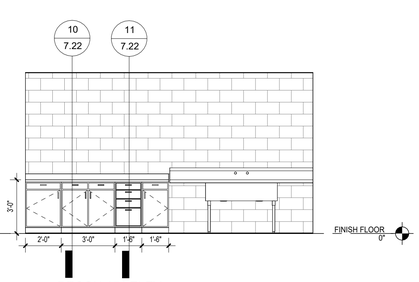
17 TOILET 135 ELEV
1/4" = 1'-0"



18 TOILET 115 ELEV
1/4" = 1'-0"



19 TOILET 101 ELEV
1/4" = 1'-0"



20 DECON 154 ELEV
1/4" = 1'-0"

GENERAL NOTE

ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE DRAWINGS, GENERAL REQUIREMENTS AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING ON ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH THE WORK OF OTHER CONTRACTORS AND TRADES.

WHENEVER THERE ARE DISCREPANCIES BETWEEN DRAWINGS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR CONFLICTS WITHIN THE SPECIFICATIONS AND/OR DRAWINGS, AND SUCH DISCREPANCY IS NOT CALLED TO THE ARCHITECT'S ATTENTION IN TIME TO PERMIT CLARIFICATION BY ADDENDUM, THE CONTRACTOR SHALL BASE HIS BID UPON PROVIDING THE BETTER QUALITY OR GREATER OF WORK OR MATERIAL CALLED FOR, SHALL SUBMIT A WRITTEN STATEMENT WITH HIS PROPOSAL NOTING SUCH DISCREPANCIES, AND SHALL SO FURNISH AND INSTALL SUCH BETTER QUALITY OR GREATER QUANTITY UNLESS OTHERWISE ORDERED IN WRITING.

Project No.
1737

Date:
03.29.2024
Drawn by:
AJP/GAS
Checked by:
KCN
Revision #:

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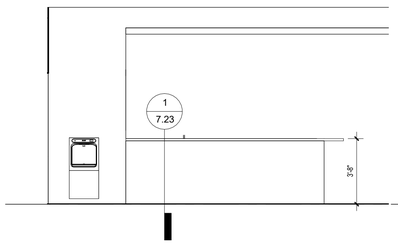
03.29.2024

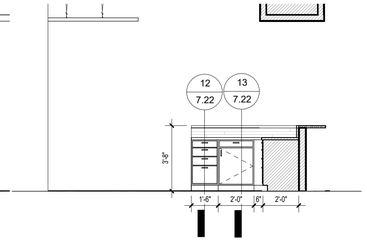
GORDON ROAD FIRE DEPARTMENT

CASEWORK ELEVATIONS AND DETAILS

Sheet No.
7.20



2 KITCHEN 129 BAR ELEV 1
1/4" = 1'-0"



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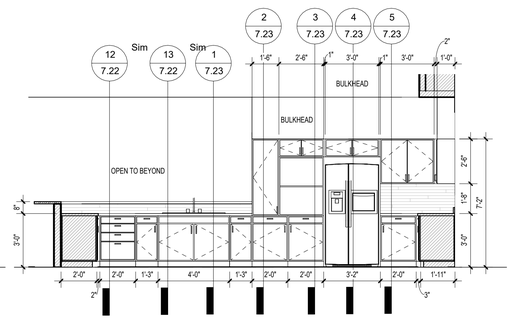
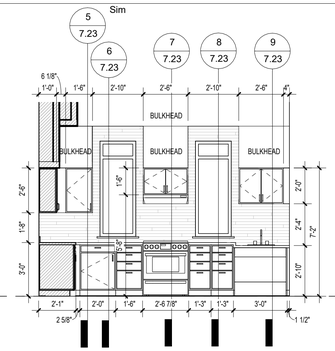


4 KITCHEN 129 ELEV. 2
1/4" = 1'-0"



5 KITCHEN 129 ELEV. 3
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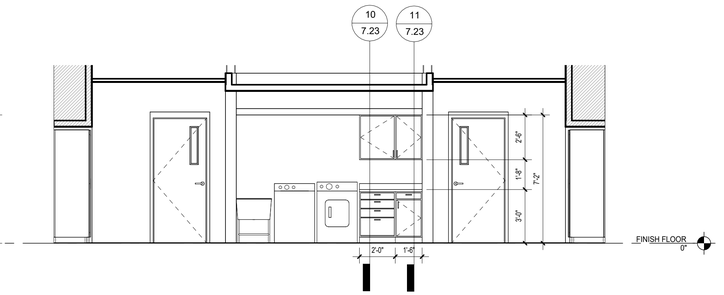
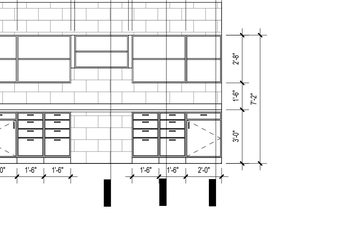
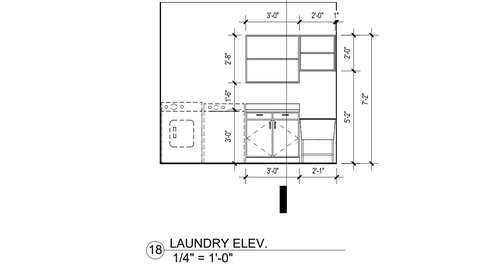


1 DECON 138 ELEV.
1/4" = 1'-0"



6 KITCHEN ISLAND ELEV. 2
1/4" = 1'-0"

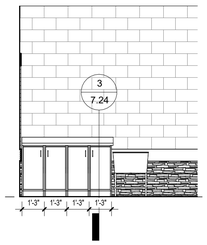


7 KITCHEN ISLAND ELEV. 3
1/4" = 1'-0"

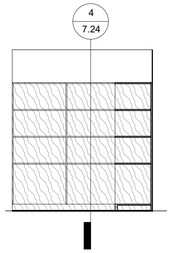
8 KITCHEN ISLAND ELEV 4
1/4" = 1'-0"

9 KITCHEN ISLAND ELEV 1
1/4" = 1'-0"

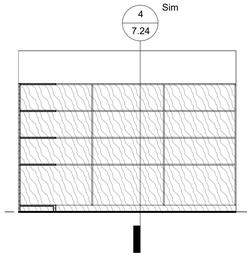
22 KITCHEN BAR ELEV 2
1/4" = 1'-0"



11 PATIO ELEV
1/4" = 1'-0"



12 STORAGE 116 ELEV 1
1/4" = 1'-0"



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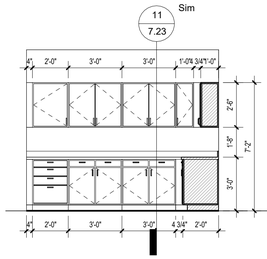

15 JANITOR 134 ELEV 2
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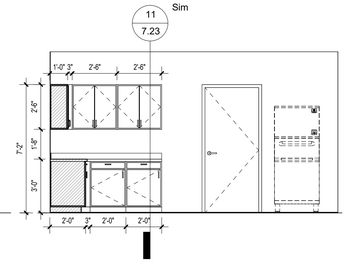

16 JANITOR 134 ELEV 1
1/4" = 1'-0"

17 TOOL ROOM ELEV
1/4" = 1'-0"

18 LAUNDRY ELEV.
1/4" = 1'-0"

Project No.
1737

Date:
3/29/2024 3:39:28 PM
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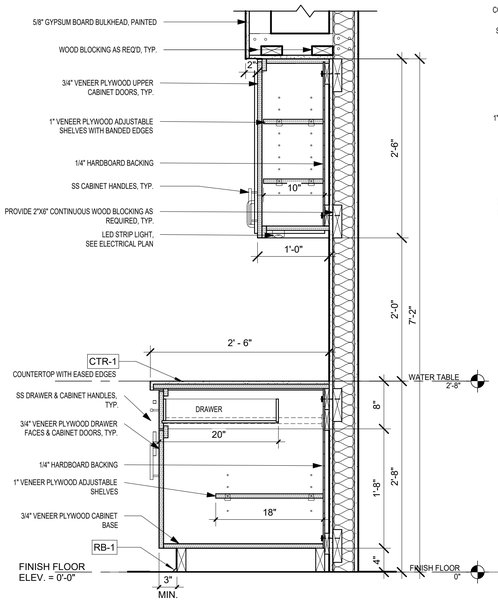
GORDON ROAD FIRE DEPARTMENT

CASEWORK ELEVATIONS AND DETAILS

Sheet No.
7.21



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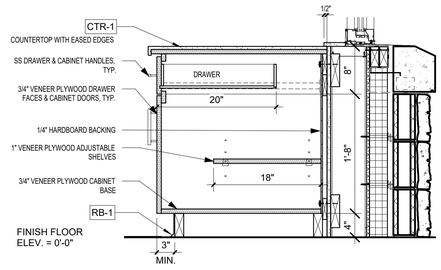

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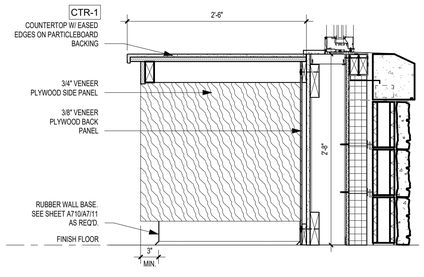

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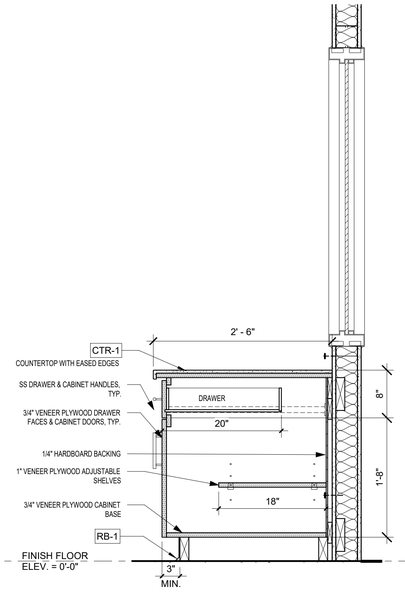

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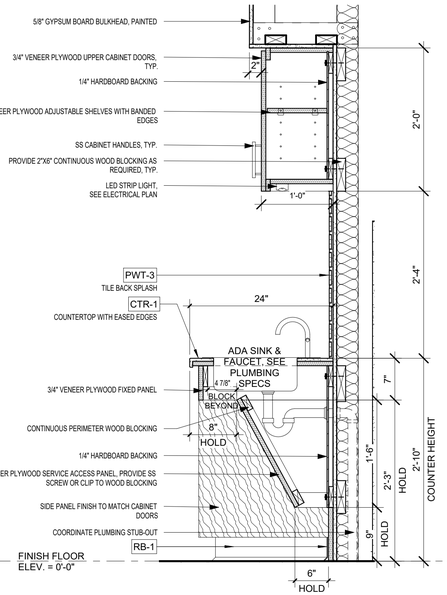

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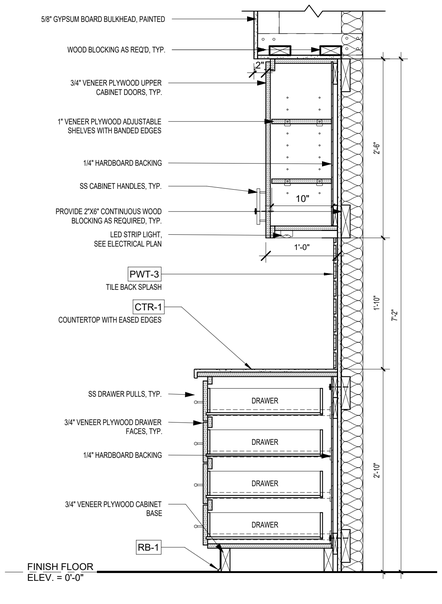

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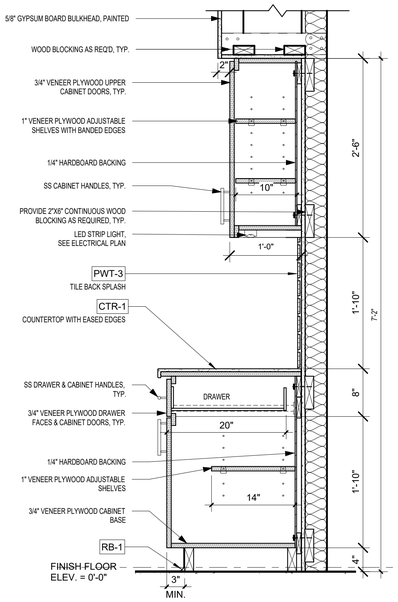

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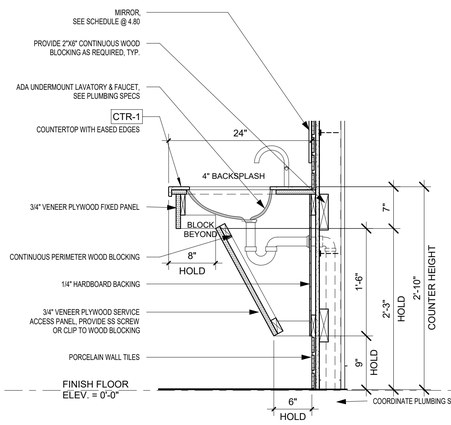

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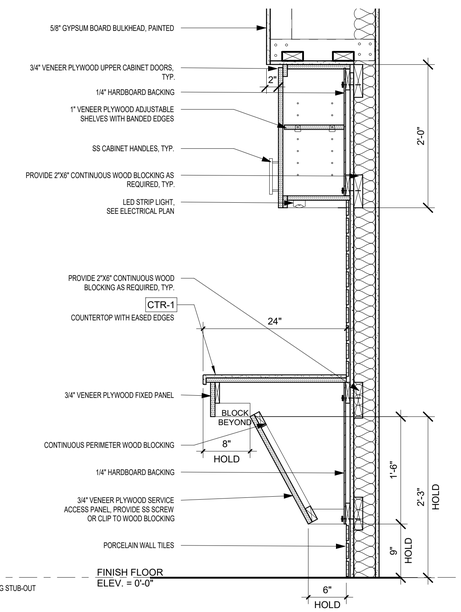

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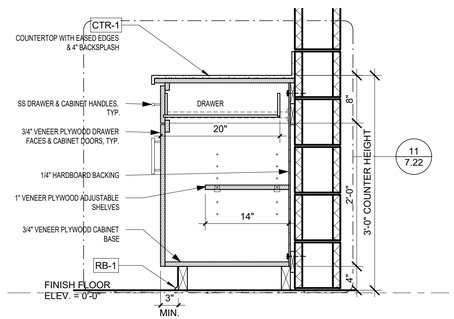

10 SECTION @ DECON CASEWORK
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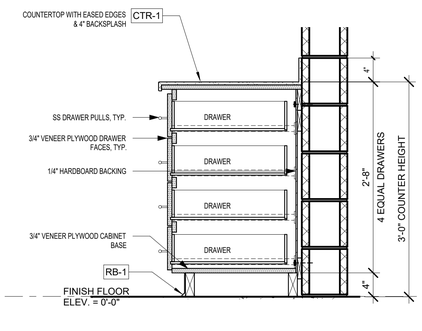
11
7.22



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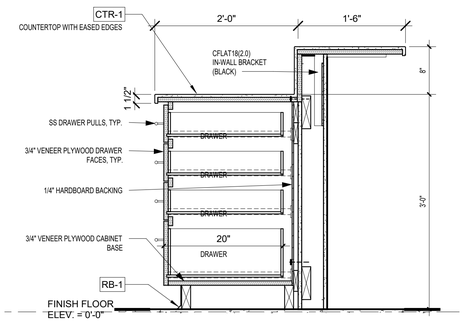

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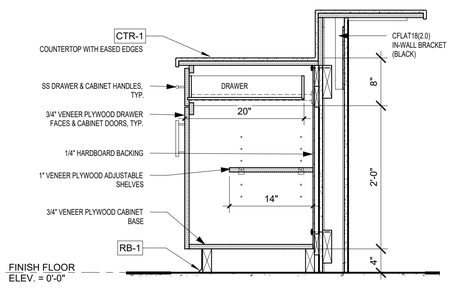

13 SECTION @ KITCHEN CASEWORK
1" = 1'-0"

Project No.
1737

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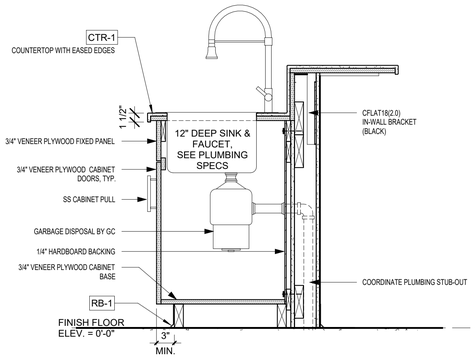
GORDON ROAD FIRE DEPARTMENT

CASEWORK DETAILS

Sheet No.
7.22



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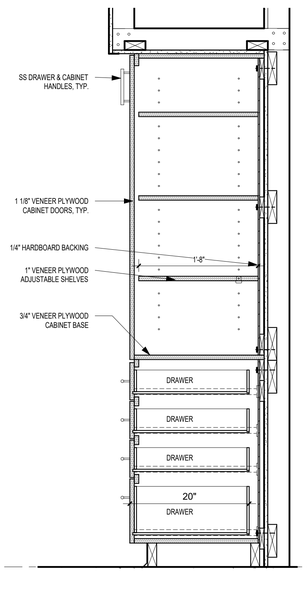

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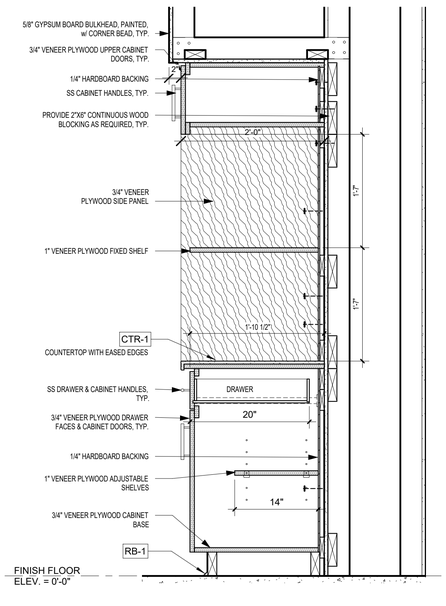

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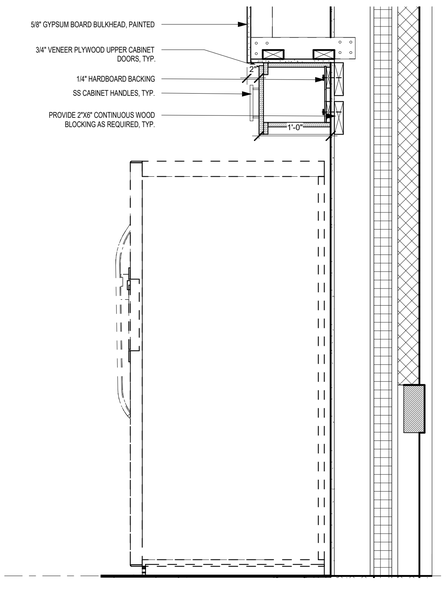

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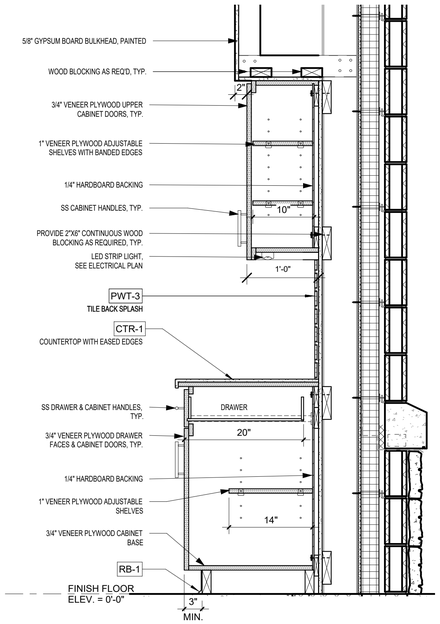

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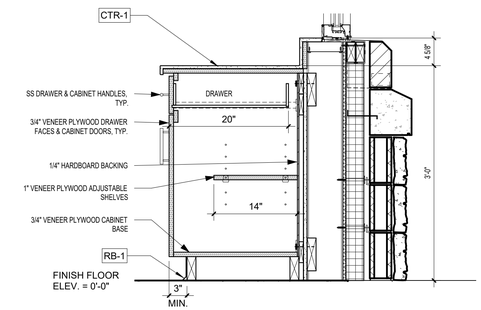

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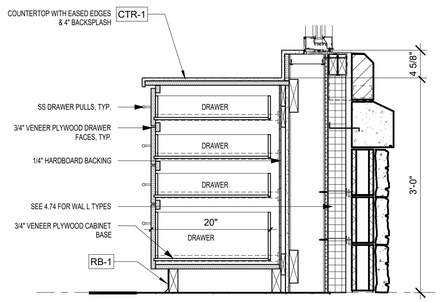

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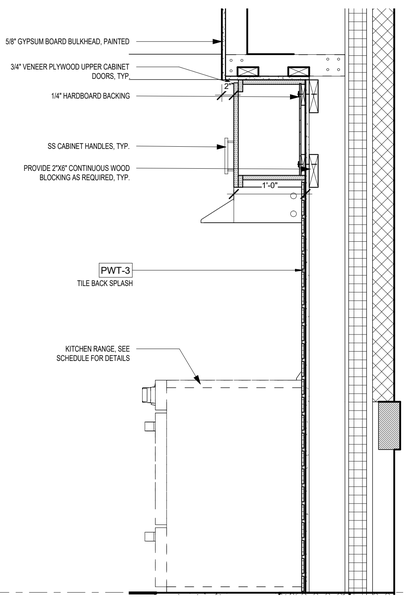

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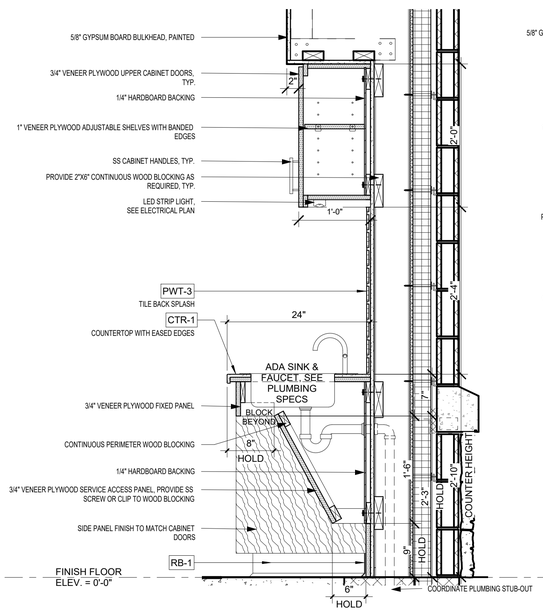

9 SECTION @ ADA KITCHEN SINK
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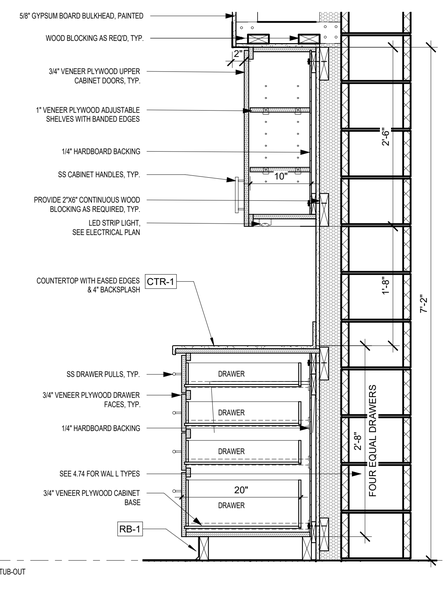

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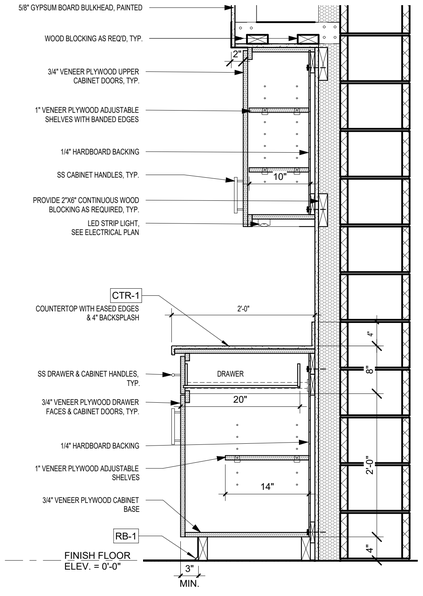

11 Detail 26
1" = 1'-0"

Project No.
1737

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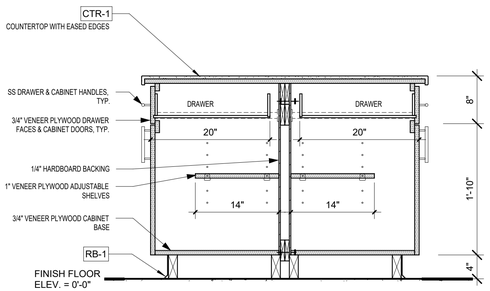
KENNETH C. NEWELL REGISTERED ARCHITECT 6205 NORTH CAROLINA

GORDON ROAD FIRE DEPARTMENT

CASEWORK DETAILS

Sheet No.
7.23



1 SECTION @ KITCHEN ISLAND CASEWORK
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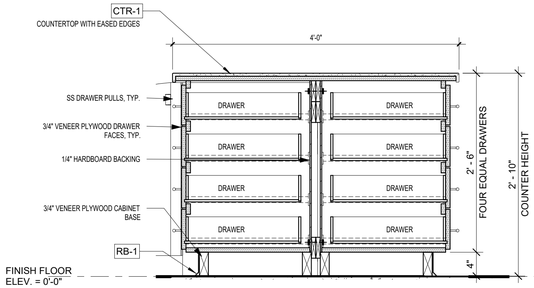

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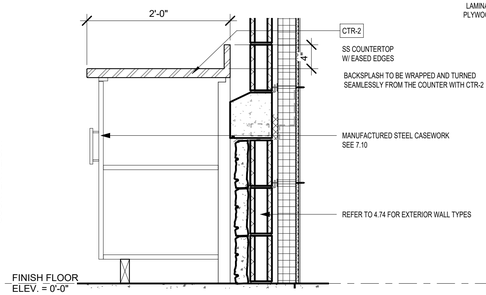
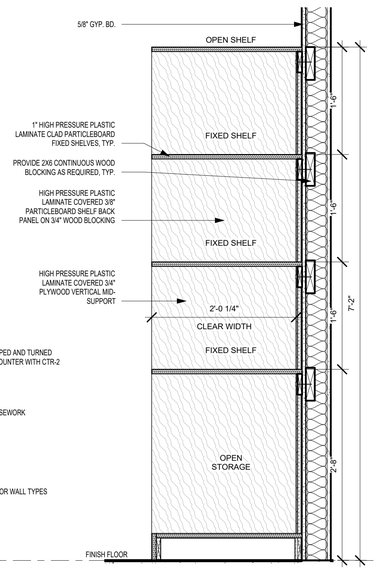
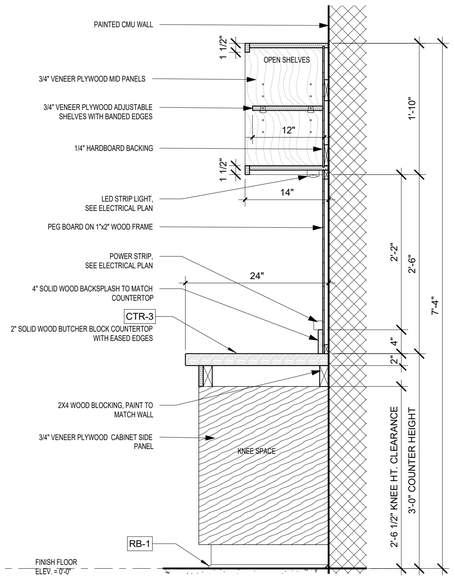


3 SECTION @ PATIO CASEWORK
1" = 1'-0"



4 SECTION @ STORAGE SHELVES
1" = 1'-0"



5 SECTION @ KNEE SPACE
1" = 1'-0"

APPLIANCE NOTES

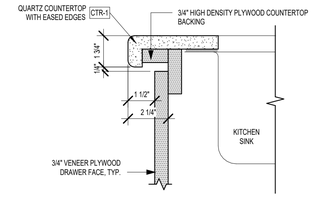
1. SEE SPECS FOR APPLIANCE SCHEDULE

CASEWORK NOTES

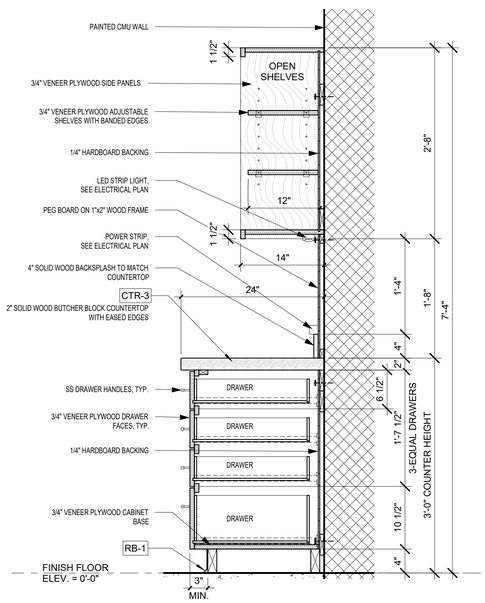
1. SEE FINISH LEGEND ON SHEET 7.10 FOR FINISH TAG REFERENCE.
2. ALL CASEWORK FINISHES DESIGNATED ON SHEET 7.10
3. USE HEAVY DUTY STAINLESS STEEL RPC 454 DOOR HINGES.
4. DRAWERS: STAINLESS STEEL SOFT CLOSING FULL OVER-TRAVEL EXTENSION TYPE WITH STEEL BALL BEARINGS
5. CABINET CATCHES: MAGNETIC TYPE W/ ADJUSTMENT (FINISH: US 26).
6. IF THERE ARE ANY DISCREPANCIES, GC TO SEEK CLARIFICATION IN THE FORM OF RFI(s) FROM THE ARCHITECT PRIOR TO EXECUTION OF WORK.
7. COORDINATE ELECTRICAL POWER PLACEMENT W/ THE ELECTRICAL PLAN.
8. COORDINATE PLUMBING STUB OUTS FOR WATER AND WASTE LINES W/ THE PLUMBING PLAN.
9. ALIGN HINGES WITH ADJACENT CABINET HINGES
10. GC TO COORDINATE ALL TRADES AFFECTING CASEWORK TO ACHIEVE ACCEPTABLE OUTCOME
11. CASEWORK CODES ON DRAWINGS CORRESPOND TO BASIS OF DESIGN: KEWAUNEE SCIENTIFIC CASEWORK

USE METAL SHELF SUPPORT
WITH CLEAR VINYL COATING

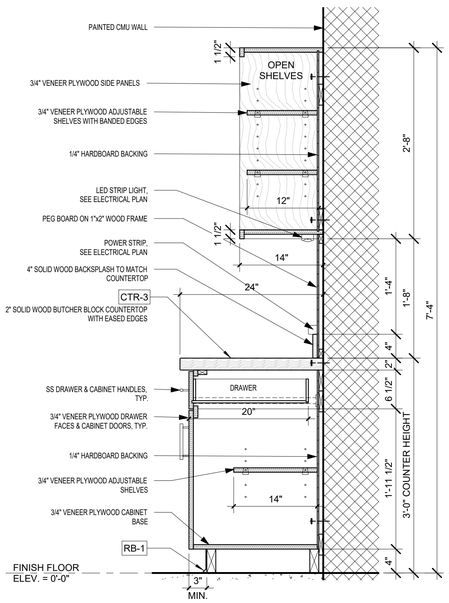
CABINET & DRAWER PULL SPECS:
4007-128-SS, 5" CC (6-1/2" LONG)
SOLID EURO BAR PULL, GILDERITE HARDWARE



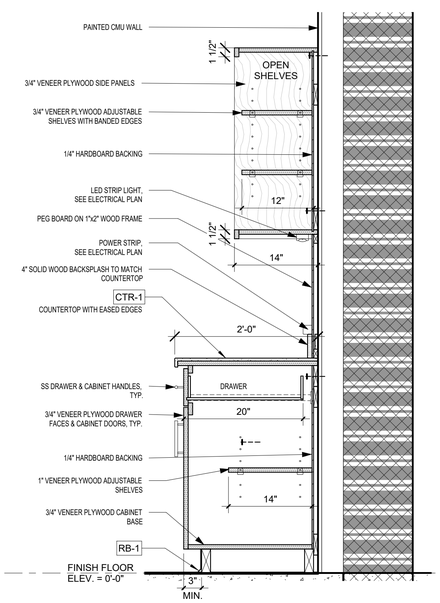
9 QUARTZ SINK EDGE
3" = 1'-0"



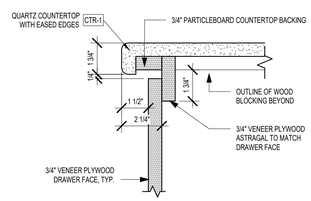
6 SECTION @ TOOL ROOM DRAWERS
1" = 1'-0"



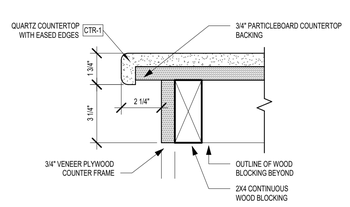
7 SECTION @ TOOL ROOM CASEWORK
1" = 1'-0"



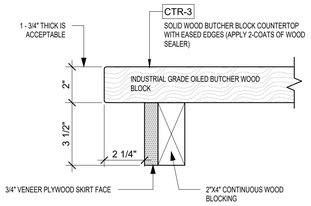
8 SECTION @ LAUNDRY CASEWORK
1" = 1'-0"



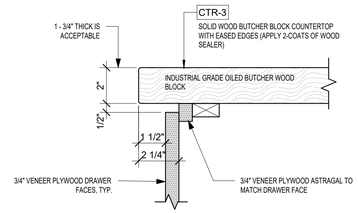
10 QUARTZ COUNTER EDGE DETAIL
3" = 1'-0"



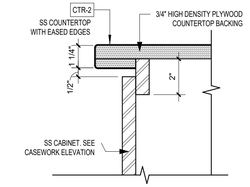
11 QUARTZ COUNTER EDGE DETAIL
3" = 1'-0"



12 WOOD COUNTER EDGE DETAIL
3" = 1'-0"



13 WOOD COUNTER EDGE DETAIL
3" = 1'-0"



14 STAINLESS STEEL EDGE DETAIL
3" = 1'-0"

Project No.
1737

Date:
3/29/2024 3:39:35 PM
Drawn by:
Author
Checked by:
Checker
Revisions:

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GORDON ROAD FIRE DEPARTMENT

CASEWORK DETAILS

Sheet No.
7.24

NATURAL GAS PIPING

1. BELOW GRADE PIPING AND FITTINGS (OUTSIDE): PROVIDE SCHEDULE 40 BLACK STEEL, TYPE S, SEAMLESS, GRADE B (ASTM A 53) AND FORGED STEEL WELDING TYPE FITTINGS (ASTM A234) WITH (AWWA C105) POLYETHYLENE JACKET OR DOUBLE LAYER, HALF LAPPED 10 MIL POLYETHYLENE TAPE. PROVIDE WELDED JOINTS (ASME B31.9) FOR ALL UNDERGROUND PIPE. PROVIDE METALIZED WARNING TAPE BETWEEN GRADE AND ALL UNDERGROUND GAS PIPING.

2. ABOVE GRADE PIPING AND FITTINGS : PROVIDE SCHEDULE 40 BLACK STEEL PIPING, TYPE S, SEAMLESS, GRADE B (ASTM A 53) AND 150 PSI MALLEABLE BLACK IRON FITTINGS, GRADE 32510, (ASTM B 16.3) OR FORGED STEEL WELDING TYPE FITTINGS (ASTM A234). PROVIDE THREADED JOINTS FOR PIPE 2" AND SMALLER. PROVIDE WELDED JOINTS (ASME B31.9) FOR PIPE 2-1/2" AND LARGER.

3. SPACE GAS PIPING HANGER RODS 7'-0" ON CENTER MAXIMUM AND SPACE TRANSVERSE BRACING 20'-0" ON CENTER MAXIMUM. TRANSVERSE BRACING FOR ONE SECTION MAY ACT AS LONGITUDINAL BRACING FOR THE PIPE SECTION CONNECTED TO IT IF THE BRACING IS INSTALLED WITHIN 24" OF THE ELBOW OR TEE. COORDINATE HANGER LOCATIONS WITH STRUCTURAL DRAWING DETAILS.

4. PROVIDE A.G.A. CERTIFIED SHUT-OFF VALVES MINIMUM, 125 PSI RATED, NON- LUBRICATED PLUG TYPE WITH BRONZE BODY AND BRONZE PLUG, STRAINERS AND REGULATORS (AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER) FOR ALL EQUIPMENT CONNECTED TO THE NATURAL GAS SYSTEM.

5. GAS PRESSURE REGULATORS SHALL COMPLY WITH ANSI Z21.80. REGULATORS SHALL BE CAST IRON OR DIE-CAST ALUMINUM CONSTRUCTION WITH INTERCHANGEABLE ZINC-PLATED STEEL SPRINGS, ZINC-PLATED STEEL DIAPHRAGM PLATE, NITRILE RUBBER SEAT DISC, INTERCHANGEABLE ALUMINUM ORIFICE, AND ULTRAVIOLET-STABILIZED MINERAL FILLED NYLON SEAL PLUG. REGULATOR SHALL BE SINGLE-PORT SELF-CONTAINED WITH ORIFICE NO LARGER THAN REQUIRED AT MAXIMUM PRESSURE INLET AND NO PRESSURE SENSING PIPING EXTERNAL TO THE REGULATOR. PRESSURE REGULATOR SHALL MAINTAIN DISCHARGE PRESSURE SETTING DOWNSTREAM AND NOT EXCEED 150 PERCENT OF DESIGN DISCHARGE PRESSURE AT SHUTOFF. OVERPRESSURE PROTECTION DEVICE SHALL BE FACTORY MOUNTED ON REGULATOR. WHEN USING VENTLESS REGULATORS, MOUNT REGULATOR IN A HORIZONTAL UPRIGHT POSITION. IF VENTED TYPE REGULATORS ARE USED, INSTALL VENT PIPING (FULL SIZE OPENING) FROM GAS PRESSURE REGULATORS TO OUTDOORS AND TERMINATE IN WEATHERPROOF HOOD.

6. PAINT ALL GAS PIPING WITH 2 COATS OF YELLOW ENAMEL PAINT APPLIED WITH A BRUSH (2 MIL THICKNESS MINIMUM). LABEL ALL GAS PIPING ON 5'-0" CENTERS INDICATING THE GAS PRESSURE.
   5 PSI GAS PIPING SHALL BE LABELED "5-PSI GAS".
   2 PSI GAS PIPING SHALL BE LABELED "2-PSI GAS"
   LOW PRESSURE GAS PIPING SHALL BE LABELED "GAS"

7. CONTACT LOCAL GAS UTILITY TO PROVIDE GAS SERVICE AND GAS METER WITH A PULSE OUTPUT COMPATIBLE WITH THE BUILDING AUTOMATION SYSTEM. COORDINATE REQUIREMENTS WITH MECHANICAL CONTRACTOR AND LOCAL GAS UTILITY.

SANITARY WASTE & VENT PIPING

1. BELOW GRADE PIPING AND JOINTS: PROVIDE SERVICE WEIGHT CAST IRON HUB AND SPIGOT PIPE (ASTM A 74) WITH COMPRESSION JOINTS (CISPI HSN) AND NEOPRENE GASKETS (ASTM C 564) OR NO-HUB PIPE AND FITTINGS (CISPI 301) WITH NEOPRENE GASKET / STAINLESS STEEL CLAMP JOINTS (CISPI 310) WITH NEOPRENE GASKET / STAINLESS STEEL CLAMP JOINTS (ASTM C1540-15) OR PROVIDE SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). INSTALL PLASTIC PIPE BELOW GRADE PER ASTM D2321. FOAM CORE PVC PIPING IS NOT APPROVED. NOTE: PROVIDE CAST IRON PIPING SPECIFIED ABOVE FOR ALL KITCHEN GREASE WASTE PIPING UPSTREAM OF THE GREASE INTERCEPTOR AND FOR MECHANICAL ROOM DRAIN PIPING, PVC IS NOT ACCEPTABLE IN THESE AREAS.

2. ABOVE GRADE PIPING AND JOINTS: PROVIDE SERVICE WEIGHT CAST IRON NO-HUB PIPE AND FITTINGS (CISPI 301) WITH NEOPRENE GASKET AND STAINLESS STEEL CLAMP JOINTS (CISPI 310) WITH NEOPRENE GASKET / STAINLESS STEEL CLAMP JOINTS (ASTM C1540-15) OR PROVIDE SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). FOAM CORE PIPE IS NOT APPROVED. DO NOT INSTALL PVC PIPING IN RETURN AIR PLENUMS.

3. SLOPE WASTE PIPING AT 1/4" PER FOOT MINIMUM FOR PIPING 2-1/2" AND SMALLER AND 1/8" PER FOOT MINIMUM FOR PIPING 3" AND LARGER UNLESS NOTED OTHERWISE. SLOPE ALL KITCHEN GREASE WASTE PIPING AT 1/4" PER FOOT MINIMUM.

4. PROVIDE CLEAN-OUTS AT THE BASE OF WASTE STACKS, AND AT EVERY TURN IN PIPING IN EXCESS OF 45° AND SPACED WITH-IN 100'-0" APART IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS.

5. PROVIDE FLOOR CLEANOUTS WITH TOPS DESIGNED TO MATCH SPECIFIC FLOOR FINISHES SUCH AS CARPET, TILE, ETC. YARD CLEANOUTS SHALL BE PROVIDED IN AN 18"x18"x6" CONCRETE PAD.

6. WHERE WASTE PIPING IS EXPOSED IN REST ROOM AREAS, PROVIDE CHROME PLATED BRASS PIPING, REMOVABLE P-TRAPS, MATCHING STOPS AND ESCUTCHEONS FOR ALL LAVATORIES.

7. WASTE AND VENT SYSTEMS SHALL BE TESTED AND PROVED WATER TIGHT UNDER A HEAD PRESSURE OF NO LESS THAN 10 FT. THIS PRESSURE SHALL BE HELD FOR A PERIOD OF NO LESS THAN 15 MINUTES.

8. WHERE MECHANICAL ROOM FLOOR DRAINS ARE INSTALLED ABOVE GRADE, PROVIDE 1"THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET ON THE FLOOR DRAIN BODY, THE ASSOCIATED P-TRAP AND HORIZONTAL DRAIN PIPING ABOVE GRADE.

9. PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES SHALL MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS AS TESTED BY ASTM E84 (NFPA 255) METHOD. INSTALL INSULATION CONTINUOUSLY THRU FIRE RATED WALLS AND PIPE HANGERS. PROVIDE GALVANIZED STEEL SHIELD BETWEEN PIPE HANGER AND INSULATION.

DOMESTIC WATER PIPING

1. BELOW GRADE PIPING AND JOINTS: PROVIDE TYPE 'K' SOFT ANNEALED SEAMLESS COPPER TUBING (ASTM B 88) WITH NO JOINTS FOR PIPING 2-1/2" AND SMALLER. PROVIDE DUCTILE IRON PIPE AND FITTINGS (AWWA C151, AWWA C110) WITH RUBBER GASKET JOINTS AND RODS (AWWA C111) FOR PIPING 3" AND LARGER.

2. ABOVE GRADE PIPING AND JOINTS: PROVIDE TYPE 'L' HARD DRAWN SEAMLESS COPPER TUBING (ASTM B 88) AND CAST COPPER ALLOY FITTINGS (ASME B16.18). JOINTS 2" AND SMALLER SHALL BE LEAD FREE 95-5 TIN/SILVER SOLDER JOINTS (ASTM B 32), JOINTS 2-1/2" AND LARGER SHALL BE BCUP SILVER / PHOSPHORUS / COPPER BRAZED JOINTS (AWS A5.8). ALTERNATELY PROVIDE COPPER PIPE AND FITTINGS AS SPECIFIED ABOVE EXCEPT WITH GROOVED ENDS (ASTM B 88, ASME B16.18) AND JOINTS UTILIZING GROOVED MECHANICAL COUPLINGS MEETING (ASTM F1476).

3. INSULATE PIPING ABOVE GRADE (EXCEPT EXPOSED CONNECTIONS TO PLUMBING FIXTURES) WITH GLASS FIBER INSULATION HAVING A VAPOR BARRIER AND JACKET. PIPE INSULATION SHALL HAVE A CONDUCTIVITY NOT EXCEEDING 0.27 BTUH x SQ. FT., SEE LIST BELOW FOR INSULATION THICKNESS:

   - PROVIDE 1" THICK INSULATION FOR HOT WATER & CIRCULATION PIPING SIZES 1/2" THRU 1-1/4".
   - PROVIDE 1-1/2" THICK INSULATION FOR HOT WATER & CIRCULATON PIPING SIZES 1-1/2" THRU 4".
   - PROVIDE 1/2" THICK INSULATION FOR COLD WATER PIPING SIZES 1/2" THRU 1-1/4".
   - PROVIDE 1" THICK INSULATION FOR COLD WATER PIPING SIZES 1-1/2" THRU 4".

4. PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES SHALL MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS AS TESTED BY ASTM E84 (NFPA 255) METHOD AND SHALL BE PLENUM RATED. PROVIDE PVC INSULATION JACKET FOR EXPOSED PIPING IN MECHANICAL ROOMS. INSTALL INSULATION CONTINUOUSLY THRU FIRE RATED WALLS AND PIPE HANGERS. PROVIDE GALVANIZED STEEL SHIELD BETWEEN PIPE HANGER AND INSULATION.

5. PROVIDE A CHROME FINISH ON EXPOSED PIPING IN REST ROOMS AND OTHER FINISHED AREAS.

6. PROTECT COPPER PIPING AGAINST CONTACT WITH DISSIMILAR METALS. ALL HANGERS, SUPPORTS, ANCHORS AND CLIPS SHALL BE COPPER OR COPPER PLATED. WHERE COPPER PIPING IS CARRIED ON TRAPEZE HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH DISSIMILAR OTHER METALS.

7. PROTECT COPPER PIPING AGAINST CONTACT WITH MASONRY. WHERE COPPER IS SLEEVED THROUGH MASONRY, PROVIDE COPPER OR RED BRASS SLEEVES. WHERE COPPER MUST BE CONCEALED IN OR AGAINST MASONRY PARTITIONS, PROVIDE A HEAVY COATING OF ASPHALTIC ENAMEL ON THE COPPER PIPING AND 15# ASPHALT SATURATED FELT BETWEEN THE PIPING AND THE MASONRY PARTITION.

8. PERFORM A PRESSURE TEST ON ALL WATER PIPING. FILL PIPING WITH POTABLE WATER, CAP AND SUBJECT PIPING TO A STATIC WATER PRESSURE OF 50 PSIG ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS OR PRESSURIZE PIPING WITH AIR TO AT LEAST ONE-HUNDRED (100) PSI. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED

9. STERILIZE THE DOMESTIC WATER SYSTEM IN PER THE AMERICAN WATER WORKS ASSOCIATION'S INSTRUCTIONSSPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.

10. SLOPE WATER PIPING FOR DRAINAGE WITH DRAIN VALVES INSTALLED AT LOW POINTS.

11. BALANCE THE DOMESTIC HOT WATER CIRCULATION SYSTEM TO THE PERFORMANCE SPECIFICATIONS INDICATED ON THE PLANS AND PROVIDE THE ENGINEER WITH THREE COPIES OF A COMPLETE TEST AND BALANCE REPORT. THE REPORT IS TO BE ISSUED A MINIMUM OF TWO WEEKS PRIOR TO PROJECT COMPLETION. THE TEST AND BALANCE REPORT WILL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. ANY ADDITIONAL TESTING, ADJUSTING AND BALANCING REQUIRED (AT ENGINEER'S REQUEST) AFTER REVIEW OF THE INITIAL REPORT SHALL BE PROVIDED AT NO ADDITIONAL COST. TEST AND BALANCE REPORT TO BE COMPLETED BY AN INDEPENDENT, CERTIFIED TEST AND BALANCE CONTRACTOR.

COMPRESSED AIR PIPING

1. PROVIDE HARD DRAWN SEAMLESS COPPER TUBING (ASTM B 88), TYPE 'L' AND WROUGHT COPPER FITTINGS (ASME B16.22). JOINTS SHALL BE 95-5 TIN/SILVER SOLDER JOINTS (ASTM B 32).

2. PROVIDE SCHEDULE 40 BLACK STEEL (ASTM A53/A53M) WITH MALLEABLE IRON FITTINGS (ASME B16.3) OR FORGED STEEL WELDING TYPE (ASTM A234/A234M). JOINTS SHALL BE THREADED FOR 2" AND SMALLER, WELDED FOR 2-1/2" AND LARGER.

PLUMBING GENERAL NOTES

1. GENERAL AND SPECIAL CONDITIONS OF THE CONTRACT APPLY TO THE PLUMBING SCOPE OF WORK. THE PLUMBING DRAWINGS AND SPECIFICATIONS SHALL NOT BE INTERPRETED AS WAIVING OR OVERRULING ANY REQUIREMENTS EXPRESSED IN GENERAL CONDITIONS.

2. PLUMBING WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2018 NORTH CAROLINA STATE PLUMBING CODE AND WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.

3. SCOPE: PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL PLUMBING SYSTEMS IN ACCORDANCE WITH ALL APPLICABLE CODES.

4. PERMITS: APPLY AND PAY FOR ALL NECESSARY PERMITS, FEES AND INSPECTIONS REQUIRED BY ANY PUBLIC AUTHORITY HAVING JURISDICTION. ACREAGE CHARGES, FACILITIES CHARGES AND BOND PROPERTY ASSESSMENTS ARE NOT TO BE CONSTRUED TO BE A PART OF THIS CONTRACT.

5. WARRANT THE SYSTEM LABOR, MATERIALS AND EQUIPMENT FOR THE TIME PERIOD SPECIFIED IN THE PROJECT MANUAL. IF NO WARRANTY SECTION IS PROVIDED, THEN WARRANT THE SYSTEM LABOR, MATERIAL AND EQUIPMENT FOR A MINIMUM OF ONE YEAR AFTER COMPLETION AND ACCEPTANCE. PRIOR TO TURNING THE COMPLETED SYSTEM OVER TO THE OWNER, REVIEW THE INSTALLATION WITH THE ARCHITECT / ENGINEER AND REPLACE OR REPAIR ANY DEFECTIVE WORKMANSHIP, EQUIPMENT AND MATERIALS AT NO ADDITIONAL COST TO THE OWNER.

6. COORDINATE ALL PLUMBING PIPING LOCATIONS, ROUGH-IN LOCATIONS AND EQUIPMENT LOCATIONS WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES. FINAL PIPING AND EQUIPMENT LOCATIONS SHALL BE A CODE COMPLIANT INSTALLATION FOR ALL TRADES.

7. FIELD VERIFY PROPER OPERATION OF EXISTING SYSTEMS BEFORE STARTING CONSTRUCTION. NOTIFY THE ARCHITECT / ENGINEER OF RECORD OF ANY PROBLEMS OR DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND EXISTING CONDITIONS AND/OR ANY POTENTIAL PROBLEMS OBSERVED BEFORE CONTINUING WORK IN THE AFFECTED AREAS.

8. PLUMBING PLANS SHALL NOT BE SCALED. REFERENCE THE ARCHITECTURAL PLANS FOR DIMENSIONS OF ALL LOCATIONS OF PLUMBING FIXTURES, FLOOR DRAINS, COLUMNS, WALLS, DOORS, ETC.

9. WHERE DISCREPANCIES ARE FOUND IN THE DRAWINGS AND SPECIFICATIONS THE MORE STRINGENT SHALL APPLY. CONTACT ENGINEER FOR CLARIFICATION.

10. ALL PIPING SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.

11. ALL VALVES, BACKFLOW PREVENTERS, BOOSTER PUMPS, ETC. SERVING THE DOMESTIC WATER SYSTEM SHALL MEET LEAD FREE STANDARDS PER ANSI/NSF 372 AND NSF 61, ANNEX G.

12. PROVIDE COMPLETE PLUMBING FIXTURES AND EQUIPMENT. INCLUDE SUPPLIES, STOPS, VALVES, FAUCETS, DRAINS, TRAPS, TAIL PIECES, ESCUTCHEONS, ETC. AND INSTALL PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

13. CUT WALLS, FLOORS AND CEILINGS AS REQUIRED FOR INSTALLATION OF PLUMBING WORK. ALL CUTTING SHALL BE HELD TO A MINIMUM. PATCH AND FINISH SURFACES TO MATCH ADJOINING SURFACES.

14. PIPING AND SPECIALTIES SHALL BE LOCATED CONCEALED IN WALLS, PARTITIONS OR ABOVE CEILINGS UNLESS NOTED OTHERWISE. PIPING IN EXPOSED AREAS SHALL BE RUN TIGHT TO UNDERSIDE OF STRUCTURE.

15. PIPE PENETRATIONS THRU WALLS, PARTITIONS AND FLOORS SHALL BE SLEEVED. CORE DRILLING THRU WALLS AND PARTITIONS IS PERMITTED IF PERFORMED IN A NEAT CRAFTSMAN LIKE MANNER. OPENINGS THRU WALLS, PARTITIONS, AND FLOORS SHALL BE LARGE ENOUGH FOR PIPE INSULATION TO REMAIN CONTINUOUS. PIPES PENETRATING THRU EXTERIOR WALLS SHALL BE SEALED WATER TIGHT. INSTALL ESCUTCHEONS IN ALL EXPOSED AREAS.

16. PROVIDE ACCESS DOORS FOR ALL SPECIALTIES, VALVES, WATER HAMMER ARRESTORS, TRAP PRIMERS, ETC., CONCEALED BEHIND WALLS OR CEILINGS THAT REQUIRE MAINTENANCE ACCESS.

17. DO NOT INSTALL PIPING IN AREAS SUBJECT TO FREEZING TEMPERATURES. INSTALL PIPING SHOWN IN EXTERIOR WALLS ON THE CONDITIONED SIDE OF THE WALL INSULATION.

18. PIPING, VENTS, ETC. EXTENDING THROUGH EXTERIOR WALLS AND/OR THE ROOF SHALL BE FLASHED AND COUNTER FLASHED IN A WATERPROOF MANNER. COORDINATE FLASHING WITH THE GENERAL CONTRACTOR.

19. PROVIDE A CHROME FINISH FOR ALL EXPOSED PIPING IN REST ROOMS AND OTHER FINISHED AREAS.

20. PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.

21. REFER TO THE STRUCTURAL PLANS AND DETAILS FOR ACCEPTABLE LOCATIONS TO ATTACH HANGERS AND SUPPORTS TO THE BUILDING STRUCTURE. HANGERS SHALL NOT ATTACH TO THE ROOF DECK.

22. PROVIDE MANUFACTURERS RECOMMENDED CLEARANCES AROUND ALL EQUIPMENT FOR MAINTENANCE.

23. VALVES AND OTHER PIPING ACCESSORIES REQUIRING ACCESS SHALL BE INSTALLED IN ACCESSIBLE LOCATION NO MORE THAN 18" ABOVE THE CEILING, PROVIDE OFFSETS IN PIPING AS NEEDED.

24. PLUMBING SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO: PLUMBING FIXTURES AND EQUIPMENT, FIRE STOPPING, SEISMIC BRACING, PIPE IDENTIFICATION, DOMESTIC WATER SYSTEM, SANITARY WASTE AND VENT SYSTEM, NATURAL GAS SYSTEM.

FIRE STOPPING:

1. FIRE STOP ALL PENETRATIONS, BY PIPING OR CONDUITS, OF FIRE RATED WALLS, FLOORS AND PARTITIONS. PROVIDE A DEVICE(S) OR SYSTEM(S) WHICH HAS BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E-814 AND INSTALL IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE A DEVICE(S) OR SYSTEM(S) WITH AN 'F' RATING EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED. REFER TO ARCHITECTURAL PLANS FOR WALL AND FLOOR TYPES.

SEISMIC BRACING:

1. PROVIDE DESIGN AND INSTALLATION OF SEISMIC RESTRAINT ELEMENTS FOR THE PLUMBING SYSTEM(S) IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE 2018 NORTH CAROLINA BUILDING CODE AND ASCE 7-10, CHAPTER 13. REFER TO THE APPENDIX B ON THE ARCHITECTURAL DRAWINGS FOR THE SITE'S SEISMIC DESIGN CATEGORY.

2. PROPERLY SUPPORT AND BRACE VERTICALLY AND HORIZONTALLY ALL PIPING, APPARATUS, EQUIPMENT, ETC. IN ACCORDANCE WITH APPLICABLE CODES TO PREVENT EXCESSIVE MOVEMENT DURING SEISMIC CONDITIONS.

PIPE IDENTIFICATION:

1. PIPE IDENTIFICATION SHALL MATCH THE FACILITY'S EXISTING STANDARD. IF NO STANDARD EXISTS, THEN THE PIPE IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI A13.1.

2. PROVIDE PIPING LABELS FOR ALL PLUMBING PIPING. PIPING LABELS SHALL BE ACRYLIC FACED, WRAP-AROUND TYPE. EACH LABEL SHALL INDICATE THE PIPING CONTENTS, DIRECTION OF FLOW AND SHALL BEAR THE MANUFACTURER'S STANDARD COLOR FOR THE SERVICE INDICATED.

SUBMITTALS:

1. PROVIDE SUBMITTALS BEARING THE CONTRACTORS REVIEW STAMP FOR ALL PLUMBING FIXTURES, PIPING, EQUIPMENT AND ACCESSORIES IN ELECTRONIC FORMAT (PDF).

2. NO PRIVATE LABELED MATERIALS WILL BE ACCEPTED AS EQUALS TO PRODUCTS SPECIFIED HEREIN.

3. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SUBSTITUTIONS TO SPECIFIED PLUMBING FIXTURES AND EQUIPMENT INCLUDING BUT NOT LIMITED TO; PROVIDING MAINTENANCE ACCESS CLEARANCE, PIPING, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC. AND ANY MODIFICATIONS TO ASSOCIATED MECHANICAL, ELECTRICAL OR PLUMBING SYSTEMS REQUIRED BY THE EQUIPMENTS INSTALLATION INSTRUCTIONS. ALL COSTS ASSOCIATED WITH SUBSTITUTIONS SHALL BE INCLUDED IN THE ORIGINAL BASE BID.

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	CW	COLD WATER PIPING
	HW	HOT WATER PIPING
	HWR	HOT WATER RETURN PIPING
CA	CA	COMPRESSED AIR PIPING
	W	SANITARY WASTE PIPING
	V	SANITARY VENT PIPING
GW	GW	GREASE WASTE PIPING
OW	OW	OIL WASTE PIPING
G	G	NATURAL GAS PIPING
	-	PIPING ELBOW DOWN
	-	PIPING ELBOW UP
	-	PIPING CONTINUES
	-	SHUT-OFF VALVE
	-	CHECK VALVE
	-	BALANCING VALVE
	PRV	PRESSURE REDUCING VALVE
S	-	SOLENOID VALVE
	RPZ	REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY
	-	IN-LINE PUMP
	-	PIPING REDUCER
	FCO	FLOOR CLEANOUT
	YCO	YARD CLEANOUT
	WCO	WALL CLEANOUT
	CO	PLUG CLEANOUT
	FD	FLOOR DRAIN
	FS	FLOOR SINK
	HB	HOSE BIBB / WALL HYDRANT
SA	SA-#	SHOCK ARRESTOR - SUFFIX INDICATES PDI SIZE

ADDITIONAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MFG	MANUFACTURER
AFG	ABOVE FINISHED GRADE	PSI	POUNDS PER SQUARE INCH
AVTR	ACID VENT THRU ROOF	T&P	TEMPERATURE AND PRESSURE
BAS	BUILDING AUTOMATION SYSTEM	TW	TEMPERED WATER
BFF	BELOW FINISHED FLOOR	TYP	TYPICAL
CFH	CUBIC FEET PER HOUR	UG	UNDERGROUND
CLG	CEILING	VTR	VENT THRU ROOF
CONT	CONTINUATION	WSV	WASTE STACK VENT
DN	DOWN	WC	WATER COLUMN
GPF	GALLONS PER FLUSH		
GPM	GALLONS PER MINUTE	EC	ELECTRICAL CONTRACTOR
HP	HORSE POWER	FSC	FOOD SERVICE CONTRACTOR
INV	INVERT ELEVATION	GC	GENERAL CONTRACTOR
KW	KILOWATT	MC	MECHANICAL CONTRACTOR
MBH	1,000 BRITISH THERMAL UNIT / HOUR	PC	PLUMBING CONTRACTOR

PLUMBING SHEET INDEX

SHEET NUMBER	SHEET NAME
P0.01	PLUMBING LEGEND, INDEX, AND NOTES
P0.02	PLUMBING SCHEDULES
P1.01	DRAINAGE PIPING FLOOR PLANS
P1.02	DRAINAGE PIPING ROOF PLAN
P2.01	SUPPLY PIPING FLOOR PLANS
P5.01	PLUMBING DETAILS
P5.02	PLUMBING DETAILS

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Project No.
1691

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Seal Date

GORDON ROAD FIRE DEPARTMENT

PLUMBING LEGEND, INDEX, AND NOTES

Sheet No.
P0.01

Opt # 22-0369

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PLUMBING SPECIALTIES SCHEDULE

SYMBOL	DESCRIPTION	CONNECTION SIZE W	V	CW	HW	SPECIFICATION	REMARKS
WB1	WASHING MACHINE CONNECTION BOX; 14"x 9"x 3.5", 20 GAUGE STEEL WITH WHITE POWDER COATING, RECESSED IN WALL	3"	2"	1/2"	1/2"	FIXTURE: GUY GRAY T200TPPVCHA WITH WATER HAMMER ARRESTOR STOPS: INTEGRAL 1/4 TURN SUPPLIES: (2) 5/8" BRAIDED S.S. FLEXIBLE HOSES	2" DRAIN OUTLET, 2" STANDPIPE WITH 2" P-TRAP. SEE 8/P501
WB2	INDIRECT DRAIN CONNECTION BOX; 14"x 9"x 3.5", 20 GAUGE STEEL WITH WHITE POWDER COATING, RECESSED IN WALL	2"	1-1/2"	-	-	FIXTURE: GUY GRAY T200LV WITH KNOCK-OUTS IN TOP OF BOX 2" DRAIN OUTLET WITH 2" DEEP SEAL P-TRAP	PROVIDE 2" TRAP GUARD EQUAL TO RECTORSEAL "SURE-SEAL". SEE 9/P501
IMB1	WATER CONNECTION BOX; 7"X 7"X 3.5", 20 GAUGE STEEL WITH WHITE POWDER COATING, RECESSED IN WALL	-	-	1/2"	-	FIXTURE: GUY GRAY MIB1AB STOP: QUARTER TURN WITH SHOCK ARRESTOR SUPPLY: 1/4" FLEXIBLE HOSE	PROVIDE INLINE DOUBLE CHECK VALVE WILKINS SERIES 700
CS-x	BALANCING VALVE, THERMOSTATIC, AUTOMATIC, SUFFIX INDICATES PIPE SIZE, SEE FLOOR PLANS	-	-	-	**	EQUIPMENT: CIRCUIT SOLVER CS SERIES, SIZES 1/2" THRU 2", NSF 61 CERTIFIED.	PROVIDE 105°F MODEL
SA-x	SHOCK ARRESTOR, SUFFIX INDICATES PDI SIZE	-	-	x	-	EQUIPMENT: SIOUX CHIEF 650 SERIES, SIZES 1/2" THRU 2", NSF 61 CERTIFIED.	SEE SHOCK ARRESTOR TABLE THIS SHEET
HB1	HOSE BIBB, EXTERIOR, EXPOSED, STAINLESS STEEL FACE PLATE, FREEZELESS, ANTI-SIPHON	-	-	3/4"	-	EQUIPMENT: ZURN Z1310-34EL, PROVIDE VACUUM BREAKER AND METAL LOOSE KEY FOR EACH HOSE BIBB	MOUNT 18" AFF
HB2	HOSE BIBB, INTERIOR, EXPOSED, STAINLESS STEEL FACE PLATE, ANTI-SIPHON	-	-	3/4"	-	EQUIPMENT: ZURN Z1333-C-34EL, PROVIDE VACUUM BREAKER AND METAL LOOSE KEY FOR EACH HOSE BIBB	MOUNT 18" AFF
HB3	HOSE BIBB, INTERIOR, EXPOSED, AUTOMATIC DRAINING, ANTI-SIPHON, VACUUM BREAKER, HOT & COLD	-	-	3/4"	3/4"	EQUIPMENT: ZURN Z1327-EZ-VB, DUAL HANDLE, PROVIDE VACUUM BREAKER	MOUNT 18" AFF
WCO	WALL CLEANOUT, CAST IRON BODY, STAINLESS STEEL WALL PLATE	**	-	-	-	CLEANOUT: ZURN Z-1446-BP, BRONZE PLUG, CLEANOUT SIZE SHALL MATCH PIPE SIZE	GAS / WATER TIGHT
FCO	FLOOR CLEANOUT, CAST IRON BODY, NICKEL BRONZE TOP, ADJUSTABLE	**	-	-	-	CLEANOUT: ZURN ZN-1400-BP, BRONZE PLUG CLEANOUT SIZE SHALL MATCH PIPE SIZE	GAS / WATER TIGHT, INSTALL TOP FLUSH WITH FINISHED FLOOR
YCO	YARD CLEANOUT, CAST IRON BODY, NICKEL BRONZE TOP, ADJUSTABLE, INSTALLED IN 18"x18"x6" CONCRETE PAD	**	-	-	-	CLEANOUT: ZURN ZN-1400-BP, BRONZE PLUG INSTALL IN 18"x 18"x 6" DEEP CONCRETE PAD	GAS / WATER TIGHT, INSTALL TOP FLUSH WITH FINISHED GRADE
HDCO	FLOOR CLEANOUT, HEAVY DUTY, CAST IRON BODY, ADJUSTABLE TOP	**	-	-	-	CLEANOUT: ZURN ZN1474-DC, BRONZE PLUG CLEANOUT SHALL MATCH PIPE SIZE	GAS / WATER TIGHT, INSTALL TOP FLUSH WITH FINISHED GRADE
FD1	FLOOR DRAIN (PUBLIC AREAS), CAST IRON BODY, ROUND NICKEL BRONZE GRATE, ADJUSTABLE	3"	2"	-	-	DRAIN: ZURN ZN-415-B, 6" DIAMETER GRATE P-TRAP: 3" DEEP SEAL.	INSTALL TOP FLUSH WITH FINISHED FLOOR. SEE NOTE 1 BELOW.
FD2	FLOOR DRAIN (MECHANICAL ROOMS), CAST IRON BODY, ROUND NICKEL BRONZE GRATE, ADJUSTABLE	3"	2"	-	-	DRAIN: ZURN ZN-415-I, 9" DIAMETER RECESSED GRATE P-TRAP: 3" CAST IRON, DEEP SEAL.	INSTALL TOP OF DRAIN LIP FLUSH WITH FLOOR. SEE NOTE 1 BELOW.
TD1	TRENCH DRAIN, GLASS REINFORCED POLYESTER (GRP) BODY, GALVANIZED STEEL EDGE RAIL, PROVIDE W/ T200-PGE-4-HP GRATE	3"	2"	-	-	DRAIN: MIFAB T2000-PB-13, 8" INTERNAL WIDTH, 39.4" LONG, INTERNALLY SLOPED P-TRAP: 3" CAST IRON, DEEP SEAL.	INSTALL TOP OF DRAIN LIP FLUSH WITH FLOOR. SEE NOTE 1 BELOW.
FS1	FLOOR SINK, 12"x 12"x 6" DEEP, STAINLESS STEEL BODY AND GRATE	3"	2"	-	-	DRAIN: ZURN Z1750 P-TRAP: 3" CAST IRON, DEEP SEAL	

NOTES:
1. PROVIDE WATERLESS INLINE TRAP GUARD FOR EACH FLOOR DRAIN CONFORMING TO ASSE 1072 AND EQUAL TO RECOTORSEAL"SURE-SEAL" MODEL SS3009V. INSTALL TRAP GUARDS IN THE OUTLET OF THE FLOOR DRAIN BODY (NOT IN THE STRAINER).

** MATCH PIPE SIZE SHOWN ON PLANS, SEE PLANS.

APPROVED EQUALS:	PRODUCT TYPE:	ACCEPTED MANUFACTURERS:
THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY MATCHES THE SPECIFIED PRODUCT. PROVIDE PRODUCTS MADE BY THE MANUFACTURER'S LISTED.	SHOCK ARRESTOR HOSE BIBBS DRAINS BACKFLOW PREVENTER	SIOUX CHIEF, PPP INC., ZURN, WATTS ZURN, WOODFORD, ZURN, J.R. SMITH ZURN, J.R. SMITH, WADE WILKINS, WATTS, APOLLO

GREASE INTERCEPTOR - GI1

SCHIER GREASE INTERCEPTOR GB-50 OR APPROVED EQUAL BY ZURN OR XERXES, 50 GPM FLOW, 60 GALLON GREASE
CAPACITY, 3" INLET AND OUTLET, 2" VENTS, PROVIDE MANWAY TO MEET INVERT DEPTH AND STANDARD PEDESTRIAN-RATED MANHOLE COVER INSTALLED FLUSH WITH FINISHED FLOOR. REFER TO SCHEMATIC -.

OIL INTERCEPTOR - OI1

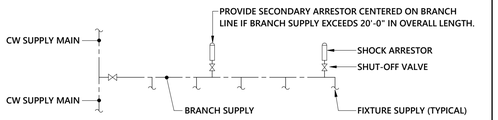
STRIEM OIL TANKER MODEL OT-500-SS. MAX FLOW RATE: 314 GPM, 562 GALLON LIQUID CAPACITY, 285 GALLON OIL CAPACITY, 162 SOLIDS CAPACITY, HIGH DENSITY CONSTRUCTION, 4" INLETS AND OUTLETS AND 3" VENTS. PROVIDE MANWAY TO MEET INVERT DEPTH AND H-20 TRAFFIC RATED MANHOLE COVERS AND FRAMES INSTALLED FLUSH WITH FINISHED GRADE. PROVIDE REINFORCED CONCRETE RELIEVING SLAB WHEN INTERCEPTOR IS LOCATED IN AREAS WITH VEHICLE ACCESS. INSTALL PER THE MANUFACTURERS INSTRUCTIONS. COORDINATE EXACT LOCATION WITH SITE UTILITY CONTRACTOR. SEE MANUFACTURERS INSTALLATION INSTRUCTIONS FOR ADDITIONAL INFORMATION. REFER TO SCHEMATIC -.

LINT INTERCEPTOR - LI-1

STRIEM TUFF TROUGH MODEL TT-3, 21 GALLON CAPACITY, 3/4" POLYETHYLENE CONSTRUCTION, 3'(L)x18"(W) x12"(H) WITH INTERNALLY SLOPED FLOOR AT 1/8" PER FOOT. PREINSTALLED COVER WITH MAXIMUM 450 LBS. LOAD CAPACITY WITH REMOVABLE PRIMARY AND SECONDARY FILTER SCREENS WITH 0.500" PERFORATIONS. PROVIDE WITH PLAIN END OUTLET AND 4" FIELD INSTALLED INLET. REFER TO SCHEMATIC -.

SHOCK ARRESTOR TABLE

DRAWING SYMBOL	FIXTURE UNITS	P.D.I. WH201 DESIGNATION	ARRESTOR SIZE	REMARKS
SA-A	1 - 11	A	1/2"	INSTALL SHOCK ARRESTORS PER THE PLUMBING DRAINAGE INSTITUTE (P.D.I.) GUIDELINES. ACCEPTED MANUFACTURERS: SIOUX CHIEF, WATTS, PPP INC., ZURN
SA-B	12 - 32	B	3/4"	
SA-C	33 - 60	C	1"	
SA-D	61 - 113	D	1-1/4"	
SA-E	114 - 154	E	1-1/2"	



PLUMBING EQUIPMENT SCHEDULE

SYM.	DESCRIPTION	CONN. SIZE INLET	OUT	SPECIFICATION	REMARKS
WH1	WATER HEATER, COMMERCIAL GAS-FIRED, 100 GALLONS, DIRECT-VENT	3/4"	3/4"	EQUIPMENT: A.O. SMITH BTH-199 GAS INPUT: 199,000 BTUH ELEC: 120V, 15A BREAKER RECOVERY: 235 GPH AT 100° RISE	SET OUTLET TEMPERATURE TO 140°F SEE NOTE 1
ET1	THERMAL EXPANSION TANK 6.4 GALLON CAPACITY	3/4"	-	EQUIPMENT: AMTROL ST-12	SEE NOTE 5
RCP1	CIRCULATION PUMP ALL BRONZE CONSTRUCTION	3/4"	3/4"	PUMP: B&G NBF-24, 1/8 HP, 120V RATED FOR 6 GPM AT 8' HEAD	SEE NOTES 6 & 7
AC1	AIR COMPRESSOR, SIMPLEX, TWO-STAGE	3/4"	3/4"	EQUIP: QUINCY QT5-XTREME ELECTRICAL: 5 HP, 208V, 3P CFH: 17.4 @ 175 PSIG RECEIVER: 80 GAL.	SEE NOTES 10 -12
HR1	HOSE REEL, AIR, SPRING RETRACTABLE, 35 FT HOSE, 300 PSI MAX.	1/2"	1/2"	REEL CRAFT 5635 OLP	SEE NOTES 13

NOTES:
1. WATER HEATER SHALL MEET OR EXCEED THE REQUIREMENTS OF ASHRAE 90.1.
2. PROVIDE WATER HEATER WITH ACID NEUTRALIZATION KIT FOR CONDENSATE.
3. INSTALL DIRECT-VENT PIPING PER MANUFACTURER'S DIRECTION. CPVC OR STAINLESS STEEL SHALL BE USED FOR VENT PIPING MATERIAL. PVC IS NOT ACCEPTABLE.
4. PROVIDE CARBON MONOXIDE DETECTOR ADJACENT TO WATER HEATER.
5. EXPANSION TANK SHALL BE CHARGED TO MEET FINAL OPERATING PRESSURE FOR DOMESTIC WATER SYSTEM.
6. PUMP SHALL BE ALL BRONZE CONSTRUCTION.
7. INTERLOCK WITH FULLY ADJUSTABLE AQUASTAT AND 7-DAY, 24 HOUR TIMER.
8. PROVIDE TEMPERATURE MIXING VALVE FOR THE BUILDING HOT WATER SYSTEM TO TEMPER 140 DEGREE STORED HOT WATER TO 120 DEGREES TO THE BUILDING FIXTURES.
9. PROVIDE POINT-OF-USE TMV AT EACH PUBLIC ACCESSIBLE HAND-WASHING LAVATORY TO TEMPER HOT WATER TO A MAXIUM OF 105 DEGREES. INSTALL BELOW SINK IN AN ACCESSIBLE LOCATION.
10. OWNER TO FURNISH AIR COMPRESSOR AND OPTIONAL DRYER. PLUMBING CONTRACTOR TO PROVIDE CONNECTIONS, COMPRESSED AIR PIPING, COMPRESSED AIR DROPS, ETC.
11. PROVIDE ALTERNATE PRICE TO CONNECT OPTIONAL REFRIGERATED AIR DRYER EQUAL TO AURORA MODEL RDV-0030, 30 SCFM @ 100 PSIG, 1/4 HP, 115V, SINGLE PHASE, 60 HZ. OWNER TO VERIFY IF DRYER IS DESIRED.
12. PROVIDE COMPRESSOR WITH LOW SOUND ATTENUATING ENCLOSURE (64 DBA).
13. PROVIDE AIR COMPRESSOR WITH BLOW DOWN MUFFLER.
14. VERIFY HOSE REEL INSTALLATION LOCATIONS WITH OWNER PRIOR TO PERFORMING ANY WORK.

** MATCH PIPE SIZE SHOWN ON PLANS, SEE PLANS.

APPROVED EQUALS:	PRODUCT TYPE:	ACCEPTED MANUFACTURERS:
THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY MATCHES THE SPECIFIED PRODUCT. PROVIDE PRODUCTS MADE BY THE MANUFACTURER'S LISTED.	WATER HEATERS EXPANSION TANKS PUMPS	BRADFORD WHITE, AO SMITH, RHEEM AMTROL, A.O. SMITH, WATTS, WESSLES B&G, TACO, ARMSTRONG

PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	CONNECTION SIZE W	V	CW	HW	SPECIFICATION	REMARKS
P1	TOILET ELONGATED, WHITE VITREOUS CHINA, FLOOR MOUNTED (1.28 GPF) HARD WIRED SENSOR OPERATED FLUSH VALVE	4"	2"	1-1/4"	-	FIXTURE: AMERICAN STANDARD 2234.001 "MADERA" FLUSH VALVE: SLOAN REGAL 111-1.28 DIAPHRAGM TYPE SEAT: BEMIS 1955CT ANTI-MICROBIAL (WHITE)	15" RIM HEIGHT. COORDINATE SENSOR JUNCTION BOX LOCATIONS WITH E.C. SEE NOTE 5 & 6 BELOW
P1A	TOILET, A.D.A. COMPLIANT ELONGATED, WHITE VITREOUS CHINA, FLOOR MOUNTED (1.28 GPF) MANUAL OPERATED FLUSH VALVE	4"	2"	1-1/4"	-	FIXTURE: AMERICAN STANDARD 3043.001 "MADERA 16.5 HIGH" FLUSH VALVE: SLOAN REGAL 111-1.28 DIAPHRAGM TYPE SEAT: BEMIS 1955CT ANTI-MICROBIAL (WHITE)	16.5" RIM HEIGHT. COORDINATE SENSOR JUNCTION BOX LOCATIONS WITH E.C. SEE NOTE 5 & 6 BELOW
P1B	TOILET, A.D.A. COMPLIANT ELONGATED, WHITE VITREOUS CHINA, FLOOR MOUNTED (1.28 GPF) HARD WIRED SENSOR OPERATED FLUSH VALVE	4"	2"	1-1/4"	-	FIXTURE: AMERICAN STANDARD 3043.001 "MADERA 16.5 HIGH" FLUSH VALVE: SLOAN 111-1.28 ESS TMO "OPTIMA" HARD WIRED SENSOR, WITH TRUE MECHANICAL OVERRIDE AND CHLORAMINE RESISTANT DIAPHRAGM SEAT: BEMIS 1955CT ANTI-MICROBIAL (WHITE)	16.5" RIM HEIGHT. COORDINATE SENSOR JUNCTION BOX LOCATIONS WITH E.C. SEE NOTE 5 & 6 BELOW
P3A	LAVATORY, A.D.A. COMPLIANT, 17"x14" OVAL BOWL, WHITE VITEROUS CHINA, UNGLAZED RIM, SINGLE CONTROL CENTER SET FAUCET, (0.5 GPM) VANDAL RESISTANT AERATOR, OPTIONAL DECK PLATE 2000.102P PER OWNER/ARCHITECT APPROVAL	2"	1-1/2"	1/2"	1/2"	FIXTURE: AMERICAN STANDARD OVALYN MODEL 0496221.020 FAUCET: MOEN M-DURA MODEL 9419F12 GRID DRAIN: ZURN 8743; P-TRAP: ZURN Z-8701 (1-1/4"x1-1/2", 17 GA.) SUPPLIES/STOPS: ZURN 8806-XL-LR-LK	SEE NOTES 2 & 4 BELOW
P3B	LAVATORY, A.D.A. COMPLIANT, 17"x14" OVAL BOWL, WHITE VITEROUS CHINA, UNGLAZED RIM, CENTER SET FAUCET, SENSOR OPERATED, BATTERY POWERED (PK00.WRK 10 YEAR BATTERY), WITH (0.5 GPM) VANDAL RESISTANT AERATOR	2"	1-1/2"	1/2"	1/2"	FIXTURE: AMERICAN STANDARD OVALYN MODEL 0496221.020 FAUCET: MOEN M-POWER MODEL 8553AC GRID DRAIN: ZURN 8743; P-TRAP: ZURN Z-8701 (1-1/4"x1-1/2", 17 GA.) SUPPLIES/STOPS: ZURN 8806-XL-LR-LK	SEE NOTES 2 & 4 BELOW
P4	BOTTLE FILLER, ADA COMPLIANT, STAINLESS STEEL FINISH, SINGLE BOTTLE, CARRIER MOUNTED, INTEGRAL WATER FILTER, SENSOR OPERATED BOTTLE FILLER WITH AUTO SHUT-OFF	2"	1-1/2"	1/2"	-	FIXTURE: ELKAY LZ8WSSSMC, ELEC: 15 WATT, 115 VOLT, SINGLE PHASE P-TRAP: ZURN Z-870 (1-1/4"x1-1/2", 17 GA.) SUPPLY/STOP: ZURN 8806-XL-LR-LK	SEE NOTE 1 BELOW
P4A	WATER COOLER & BOTTLE FILLER, A.D.A. COMPLIANT, STAINLESS STEEL FINISH, BI-LEVEL DOUBLE BOWL, VANDAL RESISTANT, CARRIER MOUNTED, INTEGRAL WATER FILTER, SENSOR OPERATED BOTTLE FILLER WITH AUTO SHUT-OFF.	2"	1-1/2"	1/2"	-	FIXTURE: ELKAY LVRCGRNTL8WSK, ELEC: 260 WATT, 120 VOLT, SINGLE PHASE P-TRAP: ZURN Z-870 (1-1/4"x1-1/2", 17 GA.) SUPPLY/STOP: ZURN 8806-XL-LR-LK	PROVIDE CANE APRON WHEN WATER COOLER IS LOCATED ON AN EXPOSED WALL. SEE NOTE 3 BELOW
P5	MOP SINK, 24"x 24"x 10", MOLDED STONE, 12" STAINLESS STEEL WALL GUARDS, SERVICE FAUCET, HOSE, MOP HANGER BRACKET	3"	2"	1/2"	1/2"	FIXTURE: FIAT MSBID2424-100, 830AA, 832AA, (2) MSG3624, 889CC, E88A FAUCET: FIAT 830-AA DRAIN: FIAT 1453-BB P-TRAP: 3" DEEP SEAL, CAST IRON	PROVIDE CHECK VALVES ON HW AND CW SUPPLIES
P5A	SINK, A.D.A. COMPLIANT, 19"x19"x6" RECTANGULAR SINGLE BOWL, 18 GAUGE STAINLESS STEEL, COUNTER MOUNTED, SELF RIMMING, 8" GOOSENECK SENSOR FAUCET, 1 HOLE DRILLING, (1.5 GPM) VANDAL RESISTANT AERATOR	2"	1-1/2"	1/2"	1/2"	FIXTURE: ELKAY LRAD1919 FAUCET: MOEN RILEY MODEL 7402EW BASKET STRAINER: ZURN Z-8740 P-TRAP: ZURN 8703 (1-1/2"x2", 17 GA.) SUPPLY/STOP: ZURN 8806-XL-LR-LK	SEE NOTE 4 BELOW
P5B	SINK, DOUBLE COMPARTMENT, 33"x22"x12-1/8", RECTANGULAR, DOUBLE BOWL, 18 GAUGE STAINLESS STEEL, COUNTERTOP, SENSOR FAUCET, 1.5 GPM, 1 HOLE DRILLING, BASKET STRAINER, GARBAGE DISPOSAL	2"	1-1/2"	1/2"	1/2"	FIXTURE: ELKAY DLR332212 FAUCET: MOEN RILEY MODEL 7402EW BASKET STRAINER: ZURN Z-8740 P-TRAP: ZURN 8703 (1-1/2"x2", 17 GA.) SUPPLY/STOP: ZURN 8806-XL-LR-LK DISPOSAL: ISE BADGER 900, 3/4 HP, W/ POWER CORD	PROVIDE WATER AND WASTE CONNECTIONS FOR ADJACENT DISHWASHER SEE NOTE 4 BELOW
P5C	SINK, SINGLE, FLOOR MOUNTED, UTILITY 23"x21-1/2"x33-1/2", RECTANGULAR, SINGLE BOWL, DUAL HANDLE FAUCET	2"	1-1/2"	1/2"	1/2"	FIXTURE: FIAT FL-1 FAUCET: FIAT A1, 4" CENTERSET WITH CP BLADE HANDLES P-TRAP: ZURN 8703 (1-1/2"x2", 17 GA.) SUPPLY/STOP: ZURN 8806-XL-LR-LK	
P5D	SINK, SCULLERY, FLOOR MOUNTED, DOUBLE BOWL WITH 24" DRAINBOARDS, 84-1/4" x 27-1/2", STAINLESS STEEL, DUAL HANDLE FAUCET	2"	1-1/2"	1/2"	1/2"	FIXTURE: EAGLE GROUP 412-16-2-24 FAUCET: T&S BRASS B-0230-187XWSC4, 8" CENTERS, GOOSNECK STYLE BASKET STRAINER: ZURN Z-8740 SUPPLY/STOP: ZURN 8806-XL-LR-LK	INDIRECTLY DRAIN TO FLOOR SINK, PROVIDE CONNECTION TO P7A
P5E	SINK, SCULLERY, FLOOR MOUNTED, SINGLE BOWL, NO DRAINBOARDS, 21" x 25-13/16" x 43-3/4", STAINLESS STEEL, DUAL HANDLE FAUCET WITH HANDHELD SPRAY	2"	1-1/2"	1/2"	1/2"	FIXTURE: EAGLE GROUP 412-16-1 FAUCET: T&S BRASS B-0230-187XWSC4, 8" CENTERS, GOOSNECK STYLE BASKET STRAINER: ZURN Z-8740 SUPPLY/STOP: ZURN 8806-XL-LR-LK	INDIRECTLY DRAIN TO FLOOR SINK
P6A	SHOWER, JOB-BUILT, ADA COMPLIANT, PUBLIC, FLOOR DRAIN, PRESSURE BALANCED SHOWER VALVE, 1.5 GPM WALL MOUNTED SHOWER HEAD WITH HAND HELD SHOWER AND SLIDE BAR	2"	1-1/2"	1/2"	1/2"	FIXTURE: AQUATIC MODEL 16037BFSD-WH SHOWER VALVE & HEAD : MOEN MODEL T9342EP15 PROVIDE W/ MODEL 3360 VALVE DRAIN: SCHULTER KERDI MODEL KD2, CHROME FINISH P-TRAP: 2" DEEP SEAL TRAP	COORDINATE RIGHT OR LEFT HAND CONTROLS WITH ARCHITECTURAL PLANS AND ELEVATIONS, MOUNT SHOWER HEAD AT 7'-4" A.F.F.
P6B	SHOWER, JOB-BUILT, ADA COMPLIANT, PUBLIC, FLOOR DRAIN, PRESSURE BALANCED SHOWER VALVE, 1.5 GPM WALL MOUNTED SHOWER HEAD WITH HAND HELD SHOWER AND SLIDE BAR	2"	1-1/2"	1/2"	1/2"	FIXTURE: AQUATIC MODEL 1363BFC2P-WH SHOWER VALVE & HEAD : MOEN MODEL T9342EP15 PROVIDE W/ MODEL 3360 VALVE DRAIN: SCHULTER KERDI MODEL KD2, CHROME FINISH P-TRAP: 2" DEEP SEAL TRAP	COORDINATE RIGHT OR LEFT HAND CONTROLS WITH ARCHITECTURAL PLANS AND ELEVATIONS, MOUNT SHOWER HEAD AT 7'-4" A.F.F.
P7A	EMERGENCY EYEWASH, WALL MOUNTED EYEWASH, SWING DOWN STYLE, STAINLESS STEEL FINISH, WITH FLIP TOP DUST COVER	-	-	1/2"	1/2"	EYEWASH: GUARDIAN G1848 THERMOSTATIC MIXING VALVE: GUARDIAN G6020	PROVIDE WITH ANSI COMPLIANT SIGNAGE.

NOTES:
1. SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHT. PROVIDE A FLOOR MOUNTED PLATE STYLE CARRIER EQUAL TO ZURN Z1222-EZ (-SL) SERIES. WHEN CARRIER IS LOCATED BEHIND A BLOCK WALL, PROVIDE EXTENDED STUD LENGTHS TO COMPENSATE FOR THE BLOCK WALL THICKNESS.
2. SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHT. PROVIDE A FLOOR MOUNTED, ADJUSTABLE CONCEALED ARM CARRIER EQUAL TO ZURN Z1231-EZ (-SL) SERIES. WHEN CARRIER IS LOCATED BEHIND BLOCK WALL, PROVIDE EXTENDED CONCEALED ARM SLEEVES TO COMPENSATE FOR THE BLOCK WALL THICKNESS.
3. SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHT. PROVIDE A FLOOR MOUNTED PLATE STYLE CARRIER EQUAL TO ZURN Z1225-EZ (-SL) SERIES. WHEN CARRIER IS LOCATED BEHIND A BLOCK WALL, PROVIDE EXTENDED STUD LENGTHS TO COMPENSATE FOR THE BLOCK WALL THICKNESS.
4. PROVIDE PRE-MANUFACTURED A.D.A. COMPLIANT INSULATION KIT FOR EXPOSED P'TRAP AND SUPPLY TRIM UNDER SINK.
5. PROVIDE HEAVY DUTY CAST IRON CLOSET FLANGE WITH COMPRESSION SEAL AND TEST CAP EQUAL TO ZURN CF2980-CI4. OFFSET FLANGES ARE NOT ACCEPTABLE.
6. PROVIDE SLOAN EL-154 TRANSFORMER (120V TO 24V) AND FINAL LOW VOLTAGE CONNECTIONS FROM TRANSFORMER TO FLUSHVALVE(S). WHERE GROUP RESTROOMS OCCUR PROVIDE A MINIMUM OF TWO TRANSFORMERS PER RESTROOM TO SERVE MULTIPLE FLUSHVALVES.

** MATCH PIPE SIZE SHOWN ON PLANS, SEE PLANS.

APPROVED EQUALS:	PRODUCT TYPE:	ACCEPTED MANUFACTURERS:
THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY MATCHES THE SPECIFIED PRODUCT. PROVIDE PRODUCTS MADE BY THE MANUFACTURER'S LISTED.	VITREOUS CHINA FLUSH VALVES ENAMELED CAST IRON CARRIERS STAINLESS STEEL SINKS FAUCETS WATER COOLERS SUPPLIES, STOPS HOSE BIBBS UTILITY SINKS SHOWER VALVES	KOHLER, AMERICAN STANDARD, SLOAN SLOAN, ZURN, DELANEY KOHLER, AMERICAN STANDARD, ZURN ZURN, J.R. SMITH, WADE ELKAY, JUST, ADVANCE TABCO MOEN ELKAY, HAWS, MURDOCK ZURN, MCGUIRE, BRASSCRAFT ZURN, J.R. SMITH, WOODFORD FIAT, FLORESTONE, STERN WILLIAMS MOEN

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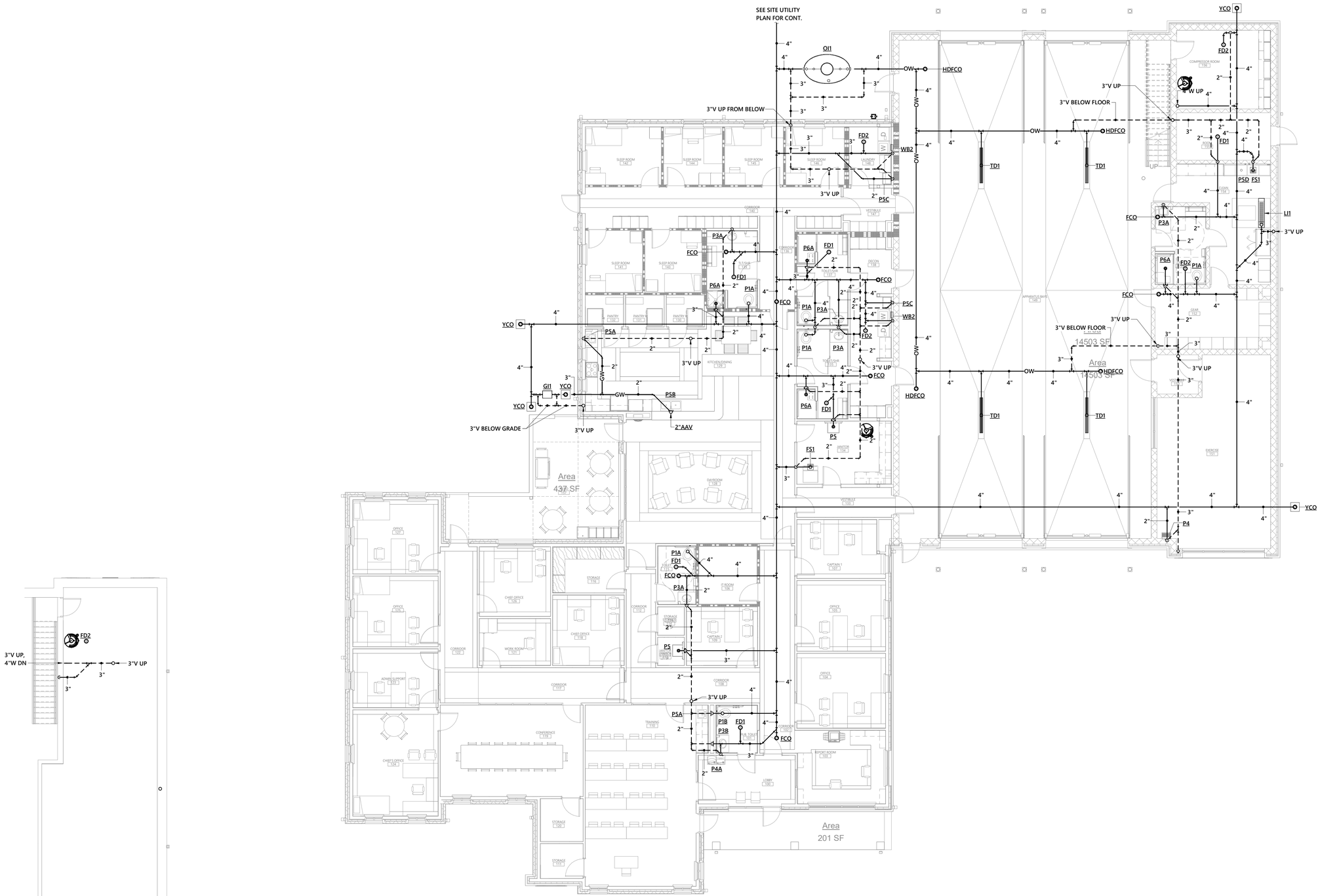
GORDON ROAD FIRE DEPARTMENT

PLUMBING SCHEDULES

Sheet No.
P0.02

Opt # 22-0369



2 MEZZANINE DRAINAGE PIPING FLOOR PLAN
1/8" = 1'-0"

1 FIRST FLOOR DRAINAGE PIPING FLOOR PLAN
1/8" = 1'-0"

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GORDON ROAD FIRE DEPARTMENT

DRAINAGE PIPING FLOOR PLANS

Sheet No.
P1.01

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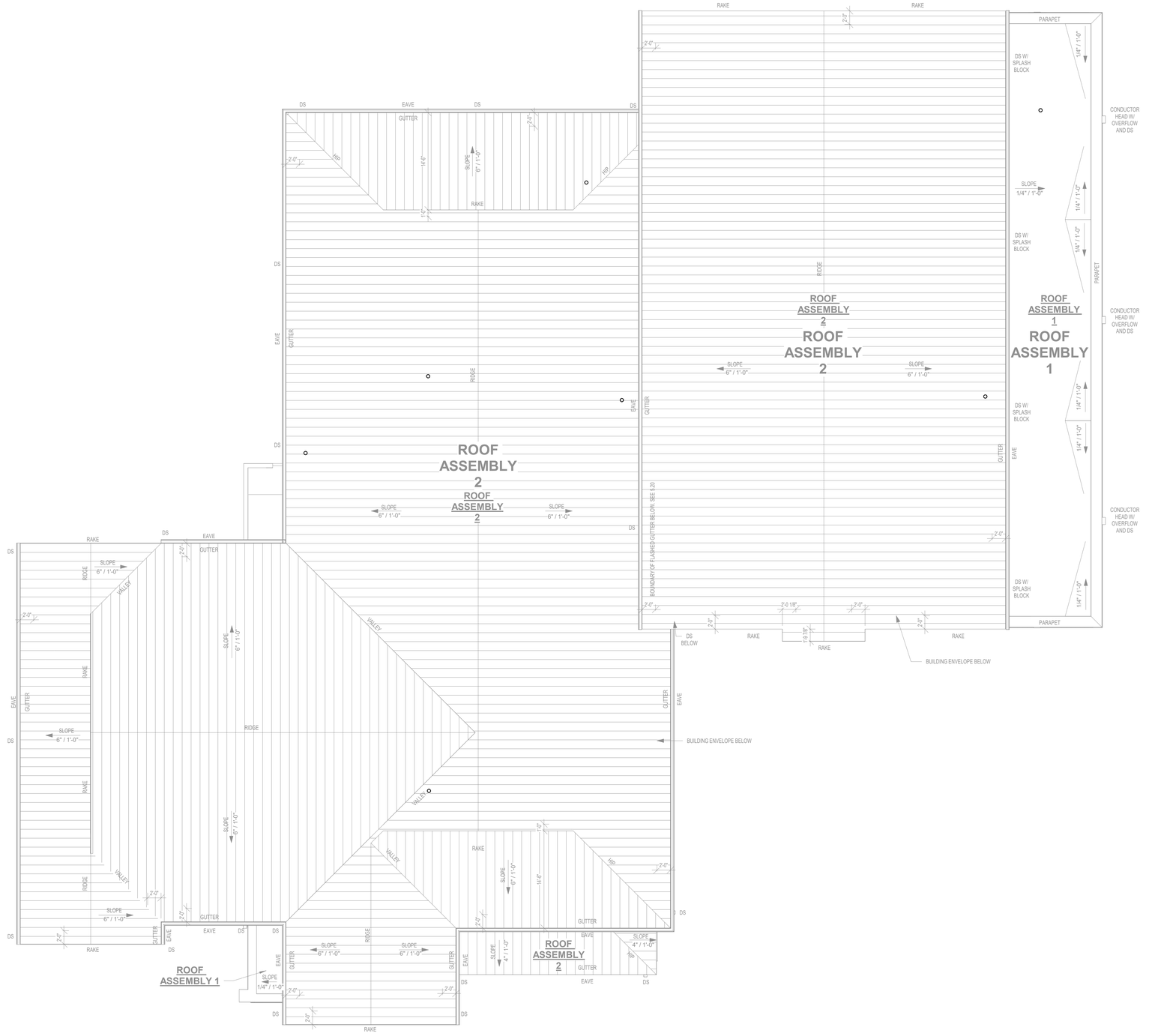

1 **DRAINAGE PIPING ROOF PLAN**
1/8" = 1'-0"

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GORDON ROAD FIRE DEPARTMENT

DRAINAGE PIPING ROOF PLAN

Sheet No.
P1.02

Opt # 22-0369

GAS LOAD SUMMARY

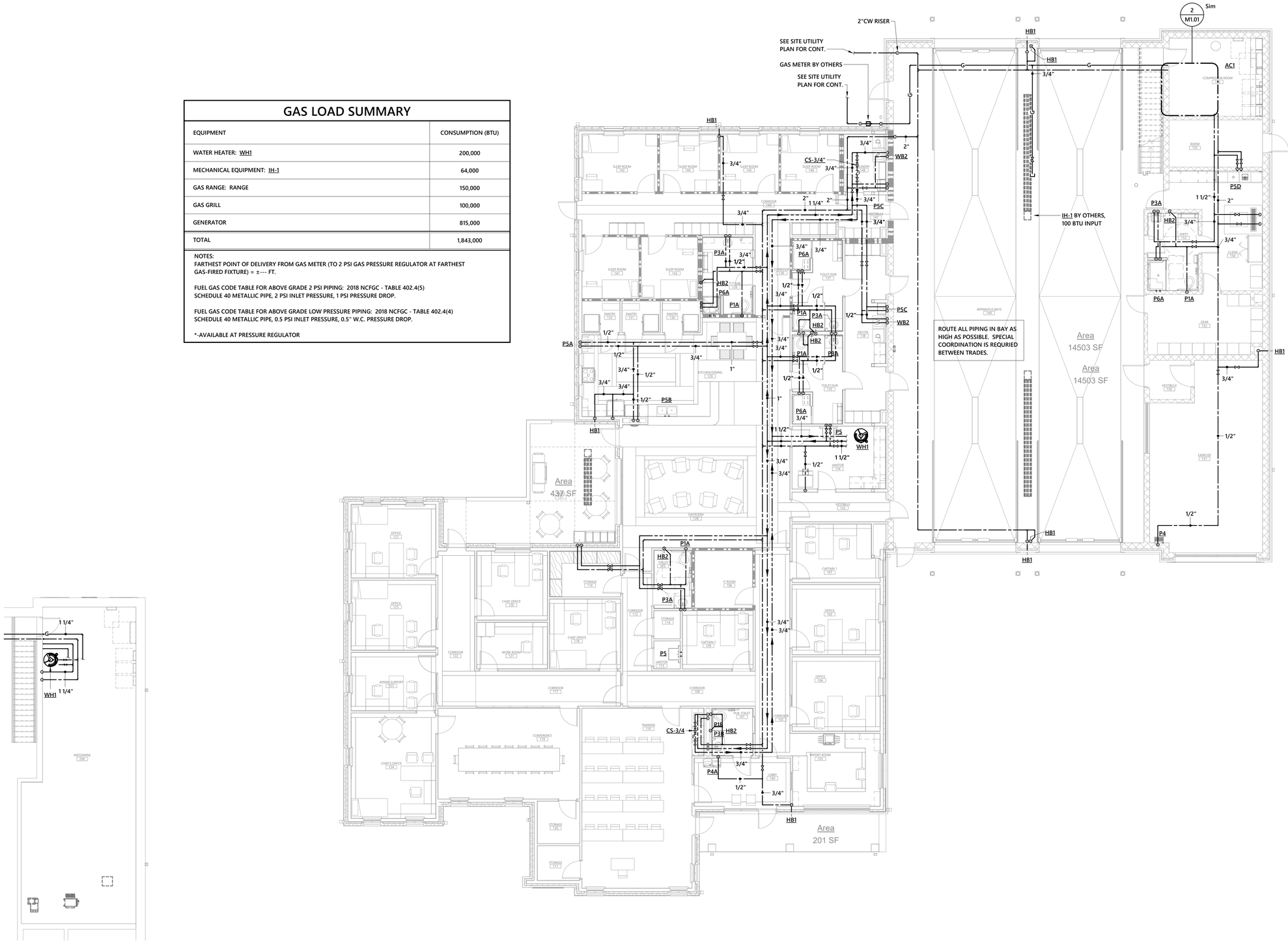
EQUIPMENT	CONSUMPTION (BTU)
WATER HEATER: WH1	200,000
MECHANICAL EQUIPMENT: IH-1	64,000
GAS RANGE: RANGE	150,000
GAS GRILL	100,000
GENERATOR	815,000
TOTAL	1,843,000

NOTES:
FARTHEST POINT OF DELIVERY FROM GAS METER (TO 2 PSI GAS PRESSURE REGULATOR AT FARTHEST GAS-FIRED FIXTURE) = ±--- FT.

FUEL GAS CODE TABLE FOR ABOVE GRADE 2 PSI PIPING: 2018 NCFGC - TABLE 402.4(5)
SCHEDULE 40 METALLIC PIPE, 2 PSI INLET PRESSURE, 1 PSI PRESSURE DROP.

FUEL GAS CODE TABLE FOR ABOVE GRADE LOW PRESSURE PIPING: 2018 NCFGC - TABLE 402.4(4)
SCHEDULE 40 METALLIC PIPE, 0.5 PSI INLET PRESSURE, 0.5" W.C. PRESSURE DROP.

*-AVAILABLE AT PRESSURE REGULATOR



2 MEZZANINE SUPPLY PIPING FLOOR PLAN
1/8" = 1'-0"

1 FIRST FLOOR SUPPLY PIPING FLOOR PLAN
1/8" = 1'-0"

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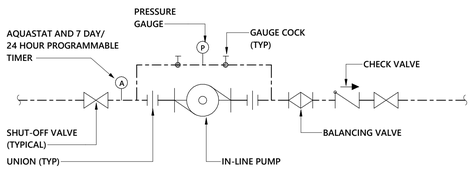
GORDON ROAD FIRE DEPARTMENT

SUPPLY PIPING FLOOR PLANS

Sheet No.
P2.01

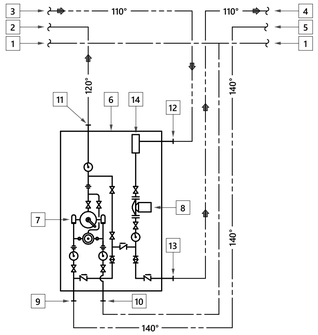
Opt # 22-0369



4 HOTWATER RECIRC PUMP DETAIL

NOT TO SCALE

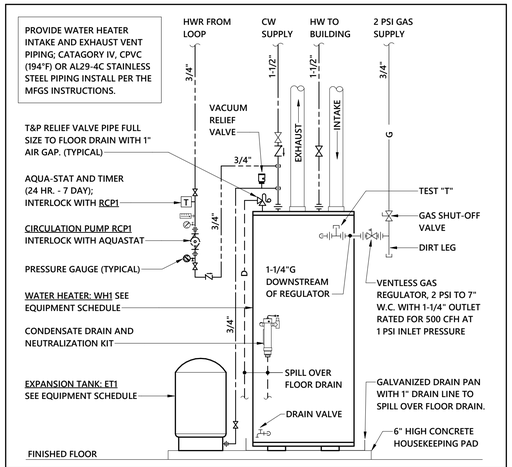
1. CW SUPPLY TO MIXING VALVE AND WATER HEATERS.
2. HOT WATER SUPPLY TO GUEST ROOMS.
3. HOT WATER RETURN FROM GUEST ROOMS.
4. HOT WATER RETURN TO WATER HEATERS.
5. HOT WATER SUPPLY FROM WATER HEATERS.
6. PRE-FABRICATED MIXING VALVE ASSEMBLY: LEONARD "MEGATRON" MODEL LF-4N PIPED FOR FLOWS ABOVE 25 GPM.
7. LEONARD TM-920-LF THERMOSTATIC MIXING VALVE.
8. ALL BRONZE HOT WATER CIRCULATOR.
9. 1-1/4" HOT WATER INLET CONNECTION.
10. 1-1/4" COLD WATER INLET CONNECTION.
11. 1-1/2" TEMPERED HOT WATER OUTLET CONNECTION
12. 1" HOTWATER RETURN INLET CONNECTION.
13. 1" HOT WATER RETURN OUTLET CONNECTION.
14. PUMP CONTROL AQUASTAT



3 MIXING VALVE PIPING SCHEMATIC

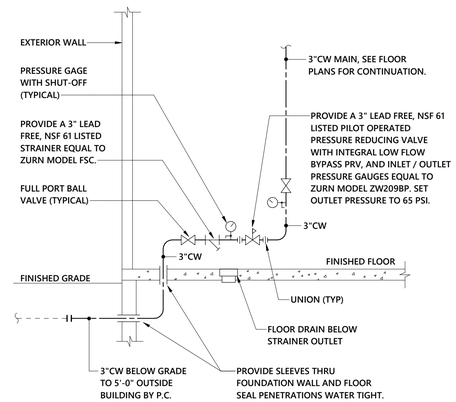
NOT TO SCALE

PROVIDE WATER HEATER INTAKE AND EXHAUST VENT PIPING; CATAGORY IV, CPVC (194°F) OR AL29-4C STAINLESS STEEL PIPING INSTALL PER THE MFGS INSTRUCTIONS.



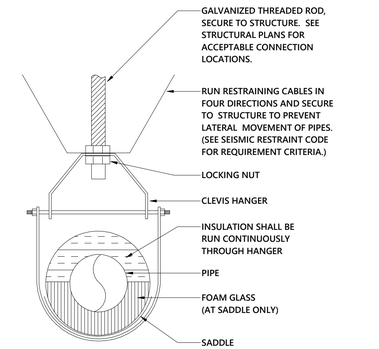
2 GAS FIRED WATER HEATER SCHEMATIC

NOT TO SCALE



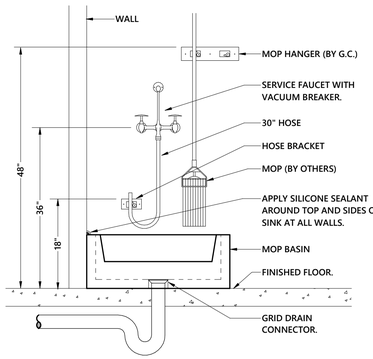
1 WATER SERVICE ENTRANCE SCHEMATIC

NOT TO SCALE



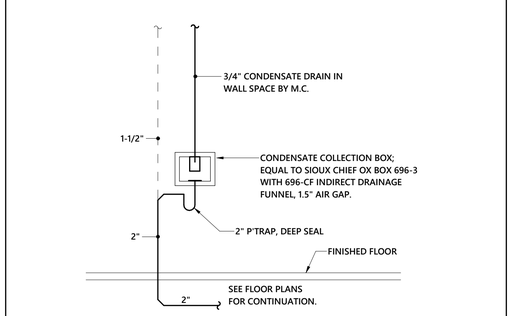
8 PIPE HANGER SCHEMATIC

NOT TO SCALE



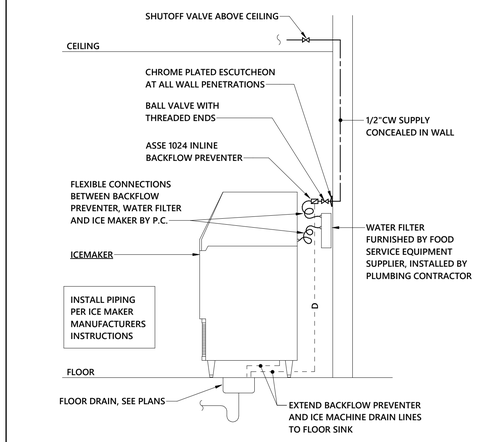
7 MOP BASIN AND ACCESSORIES

NOT TO SCALE



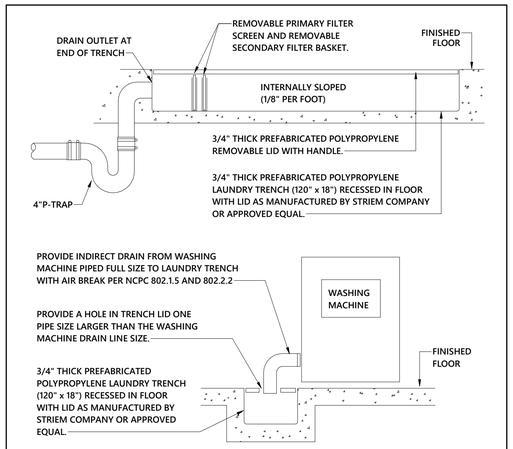
6 CONDENSATE DRAIN, WALL BOX SCHEMATIC

NOT TO SCALE



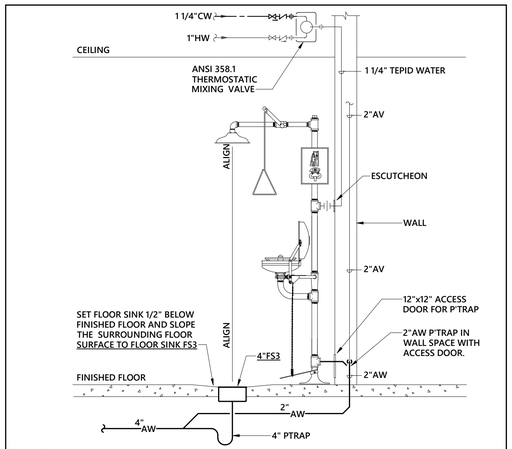
5 ICEMAKER PIPING SCHEMATIC

NOT TO SCALE



10 LAUNDRY TRENCH WITH LINT SCREEN DETAIL

NOT TO SCALE



9 EMERGENCY SHOWER PIPING SCHEMATIC - WITH MIXING VALVE ABV CEILING

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GORDON ROAD FIRE DEPARTMENT

PLUMBING DETAILS

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P5.01

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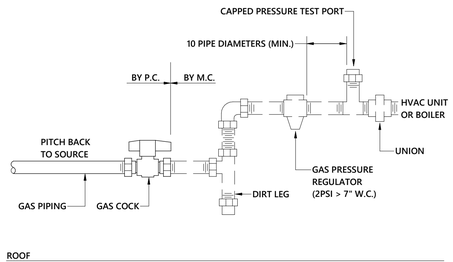
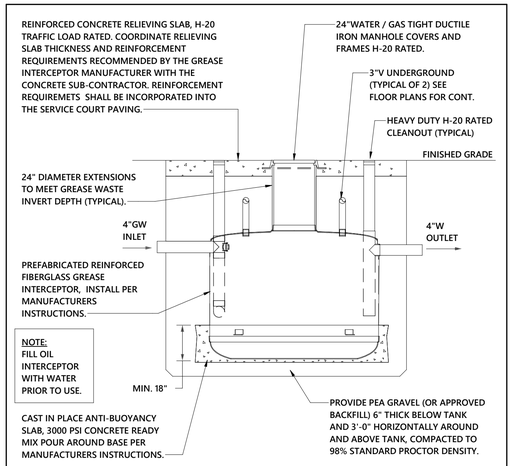


NOTES:
1. PROVIDE DIELECTRIC UNIONS WHERE DISSIMILAR METALS ARE JOINED.
2. GAS PIPING AND SHUT-OFF VALVE SHALL BE BY PLUMBING CONTRACTOR. DIRT LEG, REGULATOR, AND FINAL CONNECTION TO UNIT SHALL BE BY MECHANICAL (HVAC) CONTRACTOR.

3 GAS CONNECTION DETAIL (TO HVAC EQUIPMENT)
NOT TO SCALE



2 OIL INTERCEPTOR DETAIL
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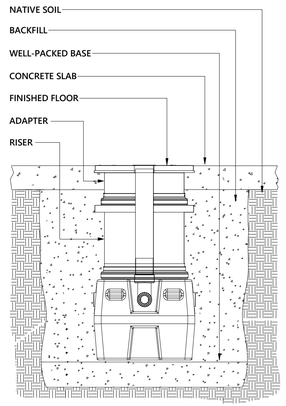
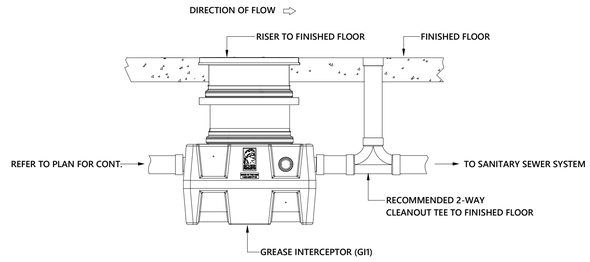
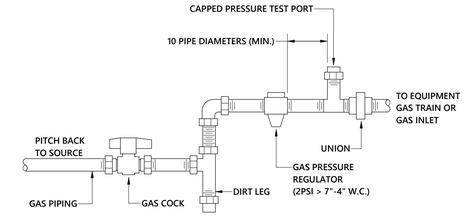




1 GREASE INTERCEPTOR SCHEMATIC
NO SCALE



NOTES:
1. PROVIDE DIELECTRIC UNIONS WHERE DISSIMILAR METALS ARE JOINED.
2. GAS PRESSURE REGULATOR - PROVIDE VENTLESS TYPE, INSTALLED PER REGULATOR MANUFACTURER INSTALLATION INSTRUCTIONS

4 GAS CONNECTION DETAIL (TO PLBG EQUIPMENT)
NOT TO SCALE

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PLUMBING DETAILS

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P5.02

Opt # 22-0369

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FIRE PROTECTION DESIGN CRITERIA

SYMBOL	OCCUPANCY	TYPE	DESIGN DENSITY (GPM/SF)	HYDRAULIC REMOTE AREA (SF)	MAX. COVERAGE PER SPRINKLER HEAD (SF)	HOSE STREAM		AREAS OF COVERAGE
						INSIDE GPM	OUTSIDE GPM	
LH	LIGHT HAZARD	WET	0.10	1500	225	100	-	ENTIRE FACILITY, EXCEPT AS NOTED OTHERWISE
OH-1	ORDINARY HAZARD GROUP I	WET	0.15	1500	130	100	150	MECHANICAL ROOMS, STORAGE ROOMS, ELECTRICAL ROOMS, JANITORS CLOSETS, ETC.
OH-2	ORDINARY HAZARD GROUP II	WET	0.20	1500	130	100	150	APPARATUS BAY

APPLICABLE PUBLICATIONS: THE FOLLOWING PUBLICATIONS SHALL BE USED AS A REFERENCE FOR THE DESIGN OF THE FIRE PROTECTION SYSTEM ON THIS PROJECT:

1. NORTH CAROLINA STATE BUILDING CODE: FIRE PREVENTION CODE - 2018 EDITION
2. NFPA 13 - STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS - 2013 EDITION

NOTES:
1. DURING DESIGN CALCULATIONS, AN ALLOWANCE SHALL BE MADE FOR A 250 GPM HOSE STREAM.

SPRINKLER SCHEDULE

1. PROVIDE ADJUSTABLE CONCEALED PENDENT SPRINKLERS ALL LAY-IN ACOUSTICAL TILE AND GYPBOARD CEILINGS. COORDINATE COLOR OF CONCEALED SPRINKLER HEAD COVER-PLATE WITH ARCHITECT.
2. LOCATE SPRINKLERS TO AVOID OBSTRUCTIONS BY CEILING MOUNTED DEVICES. WHERE CEILING DEVICES OBSTRUCT SPRINKLER DISCHARGE, ADD ADDITIONAL SPRINKLERS SPACED AROUND THE OBSTRUCTION.
3. PROVIDE BRASS UPRIGHT SPRINKLERS IN EXPOSED AREAS WITH NO FINISH CEILING.
4. PROVIDE BRASS PENDENT SPRINKLERS WITH SHIELDS IN MECHANICAL ROOMS, ELECTRIC ROOMS, GYMNASIUMS, STORAGE ROOMS AND OTHER AREAS WHERE EXPOSED SPRINKLERS ARE SUBJECT TO DAMAGE.
5. PROVIDE RECESSED DRY STEM PENDENT SPRINKLER WITH WHITE PLATE IN AREAS SUBJECT TO FREEZING.
6. PROVIDE RECESSED SIDEWALL SPRINKLERS AS REQUIRED OR AS INDICATED.
7. PROVIDE INTERMEDIATE TEMPERATURE SPRINKLERS (175º F - 225ºF ACTIVATION TEMPERATURE) IN ELEC. ROOMS, BOILER ROOMS, DATA CLOSETS AND WHEN SPRINKLER IS LOCATED WITHIN 18" OF HVAC DIFFUSER.
8. PROVIDE HIGH TEMPERATURE SPRINKLERS (250º F - 300ºF ACTIVATION TEMPERATURE) IN KILN ROOMS OR OTHER AREAS SUBJECT TO HIGH TEMPERATURES.

* INSTALL SPRINKLERS IN ACCORDANCE WITH NFPA 13 AND THE MANUFACTURERS APPROVAL LISTING.
* PROVIDE QUICK RESPONSE SPRINKLERS.

FLOW TEST DATA

DATE / TIME	LOCATION	PRESSURE		FLOW (GPM)	FLOW AT 20 PSI (GPM)
		STATIC (PSI)	RESIDUAL (PSI)		
10-13-2023 11:00 AM	HYDRANT #0324 AT 6102 GORDON RD, WILLMINGTON, NC	58	53	993	2,969

FLOW TEST PERFORMED BY: FRANK MEYER, NEW HANOVER COUNTY FIRE DEPARTMENT

FLOW TEST NOTES:

1. THE CONTRACTOR SHALL OBTAIN A NEW FIRE FLOW TEST LESS THAN 1 YEAR OLD PERFORMED ON WHICH TO BASE THEIR CALCULATIONS.
2. THE FLOW TEST USED FOR THE WORKING PLAN DESIGN SHOULD BE PERFORMED AS INDICATED IN NFPA 291 WHICH USES TWO HYDRANTS; A PRESSURE HYDRANT AND A FLOW HYDRANT. THE TWO HYDRANTS SHALL BE AS CLOSE TO THE POINT OF CONNECTION AS POSSIBLE. PROVIDE A COPY OF THE FLOW TEST AND TEST HYDRANT LOCATIONS WITH THE SUBMITTED SPRINKLER SHOP DRAWING PACKAGE.

FIRE PROTECTION GENERAL NOTES

1. THE INTENT OF THESE PLANS IS TO PROVIDE INFORMATION TO THE REVIEWING AUTHORITIES THAT THE BUILDING WILL BE PROTECTED BY A SPRINKLER SYSTEM.
2. GENERAL AND SPECIAL CONDITIONS OF THE CONTRACT APPLY TO THE FIRE PROTECTION SCOPE OF WORK. THE FIRE PROTECTION DRAWINGS AND SPECIFICATIONS SHALL NOT BE INTERPRETED AS WAIVING OR OVERRULING ANY REQUIREMENTS EXPRESSED IN GENERAL CONDITIONS.
3. SCOPE: PROVIDE DESIGN, FABRICATION AND INSTALLATION OF A HYDRAULICALLY CALCULATED AUTOMATIC SPRINKLER SYSTEM INCLUDING ALL SERVICES, MATERIALS, LABOR AND EQUIPMENT REQUIRED FOR A COMPLETE WORKING SPRINKLER SYSTEM IN FULL COMPLIANCE WITH THE REQUIREMENTS OF THE 2013 EDITION OF NFPA 13, THE OWNER'S INSURANCE UNDERWRITER, THE 2018 NORTH CAROLINA STATE FIRE CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION.
4. PERMITS: APPLY AND PAY FOR ALL NECESSARY PERMITS, FEES AND INSPECTIONS REQUIRED BY ANY PUBLIC AUTHORITY HAVING JURISDICTION. ACREAGE CHARGES, FACILITIES CHARGES AND BOND PROPERTY ASSESSMENTS ARE NOT TO BE CONSTRUED TO BE A PART OF THIS CONTRACT.
5. WARRANTY: PROVIDE A ONE YEAR WARRANTY, FROM THE DATE OF ACCEPTANCE OF WORK BY THE OWNER, FOR ALL SPRINKLER SYSTEM MATERIALS AND EQUIPMENT.
6. COORDINATE ALL SPRINKLER PIPING LOCATIONS, SPRINKLER LOCATIONS AND EQUIPMENT LOCATIONS WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES. FINAL PIPING AND EQUIPMENT LOCATIONS SHALL BE A CODE COMPLIANT INSTALLATION FOR ALL TRADES.
7. DO NOT SCALE THE DRAWINGS, REFERENCE THE ARCHITECTURAL PLANS FOR DIMENSIONAL INFORMATION.
8. WHERE DISCREPANCIES ARE FOUND IN THE DRAWINGS AND SPECIFICATIONS THE MORE STRINGENT SHALL APPLY. CONTACT ENGINEER FOR CLARIFICATION.
9. OBTAIN A NEW FLOW TEST, LESS THAN 1 MONTH OLD, PRIOR TO STARTING THE DESIGN OF THE SPRINKLER SYSTEM. THE FLOW TEST CRITERIA SHALL INCLUDE THE STATIC PRESSURE, RESIDUAL PRESSURE, FLOW IN GPM, HORIZONTAL AND VERTICAL DISTANCE OF TEST FROM BASE OF FIRE RISER, THE NAME OF THE PERSON AND COMPANY WHOM PERFORMED THE FLOW TEST, THE TESTING COMPANY'S PHONE NUMBER, AND THE DATE AND TIME THE TEST WAS PERFORMED.
10. DESIGN AND HYDRAULICALLY CALCULATE THE SPRINKLER SYSTEM UTILIZING THE CURRENT FLOW TEST DATA. MEET ALL NFPA 13 REQUIREMENTS WHETHER OR NOT SPECIFICALLY INDICATED WITHIN THESE DOCUMENTS. TERMINATE THE HYDRAULIC CALCULATIONS AT THE CITY CONNECTION MINIMUM. INDICATE ON DRAWINGS ALL UNDERGROUND PIPE AND FITTINGS BOTH NEW AND EXISTING.
11. THE CONTRACTOR SHALL HAVE A DESIGNER ON STAFF WITH A CURRENT N.I.C.E.T. LEVEL III CERTIFICATION OR HIGHER TO PREPARE THE WORKING PLANS AND HYDRAULIC CALCULATIONS IN ACCORDANCE WITH NFPA 13 CHAPTER 23 "PLANS AND CALCULATIONS". THE N.I.C.E.T. DESIGNERS NAME, SIGNATURE AND CERTIFICATE NUMBER SHALL APPEAR ON THE WORKING DRAWINGS AND HYDRAULIC CALCULATIONS.
12. PROVIDE DESIGN AND INSTALLATION OF SEISMIC RESTRAINT ELEMENTS FOR THE FIRE PROTECTION SYSTEM(S) IN COMPLIANCE WITH THE 2013 EDITION OF NFPA 13. REFER TO THE APPENDIX B ON THE ARCHITECTURAL DRAWINGS FOR THE SITE'S SEISMIC DESIGN CATEGORY.
13. SUBMIT WORKING PLANS, HYDRAULIC CALCULATIONS AND MATERIALS DATA AND ACCESSORIES IN ELECTRONIC FORMAT (PDF) TO THE ARCHITECT / ENGINEER FOR REVIEW AND OBTAIN APPROVAL BEFORE STARTING THE INSTALLATION OF THE SPRINKLER SYSTEM.
14. THE CONTRACTOR SHALL SUBMIT WORKING PLANS AND HYDRAULIC CALCULATIONS EXPEDIENTLY TO THE AUTHORITIES HAVING JURISDICTION. APPROVAL FROM ALL AUTHORITIES HAVING JURISDICTION SHALL BE OBTAINED BEFORE STARTING THE INSTALLATION OF THE SPRINKLER SYSTEM.
15. AT THE COMPLETION OF THE PROJECT, PROVIDE TWO SETS OF RECORD DRAWINGS TO THE OWNER, CLEARLY SHOWING ANY CHANGES AND/OR MODIFICATIONS, ADDITIONS OR DELETIONS TO AND FROM THE CONSTRUCTION DOCUMENTS. THESE SETS SHALL BE REVIEWED BY THE ARCHITECT / ENGINEER BEFORE BEING TURNING OVER TO THE OWNER.

INSTALLATION REQUIREMENTS:

1. PROVIDE ALL NECESSARY OFFSETS, RISES OR DROPS IN THE PIPING AND AUXILIARY DRAINS AS REQUIRED BY ALL APPLICABLE CODES WHETHER OR NOT SHOWN ON THE PLANS.
2. CONNECT ALL SPRINKLER ALARM, TAMPER AND DETECTION SYSTEMS TO THE BUILDINGS CENTRAL FIRE ALARM SYSTEM, COORDINATE LOCATIONS AND REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR.
3. PIPE PENETRATIONS THRU WALLS, PARTITIONS AND FLOORS SHALL BE SLEEVED. CORE DRILLING THRU WALLS AND PARTITIONS IS PERMITTED IF PERFORMED IN A NEAT CRAFTSMAN LIKE MANNER. PIPES PENETRATING THRU EXTERIOR WALLS SHALL BE SEALED WATER TIGHT. INSTALL ESCUTCHEONS IN ALL EXPOSED AREAS.
4. CONCEAL PIPING ABOVE CEILINGS OR TIGHT TO UNDERSIDE OF STRUCTURE IN EXPOSED AREAS.
5. PAINT ALL EXPOSED FIRE PROTECTION SYSTEM PIPING (IN CLOSETS, STAIRWELLS, MECHANICAL ROOMS, ETC.). COLOR TO BE SELECTED BY THE ARCHITECT.
6. SPRINKLER LOCATIONS ARE TO BE IN THE CENTER OF THE CEILING TILE USING THE REFLECTED CEILING PLANS AND AS COORDINATED WITH THE CEILING CONTRACTOR.
7. WARRANT THE SYSTEM LABOR, MATERIALS AND EQUIPMENT FOR THE AMOUNT OF TIME SPECIFIED IN THE PROJECT MANUAL. IF NO WARRANTY SECTION IS PROVIDED, THEN WARRANT THE SYSTEM LABOR, MATERIAL AND EQUIPMENT FOR A MINIMUM OF ONE YEAR AFTER COMPLETION AND ACCEPTANCE. PRIOR TO TURNING THE COMPLETED SYSTEM OVER TO THE OWNER, REVIEW THE INSTALLATION WITH THE ARCHITECT / ENGINEER AND REPLACE OR REPAIR ANY DEFECTIVE WORKMANSHIP, EQUIPMENT AND MATERIALS AT NO ADDITIONAL COST TO THE OWNER.

TESTING AND FLUSHING:

1. OVERHEAD SPRINKLER PIPING: TESTED FOR A PERIOD OF TWO HOURS AT A HYDROSTATIC PRESSURE OF 200 LBS. AND ALL PIPING, VALVES, HEADS,ETC. SHALL BE WATERTIGHT.

FIRE PROTECTION LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
F	F	FIRE PROTECTION SUPPLY PIPING
FDC	FDC	FIRE DEPARTMENT CONNECTION PIPING
D	D	DRAIN PIPING
	-	PIPING ELBOW DOWN
	-	PIPING ELBOW UP
	-	PIPING CONTINUES
	OSY	OS&Y VALVE
	-	SHUT-OFF VALVE
	BF	BUTTERFLY VALVE
	CV	CHECK VALVE
	PRV	PRESSURE REDUCING VALVE
	RPZ	REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY
	FDC	FIRE DEPARTMENT CONNECTION
	FHV	FIRE HOSE VALVE

ADDITIONAL ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MFG	MANUFACTURER
AFG	ABOVE FINISHED GRADE	PSI	POUNDS PER SQUARE INCH
BAS	BUILDING AUTOMATION SYSTEM	TS	TAMPER SWITCH
BFF	BELOW FINISHED FLOOR	TYP	TYPICAL
CLG	CEILING	WMG	WATER MOTOR GONG
CONT	CONTINUATION	WC	WATER COLUMN
DN	DOWN		
FS	FLOW SWITCH	EC	ELECTRICAL CONTRACTOR
FHV	FIRE HOSE VALVE	FSC	FOOD SERVICE CONTRACTOR
GPM	GALLONS PER MINUTE	GC	GENERAL CONTRACTOR
HP	HORSE POWER	MC	MECHANICAL CONTRACTOR
INV	INVERT ELEVATION	PC	PLUMBING CONTRACTOR
KW	KILOWATT		

FIRE PROTECTION MATERIALS

1. ALL PIPING SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
2. ABOVE GRADE PIPING: BLACK STEEL PIPING (ASTM A53, ASTM A135, OR ASTM A795) SHALL BE LISTED FOR FIRE SPRINKLER PIPING USE AND INCLUDE FM APPROVED MIC INHIBITING COATING. PIPING 2" AND SMALLER SHALL BE SCHEDULE 40 BLACK STEEL PIPE THREADED, WELDED OR ROLL GROOVED FOR MECHANICAL FITTINGS. PIPING 2-1/2" AND LARGER SHALL BE SCHEDULE 10 BLACK STEEL PIPE WELDED, OR ROLL GROOVED FOR MECHANICAL FITTINGS.
3. THREADED FITTINGS: UL-LISTED, STANDARD WEIGHT SUITABLE FOR PRESSURE UP TO 175 PSIG, CAST IRON MEETING ASTM A126 OR MALLEABLE IRON MEETING ASTM A197. THREADED CAST IRON FITTINGS SHALL MEET ANSI B16.4; FLANGED CAST IRON FITTINGS SHALL MEET ANSI B16.1. THREADED MALLEABLE IRON FITTINGS SHALL MEET ANSI B16.3.
4. GROOVED FITTINGS AND COUPLINGS: UL-LISTED, DUCTILE IRON MEETING ASTM A536, UTILIZING AN EDPM GASKET. PLAIN-END FITTINGS AND COUPLINGS, OR WELDED-SEGMENTED FITTINGS SHALL NOT BE USED. CHANGES IN PIPE DIAMETER SHALL BE MADE USING TAPERED REDUCING FITTINGS. BUSHINGS OR GROOVED-END REDUCING COUPLINGS SHALL NOT BE USED UNLESS STANDARD REDUCING FITTINGS ARE NOT REGULARLY AVAILABLE.
5. USE HOT-DIPPED GALVANIZED PIPING AND FITTINGS FOR COMPRESSED AIR PIPING, WATER MOTOR ALARM PIPING, BALL DRIP DISCHARGES AND TEST / DRAIN PIPING SUBJECT TO ALTERNATE WETTING AND DRYING.
6. PIPE HANGERS: UL-LISTED SWIVEL LOOP TYPE WITH PRE-GALVANIZED CARBON STEEL BAND, HANGER RODS SIZED PER NFPA 13, UL-LISTED STEEL OR MALLEABLE IRON BEAM CLAMPS, UL-LISTED ANCHORS. POWER DRIVEN ANCHORS SHALL NOT BE USED. REFER TO THE STRUCTURAL PLANS AND DETAILS FOR ACCEPTABLE LOCATIONS TO ATTACH HANGERS AND SUPPORTS TO THE BUILDING STRUCTURE. HANGERS SHALL NOT ATTACH TO THE ROOF DECK.
7. VALVES: OS&Y TYPE, IRON BODY BRONZE MOUNTED, DOUBLE DISC WITH PARALLEL SEATS, OR; BUTTERFLY, LUG TYPE, DUCTILE IRON BODY, STAINLESS STEEL STEM, ALUMINUM BRONZE DISC, PHENOLIC RING AND BUNA N SEAT. VALVES SHALL BE FM/UL LISTED AND APPROVED FOR FIRE PROTECTION SERVICE.
8. ESCUTCHEON PLATES: PROVIDE CHROME PLATED ESCUTCHEON PLATES WHERE PIPES PASS THROUGH FINISHED WALLS, FLOORS, OR CEILING. PROVIDE PRIME COAT PAINTED ESCUTCHEON PLATES WHERE PIPES PASS THROUGH WALLS, CEILINGS, ETC. IN UNFINISHED EXPOSED AREAS.

FIRE PROTECTION SHEET INDEX

SHEET NUMBER	SHEET NAME
FP0.01	FIRE PROTECTION LEGEND, NOTES, AND DETAILS
FP1.01	FIRE PROTECTION FLOOR PLANS
FP5.01	FIRE PROTECTION DETAILS AND SCHEMATICS

Project No.
1691

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GORDON ROAD FIRE DEPARTMENT

FIRE PROTECTION LEGEND, NOTES, AND DETAILS

Sheet No.
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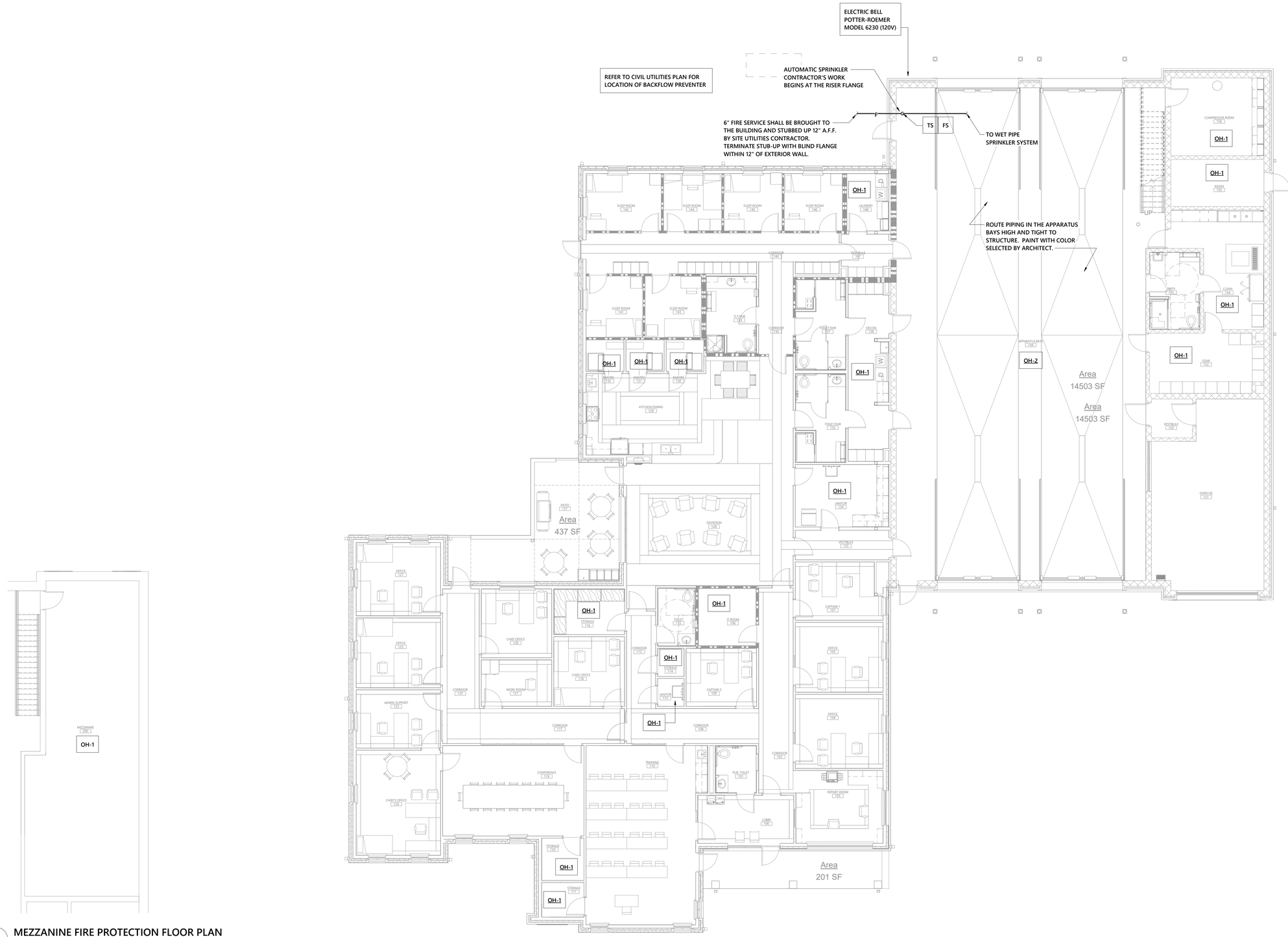

2 **MEZZANINE FIRE PROTECTION FLOOR PLAN**
1/8" = 1'-0"

1 **FIRST FLOOR FIRE PROTECTION FLOOR PLAN**
1/8" = 1'-0"

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1691

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FIRE PROTECTION FLOOR PLANS

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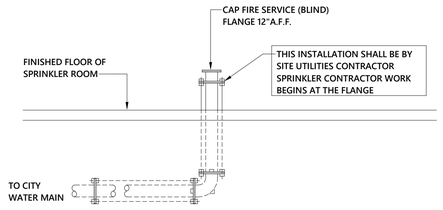

1 **FIRE SERVICE ENTRY DETAIL**
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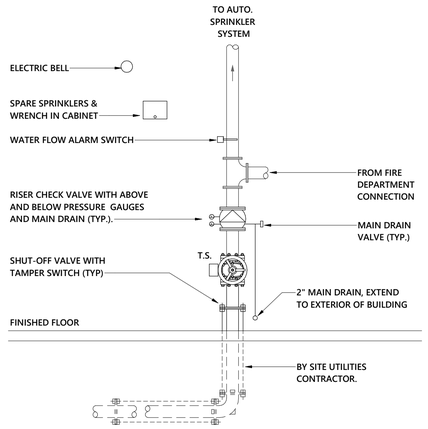

2 **SPRINKLER RISER DETAIL-2**
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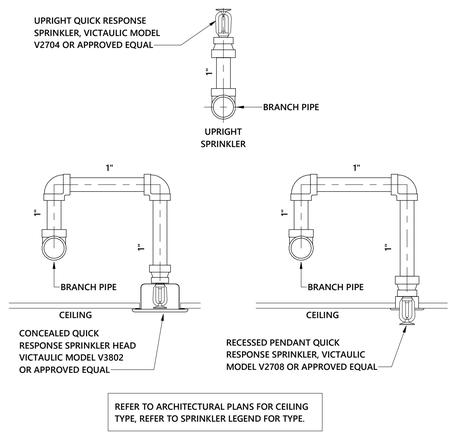
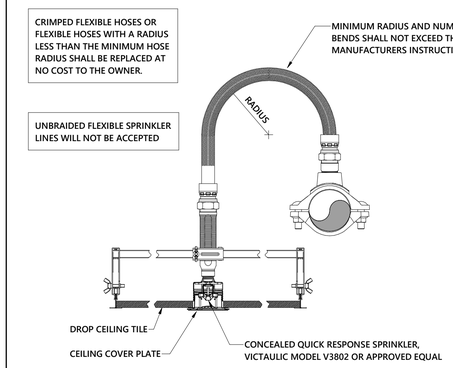


REFER TO ARCHITECTURAL PLANS FOR CEILING TYPE, REFER TO SPRINKLER LEGEND FOR TYPE.

3 **TYPICAL RETURN BEND SCHEMATIC**
NOT TO SCALE

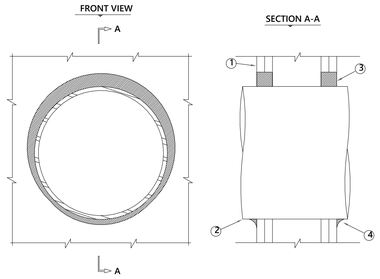


BRAIDED FLEXIBLE HOSE SPRINKLER ASSEMBLIES FOR CONCEALED PENDENT SPRINKLERS

4 **TYPICAL RETURN BEND SCHEMATIC - FLEXIBLE HOSE**
NOT TO SCALE

U.L. SYSTEM NO. WL1054
METAL PIPE THROUGH GYPSUM WALL ASSEMBLY

F RATING = 1-HR OR 2-HR
T RATING = 0-HR
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.



1. GYPSUM-WALL ASSEMBLY (1-HR. AND 2-HR. FIRE RATING)(2-HR. SHOWN).

2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
   A. MAXIMUM 20" DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   B. MAXIMUM 6" DIAMETER COPPER PIPE.
   C. MAXIMUM 6" DIAMETER STEEL CONDUIT.
   D. MAXIMUM 4" DIAMETER STEEL EMT.

1. MINIMUM DEPTH
   A. MINIMUM 5/8" DEPTH HILTI FS-ONE FIRESTOP SEALANT = 1-HR. FIRE-RATING. B. MINIMUM 1-1/4" DEPTH HILTI FS-ONE FIRESTOP SEALANT = 2-HR. FIRE-RATING.

2. MINIMUM 1/2" BEAD HILTI FS-ONE FIRESTOP SEALANT FOR POINT OF CONTACT.

NOTES: 1. MAXIMUM DIAMETER OF OPENING = 22-1/4".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 2-1/4".

INSTALLATION INSTRUCTIONS FOR UL NO.WL1054

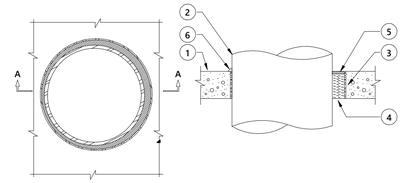
STEP 1 - PREPARATION: All surfaces must be clean, sound, dry and frost free prior to application of firestopping materials.

STEP 2 - FIRESTOP SEALANT: Apply a minimum 5/8" or 1-1/4" depth of FS-ONE in the annular space around the penetrating item. Tool excess sealant beyond perimeter of the opening 1/2" onto wall surface. Leave completed seal undisturbed for for 48 hours.

5 **U.L. SYSTEM NO WL1054 DETAIL**
NOT TO SCALE

U.L. SYSTEM NO. CAJ1155
METAL PIPE THROUGH A SLEEVE IN CONCRETE WALL OR FLOOR

F RATING = 3-HR.
T RATING = 0-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.



1. FLOOR OR WALL ASSEMBLY: B. U.L. CLASSIFIED CONCRETE BLOCK WALL (MINIMUM 8" BLOCK). A. MINIMUM 4-1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR.

2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
   A. MAXIMUM 20" DIAMETER STEEL PIPE.
   B. MAXIMUM 6" DIAMETER COPPER PIPE.
   C. MAXIMUM 6" DIAMETER STEEL CONDUIT.
   D. MAXIMUM 4" DIAMETER EMT.

3. OPTIONAL: MAXIMUM 22" DIAMETER STEEL PIPE SLEEVE (SCHEDULE 10 OR HEAVIER).

4. MINIMUM 4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) RECESSED 1/2" FROM TOP OF SLEEVE.

5. MINIMUM 1/2" DEPTH HILTI FS-ONE FIRESTOP SEALANT.

6. A GENEROUS BEAD OF HILTI FS-ONE FIRESTOP SEALANT AROUND OUTER PERIMETER OF STEEL SLEEVE.

NOTES:
1. MAXIMUM DIAMETER OF OPENING = 22".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1-1/2".

INSTALLATION INSTRUCTIONS FOR UL NO.CAJ1155

STEP 1 - PREPARATION: to application of firestopping materials. All surfaces must be clean, sound, dry and frost free prior

STEP 2 - BACKING MATERIAL: Firmly pack mineral wool around the penetrating item recessing it 1/2" below surface of the sleeve (or both ends of sleeve in wall)

STEP 3 - FIRESTOP SEALANT: Apply the Firestop Sealant over the backing material to a min. depth of 1/2" flush with the end(s) of the sleeve. Wall penetrations require Firestop Sealant installed on both sides. Leave completed seal undisturbed for 48 hours.

6 **U.L. SYSTEM NO CAJ-1155 DETAIL**
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GORDON ROAD FIRE DEPARTMENT

FIRE PROTECTION DETAILS AND SCHEMATICS

Sheet No.
FP5.01

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Opt # 22-0369

ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
ADD	ADDENDUM	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MBH	ONE THOUSAND BTU PER HOUR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CFM	CUBIC FEET PER MINUTE	NIC	NOT IN CONTRACT
CLG	CEILING	NO	NORMALLY OPEN
D	DEGREE	NTS	NOT TO SCALE
DB	DRY BULB	O/A	OUTSIDE AIR
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PSI	POUNDS PER SQUARE INCH
ELEC	ELECTRICAL	PSIG	POUNDS PER SQUARE INCH GAUGE
EQUIP	EQUIPMENT	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R/A	RETURN AIR
E/A	EXHAUST AIR	RH	RELATIVE HUMIDITY
EXIST	EXISTING	RL/A	RELIEF AIR
F	DEGREES FAHRENHEIT	RM	REMAIN
FD	FIRE DAMPER	RPM	REVOLUTIONS PER MINUTE
FL	FLOOR	SF	SQUARE FOOT
FPM	FEET PER MINUTE	S/A	SUPPLY AIR
FT	FOOT/FEET	SF	SQUARE FOOT
GC	GENERAL CONTRACTOR	SD	SMOKE DAMPER
GPM	GALLONS PER MINUTE	SP	STATIC PRESSURE
HP	HORSE POWER	T	THERMOSTAT
HTG	HEATING	TD	TEMPERATURE DROP
HTR	HEATER	TEMP	TEMPERATURE
HW	HOT WATER	TYP	TYPICAL
IN	INCH	VAV	VARIABLE AIR VOLUME
LB	POUND	VENT	VENTILATION
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE		

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	EWH	ELECTRIC WATER HEATER
ACC	AIR COOLED CONDENSER	FCU	FAN COIL UNIT
ACCU	AIR COOLING CONDENSING UNIT	FP	FIRE PUMP
AHU	AIR HANDLING UNIT	GI	GREASE INTERCEPTOR
AS	AIR SEPARATOR	GRV	GRAVITY ROOF VENTILATOR
B	BOILER	HWP	HEATING WATER PUMP
CH	CHILLER	HX	HEAT EXCHANGER
CT	COOLING TOWER	HRU	HEAT RECOVERY UNIT
CUH	CABINET UNIT HEATER	PRV	POWER ROOF VENTILATOR
CWP	CONDENSER WATER PUMP	RE	RETURN/EXHAUST FAN
CHWP	CHILLED WATER PUMP	RTU	ROOFTOP UNIT
DBP	DOMESTIC WATER BOOSTER PUMP	SEP	SEWAGE EJECTOR PUMP
DC	DUCT MOUNTED COIL	SF	SUPPLY FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	WH	WATER HEATER
ET	EXPANSION TANK		

MECHANICAL DUCT SYMBOLS

SYMBOL	DESCRIPTION
16x8	SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
16/8	OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
16"Ø	ROUND DUCT SIZE TAG (DIAMETER)
(EX)	EXISTING DUCT TAG
	DUCT BEING DEMOLISHED
S/A	SUPPLY AIR
O/A	OUTDOOR AIR
R/A	RETURN AIR
E/A	EXHAUST AIR
L/A	RELIEF AIR
	SUPPLY AIR DIFFUSER (4-WAY)
	RETURN AIR GRILLE
	RETURN AIR GRILLE WITH SOUND BOOT
	EXHAUST AIR GRILLE
	POINT OF EXISTING TO NEW CONNECTION
	POINT OF DISCONNECT TO EXISTING CONNECTION
M.C.	MECHANICAL CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
N.I.C.	NOT IN CONTRACT
(EX)	EXISTING
AFF	ABOVE FINISHED FLOOR
DN	DOWN
UP	UP
X / X	SECTION CUT REFERRING DETAIL NUMBER REFERRING SHEET NUMBER

MECHANICAL ACCESSORIES SYMBOL LEGEND

SYMBOL	DESCRIPTION
NO2	NOITROGEN DIOXIDE (NO2)
T	THERMOSTAT / TEMP SENSOR (4'-0" AFF TO TOP)
CO	CARBON MONOXIDE SENSOR
S	SWITCH (4'-0" AFF TO TOP)
FD	FIRE DAMPER W/ACCESS DOOR (SEE DETAIL)

MECHANICAL PIPING SYMBOLS

SYMBOL	DESCRIPTION
	BUTTERFLY VALVE
	3-PIECE BALL VALVE
	CHECK VALVE
	STRAINER WITH BLOWDOWN VALVE WITH HOSE CONN.
	BALANCING VALVE
	B&G CIRCUIT SETTER
	UNION
	THERMOMETER
P	PRESSURE GAGE & COCK
	GAGE COCK
	FLOW SWITCH
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	STEAM TRAP, F&T
	STEAM TRAP, TB
	CONTROL VALVE
	GAS COCK
	PRESSURE REDUCING/REGULATING VALVE
	SOLENOID VALVE

MECHANICAL PIPING SYSTEMS LEGEND

SYMBOL	DESCRIPTION
D	CONDENSATE DRAINAGE
G	NATURAL GAS
R	REFRIGERANT

2018 NORTH CAROLINA ENERGY CONSERVATION CODE

COMMERCIAL ENERGY EFFICIENCY - MECHANICAL SUMMARY

C401 METHOD OF COMPLIANCE

- ■ 2018 NCECC CHAPTER 4
- ☐ ASHRAE 90.1-2013 PRESCRIPTIVE
- ☐ ASHRAE 90.1-2013 PERFORMANCE
- ☐ N/A (EXISTING LIGHTING, HVAC, AND DOM. WATER HEATING SYSTEMS TO REMAIN)
- ☐ COMCHECK PROVIDED (2018 NCECC)
- ☐ COMCHECK PROVIDED (90.1-2013)
- ☐ ENERGY MODELING DATA PROVIDED

C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

- ☐ C406.2 EFFICIENT MECH EQUIPMENT
- ■ C406.3 REDUCED LTG DENSITY
- ☐ C406.4 ENHANCED LTG CONTROLS
- ☐ C406.5 ON-SITE RENEWABLE ENERGY
- ☐ C406.6 DEDICATED OA SYSTEM
- ☐ C406.7 SERVICE WATER HEATING

C301 CLIMATE ZONE

3A - NEW HANOVER COUNTY, NORTH CAROLINA

DESIGN CONDITIONS

EXTERIOR (ASHRAE 90.1-2013 TABLE D-1)

winter dry bulb	28° F.
summer dry bulb	90° F.
summer wet bulb	76° F.

INTERIOR (2018 NCECC SECTION C302.1)

winter dry bulb	72° F.
summer dry bulb	75° F.

C403.2 HEATING & COOLING LOADS AND EQUIPMENT & SYSTEM SIZING

BUILDING HEATING LOAD	225,800 BTUH (peak)
BUILDING COOLING LOAD	230,100 BTUH (peak)
INSTALLED HEATING CAPACITY	467,811 BTUH
INSTALLED COOLING CAPACITY	417,368 BTUH

C403.2.3 & C406.2 - REQUIRED & INCREASED HVAC EQUIPMENT PERFORMANCE

SYSTEM DESCRIPTION - DX VRF HEAT PUMP SYSTEM, DOAS HEAT PUMP WITH ELECTRIC STRIP HEAT AND HOT GAS REHEAT, AND INFRARED NATURAL GAS HEATERS

- ■ MINIMUM HVAC EQUIP EFFICIENCY COMPLIANCE - TABLE C403.2.3
- ☐ INCREASED HVAC EQUIP EFFICIENCY COMPLIANCE - 10% OVER TABLE C403.2.3

EQUIP TYPE	SIZE CATEGORY (BTUH)	SUBCATEGORY	C403.2.3 MINIMUM EFFICIENCY (a)	10% INCREASED EFF. (a)	DESIGN EFFIC.
TABLE C403.2.3(2) - ELECTRICALLY OPERATED UNITARY AND APPLIED HEAT PUMPS					
AIR COOLED COOLING MODE	>= 135,000 BTUH < 240,000 BTUH	SPLIT SYSTEM & SINGLE PACKAGE	10.6 EER	11.66 SEER	SEE SCHEDULE
TABLE C403.2.3(2) - ELECTRICALLY OPERATED UNITARY AND APPLIED HEAT PUMPS					
AIR COOLED HEATING MODE	>= 135,000 BTUH (COOLING CAP)	47°F db/43°F wb OUTDOOR AIR	3.2 COP	3.52 COP	SEE SCHEDULE
		17°F db/ 15°F wb OUTDOOR AIR	2.05 COP	2.26 COP	

C403.2.4 THRU C403.2.11

- ■ HVAC SYSTEMS ARE FULLY COMPLIANT WITH THE REQUIREMENTS FOR HVAC SYSTEM CONTROL, VENTILATION, ENERGY RECOVERY, DUCT AND PLENUM INSULATION AND SEALING, PIPING INSULATION, AND SYSTEM COMPLETION.

C403.2.12 - AIR SYSTEM DESIGN AND CONTROL

- ■ ALL FANS INSTALLED ON THE PROJECT ARE 5 HP OR LESS AND ARE EXEMPT FROM THESE REQUIREMENTS.
- ☐ FANS ABOVE 5 HP MEET THE CFM LIMITATIONS SHOWN BELOW:

OPTION 1 - FAN SYSTEM MOTOR NAMEPLATE HP - TABLE C403.2.12.1(1)

ALLOWABLE NAMEPLATE MOTOR HP	CONSTANT VOLUME MINIMUM CFM	VARIABLE VOLUME MINIMUM CFM	DESIGN CFM
7.5	6,818 CFM	5,000 CFM	SEE SCHEDULE
10	9,091 CFM	6,667 CFM	SEE SCHEDULE
15	13,636 CFM	10,000 CFM	SEE SCHEDULE
20	18,182 CFM	13,333 CFM	SEE SCHEDULE
25	22,727 CFM	16,667 CFM	SEE SCHEDULE
30	27,272 CFM	20,000 CFM	SEE SCHEDULE
40	36,364 CFM	26,667 CFM	SEE SCHEDULE
50	45,455 CFM	33,333 CFM	SEE SCHEDULE

C405.8 - ELECTRICAL MOTORS (MANDATORY REQUIREMENTS).

- ■ ELECTRICAL MOTORS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.8, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE.

C408 - SYSTEM COMMISSIONING

- ☐ PROJECT AREA IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
- ■ PROJECT AREA IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM COMMISSIONING PER SECTION C408.

MECHANICAL SHEET INDEX

SHEET NUMBER	SHEET NAME
M0.01	MECHANICAL LEGEND AND NOTES
M0.02	MECHANICAL NOTES
M0.03	MECHANICAL SCHEDULES
M0.04	MECHANICAL VENTILATION SCHEDULES
M0.05	MECHANICAL VENTILATION SCHEDULES
M1.01	MECHANICAL FLOOR PLANS
M1.02	MECHANICAL ROOF PLAN
M2.01	MECHANICAL PIPING FLOOR PLAN
M5.01	MECHANICAL DETAILS
M5.02	MECHANICAL DETAILS
M5.03	MECHANICAL DETAILS
M5.04	MECHANICAL SECTIONS

Project No.
1691

Date:
3/20/2024 4:57:04 PM
Drawn by:
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Checked by:
MEH
Revisions:

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Seal Date

GORDON ROAD FIRE DEPARTMENT

MECHANICAL LEGEND AND NOTES

Sheet No.
M0.01

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Opt # 22-0369

TESTING, ADJUSTING, AND BALANCING

1. THE MECHANICAL CONTRACTOR SHALL BALANCE ALL MECHANICAL SYSTEMS TO THE PERFORMANCE SPECIFICATIONS INDICATED ON PLANS AND PROVIDE THE ENGINEER WITH THREE COPIES OF A COMPLETE TEST AND BALANCE REPORT. THE REPORT IS TO BE ISSUED A MINIMUM OF TWO WEEKS PRIOR TO PROJECT COMPLETION. THE TEST AND BALANCE REPORT WILL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. ANY ADDITIONAL TESTING, ADJUSTING AND BALANCING REQUIRED (AT ENGINEER'S REQUEST) AFTER REVIEW OF THE INITIAL REPORT SHALL BE PROVIDED AT NO ADDITIONAL COST. TEST AND BALANCE REPORT TO BE COMPLETED BY AN INDEPENDENT, CERTIFIED TEST AND BALANCE CONTRACTOR.
2. CONDUCT TESTING AND BALANCING IN ACCORDANCE WITH TECHNICAL PORTIONS OF THE AABC "NATIONAL STANDARDS FOR TESTING AND BALANCING HVAC SYSTEMS", LATEST EDITION.
3. INSTRUMENTS USED FOR BALANCING MUST HAVE BEEN CALIBRATED WITHIN A PERIOD OF SIX (6) MONTHS PRIOR TO BALANCING. SUBMIT SERIAL NUMBERS, AND DATES OF CALIBRATION OF ALL INSTRUMENTS TO BE USED PRIOR TO THE START OF WORK.
4. SET HVAC SYSTEM AIRFLOW AND WATER FLOW RATES WITHIN THE FOLLOWING TOLERANCES:
   A. SUPPLY, RETURN, AND EXHAUST FANS AND EQUIPMENT WITH FANS: MINUS 5 TO PLUS 10 PERCENT.
   B. AIR OUTLETS AND INLETS: PLUS OR MINUS 10 PERCENT.

VRF PIPING SYSTEM DESIGN NOTES:

THE VRF SYSTEM MANUFACTURER SHALL USE MANUFACTURER'S PROPRIETARY SELECTION SOFTWARE FOR A COMPLETE DESIGN OF THE REFRIGERANT PIPE LENGTHS, SIZING, AND OTHER REQUIRED SPECIALTIES. SUBMITTALS SHALL INCLUDE PIPE LENGTHS, NUMBER OF ELBOWS, CONTROLS WIRING, POWER WIRING DIAGRAM, ADDITIONAL REFRIGERANT CHARGE, AND OTHER APPURTENANCES REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PIPING DIAGRAMS INDICATED ON THIS SHEET ARE BASED OFF OF THE ROUTING SHOWN ON DIAGRAMMATIC CONSTRUCTION DRAWINGS, AND WILL BE ADJUSTED THROUGH THE COORDINATION DRAWINGS PHASE, AND AS REQUIRED DURING THE COORDINATION PHASE. ADDITIONAL LENGTHS OF PIPE, BRANCHES, AND PIPE FITTINGS MAY BE REQUIRED.

COMMISSIONING NOTE

THIS PROJECT INCLUDES A THIRD PARTY COMMISSIONING AGENT CONTRACTED BY THE OWNER. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH OWNER'S COMMISSIONING AGENT AND PROVIDE ALL NECESSARY TIME, MATERIALS, AND PROCEDURES REQUIRED FOR A FULLY COMMISSIONED PROJECT. SEE COMMISSIONING REQUIREMENTS IN THE PROJECT MANUAL FOR FURTHER INFORMATION.

CONTROLS SCOPE OF WORK

THE CONTROLS CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A COMPLETE BAS ALONG WITH ALL CONTROLLERS, WIRING, CONDUITS, AND ACCESSORIES REQUIRED FOR A COMPLETE AND FULLY FUNCTIONING SYSTEM.

THE BAS SHALL INCORPORATE ALL MECHANICAL EQUIPMENT INTO A SINGLE FRONT-END FOR OCCUPANCY SCHEDULING, SETPOINT ADJUSTMENT, AND PERFORMANCE MONITORING.

THE VRF SYSTEMS SHALL BE CONTROLLED BY THE MANUFACTURER'S CONTROLS SYSTEM. THIS SYSTEM SHALL BE TIED BACK TO THE CENTRAL BAS FOR SETPOINT ADJUSTMENT AND EQUIPMENT SCHEDULING ALONG WITH MONITORING OF SPACE TEMPERATURES, SYSTEM STATUS, AND ALARMS.

DOAS UNIT SHALL BE CONTROLLED BY A FACTORY CONTROLLER AND TIED INTO THE BAS FOR SETPOINT ADJUSTMENT, SCHEDULING, AND MONITORING OF SYSTEM STATUS AND ALARMS.

MECHANICAL GENERAL NOTES

1. DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATION OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.
2. ALL EQUIPMENT LISTED IN PROJECT SCHEDULES IS TO BE CONSIDERED DESIGN BASIS EQUIPMENT. ALL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, PIPING, SHEET METAL, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. THIS INCLUDES ANY MODIFICATIONS TO ANY ASSOCIATED MECHANICAL, PLUMBING, OR ELECTRICAL SYSTEMS REQUIRED BY THIS SPECIFIC MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL CONSTRUCTED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS. ALL SUPPLY, RETURN AND OUTSIDE AIR DUCTWORK SHALL BE WRAPPED WITH 2" THICK DUCT WRAP WITH VAPOR BARRIER. INSULATION (INCLUDING FLEXIBLE DUCT INSULATION) SHALL HAVE A MINIMUM INSTALLED R-VALUE OF 6.0. TRANSFER DUCTS SHALL BE LINED WITH 1" THICK FIBERGLASS DUCT LINER FOR ACOUSTICAL PURPOSES. DUCT DIMENSIONS ON PLANS ARE FREE AREA SIZE. ALL EXPOSED SPIRAL DUCTWORK SHALL BE A DOUBLE WALL LINDAB SPIROSAFE SELF-SEALING DUCT SYSTEM WITH PAINT GRIP FINISH (OR APPROVED EQUAL).
4. ALL DUCTWORK SHALL BE SEALED PER THE REQUIREMENTS OF THE NORTH CAROLINA MECHANICAL CODE. SEAL LOW PRESSURE SUPPLY, RETURN, OUTSIDE AIR, AND EXHAUST DUCTWORK FOR POSITIVE/NEGATIVE 2" PRESSURE CLASS, SMACNA SEAL CLASS A, SMACNA LEAKAGE CLASS 4.
5. ALL PIPING, DUCTS, VENTS, ETC., EXTENDING THROUGH WALLS AND ROOF SHALL BE FLASHED AND COUNTERFLASHED IN A WATERPROOF MANNER.
6. ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS, TO AVOID INTERFERENCE.
7. THE MECHANICAL CONTRACTOR SHALL BALANCE ALL MECHANICAL SYSTEMS TO THE PERFORMANCE SPECIFICATIONS INDICATED ON PLANS AND PROVIDE THE ENGINEER WITH THREE COPIES OF A COMPLETE TEST AND BALANCE REPORT. THE REPORT IS TO BE ISSUED A MINIMUM OF TWO WEEKS PRIOR TO PROJECT COMPLETION. THE TEST AND BALANCE REPORT WILL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. ANY ADDITIONAL TESTING, ADJUSTING AND BALANCING REQUIRED (AT ENGINEER'S REQUEST) AFTER REVIEW OF THE INITIAL REPORT SHALL BE PROVIDED AT NO ADDITIONAL COST. TESTING AND BALANCING CONTRACTOR TO CONFIRM FILTERS ARE CLEAN, AND FREE OF DEBRIS PRIOR TO BEGINNING WORK. THE MECHANICAL CONTRACTOR SHALL REPLACE ANY DIRTY FILTERS, AS NEEDED. TEST AND BALANCE REPORT TO BE COMPLETED BY AN INDEPENDENT, CERTIFIED TEST AND BALANCE CONTRACTOR.
8. UPON PROJECT COMPLETION, THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE OWNER INSTALLATION INFORMATION INCLUDING RECORD SUBMITTALS (WITH ANY SUBMITTAL REVIEW COMMENTS ADDRESSED) AND O&M MANUALS FOR EACH PIECE OF EQUIPMENT INCLUDING ALL SELECTED OPTIONS, THE NAME AND ADDRESS OF AT LEAST ONE SERVICE AGENCY, FULL CONTROL SYSTEM O&M AND CALIBRATION INFORMATION INCLUDING WIRING DIAGRAMS, SCHEMATICS, FULL SEQUENCE OF OPERATION, AND PROGRAMMED SETPOINTS. IN ADDITION, THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO HIRE A REGISTERED DESIGN PROFESSIONAL TO COMMISSION THE INSTALLED SYSTEM AND PROVIDE THE OWNER AND CODE REVIEWER A SEALED STATEMENT OF SYSTEM COMMISSIONING (PER 2018 NCECC APPENDIX C1).
9. PROVIDE A ONE YEAR WARRANTY FOR ALL WORK PERFORMED BEGINNING ON THE DAY THE SYSTEM IS COMPLETELY OPERATIONAL AND ACCEPTABLE BY THE OWNER.
10. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND ALL EQUIPMENT FOR MAINTENANCE AND FILTER REMOVAL.
11. CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 PVC PIPE AND FITTINGS. DRAINS FROM AIR HANDLING UNITS SHALL BE TRAPPED. CONDENSATE DRAINS SHALL BE INSULATED WITH 1/2" THICK ARMAFLEX INSULATION. MINIMUM DRAIN SIZE SHALL BE 3/4".
12. ALL REFRIGERANT PIPE SHALL BE NITROGENIZED ACR COPPER TUBE. SIZE, INSULATE, AND INSTALL REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS. REFRIGERANT PIPING INSULATION EXPOSED OUTDOORS SHALL BE COVERED WITH AN OUTER ALUMINUM JACKET.
13. ANY DEVICE REQUIRING A THERMOSTAT FOR CONTROL SHALL BE FURNISHED WITH A THERMOSTAT WHETHER INDICATED ON THE DRAWINGS OR NOT.
14. INSTALL THE TOP OF ALL THERMOSTATS, SENSORS, AND SWITCHES AT 4'-0" (MAXIMUM) ABOVE FINISH FLOOR. COORDINATE EXACT THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLATION. ANY DEVICE ON A PERIMETER WALL SHALL BE MOUNTED ON A FOAM-FILLED ELECTRICAL BOX, WITH ALL GAPS BETWEEN BOX AND WALL SEALED TO PREVENT INFILTRATION.
15. CONTRACTOR SHALL VERIFY LOCATION OF ALL ROOF PENETRATIONS WITH ARCHITECT & OWNER PRIOR TO INSTALLATION.
16. ROOF CURBS SHALL ALLOW A MINIMUM OF 8" ABOVE ROOF INSULATION FOR FLASHING, OR AS INDICATED ON THE DRAWINGS, WHICHEVER IS GREATER. IN ADDITION, ALL ROOF CURBS OR EQUIPMENT SUPPORT RAILS THAT SUPPORT EQUIPMENT, PIPING, CONDUIT, ETC. EXPOSED ON THE ROOF SHALL HAVE SUFFICIENT HEIGHT TO MAINTAIN A MINIMUM OF 18" CLEARANCE BELOW SUPPORTED EQUIPMENT FOR ROOF MAINTENANCE.
17. CONTRACTOR SHALL LOCATE EXHAUST FANS, OUTLETS, AND GAS FLUES A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE.
18. DRYER VENT WALL CAPS SHALL BE PROVIDED WITH A BACKDRAFT DAMPER. DRYER VENT SHALL NOT EXCEED A TOTAL EQUIVALENT LENGTH OF 35'-0" WITH A 2.5' DEDUCTION FOR EACH 45° BEND AND A 5' DEDUCTION FOR EACH 90° BEND.
19. MINIMUM GAS PIPING SIZE SHALL BE 3/4".
20. GAS PIPING AND FITTINGS SHALL BE BLACK STEEL, SCHEDULE 40, IN ACCORDANCE WITH ASTM SPECIFICATION A 106, WITH 150 PSI BLACK MALLEABLE IRON FITTINGS IN ACCORDANCE WITH ASTM SPECIFICATION A 47, GRADE 32510, AND ASA SPECIFICATION B16.3, 125 LB.
21. GAS PIPING SHALL BE INSTALLED TO THE REQUIREMENTS OF THE STATE BUILDING CODE AND NFPA STANDARD NO. 54. ALL PIPING TO BE SUPPORTED BY CLEVIS HANGERS WITH GALVANIZED ROD A MAXIMUM OF 8' ON CENTER. PIPING SHALL BE SUPPORTED BY ROD HANGERS IN THE PIPE RUN 12" OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE PER THE STATE BUILDING CODE AND ASCE 7.
22. GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN NFPA NO 54. ANY OTHER TEST AS REQUIRED BY THE LOCAL GAS INSPECTION DEPARTMENT OR GAS COMPANY SHALL ALSO BE PERFORMED.
23. NATURAL GAS PIPING AND FITTINGS ABOVE GRADE: SCHEDULE 40 BLACK STEEL PIPING, TYPE S, SEAMLESS, GRADE B (ASTM A 53) AND 150 PSI MALLEABLE BLACK IRON FITTINGS, GRADE 32510, (ASTM B 16.3) OR FORGED STEEL WELDING TYPE FITTINGS (ASTM A234). PROVIDE THREADED JOINTS FOR PIPE 2" AND SMALLER. PROVIDE WELDED JOINTS (ASME B31.9) FOR PIPE 2 1/2" AND LARGER.
24. NATURAL GAS PIPING AND FITTINGS OUTSIDE BELOW GRADE: SCHEDULE 40 BLACK STEEL, TYPE S, SEAMLESS, GRADE B (ASTM A 53) AND FORGED STEEL WELDING TYPE FITTINGS (ASTM A234) WITH (AWWA C105) POLYETHYLENE JACKET OR DOUBLE LAYER, HALF LAPPED 10 MIL POLYETHYLENE TAPE. PROVIDE WELDED JOINTS (ASME B31.9) FOR ALL UNDERGROUND PIPE.
25. SPACE GAS PIPING HANGER RODS 8'-0" ON CENTER MAXIMUM AND SPACE TRANSVERSE BRACING 20'-0" ON CENTER MAXIMUM. TRANSVERSE BRACING FOR ONE SECTION MAY ACT AS LONGITUDINAL BRACING FOR THE PIPE SECTION CONNECTED TO IT IF THE BRACING IS INSTALLED WITHIN 24" OF THE ELBOW OR TEE. COORDINATE HANGER LOCATIONS WITH STRUCTURAL DRAWING DETAILS.
26. PROVIDE A.G.A. CERTIFIED SHUT-OFF VALVES MINIMUM, 125 PSI RATED, NON- LUBRICATED PLUG TYPE WITH BRONZE BODY AND BRONZE PLUG, STRAINERS AND REGULATORS (AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER) FOR ALL EQUIPMENT CONNECTED TO THE NATURAL GAS SYSTEM.
27. PAINT ALL GAS PIPING WITH 2 COATS OF YELLOW ENAMEL PAINT APPLIED WITH A BRUSH (2 MIL THICKNESS MINIMUM). PROVIDE PRE-PRINTED LABELS WITH BLACK LETTERING INDICATING THE GAS PRESSURE AND THE WORD "GAS" ON THE PIPE AT 5'-0" CENTERS FOR ALL GAS PIPING.
28. PROVIDE UNIONS, FLANGES OR COUPLINGS AT CONNECTION TO ALL VALVES AND EQUIPMENT. DO NOT USE DIRECT WELDED OR THREADED CONNECTIONS TO VALVES, EQUIPMENT OR OTHER APPARATUS.
29. PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.
30. ALL ISOLATION VALVES, TERMINAL UNITS, CONTROLS, ETC. REQUIRING ACCESS AND SERVICE SHALL BE INSTALLED WITHIN 18" OF THE CEILING FOR SERVICE ACCESSIBILITY. LOCATIONS SHALL BE INDICATED ON THE CEILING GRID PER THE SPECIFICATIONS.
31. ALL EQUIPMENT CONCRETE PAD SIZES FOR MECHANICAL EQUIPMENT SHALL BE CONFIRMED WITH APPROVED SHOP DRAWING SUBMITTALS AND ASSOCIATED UNIT MANUFACTURER ANCHOR LOCATIONS PRIOR TO FABRICATION/INSTALLATION. THE MECHANICAL AND PLUMBING CONTRACTORS SHALL COORDINATE THE EXACT LOCATION OF MECHANICAL EQUIPMENT HOUSEKEEPING PADS WITH THE FLOOR DRAIN LOCATIONS PRIOR TO INSTALLATION OF DRAINS AT EQUIPMENT/PAD LOCATIONS.
32. DUCTWORK AND PIPING PASSING THROUGH/ABOVE ELECTRICAL ROOMS SHALL BE CLOSELY COORDINATED WITH THE ELECTRICAL CONTRACTOR. DUCTWORK OR PIPING SHALL NOT BE LOCATED ABOVE ELECTRICAL PANELS.
33. EQUIPMENT OPERATED DURING CONSTRUCTION SHALL USE FILTERED MEDIA TO PREVENT CONSTRUCTION DEBRIS FROM ENTERING COILS, DUCTWORK SYSTEMS, AIR TERMINALS ETC. AT COMPLETION OF CONSTRUCTION, MECHANICAL CONTRACTOR SHALL CLEAN ALL SYSTEMS WITH ALL CONTROL DEVICES WIDE OPEN AND REMOVE ANY REMAINING DEBRIS PRIOR TO TEST AND BALANCING. MECHANICAL CONTRACTOR SHALL REPLACE ALL FILTRATION WITH NEW FILTERS AT COMPLETION OF CONSTRUCTION. ANY DUCTWORK, AIR TERMINALS, AND/OR OTHER EQUIPMENT UPSTREAM OF FILTRATION SHALL BE CLEANED THOROUGHLY OF CONSTRUCTION DEBRIS BEFORE HANDING OVER TO OWNER.
34. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING RESTRAINTS TO RESIST THE EARTHQUAKE EFFECTS ON THE MECHANICAL SYSTEMS. THE REQUIREMENTS FOR THOSE RESTRAINTS ARE FOUND IN THE LOCAL BUILDING CODE AND ASCE 7. THE ANCHORAGE OF THE MECHANICAL SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE LOCAL BUILDING CODE AND ASCE 7.
35. MECHANICAL CONTRACTOR SHALL PROVIDE PRE-PRINTED COLOR-CODED PIPE LABELS WITH 1-1/2" HIGH LETTERING INDICATING SERVICE AND FLOW DIRECTION. PLASTIC PIPE LABELS UTILIZED IN A RETURN AIR PLENUM SHALL BE LISTED/APPROVED FOR USE IN A RETURN AIR PLENUM. ALL PIPING TO MATCH EXISTING FACILITIES STANDARD (IF APPLICABLE). OTHERWISE, PIPE LABELS SHALL MATCH THE FOLLOWING:
    REFRIGERANT PIPING: YELLOW BACKGROUD, BLACK LETTERING
36. ALL MECHANICAL EQUIPMENT SHALL BE U.L. LISTED AND LABELED AS A COMPLETE PACKAGE, NOT THROUGH INDIVIDUAL COMPONENTS OR PARTS. PROVIDE REQUIRED 3RD PARTY FIELD UL LISTING SERVICES AS REQUIRED TO COMPLY.

Project No.
1691

Date:
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Drawn by:
JWA
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MEH
Revisions:

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Seal Date

GORDON ROAD FIRE DEPARTMENT

MECHANICAL NOTES

Sheet No.
M0.02

Opt # 22-0369

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INDOOR UNIT SCHEDULE

SYMBOL	CFM	O.A. CFM	NOMINAL TONNAGE	E.S.P.	COOLING CAPACITY TC (BTUH)	COOLING CAPACITY SHC (BTUH)	HEATING CAPACITY (BTUH)	ELECTRICAL DATA MCA	MOCP	VOLTAGE	PH	MANUFACTURER	MODEL	EQUIPMENT TYPE	WEIGHT	MATCHING OUTDOOR UNIT
IDU-1	300	25	0.66	0.40	8,000	6,429	4,408	1.75	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP008MA144A	CONCEALED DUCTED	47.0 lb	ODU-1
IDU-2	315	25	0.66		8,000	6,218	4,408	0.28	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP008FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-3	494	65	1.25	0.40	15,000	11,364	8,327	2.88	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP015MA144A	CONCEALED DUCTED	58.0 lb	ODU-1
IDU-4	210	0	0.5		6,000	4,254	3,282	0.19	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPKFYP006BM142B	DUCTLESS WALL MTD	22.0 lb	ODU-1
IDU-5	300	70	0.66	0.40	8,000	6,429	4,408	1.75	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP008MA144A	CONCEALED DUCTED	47.0 lb	ODU-1
IDU-6	777	240	2.25	0.60	27,000	18,449	14,694	2.35	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP027MH142A	CONCEALED DUCTED	124.0 lb	ODU-1
IDU-7	280	20	0.42		5,000	4,383	2,743	0.24	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP005FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-8	280	20	0.42		5,000	4,383	2,743	0.24	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP005FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-9	300	40	0.66	0.40	8,000	6,429	4,408	1.75	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP008MA144A	CONCEALED DUCTED	47.0 lb	ODU-1
IDU-10	600	160	1.5	0.40	18,000	13,716	9,796	2.94	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP018MA144A	CONCEALED DUCTED	58.0 lb	ODU-1
IDU-11	315	35	0.66		8,000	6,218	4,408	0.28	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP008FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-12	300	40	0.66	0.40	8,000	6,429	4,408	1.75	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP008MA144A	CONCEALED DUCTED	47.0 lb	ODU-1
IDU-13	315	20	0.66		8,000	6,218	4,408	0.28	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP008FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-14	600	175	1.5	0.40	18,000	13,716	9,796	2.94	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP018MA144A	CONCEALED DUCTED	58.0 lb	ODU-1
IDU-15	777	255	2	0.60	24,000	16,551	13,225	2.11	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP024MH142A	CONCEALED DUCTED	100.0 lb	ODU-1
IDU-16	210	0	0.5		6,000	4,254	3,282	0.19	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPKFYP006BM142B	DUCTLESS WALL MTD	22.0 lb	ODU-1
IDU-17	300	45	0.66	0.40	8,000	6,429	4,408	1.75	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP008MA144A	CONCEALED DUCTED	47.0 lb	ODU-1
IDU-18	280	20	0.42		5,000	4,383	2,743	0.24	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP005FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-19	280	20	0.42		5,000	4,383	2,743	0.24	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP005FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-20	315	30	0.66		8,000	6,218	4,408	0.28	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP008FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-21	280	20	0.42		5,000	4,383	2,743	0.24	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP005FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-22	280	20	0.42		5,000	4,383	2,743	0.24	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP005FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-23	280	20	0.42		5,000	4,383	2,743	0.24	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPLFYP005FM140A	CASSETTE - 2'X2'	28.9 lb	ODU-1
IDU-24	777	200	2.25	0.60	27,000	18,449	14,694	2.35	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPEFYP027MH142A	CONCEALED DUCTED	124.0 lb	ODU-1
IDU-25	210	0	0.5		6,000	4,254	3,282	0.19	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPKFYP006BM142B	DUCTLESS WALL MTD	22.0 lb	ODU-1
IDU-26	297	0	1		12,000	8,000	13,500	0.20	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPKFYP012LM140A	DUCTLESS WALL MTD	24.5 lb	ODU-1
IDU-27	210	0	0.5		6,000	4,254	3,282	0.19	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPKFYP006BM142B	DUCTLESS WALL MTD	22.0 lb	ODU-1
IDU-28	413	0	1.25		15,000	9,893	8,327	0.38	15.0	208 V	2	TRANE/MITSUBISHI ELECTRIC	TPKFYP015HM142A	DUCTLESS WALL MTD	29.0 lb	ODU-1

VRF INDOOR UNIT SCHEDULE NOTES:

1. COOLING CAPACITY BASED ON 80°/67° ENTERING AIR.
2. PROVIDE UNITS WITH: PROGRAMMABLE BAS-COMPATIBLE THERMOSTAT WITH DIGITAL DISPLAY, TWO WASHABLE FILTERS, U.L. LABEL, SINGLE POINT ELECTRICAL CONNECTION, 1-INCH INSULATION.
3. PROVIDE UNITS WITH DRAIN PAN, FLOAT SWITCH, MANUFACTURER'S INTEGRAL CONDENSATE PUMP, FULL-PORT ISOLATION VALVES WITH SHRADER PORT BETWEEN VALVES AND INDOOR UNIT (ON BOTH LIQUID AND SUCTION LINES).

VRF HEAT PUMP SCHEDULE (AIR COOLED)

SYMBOL	NOMINAL TONNAGE	COOLING TC (BTUH)	HEATNG CAPACITY (BTUH)	ELECTRICAL DATA MCA	MOCP	VOLTAGE	PH	MANUFACTURER	MODEL	DESCRIPTION	WEIGHT
ODU-1	20	212,758	158,548	82	125	208 V	3	TRANE/MITSUBISHI ELECTRIC	TURYE2403AN40AB	AIR COOLED HEAT RECOVERY	887

VRF HEAT PUMP SCHEDULE NOTES:

1. COOLING CAPAPCITY AT 93F AMBIENT, HEATING CAPACITY AT 23F AMBIENT.
2. UNIT SHALL BE UL LISTED WITH A MINIMUM EER OF 10.6 AT 95F AND COP OF 3.2 AT 47F.
3. MOUNT UNITS ON A 4" THICK CONCRETE PAD AND PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND UNITS.
4. SYSTEM SHALL UTILIZE R410 REFRIGERANT.
5. INSTALL PER MANUFACTURER'S REQUIREMENTS.
6. PROVIDE ALL EQUIPMENT WITH 5-YEAR PARTS-ONLY WARRANTY, AND PROVIDE OUTDOOR UNIT WITH 7 YEAR (MINIMUM) COMPRESSOR WARRANTY.
7. MECHANICAL CONTRACTOR BIDDING THIS PROJECT SHALL HAVE MANUFACTURER'S FACTORY CERTIFIED TRAINING IN ALL ASPECTS OF EQUIPMENT INSTALLATION REQUIREMENTS, INCLUDING BUT NOT LIMITED TO WIRING, CONTROLS, AND REFRIGERANT PIPING METHODS.
8. ALL REFRIGERANT PIPING ROUTED OUTSIDE SHALL BE INSULATED AND COVERED WITH ALUMINUM ROLL JACKETING (PABCO CHILDERS 0.016" THICK OR EQUAL) AND ALUMINUM ELBOWS. PIPING TO BE ROUTED ON PIPING-SUPPORTS.
9. THE MANUFACTURER SHALL USE MANUFACTURER'S VRF SELECTION SOFTWARE FOR A COMPLETE DESIGN OF THE REFRIGERANT PIPE LENGTHS, SIZING, AND OTHER REQUIRED SPECIALTIES. SUBMITTALS SHALL INCLUDE PIPE LENGTHS, NUMBER OF ELBOWS, CONTROLS WIRING, POWER WIRING DIAGRAM, ADDITIONAL REFRIGERANT CHARGE, AND OTHER APPURTENANCES REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
10. PROVIDE COMPLETE AND OPERATIONAL BUILDING CONTROL SYSTEM FOR VRF SYSTEM, INCLUDING DATA MANAGEMENT SERVER WITH WEB ACCESS, BUILDING CONTROL AND MONITORING, SIMPLIFIED WIRED REMOTE CONTROLLER (FOR EACH INDOOR UNIT). BUILDING CONTROL SYSTEM MUST HAVE A MINIMUM OF 12 DIGITAL INPUTS AND 12 DIGITAL OUTPUTS FOR MISCELLANEOUS CONTROL POINTS SPECIFIED.
11. ALL NEW CONTROL WIRING MUST BE ROUTED BEHIND WALLS, OR ABOVE CEILINGS WHERE POSSIBLE. ANY CONTROL WIRING THAT MUST BE EXPOSED IN EMT CONDUIT, PAINTED TO MATCH ADJACENT SURFACE.

BRANCH CONTROLLER SCHEDULE

SYMBOL	TYPE	# OF BRANCHES	ELECTRICAL INFO MCA	MOCP	VOLTS	PH	WEIGHT (LBS)	MODEL
BC-1	16-Branch-JA1	16	0.00 A	0.00 A	208 V	0	0	TCMBM1016JA11N4
BC-2	8-Branch	8	0.00 A	0.00 A	208 V	0	0	TCMBS0108KB11N4
BC-3	8-Branch	8	0.00 A	0.00 A	208 V	0	0	TCMBS0108KB11N4

BRANCH CONTROLLER SCHEDULE NOTES:

1. REFRIGERANT ISOLATION VALVES (LINE-SIZE) SHALL BE INSTALLED WITHIN 3 FEET OF ALL HEAT RECOVERY UNIT CONNECTIONS IN ORDER TO ISOLATE INDIVIDUAL REFRIGERANT CIRCUITS.
2. MAXIMUM 54,000 BTUH ON EACH PORT, PORTS WITH MORE THAN 54,000 BTUH REQUIRE COMBINATION 0F MULTIPLE PORTS.

EQUIVALENT MANUFACTURERS LISTING

LISTING OF MANUFACTURER'S NAME DOES NOT GUARANTEE APPROVAL. ALL EQUIPMENT MUST MEET OR EXCEED QUALITY AND CAPACITIES OF SPECIFIED EQUIPMENT. FINAL APPROVAL WILL BE BASED ON EQUIPMENT SUBMITTALS. ANY MANUFACTURER NOT LISTED BUT WISHING TO BID THIS PROJECT SHALL SUBMIT A WRITTEN REQUEST A MINIMUM OF 7 DAYS PRIOR TO BID DATE OR AS INDICATED IN THE SPECIFICATIONS, ALL EQUIPMENT LISTED IN THE PROJECT SCHEDULE IS TO BE CONSIDERED DESIGN BASIS EQUIPMENT. PRIOR APPROVAL IS REQUIRED FOR ALL MANUFACTURERS NOT LISTED.

(ALPHABETICAL ORDER)
AIR DISTRIBUTION: CARNES, KRUEGER, METAL*AIRE, NAILOR, PRICE, TITUS, TUTTLE & BAILEY
DDC CONTROLS: ALERTON, HONEYWELL, SEIMENS, TRANE
DOAS UNITS: AAON, ANNEXAIRE, DESERT AIRE, ENGINEERED AIR, MUNTERS
ELECTRIC WALL/UNIT HEATERS: BERKO, MARKEL, MODINE, QMARK, RAYWALL
FANS: COOK, GREENHECK, PENN, TWIN CITY
FIRE DAMPERS: GREENHECK, NAILOR, NCA, POTTORFF, RUSKIN, SAFE-AIRE
LOUVER: GREENHECK, POTTORFF, RUSKIN, SAFE-AIR
RADIANT HEATERS: RE-VERBER-RAY, ROBERTS GORDON, SPACE RAY
SPIRAL DUCTWORK: EASTERN SHEET METAL, HAMLIN, LINDAB, UNITED MCGILL
VARIABLE REFRIGERANT FLOW (VRF) SYSTEMS: DAIKIN, MITSUBISHI, TRANE

NOTE:
ALL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, PIPING, SHEET METAL, ELECTRICAL, REPLACEMENT OF SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED/NON-DESIGN BASIS EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.

DOAS INDOOR UNIT SCHEDULE

SYMBOL	CFM	O.A. CFM	E.S.P.	COOLING CAPACITY TC (BTUH)	COOLING CAPACITY SHC (BTUH)	HEATING CAPACITY (BTUH)	REHEAT CAPACITY (BTUH)	ELECTRIC HEAT KW	STAGES	FLA	VOLTAGE	PH	ELECTRICAL DATA FLA	MCA	MOCP	VOLTAGE	PH	MANUFACTURER	MODEL	WEIGHT	REFRIGERANT TYPE	MATCHING OUTDOOR UNIT
DOAS-1	2665	2665	1.00 in-wg	204,610	107,520	161,500	51,000	52.5	10	145.7	208	3	150.0	151.0	175.0	208 V	3	AAON	H3-DRB-8-0-162C-7KS: F41E-FE0-000-0A0-00A00 20-00-000000000	975 lb	R-410A	CU-1

NOTES:
1. COOLING CAPACITY BASED ON 80°/67° ENTERING AIR.
2. PROVIDE UNITS WITH: 1" THICK DISPOSABLE FILTER (MERV 8 MINIMUM), U.L. LABEL, SINGLE POINT ELECTRICAL CONNECTION, 1-INCH INSULATION.
3. SEQUENCE OF OPERATION: UNIT SHALL BE CONTROLLED BY BAS ON 24/7/365 BUILDING SCHEDULE. UNIT SHALL PROVIDE SUPPLY AIR AT NEUTRAL CONDITIONS (67-73°F AND 45-55% RH).

DOAS CONDENSING UNIT SCHEDULE

SYMBOL	COOLING COIL TC (BTUH)	COOLING COIL SHC (BTUH)	HEATNG CAPACITY (BTUH)	EFFICIENCY EER	COP	COMPRESSOR QTY	RLA-1	RLA-2	ELECTRICAL DATA FLA	MCA	FUSE	VOLTAGE	PH	REFRIG. TYPE	MANUFACTURER AAON MODEL	WEIGHT	MATCHING INDOOR UNIT
CU-1	204,610	107,520	161,500	11.1	2.93	2	30.1	32.6	70.0	78.0	110.0	208 V	3	R-410A	CFA-020-C-A-8-DJ00N: 0-00-E0-00-AR0-L-JE00-0000E00-00000DB	1,416 lb	DOAS-1

NOTES:
1. COOLING CAPACITY AT 95F AMBIENT.
2. HEATING CAPACITY AT 32F AMBIENT.
3. ALL UNITS SHALL BE U.L. LISTED.
4. HEAT PUMP SUPPLEMENTARY ELECTRIC RESISTANCE HEAT SHALL BE PROVIDED WITH CONTROLS TO PREVENT OPERATION WHEN THE REVERSE CYCLE HEAT CAN MEET HEATING LOAD. SUPPLEMENTAL ELECTRIC HEAT SHALL BE ALLOWED TO OPERATE DURING HEAT PUMP DEFROST CYCLE. SUPPLEMENTAL ELECTRIC HEAT SHALL BE LOCKED OUT WHEN THE OUTDOOR TEMPERATURE IS BETWEEN 35°F AND 40°F AND THE INDOOR TEMPERATURE SETPOINT IS INCREASED.
4. MOUNT UNITS ON A 4" THICK CONCRETE PAD AND PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND UNITS.
5. PROVIDE UNITS WITH CONDENSER COIL HAIL GUARDS AND LOW AMBIENT CONTROLS.

EXHAUST FAN SCHEDULE

SYMBOL	LOCATION	MANUFACTURER	MODEL NO.	TYPE	CFM	APPROX. ESP	DRIVE TYPE	FAN RPM	ELECTRICAL DATA WATTS	H.P.	VOLTAGE-PHASEØ	ACCESSORIES	CONTROL TYPE
EF-1	GEAR 152	GREENHECK	SQ-120-VG	EXHAUST	830	0.400	DIRECT	1050	0	0.50	115 V-1Ø	A,B,F,G	6
EF-2	PUB. TOILET	GREENHECK	SP-A90	EXHAUST	75	0.260	DIRECT	1063	16	0.00	115 V-1Ø	A,B,F,G,H,O	2
EF-3	DECON 138	GREENHECK	SP-A390-VG	EXHAUST	250	0.250	DIRECT	1063	35	0.00	115 V-1Ø	A,B,F,G,O	3
EF-4	TOILET/SHR 135	GREENHECK	SQ 90	EXHAUST	315	0.520	DIRECT	1550	0	0.10	115 V-1Ø	A,B,F,G	6
EF-5	TOILET 115	GREENHECK	SP-A90	EXHAUST	75	0.260	DIRECT	1063	16	0.00	115 V-1Ø	A,B,F,G,O	2
EF-6	JANITOR 113	GREENHECK	SP-A70	EXHAUST	50	0.260	DIRECT	1063	13	0.00	115 V-1Ø	A,B,F,G,O	2
EF-G1	APPARATUS BAYS 149	GREENHECK	SBE-3H24	EXHAUST	4000	0.420	BELT	1151	1440	0.75	208 V-3Ø	A,B,J,N	7
SF-G1	APPARATUS BAYS 149	GREENHECK	SBS-3H24	SUPPLY	4000	0.420	BELT	1151	1440	0.75	208 V-3Ø	A,B,J,N	7
VEF-1	MEZZANINE 200	PLYMOVENT	TEV-585	EXHAUST	3400	6.000	DIRECT	3450	0	7.50	208 V-3Ø	A,G	7

EXHAUST FAN SCHEDULE ACCESSORIES:

A. DISCONNECT SWITCH
B. GRAVITY BACKDRAFT DAMPER
C. MOTORIZED BACKDRAFT DAMPER
D. PREFAB, ROOF CURB
E. BIRDSCREEN
F. ACOUSTICAL LINING
G. HANGING BRACKETS WITH VIBRATION ISOLATION
H. WL, WALL LOUVER DISCHARGE
I. RCC OR GRS ROOF CAP (FLAT ROOF) OR RJ ROOF CAP (PITCHED ROOF)
J. WALL MOUNTING COLLAR
K. INLET GAURD
M. 2" WASHABLE ALUMINUM FILTERS
N. MOTORSIDE FAN GUARD
O. EXHAUST GRILLE
P. U.L. 762
Q. VENTED ROOF CURB EXTENSION
R. COMBINATION KITCHEN HOOD FAN CURB
S. INTERLOCK WITH FUME HOOD
T. PROVIDE DRAIN PLUG ACCESSORY
U. ROOF SUPPORT RAILS
V. VFD

EXHAUST FAN SCHEDULE CONTROLS:

1. WALL MOUNTED THERMOSTAT (REVERSE ACTING, SET FOR 80°)
2. INTERLOCK WITH ROOM LIGHT SWITCH (FAN SHALL OPERATE WHEN LIGHT IS ON IF ANY ROOM IS SERVED BY FAN)
3. WALL MOUNTED ON/OFF SWITCH WITH IDENTIFICATION LABEL
4. WALL MOUNTED MUSHROOM PUSH BUTTON SWITCH/STARTER WITH IDENTIFICATION LABEL
5. CONTROLLED BY BUILDING AUTOMATION SYSTEM
6. CONTINUOUS OPERATION
7. CONTROLLED BY THE 'SAFEAIR' PANEL (BY ACS, INC.) WITH ON/OFF/AUTO, INTERLOCK ASSOCIATED SUPPLY/ EXHAUST FANS

EXHAUST FAN SCHEDULE NOTES:

1. ALL FANS SHALL BE U.L. LISTED AND LABELED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR FLOW. ALL FANS INSTALLED INSIDE, ABOVE, OR ADJACENT TO OCCUPIED SPACES SHALL HAVE A MAXIMUM 9.0 INLET SONE LEVEL.
2. ALL FANS SHALL BE SUPPLIED BY ONE MANUFACTURER UNLESS NOTED OTHERWISE.
3. MECHANICAL CONTRACTOR SHALL PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AS REQUIRED.
4. PROVIDE ALL DIRECT DRIVE FANS WITH SPEED CONTROLLERS.
5. M.C. SHALL COORDINATE APPARATUS FANS EF-G1 & SF-G1 INTERLOCK AND CONTROL REQUIREMENTS WITH E.C. AND PLYMOVENT/SAFEAIR SYSTEMS (ACS, INC.).

ELECTRIC HEATER SCHEDULE

SYMBOL	LOCATION	CFM	BTUH	KW	MOTOR RPM	AMPS	VOLT	PH	MANUFACTURER (MARKEL)	ACCESSORIES
EWH-1	TLT/SHR 155	175	7,763	2250	600	10.8	208 V	2	HF3325TD-RP	A,B,G,H

ELECTRIC HEATER SCHEDULE NOTES:

1. HEATING CAPACITY BASED ON 65° F E.A.T.
2. SEE PLANS FOR TYPE OF THERMOSTAT REQUIRED (WALL MOUNTED OR UNIT MOUNTED). UNIT HEATERS SHOWN WITHOUT THERMOSTAT INDICATED SHALL BE PROVIDED WITH A UNIT MOUNTED THERMOSTAT.
3. SET TO MAINTAIN 45°F.

ELECTRIC HEATER ACCESSORIES:

A. DISCONNECT SWITCH
B. BUILT IN THERMOSTAT
C. WALL MOUNTED THERMOSTAT
D. WALL MOUNTING BRACKETS
E. CEILING MOUNTED BRACKETS
F. ADJUSTABLE DISCHARGE LOUVERS
G. PENCIL PROOF LOUVERS
H. CABINET FOR SURFACE MOUNTING

INFRARED HEATER SCHEDULE (NATURAL GAS)

SYMBOL	MANUFACTURER	MODEL NO.	GAS-FIRED HEAT EXCHANGER / GAS BURNERS INPUT	INPUT @ MIN FIRE	STAGES	UNIT DIMENSIONS LENGTH	UNIT WEIGHT	FLA	VOLT	PH
IH-1	SPACE-RAY	LTS60-20-N7	60,000 Btu/h	38,000 Btu/h	2	20' - 0"	150 lb	1.3 A	120 V	1
IH-2	SPACE-RAY	LTS60-20-N7	60,000 Btu/h	38,000 Btu/h	3	20' - 0"	150 lb	1.3 A	120 V	1
IH-3	SPACE-RAY	CB20-N5	20,000 Btu/h	20,000 Btu/h	1	8' - 0"	88 lb	2.6 A	120 V	1

INFRARED HEATER SCHEDULE NOTES:

1. MOUNTING HEIGHTS AND EXACT LOCATIONS SHALL BE VERIFIED WITH THE OWNER AND INSTALLED PER THE MANUFACTURERS INSTALLATION INSTRUCTIONS. SEE DETAILS FOR ADDITIONAL REQUIREMENTS. INSTALL UNITS ON A 30° ANGLE (UNLESS OTHERWISE INDICATED ON THE PLANS) RELATIVE TO THE FINISH FLOOR. MINIMUM MOUNTING HEIGHT SHALL BE 16'-0" AFF WITH MINIMUM OF CLEARANCE OF 76" FROM COMBUSTIBLES.
2. FOR IH-1 & IH-2 THE MINIMUM MOUNTING HEIGHT SHALL BE 16'-0" AFF WITH MINIMUM OF CLEARANCE OF 60" BELOW FROM COMBUSTIBLES.
3. FOR IH-3 THE MINIMUM MOUNTING HEIGHT SHALL BE 8'-0" AFF WITH MINIMUM OF CLEARANCE OF 41" BEWOW FROM COMBUSTIBLES.
4. PROVIDE UNITS WITH: CHAIN MOUNTING BRACKET, INTERMITTENT PILOT IGNITION, GAS PRESSURE REGULATOR, FLEXIBLE CONNECTOR BY HEATER MANUFACTURER, AND 24V CONTROL TRANSFORMER AS REQUIRED.
5. INFRARED HEATERS SHALL BE TESTED IN ACCORDANCE WITH ANSI Z83.6 AND SHALL BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6. IH-1 & IH-2 SEQUENCE OF OPERATION: A SPACE TEMPERATURE SENSOR SHALL CONTROL HEATER TO MAINTAIN SPACE TEMPERATURE OF 45° F. (ADJ). WITH SPACE TEMPERATURE ABOVE SETPOINT, HEATER SHALL REMAIN OFF. AS SPACE TEMPERATURE FALLS BELOW SETPOINT, THE HEATER SHALL BE ENERGIZED IN STAGES AS REQUIRED TO MAINTAIN SETPOINT. HEATERS SHALL BE INTERLOCKED WITH APPARATUS BAY DOORS TO SHUT-OFF WHEN APPARATUS BAY DOORS ARE OPEN
7. IH-3 SEQUENCE OF OPERATION: A TIMER SWITCH SHALL BE INSTALLED TO CONTROL HEATER.

GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

SYMBOL	DESCRIPTION	MANUF.	MODEL	MATERIAL	FACE SIZE	NECK SIZE	NECK WIDTH	NECK HEIGHT	INSTALLATION BORDER TYPE	OPTIONS DAMPER DESCRIPTION	NOTES
A	LOUVERED SINGLE DEFL. GRILLE	TITUS	301RL	STEEL	---		6	6	TYPE 1 (SURFACE)	---	
B	LOUVERED FACE DIFFUSER	TITUS	TDC	STEEL	---	10			TYPE 1 (SURFACE)	---	
C	LOUVERED FACE DIFFUSER	TITUS	TDC	STEEL	24x24	6			TYPE 3 (LAY-IN)	---	
D	LOUVERED FACE DIFFUSER	TITUS	TDC	STEEL	24x24	8			TYPE 3 (LAY-IN)	---	
E	LOUVERED FACE DIFFUSER	TITUS	TDC	STEEL	24x24	10			TYPE 3 (LAY-IN)	---	
F	PERFORATED DIFFUSER	TITUS	PAR	STEEL	24x24	6			TYPE 3 (LAY-IN)	---	
G	PERFORATED DIFFUSER	TITUS	PAR	STEEL	24x24	8			TYPE 3 (LAY-IN)	---	
H	PERFORATED DIFFUSER	TITUS	PAR	STEEL	24x24	10			TYPE 3 (LAY-IN)	---	
J	PERFORATED DIFFUSER	TITUS	PAR	STEEL	24x24	12			TYPE 3 (LAY-IN)	---	
K	DUCT MTD DBL-DEFLECTION	TITUS	S300FL	ALUMINUM			10	4	DUCT MOUNTED	OBD	
L	DUCT MTD DBL-DEFLECTION	TITUS	S300FL	ALUMINUM	---		14	6	DUCT MOUNTED	OBD	
M	LOUVERED GRILLE	Titus	350RL	STEEL	---		6	6	TYPE 1 (SURFACE)	---	
N	LOUVERED GRILLE	TITUS	350RL	STEEL	24x24		6	6	TYPE 3 (LAY-IN)	---	
P	LOUVERED GRILLE	TITUS	350RL	STEEL	---		10	10	TYPE 1 (SURFACE)	---	

AIR DISTRIBUTION SCHEDULE NOTES:

1. ALL CEILING AND WALL MOUNTED DEVICES SHALL BE FURNISHED WITH AN ENAMEL BRIGHT WHITE FINISH UNLESS NOTED OTHERWISE.
2. ALL DEVICES SHALL BE FURNISHED WITH FRAMES SUITABLE FOR THE TYPE OF INSTALLATION REQUIRED.
3. ALL LINEAR DIFFUSERS IN LAY-IN CEILINGS SHALL BE FURNISHED WITH END CAPS. ALL LINEAR DIFFUSERS IN HARD CEILINGS SHALL BE FURNISHED WITH END BORDERS. ALL LINEAR SUPPLY DIFFUSERS SHALL BE PROVIDED WITH INTEGRAL AIRFLOW PATTERN ADJUSTMENT BARS FOR HORIZONTAL/VERTICAL PATTERN ADJUSTMENT AT EACH SLOT.
4. ALL DOUBLE DEFLECTION SUPPLY GRILLES SHALL HAVE DAMPER BLADES ADJUSTED TO PROVIDE AIRFLOW PATTERN INDICATED BY FLOW ARROWS ON PLANS. DAMPERS SHALL BE ADJUSTED TO A 30 DEGREE POSITION UNLESS NOTED OTHERWISE ON PLANS.

HVLS FAN SCHEDULE

SYMBOL	LOCATION	TYPE	MAX. RPM	DRIVE	ELECTRICAL DATA H.P.	AMPS	REC. FUSE	VOLTAGE-PHASEØ	MANUFACTURER BAF
F-1	APPARATUS BAYS 149	CIRCULATOR	158	DIRECT	1.05	6.0 A	10.0 A	115 V-1Ø	12' ESSENCE

HVLS FAN SCHEDULE NOTES:

1. ALL FANS SHALL BE U.L. LISTED AND LABELED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR FLOW.
2. ALL FANS SHALL BE SUPPLIED BY ONE MANUFACTURER UNLESS NOTED OTHERWISE.
3. MECHANICAL CONTRACTOR SHALL PROVIDE MAGNETIC STARTER WITH AUXILIARY CONTACTS AS REQUIRED.
4. PROVIDE WITH: MANUFACTURER'S MULTI-SPEED WALL CONTROLLER, FUSED DISCONNECT, AIRFOIL RETAINERS, HUB CLIPS, SAFETY CABLES ,GRADE 8 BOLTS, FIRE DELAY, 10-YEAR LIMITED WARRANTY. COORDINATE SUPPORT REQUIREMENTS WITH MANUFACTURER. FANS SHALL SHUT-DOWN UPON SIGNAL FROM SPRINKLER MONITORING SYSTEM INDICATING WATER FLOW IN THE SPRINKLER SYSTEM.

Project No.
1691

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GORDON ROAD FIRE DEPARTMENT

MECHANICAL SCHEDULES

Sheet No.
M0.03

Opt # 22-0369

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VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-1

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
TOILET	-	-	-	70 CFM/FIXTURE	1 FIXTURE	0	0	0	70
MAIN ENTRANCE LOBBIES	5	0.06	10	-	136	2	10	8	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			25		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			25		
						TOTAL EXHAUST AIR REQUIRED (CFM)			70
						TOTAL EXHAUST AIR PROVIDED (CFM)			75

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-2

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
OFFICE	5	0.06	5	-	190	1	5	11	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			25		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			25		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-3

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
CORRIDOR	-	0.06	-	-	85	0	0	5	0
OFFICE	5	0.06	5	-	524	3	15	32	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			65		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			65		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-5

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
CORRIDOR	-	0.06	-	-	428	0	0	26	0
OFFICE	5	0.06	5	-	121	1	5	7	0
STORAGE	-	0.12	-	-	117	0	0	14	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			65		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			70		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-6

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
CONFERENCE	5	0.06	50	-	600	30	150	36	0
STORAGE	-	0.12	-	-	43	0	0	6	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			240		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			240		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-7

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
OFFICE	5	0.06	5	-	146	1	5	9	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			20		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			20		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-8

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
OFFICE	5	0.06	5	-	143	1	5	9	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			20		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			20		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-9

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
CORRIDOR	-	0.06	-	-	317	0	0	19	0
STORAGE	-	0.12	-	-	96	0	0	12	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			40		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			40		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-10

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
CONFERENCE	5	0.06	50	-	379	19	95	23	0
STORAGE	-	0.12	-	-	53	0	0	6	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			160		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			160		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-11

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
OFFICE	5	0.06	5	-	263	2	10	16	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			35		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			35		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-12

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
OFFICE	5	0.06	5	-	319	2	10	19	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			40		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			40		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-13

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
OFFICE	5	0.06	5	-	183	1	5	11	0
				TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)			20		
				TOTAL OUTSIDE AIR PROVIDED (CFM)			20		
						TOTAL EXHAUST AIR REQUIRED (CFM)			0
						TOTAL EXHAUST AIR PROVIDED (CFM)			0

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MECHANICAL VENTILATION SCHEDULES

Sheet No.
M0.04

Opt # 22-0369

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-14

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
DAY ROOM	5	0.06	30	-	651	20	100	39	0

TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)	175
TOTAL OUTSIDE AIR PROVIDED (CFM)	175
TOTAL EXHAUST AIR REQUIRED (CFM)	0
TOTAL EXHAUST AIR PROVIDED (CFM)	0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-15

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
DINING ROOM	7.5	0.18	70	-	270	19	142.5	49	0
STORAGE	-	0.12	-	-	99	0	0	12	0
KITCHEN	-	-	-	0.7	282	0	0	0	197

TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)	255
TOTAL OUTSIDE AIR PROVIDED (CFM)	255
TOTAL EXHAUST AIR REQUIRED (CFM)	197
TOTAL EXHAUST AIR PROVIDED (CFM)	-

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-17

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
CORRIDOR	-	0.06	-	-	558	0	0	34	0

TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)	45
TOTAL OUTSIDE AIR PROVIDED (CFM)	45
TOTAL EXHAUST AIR REQUIRED (CFM)	0
TOTAL EXHAUST AIR PROVIDED (CFM)	0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-18

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
DORMITORY SLEEPING AREAS	5	0.06	20	-	100	2	10	6	0

TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)	20
TOTAL OUTSIDE AIR PROVIDED (CFM)	20
TOTAL EXHAUST AIR REQUIRED (CFM)	0
TOTAL EXHAUST AIR PROVIDED (CFM)	0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-19

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
DORMITORY SLEEPING AREAS	5	0.06	20	-	100	2	10	6	0

TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)	20
TOTAL OUTSIDE AIR PROVIDED (CFM)	20
TOTAL EXHAUST AIR REQUIRED (CFM)	0
TOTAL EXHAUST AIR PROVIDED (CFM)	0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-20

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
DORMITORY SLEEPING AREAS	5	0.06	20	-	128	3	15	8	0

TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)	30
TOTAL OUTSIDE AIR PROVIDED (CFM)	30
TOTAL EXHAUST AIR REQUIRED (CFM)	0
TOTAL EXHAUST AIR PROVIDED (CFM)	0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-21

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
DORMITORY SLEEPING AREAS	5	0.06	20	-	99	2	10	6	0

TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)	20
TOTAL OUTSIDE AIR PROVIDED (CFM)	20
TOTAL EXHAUST AIR REQUIRED (CFM)	0
TOTAL EXHAUST AIR PROVIDED (CFM)	0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-22

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
DORMITORY SLEEPING AREAS	5	0.06	20	-	99	2	10	6	0

TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)	20
TOTAL OUTSIDE AIR PROVIDED (CFM)	20
TOTAL EXHAUST AIR REQUIRED (CFM)	0
TOTAL EXHAUST AIR PROVIDED (CFM)	0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-23

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
DORMITORY SLEEPING AREAS	5	0.06	20	-	99	2	10	6	0

TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)	20
TOTAL OUTSIDE AIR PROVIDED (CFM)	20
TOTAL EXHAUST AIR REQUIRED (CFM)	0
TOTAL EXHAUST AIR PROVIDED (CFM)	0

VENTILATION CALCULATIONS (NCMC 2018, SECT 403): IDU-24

OCCUPANCY CLASSIFICATION	PEOPLE O/A RATE IN BREATHING ZONE (CFM/PERSON)	AREA O/A RATE IN BREATHING ZONE (CFM/SQ. FT.)	DEFAULT OCCUPANCY DENSITY (PEOPLE/1000 SQ. FT.)	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	AREA (SQ. FT.)	CALCULATED OCCUPANCY (PEOPLE)	CALCULATED PEOPLE O/A (CFM)	CALCULATED AREA O/A (CFM)	CALCULATED AREA E/A (CFM)
HEALTH CLUB/WEIGHT ROOM	20	0.06	10	-	579	6	120	35	0
CORRIDOR	-	0.06	-	-	47	0	0	3	0

TOTAL OUTSIDE AIR REQUIRED (PEOPLE + AREA, CFM)	200
TOTAL OUTSIDE AIR PROVIDED (CFM)	200
TOTAL EXHAUST AIR REQUIRED (CFM)	0
TOTAL EXHAUST AIR PROVIDED (CFM)	0

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MECHANICAL VENTILATION SCHEDULES

Sheet No.
M0.05

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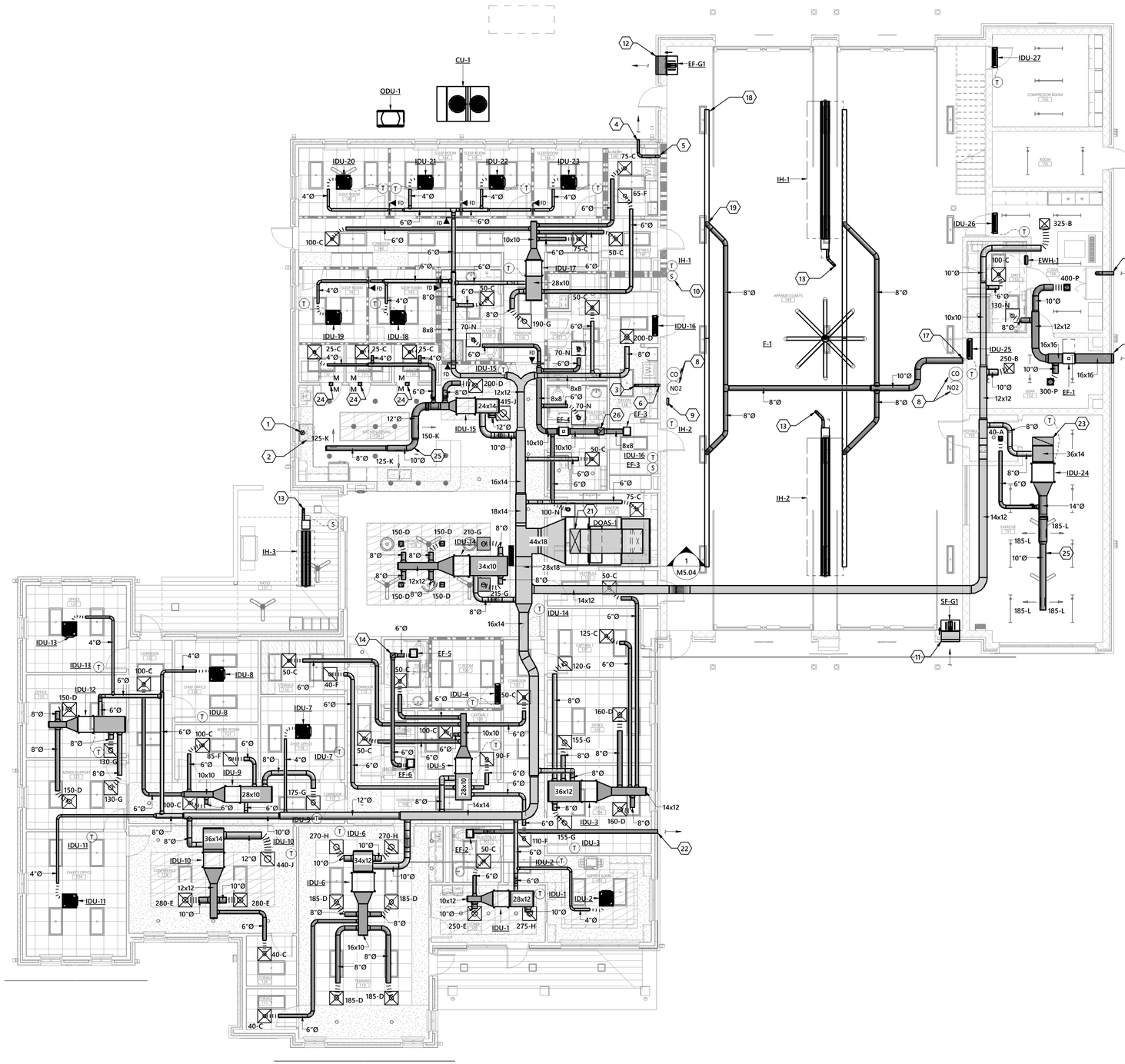
KEYNOTE LEGEND

1	8"Ø KITCHEN EXHAUST DUCT UP TO ROOF. SEE 1/M1.02 FOR CONTINUATION.
2	UL LISTED AND LABELED RESIDENTIAL RANGE HOOD WITH INTEGRAL EXHAUST FAN OF LESS THAN 400 CFM PROVIDED BY OWNER. INSTALLED BY CONTRACTOR. HOOD TO BE INSTALLED OVER UL LISTED AND LABELED RESIDENTIAL RANGE.
3	4"Ø RIGID DRYER EXHAUST UP TO ROOF. SEE 1/M1.02 FOR CONTINUATION.
4	4"Ø RIGID DRYER EXHAUST UP AND OUT SIDEWALL WITH WALL CAP.
5	4"Ø RIGID DRYER DUCT DOWN IN WALL TO DRYER BOX. SEE DETAIL 5/M5.01.
6	4"Ø RIGID DRYER DUCT DOWN IN WALL TO DRYER BOX. SEE DETAIL 4/M5.01.
7	6"Ø GEAR DRYER DUCT UP AND OUT SIDEWALL WITH WALL CAP.
8	COMBINATION NITROGEN DIOXIDE AND CARBON MONOXIDE DETECTORS. COORDINATE INTERLOCK WIRING WITH SAFEAIR PANEL AND ELECTRICAL CONTRACTOR.
9	SAFEAIR FULLY INTEGRATED APPARATUS BAY VENTILATION AND VEHICLE EXHAUST CONTROL PANEL.
10	MANUFACTURER'S MULTI-SPEED CONTROLLER FOR F-1 THRU F-4.
11	32"X32" INTAKE LOUVER (GREENHECK EVH-501 OR EQUAL) WITH A MIN. OF 50% FREE AREA AND BIRD SCREEN.
12	32"X32" EXHAUST LOUVER (GREENHECK EVH-501 OR EQUAL) WITH A MIN. OF 50% FREE AREA AND BIRD SCREEN.
13	TYPE 'B' FLUE FOR INFRARED HEATERS. SEE DETAIL 2/M5.02.
14	8X8 EXHAUST DUCT UP TO ROOF. SEE 1/M1.02 FOR CONTINUATION.
15	12"Ø EXHAUST DUCT UP TO ROOF. SEE 1/M1.02 FOR CONTINUATION.
16	SEE 1/M1.01 FOR CONTINUATION.
17	SEE 2/M1.01 FOR CONTINUATION.
18	VEHICLE EXHAUST RAIL. (TYP.)
19	8"Ø DROP DOWN TO VEHICLE EXHAUST RAIL. (TYP.)
20	16"X16" EXHAUST LOUVER (GREENHECK EVH-501 OR EQUAL) WITH A MIN. OF 50% FREE AREA AND BIRD SCREEN.
21	42X18 OUTSIDE AIR DUCT UP TO ROOF. SEE 1/M1.02 FOR CONTINUATION.
22	WALL CAP WITH BIRD SCREEN AND DAMPER (GREENHECK WC-6).
23	OPEN RETURN DUCT WITH 90 DEGREE ELBOW UP.
24	6X6 TRANSFER DUCT WITH (2) TYPE-M GRILLES ON EACH END.
25	EXPOSED SPIRAL DUCTWORK. SEE DETAIL 10/M5.01.
26	12X12 EXHAUST DUCT UP TO ROOF. SEE 1/M1.02 FOR CONTINUATION.

2 MEZZANINE MECHANICAL FLOOR PLAN
1/8" = 1'-0"



1 FIRST FLOOR MECHANICAL FLOOR PLAN
1/8" = 1'-0"

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MECHANICAL FLOOR PLANS

Sheet No.
M1.01

Opt # 22-0369

KEYNOTE LEGEND

	<varies>
1	4"Ø RIGID DRYER EXHAUST UP TO ROOF. PROVIDE A GOOSENECK TERMINATION, NON-SCREENED.
2	8"Ø KITCHEN EXHAUST DUCT UP TO ROOF. PROVIDE ROOF CAP EQUAL TO GREENHECK GRSR-8 WITH BIRD SCREEN.
3	12"Ø EXHAUST DUCT UP TO ROOF. TERMINATION TO BE WITH PLYMOVENT PROVIDED RAIN CAP.
4	COMBUSTION AIR AND VENT UP TO ROOF TERMINATING WITH MANUFACTURER'S CONCENTRIC VENT.

1 MECHANICAL ROOF PLAN
1/8" = 1'-0"

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MECHANICAL ROOF PLAN

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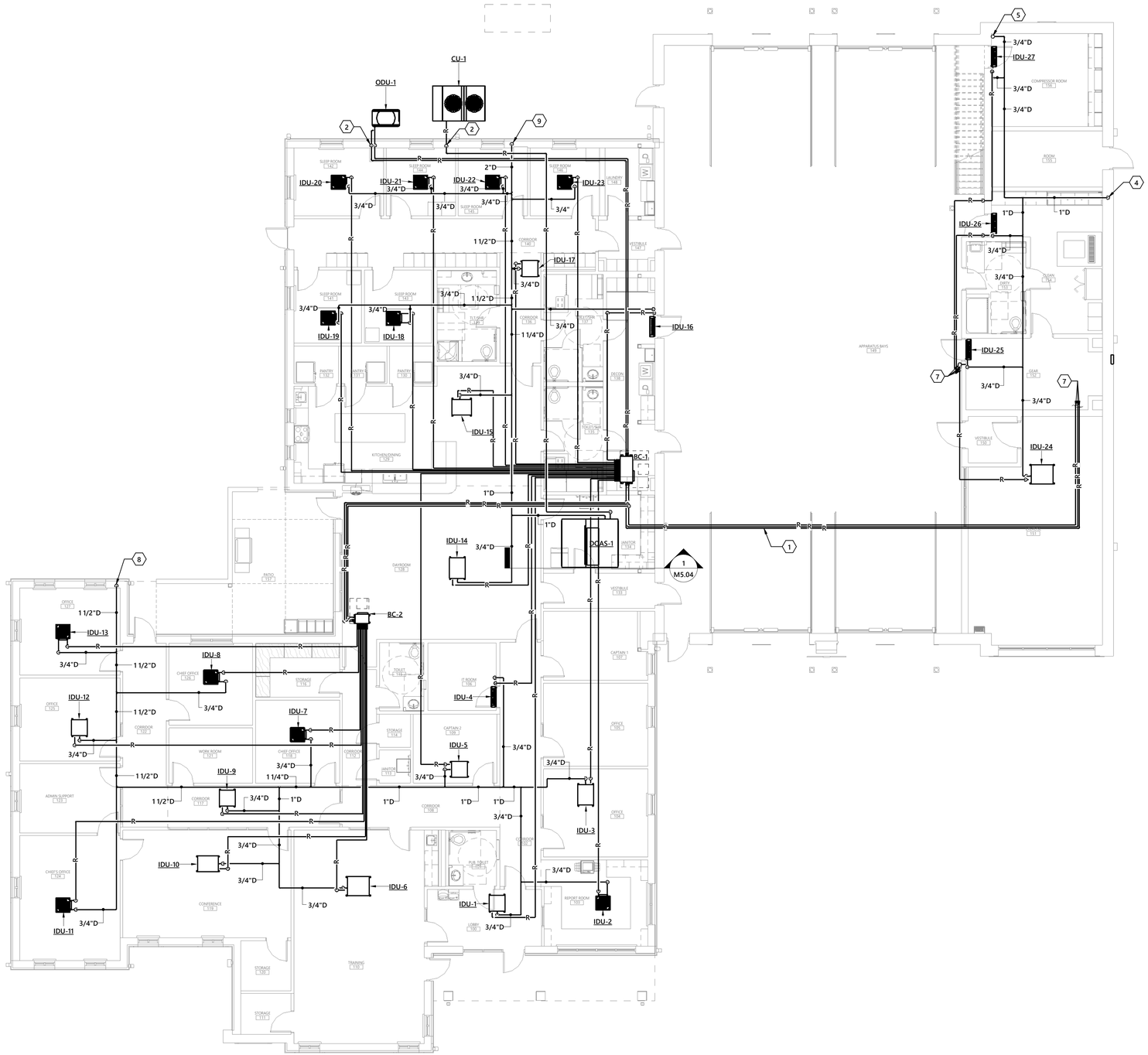
KEYNOTE LEGEND

1	REFER TO MANUFACTURER'S SIZING PROGRAM FOR REFRIGERANT LINE SIZES. SEE NOTES ON M0.03 AND M5.02. (TYP.)
2	REFRIGERANT PIPING DOWN IN WALL TO OUTDOOR UNIT.
3	SEE 1/M2.01 FOR CONTINUATION.
4	1" CONDENSATE DRAIN DOWN IN WALL TO DRYWELL. SEE DETAIL 8/M5.02.
5	3/4"D DOWN FROM ABOVE. SEE 2/M2.01 FOR CONTINUATION.
6	3/4"D DOWN TO BELOW. SEE 1/M2.01 FOR CONTINUATION.
7	SEE 2/M2.01 FOR CONTINUATION.
8	1-1/2" CONDENSATE DRAIN DOWN IN WALL TO DRYWELL. SEE DETAIL 8/M5.02.
9	2" CONDENSATE DRAIN DOWN IN WALL TO DRYWELL. SEE DETAIL 8/M5.02.

2 MEZZANINE MECHANICAL PIPING FLOOR PLAN
1/8" = 1'-0"



1 FIRST FLOOR MECHANICAL PIPING FLOOR PLAN
1/8" = 1'-0"

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MECHANICAL PIPING FLOOR PLAN

Sheet No.
M2.01

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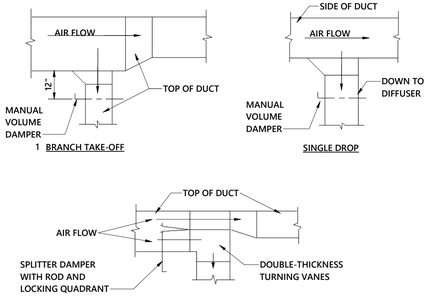


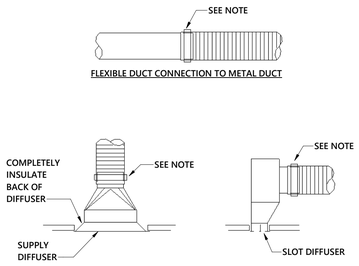
1 BRANCH TAKE-OFF

SINGLE DROP

2 BRANCH TAKE-OFF

NOTE:
1. USE BRANCH TAKE-OFF ① WHEN MAIN AND BRANCH DUCTS ARE DIFFERENT DEPTHS
2. USE BRANCH TAKE-OFF ② WHEN MAIN AND BRANCH DUCTS ARE SAME DEPTHS
3. MANUAL VOLUME DAMPERS SHALL BE PROVIDED FOR ALL SUPPLY, RETURN AND GENERAL EXHAUST SINGLE DROP DUCT RUNS.

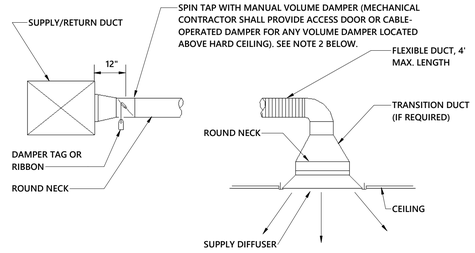
1 DUCTWORK DETAILS
NOT TO SCALE



FLEXIBLE CONNECTION TO SUPPLY DIFFUSER

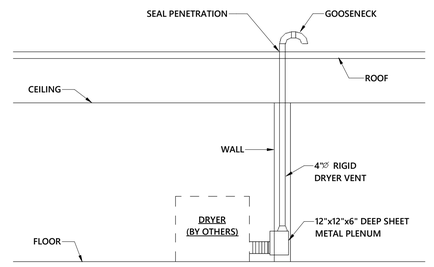
NOTE:
ALL FLEXIBLE DUCT CONNECTIONS TO SHEET METAL SHALL BE SECURED WITH APPROVED STRAP AND SEALANT.

2 FLEX CONNECTION DETAIL
NOT TO SCALE



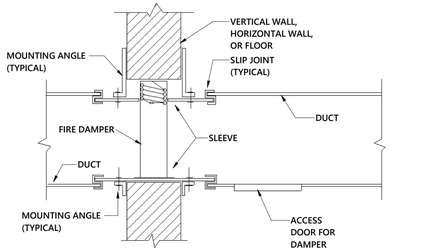
NOTE:
1. MANUAL VOLUME DAMPERS SHALL BE PROVIDED FOR ALL SUPPLY, RETURN AND GENERAL EXHAUST RUNOUTS.
2. ALL MANUAL VOLUME DAMPERS (FOR INSULATED DUCTWORKS) SHALL BE PROVIDED WITH AN ELEVATED REGULATOR (STAND-OFF) EQUAL TO DURO DYNE SEST SERIES AND FULL-LENGTH SHAFT. STAND SHALL EXTEND A MINIMUM OF 2" BEYOND DUCTWORK WITH EXTENDED TAB/SHAFT.
3. CONTRACTOR TO COORDINATE WITH ARCHITECT FOR DESIRED DAMPER ACCESS STYLE CABLE-OPERATED DAMPER ADJUSTMENT SHALL BE THROUGH AIR TERMINAL. FACE OPERATION (CONCEALED MOUNTING) OR THROUGH CEILING-MOUNTED RECESSED PORTS EQUAL TO MAT RT-CCM.

3 SPIN TAP TO ROUND NECK DIFFUSER
NOT TO SCALE



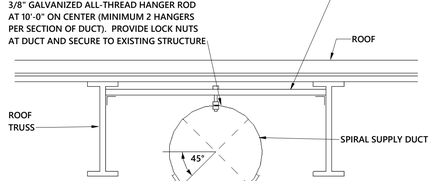
NOTES:
1. DRYER VENT PIPING SHALL BE GALVANIZED SHEET METAL AND SHALL HAVE A SMOOTH INTERIOR FINISH WITH JOINTS RUNNING IN THE DIRECTION OF THE AIR FLOW.
2. MAXIMUM LENGTH OF DRYER VENT SHALL NOT EXCEED 45' IN TOTAL LENGTH (DEDUCT 10' FOR EACH 90° ELBOW AND 5' FOR EACH 45° ELBOW).
3. DRYER VENT SHALL BE NONSCREENED WITH A BACKDRAFT DAMPER AND MINIMUM SIZE OF 4".

4 DRYER VENT THRU ROOF
NOT TO SCALE



NOTES:
1. DRYER VENT PIPING SHALL BE GALVANIZED SHEET METAL AND SHALL HAVE A SMOOTH INTERIOR FINISH WITH JOINTS RUNNING IN THE DIRECTION OF THE AIR FLOW.
2. MAXIMUM LENGTH OF DRYER VENT SHALL NOT EXCEED 45' IN TOTAL LENGTH (DEDUCT 10' FOR EACH 90° ELBOW AND 5' FOR EACH 45° ELBOW).
3. DRYER VENT SHALL BE NONSCREENED WITH A BACKDRAFT DAMPER AND MINIMUM SIZE OF 4".

5 DRYER VENT THRU WALL
NOT TO SCALE

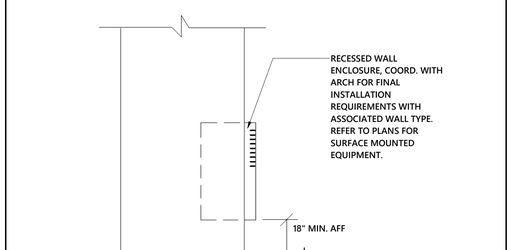


DUCTS UP TO 48" WIDTH | DUCTS ABOVE 48" WIDTH | ROUND

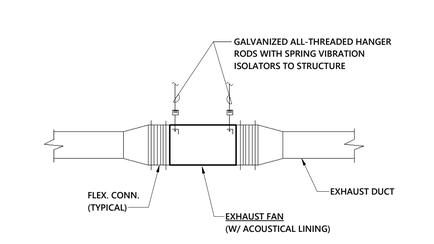
LOW PRESSURE DUCTWORK

NOTE:
1. EXPOSED DUCTS SHALL BE SUPPORTED WITH THREADED RODS OR TRAPEZE SUPPORTS.

6 DUCTWORK HANGER DETAILS
NO SCALE



7 FAN - SIDEWALL EXHAUST
NOT TO SCALE



8 FAN - SIDEWALL SUPPLY
NOT TO SCALE

NOTE: DAMPERS SHALL BE INSTALLED AS PER MFG. INSTRUCTIONS.

FIRE DAMPER SHALL BE RUSKIN TYPE DIBD2 STYLE B 1 1/2 HOUR UL, INSTALLED IN ACCORDANCE WITH NFPA. ACCESS DOOR SHALL BE RUSKIN MODEL ADC2 LOCATED ON ACCESSIBLE CEILING SIDE OF WALL. IF ACCESSIBLE CEILING NOT AVAILABLE, MECHANICAL CONTRACTOR SHALL PROVIDE ACCESS DOOR IN CEILING (OR WALL) TO MATCH FINISH COLOR. DAMPER SHALL BE EQUIPPED FOR HORIZONTAL OR VERTICAL MOUNTING AS REQUIRED. WHERE ROUND DUCTS REQUIRE A DAMPER, AN ENCLOSURE WITH ROUND DUCT CONNECTION WILL BE REQUIRED WITH TYPE B DAMPER INSIDE. ALL MODELS ARE RUSKIN (APPROVED EQUAL ACCEPTABLE).

9 DAMPER - LOW PRESSURE FIRE
NOT TO SCALE

NOTES:
1. DUCTWORK SHALL BE INSTALLED LEVEL, AS HIGH AS POSSIBLE (UNLESS OTHERWISE NOTED).
2. ALL EXPOSED SPIRAL DUCTWORK SHALL BE A SINGLE OR DOUBLE WALL LINDAB SPIROSAFE SELF-SEALING DUCT SYSTEM (OR APPROVED EQUAL). REGISTERS ON SPIRAL DUCT SHALL BE MOUNTED WITHOUT THE USE OF RECTANGULAR REGISTER TAPS, TOP AND BOTTOM FLANGES SHALL MEET FLUSH WITH THE SPIRAL DUCT WALL REGARDLESS OF DUCT DIAMETER.

10 DBL. DEFL. DIFFUSER MOUNTING ON SPIRAL DUCT
NOT TO SCALE

SIDE VIEW

11 ELECTRIC WALL HEATER
NOT TO SCALE

NOTES:
1. COORDINATE LOCATION OF FAN WITH OTHER TRADES TO INSURE SERVICE CLEARANCES.
2. MECHANICAL CONTRACTOR SHALL PROVIDE ACCESS DOOR IN CEILING IF REQUIRED.
3. INSTALL WITHIN 24" ABOVE ACCESSIBLE CEILING.

12 FAN - INLINE EXHAUST, DUCTED DISCHARGE
NOT TO SCALE

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MECHANICAL DETAILS

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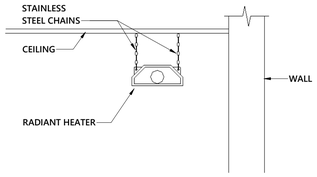
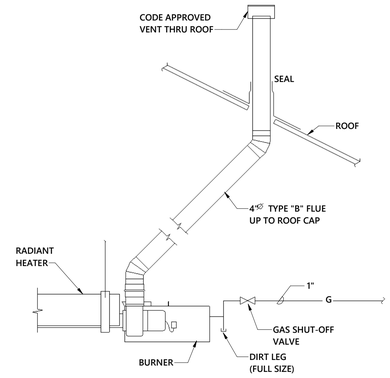


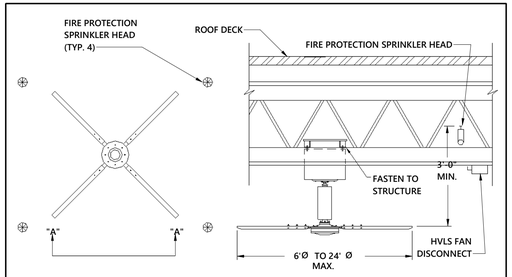
NOTES:
1. MOUNT HEATER WITH A 24" MINIMUM SIDE CLEARANCE AND 12" MINIMUM CEILING CLEARANCE TO COMBUSTIBLES.
2. THE BOTTOM OF THE HEATER MUST BE A MINIMUM OF 60" ABOVE COMBUSTIBLES.
3. INFRARED HEATERS SHALL BE AGA CERTIFIED.
4. VERIFY EXACT MOUNTING HEIGHT AND LOCATION WITH OWNER PRIOR TO INSTALLATION. MINIMUM MOUNTING HEIGHT IS 13'-0".

1 INFRARED HEATER MOUNTING DETAIL
NOT TO SCALE

NOTE:
FLUE SHALL EXTEND 3'-0" ABOVE ROOF OR 2'-0" ABOVE ANY WALL OR PARAPET WITHIN 10'-0". FLUE SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY INTAKE.



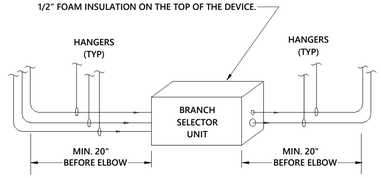
2 INFRARED HEATER FLUE DETAIL - ROOF
NOT TO SCALE



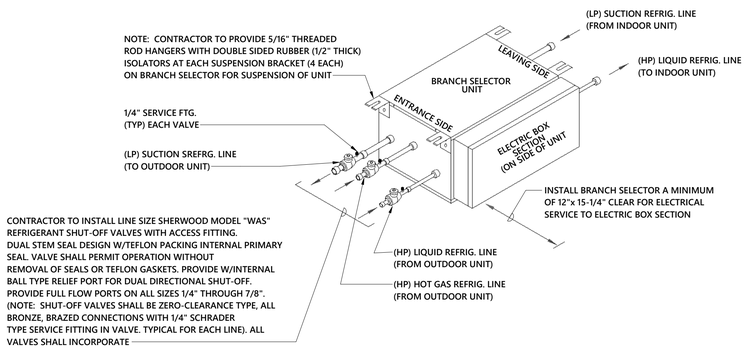
NOTES:
1. NFPA 13, 11.1.7 - HIGH VOLUME LOW SPEED (HVLS) FANS INSTALLED IN BUILDINGS EQUIPPED WITH SPRINKLERS, INCLUDING ESFR SPRINKLERS SHALL COMPLY WITH THE FOLLOWING:
   A. THE MAXIMUM FAN DIAMETER SHALL BE 24FT.
   B. THE HVLS FAN SHALL BE CENTERED APPROXIMATELY BETWEEN FOUR ADJACENT SPRINKLERS.
   C. THE VERTICAL CLEARANCE FROM THE HVLS FAN TO SPRINKLER DEFLECTOR SHALL BE MINIMUM OF 3FT.
   D. ALL HVLS FANS SHALL BE INTERLOCKED TO SHUT DOWN IMMEDIATELY UPON RECEIVING A WATER FLOW SIGNAL FROM THE ALARM SYSTEM IN ACCORDANCE WITH REQUIREMENTS OF NFPA 72.
2. EC SHALL LOCATE THE HVLS FAN DISCONNECT OUTSIDE THE FAN BLADE CLEARANCE.

3 HVLS FAN COORDINATION DETAIL
NOT TO SCALE

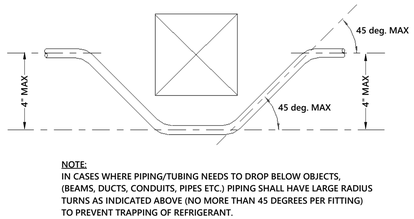
RECOMMENDED EQUIPMENT CLEARANCES: 3" ABOVE
12" ENTERING (3 PIPE) IN SPACE CONDITIONS THAT
DO NOT ALLOW 3" ABOVE THE DEVICE, MAINTAIN A
1" AIR SPACE BELOW UPPER DECK AND INSTALL
1/2" FOAM INSULATION ON THE TOP OF THE DEVICE.



4 DETAIL - RECOMMENDED PIPE CLEARANCES FOR BRANCH SELECTOR UNITS
(REFER TO MANUFACTURERS INSTRUCTIONS)



5 ALL MECHANICAL EQUIPMENT SHALL BE IN COMPLIANCE WITH ASHRAE 90.1 DETAIL - TYPICAL BRANCH SELECTOR PIPING
NOT TO SCALE



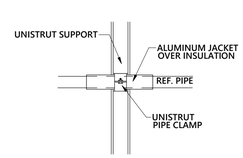
NOTE:
IN CASES WHERE PIPING/TUBING NEEDS TO DROP BELOW OBJECTS, (BEAMS, DUCTS, CONDUITS, PIPES ETC.) PIPING SHALL HAVE LARGE RADIUS TURNS AS INDICATED ABOVE (NO MORE THAN 45 DEGREES PER FITTING) TO PREVENT TRAPPING OF REFRIGERANT.

6 DETAIL - PIPING OFFSET BELOW OBJECT
ELEVATION VIEW

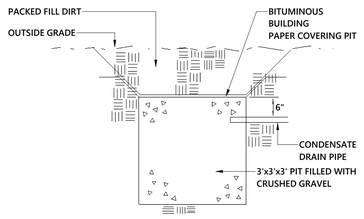
NOTES FOR VRF REFRIGERANT PIPING

1. ALL JOINTS SHALL BE BRASED EXCEPT AT THE INDOOR UNITS WHICH SHALL BE FLARED
2. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE MECHANICAL DESIGN. ANY DEVIATION SHALL BE SUBMITTED FOR PRIOR APPROVAL TO THE MECHANICAL ENGINEER PRIOR TO INSTALLATION. SELECTED COPPER TUBE MUST BE OF SUITABLE WALL THICKNESS FOR HIGHER OPERATION PRESSURES.
3. FLARING: FLARED TUBE ENDS SHOULD HAVE A SMOOTH, EVEN ROUND FLARE OF SUFFICIENT LENGTH TO FULLY ENGAGE THE MATING SURFACE OF THE FLARE NUT, WITHOUT PROTRUDING INTO THE THREADS. USE ONLY "PVE" OR "POE" REFRIGERATION OIL WHEN MAKING FLARES. DEDICATED FLARE BLOCK AND TOOL IS RECOMMENDED. ONLY USE SYNTHETIC OIL ON THE FLARE TOOL.
4. ALL PIPING EXTERIOR TO BUILDING, SHALL BE A MINIMUM OF TYPE "L", "ACR" RATED STRAIGHT PIPE FOR R-410A OR AS SPECIFIED. ALL PIPING ON THE BUILDING INTERIOR SHALL BE "L", "ACR" RATED ROLLED SOFT COPPER OR LINE SET FOR R-410A OR AS SPECIFIED. PIPING (AFTER ANNEALING) SHALL HAVE SUFFICIENT WALL THICKNESS FOR A CONTINUOUS OPERATING PRESSURE OF 600 PSI. PER ASME B 31.5-2010
   DRY NITROGEN: DRY NITROGEN MUST BE USED DURING ALL BRAZING (PRESSURE REGULATED TO 3 PSI)
5. TO PREVENT COPPER PLATE OR OXIDATION FORMATION.
6. PRESSURE TESTING: TIGHTEN DOWN STOP VALVES BEFORE ANY PRESSURE TESTING TO PREVENT NITROGEN FROM LEAKING BACK THROUGH CONDENSER AND CONTAMINATIONG REFRIGERANT.
   PRESSURE TESTING SHALL BE DONE IN THREE (3) STEPS.
   STEP 1- LEAK CHECK 3 MINUTES AT 150 PSI.
   STEP 2- LEAK CHECK AFTER 5 MINUTES AT 325 PSI.
   STEP 3- LEAK CHECK AFTER 24 HOURS AT 550 PSI.
   ALWAYS CHECK FLARE NUTS FOR LEAKS USING BUBBLE SOLUTION, BE SURE TO USE A RECOMMENDED PRODUCT. DO NOT USE A WATERDOWN FAIRY LIQUID SOLUTION. THESE PROCEDURES MUST BE ADHERED TO, DOCUMENTED AND INCLUDED IN THE CONTRACTORS PRICE.
7. LEAK TESTING AND EVACUATION SHALL BE DONE IN ACCORDANCE WITH THE US EPA "GREEN CHILL BEST PRACTICES GUIDELINE ENSURING LEAK-TIGHT INSTALLATION OF COMMERCIAL REFRIGERANT EQUIPMENT."
8. EVACUATION PROCEDURES: EVACUATION PROCEDURES SHALL BE PERFORMED AS FOLLOWS:
   A. EVACUATE THE SYSTEM TO 4000 MICRONS. BREAK VACUUM WITH DRY NITROGEN TO A PRESSURE OF 2-3 PSI AND HOLD FOR 15 MINUTES.
   B. EVACUATE SYSTEM TO 1500 MICRONS AND MAINTAIN FOR 20 MINUTES. BREAK VACUUM WITH DRY NITROGEN TO A PRESSURE OF 2-3 PSI AND HOLD FOR 15 MINUTES.
   C. EVACUATE SYSTEM TO BELOW 500 MICRONS AND HOLD FOR 60 MINUTES. VACUUM PUMP CHECK VALVE SHOULD BE USED TO PREVENT MINERAL OIL FROM BEING DRAWN INTO THE SYSTEM. THESE PROCEDURES MUST BE ADHERED TO, DOCUMENTED AND INCLUDED IN THE CONTRACTORS PRICE.
   D. EVACUATE SYSTEM TO BELOW 300 MICRONS AND HOLD FOR 24 HOURS.
9. REFRIGERANT CHARGING: WEIGH IN ADDITIONAL REFRIGERANT WITH DIGITAL SCALES. CALCULATE CHARGE BASED ON TOTAL LINE LENGTH PLUS lb/ft OF DIAMETER. CHECK WITH EACH UNIT MODEL FOR CORRECT MULTIPLIER. AFTER THE AMOUNT OF REFRIGERANT TO BE ADDED IS DETERMINED, WRITE IT DOWN ON THE LABEL, ON THE BACK SIDE OF THE FRONT COVER.
   AFTER THE VACUUM/DRYING IS COMPLETE, CHARGE THE ADDITIONAL REFRIGERANT IN ITS LIQUID STATE THROUGH THE LIQUID STOP VALVE SERVICE PORT.

   MAKE SURE TO USE INSTALLATION TOOLS YOU EXCLUSIVELY USE ON R410A INSTALLATIONS TO WITHSTAND THE PRESSURE AND TO PREVENT FOREIGN MATERIAL FROM MIXING INTO THE SYSTEM.
10. ALL REFRIGERANT PIPING AND "REFNETS" EXTERIOR TO THE BUILDING SHALL HAVE ALUMINUM JACKET COVERING THE INSULATION IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS.
    EQUIVALENT TO "PABCO-CHILDERS METALS" ALUMINUM ROLL JACKETING, .016" THICK, COMPLYING WITH 3105/3003 STANDARD ALLOYS, STUCCO EMBOSSED FINISH WITH A MOISTURE RETARDER.
    PROVIDE 1/2" ALUMINUM BAND CLAMP EVERY 10 TO 12".
11. INSULATION TECHNIQUES: ALL PIPE WORK MUST BE INSULATED ALONG IT'S FULL RUN USING CODE COMPLIANT (25/50 RATED), ARMAFLEX MODEL "UT/SOLAFLEX", 1" THICK, HIGH TEMPERATURE & UV RESISTANT CLOSED CELL INSULATION. COVER FLARE NUTS ON THE FAN COILS USING THE INSULATION PROVIDED OR CONDENSATION WILL OCCUR CAUSING LEAKS.
    INSULATION OF PIPES SHOULD BE DONE AFTER PERFORMING WORK REQUIRED BY NOTE 8 (AIR TIGHT TEST AND VACUUM DRYING). INSULATE THE LIQUID PIPING, THE HP/LP GAS PIPING, THE GAS PIPING. THE EQUALIZER PIPE (BETWEEN THE OUTSIDE UNITS FOR THE OUTSIDE MULTI SYSTEM) AND THESE PIPE CONNECTIONS.
    INSULATION SHALL WITHSTAND TEMPERATURES OF 248 DEGREES F OR MORE FOR THE HP/LP GAS PIPING, THE EQUALIZER PIPE AND GAS PIPING.
12. UN-INSULATED JOINTS WILL CONDENSE MOISTURE AROUND THE FITTINGS.
    LINE COMPONENTS: DO NOT INSTALL DRIERS, OIL TRAPS, SIGHT GLASSES, OR ANY OTHER LINE COMPONENT IN THE PIPE WORK AS THIS WILL EFFECT THE PERFORMANCE AND WARRANTY.
13. VRV SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASHRAE 15.
14. VRV SYSTEMS SHALL BE INSTALLED BY A MANUFACTUER CERTIFIED AND TRAINED CONTRACTING COMPANY AND SHALL HAVE DOCUMENTATION OF VRV INSTALLATION & COMMISSIONING TRAINING. FIELD SUPERINTENDENT SHALL HAVE VRV TRAINING AND VRV SUPPLIER SHALL INCLUDE A SPECIAL VRV TOOL KIT ALLOWANCE FOR THE INSTALLING CONTRACTOR CONSISTING OF:
    C. R-410A FLARE TOOL
    A. STANDARD R-410A GAUGE KIT WITH MULTIPLE TOOLS
    D. R-410A PLASTIC FLARE SIZE GUAGE
    B. TORQUE WRENCH SET
    IF INSTALLING CONTRACTOR DOES NOT CURRENTLY HAVE THESE SPECIAL TOOLS CRTIFICATION. CERTIFICATION, TRAINING AND COMMISSIONING DOCUMENTATION TO BE FURNISHED WITH THE CONTRACTORS BID AND/OR NOTICE TO PROCEED.
15. IN APPLICATIONS WHERE THE "REFNET" KITS ARE INSTALLED IN AN ENVIRONMENT REQUIRING FIRE-RATED MATERIAL TO BE USED, IT IS NECESSARY FOR THE INSTALLER TO OBTAIN FROM A THIRD PARTY SUPPLIER AND TO UTILIZE, FOR INSULATION, FIRE-RATED MATERIALS THAT MEET ALL APPLICABLE BUILDING CODES AND OTHER REQUIREMENTS. THE FACTORY SUPPLIED INSULATION SHOULD BE DISCARDED IN A MANNER MEETING ALL APPLICABLE LAWS.



7 DETAIL - REF. PIPE UNISTRUT SUPPORT
NOT TO SCALE



8 DRYWELL DETAIL
NO SCALE

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MECHANICAL DETAILS

Sheet No.
M5.02

Opt # 22-0369

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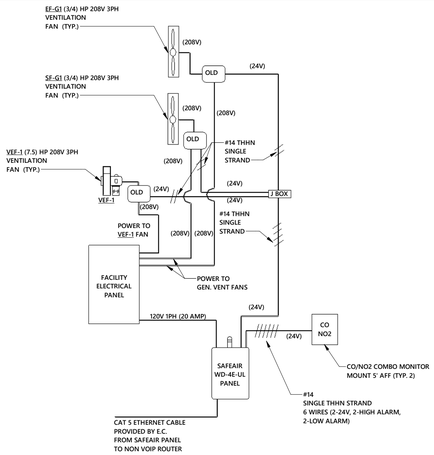


NOTES:

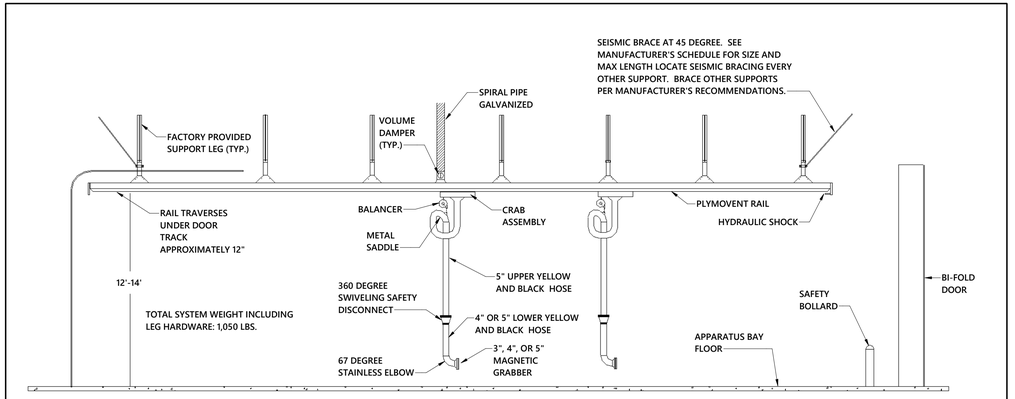
EQUIPMENT, LABOR, AND TESTING PROVIDED BY M.C.:

* (1) WD-4E-UL SAFEAIR CONTROL PANEL 120V -1PH (20 AMP)
* (1) OLD STARTER FOR PLYMOVENT FAN VEF-1
* (1) OLD STARTER FOR 208V FAN EF-G1
* (1) OLD STARTER FOR 208V FAN SF-G1
* (2) CO/NO2 COMBO TOXIC GAS MONITOR UNITS
* FINAL TERNMINATION OF WIRES INSIDE SAFEAIR PANEL
* SAFEAIR, CO/NO2 TESTING AND PLYMOVENT COMMISSIONING

EQUIPMENT INSTALLED AND PROVIDED BY E.C.:

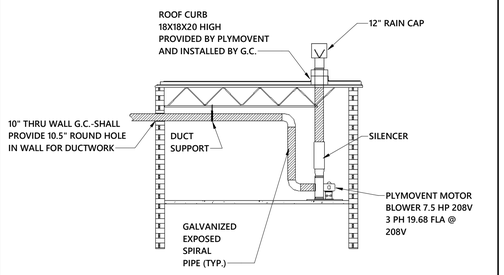
* MOUNTING OF OLD, WD-4E-UL SAFEAIR PANEL, CO/NO2 COMBO UNITS
* ALL WIRE AND CONDUIT FOR CONTROL WIRE FROM THE SAFEAIR PANEL TO THE FOLLOWING: TO OLD'S, AND TO CO/NO2 COMBO SENSORS
* ALL 24V, 208V 3PH, AND 120V 1PH POWER TO RESPECTIVE SYSTEMS; TO INCLUDE CONDUIT AND WIRE
* WIRING OF SAFEAIR PANEL, OLD'S, AND CO/NO2 COMBO SENSORS
* WIRING OF EF-G1 AND SF-G1 FANS, AND VEF-1
* FINAL TERMINATION OF OLD'S, AND CO/NO2 COMBO SENSORS
* FURNISHING AND INSTALLING CAT 5 WIRE FOR SAFEAIR NON-VOIP ROUTER CONNECTION FOR EMAIL DIALER, IF REQUIRED

1 **VEHICLE EXHAUST ELECT. FLOW DIAGRAM**
NOT TO SCALE



NOTE:
CONTRACTOR SHALL INCLUDE PLYMOVENT VEHICLE EXHAUST SYSTEM AS DESCRIBED IN THESE DRAWINGS AND PROVIDED BY AIR CLEANING SYSTEMS IN THEIR BASE BID. CONTACT BILL LEFAVOR AT 919-414-0143 FOR PRICING AND ADDITIONAL INFORMATION.

2 **VEHICLE EXHAUST SYSTEM SCHEMATIC (EQUAL TO PLYMOVENT VSRX)**
NOT TO SCALE



NOTES:
1. COORDINATE LOCATION OF FAN WITH OTHER TRADES TO INSURE SERVICE CLEARANCES.

3 **FAN - VEHICLE EXHAUST**
NOT TO SCALE

Project No.
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GORDON ROAD FIRE DEPARTMENT

MECHANICAL DETAILS

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M5.03

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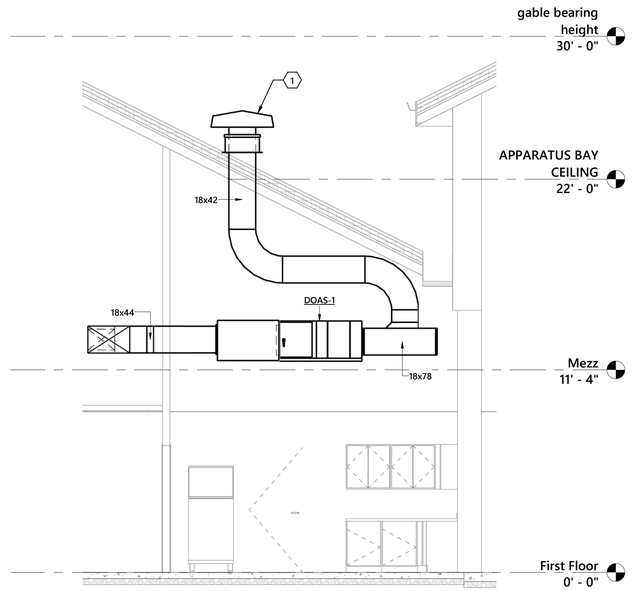
KEYNOTE LEGEND

1	42X18 OUTSIDE AIR DUCT UP TO ROOF. PROVIDE ROOF CAP EQUAL TO GREENHECK FGI-18X42 WITH ROOF CURB AND BIRD SCREEN.



1 DOAS SECTION
1/4" = 1'-0"

Project No.
1691

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MECHANICAL SECTIONS

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ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)
A	AMPERE
AC	ABOVE COUNTER OR AIR CONDITIONER
ACLG	ABOVE CEILING
ADO	AUTOMATIC DOOR OPENER
AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFI	ARC FAULT CIRCUIT INTERRUPTER
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE
AMPL	AMPLIFIER
ANNUN	ANNUNCIATOR
APPROX	APPROXIMATELY
AQ-STAT	AQUASTAT
ARCH	ARCHITECT, ARCHITECTURAL
AS	AMP SWITCH
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BD	BOARD
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAB	CABINET
CAT	CATALOG
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG	CEILING
COMB	COMBINATION
CMPR	COMPRESSOR
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUATION OR CONTINUOUS
CONTR	CONTRACTOR
CONV	CONVECTOR
CP	CIRCULATING PUMP
CRT	CATHODE-RAY TUBE
CT	CURRENT TRANSFORMER
CTR	CENTER
CU	COPPER
DCP	DOMESTIC WATER CIRCULATING PUMP
DEPT	DEPARTMENT
DET	DETAIL
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
DN	DOWN
DPR	DAMPER
DS	SAFETY DISCONNECT SWITCH
DT	DOUBLE THROW
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRIC, ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
EP	ELECTRIC PNEUMATIC
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EX	EXISTING
EXH	EXHAUST
EXP	EXPLOSION PROOF
FA	FIRE ALARM
FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL
FACP	FIRE ALARM CONTROL PANEL
FCU	FAN COIL UNIT
FIXT	FIXTURE
FLR	FLOOR
FLUOR	FLUORESCENT
FU	FUSE
FUDS	FUSED SAFETY DISCONNECT SWITCH
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTOR
GND	GROUND
GRS	GALVANIZED RIGID STEEL (CONDUIT)
GYP BD	GYPSUM BOARD
HOA	HANDS-OFF-AUTOMATIC SWITCH
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPF	HIGH POWER FACTOR
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWP	HYDRONIC WATER PUMP
IC	INTERRUPTING CAPACITY
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IR	INFRARED
I/W	INTERLOCK WITH
J-BOX	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KVAR	KILOVOLT-AMPERE REACTIVE
KW	KILOWATT
KWH	KILOWATT HOUR
LOC	LOCATE OR LOCATION
LTG	LIGHTING
LTNG	LIGHTNING
LV	LOW VOLTAGE
MAX	MAXIMUM
MAG.S	MAGNETIC STARTER
M/C	MOMENTARY CONTACT
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDC	MAIN DISTRIBUTION CENTER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MFS	MAIN FUSED DISCONNECT SWITCH
MH	MANHOLE
MIC	MICROPHONE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MMS	MANUAL MOTOR STARTER
MOA	MULTIOUTLET ASSEMBLY
MSP	MOTOR STARTER PANELBOARD
MSBD	MAIN SWITCHBOARD
MT	MOUNT
MT.C	EMPTY CONDUIT
MTS	MANUAL TRANSFER SWITCH
MTR	MOTOR, MOTORIZED
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NFDS	NON-FUSED SAFETY DISCONNECT SWITCH
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
N.O.	NORMALLY OPEN
NPF	NORMAL POWER FACTOR
NTS	NOT TO SCALE
OH	OVERHEAD
OL	OVERLOADS
PA	PUBLIC ADDRESS
PB	PULL BOX OR PUSHBUTTON
PE	PNEUMATIC ELECTRIC
PED	PEDESTAL
PF	POWER FACTOR
PH	PHASE
PIV	POST INDICATING VALVE
PNL	PANEL
PP	POWER POLE
PR	PAIR
PRI	PRIMARY
PROJ	PROJECTION
PRV	POWER ROOF VENTILATOR
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE (CONDUIT)
PWR	POWER
QUAN	QUANTITY
RCPT	RECEPTACLE
REQD	REQUIRED
RM	ROOM
RSC	RIGID STEEL CONDUIT
RTU	ROOF TOP UNIT
SC	SURFACE CONDUIT
SEC	SECONDARY
SHT	SHEET
SIM	SIMILAR
S/N	SOLID NEUTRAL
SPEC	SPECIFICATION
SPKR	SPEAKER
SP	SPARE
SR	SURFACE RACEWAY
SS	STAINLESS STEEL
SSW	SELECTOR SWITCH
S/S	STOP/START PUSHBUTTONS
STA	STATION
STD	STANDARD
SURF	SURFACE MOUNTED
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
SYS	SYSTEM
TEL	TELEPHONE
TEL/DATA	TELEPHONE/DATA
TERM	TERMINAL
TL	TWIST LOCK
TR	TAMPER RESISTANT
T-STAT	THERMOSTAT
TTC	TELEPHONE TERMINAL CABINET
TV	TELEVISION
TVTC	TELEVISION TERMINAL CABINET
TYP	TYPICAL
UC	UNDER COUNTER
UE	UNDERGROUND ELECTRICAL
UG	UNDERGROUND
UH	UNIT HEATER
UT	UNDERGROUND TELEPHONE
UTIL	UTILITY
UV	UNIT VENTILATOR OR ULTRAVIOLET
V	VOLT
VA	VOLT-AMPERES
VDT	VIDEO DISPLAY TERMINAL
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
W	WATT
W	WATT
W/	WITH
WG	WIRE GUARD
WH	WATER HEATER
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER
XFR	TRANSFER
∠	ANGLE
@	AT
△	DELTA
'	FEET
"	INCHES
#	NUMBER
Ø	PHASE
C	CENTER LINE
P	PLATE

2018 NORTH CAROLINA ENERGY CONSERVATION CODE

COMMERCIAL ENERGY EFFICIENCY - ELECTRICAL SUMMARY

C401 METHOD OF COMPLIANCE

- ■ 2018 NCECC CHAPTER 4
- ☐ NC SPECIFIC COMCHECK PROVIDED
- ☐ N/A BASED ON PROJECT SCOPE
- ☐ ASHRAE 90.1-2013

C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

- ☐ C406.2 EFFICIENT MECH EQUIPMENT
- ☐ C406.5 ON-SITE RENEWABLE ENERGY
- ■ C406.3 REDUCED LTG DENSITY
- ☐ C406.6 DEDICATED OA SYSTEM
- ☐ C406.4 ENHANCED DIGITAL LTG CNTLS
- ☐ C406.7 HI-EFF SERVICE WTR HTG
- ☐ NOT APPLICABLE BASED ON PROJECT SCOPE
- ☐ C406.7.1 WTR HTG LOAD FRACTION

C405.2 - LIGHTING CONTROLS (MANDATORY REQUIREMENTS):

- ■ LIGHTING SYSTEMS ARE PROVIDED WITH CONTROLS AS REQUIRED PER SECTION C405.2, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE

C405.3 - EXIT SIGNS (MANDATORY REQUIREMENTS):

- ■ INTERNALLY ILLUMINATED EXIT SIGNS DO NOT EXCEED 5 WATTS PER SIDE.
- ☐ NOT APPLICABLE

C405.4 - INTERIOR LIGHTING POWER REQUIREMENTS (PRESCRIPTIVE) (NON-EXEMPT):

- ☐ NOT APPLICABLE PER 2018 NCECC C503.1, EXCEPTION 2.G.

C405.4.1 - TOTAL CONNECTED INTERIOR LIGHTING POWER:

8,570 WATTS SPECIFIED

36 % REDUCTION OF SPECIFIED VS. ALLOWED (APPLICABLE IF C406.1.2 IS SELECTED)

C405.4.2 - TOTAL ALLOWABLE INTERIOR LIGHTING POWER:

METHOD OF COMPLIANCE:

- ■ BUILDING AREA METHOD
- ☐ SPACE-BY-SPACE METHOD

13,403 WATTS ALLOWED

C405.5.1 - EXTERIOR BUILDING LIGHTING POWER (NON-EXEMPT):

- ☐ NOT APPLICABLE

TOTAL CONNECTED EXTERIOR LIGHTING POWER:

1,050 WATTS SPECIFIED

TOTAL ALLOWABLE EXTERIOR LIGHTING POWER:

2,277 WATTS ALLOWED

C405.6 - ELECTRICAL ENERGY CONSUMPTION (DWELLING UNITS):

- ☐ SEPARATE ELECTRICAL METERING HAS BEEN PROVIDED FOR EACH DWELLING UNIT IN GROUP R-2 BUILDINGS.
- ■ NOT APPLICABLE

C405.7 - ELECTRICAL TRANSFORMERS (MANDATORY REQUIREMENTS):

- ■ ELECTRICAL TRANSFORMERS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.7, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE

C405.8 - ELECTRICAL MOTORS (MANDATORY REQUIREMENTS):

- ■ ELECTRICAL MOTORS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.8, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE

C408 - SYSTEM COMMISSIONING:

- ☐ PROJECT AREA IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
- ■ PROJECT AREA IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM COMMISSIONING PER SECTION C408.

SYMBOL SCHEDULE POWER

SYMBOL	DESCRIPTION
	WIRING SYSTEM CONCEALED IN WALL OR CEILING. WHEN SHOWN, CROSS LINES INDICATE NUMBER OF WIRES. (GROUND WIRES ARE NOT SHOWN)
	WIRING SYSTEM CONCEALED IN OR UNDER SLAB OR UNDERGROUND.
	WIRING SYSTEM EXPOSED.
	CONDUIT TURNED DOWN TO FLOOR BELOW.
	CONDUIT TURNED UP TO FLOOR ABOVE.
	BRANCH CIRCUIT HOMERUN TO PANEL.

SYMBOL SCHEDULE POWER LEGEND

SYMBOL	DESCRIPTION
	JUNCTION BOX WITH CONNECTION TO EQUIPMENT SERVED. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING.
	208/120V THREE PHASE PANELBOARD. SEE SCHEDULE FOR MOUNTING. TOP OF PANEL AT 6'-6" AFF.
	AUTOMATIC TRANSFER SWITCH FLOOR MOUNT
	LINEAR PLUGMOLD. NEMA 5-15R RECEPTACLES ON 12" CENTERS. ALTERNATE CIRCUITS.
SPD	SURGE PROTECTION DEVICE (SPD); SEE DETAIL.
	JUNCTION BOX WITH FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER, WITH OVERLOAD PROTECTION AND CONNECTION TO EQUIPMENT SERVED. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING.
	SPECIAL OUTLET. SEE PLANS.
	FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED. UNSHADED INDICATES NON-FUSED.
	FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED. UNSHADED INDICATES NON-FUSED.
0.3 hp XX-1	CONNECTION TO MOTOR. STARTER PROVIDED BY OTHERS UNLESS OTHERWISE NOTED. NUMBER INDICATES HORSEPOWER.
	FRACTIONAL HORSEPOWER MANUAL MOTOR STARTER, WITH OVERLOAD PROTECTION
	DUPLEX RECEPTACLE ON CORD REEL.
GA	GENERATOR ANNUNCIATOR PANEL; 3/4" CONDUIT TO ATS. PROVIDE BOX AS REQUIRED PER MANUFACTURER RECOMMENDATION PROVIDE CABLING PER MANUFACTURER RECOMMENDATIONS
	SWITCH - START/STOP PUSH BUTTON - WALL
EPO	EMERGENCY POWER OFF BUTTON

NFPA FIRE ALARM LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL
NAC	NOTIFICATION APPLIANCE CIRCUIT POWER EXTENDER
BDA	BI-DIRECTIONAL AMPLIFIER SYSTEM
AM	ADDRESSABLE CONTROL MONITOR
F	PULLSTATION/FIRE ALARM
Z	SMOKE DETECTOR/SENSOR (DEFAULT PHOTOELECTRIC TYPE)
	FIRE ALARM BELL NOTIFICATION
MC	DETECTOR - MULTI CRITERIA TYPE (MC), CO & SMOKE
MC SB	DETECTOR - MULTI CRITERIA TYPE (MC) AND SOUNDER BASE (SB). CO & SMOKE
15cd	FIRE ALARM STROBE (CANDELAS), WHITE FINISH
15cd	ADA COMPLIANT WALL MOUNTED FIRE ALARM HORN WITH STROBE LIGHT, 15CD UNLESS OTHERWISE NOTED. WHITE FINISH.**
15cd	FIRE ALARM STROBE (CANDELAS), WHITE FINISH
15cd	FIRE ALARM HORN W/STROBE (CANDELAS), WHITE FINISH

**Note: AUDIBLE DEVICES WITHIN SLEEPING ROOMS SHALL BE SUBJECT TO LOW FREQUENCY REQUIREMENTS. A SQUARE WAVE 520HZ TONE COMPATIBLE WITH NFPA 72 18.4.5.3. COORDINATE WITH LOCAL CODES AND REQUIREMENTS.

EM./LS LIGHTING FIXTURE SYMBOLS AND DEVICES

SYMBOL	DESCRIPTION
	● LED FIXTURE WITH EMERGENCY BATTERY BALLAST OR DRIVER ON LIFE SAFETY BRANCH. ■ PROVIDE 1100 LUMEN INVERTER RATED FOR 90 MINUTE OPERATION. SEE FIXTURE SCHEDULE FOR FIXTURE TYPE, EMERGENCY DEVICE SHALL SUPPLEMENT FIXTURE.

LIGHTING FIXTURES SYMBOLS AND DEVICES LEGEND

SYMBOL	DESCRIPTION
	LED LIGHTING FIXTURE. SEE FIXTURE SCHEDULE. SUSPEND FOUR CORNERS WITH WIRE TO STRUCTURE. DO NOT ALLOW GRID ALONE TO SUPPORT FIXTURE.
	LED STRIP LIGHT FIXTURE
	RECESSED LED OR H.I.D. LIGHTING FIXTURE.
	WALL MOUNTED LED LIGHTING FIXTURE.
	SINGLE POLE SWITCH, 20 AMP, 120/277 VOLT, COOPER AH 1221, OR EQUAL BY HUBBELL, LEVITON AND PASS & SEYMOUR. SUBSCRIPT 'F' DENOTES FAN SWITCH PROVIDE JUNCTION BOX AND 1/2"C. TO ABOVE LOCAL CEILING FOR COMPATIBLE FAN SWITCH. COORDINATE WITH MANUFACTURER.
3	THREE WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1223, THREE WAY SWITCH, 20 AMP, 120/277 VOLT, COOPER 1223, OR EQUAL BY HUBBELL, LEVITON AND PASS & SEYMOUR.
T	2-HR TIMER SWITCH, 20 AMP, 120/277 VOLT, EQUAL TO INTERMATIC FF SERIES
D	DIMMER SWITCH. LUTRON SERIES, OR EQUAL. VERIFY LOAD ON CIRCUIT AND MATCH DIMMER SIZE TO LOAD AND DEVICE QUANTITY. PROVIDE DOUBLE GANG J-BOX WITH SINGLE GANG TRIM PLATE. PROVIDE DIMMING SWITCH AS RECOMMENDED BY LIGHTING MANUFACTURER. MATCH SWITCH TYPE TO SOURCE (LED, FLUORESCENT, OR INCANDESCENT,) WATTAGE, AND QUANTITY.
VC	WALL MOUNTED VACANCY SENSOR AND SWITCH (MANUAL ON/AUTOMATIC OFF). INFRARED TECHNOLOGY, 120/277 RATED. SENSOR SWITCH WSX, WATT STOPPER PW-301, LEVITON, COOPER OR EQUAL.
CM	CEILING MOUNTED OCCUPANCY SENSOR, DUAL TECHNOLOGY. 360 DEGREE COVERAGE. 2,000 SQ FT COVERAGE LARGE MOTION, 400 SQ FT SMALL MOTION. NON CATEGORY CABLE CONNECTORS. LOW VOLTAGE DETECTOR, PROVIDE WITH POWER PACK FOR EACH SWITCH LEG. SENSOR SWITCH, WATT STOPPER, LEVITION, EATON, SENSORWORX OR EQUAL.
CMC	CEILING CORNER MOUNTED OCCUPANCY SENSOR, DUAL TECHNOLOGY. CONICAL PATTERN WIDE VIEW 120 DEGREES, MOUNT AS CLOSE TO CORNER OF ROOM AS POSSIBLE. 40' SMALL MOTION, 70' LARGE MOTION PATTERN. NON CATEGORY CABLE CONNECTORS. LOW VOLTAGE DETECTOR, PROVIDE WITH POWER PACK FOR EACH SWITCH LEG. SENSOR SWITCH, WATT STOPPER, LEVITON, EATON OR EQUAL.
LR	CEILING MOUNTED VACANCY SENSOR, DUAL TECHNOLOGY. SENSOR SWITCH, WATT STOPPER , COOPER OR EQUAL.
OC	WALL MOUNTED OCCUPANCY SENSOR AND SWITCH. INFRARED TECHNOLOGY WITH NEUTRAL, 120/277V RATED. WATT STOPPER #WS-250, OR EQUAL BY SENSOR SWITCH, AND LEVITON.
PP	CEILING MOUNTED OCCUPANCY SENSOR POWER PACK. SENSOR SWITCH PP-20, WATT STOPPER #BZ-100, COOPER SP-20, OR EQUAL.
PPD	CEILING MOUNTED OCCUPANCY SENSOR POWER PACK WITH DIMMER. SENSOR SWITCH PP-20, WATT STOPPER #BZ-100, COOPER SP-20, OR EQUAL.

SPECIAL SYSTEMS LEGEND

SYMBOL	DESCRIPTION
TV	TV DISPLAY, SEE TECHNOLOGY DRAWINGS FOR E.C. POWER AND DATA INSTALLATION RESPONSIBILITIES.
AV	AV DISPLAY, SEE TECHNOLOGY DRAWINGS FOR E.C. POWER AND DATA INSTALLATION RESPONSIBILITIES.
V	VOLUME CONTROL; SEE PURVIS DETAIL #3/E6.08 FOR E.C. REQUIREMENTS.
XX	SEE PURVIS DETAIL #3/E6.08 FOR E.C. REQUIREMENTS. , 'XX' SHALL BE DEFINED AS THE FOLLOWING: 'B' - BUTTON 'MB' - MESSAGE BOARD 'TP' - THERMAL PRINTER 'TL' - TOWER LIGHT 'DM' - DORM REMOTE
SP	INTERIOR RECESSED SPEAKER W/ LIGHT; SEE PURVIS DETAIL #3/E6.08 FOR E.C. REQUIREMENTS.
S	INTERIOR RECESSED SPEAKER; SEE PURVIS DETAIL #3/E6.08 FOR E.C. REQUIREMENTS.
S	WALL-MOUNTED SPEAKER; SEE PURVIS DETAIL #3/E6.08 FOR E.C. REQUIREMENTS.
S WP	EXTERIOR WEATHERPROOF SPEAKER;3/4" CONDUIT TO LOCAL CABLE TRAY PROVIDE WEATHERPROOF J-BOX
GA	GENERATOR ANNUNCIATOR PANEL; 3/4" CONDUIT TO ATS. PROVIDE BOX AS REQUIRED PER MANUFACTURER RECOMMENDATION PROVIDE CABLING PER MANUFACTURER RECOMMENDATIONS

FLR. BOX OUTLETS-REC. FLUSH MOUNT SYMBOL...

SYMBOL	DESCRIPTION
	FLUSH MOUNTED FLOOR BOX - SINGLE DUPLEX RECEPTACLE, NEMA 5-20R. EQUAL TO WIREMOLD 881 SERIES WITH DUPLEX COVER PLATE WITH FLIP LIDS. ARCHITECT TO SELECT FINISH.
FBS	6-GANG MULTI-SERVICE FLOOR BOX. ELECTRICAL CONTRACTOR SHALL PROVIDE FLOOR BOX, COVER, CONDUITS, ELECTRICAL DEVICES AND ASSOCIATED MOUNTING PLATES FOR A COMPLETE INSTALLATION. PROVIDE (2) NEMA 5-20R DUPLEX RECEPTACLES AND (4) COMMUNICATIONS PLATE. SEE TECHNOLOGY DRAWINGS FOR TELECOM FACEPLATES AND CABLING. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (4) CATEGORY 6 CABLES. LEGRAND: EVOLUTION EFB6S-OG OR APPROVED EQUAL.
FBS	6-GANG MULTI-SERVICE FLOOR BOX. ELECTRICAL CONTRACTOR SHALL PROVIDE FLOOR BOX, COVER, CONDUITS, ELECTRICAL DEVICES AND ASSOCIATED MOUNTING PLATES FOR A COMPLETE INSTALLATION.PROVIDE (2) NEMA 5-20R DUPLEX RECEPTACLES AND (4) COMMUNICATIONS PLATE. SEE TECHNOLOGY DRAWINGS FOR TELECOM FACEPLATES AND CABLING. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (4) CATEGORY 6 CABLES. SEE DETAIL ON SHEET T5.02. FSR FL-500P-4-B OR APPROVED EQUAL.

Note: CONTRACTOR SHALL VERIFY WITH ARCHITECT THE FLOOR FINISH PRIOR TO ORDERING MATERIAL. PROVIDE ALL NECESSARY SHIMS, TRIM PLATES, ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.

ELECTRICAL SHEET INDEX

SHEET NUMBER	SHEET NAME
E0.01	ELECTRICAL LEGEND AND NOTES
E0.02	ELECTRICAL SPECIFICATIONS
E0.03	LIGHTING FIXTURE SCHEDULE
E0.04	MECHANICAL EQUIPMENT CONNECTION SCHEDULE
E0.10	ELECTRICAL SITE PLAN
E1.01	LIGHTING FLOOR PLANS
E1.02	LIGHTING ROOF PLAN
E2.01	POWER FLOOR PLANS
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E6.00	ELECTRICAL DETAILS - PENETRATION
E6.01	ELECTRICAL DETAILS - GENERAL
E6.02	ELECTRICAL DETAILS - GENERAL
E6.03	ELECTRICAL DETAILS - LIGHTING
E6.04	ELECTRICAL DETAILS - LIGHTING
E6.05	ELECTRICAL DETAILS - FIRE ALARM
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E6.07	ELECTRICAL DETAILS - FIRE STATION
E6.08	ELECTRICAL DETAILS - FIRE STATION
E6.09	ELECTRICAL DETAILS - GENERATOR
E6.10	ELECTRICAL DETAILS - GENERATOR
E7.01	ELECTRICAL DIAGRAMS
E8.01	PANEL SCHEDULES

ELECTRICAL FIXTURES LEGEND - COMMERCIAL

SYMBOL	DESCRIPTION
GFCI USB	COMBINATION GROUND FAULT RECEPTACLE AND USB. NEMA 5-20R DUPLEX. ALL OUTLETS INSTALLED WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.
	DUPLEX RECEPTACLE, 20 AMP, 120 VOLT COOPER 5362 OR EQUAL.
GFCI	GROUND FAULT RECEPTACLE. NEMA 5-20R DUPLEX. ALL RECEPTACLES INSTALLED OUTSIDE, WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.
GFCI	GROUND FAULT RECEPTACLE - BREAKER AT PANEL. NEMA 5-20R DUPLEX. ALL RECEPTACLES INSTALLED OUTSIDE, WITHIN 6' OF A SINK OR IN A KITCHEN SHALL BE GFCI.
USB	COMBINATION USB AND NEMA 5-20R DUPLEX.
GFCI	GROUND FAULT DUPLEX RECEPTACLE, NEMA 5-20R MOUNTED ABOVE COUNTER BACKSPLASH OR AT HEIGHT NOTED.
WPGFCI	WEATHERPROOF GROUND FAULT RECEPTACLE. NEMA 5-20R DUPLEX, CORROSION RESISTANT, WITH IN-USE COVER.
	QUAD RECEPTACLE. TWO NEMA 5-20R DUPLEX RECEPTACLES, OTHERWISE SAME AS DUPLEX RECETACLE ABOVE.
EWC	QUAD RECEPTACLE, TWO NEMA 5-20R FOR ELECTRIC WATER COOLER TO BE SUPPLIED BY GROUND FAULT BREAKER. COORDINATE LOCATION WITH PLUMBING CONTRACTOR.

SECURITY DEVICES SYMBOL LEGEND - ELECTRICAL

SYMBOL	DESCRIPTION
	CEILING MOUNTED SECURITY CAMERA, SEE TECHNOLOGY DRAWINGS FOR E.C. POWER AND DATA INSTALLATION RESPONSIBILITIES.
	CAMERA. WALL MOUNTED. PROVIDE ONE (1) CATEGORY 6A CABLE. REFER TO ELECTRICAL DRAWINGS FOR JUNCTION BOX AND CONDUIT REQUIREMENTS.
DC	DOOR CONTACT,, SEE TECHNOLOGY DRAWINGS FOR E.C. POWER AND DATA INSTALLATION RESPONSIBILITIES.
CR	CARD READER, SEE TECHNOLOGY DRAWINGS FOR E.C. POWER AND DATA INSTALLATION RESPONSIBILITIES.
DS	DOOR STRIKE LOCATION, SEE TECHNOLOGY DRAWINGS FOR E.C. POWER AND DATA INSTALLATION RESPONSIBILITIES.
EL	ELECTRIC LOCK (GENERIC), SEE TECHNOLOGY DRAWINGS FOR E.C. POWER AND DATA INSTALLATION RESPONSIBILITIES.

TELECOM LEGEND - ELECTRICAL

SYMBOL	DESCRIPTION
	PLYWOOD TELEPHONE BACKBOARD, SEE TECHNOLOGY DRAWINGS FOR E.C. INSTALLATION RESPONSIBILITIES.
	TELEPHONE OUTLET ABOVE COUNTER OR HEIGHT SPECIFIED, SEE TECHNOLOGY DRAWINGS FOR E.C. INSTALLATION RESPONSIBILITIES.
#	DATA OUTLET, SEE TECHNOLOGY DRAWINGS FOR E.C. INSTALLATION RESPONSIBILITIES.
WAP	STRUCTURE MOUNTED JUNCTION BOX FOR WIRELESS ACCESS POINT IN OPEN CEILING APPLICATIONS, SEE TECHNOLOGY DRAWINGS FOR E.C. INSTALLATION RESPONSIBILITIES.
TV	SEE TV DETAIL FOR TYPE AND REQUIREMENTS, SEE TECHNOLOGY DRAWINGS FOR E.C. INSTALLATION RESPONSIBILITIES.
AV1	SEE TV DETAIL FOR TYPE AND REQUIREMENTS, SEE TECHNOLOGY DRAWINGS FOR E.C. INSTALLATION RESPONSIBILITIES.
	TYPICAL EQUIPMENT RACK WITH VERTICAL WIRE MANAGEMENT SECTIONS, SEE TECHNOLOGY DRAWINGS FOR E.C. INSTALLATION RESPONSIBILITIES.
PB	PULL BOX: MINIMUM SIZE SHALL BE 36" X 36" OPEN BOTTOM, UNLESS OTHERWISE NOTED.
TMGB	TELECOMMUNICATIONS PRIMARY BUS BAR, SEE TECHNOLOGY DRAWINGS FOR E.C. INSTALLATION RESPONSIBILITIES.
	DATA RACK, SEE TECHNOLOGY DRAWINGS FOR E.C. INSTALLATION RESPONSIBILITIES.

Project No.
1691

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NOT FOR CONSTRUCTION

Seal Date

GORDON ROAD FIRE DEPARTMENT

ELECTRICAL LEGEND AND NOTES

Sheet No.
E0.01

Opt # 22-0369

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1. GENERAL:

A. THE WORK COVERED BY THESE SPECIFICATIONS CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, MATERIALS, AND SUPPLIES AS NECESSARY FOR THE COMPLETE AND SATISFACTORY OPERATING ELECTRICAL SYSTEMS AS SHOWN ON THE PLANS.
B. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NFPA, STATE BUILDING CODE, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY.
C. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL ELECTRICAL PERMITS AND INSPECTION FEES.
D. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY THE UNDERWRITER'S LABORATORIES, INC. OR BY A STATE APPROVED THIRD PARTY TESTING AGENCY FOR THE USE INTENDED WHERE A STANDARD FOR SUCH MATERIALS AND USE EXISTS. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL AND OF THE SAME MANUFACTURER.
E. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CATALOG DATA IN ELECTRONIC FORMAT (PDF) FOR ALL ELECTRICAL ITEMS IN THE SCOPE OF WORK, INCLUDING, BUT NOT LIMITED TO, RACEWAYS, BOXES, FITTINGS, CONDUCTORS, LUMINAIRES, LAMPS, BALLASTS, WIRING DEVICES, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, SWITCHBOARDS, SWITCHGEARS, MOTOR CONTROL CENTERS (MCC), BUSWAYS, GENERATORS, AUTOMATIC TRANSFER SWITCHES (ATS), UNINTERRUPTIBLE POWER SUPPLY (UPS), POWER DISTRIBUTION UNITS (PDU), FLOOR/REMOTE DISTRIBUTION CABINETS (FDC/RDC), STATIC TRANSFER SWITCHES (STS), FIRE ALARM, TELECOMMUNICATIONS, ETC. FOR APPROVAL AS APPLICABLE FOR THE PROJECT. ONE COMPLETE SET OF APPROVED SUBMITTALS SHALL BE MAINTAINED AT THE JOB SITE.
F. ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH THE BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, CONDUIT, WIRING, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, METHODS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COSTS ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED AFTER BIDS HAVE BEEN ACCEPTED AND ALL COSTS WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. CREDITS SHALL BE GIVEN TO THE OWNER WHERE SUCH EQUIPMENT AND METHODS RESULT IN LESS EXPENSE TO THE CONTRACTOR.
G. ONE COMPLETE SET OF THE LATEST CONSTRUCTION PLANS OF ALL TRADES SHALL BE MAINTAINED AT THE JOB SITE. IN ADDITION, ALL ADDENDUMS, BULLETINS, AND/OR SKETCHES SHALL BE INCORPORATED INTO THE ON-SITE CONSTRUCTION PLANS AS THE JOB PROGRESSES.
H. COMPLETELY ADEQUATE HOUSING SHALL BE PROVIDED FOR ALL MATERIALS STORED ON JOB SITE. ONLY CONDUIT MAY BE STORED OUTSIDE, BUT NOT IN CONTACT WITH THE GROUND.
I. THE CONDUIT AND NEUTRAL SYSTEM SHALL BE GROUNDED AT THE MAIN SERVICE EQUIPMENT. GROUNDING ELECTRODE SYSTEM SHALL BE INSTALLED PER NEC 250.
J. PROVIDE AN INTERSYSTEM BONDING TERMINATION DEVICE AT THE MAIN ELECTRICAL SERVICE PER NEC 250.94.
K. WIRING SHALL BE TESTED FOR CONTINUITY AND GROUNDS BEFORE BEING ENERGIZED. FAULTY WIRING SHALL BE REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.
L. PROVIDE ALL CUTTING AND PATCHING FOR INSTALLATION OF WORK AND REPAIR ANY DAMAGE DONE.
M. THE ELECTRICAL CONTRACTOR SHALL CONNECT ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS (UNLESS OTHERWISE NOTED), EXCEPT FOR CONTROL WIRING FOR EQUIPMENT NOT PROVIDED BY THE ELECTRICAL CONTRACTOR. CONTROL WIRING FOR SUCH EQUIPMENT SHALL BE PROVIDED BY THE RESPECTIVE DISCIPLINE.
N. ALL ELECTRICAL JUNCTION BOXES, SWITCHGEAR, CABLING, VOICE/DATA OUTLETS, LOW VOLTAGE CABINETS, EMERGENCY RECEPTACLES, ETC. SHALL BE LABELED ACCORDING TO PANEL/RACK AND CIRCUIT NUMBER.
O. UPON COMPLETION OF WORK, CONTRACTOR SHALL PRESENT ENGINEER WITH CERTIFICATE OF APPROVAL FROM LOCAL INSPECTOR AND/OR AUTHORITY HAVING JURISDICTION BEFORE WORK WILL BE APPROVED FOR FINAL PAYMENT.
P. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR EFFECTIVE THE DATE THE PROJECT IS ACCEPTED BY THE OWNER. ANY IMPERFECT MATERIALS OR WORKMANSHIP SHALL BE REPLACED WITHOUT ADDED COST TO THE PROJECT.
Q. IT SHALL NOT BE THE INTENT OF ISSUED PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL NECESSARY ITEMS FOR A COMPLETE AND OPERATING SYSTEM.
R. THE WORD "PROVIDE" MEANS THAT THIS CONTRACTOR SHALL FURNISH, FABRICATE, ERECT, CONNECT, AND COMPLETELY INSTALL SYSTEMS IN PROPER OPERATING CONDITION. ALL LABOR, PRODUCT OPTIONS, ACCESSORIES AND INCIDENTAL MATERIALS REQUIRED SHALL BE INCLUDED AS PART OF THIS WORK TO COMPLETE THE INSTALLATION.
S. THE WORD "CONNECT" MEANS THAT THIS CONTRACTOR SHALL PROVIDE (SEE DEFINITION ABOVE) ALL DISCONNECTING MEANS, OVERCURRENT PROTECTION AND WIRING REQUIRED TO PLACE THE EQUIPMENT AND SYSTEMS IN PROPER OPERATING CONDITION AND TO COMPLY WITH CODE REQUIREMENTS.
T. CONTRACTOR SHALL COORDINATE THE ROUGH-IN OF ALL OUTLET LOCATIONS WITH ARCHITECTURAL FLOOR PLANS, ELEVATIONS, AND MILLWORK SHOP DRAWINGS PRIOR TO ROUGH-IN.
U. ELECTRICAL CONTRACTOR SHALL NOT SCALE PLANS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, UNLESS OTHERWISE NOTED.
V. CONTRACTOR SHALL TEST ALL "LIFE SAFETY" EQUIPMENT AND SYSTEMS FOR PROPER FUNCTION AND OPERATION. UPON SUCCESSFUL COMPLETION OF TESTS, CONFIRMATION SHALL BE SENT TO THE ENGINEER OF RECORD IN THE FORM OF A LETTER STATING THE TESTS PERFORMED, THE RESULTS, AND THE DATE TESTS WERE SUCCESSFULLY COMPLETE. "LIFE SAFETY" EQUIPMENT AND SYSTEMS CONSIST OF THOSE AS SPECIFIED IN THE STATE BUILDING CODE, THE NATIONAL ELECTRICAL CODE, NFPA 101, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY.
W. IF DURING THE COURSE OF WORK, THE CONTRACTOR DISCOVERS A PROBLEM WITH THE PERFORMANCE OF THE INSTALLATION RELATIVE TO THE PLANS AND SPECIFICATIONS, THE NEC, OR OTHER CODES OR REQUIREMENTS, THE CONTRACTOR SHALL IMMEDIATELY BRING THE PROBLEM TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK.
X. WHERE THERE ARE CONFLICTS BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL BRING THE ISSUE TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK OR ORDERING ANY MATERIALS. NO ADDITIONAL COSTS SHALL BE WARRANTED WITHOUT A CHANGE TO THE PROJECT SCOPE.
Y. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PROVIDING TEMPORARY POWER AND LIGHTING FOR ALL TRADES. AT NO TIME SHALL EXISTING BUILDING POWER SYSTEMS BE UTILIZED WITHOUT WRITTEN PERMISSION FROM THE OWNER.
Z. COORDINATE LOCATION AND REQUIREMENTS FOR ELECTRICAL SERVICE WITH THE POWER COMPANY. WHERE MORE THAN ONE SERVICE IS SUPPLIED TO A BUILDING, PROVIDE IDENTIFICATION AT EACH SERVICE PER NEC 230-2(E).
AA. COORDINATE LOCATION AND REQUIREMENTS FOR TELEPHONE SERVICE WITH THE TELEPHONE COMPANY.

2. RACEWAY:

A. CONDUIT SHALL BE MANUFACTURED BY ALLIED, WHEATLAND, REPUBLIC CONDUIT, WESTERN TUBE, OR APPROVED EQUIVALENT.
B. FOR INTERIOR WORK, CONDUIT SHALL BE ZINC COATED EMT EXCEPT WHERE NOT PERMITTED BY CODE. USE SCHEDULE 40 PVC BELOW CONCRETE SLAB, IN DUCTBANKS, AND FOR EXTERIOR WORK WHERE NOT SUBJECT TO DAMAGE. USE IMC WHERE SUBJECT TO PHYSICAL DAMAGE.
C. EMT FITTINGS SHALL BE COMPRESSION GLAND TYPE, OF MALLEABLE STEEL. CONNECTORS SHALL HAVE INSULATED THROATS. CAST, SET SCREW, OR INDENTER TYPE FITTINGS ARE NOT ACCEPTABLE. ALL FITTINGS FOR EMT SHALL BE MADE OF STEEL.
D. ALL RACEWAY SHALL BE RUN CONCEALED, UNLESS OTHERWISE NOTED. FISH ALL NEW OUTLETS IN EXISTING WALLS, WHERE POSSIBLE. ALL RUNS SHALL BE NEAT AND SQUARE.
E. LOW VOLTAGE CABLING NOT SPECIFIED TO BE INSTALLED IN CONDUIT, SHALL BE INSTALLED IN A CABLE TRAY SYSTEM OR J-HOOK SYSTEM CONSISTING OF MINIMUM 2" DIAMETER HOOKS LOCATED ON 3'-0" CENTERS IN ALL ACCESSIBLE CEILINGS. WHERE THERE ARE INACCESSIBLE CEILINGS, PROVIDE CONDUIT FOR ENTIRE LENGTH OF INACCESSIBILITY.
F. RACEWAYS USED FOR LOW VOLTAGE SYSTEMS SUCH AS TELECOMMUNICATIONS, FIRE ALARM, SECURITY, CCTV, CONTROLS, AND SIMILAR CONDUITS ABOVE THE CEILING AND BACKBOARD(S) SHALL BE PROVIDED WITH INSULATED THROAT BUSHINGS AT EACH CONDUIT TERMINATION. THESE BUSHINGS SHALL BE INSTALLED PRIOR TO PULLING LOW-VOLTAGE CABLES.
G. RACEWAY PENETRATIONS THROUGH FLOOR SLABS AND FIRE-RATED WALLS SHALL BE FILLED WITH IMPERVIOUS, NON-SHRINK GROUT SUFFICIENTLY TIGHT TO PREVENT THE TRANSFER OF SMOKE, WATER, AND DUST. ROOF PENETRATIONS SHALL BE WITHIN THE EQUIPMENT ROOF CURB.
H. SUPPORT ALL CONDUIT WITH STRAPS AND CLAMPS.
I. ALL CONDUIT SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES, WHETHER EXPOSED OR NOT AND SUPPORTED FROM STRUCTURE AND PROPERLY SECURED.
J. WHERE CONDUITS PASS THROUGH A BUILDING EXPANSION JOINT, PROVIDE GALVANIZED EXPANSION FITTINGS WITH BONDING JUMPERS.
K. MINIMUM CONDUIT SIZE SHALL BE 3/4" FOR INTERIOR WORK, 1" FOR EXTERIOR WORK.
L. PROVIDE MINIMUM 210# TEST NYLON PULL CORD AND NYLON BUSHINGS IN ALL EMPTY RACEWAYS.
M. LIQUID-TIGHT METAL CONDUIT SHALL ONLY BE USED FOR FINAL CONNECTIONS TO EQUIPMENT AND ALL OTHER ROTATING AND VIBRATING EQUIPMENT, MAXIMUM LENGTH OF 3'-0".
N. FLEXIBLE METAL CONDUIT, MINIMUM SIZE 3/8", SHALL ONLY BE USED FOR FINAL CONNECTION TO LIGHTING FIXTURES, MAXIMUM LENGTH OF 6'-0".
O. PROVIDE PULL BOXES, SUCH THAT NO SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 360°. PULL BOXES SHALL BE SUITABLE AND APPROVED FOR THE INTENDED USE. WHERE CONDUITS PASS UNDER PAVED AREAS, THEY SHALL BE RGS.
P. ALL CONDUIT BENDS/ELBOWS EMERGING FROM UNDERGROUND SHALL BE IMC AND SHALL EXTEND A MINIMUM OF 18" BELOW GRADE.
Q. ALL UNDERGROUND RACEWAYS SHALL BE THOROUGHLY COATED WITH TWO COATS OF ASPHALTUM BITUMASTIC.
R. ALL CONDUITS INSTALLED UNDERGROUND OR IN CONCRETE SHALL HAVE JOINTS MADE WATERTIGHT BY USE OF POLYETRA-FLUOROETHYLENE TAPE.
S. THE USE OF AC OR NM CABLE IS NOT PERMITTED.
T. MC CABLE MAY ONLY BE UTILIZED WHERE PERMITTED BY CODE AND IT SHALL ONLY BE ALLOWED WHERE CONCEALED BEHIND HARD WALLS AND HARD CEILINGS. MC CABLE SHALL NOT BE EXPOSED.

3. OUTLET BOXES:

A. JUNCTION AND PULL BOXES SHALL BE CODE GAUGE GALVANIZED STEEL. ACCEPTED MANUFACTURERS SHALL BE STEEL CITY (THOMAS & BETTS), RACO, CROUSE-HINDS, APPLETON (EMERSON), OR APPROVED EQUIVALENT.
B. OUTLET BOXES SHALL NOT BE MOUNTED BACK TO BACK IN COMMON WALLS.
C. ATTACH EMT WITH CONNECTORS HAVING INSULATED THROAT.
D. ATTACH BOXES TO STUD WORK USING CADDY BAR STRAPS THAT CONNECT TO TWO ADJACENT METAL STUDS TO PREVENT TWISTING OF BOX IN WALL.
E. ALL OUTLET BOXES (INCLUDING TELEPHONE, CABLE TV, AND COMPUTER) SHALL HAVE COVER PLATES, BLANK IF NOT USED.
F. ALL EXTERIOR BOXES SHALL BE WATER-TIGHT.

4. CONDUCTORS:

A. CONDUCTORS SHALL BE MANUFACTURED BY SOUTHWIRE (SIMPULL), ENCORE (SUPERSLICK), UNITED COPPER (SLK), CERRO (SLP), OR APPROVED EQUAL, "PRE-LUBRICATED" BY THE MANUFACTURER.
B. ALL CONDUCTORS SHALL BE COPPER, RATED 75° C WET/DRY EXCEPT WHERE OTHERWISE NOTED OR REQUIRED BY U.L. OR OTHER CODES.
C. ALL CONDUCTORS SHALL BE SINGLE INSULATED CONDUCTOR, THHN/THWN-2. SIZES #10 AWG AND SMALLER SHALL BE SOLID, SIZES #8 AWG AND LARGER SHALL BE STRANDED.
D. BRANCH CIRCUITS SHALL NOT BE SMALLER THAN #12 AWG. CONTROL WIRING MAY BE #14 AWG.
E. CONDUCTORS SHALL BE COLOR CODED BLACK/RED/BLUE FOR 120/208 VOLT SYSTEMS AND BROWN/ORANGE/YELLOW FOR 277/480 VOLT SYSTEMS FOR A, B, AND C PHASES, RESPECTIVELY. NEUTRAL SHALL BE WHITE FOR 120/208 VOLT SYSTEMS AND NATURAL GRAY FOR 277/480 VOLT SYSTEMS. GROUND CONDUCTOR SHALL BE GREEN ON ALL SYSTEMS. ALL CONDUCTOR SIZES SHALL HAVE COLOR-CODED INSULATION. THE USE OF COLORED TAPE ON LARGER WIRE SIZES SHALL NOT BE ALLOWED.
F. INSULATION SHALL BE DUAL RATED TYPE THHN/THWN-2 FOR FEEDERS AND BRANCH CIRCUITS. FIXTURE TAPS SHALL BE #12 THHN/THWN-2 IN FLEX WITH GREEN #12 AWG GROUNDING CONDUCTOR.
G. ALL CONDUCTORS SHALL BE IN CONDUIT.
H. WIRING TO LIGHTING FIXTURES SHALL BE AS REQUIRED BY UL LABEL.
I. MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE ALLOWED, UNLESS EXPLICITLY INDICATED ON THE DRAWINGS. WHERE EXPLICITLY INDICATED ON THE DRAWINGS:
   a. ALL 20A MULTI-WIRE RECEPTACLE CIRCUITS SHALL UTILIZE A #10 AWG NEUTRAL CONDUCTOR.
J. JOINTS IN #10 AWG AND SMALLER SHALL BE MADE UP WITH CRIMPED CONNECTORS WITH INSULATING CAPS (NO TAPE) OR WIRENUTS (MAXIMUM OF 3 CONDUCTORS UNDER ANY CONNECTOR OR WIRENUT). LARGER WIRE SHALL USE SPLIT BOLTS OR BOLTED CLAMPS.
K. ALL WIRING LUGS THROUGHOUT THE PROJECT, INCLUDING, BUT NOT LIMITED TO, BREAKERS, PANELBOARD/SWITCHBOARD LUGS, SAFETY SWITCH LUGS, MOTOR STARTER LUGS, TRANSFORMERS LUGS, WIRING DEVICE TERMINALS, AND ALL EQUIPMENT LUGS/TERMINALS SHALL BE RATED FOR USE WITH 75 DEGREE INSULATED CONDUCTORS AT THEIR 75 DEGREE AMPACITY AND SHALL BE SIZED AND SELECTED TO MATCH THE CONDUCTOR SIZE AND MATERIAL.
L. CIRCUIT JOINTS SHALL NOT BE MADE ON DEVICE TERMINALS.
M. WIRE WITHIN PANELBOARDS SHALL BE NEATLY TRAINED, SQUARED, BUNCHED, AND TAGGED.
N. ALL SYSTEM FURNITURE CONNECTIONS SHALL COMPLY WITH NEC 605.
O. GROUND ALL EQUIPMENT PER NEC ARTICLE 250. BOND WHERE CONDUITS ENTER ENCLOSURES THROUGH CONCENTRIC KNOCKOUTS. ALL FLEX, INCLUDING FIXTURE TAPS, SHALL INCLUDE GREEN GROUNDING CONDUCTOR, #12 AWG MINIMUM. PROVIDE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN EACH CONDUIT AND FOR EACH CIRCUIT, SIZED PER NEC 250-122.
P. ALL CONDUCTORS INSTALLED IN VERTICAL RACEWAYS SHALL BE SUPPORTED AT INTERVALS AS REQUIRED PER NEC 300-19.
Q. THE ELECTRICAL CONTRACTOR SHALL FOLLOW AND APPLY THE TABLE BELOW, REGARDLESS WHAT THE PANEL SCHEDULE INDICATES, FOR SIZING ALL 120V & 277V, 20 AMP BRANCH CIRCUITS (COPPER CONDUCTORS) TO ALLOW A MAXIMUM OF 3% VOLTAGE DROP FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE ON THE BRANCH CIRCUIT AND ACHIEVE A MAXIMUM OF 5% VOLTAGE DROP ACROSS THE ENTIRE BRANCH CIRCUIT:

VOLTAGE	CONDUCTOR LENGTH *	BRANCH CIRCUIT
120	0' - 50'	#12
120	51' - 90'	#10
120	91' - 140'	#8
120	141' - 255'	#6
277	0' - 125'	#12
277	126' - 200'	#10
277	201' - 330'	#8
277	331' - 525'	#6

* - THE LENGTH IS MEASURED FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE WHICH THE BRANCH CIRCUIT SERVES. WHERE THE DISTANCE EXCEEDS ABOVE, CONSULT WITH THE ENGINEER.

R. ALL BRANCH CIRCUIT CONDUCTORS FROM ISOLATED POWER SOURCES SHALL BE INSTALLED IN IMC CONDUIT AND SHALL BE TYPE XHHW-2, COLOR CODED ORANGE FOR CONDUCTOR #1, BROWN FOR CONDUCTOR #2, AND YELLOW FOR CONDUCTOR #3.

5. WIRING DEVICES:

A. WIRING DEVICES SHALL BE SPECIFICATION GRADE, MINIMUM, EQUAL TO COOPER QUALITY INDICATED BELOW OR AS MANUFACTURED BY HUBBELL, LEGRAND-PASS & SEYMOUR, LEVITON, OR APPROVED EQUAL, UNLESS OTHERWISE NOTED:

SWITCHES (120/277V) SHALL BE AS FOLLOWS:

SINGLE-POLE 20 AMP	COOPER AH1221
DOUBLE-POLE 20 AMP	COOPER AH1222
THREE-WAY 20 AMP	COOPER AH1223
FOUR-WAY 20 AMP	COOPER AH1224
SINGLE-POLE-PILOT 20 AMP	COOPER AH1221PL
DOUBLE-POLE-PILOT 20 AMP	COOPER AH1222PL
THREE-WAY-PILOT 20 AMP	COOPER AH1223PL
SINGLE-POLE-KEY 20 AMP	COOPER AH1221L
DOUBLE-POLE-KEY 20 AMP	COOPER AH1222L
THREE-WAY-KEY 20 AMP	COOPER AH1223L
FOUR-WAY-KEY 20 AMP	COOPER AH1224L

DUPLEX RECEPTACLES SHALL HAVE A NYLON FACE AND SHALL BE AS FOLLOWS:

15 AMP DUPLEX	COOPER 5252
20 AMP DUPLEX	COOPER 5352
15 AMP DUPLEX GFCI	COOPER SGF15F
20 AMP DUPLEX GFCI	COOPER SGF20F
15 AMP DUPLEX TAMPER	COOPER TR5262
20 AMP DUPLEX TAMPER	COOPER TR5362
15 AMP DUPLEX GFCI-TAMPER	COOPER TRSGF15F
20 AMP DUPLEX GFCI-TAMPER	COOPER TRSGF20F

THE PART NUMBERS ABOVE ARE FOR WIRING DEVICE TYPE ONLY. SEE BELOW FOR WIRING DEVICE COLOR AND PLATE MATERIAL/COLOR.

B. SEE MOUNTING HEIGHT ELEVATION DETAIL FOR STANDARD MOUNTING HEIGHTS OF ALL DEVICES, UNLESS OTHERWISE NOTED.
C. ALL WIRING DEVICES (SWITCHES AND RECEPTACLES) SHALL BE GRAY, UNLESS OTHERWISE NOTED. ALL COVER PLATES SHALL BE 302 STAINLESS STEEL. COVER PLATES IN MASONRY WALLS SHALL BE OVERSIZE TYPE.
D. ALL WIRING DEVICES FED FROM THE EMERGENCY POWER SYSTEM SHALL BE RED.
E. ALL WIRING DEVICES FED FROM A UPS SOURCE SHALL BE BLUE.
F. EACH DUPLEX RECEPTACLE INDICATED TO BE ON A DEDICATED CIRCUIT SHALL BE 20 AMP TYPE.
G. ADJACENT DEVICES SHALL HAVE A COMMON WALL PLATE.
H. WEATHERPROOF COVERS SHALL BE "WHILE-IN-USE" AND EXTRA-DUTY RATED SO PLUGS MAY BE INSTALLED WITHOUT COMPROMISING THE WP FUNCTION. COOPER #WIU-2 DOUBLE-GANG WITH CLEAR COVER OR APPROVED EQUAL.
I. A MAXIMUM OF 10 GENERAL PURPOSE RECEPTACLES SHALL BE ON EACH BRANCH CIRCUIT.
J. DIMMERS SHALL BE LINEAR SLIDE, PRESENT ON/OFF, SQUARE LAW DIMMING, W/RFI FILTERING AND VOLTAGE COMPENSATION CIRCUITING.
K. ALL WALL MOUNTED OCCUPANCY/VACANCY SENSORS/SWITCHES SHALL BE INSTALLED WITH AN EQUIPMENT GROUNDING CONDUCTOR.
L. GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL SHALL BE PROVIDED FOR ALL LOCATIONS PER NEC 210.8, INSTALLED IN A READILY ACCESSIBLE LOCATION. WHERE A DEVICE LOCATION IS NOT ACCESSIBLE, THE GFCI PROTECTION SHALL BE PROVIDED WITH THE BREAKER SERVING THE DEVICE.
M. ALL GFCI RECEPTACLES SHALL HAVE AUTO-MONITORING / SELF-TEST FUNCTION AND REVERSE LINE-LOAD MISFIRE FUNCTION AND MEET ALL REQUIREMENTS OF UL 943 (LATEST EDITION).
N. TAMPER-RESISTANT RECEPTACLES SHALL BE PROVIDED FOR ALL AREAS PER NEC 406.12, INCLUDING DWELLING UNITS, ATTACHED AND DETACHED GARAGES AND ACCESSORY BUILDINGS TO DWELLING UNITS, COMMON AREAS OF MULTIFAMILY DWELLINGS, GUEST ROOMS/GUEST SUITES/COMMON AREAS OF HOTELS AND MOTELS, CHILD-CARE FACILITIES, PRESCHOOL AND EDUCATION FACILITIES, BUSINESS OFFICES/CORRIDORS/WAITING ROOMS AND THE LIKE IN CLINICS/MEDICAL/DENTAL OFFICES AND OUTPATIENT FACILITIES, ASSEMBLY OCCUPANCIES INCLUDING PLACES OF AWAITING TRANSPORTATION/GYMNASIUMS/SKATING RINKS/AUDITORIUMS, DORMITORIES/STUDENT HOUSING, AND ASSISTED LIVING FACILITIES.

6. SUPPORTS:

A. ALL EQUIPMENT SHALL BE ADEQUATELY SUPPORTED FROM STRUCTURE.
B. INSERTS IN MASONRY SHALL BE LEAD OR FIBER IN DRILLED HOLES, OR CAST IN PLACE.
C. NAILS OR POWDER ACTUATED FASTENERS SHALL NOT BE USED.
D. EMT/IMC/RGS SUPPORTS SHALL BE A MAXIMUM OF 8'-0" APART AND A MAXIMUM OF 3'-0" FROM BOXES.
E. LIGHTING FIXTURES MOUNTED IN OR ON CEILING SHALL BE SUPPORTED FROM STRUCTURE VIA 12 GAUGE STEEL WIRE. PROVIDE A MINIMUM OF FOUR WIRES, ONE ATTACHED TO EACH CORNER OF LAY-IN FIXTURES. RECESSED DOWNLIGHT FIXTURES SHALL BE SUPPORTED THE SAME. DO NOT SUPPORT RACEWAY OR FIXTURES FROM CEILING GRID OR DUCT WORK. USE U.L. LISTED GRID CLIPS ON ALL LAY-IN FIXTURES.

7. PAINTING:

A. SUITABLE FINISH COAT SHALL BE PROVIDED FOR ALL EQUIPMENT. PANEL TUBS, COVERS, ETC. SHALL BE PRIMED AND ENAMELED TO BLEND WITH ADJACENT SURFACES, OR SHALL BE MANUFACTURER'S STANDARD COLOR BAKED ENAMEL FINISH, OR AS DIRECTED BY THE ARCHITECT.
B. CONTRACTOR TO PAINT WHERE EXISTING EXPOSED PANELBOARDS, SURFACE RACEWAY, SURFACE BOXES, ETC. HAVE BEEN REMOVED DURING THE DEMOLITION PHASE, EITHER FOR TEMPORARY WORK OR PERMANENTLY.

8. LIGHTING FIXTURES:

A. TYPES AND MANUFACTURERS ARE SCHEDULED ON THE PLANS. EQUIVALENT FIXTURES BY OTHERS MAY BE SUBMITTED ONLY AS INDICATED ON THE PLANS AND ARE SUBJECT TO THE APPROVAL OF THE OWNER AND ENGINEER.
B. ALL FIXTURES SHALL BE U.L. LISTED AND LABELED.
C. LED DRIVERS AND/OR BALLASTS SHALL BE AS INDICATED IN THE LIGHTING FIXTURE SCHEDULE OR AS OTHERWISE NOTED.
D. ALL FIXTURES SHALL BE PROVIDED FOR PROPER VOLTAGE BASED ON THE CIRCUIT ASSIGNMENT INDICATED ON THE PLANS.
E. CATALOG NUMBERS ARE FOR GENERAL IDENTIFICATION OF FIXTURES ONLY. ALL RELATED PARTS, SUCH AS PLASTER RINGS, JUNCTION BOXES, LOUVERS, SHIELDS, MOUNTING STEMS, CANOPIES, CONNECTORS, STRAPS, NIPPLES, HARDWARE, ACCESSORIES, ETC., TO FIT THEM PROPERLY TO THE CONSTRUCTION, SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. CONTRACTOR SHALL PROVIDE SUITABLE TRIM AND APPURTENANCES TO MOUNT FIXTURES IN TYPE OF CEILING OR WALL AS SPECIFIED IN ARCHITECTURAL FINISH SCHEDULES REGARDLESS OF CATALOG NUMBER GIVEN.
F. ALL FIXTURES SHALL BE GROUNDED PER THE NEC.
G. FIXTURES CONNECTED WITH FLEX TO THE RIGID RACEWAY PORTION OF THE WIRING SYSTEM SHALL CARRY A GREEN BONDING JUMPER WITHIN THE FLEX. THE JUMPER SHALL BE FASTENED TO BOTH THE FIXTURE AND THE RACEWAY SYSTEM WITH A STEEL CITY "G" CLIP OR APPROVED EQUIVALENT. PHASE AND GROUND CONDUCTORS RUN IN FLEX SHALL BE #12 AWG MINIMUM. MAXIMUM FLEX LENGTH SHALL BE 6'-0".
H. MOUNT ALL FIXTURES PLUMB AND SQUARE WITH ROWS ALIGNED.
I. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF FIXTURES.
J. CONTRACTOR SHALL COORDINATE FIXTURE TYPE AND TRIM WITH CEILING CONSTRUCTION AND ADJUST ACCORDINGLY WITHOUT ADDITIONAL EXPENSE.
K. ALL LIGHTING FIXTURES SHALL BE THERMALLY PROTECTED PER THE NEC.
L. SURFACE-MOUNTED FIXTURES INSTALLED ON COMBUSTIBLE MATERIAL SHALL BE MOUNTED AT LEAST 1/4" FROM THE SURFACE OF THE MATERIAL, EXCEPT FOR FIXTURES WHICH ARE PLAINLY MARKED AS U.L. APPROVED FOR MOUNTING DIRECTLY TO SUCH SURFACES.
M. FIXTURES IN CONTACT WITH INSULATION SHALL BE IC RATED.
N. FOR RECESSED LIGHTING FIXTURES IN FIRE RATED CEILINGS, PROVIDE A MANUFACTURER APPROVED AND LISTED FIRE RATED COVER/ASSEMBLY OVER THE FIXTURE TO MAINTAIN THE INTEGRITY OF THE CEILING FIRE RATING. ANY LIGHTING FIXTURES INSTALLED UNDER THE FIRE RATED CAP SHALL BE SUITABLE FOR THE INSTALLATION.

9. LIGHTING CONTROLS:

A. FURNISH AND INSTALL WHERE SHOWN AN ELECTRONIC TIME CONTROLLER AS MANUFACTURED BY TORK (NSI), PARAGON, INTERMATIC, OR APPROVED EQUAL. CONTACTS SHALL BE SPST OR AS INDICATED, RATED 120/277V AT 20A BALLAST LOAD, AND MINIMUM 30,000 SWITCHING CYCLES. PROVIDE WITH THE NUMBER OF CHANNELS INDICATED (MINIMUM 2 CHANNELS) OR AS REQUIRED TO MEET THE INTENT OF THE DRAWINGS. EACH CHANNEL SHALL BE INDIVIDUALLY PROGRAMMABLE WITH 128 ON-OFF OPERATIONS PER WEEK PLUS FOUR SEASONAL SCHEDULES TO MODIFY THE BASIC PROGRAM AND A HOLIDAY SCHEDULE THAT OVERRIDES THE WEEKLY OPERATION. THE CONTROLLER SHALL BE PROVIDED WITH A PHOTOELECTRIC SENSOR, ASTRONOMIC DIAL, AND A BATTERY BACKED-UP, NON-VOLATILE MEMORY FOR SCHEDULES AND TIME CLOCK.
B. LIGHTING CONTACTORS SHALL SWITCH LOADS AT THE VOLTAGE AND AMPERE RATING INDICATED AND SHALL HAVE THE NUMBER OF POLES INDICATED ON THE DRAWINGS OR AS REQUIRED. THE CONTACTOR AND CONTACTS SHALL BE CONTINUOUSLY RATED FOR THE LOAD SERVED, INCLUDING TUNGSTEN FILAMENT, INDUCTIVE, AND HIGH-INRUSH BALLAST LOADS.
C. ALL LIGHTING CONTACTORS SHALL BE ELECTRICALLY HELD AND BE INSTALLED IN A NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.

10. EQUIPMENT IDENTIFICATION:

A. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL ELECTRICAL EQUIPMENT SUPPLIED FOR THE PROJECT, INCLUDING BUT NOT LIMITED TO, WIRING TROUGHS, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, SWITCHBOARDS, SWITCHGEARS, MOTOR CONTROL CENTERS (MCC), BUSWAYS, GENERATORS, AUTOMATIC TRANSFER SWITCHES (ATS), UNINTERRUPTIBLE POWER SUPPLY (UPS), POWER DISTRIBUTION UNITS (PDU), FLOOR/REMOTE DISTRIBUTION CABINETS (FDC/RDC), STATIC TRANSFER SWITCHES (STS), ETC. NAMEPLATE SHALL INDICATE THE DEVICE NAME, SYSTEM VOLTAGE (VOLTAGE/PHASE/WIRE), AND UPSTREAM DEVICE AND CIRCUIT. PROVIDE NAMEPLATES FOR CIRCUIT BREAKERS IN SWITCHGEARS, SWITCHBOARDS AND DISTRIBUTION PANELS.
B. NAMEPLATE COLORS SHALL BE AS FOLLOWS:

120/208V EQUIPMENT	BLUE SURFACE WITH WHITE CORE
277/480V EQUIPMENT	BLACK SURFACE WITH WHITE CORE
EMERGENCY SYSTEMS	GREEN SURFACE WITH WHITE CORE
FIRE ALARM SYSTEMS	BRIGHT RED SURFACE WITH WHITE CORE
SECURITY SYSTEMS	BURGUNDY SURFACE WITH WHITE CORE
TELEPHONE SYSTEMS	ORANGE SURFACE WITH WHITE CORE
DATA SYSTEMS	BROWN SURFACE WITH WHITE CORE
TV SYSTEMS	PURPLE SURFACE WITH WHITE CORE
PAGING SYSTEMS	WHITE SURFACE WITH BLACK CORE

C. NAMEPLATES UP TO 8 SQUARE INCHES SHALL NOT BE LESS THAN 1/16" THICK. NAMEPLATES LARGER THAN 8 SQUARE INCHES SHALL NOT LESS THAN 1/8" THICK.
D. LETTERING HEIGHT SHALL BE 1/2" MINIMUM.
E. NAMEPLATES SHALL BE ATTACHED WITH SELF-DRILLING/SELF-TAPPING SCREWS, EXCEPT RIVETS SHALL BE USED WHERE END OF SCREW IS NOT PROTECTED. QUANTITY AS FOLLOWS:

UP TO 5 SQUARE INCHES:	2 SCREWS
5 TO 12 SQUARE INCHES:	4 SCREWS
ABOVE 12 SQUARE INCHES:	6 SCREWS

11. DISCONNECTS:

A. DISCONNECT SWITCHES SHALL BE HEAVY-DUTY TYPE IN NEMA 1 ENCLOSURES, UNLESS OTHERWISE NOTED, FUSED OR NON-FUSED AS INDICATED. SWITCHES SHALL HAVE REJECTION-TYPE FUSE CLIPS. SWITCHES SHALL BE BY EATON, SQUARE-D, GENERAL ELECTRIC, OR APPROVED EQUAL. WHERE FED FROM A LOAD CENTER, GENERAL-DUTY SWITCHES SHALL BE PERMITTED.
B. FUSES LESS THAN 60A SHALL BE CLASS RK5, DUAL-ELEMENT, TIME-DELAY WITH INDICATION
C. FUSES GREATER THAN 60A SHALL BE CLASS J, DUAL-ELEMENT, TIME-DELAY WITH INDICATION.
D. A SET OF 3 SPARE FUSES OF EACH SIZE AND TYPE SHALL BE FURNISHED TO THE OWNER.
E. ALL ELECTRICAL EQUIPMENT ENCLOSURES IN POOL EQUIPMENT ROOM, CHLORINE, AND ACID ROOMS SHALL BE NEMA-4X STAINLESS STEEL OR NON-METALLIC, WET-LOCATION LISTED AND LISTED TO RESIST CORROSION FROM POOL CHEMICALS.

13. PANELBOARDS:

A. PANELBOARDS SHALL BE PROVIDED AS MANUFACTURED BY EATON, SQUARE-D, GENERAL ELECTRIC, OR APPROVED EQUAL. ALL NEW EQUIPMENT FOR THE PROJECT SHALL BE BY THE SAME MANUFACTURER. LOAD CENTER TYPE PANELBOARDS SHALL BE USED WHERE THE PANELBOARD SERVES A DWELLING UNIT.
B. ALL BUSSING, INCLUDING NEUTRAL AND GROUND, SHALL BE COPPER.
C. ALL BREAKERS SHALL BE AUTOMATIC THERMAL-MAGNETIC TYPE MOLDED CASE BOLT-ON TYPE, CALIBRATED FOR 40 DEGREE C, OR AMBIENT COMPENSATION, UNLESS OTHERWISE NOTED.
D. PANELS SHALL BE FULLY RATED (AIC). NO SERIES AIC RATINGS ARE ALLOWED.
E. PANELS SHALL HAVE FULL SIZE EQUIPMENT GROUNDING BARS AND NEUTRAL BARS, EXCEPT WHERE INDICATED TO BE 200%.
F. ALL PANELBOARD AND BREAKER LUGS SHALL BE SIZED AND RATED PER THE CONDUCTOR SIZE AND MATERIAL.
G. LIGHTING AND APPLIANCE PANELS (100A-600A) SHALL HAVE FRONT ACCESSIBLE HINGED DOOR-IN-DOOR COVERS WITH DEAD FRONT, SHALL BE 20" WIDE MINIMUM WITH MINIMUM 4" WIDE WIRING GUTTERS.
H. DISTRIBUTION PANELS (600A-1200A) SHALL HAVE FRONT ACCESSIBLE DEAD FRONT COVERS.
I. PROVIDE HANDLE LOCK-ON DEVICES FOR ALL CIRCUIT BREAKERS CONNECTED TO EMERGENCY, EXIT, NIGHT LIGHTING, FIRE ALARM, TELEPHONE BOARDS, AND SECURITY SYSTEMS.
J. BREAKERS USED FOR SWITCHING SHALL BE SWITCHING DUTY (SWD) RATED.
K. BREAKERS USED FOR HEATING, AIR-CONDITIONING AND/OR REFRIGERATION SHALL BE HACR RATED.
L. GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL SHALL BE PROVIDED FOR ALL LOCATIONS PER NEC 210.8, INSTALLED IN A READILY ACCESSIBLE LOCATION. WHERE A DEVICE LOCATION IS NOT ACCESSIBLE, THE GFCI PROTECTION SHALL BE PROVIDED WITH THE BREAKER SERVING THE DEVICE.
M. ARC-FAULT CIRCUIT-INTERRUPTER (AFCI) PROTECTION SHALL BE PROVIDED FOR ALL LOCATIONS PER NEC 210.12, INSTALLED IN A READILY ACCESSIBLE LOCATION. THIS INCLUDES ALL 120V, 15A AND 20A BRANCH CIRCUITS IN DWELLING UNITS, DORMITORY/STUDENT HOUSING UNITS AND HOTEL/MOTEL GUEST ROOMS/SUITES AS DEFINED BY THE NEC.

14. PANELBOARDS:

N. ALL OVERCURRENT DEVICES WHICH COMPRISE THE EMERGENCY SYSTEM OR LEGALLY REQUIRED STANDBY SYSTEM SHALL BE SELECTIVELY COORDINATED. THE ELECTRICAL CONTRACTOR SHALL PROVIDE MANUFACTURER DOCUMENTATION INDICATING COMPLIANCE WITH THE SELECTIVE COORDINATION REQUIREMENTS PER THE NEC.
O. ALL PANELBOARDS SHALL HAVE METAL DIRECTORY FRAME. FOR EACH PANELBOARD, PROVIDE TYPED CIRCUIT DIRECTORY PER NEC 408.4. SPARE CIRCUIT BREAKERS SHALL BE LABELED SPARE AND IN THE OFF POSITION.
P. ALL CIRCUIT BREAKERS RATED 1200A OR HIGHER, OR CAPABLE OF BEING RATED 1200A OR HIGHER (I.E. ADJUSTABLE LONG-TIME PICKUP OR REPLACEABLE TRIP/RATING PLUG), SHALL BE PROVIDED WITH AN ENERGY-REDUCING MAINTENANCE SWITCH WITH LOCAL STATUS INDICATOR PER NEC 240.87(B). THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMANCE TESTING (PRIMARY CURRENT INJECTION OR OTHER APPROVED METHOD) AND DOCUMENTATION REQUIRED PER NEC 240.87(C).
Q. ALL ELECTRICAL EQUIPMENT ENCLOSURES IN POOL EQUIPMENT ROOM, CHLORINE, AND ACID ROOMS SHALL BE NEMA-4X STAINLESS STEEL OR NON-METALLIC, WET-LOCATION LISTED AND LISTED TO RESIST CORROSION FROM POOL CHEMICALS.
R. ALL GROUNDING TERMINAL BUSSES OF PANELBOARDS SERVING THE SAME PATIENT VICINITY SHALL BE BONDED TOGETHER WITH 1#10 AWG GREEN INSULATED COPPER GROUNDING CONDUCTOR. THE CONDUCTOR SHALL BE CONTINUOUS EXCEPT THAT IT MAY BE BROKEN AT THE PANELBOARD GROUND BAR IN ORDER TO TERMINATE.

15. FIRE ALARM SYSTEM:

A. SYSTEM SHALL BE A CENTRALIZED, ANALOG, ADDRESSABLE, FULLY ELECTRONICALLY SUPERVISED (INCLUDING AUXILIARY SYSTEMS INTERCONNECT WIRING) SYSTEM LISTED BY UL IN COMPLIANCE WITH ALL APPLICABLE NFPA 72 AND OTHER STANDARDS AS WELL AS THE AMERICAN'S WITH DISABILITIES ACT (ADA). ALL FINAL CONNECTIONS, TESTING AND ADJUSTMENTS SHALL BE PERFORMED BY OR UNDER DIRECT SUPERVISION OF AN AUTHORIZED FACTORY REPRESENTATIVE. SYSTEM SHALL BE SIMPLEX, NOTIFIER, SIEMENS, OR APPROVED EQUAL AS ACCEPTED BY THE ENGINEER. SYSTEM SHALL HAVE A 24HR MINIMUM BATTERY BACKUP.
B. INITIATING DEVICE ACTIVATION SHALL CAUSE OPERATION OF THE PROPER ALARM CIRCUIT IN THE CONTROL PANEL, AND OPERATE ALL AUDIBLE AND VISUAL INDICATING ALARMS. ALL AIR HANDLING UNITS SHALL BE STOPPED UPON ANY ALARM INPUT. EACH AIR HANDLER UNIT SHALL BE PROVIDED WITH A SYSTEM CONTROLLED RELAY TO EFFECT SHUTDOWN. ALL ALARM DEVICES AND LAMPS SHALL CONTINUE TO OPERATE UNTIL THE INITIATING DEVICE IS RESET. SUBSEQUENT ALARMS SHALL RESOUND THE SYSTEM. AN AUDIBLE AND VISUAL SIGNAL SHALL INDICATE SYSTEM TROUBLE. THE CONTROL PANEL SHALL PROVIDE FOR ACTIVATING A UL LISTED CENTRAL STATION SIGNAL FOR NOTIFYING THE FIRE DEPARTMENT.
C. MANUAL STATIONS SHALL BE NON-CODED, WITH PULL LEVER AND GLASS ROD, SEMI-FLUSH MOUNTED. COMBINATION LIGHT AND HORN SIGNALS SHALL BE FLUSH MOUNTED. WIRING SHALL BE IN CONDUIT AS PREVIOUSLY SPECIFIED, #14 AWG MINIMUM, THHN. ALL J-BOXES USED FOR THE FIRE ALARM SYSTEM SHALL BE PAINTED RED.
D. SPRINKLER SYSTEM TAMPER SWITCHES SHALL BE CONNECTED INTO A COMMON ZONE WHICH SHALL DISTINGUISH BETWEEN A CONDUIT FAULT AND A CLOSED VALVE. A CLOSED VALVE SHALL BE INDICATED AS AN ALARM CONDITION, BUT WILL NOT ACTIVATE THE AUDIO-VISUAL DEVICES AND SHALL CAUSE A SUPERVISORY SIGNAL TO BE TRANSMITTED TO THE CENTRAL STATION.
E. CONDUCTORS SHALL BE PLENUM-RATED AND INSTALLED IN CONDUIT AND INSTALLED IN COMPLIANCE WITH NFPA 70, ARTICLE 760; IN ADDITION TO WIRING METHODS 300.4.
F. ALL FIRE ALARM WIRING SHALL BE CLASS A *OR* B.
G. PROVIDE ALL REQUIRED MODULES, POWER EXTENDERS, PROGRAMMING, ETC. FOR A COMPLETE AND OPERATIONAL SYSTEM.
H. SUBMIT FIRE ALARM SHOP DRAWINGS CONSISTING OF PRODUCT DATA, TO THE ENGINEER AND FOR APPROVAL.
I. FILL OUT NFPA 72 CERTIFICATION REPORT AND SUBMIT TO ENGINEER AND AUTHORITY HAVING JURISDICTION.
J. WARRANTY - ALL WORK PERFORMED AND ALL MATERIALS AND EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE FREE FROM DEFECTS AND SHALL REMAIN SO FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE PROFESSIONAL ENGINEER AND/OR OWNER. THE FULL COST OF MAINTENANCE, LABOR, AND MATERIALS REQUIRED TO CORRECT ANY DEFECT DURING THIS ONE YEAR PERIOD SHALL BE IMMEDIATELY CORRECTED AT NO ADDITIONAL COST TO THE OWNER. ANY DEFECTS THAT RENDER THE SYSTEM INOPERATIVE SHALL BE REPAIRED WITHIN 24 HOURS OF THE OWNER NOTIFYING THE CONTRACTOR. OTHER DEFECTS SHALL BE REPAIRED WITHIN 48 HOURS OF THE OWNER NOTIFYING THE CONTRACTOR.
K. AUDIBLE DEVICES WITHIN SLEEPING ROOMS SHALL PROVIDE A SQUARE WAVE 520HZ TONE COMPATIBLE WITH NFPA 72 18.4.5.3.
L. PROVIDE ALL REPROGRAMMING AND/OR REWORK AND/OR REPLACEMENT OF EXISTING FIRE ALARM PANEL AS REQUIRED.
M. PROVIDE CARBON MONOXIDE SENSOR FOR ALL BUILDINGS WITH GAS FIRED APPLIANCES. INCLUDE AT SOURCE LOCATIONS OF CO PRODUCING APPLIANCES AND WITHIN ALL SLEEPING ROOMS. REPORT TO FACP AS SUPERVISORY SIGNAL.

16. FIRE STOPPING:

A. ALL PENETRATIONS OF RATED ASSEMBLIES SHALL BE SEALED WITH RATED MATERIALS MEETING ASTM E-814.
B. PROVIDE FIRESTOPPING DEVICE(S) OR SYSTEM(S) WHICH HAVE BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E-814. INSTALL THE DEVICE(S) OR SYSTEM(S) IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE THE APPROPRIATE DEVICE(S) OR SYSTEM(S) WITH AN 'F' RATING EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED.
C. DEVICE(S) AND/OR SYSTEM(S) SHALL BE BY HILTI, 3M OR EQUIVALENT.

17. SEISMIC:

A. THE ELECTRICAL CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PROVIDING SEISMIC SUPPORT AND BRACING OF ELECTRICAL COMPONENTS TO RESIST THE EFFECTS OF EARTHQUAKES ON THE ELECTRICAL SYSTEM AS WELL AS ANY REQUIRED SPECIAL INSPECTIONS BASED ON THE SPECIFIC GEOGRAPHIC LOCATION AS REQUIRED. THE SEISMIC RESTRAINTS AND SPECIAL INSPECTIONS SHALL MEET ALL APPLICABLE STATE AND LOCAL BUILDING CODE REQUIREMENTS AS WELL AS ASCE-7 REQUIREMENTS.
B. THE ELECTRICAL CONTRACTOR SHALL RETAIN THE SERVICES OF A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA TO DESIGN SEISMIC RESTRAINT ELEMENTS REQUIRED FOR THIS PROJECT. THE ENGINEER'S COMPUTATIONS, BEARING HIS PROFESSIONAL SEAL, SHALL ACCOMPANY SHOP DRAWINGS WHICH SHOW COMPLIANCE WITH THE NORTH CAROLINA STATE BUILDING CODE.
C. THE ELECTRICAL CONTRACTOR SHALL INCLUDE SHOP DRAWINGS OF THE SPECIFIC METHODS OF SEISMIC RESTRAINT TO BE USED FOR THIS PROJECT PRIOR TO INSTALLATION OF ELECTRICAL EQUIPMENT AND SYSTEMS.
D. INTERNAL SEISMIC RESTRAINT ELEMENTS OF MANUFACTURED EQUIPMENT SHALL BE CERTIFIED BY A PROFESSIONAL ENGINEER RETAINED BY THE MANUFACTURER. SUCH CERTIFICATE APPLIES ONLY TO INTERNAL ELEMENTS OF THE EQUIPMENT. ALL EQUIPMENT ANCHORAGE REQUIREMENTS SHALL BE COORDINATED WITH THE BUILDING STRUCTURE AND SHALL BE COMPATIBLE THERETO. ALL SUCH ANCHORAGE SHALL BE REVIEWED BY THE PROJECT'S ELECTRICAL ENGINEER PRIOR TO INSTALLATION.
E. THE PROFESSIONAL ENGINEER RETAINED BY THE ELECTRICAL CONTRACTOR FOR SEISMIC RESTRAINT CALCULATIONS AND DESIGN SHALL VISIT THE JOB SITE UPON COMPLETION OF THE SEISMIC RESTRAINT INSTALLATION. THIS ENGINEER SHALL PROVIDE IN WRITING, VERIFICATION OF COMPLIANCE WITH THE APPROVED SEISMIC SUBMITTAL. THIS ENGINEER SHALL ALSO PERFORM ANY SPECIAL INSPECTIONS REQUIRED. THIS VERIFICATION SHALL BEAR THE ENGINEER'S PROFESSIONAL SEAL. JOB SITE INSPECTION BY OTHER THAN THIS ENGINEER IS NOT ACCEPTABLE. SEE CHAPTERS 16 AND 17 OF THE NORTH CAROLINA STATE BUILDING CODE.
F. REVIEW OF THE SEISMIC DESIGN AND SHOP DRAWINGS BY THE PROJECT'S ELECTRICAL ENGINEER, STRUCTURAL ENGINEER OR ARCHITECT SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY WITH SEISMIC AND OTHER REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE.

18. ELECTRICAL COORDINATION WITH OTHER TRADES:

A. THE ELECTRICAL CONTRACTOR SHALL CONNECT AND/OR PROVIDE FINAL CONNECTIONS TO ALL EQUIPMENT SUPPLIED BY OTHERS APPLICABLE TO THE PROJECT, INCLUDING BUT NOT LIMITED TO, MECHANICAL, PLUMBING, FIRE PROTECTION AND SUPPRESSION, OWNER FURNISHED, KITCHEN, LABORATORY, ETC. UNLESS OTHERWISE NOTED.
B. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONNECTIONS PRIOR TO ROUGH-IN USING APPROVED CATALOG SHEETS AND SHOP DRAWINGS.
C. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANUAL MOTOR STARTER SWITCHES, DISCONNECT SWITCHES, RECEPTACLES, ETC. TO MECHANICAL AND PLUMBING EQUIPMENT. ALL STARTERS, OTHER THAN MANUAL STARTER SWITCHES, SHALL BE PROVIDED BY OTHERS, BUT INSTALLED BY THE ELECTRICAL CONTRACTOR.
D. ALL DISCONNECT SWITCHES AND FUSE SIZES SHALL BE COORDINATED WITH SHOP DRAWINGS PRIOR TO ORDERING OR INSTALLING. ANY EQUIPMENT INSTALLED INCORRECTLY BECAUSE OF LACK OF COORDINATION WILL BE REMOVED AND INSTALLED CORRECTLY AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.
E. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT RUNS AND LIGHT FIXTURE LOCATIONS ABOVE THE CEILING WITH OTHER TRADES PRIOR TO INSTALLATION.
F. ALL DUCT SMOKE DETECTORS SHALL BE PROVIDED AND CONNECTED BY THE ELECTRICAL CONTRACTOR, BUT INSTALLED BY THE MECHANICAL CONTRACTOR.
G. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY OUTLETS FOR HEAT TAPE CONNECTIONS FOR MECHANICAL SYSTEMS. PROVIDE CLASS B (30mA) GFCI PROTECTION ON THE BREAKER SUPPLYING THE HEAT TAPE.
H. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 120V POWER AT EACH HVAC UNIT HAVING A CONTROLS POWER SUPPLY. CIRCUIT(S) SHALL BE DEDICATED 20A SERVING A MAXIMUM OF 10 HVAC UNITS PER CIRCUIT. COORDINATE ALL LOCATIONS WITH THE MECHANICAL CONTRACTOR.

19. COORDINATION DRAWINGS:

A. THE MECHANICAL CONTRACTOR SHALL ORGANIZE COORDINATION MEETINGS TO DEVELOP A SET OF DRAWINGS WITH ALL CONTRACTORS (ELECTRICAL, MECHANICAL, PLUMBING, FIRE PROTECTION, IT/DATA, SECURITY AND GENERAL). THE MECHANICAL CONTRACTOR WILL HAVE THE LEAD RESPONSIBILITY FOR THE COORDINATION DRAWINGS. THE MECHANICAL CONTRACTOR SHALL PRODUCE THE ORIGINAL DRAWINGS AND FORWARD THE DRAWINGS TO EACH OF THE OTHER CONTRACTORS FOR THEM TO ADD THEIR SYSTEMS TO THIS SET OF COORDINATION DRAWINGS. THE CONTRACTORS WILL DEVELOP THE DRAWINGS IN THIS ORDER: MECHANICAL, FIRE PROTECTION, PLUMBING, ELECTRICAL, IT/DATA (INCLUDING CABLE TRAY), SECURITY, AND GENERAL. THIS SHALL ALSO BE THE ORDER OF PRECEDENCE FOR INSTALLATION OF SYSTEMS. ANY RELOCATION OF SYSTEM ROUTINGS WILL BE FOUND IN THE COORDINATION PHASE AND NOTICED BY EACH OF THE CONTRACTORS. THESE DRAWINGS, WHEN COMPLETED, SHALL BE SIGNED OFF BY ALL OF THE ABOVE LISTED PARTIES. DRAWINGS SHALL BE COMPLETED PRIOR TO PURCHASE, FABRICATION OR INSTALLATION OF EQUIPMENT AND/OR SYSTEMS. THE FOLLOWING ITEMS REPRESENT THE MINIMUM REQUIREMENTS FOR SHOP DRAWINGS AND COORDINATION DRAWINGS:
   1. ALL SHOP AND COORDINATION DRAWINGS WILL BE 1/4"=1'-0" SCALE.
   2. DRAWINGS WILL BE ORIGINAL DRAWINGS AND NOT OVERLAYS OF THE CONTRACT/DESIGN DRAWINGS.
   3. COORDINATION DRAWINGS WILL BE DRAWN ON REPRODUCIBLE MATERIAL 48"x36".
   4. COORDINATION DRAWINGS ARE NOT SHOP DRAWINGS AND ARE REQUIRED IN ADDITION TO SHOP DRAWINGS.
   5. ONCE THE COMPLETE COORDINATION DRAWINGS HAVE BEEN COMPILED, THE MECHANICAL CONTRACTOR WILL DISTRIBUTE ONE SIGNED SET TO EACH OF THE FOLLOWING CONTRACTORS: ELECTRICAL, PLUMBING, FIRE PROTECTION, IT/DATA, AND GENERAL. ADDITIONAL SETS WILL BE SENT TO THE OWNER, ARCHITECT, AND ENGINEER.

20. TESTING AND DOCUMENTATION:

A. THE ELECTRICAL CONTRACTOR SHALL ENGAGE THE GEAR MANUFACTURER OR ANOTHER INDEPENDENT 3RD PARTY TO PROVIDE A COMPLETE FAULT CURRENT, COORDINATION, AND ARC-FLASH HAZARD ANALYSIS STUDY AND REPORT, COMPLETE WITH ARC-FLASH HAZARD LABELS FOR ALL EQUIPMENT.
B. TESTING AND DOCUMENTATION SHALL BE PROVIDED AS FOLLOWS:
   1. ALL CONDUCTORS SHALL BE MEGGERED BEFORE FINAL CONNECTIONS.
   2. THE GROUND SYSTEM SHALL BE TESTED AND VERIFIED TO BE 25 OHMS OR LESS RESISTANCE-TO-GROUND.
   3. A PRIMARY INJECTION TEST SHALL BE PERFORMED ON ALL CIRCUIT BREAKERS RATED 225A OR HIGHER.
   4. GFCI EQUIPPED BREAKERS SHALL BE PERFORMANCE TESTED.
   5. LIGHTING CONTROL SYSTEMS SHALL BE TESTED FOR PROPER OPERATION OF SETPOINTS.
   6. GENERATOR TESTING SHALL INCLUDE AN 8-HOUR, 100% LOAD BANK AND TRANSIENT TESTING. POWER QUALITY ANALYZERS SHALL BE USED FOR WAVEFORM CAPTURE AND TRANSIENT RESPONSE DOCUMENTATION.
   7. UPS TESTING SHALL INCLUDE AN 8-HOUR, 100% LOAD BANK, TRANSIENT TESTING, AND BATTERY DISCHARGE TESTING. POWER QUALITY ANALYZERS SHALL BE USED FOR WAVEFORM CAPTURE AND TRANSIENT RESPONSE DOCUMENTATION.
   8. ATS TESTING SHALL INCLUDE TRANSFER FUNCTIONS, VERIFICATION OF TIMER/PICKUP/DROP-OUT SETPOINTS AND LOAD/NO-LOAD TEST OPERATION.

21. COMMISSIONING:

A. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR EQUIPMENT/SYSTEM START-UP AND TESTING. THE ELECTRICAL CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR EQUIPMENT/SYSTEM COMMISSIONING AS DIRECTED BY THE COMMISSIONING AUTHORITY (CxA). THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE COMMISSIONING AUTHORITY AND PROVIDE ALL NECESSARY TIME, EQUIPMENT, MATERIALS, AND PROCEDURES REQUIRED FOR A FULLY COMMISSIONED PROJECT.
B. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR SYSTEM COMMISSIONING PER 2018 NCECC SECTION C408. WHERE INDEPENDENT COMMISSIONING AGENT IS NOT ENGAGED BY THE OWNER, THE EC SHALL HIRE A REGISTERED DESIGN PROFESSIONAL (ENGINEER SEALED IN N.C. OR CERTIFIED COMMISSIONING PROFESSIONAL) TO PERFORM THE COMMISSIONING DUTIES DESCRIBED IN SECTION C408, AND PROVIDE THE OWNER AND CODE OFFICIAL WITH A SEALED STATEMENT OF COMPLETION (APPENDIX C1). THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE COMMISSIONING AGENT AND PROVIDE ALL NECESSARY TIME, MATERIALS, AND PROCEDURES REQUIRED FOR A FULLY COMMISSIONED PROJECT.

SCHEDULE NOTES:

1. SEE DETAIL #1/E602 FOR STANDARD MOUNTING HEIGHTS OF ALL DEVICES, UNLESS OTHERWISE NOTED.
2. ALL DEVICES (SWITCHES AND RECEPTACLES) SHALL BE GRAY. COVER PLATE SHALL BE 302 STAINLESS STEEL .
3. DEVICE BOXES SHALL NOT BE MOUNTED BACK TO BACK IN COMMON WALLS UNLESS OTHERWISE NOTED.
4. LOW VOLTAGE CABLING SHALL BE PLENUM RATED, WHERE NOT INSTALLED IN CONDUIT.
5. THIS IS A COMMISSIONED PROJECT, REFERENCE #20,21 E-002 FOR ALL REQUIRED COORDINATION WITH THE COMMISSIONING AGENT.
6. COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, CONDUIT, WIRE, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED DURING CONSTRUCTION AND ALL COST WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
7. WALL MOUNTED OCCUPANCY/VACANCY SENSOR SWITCH OUTLETS SHALL BE PROVIDED WITH A GROUNDED CONDUCTOR AS PART OF THE WIRING SYSTEM.
8. LOW VOLTAGE CABLING SHALL BE ROUTED OVERHEAD UNLESS SPECIFICALLY NOTED BY CONTRACT DRAWINGS (I.E. SERVICE FEEDERS, FLOORBOXES). ALL CABLING AND THE ASSOCIATED PATHWAY SHALL BE ABOVE GROUND. THIS INCLUDES FIRE ALARM, INTERCOM, DATA, SECURITY, TV, ETC.
9. PROVIDE BLANK COVER PLATES (STAINLESS STEEL) FOR ALL UNUSED TELECOM SPECIFIED BOXES.
10. TELECOM DEVICES AND CABLES ARE BY OTHERS. E.C. RESPONSIBLE FOR ALL PATHWAYS AND BOXES. ALL OTHER LOW VOLTAGE SYSTEMS SPECIFIED IN THESE DOCUMENTS AND SPECIFICATIONS ARE PROVIDED BY THE ELECTRICAL CONTRACTOR. E.C SHALL BE RESPONSIBLE FOR REVIEWING ALL TELECOM SHEETS TO VERIFY TELECOM DEVICE LOCATIONS AND MOUNTING HEIGHTS.
11. ALL LOW VOLTAGE SYSTEMS (INTERCOM, SECURITY, ETC.) WHEN NOT ROUTED WITHIN THE CABLE TRAY SHALL PROVIDE THEIR OWN SUPPORTS. FIRE ALARM SYSTEMS MUST HAVE DEDICATED SUPPORT SYSTEM. FIRE ALARM SHALL NOT BE ROUTED THROUGH CABLE TRAY OR CABLE TRAY SUPPORTS.
12. PROVIDE FIRE RATED PUTTY PADS AT ALL DEVICE LOCATIONS IN RATED WALLS TO MAINTAIN RATING.
13. PULL STRINGS SHALL BE PROVIDED FOR ALL EMPTY PATHWAY CONDUIT.

ALLOWANCE:

1. SEE DETAIL #6/E-6.06 FOR ALLOWANCE REQUIREMENTS OF RESPONDER . PROVIDE $90,000.00 ALLOWANCE FOR INSTALLATION OF EMERGENCY RESPONDER SYSTEM. (2) SYSTEM SURVEY REPORTS, RECEPTACLE/CIRCUIT, SUBMITTAL (IF SYSTEM IS REQUIRED) AND PATHWAY TO DONOR ANTENNA SHALL BE CONSIDERED BASE BID AND SHALL NOT USE THE ALLOWANCE.

COMMISSIONING NOTE:

1. THIS PROJECT INCLUDES A THIRD PARTY COMMISSIONING AGENT CONTRACTED BY THE OWNER. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OWNER'S COMMISSIONING AGENT AND PROVIDE ALL NECESSARY TIME, MATERIALS, AND PROCEDURES REQUIRED FOR A FULLY COMMISSIONED PROJECT. SEE COMMISSIONING REQUIREMENTS IN THE PROJECT MANUAL FOR FURTHER INFORMATION.

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Project No.
1691

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Seal Date

GORDON ROAD FIRE DEPARTMENT

ELECTRICAL SPECIFICATIONS

Sheet No.
E0.02

Opt # 22-0369

LIGHTING DENSITY SCHEDULE

ROOM NAME	ROOM NUMBER	AREA	TOTAL LIGHTING LOAD	LIGHTING DENSITY	ILLUMINATION (FC)
LOBBY	100	136.3 SF	64.58 W	0.47 W/ft²	32 fc
PUB. TOILET	101	56.2 SF	35.35 W	0.63 W/ft²	24 fc
CORRIDOR	102	209.3 SF	125.09 W	0.60 W/ft²	34 fc
REPORT ROOM	103	189.6 SF	70.71 W	0.37 W/ft²	20 fc
OFFICE	104	192.4 SF	76.77 W	0.40 W/ft²	27 fc
OFFICE	105	181.3 SF	76.77 W	0.42 W/ft²	28 fc
IT ROOM	106	97.2 SF	70.71 W	0.73 W/ft²	34 fc
CAPTAIN 1	107	142.3 SF	70.71 W	0.50 W/ft²	25 fc
CORRIDOR	108	136.4 SF	53.13 W	0.39 W/ft²	45 fc
CAPTAIN 2	109	120.7 SF	70.71 W	0.59 W/ft²	29 fc
TRAINING	110	599.7 SF	382.46 W	0.64 W/ft²	53 fc
STORAGE	111	43.0 SF	35.35 W	0.82 W/ft²	28 fc
CORRIDOR	112	83.0 SF	35.35 W	0.43 W/ft²	30 fc
JANITOR	113	21.4 SF	30.30 W	1.41 W/ft²	26 fc
STORAGE	114	21.6 SF	30.30 W	1.40 W/ft²	26 fc
TOILET	115	63.3 SF	35.35 W	0.56 W/ft²	22 fc
STORAGE	116	95.4 SF	70.71 W	0.74 W/ft²	34 fc
CORRIDOR	117	148.9 SF	70.71 W	0.47 W/ft²	20 fc
CHIEF OFFICE	118	145.8 SF	76.77 W	0.53 W/ft²	33 fc
CONFERENCE	119	379.0 SF	247.58 W	0.65 W/ft²	51 fc
STORAGE	120	52.7 SF	35.35 W	0.67 W/ft²	25 fc
WORK ROOM	121	96.4 SF	35.35 W	0.37 W/ft²	17 fc
CORRIDOR	122	168.1 SF	89.73 W	0.53 W/ft²	31 fc
ADMIN SUPPORT	123	145.2 SF	70.71 W	0.49 W/ft²	24 fc
CHIEF'S OFFICE	124	262.7 SF	141.41 W	0.54 W/ft²	32 fc
OFFICE	125	174.3 SF	70.71 W	0.41 W/ft²	21 fc
CHIEF OFFICE	126	143.4 SF	70.71 W	0.49 W/ft²	26 fc
OFFICE	127	183.1 SF	70.71 W	0.39 W/ft²	21 fc
DAYROOM	128	651.5 SF	306.94 W	0.47 W/ft²	26 fc
KITCHEN/DINING	129	547.3 SF	473.47 W	0.87 W/ft²	78 fc
PANTRY	130	35.0 SF	35.35 W	1.01 W/ft²	32 fc
PANTRY	131	35.5 SF	35.35 W	1.00 W/ft²	32 fc
PANTRY	132	35.1 SF	35.35 W	1.01 W/ft²	32 fc
VESTIBULE	133	81.5 SF	70.71 W	0.87 W/ft²	51 fc
JANITOR	134	172.7 SF	70.71 W	0.41 W/ft²	22 fc
TOILET/SHR	135	127.7 SF	84.24 W	0.66 W/ft²	35 fc
CORRIDOR	136	94.6 SF	35.35 W	0.37 W/ft²	16 fc
TOILET/SHR	137	130.5 SF	85.49 W	0.66 W/ft²	39 fc
DECON	138	208.2 SF	106.06 W	0.51 W/ft²	23 fc
TLT/SHR	139	111.6 SF	66.46 W	0.60 W/ft²	31 fc
CORRIDOR	140	291.1 SF	143.91 W	0.49 W/ft²	51 fc
SLEEP ROOM	141	103.6 SF	120.71 W	1.16 W/ft²	52 fc
SLEEP ROOM	142	127.6 SF	120.71 W	0.95 W/ft²	45 fc
SLEEP ROOM	143	102.9 SF	120.71 W	1.17 W/ft²	52 fc
SLEEP ROOM	144	98.7 SF	120.71 W	1.22 W/ft²	56 fc
SLEEP ROOM	145	98.7 SF	120.71 W	1.22 W/ft²	56 fc
SLEEP ROOM	146	98.6 SF	120.71 W	1.22 W/ft²	56 fc
VESTIBULE	147	56.4 SF	36.60 W	0.65 W/ft²	28 fc
LAUNDRY	148	71.1 SF	38.38 W	0.54 W/ft²	27 fc
APPARATUS BAYS	149	3752.8 SF	2911.59 W	0.78 W/ft²	78 fc
VESTIBULE	150	47.3 SF	19.03 W	0.40 W/ft²	24 fc
EXERCISE	151	579.2 SF	400.00 W	0.69 W/ft²	80 fc
GEAR	152	196.2 SF	129.82 W	0.66 W/ft²	68 fc
DIRTY	153	112.3 SF	85.29 W	0.76 W/ft²	40 fc
CLEAN	154	251.8 SF	173.93 W	0.69 W/ft²	73 fc
ROOM	155	130.3 SF	85.71 W	0.66 W/ft²	61 fc
COMPRESSOR ROOM	156	216.3 SF	128.57 W	0.59 W/ft²	64 fc
PORCH	158	207.4 SF			22 fc
		13062.2 SF			

LIGHTING FIXTURE NOTES:

1. ALL FIXTURES SHALL BE LED UNLESS OTHERWISE SPECIFIED. COLOR TEMPERATURE SHALL BE 3500K UNLESS OTHERWISE NOTED.
2. LED DRIVERS SHALL BE PROVIDED FROM PER MANUFACTURER RECOMMENDATION. AS PART OF THIS RECOMMENDATION COORDINATE THE REQUIRED WAVE OUTPUT SO THEY ARE COMPATIBLE. THIS INCLUDES EMERGENCY DRIVERS.
3. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT FIXTURE LOCATIONS.
4. FIXTURES IN FIRE RATED CEILING SHALL BE PROVIDED WITH FIRE RATED TENTS AS REQUIRED.
5. SUSPEND ALL FOUR CORNERS WITH WIRE TO STRUCTURE. DO NOT ALLOW GRID ALONE TO SUPPORT FIXTURE.
6. FIXTURES WITH EMERGENCY BATTERY PACKS SHALL BE SUPPLIED WITH 1100 LUMEN INVERTERS.
7. PROVIDE INTEGRAL SURGE PROTECTION ON ALL EXTERIOR LED DRIVER FIXTURE TYPES.
8. DIMMING OF FIXTURES SHALL BE WITH A SWITCH AS RECOMMENDED BY THE DRIVER MANUFACTURER.
9. THE CONTRACTOR SHALL VERIFY THE LEAD TIME OF ALL PRODUCTS SPECIFIED IN THIS SCHEDULE AT THE TIME OF PACKAGE QUOTE.
10. DURING THE BID PROCESS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DELIVERY/SCHEDULING ISSUES.
11. NO SUBSTITUTIONS WILL BE ALLOWED DUE TO LACK OF COORDINATION OF DELIVERY DATES AND CONSTRUCTION SCHEDULE AFTER BID.
12. ALL EXPEDITED EXPENSES SHALL BE THE RESPONSIBILTY OF THE CONTRACTOR.
13. FIXTURES TO BE INSTALLED IN CEILINGS, INDICATED ON ARCHITECTURAL PLANS AS HAVING INSULATION IN CONTACT WITH CEILING SURFACE, SHALL BE IC RATED BY MANUFACTURER.
14. LED DRIVERS LOCATED IN UNCONDITIONED SPACES SHALL BE RATED FOR 90 DEGREES F.
15. PROVIDE 90 MINUTE EMERGENCY BATTERY BACK UP. EMERGENCY BACK UP SHALL BE BASED ON TYPE OF FIXTURE, LED DRIVER, BALLAST, ETC. EMERGENCY BACKUP SHALL BE DUAL INPUT FOR BOTH SWITCHING AND CHARGING. PROVIDE UNSWITCHED "HOT" FROM LOCAL CIRCUIT UNLESS OTHERWISE INDICATED ON PLANS. PROVIDE WITH INDICATOR LIGHT. INSTALL LED INDICATOR ON LIGHT FIXTURE UNLESS DECORATIVE. DECORATIVE FIXTURES SHALL HAVE INDICATOR PLACED AT LOCAL CEILING. BODINE, PHILLIPS, POWER SENTRY OR EQUAL.
16. PROVIDE EMERGENCY RELAY BASED ON MINIMUM BODINE GLCD-20B OR EQUAL. SEE PLANS FOR INTENT. PROVIDE EMERGENCY GENERATOR/INVERTER CIRCUIT AND SWITCH LEG NORMAL CIRCUIT. SEE DETAIL.
17. POLES PROVIDED FOR LED FIXTURES SHALL BE METAL, REGARDLESS OF SPECIFICATION FOR GROUNDING PURPOSES.

LIGHTING (ALLOWED)

BLDG AREA TOTAL SF	MULT	BLDG AREA METHOD (W/SQFT)	EQUALS	TOTAL LIGHTING WATTS	WATTS (ALLOWED) W/10% REDUCTION
13,062	X	0.81	=	10,580.22	9,522.198

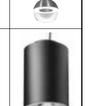
LIGHTING (SPECIFIED)

TYPE	FIXTURE WATTS	MULT	FIXTURE COUNT	EQUALS	TOTAL FIXTURE TYPE WATT (W)
C2	<varies>	X	8	=	72.00
CF1	50.00 W	X	9	=	450.00
CL1	0.00 W	X	6	=	300.00
CPL2	31.11 W	X	5	=	140.00
DL1	17.78 W	X	30	=	480.00
ECF1	0.00 W	X	2	=	100.00
EW1	1.25 W	X	23	=	23.00
FPL2	30.30 W	X	2	=	60.00
FPL3	35.35 W	X	69	=	2415.00
FPL4	38.38 W	X	7	=	266.00
FPL5	45.45 W	X	2	=	90.00
FPL6	52.53 W	X	4	=	208.00
HBL1	193.94 W	X	15	=	2880.00
LSC1	33.33 W	X	3	=	90.00
LWL	3.33 W	X	23	=	69.00
OWL1	27.78 W	X	14	=	350.00
OWL2	55.56 W	X	2	=	100.00
PCL1	27.78 W	X	4	=	100.00
PD1	22.22 W	X	7	=	140.00
PD2	44.44 W	X	6	=	240.00
SDL1	13.33 W	X	4	=	48.00
STL1	42.86 W	X	23	=	966.00
TOTAL BUILDING ACCUMULATED FIXTURE WATTAGE (SPECIFIED) =					9587.00

LIGHTING SEQUENCE OF OPERATION

1. BUNKROOM/BEDROOM
   - A. DIMMING SWITCH FOR BUNK ROOMS.
   - B. COMPLIANCE WITH R404.1
   - C. LOCAL ON/OFF CONTROL
2. APPARATUS BAY
   - A. ZONE 1: ON/OFF (INNER)
     - a. C405.2.2 EXCEPTION #3. (WORK UNDER FIRE TRUCKS)
     - b. C405.2.2 EXCEPTION #4 (24 HOUR FIRE STATION)
   - B. ZONE 2: ON/OFF (OUTER)
     - a. C405.2.2 EXCEPTION #3. (WORK UNDER FIRE TRUCKS)
     - b. C405.2.2 EXCEPTION #4 (24 HOUR FIRE STATION)
   - C. ZONE 3 -NIGHT LIGHT (NL) LIGHTING
     - a. ALWAYS ON
3. DECON
   - A. VACANCY MODE (MANUAL ON)
   - B. AUTOMATIC OFF AFTER 30 MIN.
   - C. LOCAL ON/OFF CONTROL
4. STORAGE/ IT ROOM/ RISER ROOM/ REHAB / LAUNDRY/ TOILETS/ LOCKER/ MEZZ, CLOSETS
   - A. VACANCY MODE (MANUAL ON)
   - B. AUTOMATIC OFF AFTER 30 MIN.
   - C. LOCAL ON/OFF CONTROL
5. BUNKROOM/ COORIDOR/ LOBBY
   - A. C405.2 EXCEPTION #2 (EXIT PASSAGEWAYS)
   - B. OVERRIDE OFF CONTROL - REPORT ROOM
6. OFFICES
   - A. OCCUPANCY MODE
   - B. AUTOMATIC OFF AFTER 30 MIN.
   - C. LOCAL ON/OFF CONTROL
7. ELECTRICAL/MECHANICAL
   - A. C405.2.2.1 EXCEPTION #2.3
     - a. LOCAL ON/OFF CONTROL
8. EXERCISE ROOM
   - A. OCCUPANCY MODE
   - B. AUTOMATIC OFF AFTER 30 MIN.
   - C. LOCAL ON/OFF CONTROL
9. BATH
   - A. ZONE 1 -GENERAL LIGHTING
     - a. OCCUPANCY MODE
     - b. AUTOMATIC OFF AFTER 30 MIN.
     - c. LOCAL ON/OFF CONTROL
   - B. ZONE 2 -SHOWER LIGHTING
     - a. 2-HOUR TWIST TIMER SWITCH
10. DAYROOM
    - A. ZONE 1 -GENERAL LIGHTING
      - a. C405.2.2 EXCEPTION #4 (24 HOUR FIRE STATION)
      - b. MANUAL DIMMER CONTROL
      - c. LOCAL ON/OFF CONTROL
    - B. ZONE 2 -TV LIGHTING
      - a. C405.2.2 EXCEPTION #4 (24 HOUR FIRE STATION)
      - b. MANUAL DIMMER CONTROL
      - c. LOCAL ON/OFF CONTROL
11. KITCHEN / DINNING
    - A. C405.2.2 EXCEPTION #4 (24 HOUR FIRE STATION)
    - B. MANUAL DIMMER CONTROL
    - C. LOCAL ON/OFF CONTROL
12. EXTERIOR FACADE/ FLAGPOLE
    - A. ZONE 1 -FACADE
      - a. ASTRONOMICAL TIME CLOCK
      - b. AUTOMATIC OFF DAWN
    - B. ZONE 2 -FLAGEPOLE
      - a. LOCAL INTEGRAL PHOTOCELL
    - C. KITCHEN PATIO CANOPY
      - a. ASTRONIMICAL TIME CLOCK
      - b. 2 HOUR OVERRIDE TWIST TIMER SWITCH
      - c. MANUAL ON/OFF CONTROL
13. CEILING FANS
    - A. MANUAL ON/OFF
14. EMERGENCY LIGHTING CONTROL
    - A. FIXTURES WITH 90 MIN BATTERY BACK UP TO OPERATE ON LOSS OF POWER TO FULL 100% OUTPUT.
    - B. BATTERY PACKS UNSWITCHED ALWAYS OFF WITH FULL 100% OUTPUT ON POWER LOSS.
    - C. EXIT SIGNS UNSWITCHED ALWAYS ON WITH FULL 100% OUTPUT ON POWER LOSS.
15. SIGNAGE LIGHTING
    - A. CONTROLS BY VENDOR.

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MINIMUM LUMENS	CCT	TOTAL FIXURE WATTAGE	DRIVER	VOLTAGE	MANUFACTURER	MODEL	REMARKS	EXAMPLE
C2	EXTERIOR COVER MOUNTED RGBW FIXTURE	268	3500K	9.0 W	REMOTE LED DRIVER (DMX)	UNIV	FC LIGHTING	COLOURLINE WET	SEE PLANS FOR LENGTH SEE ARCH PLANS FOR EXACT MOUNTING LOCATIONS ASYMETRIC DISTRIBUTION FOR WALL WASHING MIN LUMENS / MIN WATTAGE -268LM/8W	
CF1	CEILING FAN NON LIT (INDOORS)			50.0 W	N/A	UNIV	MODERN FORMS BY LIGHTOLOGY	AXIS MFR 882821	UP TO 52" BLADE SPAN; 15" DEPTH PROVIDE BLUETOOTH WALL CONTROL FOR SWITCH TYPE "F" SHOWN ON PLANS VERIFY FINISH WITH ARCHITECT	
CL1	CEILING FAN W/LED (INDOORS)	1,600	3500K	50.0 W	INTEGRAL LED DRIVER (DIMMABLE)	UNIV	MODERN FORMS BY LIGHTOLOGY	AXIS MFR 882821	UP TO 52" BLADE SPAN; 15" DEPTH PROVIDE BLUETOOTH WALL CONTROL FOR SWITCH TYPE "F" SHOWN ON PLANS VERIFY FINISH WITH ARCHITECT	
CPL2	SQUARE SURFACE MOUNTED LED CANOPY LIGHT	2,000	3500K	28.0 W	INTEGRAL LED DRIVER	UNIV	LUMINAIRE LED LITHONIA HUBBEL XELEUM	SWP1212 CNY CLED XB	CONDUIT SHALL PENETRATE FROM THE TOP OF THE CANOPY UL LISTED WET LOCATION DLC LISTED	
DL1	6" RECESSED LED DOWNLIGHT	1,500	3500K	16.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	GOTHAM LIGHTOLIER PRESCOLITE ELITE PORTFOLIO	EVO6 6RN LTR-6RD HH6 LD6B	MINIMUM 10% DIMMING DLC/ENERGY STAR LISTED	
ECF1	CEILING FAN NON LIT (INDOORS)	1,600	3500K	50.0 W	INTEGRAL LED DRIVER (DIMMABLE)	UNIV	MODERN FORMS BY LIGHTOLOGY	AXIS MFR 882821	UP TO 52" BLADE SPAN; 15" DEPTH PROVIDE BLUETOOTH WALL CONTROL FOR SWITCH TYPE "F" SHOWN ON PLANS VERIFY FINISH WITH ARCHITECT	
EW1	CLEAR EDGE-LIT EXIT SIGN, BATTERY		3500K	1.0 W	INTEGRAL LED DRIVER	UNIV	LITHONIA CHLORIDE DUAL-LITE MULE SURE-LITES	LRP ER44LDU1/2RX *LSNX CEL EUX	NICKEL CADMIUM BATTERY EXIT SIGN; SEE PLANS FOR FACE STYLE AND QTY 90 MINUTE OPERATION TEST SWITCH PROVIDED UL LISTED FOR DAMP LOCATIONS	
FPL2	2X2 LED LAY-IN PANEL	2,000	3500K	30.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	LITHONIA DAYBRITE H.E. WILLIAMS COOPER	EPANL 2X2 2FPZ 50-G-S22 22FPSLSCT3	UL LISTED DAMP LOCATIONS DLC LISTED	
FPL3	2X4 LED LAY-IN TROFFER	3,000	3500K	35.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	LITHONIA DAYBRITE H.E. WILLIAMS COOPER	EPANL 2X4 2FPZ 50-G-S24 24FPSLSCT3	UL LISTED DAMP LOCATIONS DLC LISTED	
FPL4	2X4 LED LAY-IN TROFFER	4,200	3500K	38.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	LITHONIA DAYBRITE H.E. WILLIAMS COOPER	EPANL 2X4 2FPZ 50-G-S24 24FPSLSCT5	UL LISTED DAMP LOCATIONS DLC LISTED	
FPL5	2X4 LED LAY-IN TROFFER	4,800	3500K	45.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	LITHONIA DAYBRITE H.E. WILLIAMS COOPER	EPANL 2X4 2FPZ 50-G-S24 24FPSLSCT9	4000K 3000 MINIMUM LUMENS UL LISTED DAMP LOCATIONS	
FPL6	2X4 LED LAY-IN TROFFER	5,600	3500K	52.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	LITHONIA DAYBRITE H.E. WILLIAMS COOPER	EPANL 2X4 2FPZ 50-G-S24 24FPSLSCT9	4000K 3000 MINIMUM LUMENS UL LISTED DAMP LOCATIONS	
HBL1	LED LOW BAY (LOW PROFILE)	30,000	3500K	192.0 W	INTEGRAL LED DRIVER	UNIV	LITHONIA DIGITAL LUMENS JUNO	IBL 18L WD SD125 LP840 LOW BAY LED SERIES ACCULITE H1 L16 4k UN 5H BC	SURFACE MOUNT BRACKET DIFFUSING ACRYLIC 4000K WIRE GUARD 16,000+ LUMENS	
LSC1	WALL PACK TRAPEZOID LED	2,800	3500K	30.0 W	INTEGRAL LED DRIVERS (2)	UNIV	INDESSA SCOTT APPROVED EQUAL	609-36-XX S9407-L24	COLOR CHOSEN BY ARCHITECT 36"HX6"WX4"D 1500 LUMENS WET LOCATION LISTED	
LWL	WALL PACK TRAPEZOID LED	54	3500K	3.0 W	INTEGRAL LED DRIVERS (2)	UNIV	HYDREL LEON LITE APPROVED EQUAL	HSL11 RECT ZINC TECH STEP/DECK LIGHT	MEDIUM THROW PROVIDE BACKBOX PER MANU. REC. FINISH BY ARCH.	
OWL1	WALL PACK TRAPEZOID LED	2,000	3500K	25.0 W	INTEGRAL LED DRIVERS (2)	UNIV	GARDCO LITHONIA HUBBELL BROWNLEE MCGRAW-EDISON	101L WST LED TRP1 7039-C49 IST	COLOR CHOSEN BY ARCHITECT LS 101 EMERGENCY COMPLIANT 7"HX16"WX9"D 3900 LUMENS (WIDE ANGLE)	
OWL2	WALL PACK TRAPEZOID LED	4,000	3500K	50.0 W	INTEGRAL LED DRIVERS (2)	UNIV	GARDCO LITHONIA HUBBELL BROWNLEE MCGRAW-EDISON	101L WST LED TRP1 7039-C49 IST	COLOR CHOSEN BY ARCHITECT LS 101 EMERGENCY COMPLIANT 7"HX16"WX9"D 3900 LUMENS FORWARD THROW	
PCL1	6" PENDANT CYLINDER	2,000	3500K	25.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	SPECTRUM JUNO CONTECH HALO	C0612XT INDY LC6P CYL6 HCC6	PENDANT MOUNTED ENERGY STAR LISTED	
PD1	DECORATIVE PENDANT LED DOWNLIGHT	550	3500K	20.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	VISA APPROVED EQUAL APPROVED EQUAL	CP5740 APPROVED EQUAL APPROVED EQUAL	PENDANT MOUNTED ENERGY STAR LISTED	
PD2	PENDANT LED DOWNLIGHT	3,500	3500K	40.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	CONTECH SPECTRUM JUNO HALO	C0612XT INDY LC6P CYL6 HCC6	PENDANT MOUNTED ENERGY STAR LISTED	
SDL1	6" LENSED RECESSED DOWNLIGHT SHOWER	1,000	3500K	12.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	LITHONIA CHLORIDE DUAL-LITE MULE SURE-LITES	EVO6 6RN LTR-6RD HH6 LD6B	WET LOCATION LISTED LENSED DLC/ENERGY STAR LISTED	
STL1	4 FT. LED STRIP	5,000	3500K	42.0 W	INTEGRAL LED DRIVER (STANDARD 0-10V DIMMING)	UNIV	LITHONIA COLUMBIA CREE COOPER DAY-BRITE	CLX LED FSS LCL 4-OC1 SNLED	PROVIDE CHAIN FOR PENDANT MOUNTING PROVIDE WIRE GUARD LENSED DLC LISTED	

NOTE: IF MINIMUM LUMENS IS EQUAL TO "0", THE CELL WILL BE FILLED IN SOLID BLACK SHADING.

Project No.
1691

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GORDON ROAD FIRE DEPARTMENT

LIGHTING FIXTURE SCHEDULE

Sheet No.
E0.03

Opt # 22-0369

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ELECTRICAL EQUIPMENT SCHEDULE

	ID	CIRCUIT 2	LOCATION NAME	NO	EQUIPMENT INFORMATION MOTOR NO.	MOTOR POWER	REAL POWER	FLA	MCA	MOCP	VOLT	PH	CIRCUIT INFORMATION PANEL	NO.	APPARENT LOAD	LOAD CLASSIFICATION	WIRE & CONDUIT SIZE	STARTER TYPE	CONTROL TYPE	DISC TYPE	INTERLOCK ID	REMARKS
Gas-Fired Infrared Heater																						
	IH-1						0 kW	1.3 A	1.6 A	15.0 A	120 V	1			0.16 kVA	HEATING	(none)					
	IH-2						0 kW	1.3 A	1.6 A	15.0 A	120 V	1			0.16 kVA	HEATING	(none)					
	IH-3						0 kW	2.6 A	3.3 A	15.0 A	120 V	1	M2	17	0.31 kVA	HEATING	(none)					
HEATER																						
	EWH-1		DIRTY	153	0	0.0 hp	2 kW	10.8 A	13.5 A	20.0 A	208 V	2	M2	13,15	2.25 kVA	HEATING	(none)					
Inline Fan																						
	EF-1				0	0.5 hp	0 kW	0.0 A	2.5 A	15.0 A	115 V	1			0.00 kVA	VENTILATION	(none)					
	EF-4				0	0.1 hp	0 kW	0.0 A	0.6 A	15.0 A	115 V	1			0.00 kVA	VENTILATION	(none)					

ELECTRIC WALL HEATER SCHEDULE

ID	SERVES	KW	MOTOR RPM	MOTOR VOLT	MOTOR PH	ACCESSORIES
EWH-1	TLT/SHR 155	2.3	600	208 V	2	A,B,G,H

FAN SCHEDULE

ID	SERVES	TYPE	ELECTRICAL DATA WATTS	WATTS	H.P.	VOLT	PH	ACCESSORIES	CONTROLS
EF-1	GEAR 152	EXHAUST	0 kW		0.5 hp	115 V	1		
EF-2	PUB. TOILET	EXHAUST	0 kW		0.0 hp	115 V	1		
EF-3	DECON 138	EXHAUST	0 kW		0.0 hp	115 V	1		
EF-4	TOILET/SHR 135	EXHAUST	0 kW		0.1 hp	115 V	1		
EF-5	TOILET 115	EXHAUST	0 kW		0.0 hp	115 V	1		
EF-6	JANITOR 113	EXHAUST	0 kW		0.0 hp	115 V	1		
EF-G1	APPARATUS BAYS 149	EXHAUST	1 kW		0.8 hp	208 V	3		
F-1	APPARATUS BAYS 149	CIRCULATOR			1.1 hp	115 V	1		
SF-G1	APPARATUS BAYS 149	SUPPLY	1 kW		0.8 hp	208 V	3		
VEF-1	MEZZANINE 200	EXHAUST	0 kW		7.5 hp	208 V	3		

DUCTLESS INDOOR UNIT SCHEDULE

ID	ELECTRICAL DATA MCA	VOLTAGE	PH	INTERLOCK ID	DISCONNECT
IDU-1	1.8 A	208 V	2	ODU-1	30/F15/2P/1
IDU-2	0.3 A	208 V	2	ODU-1	30/F15/2P/1
IDU-3	2.9 A	208 V	2	ODU-1	30/F15/2P/1
IDU-4	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-5	1.8 A	208 V	2	ODU-1	30/F15/2P/1
IDU-6	2.4 A	208 V	2	ODU-1	30/F15/2P/1
IDU-7	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-8	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-9	1.8 A	208 V	2	ODU-1	30/F15/2P/1
IDU-10	2.9 A	208 V	2	ODU-1	30/F15/2P/1
IDU-11	0.3 A	208 V	2	ODU-1	30/F15/2P/1
IDU-12	1.8 A	208 V	2	ODU-1	30/F15/2P/1
IDU-13	0.3 A	208 V	2	ODU-1	30/F15/2P/1
IDU-14	2.9 A	208 V	2	ODU-1	30/F15/2P/1
IDU-15	2.1 A	208 V	2	ODU-1	30/F15/2P/1
IDU-16	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-17	1.8 A	208 V	2	ODU-1	30/F15/2P/1
IDU-18	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-19	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-20	0.3 A	208 V	2	ODU-1	30/F15/2P/1
IDU-21	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-22	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-23	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-24	2.4 A	208 V	2	ODU-1	30/F15/2P/1
IDU-25	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-26	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-27	0.2 A	208 V	2	ODU-1	30/F15/2P/1
IDU-28	0.4 A	208 V	2	ODU-1	30/F15/2P/1

DUCTLESS OUTDOOR UNIT SCHEDULE

ID	ELECTRICAL DATA MCA	MOCP	VOLTAGE	PH	DISCONNECT SIZE
ODU-1	81.0 A	125.0 A	208 V	3	200/F125/3P/3R

PLUMBING PUMP SCHEDULE

Existing Phase Symbol	ID	LOAD	VOLTAGE	PHASE	PANEL	CIRCUIT NUMBER	LOAD CLASSIFICATION	DISCONNECT TYPE	WIRE & CONDUIT

Ref North

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Revisions:

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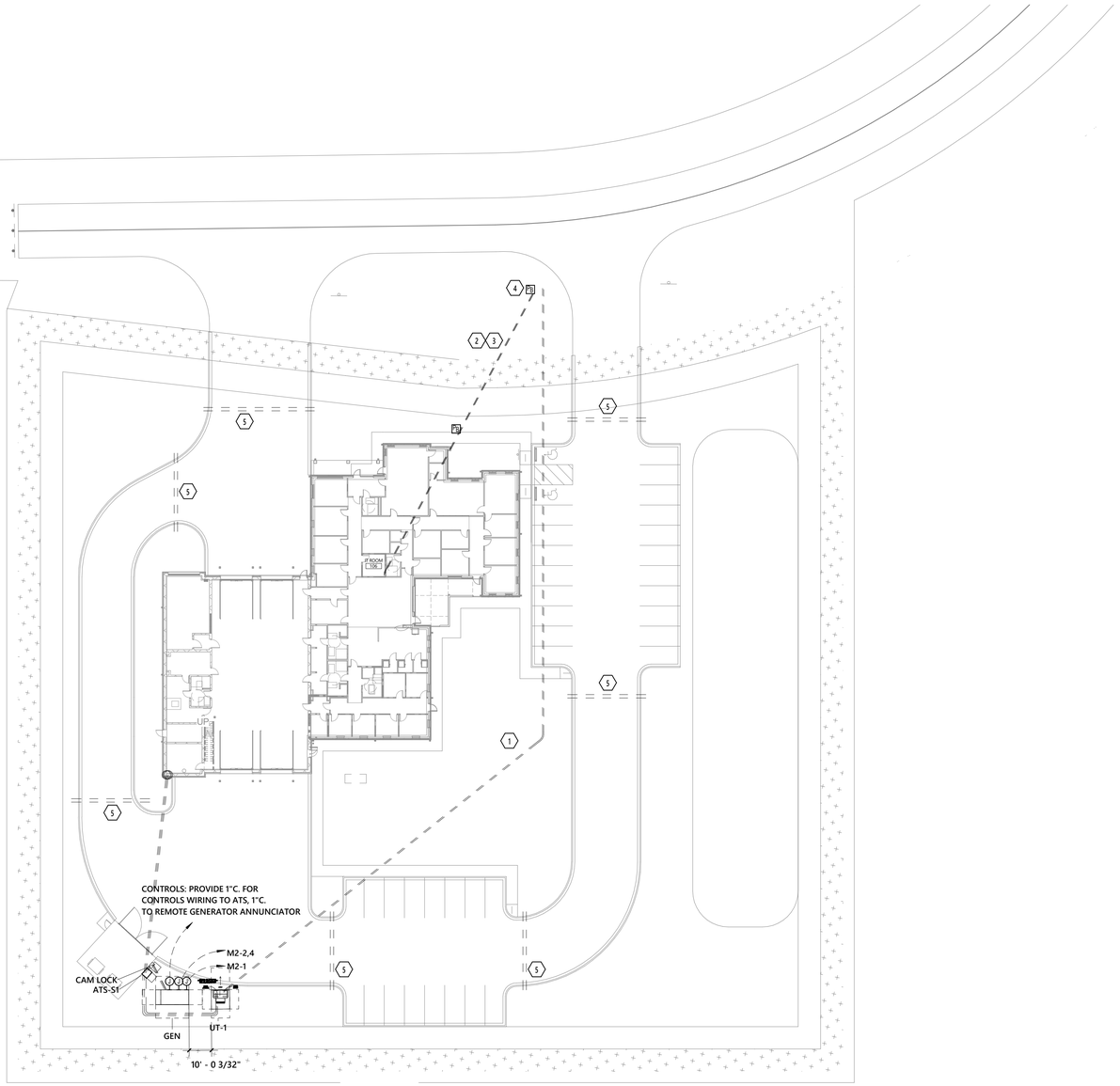
GORDON ROAD FIRE DEPARTMENT

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

Sheet No.
E0.04

Opt # 22-0369



1 **SITE-ELECTRICAL PLAN**
1" = 30'-0"

GENERAL NOTES:

1. ALL UNUSED IN-GROUND CONDUIT RUNS SHALL BE PROVIDED WITH MULE TAPE AND APPROPRIATE PULL STRING FOR FUTURE USE.
2. SITE LIGHTING SHALL BE PROVIDED BY LOCAL UTILITY, LOCAL UTILITY SHALL BE RESPONSIBLEFOR CONDUIT RUNS AND LIGHT POLE INSTALLATIONS. COORDINATE LOCATION FOR CCTV SYSTEM WITH LOCAL UTILITY AND OWNER.
3. G.C. SHALL SET UP A MEETING WITH THE LOCAL TELCOM PROVIDER TO VERIFY SERVICE ENTRANCE LOCATION PRIOR TO INSTALLATION OF ANY CONDUIT AND/OR PULL BOXES.
4. G.C. SHALL SET UP A MEETING WITH THE LOCAL UTILITY COMPANY (DUKE) PRIOR TO INSTALLATION OF ANY CONDUIT W/ PULL STRING FOR THE PRIMARY FEEDER. COORDINATE CONDUIT SIZE, INTERCONNECTION POINT, AND PULL BOXES AS REQUIRED.

KEYED NOTES:

1. PROVIDE (2)-6" CONDUIT FROM PAD MOUNTED TRANSFORMER TO DESIGNATED POINT AT EDGE OF PROPERTY FOR LOCAL POWER UTILITY USE. CONDUIT LOCATION, SIZE, AND BENDING RADIUS SHALL BE COORDINATED WITH UTILITY BEFORE INSTALLATION. PULLBOXESAS REQUIRED BY CODE/LOCAL UTILITY. E.C. TO PROVIDE UP TO 150' OF ADDITIONAL (2)-6" CONDUIT AND COMPLETE INSTALLATION BASED ON UTILITY COORDINATION.
2. PROVIDE (2)-4" CONDUIT FROM MAIN HEAD END ROOM TO PROPERTY LINE FOR TELEPHONESERVICE. CONDUIT LOCATION, SIZE, AND BENDING RADIUS SHALL BE COORDINATED WITH UTILITY BEFORE INSTALLATION.E.C. TO PROVIDE UP TO 150' OF ADDITIONAL (2)-4" CONDUIT AND COMPLETE INSTALLATION BASED ON UTILITY COORDINATION.
3. PROVIDE (1)-2"CONDUIT FROM MAIN HEAD END ROOM TO PROPERTY LINE FOR CATV SERVICE. CONDUIT LOCATION, SIZE, AND BENDING RADIUS SHALL BE COORDINATED WITH UTILITY BEFORE INSTALLATION.
4. ALL LOW VOLTAGE CONDUIT RUNS SHALL HAVE HAND HOLES/PULL BOXES SUPPLIED AT 150' INTERVALS UNLESS OTHERWISE INDICATED BY LOCAL UTILITY. MINIMUM SIZE SHALL BE 36" X36".
5. PROVIDE (2)-4" C FOR FUTURE SITE LIGHTING BY LOCAL UTILITY.
6. FIRE STATION SIGNAGE, SCHOOL SIGNAGE, COORDINATE EXACT LOCATION WITH CIVIL PLANS. LOCATE DISCONNECT ON NON ROAD SIDE TO HELP CONCEAL. PROVIDE GROUND ROD, 8' MINIMUM,STANDARD. RCPT SHALL BE CONNECTED AHEAD OF LOCAL DISCONNECT 30/F20/2P/3R.
7. WATER HOLDING TANK, 3/4" TO FACP.
8. COORDINATE EXACT LOCATION WITH CIVIL PLANS. WATER WELL, PROVIDE (1) - 20A CIRCUIT FOR PUMP. PROVIDE 1" CONDUIT TO FACP FOR TAMPER SWITCHES. COORDINATE EXACT QUANTITY AND LOCATION WITH CIVIL PLANS.
9. SEPTIC TANK, PROVIDE (1) - 20A CIRCUIT FOR PUMP. COORDINATE EXACT LOCATION WITH CIVIL PLANS.

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GORDON ROAD FIRE DEPARTMENT

ELECTRICAL SITE PLAN

Sheet No.
E0.10

Opt # 22-0369

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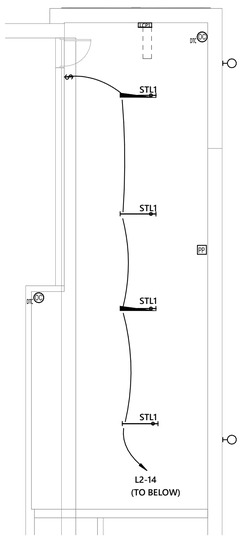
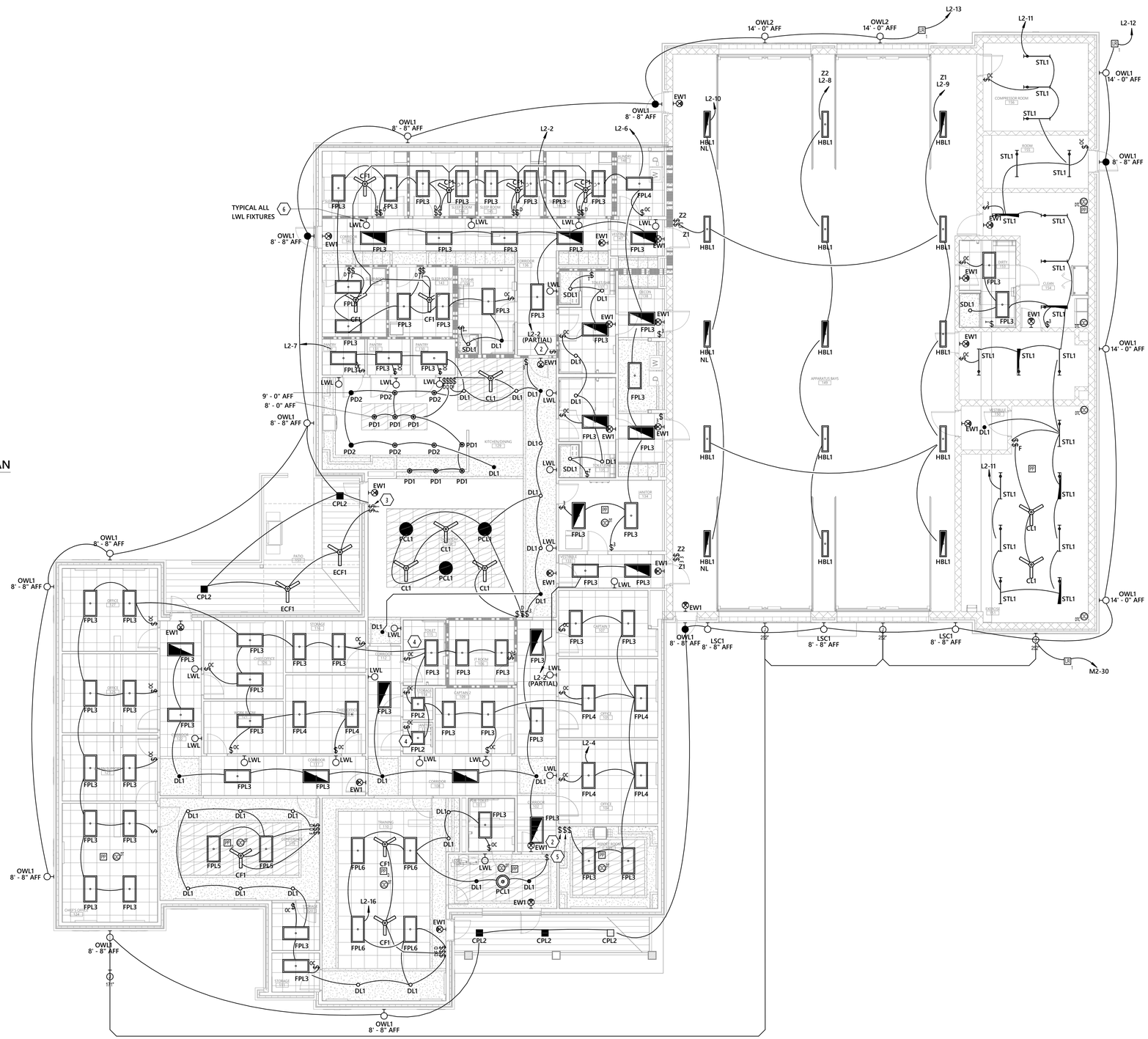


2 MEZZANINE LIGHTING REFLECTED CEILING PLAN

1/8" = 1'-0"



1 FIRST FLOOR LIGHTING REFLECTED CEILING PLAN

1/8" = 1'-0"

Ref North

GENERAL NOTES:

1. ALL WALL MOUNTED DEVICES (POWER, DATA, SYSTEMS, ETC...) WITHIN CMU WALLS ARE TO BE FLUSH MOUNTED AND FED WITH CONCEALED CONDUIT.
2. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF LUMINAIRES, AND CEILING TYPES. COORDINATE CEILING TYPES AND PROVIDE FIXTURE TRIM REQUIRED.
3. POWER PACKS & J-BOXES IN SPACES WITH GYP. BOARD CEILING SHOULD HAVE AN ACCESS PANEL PROVIDED OR BE LOCATED IN ADJACENT SPACE WITH LAY-IN CEILING.
4. EXIT SIGNS AND 'NL' NIGHT LIGHT CIRCUITS SHALL BE UNSWITCHED AND CONNECTED TO A CONSTANT HOT CONDUCTOR AHEAD OF SWITCHING AND/OR RELAYS.
5. A CONSTANT HOT CONDUCTOR SHALL BE CONNECTED TO THE BATTERY BACK-UP OF ALL SWITCHED LIGHTING FIXTURES AHEAD OF SWITCHING AND/OR RELAYS.
6. VERIFY ALL EXTERIOR FIXTURE HEIGHTS/LOCATIONS WITH ARCHITECT PRIOR TO ROUGH-IN.
7. COORDINATE ALL DECORATIVE EXTERIOR WALL LIGHT MOUNTING ARMS WITH ARCHITECT PRIOR TO PURCHASING.
8. VERIFY ALL FIXTURE FINISHES AND COLORS WITH ARCHITECT PRIOR TO ORDERING.
9. CONTRACTOR TO PROVIDE FIRE-RATED "TENT" AROUND ALL FIXTURES AND CEILING MOUNTED DEVICES IN RATED CEILING AREAS. COORDINATE WITH GC.
10. APPARATUS BAY IN THIS FACILITY ARE UNCLASSIFIED PER NEC 511.3(A); PER OWNER, NO VEHICLES ARE SERVICED OR REPAIRED IN THIS FACILITY.

KEYED NOTES:

1. SINGLE POLE SWITCH TO BE WIRED IN PARALLEL WITH OCCUPANCY SENSOR . PROVIDE PHENOLIC LABEL WHICH READS "OCCUPANCY SENSOR OVERRIDE, SHALL ONLY BE UTILIZE DURING EQUIPMENT MAINTENCE".
2. CORRIDOR OVERRIDE OFF SWITCH.
3. 2-HR OVERRIDE TWIST TIMER FOR PADIO LIGHTS.
4. TOGGLE SWITCH OVERRIDE OFF LOCAL ZONE.
5. PROVIDE 3-GANG JUNCTION BOX FOR ECHOTOUCH MK2 AND JUNCTION BOX ABOVE LOCAL CEILING FOR 24V PSU(E-APS2) FOR CONTROL OF EXTERIOR LIGHT FIXTURE 'C2'. PROVIDE DMX WIRE (BELDEN 9729).
6. CONNECT ALL TYPE 'LWL' TO CIRCUIT 'L2-15'

OLD 4

1. CONNECT TO AREA FAN. REFER TO EQUIPMENT CONNECTIONS PLAN.

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GORDON ROAD FIRE DEPARTMENT

LIGHTING FLOOR PLANS

Sheet No.
E1.01

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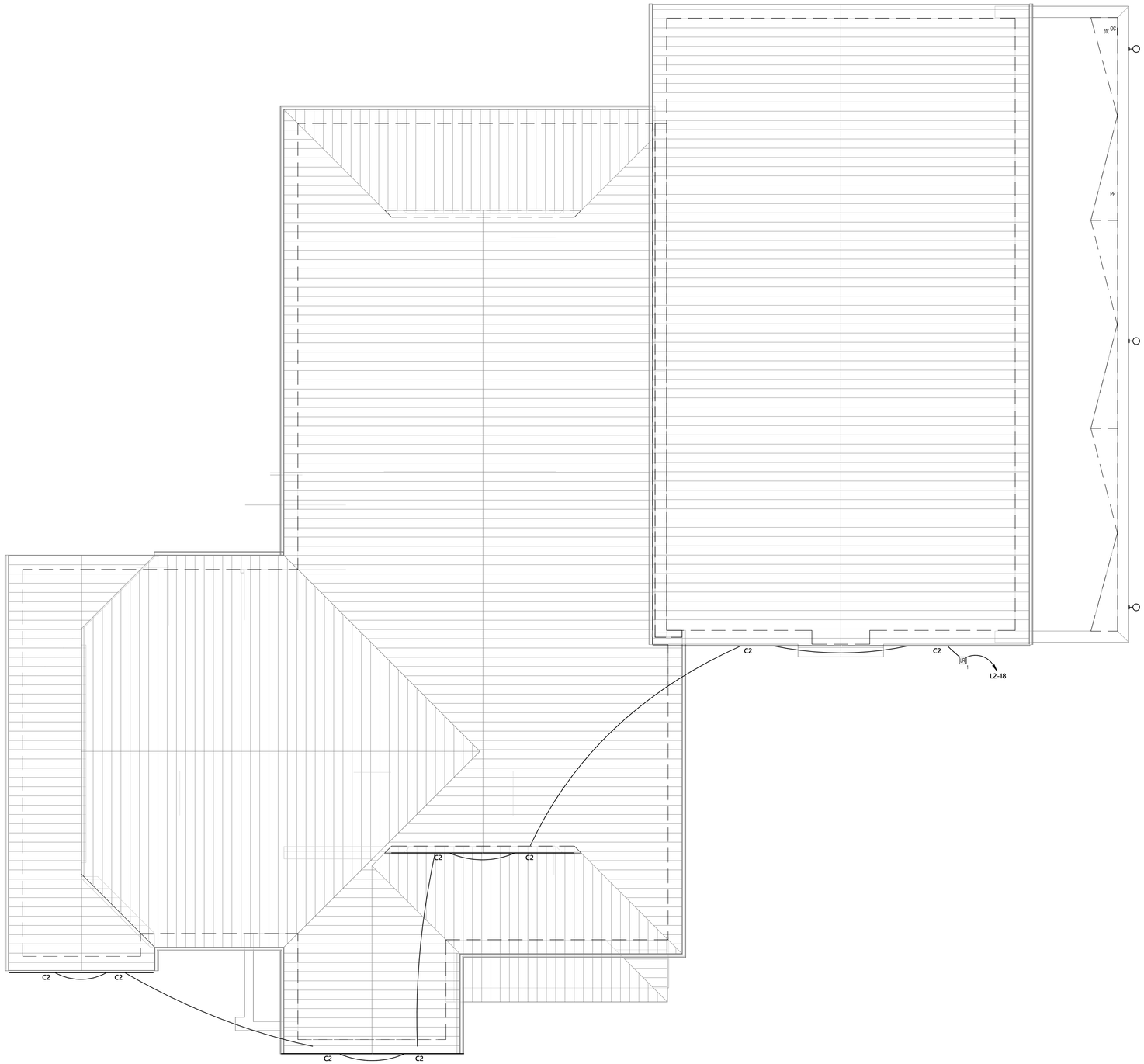

1 LIGHTING ROOF PLAN
1/8" = 1'-0"

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GORDON ROAD FIRE DEPARTMENT

LIGHTING ROOF PLAN

Sheet No.
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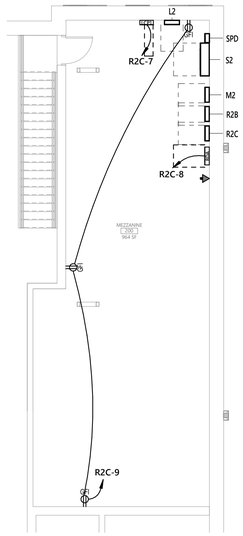
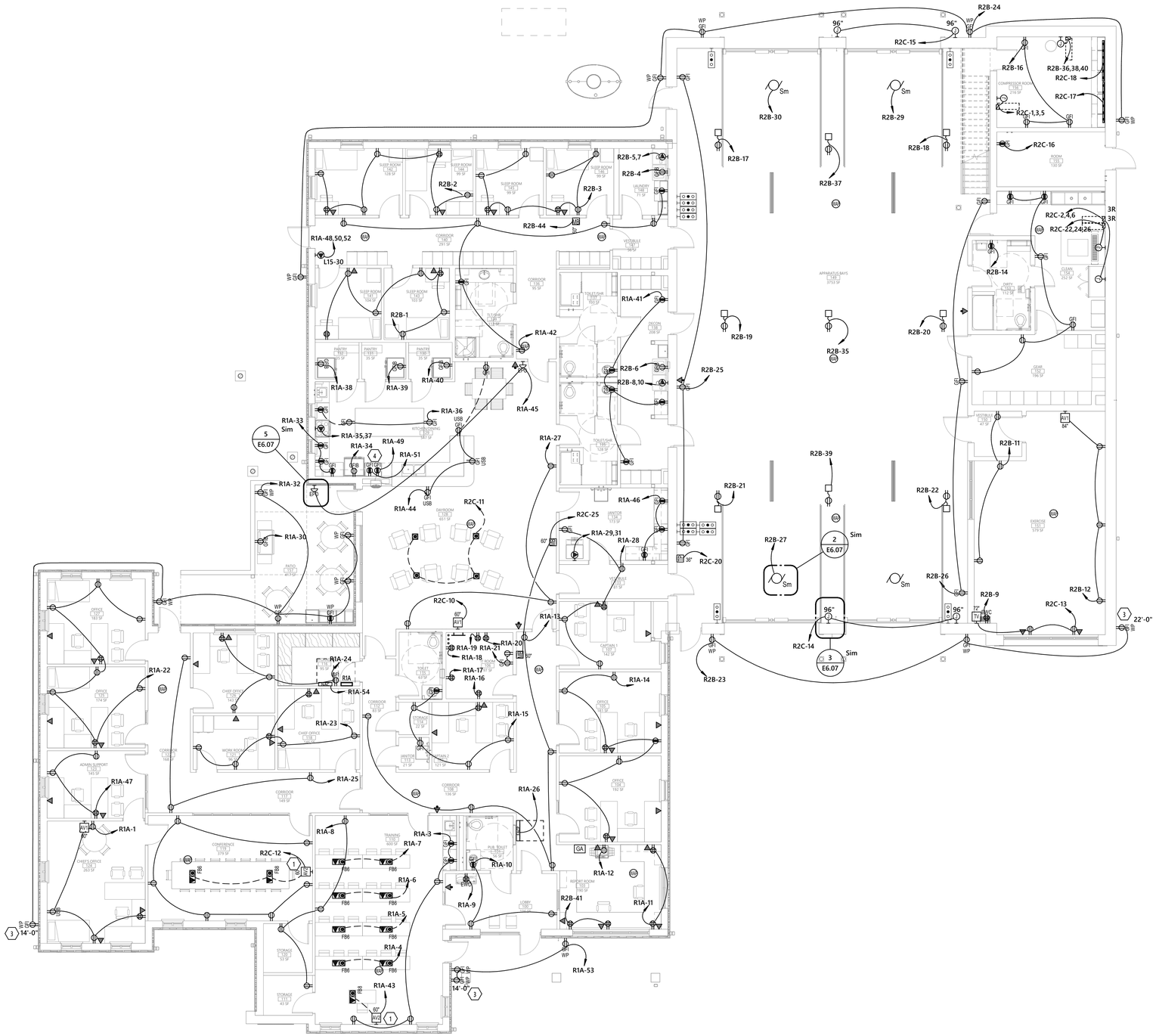


2 MEZZANINE POWER FLOOR PLAN

1/8" = 1'-0"



1 FIRST FLOOR POWER FLOOR PLAN

1/8" = 1'-0"

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GENERAL NOTES:

1. BACK TO BACK INSTALLATION SHALL NOT BE ALLOWED. WHERE DEVICES ARE SHOWN BACK TO BACK, DEVICE SHALL BE OFFSET 3".
2. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS NOTED OTHERWISE, WITH NO EXPOSED CONDUIT.
3. COORDINATE RECEPTACLE LOCATIONS WITH CASEWORK ELEVATIONS PRIOR TO ROUGH-IN.
4. ALL WALL MOUNTED DEVICES (POWER, DATA, SYSTEMS, ETC...) WITHIN CMU WALLS ARE TO BE FLUSH MOUNTED AND FED WITH CONCEALED CONDUIT.
5. WHERE CONNECTED TO A 20A. BRANCH CIRCUIT SUPPLYING AN INDIVIDUAL RECEPTACLE (SIMPLEX OR DUPLEX), THE RECEPTACLE SHALL BE RATED AT 20A.
6. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS (SEE PANELBOARD SCHEDULE). BRANCH CIRCUITS SHALL BE SIZED ACCORDING TO THE CIRCUIT BREAKER RATING, UNLESS INDICATED OTHERWISE ON THE ELECTRICAL EQUIPMENT SCHEDULE.
7. ALL WALL APPARATUS BAY UNELEVATED RECEPTACLES SHALL BE GFI AND INSTALLED AT 24" A.F.F.
8. VERIFY MOUNTING HEIGHT OF ALL TV'S WITH OWNER PRIOR TO ROUGH-IN. PROVIDE A MARK-UP FOR OWNER APPROVAL PRIOR TO BOX AND CONDUIT INSTALLATION.
9. APPARATUS BAY IN THIS FACILITY ARE UNCLASSIFIED PER NEC 511.3(A); PER OWNER, NO VEHICLES ARE SERVICED OR REPAIRED IN THIS FACILITY.
10. CONDUIT SLEEVES SHALL BE MOUNTED AT +10' 11" AFF UNLESS OTHERWISE NOTED.
11. TELECOM OUTLETS LOCATED IN MECHANICAL ROOMS AND ELECTRICAL ROOMS SHALL HAVE CONTINUOUS CONDUIT FROM THE OUTLET BOX TO THE NEAREST CABLE TRAY, TELECOM ROOM OR ACCESSIBLE CEILING. NO FREE RUN CABLING IS PERMITTED IN THESE ROOMS.

KEYED NOTES:

1. 1" CONDUIT ROUTED TO LOCAL FLOOR BOX. DEVICE 'AV2' BASIS OF DESIGN SHALL INCLUDED (1 DATA) (1 RECEPTACLE) AT MOUNTING HEIGHT SHOWN WITH (1 DATA) (1 QUAD) BELOW MOUNTED AT +18" AFF AND BASIS OF DESIGN SHALL BE CHIEF PAC501B (IN-WALL BACK BOX).
2. JUNCTION BOX PROVIDED FOR THE SENSOR POWER. COORDINATE EXACT LOCATION PRIOR TO ROUGH-IN.
3. MOUNTED OUTLETS AT UNDER SIDE OF EAVES FOR CHRISTMAS LIGHTS POWER. COORDINATED EXACT LOCATION PRIOR TO ROUGH-IN.
4. COORDINATE MOUNTING HEIGHTS OF ELEVATED MICROWAVE LOCATIONS WITH ARCHITECTUAL PLANS.

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GORDON ROAD FIRE DEPARTMENT

POWER FLOOR PLANS

Sheet No.
E2.01

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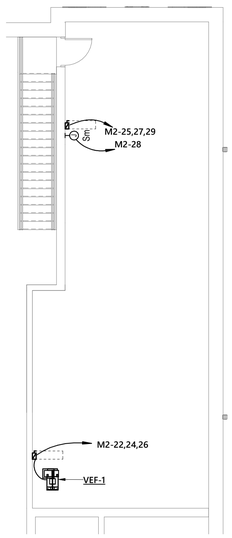
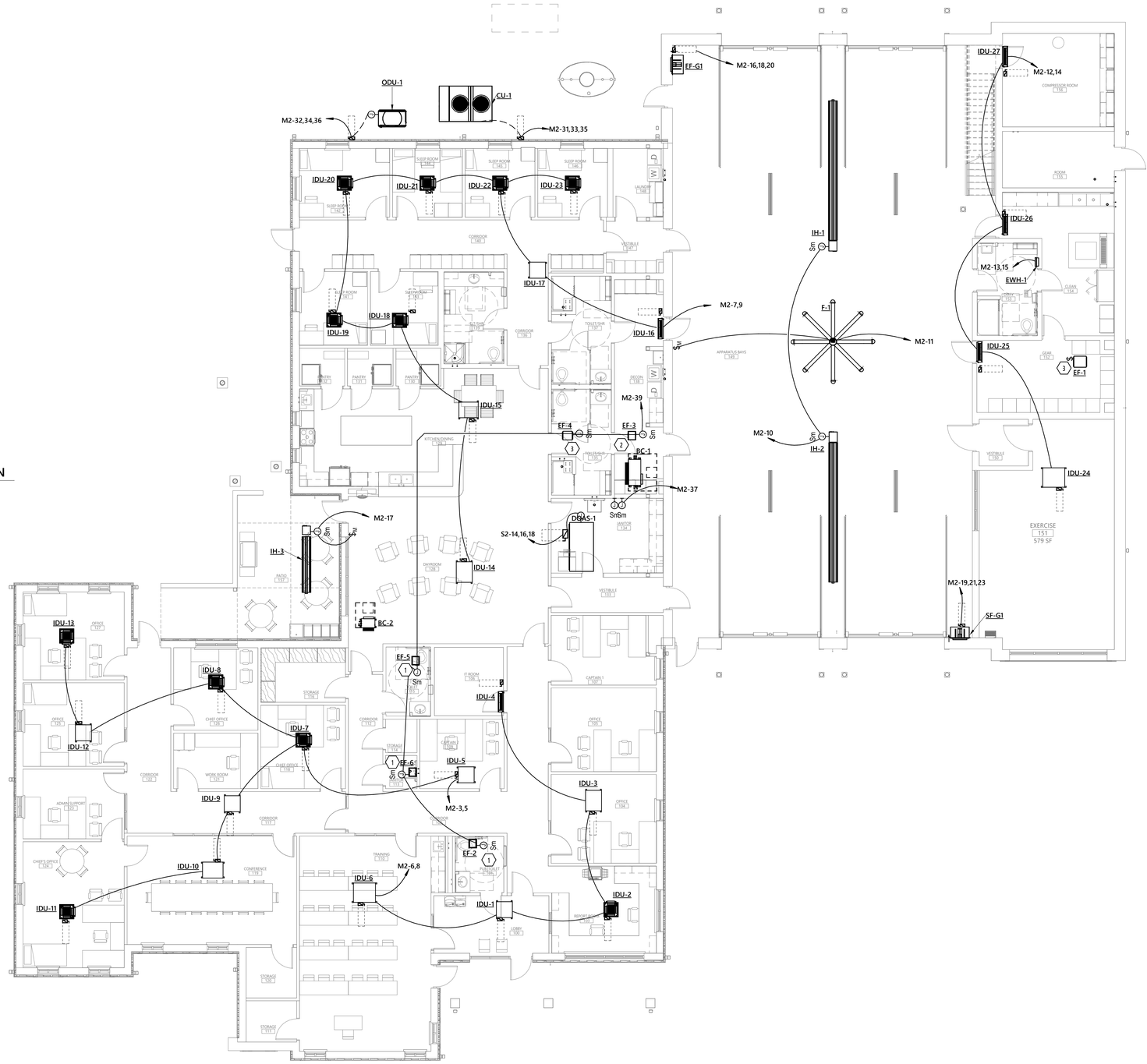


2 MEZZANINE EQUIPMENT CONNECTIONS FLOOR PLAN

1/8" = 1'-0"



1 FIRST FLOOR EQUIPMENT CONNECTIONS FLOOR PLAN

1/8" = 1'-0"

KEYED NOTES:

1. CONNECT TO LOCAL LIGHTING CIRCUIT AND ROOM CONTROLS. REFER TO LIGHTING PLAN.
2. CONNECT TO LOCAL LIGHTING CIRCUIT. PROVIDE WALL MOUNTED ON/OFF SWITCH.
3. CONNECT TO LOCAL LIGHTING CIRCUIT. PROVIDE MAINTANENCE ON/OFF SWITCH. FAN SHALL RUN CONTINOUSLY.

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GORDON ROAD FIRE DEPARTMENT

EQUIPMENT CONNECTIONS FLOOR PLANS

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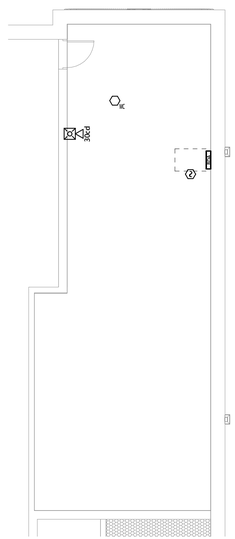

2 **MEZZANINE SYSTEMS REFLECTED CEILING PLAN**
1/8" = 1'-0"

1 **FIRST FLOOR SYSTEMS REFLECTED CEILING PLAN**
1/8" = 1'-0"

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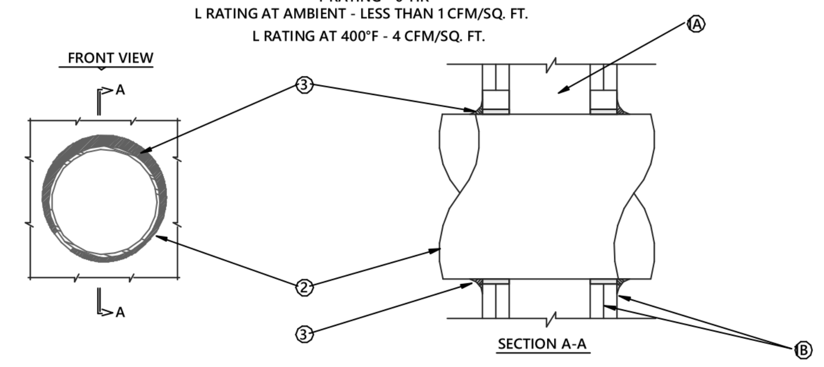
GORDON ROAD FIRE DEPARTMENT

SPECIAL SYSTEMS FLOOR FLOOR PLANS

Sheet No.
E4.01

Opt # 22-0369

U.L. SYSTEM NO. W-L-1085
F RATING - 1-HR OR 2-HR (SEE ITEM 1B)
T RATING - 0-HR
L RATING AT AMBIENT - LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F - 4 CFM/SQ. FT.



1. WALL ASSEMBLY - THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC.

B. GYPSUM BOARD* - 5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIA OF OPENING IS 13-1/4 IN.

DIA OF CIRCULAR OPENING CUT THROUGH GYPSUM WALLBOARD OF EACH SIDE OF WALL ASSEMBLY TO BE MIN 1/4 IN. TO MAX 1/2 IN. LARGER THAN OUTSIDE DIA OF THROUGH PENETRANT (ITEM 2). THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.

2. THROUGH PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE ANNUIAR SPACE BETWEEN THE THROUGH-PENETRANT AND THE PERIPHERY OF THE OPENING SHALL BE MIN 0 IN. TO MAX 1/4 IN. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

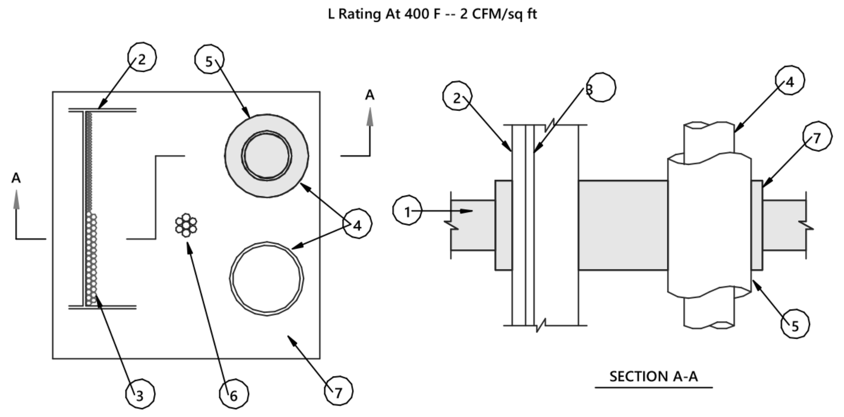
A. STEEL PIPE - NOM 12 IN. DIA (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
B. IRON PIPE - NOM 12 IN. DIA (OR SMALLER) CAST OR DUCTILE IRON PIPE.
C. CONDUIT - NOM 6 IN. DIA (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT.
D. COPPER TUBING - NOM 5 IN. DIA (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
E. COPPER TUBING - NOM 6 IN. DIA (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

3. FILL, VOID, OR CAVITY MATERIAL* - SEALANT - FILL MATERIAL TO BE FORCED INTO THE ANNULUS TO MAXIMUM EXTENT POSSIBLE. ADDITIONAL FILL MATERIAL TO BE INSTALLED SUCH THAT A MIN 1/2 IN. CROWN IS FORMED AROUND THE PENETRATING ITEM AND LAPPING 1/4 IN. BEYOND THE PERIPHERY OF THE OPENING.

HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC - FS-ONE SEALANT
*BEARING THE UL CLASSIFICATION MARK

HILTI FIRESTOP SYSTEMS
REPRODUCED BY HILTI, INC. COURTESY OF UNDERWRITERS LABORATORIES, INC.

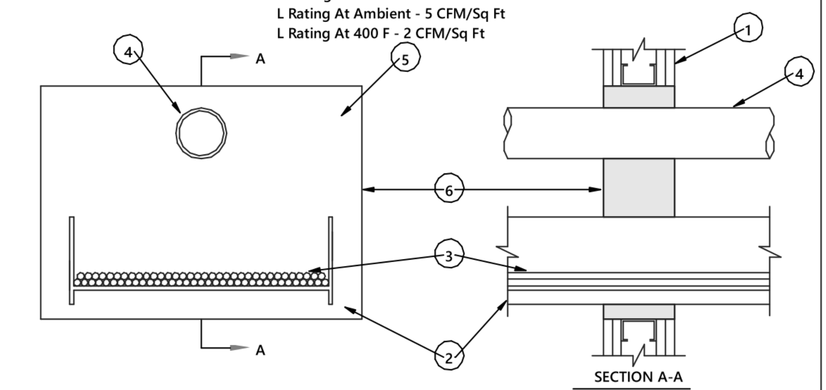
System No. C-AJ-8056
F Rating -- 3 Hr
T Rating -- 0 Hr
L Rating At Ambient -- 5 CFM/sq ft
L Rating At 400 F -- 2 CFM/sq ft



1. FLOOR OR WALL ASSEMBLY -- 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX AREA OF OPENING IS 1296 IN. SQ WITH MAX DIMENSION OF 36 IN.
SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
2. CABLE TRAY* -- MAX 18 IN. WIDE BY MAX 6 IN. DEEP OPEN-LADDER OR SOLID-BACK CABLE TRAY WITH CHANNEL-SHAPED SIDE RAILS FORMED OF 0.060 IN. THICK ALUMINUM OR STEEL AND WITH 1-1/2 IN. WIDE BY 1 IN. CHANNEL SHAPE RUNGS SPACED 9 IN. OC OR A 0.029 IN. THICK STEEL SOLID BACK, RESPECTIVELY. ONE CABLE TRAY TO BE INSTALLED IN THE OPENING. THE MAX ANNULAR SPACE BETWEEN THE CABLE TRAYS IS 9 IN. AND BETWEEN THE PERIPHERY OF THE OPENING SHALL BE MIN 1-1/2 IN. TO MAX 4-1/2 IN. CABLE TRAY TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
3. CABLES -- AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN CABLE TRAY TO BE MAX 30 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CABLE TRAY BASED ON A MAX 3 IN. CABLE LOADING DEPTH WITHIN THE CABLE TRAY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF COPPER CONDUCTOR OR FIBER OPTIC CABLES MAY BE USED:
A. 7/C NO. 12 AWG WITH POLYVINYL CHLORIDE (PVC) INSULATION AND PVC JACKET.
B. 300 PAIR - NO. 24 AWG CABLE WITH PVC INSULATION AND JACKET.
C. 1/C, 350 KCMIL WITH CROSS-LINKED POLYETHYLENE (XLPE) INSULATION AND JACKET.
D. 1/C, 500 KCMIL WITH THERMO PLASTIC INSULATION AND POLYVINYL CHLORIDE (PVC) JACKET.
E. TWENTY FOUR FIBER OPTIC CABLE WITH PVC SUB UNIT AND JACKET.
4. THROUGH-PENETRANTS -- ONE OR MORE PIPE, CONDUIT OR TUBE TO BE INSTALLED WITHIN THE OPENING. THE TOTAL NUMBER OF THROUGH-PENETRANTS IS DEPENDENT ON THE SIZE OF THE OPENING AND TYPES AND SIZES OF THE PENETRANTS. ANY COMBINATION OF THE PENETRANTS DESCRIBED BELOW MAY BE USED PROVIDED THAT THE FOLLOWING PARAMETERS RELATIVE TO THE ANNULAR SPACES AND THE SPACING BETWEEN THE PIPES ARE MAINTAINED. THE SPACE BETWEEN PIPES, CONDUITS OR TUBING AND BETWEEN THE PERIPHERY
OF THE OPENING AND THE PIPES OR CONDUITS SHALL BE MIN 1 IN. TO MAX 4-1/2 IN. PIPE, CONDUIT OR TUBE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
A. NOM 6 IN. DIA (OR SMALLER) RIGID GALV STEEL CONDUIT.
B. NOM 4 IN. DIA (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.
C. NOM 4 IN. DIA (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
D. NOM 4 IN. DIA (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBE.
E. NOM 6 IN. DIA (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
F. NOM 6 IN. DIA (OR SMALLER) CAST OR DUCTILE IRON PIPE.
5. PIPE COVERING -- NOM 1-1/2 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT.
SEE PIPE AND EQUIPMENT COVERING AND MATERIALS (BRGU) CATEGORY IN THE BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 MAY BE USED.
6. CABLES -- MAX 2 IN. DIA TIGHT BUNDLE OF CABLES CENTERED IN OPENING AND RIGIDLY SUPPORTED ON BOTH SURFACES OF FLOOR AND WALL. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF CABLES MAY BE USED:
A. 7/C NO. 12 AWG WITH POLYVINYL CHLORIDE (PVC) INSULATION AND PVC JACKET.
B. 25 PAIR - NO. 24 AWG CABLE WITH PVC INSULATION AND JACKET.
C. 2/C NO. 10 AWG WITH PVC INSULATION AND JACKET.
D. 3/C NO. 8 AWG ALUMINUM CLAD CABLE WITH CROSS-LINKED POLYETHYLENE (XLPE) INSULATION AND PVC JACKET.
E. TYPE RC - 62 A/U COAXIAL CABLE WITH AIR CORE AND PVC JACKET.
F. 24 FIBER OPTIC CABLE WITH PVC SUB UNIT AND OUTER JACKET.
7. FIRESTOP SYSTEM -- THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
A. FILL, VOID OR CAVITY MATERIAL* -- FIRE BLOCKS INSTALLED WITH LONG DIMENSION PASSED THROUGH THE OPENING EXTENDING MIN 1-1/2 IN. FROM EACH SURFACE. BLOCKS TO COMPLETELY FILL THE ENTIRE OPENING.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-FIRE BLOCK
B. FILL, VOID OR CAVITY MATERIAL* -- FILL MATERIAL TO BE FORCED INTO INTERSTICES OF CABLES AND BETWEEN CABLES AND CABLE TRAYS TO MAX EXTENT POSSIBLE ON BOTH SURFACES OF THE PENETRATION.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-ONE SEALANT
C. WIRE MESH (NOT SHOWN) -- WHEN THE ANNULAR SPACE EXCEEDS 4-1/2 IN. TO THE PERIPHERY, A NOM 2 IN. SQ WIRE FENCING SHALL BE USED TO KEEP THE FIRE BLOCKS IN PLACE. THE WIRE FENCING IS FABRICATED FROM MIN NO. 16 SWG (0.060 IN.) GALV STEEL WIRE. THE WIRE IS CUT TO FIT THE CONTOUR OF THE PENETRATING ITEM WITH A MIN 3 IN. LAP BEYOND THE PERIPHERY OF THE OPENING. WIRE FENCING SECURED TO TOP SURFACE OF FLOOR AND BOTH SURFACES OF WALL ASSEMBLY BY MEANS OF 1/4 IN. DIA BY 1 IN. LONG CONCRETE ANCHORS AND 1/4 IN. BY 1-1/2 IN. DIA FENDER WASHERS SPACED MAX 8 IN. OC.
*BEARING THE UL CLASSIFICATION MARK

HILTI FIRESTOP SYSTEMS
REPRODUCED BY HILTI, INC. COURTESY OF UNDERWRITERS LABORATORIES, INC.

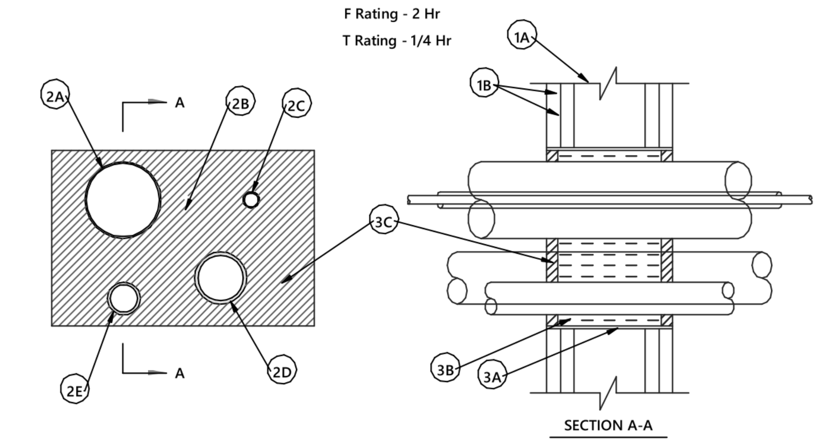
System No. W-L-8013
F Ratings - 1 and 2 Hr (See Item 1)
T Rating - 0 Hr
L Rating At Ambient - 5 CFM/Sq Ft
L Rating At 400 F - 2 CFM/Sq Ft



1. WALL ASSEMBLY — THE 1 OR 2 HR FIRE-RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
A. STUDS — WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 IN. (51 MM) BY 4 IN. (102 MM) LUMBER SPACED 16 IN. (406 MM) OC. STEEL STUDS TO BE MIN 2-1/2 IN. (64 MM) WIDE AND SPACED MAX 24 IN. (610 MM) OC. ADDITIONAL STUDS INSTALLED TO COMPLETELY FRAME THE OPENING.
B. GYPSUM BOARD* — 5/8 IN. (16 MM) THICK, 4 FT (1219 MM) WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX AREA OF OPENING IS 352 SQ IN. (2271 SQ CM) WITH MAX DIMENSION OF 22 IN. (559 MM) WIDE. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
2. CABLE TRAY* — MAX 18 IN. (457 MM) WIDE BY MAX 6 IN. (152 MM) DEEP OPEN-LADDER OR SOLID-BACK CABLE TRAY WITH CHANNEL-SHAPED SIDE RAILS FORMED OF 0.065 IN. (1.65 MM) THICK ALUMINUM OR 0.060 IN. (1.52 MM) THICK STEEL AND WITH 1-1/2 IN. (38 MM) WIDE BY 1 IN. (25 MM) CHANNEL SHAPE RUNGS SPACED 9 IN. (229 MM) OC OR A 0.029 IN. (0.74 MM) THICK STEEL SOLID BACK, RESPECTIVELY. ONE CABLE TRAY TO BE INSTALLED IN THE OPENING. THE MAX ANNULAR SPACE BETWEEN THE CABLE TRAY AND THE PERIPHERY OF THE OPENING SHALL BE MIN 1 IN. (25 MM) TO MAX 7 IN. (178 MM) CABLE TRAY TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
3. CABLES — AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN CABLE TRAY TO BE MAX 30 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CABLE TRAY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF COPPER CONDUCTOR CABLES MAY BE USED:
A. 7/C NO. 12 AWG WITH POLYVINYL CHLORIDE (PVC) INSULATION AND PVC JACKET.
B. 100 PAIR - NO. 24 AWG CABLE WITH PVC INSULATION AND JACKET.
C. 1/C, 750 KCMIL (OR SMALLER) WITH PVC INSULATION AND JACKET.
4. THROUGH-PENETRANTS — ONE OR MORE PIPE OR TUBE TO BE INSTALLED WITHIN THE OPENING. THE TOTAL NUMBER OF THROUGH-PENETRANTS IS DEPENDENT ON THE SIZE OF THE OPENING AND TYPES AND SIZES OF THE PENETRANTS. ANY COMBINATION OF THE PENETRANTS DESCRIBED BELOW MAY BE USED PROVIDED THAT THE FOLLOWING PARAMETERS RELATIVE TO THE ANNULAR SPACES AND THE SPACING BETWEEN THE PIPES ARE MAINTAINED. THE SPACE BETWEEN THE PIPE OR TUBE AND THE PERIPHERY OF THE OPENING SHALL BE MIN 1-1/2 IN. (38 MM) TO MAX 9-1/4 IN. (235 MM). PIPE OR TUBE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NON-METALLIC OR METALLIC PIPES, OR TUBES MAY BE USED:
A. POLYVINYL CHLORIDE (PVC) PIPE — MAX 3 IN. (76 MM) DIA SCHEDULE 40 SOLID CORE PVC PIPE (OR SMALLER) FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM.
B. STEEL PIPE — NOM 6 IN. (152 MM) DIA (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE.
C. CONDUIT — NOM 4 IN. (102 MM) DIA (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR 6 IN. (152 MM) DIA STEEL CONDUIT.
D. COPPER PIPE — NOM 4 IN. (102 MM) DIA (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
E. COPPER TUBE — NOM 4 IN. (102 MM) DIA (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBE.
4A. PIPE COVERING — (NOT SHOWN) NOM 1-1/2 IN. (38 MM) THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN 3.5 PCF) (56KG/M3) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT. SEE PIPE AND EQUIPMENT COVERING AND MATERIALS (BRGU) CATEGORY IN THE BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 MAY BE USED.
5. CABLES — MAX 1-1/2 IN. (38 MM) DIA TIGHT BUNDLE OF CABLES INSTALLED WITHIN THE OPENING AND RIGIDLY SUPPORTED ON BOTH SURFACES OF WALL. THE SPACE BETWEEN THE CABLES AND PERIPHERY OF THE OPENING SHALL RANGE FROM 1-3/16 IN. (30.2 MM) MIN TO A MAX OF 1-1/2 IN. (38 MM). ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF CABLES MAY BE USED:
A. 7/C NO. 12 AWG WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKET.
B. 25 PAIR — NO. 24 AWG CABLE WITH PVC INSULATION AND JACKET.
C. TYPE R GU/59 COAXIAL CABLE WITH PVC OUTER JACKET.
D. 24 FIBER OPTIC CABLE WITH PVC SUB UNIT AND OUTER JACKET.
6. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
A. FILL, VOID OR CAVITY MATERIAL* FIRE BLOCKS FOR WALLS INCORPORATING MAX 3-5/8 IN. (92 MM) STEEL STUDS OR MAX 2 (51 MM) BY 4 IN. (102 MM) WOOD STUDS, FIRE BLOCK INSTALLED WITH 5 IN. (127 MM) DIMENSION PROJECTING THROUGH AND CENTERED IN OPENING. FOR WALLS CONSTRUCTED OF LARGER STEEL OR WOOD STUDS, FIRE BLOCK INSTALLED WITH LONG DIMENSION PASSING THROUGH AND CENTERED IN OPENING. BLOCKS MAY OR MAY NOT BE CUT FLUSH WITH BOTH SURFACES OF WALL. WHEN MULTIPLE LAYERS OF GYPSUM BOARD ARE USED, BLOCKS MAY BE RECESSED 1/2 IN. (13 MM) FROM SURFACE OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS 657 FIRE BLOCK
B. FILL, VOID OR CAVITY MATERIAL* — SEALANT OR PUTTY - FILL MATERIAL TO BE FORCED INTO INTERSTICES OF CABLES, BETWEEN CABLES AND CABLE TRAYS, AROUND EACH PENETRANT AND WHERE OBVIOUS VOIDS ARE OBSERVED TO MAX EXTENT POSSIBLE ON BOTH SURFACES OF THE PENETRATION. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE SEALANT, CP 618 PUTTY STICK OR CP620 FIRE FOAM *BEARING THE UL CLASSIFICATION MARK

HILTI FIRESTOP SYSTEMS
REPRODUCED BY HILTI, INC. COURTESY OF UNDERWRITERS LABORATORIES, INC.

System No. W-L-8004
F Rating - 2 Hr
T Rating - 1/4 Hr



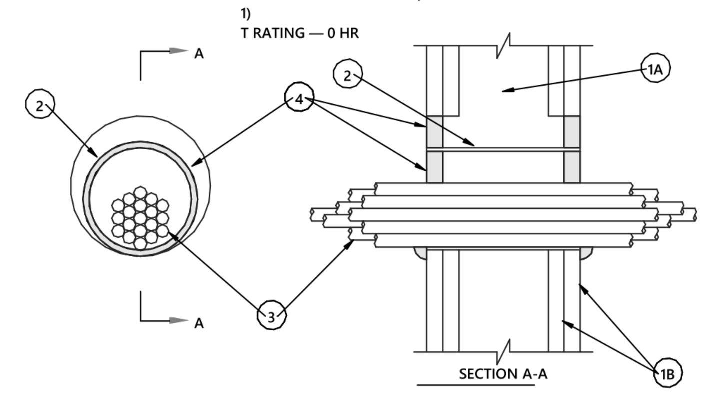
1. WALL ASSEMBLY THE FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
A. STUDS WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC. ADDITIONAL FRAMING (NOT SHOWN) MAY BE INSTALLED AROUND THE PERIMETER OF THE OPENING IN LIEU OF THE STEEL WIRE MESH (ITEM NO. 3A).
B. GYPSUM BOARD* TWO LAYERS OF NOM 5/8 IN. THICK GYPSUM WALLBOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX AREA OF OPENING IS 96 SQ IN. WITH MAX DIMENSION OF 12 IN. MAX WIDTH OF OPENING IN WOOD STUD WALLS IS LIMITED TO 12 IN.
2. THROUGH PENETRANTS THE FOLLOWING TYPES AND SIZES OF PIPES, CONDUITS, TUBING OR CABLES MAY BE USED:
A. NOM 3 IN. DIA (OR SMALLER) ELECTRICAL METALLIC TUBING (EMT).
B. MAX 25 PAIR -- NO. 24 AWG (OR SMALLER) TELEPHONE CABLE WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKET.
C. MAX 3/C WITH GROUND -- NO. 10 AWG (OR SMALLER) TYPE NM CABLE WITH PVC INSULATION AND JACKET.
D. NOM 2 IN. DIA (OR SMALLER) SCHEDULE 40 PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS ONLY.
E. MAX 300 KCMIL (OR SMALLER) POWER CABLE WITH PVC INSULATION AND NYLON JACKET. THE THROUGH PENETRATING ITEMS TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY AND LOCATED AS SHOWN IN THE TABLE BELOW:

ITEM NO.	MAX DISTANCE BETWEEN ADJACENT PEN. ITEM IN.	MIN DISTANCE BETWEEN ADJACENT PEN. ITEM IN.	MAX DISTANCE FROM THROUGH OPENING IN.	MIN DISTANCE FROM THROUGH OPENING IN.
2A	7-7/16	1-11/16	7-7/16	1/2
2B	7-7/16	1-11/16	7-7/16	1/2
2C	7-7/16	1-11/16	7-7/16	1/2
2D	7-7/16	1-11/16	7-7/16	1/2
2E	7-7/16	1-11/16	7-7/16	1-1/2

3. FIRESTOP SYSTEM THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
A. STEEL WIRE MESH NO. 8 STEEL WIRE MESH HAVING A MIN 1 IN. LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL WIRE MESH TO BE 4-3/4 IN., CENTERED AND FORMED TO FIT PERIPHERY OF THROUGH OPENING. STEEL WIRE MESH IS NOT REQUIRED WHEN ADDITIONAL FRAMING MEMBERS (ITEM NO. 1A) ARE USED.
B. PACKING MATERIAL MIN 4.0 IN. THICKNESS OF MIN 3.5 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
C. FILL, VOID OR CAVITY MATERIAL* - SEALANT MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL.
HILTI CONSTRUCTION CHEMICALS, DIV OF
HILTI INC - FS-ONE SEALANT
*BEARING THE UL CLASSIFICATION MARKING

HILTI FIRESTOP SYSTEMS
REPRODUCED BY HILTI, INC. COURTESY OF UNDERWRITERS LABORATORIES, INC.

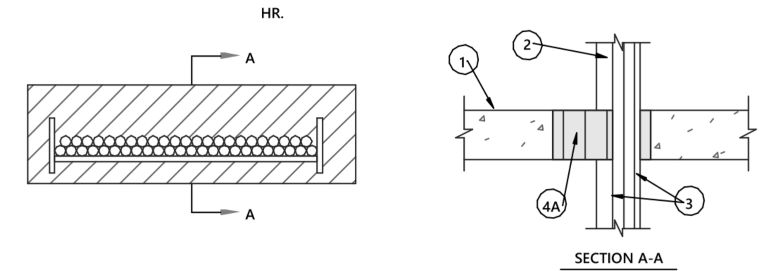
SYSTEM NO. W-L-3065
F RATINGS — 1 AND 2 HR (SEE ITEM 1)
T RATING — 0 HR



1. WALL ASSEMBLY — THE 1 OR 2 FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
A. STUDS — WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. (51 BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC. STEEL STUDS TO BE MIN 2-1/2 IN. (64 MM) WIDE AND SPACED MAX 24 IN. (610 MM) OC.
B. GYPSUM BOARD* — NOM 5/8 IN. (16 MM) THICK GYPSUM BOARD, WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIA OF OPENING IS 5-1/2 IN. (138 MM) WHEN SLEEVE (ITEM 2) IS EMPLOYED. MAX DIA OF OPENING IS 4 IN. (102 MM) WHEN SLEEVE (ITEM 2) IS NOT EMPLOYED.
THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE FIRE RATING OF THE WALL ASSEMBLY.
2. METALLIC SLEEVE — (OPTIONAL) - NOM 4 IN. (102 MM) DIA (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT) OR SCHEDULE 5 (OR HEAVIER) STEEL PIPE OR MIN 0.016 IN. THICK (0.41 MM, NO. 28 GA) GALV STEEL SLEEVE INSTALLED FLUSH WITH WALL SURFACES. THE ANNULAR SPACE BETWEEN STEEL SLEEVE AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. (0 MM, POINT CONTACT) TO MAX 1 IN. (25MM). WHEN SCHEDULE 5 STEEL PIPE OR EMT IS USED, SLEEVE MAY EXTEND UP TO 18 IN. (457 MM) BEYOND THE WALL SURFACES.
3. CABLES — AGGREGATE CROSS-SECTIONAL AREA OF CABLE IN OPENING TO BE MAX 45 PERCENT OF THE CROSS-SECTIONAL AREA OF THE OPENING. THE ANNULAR SPACE BETWEEN THE CABLE BUNDLE AND THE PERIPHERY OF THE OPENING TO BE MIN 0 IN. (0 MM, POINT CONTACT) TO MAX 1 IN. (25 MM) CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF COPPER CONDUCTOR CABLES MAY BE USED:
A. MAX 7/C NO. 12 AWG WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKET.
B. MAX 25 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC INSULATION AND JACKET.
B1. MAX 4 PR NO. 22 AWG CAT 5 OR CAT 6 COMPUTER CABLES.
C. TYPE RG/U COAXIAL CABLE WITH POLYETHYLENE (PE) INSULATION AND PVC JACKET HAVING A MAX OUTSIDE DIAMETER OF ½ IN. (13 MM).
C1. MAX RG 6/U COAXIAL CABLE WITH FLUORINATED ETHYLENE INSULATION AND JACKETING.
D. MULTIPLE FIBER OPTICAL COMMUNICATION CABLE JACKETED WITH PVC AND HAVING A MAX OD OF 5/8 IN. (16 MM).
E. THROUGH PENETRATING PRODUCTS*— MAX THREE COPPER CONDUCTOR NO. 8 AWG . METAL-CLAD CABLE+. AFC CABLE SYSTEMS INC
F. MAX 3/C (WITH GROUND)(OR SMALLER) NO. 8 AWG COPPER CONDUCTOR CABLE WITH PVC INSULATION AND JACKETING.
G. MAX 3/4 IN. (19 MM) DIA COPPER GROUND CABLE WITH OR WITHOUT A PVC JACKET.
H. FIRE RESISTIVE CABLES* - MAX 1-1/4 IN. (32 MM) DIA SINGLE CONDUCTOR OR MULTI CONDUCTOR TYPE MI CABLE. A MIN 1/8 IN. (3 MM) SEPARATION SHALL BE MAINTAINED BETWEEN MI CABLES AND ANY OTHER TYPES OF CABLE.
I. MAX 4/C WITH GROUND 300KCMIL (OR SMALLER) ALUMINUM SER CABLE WITH PVC INSULATION AND JACKET.
J. THROUGH PENETRATING PRODUCT* - ANY CABLES, METAL-CLAD CABLE+ OR ARMORED CABLE+ CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATING PRODUCTS CATEGORY.
SEE THROUGH PENETRATING PRODUCT (XHLY) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
4. FILL, VOID OR CAVITY MATERIAL*— SEALANT OR PUTTY — FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH EACH END OF THE STEEL SLEEVE OR WALL SURFACE. FILL MATERIAL INSTALLED SYMMETRICALLY ON BOTH SIDES OF THE WALL. A MIN 5/8 IN. (16 MM) THICKNESS OF SEALANT IS REQUIRED FOR THE 1 OR 2 HR F RATING . AN ADDITIONAL 1/2 IN. (13 MM) DIA BEAD OF FILL MATERIAL SHALL BE APPLIED AROUND THE PERIMETER OF SLEEVE ON BOTH SIDES OF THE WALL WHEN SLEEVE EXTENDS BEYOND SURFACE OF WALL.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S, CP606, FS-ONE SEALANTS OR CP618 PUTTY
*BEARING THE UL CLASSIFICATION MARK
+BEARING THE UL LISTING MARK

HILTI FIRESTOP SYSTEMS
DRAWING ORIGINATION DATE: 03-21, 2011
REPRODUCED BY HILTI, INC. COURTESY OF UNDERWRITERS LABORATORIES, INC.

SYSTEM NO. C-AJ-4035
F RATING - 3 HR.
T RATING = 0 HR.

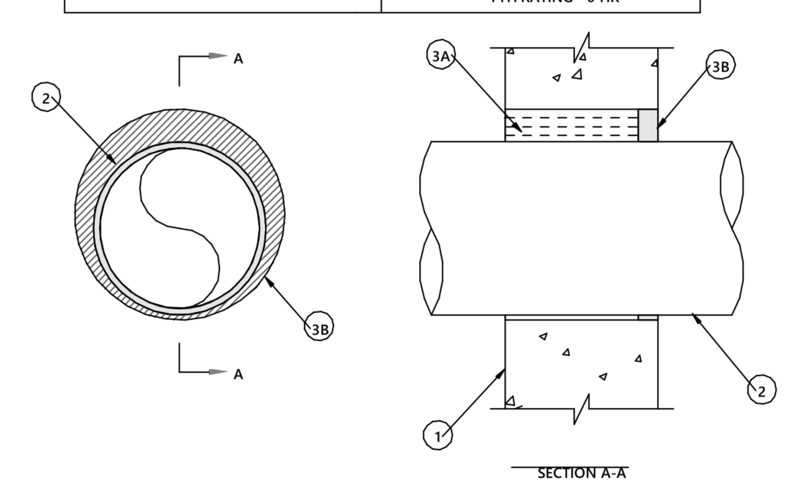


1. FLOOR OR WALL ASSEMBLY MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX AREA OF OPENING IS 270 SQ IN WITH MAX DIMENSION OF 30 IN.
SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
2. CABLE TRAY* MAX 24 IN. WIDE BY MAX 4 IN. DEEP OPEN-LADDER OR SOLID-BACK CABLE TRAY WITH CHANNEL-SHAPED SIDE RAILS FORMED OF 0.10 IN. THICK ALUMINUM OR 0.060 IN. THICK GALV STEEL AND WITH 1-1/2 IN. WIDE BY 1 IN. CHANNEL SHAPE RUNGS SPACED 9 IN. OC OR A 0.029 IN. THICK STEEL SOLID BACK, RESPECTIVELY. THE ANNULAR SPACE BETWEEN THE CABLE TRAY AND THE PERIPHERY OF THE OPENING SHALL BE MIN 1 IN. TO MAX 4 IN. CABLE TRAY TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
3. CABLES AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN CABLE TRAY TO BE MAX 40 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CABLE TRAY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF COPPER CONDUCTOR OR FIBER OPTIC CABLES MAY BE USED:
A. 1/C, 500 KCMIL WITH THERMOPLASTIC INSULATION AND PVC JACKET.
B. 300 PAIR -- NO. 24 AWG CABLE WITH PVC INSULATION AND JACKET.
C. 24 FIBEROPTIC CABLE WITH PVC SUBUNIT AND JACKET.
D. THREE 1/C NO. 12 AWG WIRE, INSULATED WITH POLYVINYL CHLORIDE, IN A NOMINAL 3/4 IN. FLEXIBLE METAL CONDUIT.
4. FIRESTOP SYSTEM THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
A. FILL, VOID OR CAVITY MATERIAL* FIRE BLOCKS INSTALLED WITH THE LONG DIMENSION PLACED HORIZONTALLY WITHIN THE OPENING, FLUSH WITH BOTTOM OF FLOOR ASSEMBLIES. BLOCKS TO COMPLETELY FILL THE ENTIRE WIDTH OF OPENING OF WALL ASSEMBLIES.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-FIRE BLOCK
B. FILL, VOID OR CAVITY MATERIAL* -SEALANT ON PUTTY- NOT SHOWN FILL MATERIAL TO BE FORCED INTO INTERSTICES OF CABLES AND BETWEEN CABLES AND CABLE TRAYS TO MAX EXTENT POSSIBLE ON BOTH SURFACES OF THE PENETRATION.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC -- FS-ONE SEALANT OR CP618 FIRESTOP PUTTY STICK (NOTE: L RATING ONLY WHEN FS-ONE SEALANT IS USED)
*BEARING THE UL CLASSIFICATION MARK

HILTI FIRESTOP SYSTEMS
REPRODUCED BY HILTI, INC. COURTESY OF UNDERWRITERS LABORATORIES, INC.

SYSTEM NO. W-J-1088

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F RATING - 1 AND 2 HR (SEE ITEM 3)	F RATING - 1 AND 2 HR (SEE ITEM 3)
T RATING - 0 HR	FT RATING - 0 HR
	FH RATING - 1 AND 2 HR (SEE ITEM 3)
	FTH RATING - 0 HR



1. WALL ASSEMBLY — MIN 3-3/4 IN. (95 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAMETER OF OPENING 10-1/2 IN. (267 MM). SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
2. THROUGH-PENETRANTS — ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. AN ANNULAR SPACE OF MIN 1/4 IN. TO MAX 1-5/8 IN. (41 MM) IS REQUIRED WITHIN FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
A. STEEL PIPE — NOM 8 IN. (203 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
B. IRON PIPE — NOM 8 IN. (203 MM) DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
C. CONDUIT — NOM 4 IN. (102 MM) DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT) OR 6 IN. DIAM STEEL CONDUIT.
D. COPPER TUBING — NOM 4 IN. (102 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
E. COPPER PIPE — NOM 4 IN. (102 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
F. FLEXIBLE STEEL CONDUIT+ — NOM 2 IN. (51 MM) DIAM (OR SMALLER) FLEXIBLE STEEL CONDUIT.
SEE FLEXIBLE METAL CONDUIT (DXUZ) CATEGORY IN THE ELECTRICAL CONSTRUCTION EQUIPMENT DIRECTORY FOR NAMES OF MANUFACTURERS.

HILTI FIRESTOP SYSTEMS
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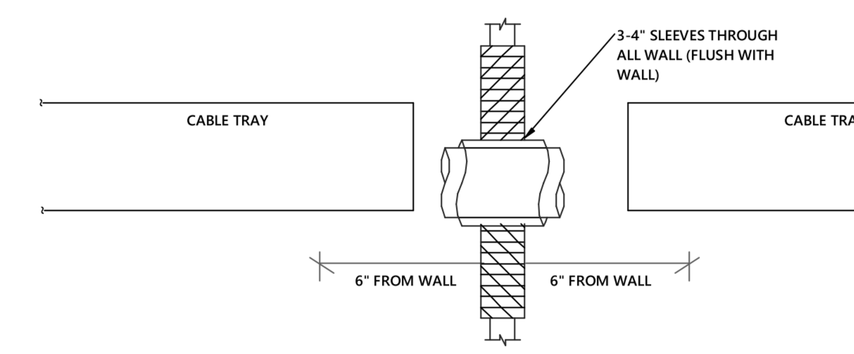
CABLE TRAY WALL INTERSECTION DETAIL



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GORDON ROAD FIRE DEPARTMENT

ELECTRICAL DETAILS - PENETRATION

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E6.00

Opt # 22-0369

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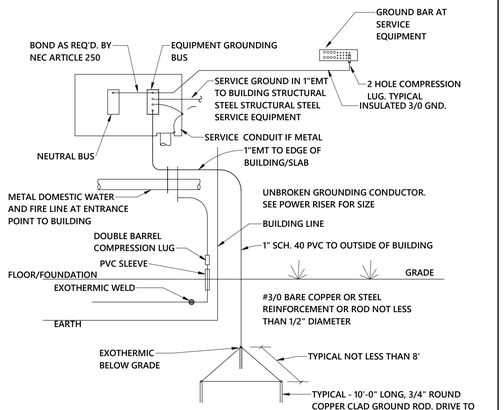
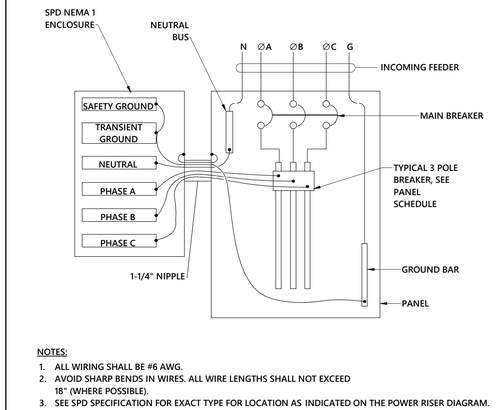
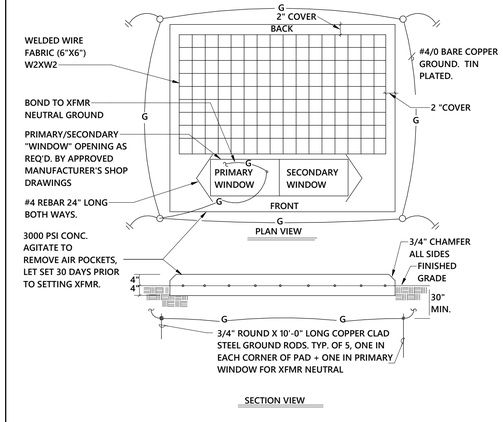


1 SERVICE GROUND DIAGRAM
NOT TO SCALE

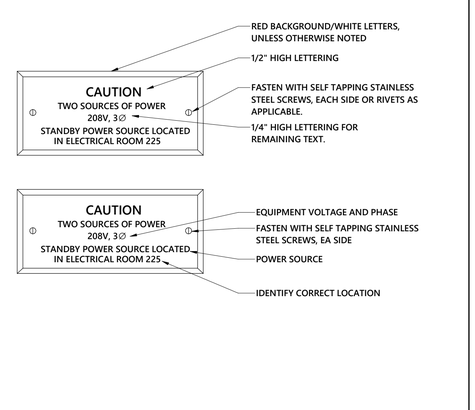


NOTES:
1. ALL WIRING SHALL BE #6 AWG.
2. AVOID SHARP BENDS IN WIRES. ALL WIRE LENGTHS SHALL NOT EXCEED 18" (WHERE POSSIBLE).
3. SEE SPD SPECIFICATION FOR EXACT TYPE FOR LOCATION AS INDICATED ON THE POWER RISER DIAGRAM.

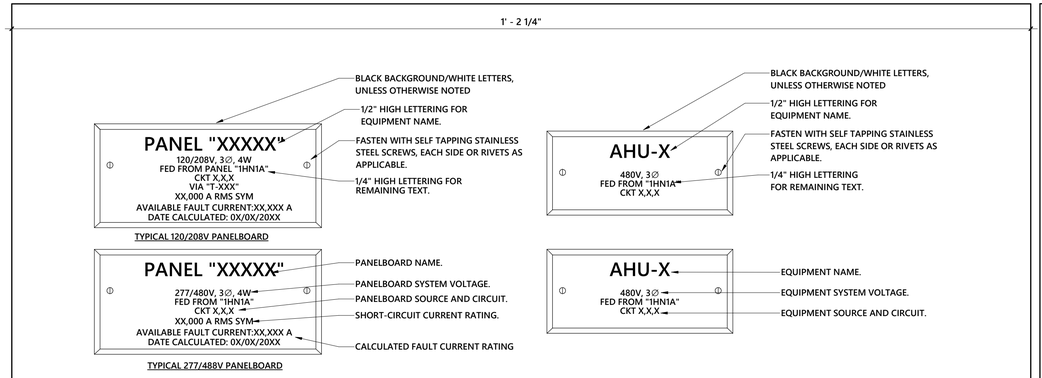
2 SPD CONNECTION DETAIL
NOT TO SCALE



3 TRANSFORMER PAD DETAIL
NOT TO SCALE



4 EMERGENCY POWER NAMEPLATE
NOT TO SCALE

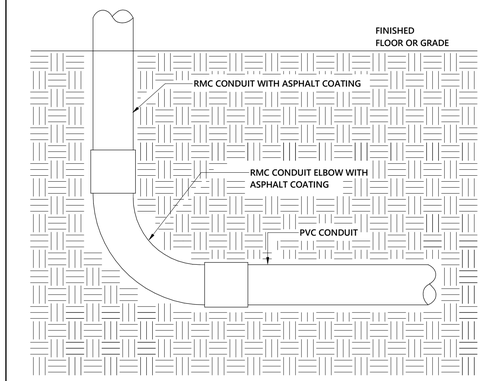


PANELBOARD NAMEPLATES

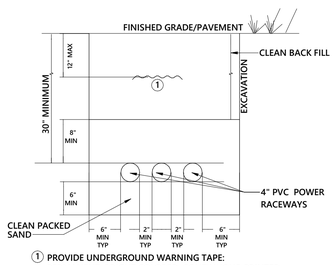
EQUIPMENT NAMEPLATES

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS, COLORS, ETC.
2. PROVIDE SHORT-CIRCUIT CURRENT RATING AND AVAILABLE FAULT CURRENT ON EACH NON-DWELLING SERVICE EQUIPMENT NAMEPLATE.

5 TYPICAL NAMEPLATE DIAGRAM
NOT TO SCALE

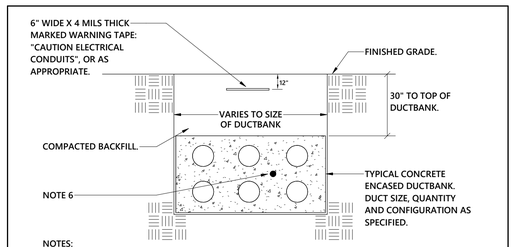


6 CONDUIT TRANSITION DETAIL
NO SCALE



1 PROVIDE UNDERGROUND WARNING TAPE: PERMANENT, BRIGHT COLORED, CONTINUOUS-PRINTED, POLYETHYLENE TAPE, NOT LESS THAN 6 INCHES WIDE BY 4 MILS THICK, COMPOUNDED FOR PERMANENT DIRECT-BURIAL SERVICE, EMBEDDED CONTINUOUS METALLIC STRIP OR CORE AND PRINTED LEGEND INDICATING THE TYPE OF UNDERGROUND LINE.

10 DIRECT BURIED RACEWAYS SECTION DETAIL
NO SCALE



NOTES:
1. DUCTS SHALL BE PITCHED TO DRAIN TOWARD MANHOLES AND HANDHOLES AND AWAY FROM BUILDINGS AND EQUIPMENT AS APPROPRIATE.
2. DUCT SPACERS SHALL BE INSTALLED AND COORDINATED WITH THE DUCT SIZE. SPACING SHALL BE AS REQUIRED BY THE MANUFACTURER AND TO PREVENT SAGGING/DEFORMING OF DUCTS. SPACERS SHALL BE SECURED BY NON-FERROUS MEANS TO PREVENT FLOATING DURING CONCRETE POUR.
3. ALL DUCTS SHALL BE SEALED AT TERMINATIONS WITH APPROVED SEALING COMPOUND AND PLUGS, RATED TO WITHSTAND MINIMUM 15 PSI HYDROSTATIC PRESSURE.
4. ALL DUCTS SHALL BE RODDED, CLEARED AND SWABBED TO REMOVE ALL OBSTRUCTIONS AFTER INSTALLATION AND HAVE A WATERPROOF PULL CORD INSTALLED (130 LB MINIMUM TENSILE TEST). CORD SHALL BE FACTORY MARKED AT MINIMUM ONE FOOT INTERVALS.
5. VIBRATE CONCRETE TO FILL VOIDS.
6. INSTALL 1#2 BARE COPPER GROUND WIRE WITHIN CONCRETE ALONG ENTIRE DUCTBANK LENGTH. EXOTHERMICALLY CONNECT TO GROUND TRIAD RING. THIS GROUND WIRE IS IN ADDITION TO ANY GROUNDED (NEUTRAL) AND GROUNDING CONDUCTORS INDICATED TO BE INSTALLED WITHIN THE CONDUITS. ALTERNATE THE POSITION OF THE GROUND WIRE THROUGH THE DUCT SPACERS TO PREVENT SAG. ELECTRICAL POWER DUCTBANKS ONLY.
7. CONCRETE STRENGTH SHALL BE 3000 PSI @ 28 DAYS MINIMUM.
8. CONCRETE THERMAL RESISTIVITY (RHO) SHALL BE 0.55 m-C/W OR LESS.

11 TYPICAL DUCTBANK TRENCH DETAIL
NOT TO SCALE

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ELECTRICAL DETAILS - GENERAL

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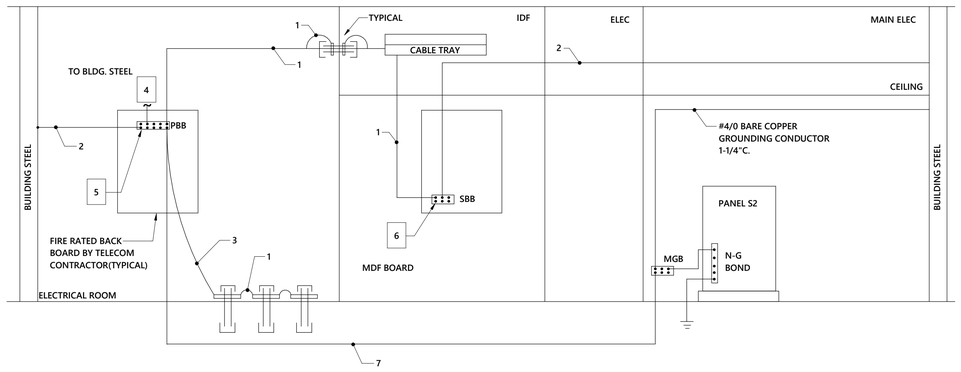


KEYED NOTES: #

1. INSTALL #6 AWG GREEN JACKET, THHN TYPE COPPER TELECOM EQUIPMENT BONDING CONDUCTOR WITH 2-HOLE LONG BARREL IRREVERSIBLE CRIMP CONNECTOR ON ONE END AND A IRREVERSIBLE CRIMP TYPE CONNECTION.
2. INSTALL #6 AWG GREEN JACKET, THHN TYPE COPPER BONDING CONDUCTOR WITH 2-HOLE LONG BARREL IRREVERSIBLE CRIMP CONNECTORS ON BOTH ENDS, FROM THE PBB OR SBB TO THE STRUCTURAL STEEL.
3. INSTALL GREEN JACKET, THHN TYPE COPPER TELECOM BONDING BACKBONE CONDUCTOR. USE 2-HOLE LONG BARREL IRREVERSIBLE CRIMP CONNECTORS AND IRREVERSIBLE CABLE CRIMP CONNECTORS ON ENDS OF CONDUCTORS. SIZE CONDUCTOR IAW TIA-607-D TBB CHART.
4. SEE TELECOM DRAWINGS.
5. INSTALL PRIMARY BONDING BUSBAR (PBB) NEAR THE BACKBONE CABLING AND ASSOCIATED TERMINATIONS. PRIMARY BONDING BUSBAR SHALL BE MOUNTED AT 80" TO THE TBB PLYWOOD WITH MINIMUM 2" STANDOFFS. SEE TELECOMMUNICATIONS GROUNDING BAR DETAIL.
6. INSTALL SECONDARY BONDING BUSBAR (SBB) NEAR THE BACKBONE CABLING AND ASSOCIATED TERMINATIONS. BONDING BUSBAR SHALL BE MOUNTED AT 80" TO THE TTB PLYWOOD WITH MINIMUM 2" STANDOFFS. SEE TELECOMMUNICATIONS GROUNDING BAR DETAIL.
7. INSTALL #3/0 AWG, GREEN JACKET, THHN TYPE COPPER BONDING CONDUCTOR WITH 2-HOLE LONG BARREL IRREVERSIBLE CRIMP CONNECTOR ON ONE END, FROM THE MGB IN THE ELECTRICAL ROOM TO THE PRIMARY BUS BAR (PBB).

TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (PBB), 24"Lx2"Wx 1/4"H CU. PROVIDE 1#6G (INSULATED), 1/2"C. AND BOND TO BUILDING STEEL AND MAIN GROUNDING ELECTRODE SYSTEM AT SERVICE ENTRANCE EQUIPMENT. SBB AT EACH IDF/DATA ROOM 12"L x 2"W x 1/4"H CU.

MAIN GROUND BAR (MGB) SHALL BE THE SAME DIMENSIONS AS THE PBB.

NOTES:
1. FLOOR PLANS INDICATE THE EXACT QUANTITY AND LOCATION OF ALL TELECOM OUTLETS.
2. SEE PLANS FOR HEAD END LOCATION, AND DISTRIBUTION CLOSETS.
3. METALLIC CONDUIT TO AND FROM CABLE TRAY SHALL BE GROUNDED PER NEC 392.
4. SEE SITE PLAN FOR ALL SERVICE ENTRANCE CONDUIT.

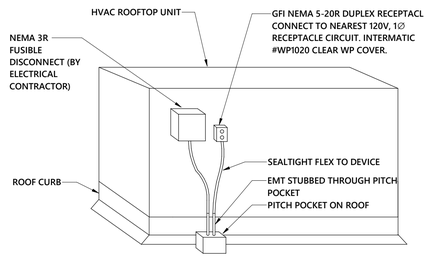
TELECOM BACKBONE BONDING CONDUCTOR SIZE VS LENGTH TABLE

TBB/GE LINEAR LENGTH	TBB/GE SIZE (AWG) (CU)
13	6
14-20	4
21-26	3
27-33	2
34-41	1
42-52	1/0
53-66	2/0
67-84	3/0
85-105	4/0
106-125	250 KCMIL
126-150	300 KCMIL
151-175	350 KCMIL
176-250	500 KCMIL
251-300	600 KCMIL
GREATER THAN 301	750 KCMIL

NOTES:
A. TBB SIZING PER LATEST EDITION OF TIA-607-D
B. THE MINIMUM TBB CONDUCTOR SIZE SHALL BE A NO.6 AMERICAN WIRE GUAGE (AWG).

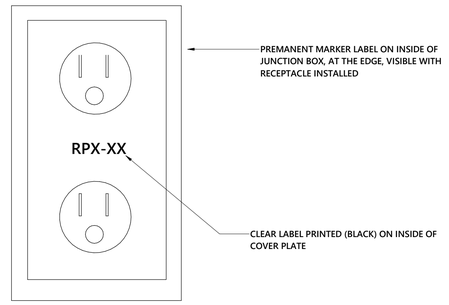
1 TELECOMMUNICATIONS GROUNDING AND PATHWAY RISER DIAGRAM
NO SCALE

NOTE: TYPICAL FOR ALL ROOF MOUNTED HVAC EQUIPMENT.



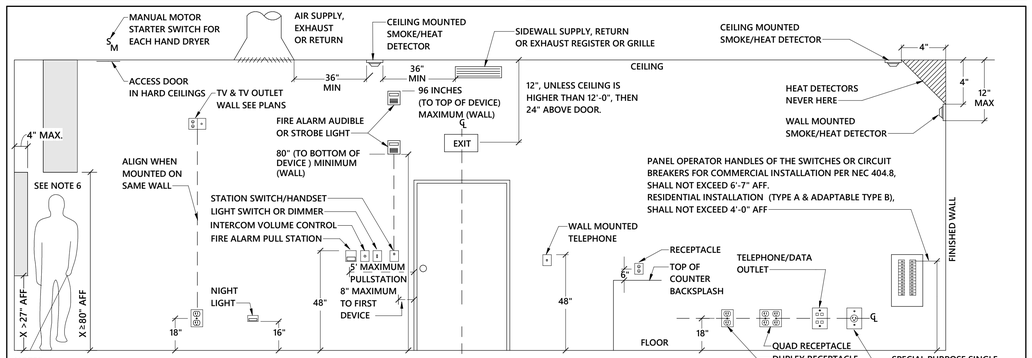
ROOF SUPPORT SPECIFICATIONS
PROVIDE CARLISLE SYNTHETIC PIPE SUPPORT OR APPROVED EQUAL. CONDUIT DIAMETERS 2" TO 5" : 10' SPACING MAXIMUM CONDUIT DIAMETERS 1 1/2" : 8' SPACING MAXIMUM CONDUIT DIAMETERS SMALLER THAN 1 1/2" : 6' SPACING MAXIMUM ALL UNIONS SHALL BE PROVIDED WITH AN ADDITIONAL SUPPORT.

2 ROOFTOP RECEPTACLE DETAIL
NOT TO SCALE



NOTES:
1. LABEL SHALL HAVE PANEL NAME AND CIRCUIT NUMBER.

4 RECEPTACLE DETAIL
NOT TO SCALE



NOTES:
1. LOCATIONS WHERE TV MOUNT IS BACK TO BACK ON SAME WALL, AN OFFSET OF 8-12" WILL BE NEEDED FOR INSTALLATION OF JACK/RECEPTACLE.
2. DEVICES ABOVE COUNTER TOPS SHALL BE A MAXIMUM OF 48" TO TOP OF DEVICE.
3. DEVICES NEXT TO DOOR EXIT SHALL BE WITHIN 8" (MAXIMUM) TYPICAL OF DOOR UNLESS OBSTACLES SUCH AS SIDELITES, ETC.
4. DEVICES REQUIRED TO BE ADA ACCESSIBLE SHALL BE INSTALLED PER ANSI A117.1.
5. ALL METALLIC & NON-METALLIC, SWITCH AND RECEPTACLE BOXES INSTALLED IN FRAME WALLS SHALL INCLUDE APPROVED FIRESTOP PUTTY PADS APPPLIED ON THE BACK AND ALL SIDES OF BOX NOT TOUCHING THE WOOD STUD.
6. IN THE CIRCULATION PATH, IF THERE ARE PENDANT LIGHT FIXTURES, ENSURE THEY ARE LOCATED 80" A.F.F. OR HIGHER UNLESS LOCATED ABOVE A FIXED ELEMENT. WALL MOUNTED FIXTURES LOCATED 27" AND 80" A.F.F. SHALL NOT EXTEND GREATER THAN 4" FROM WALL OR BASE OR HAVE FIXED PROTECTION AT 27" A.F.F. OR LOWER WHEN THESE ELEMENTS ARE LOCATED IN THE CIRCULATION PATH.

3 MOUNTING HEIGHTS OF DEVICES - ELEVATION
NOT TO SCALE

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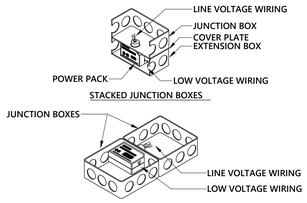
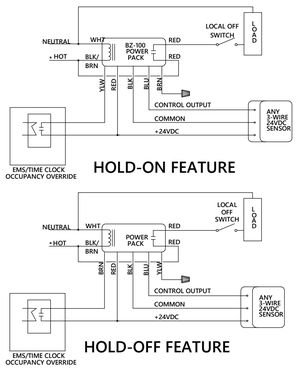


NOTE:
DO NOT MOUNT POWER PACKS CLOSER THAN 6-12 INCHES FROM SENSOR. PROVIDE DOUBLE STACKED JUNCTION BOX FOR MAXIMUM VENTILATION OF POWER PACK. PROVIDE BLANK COVER. WHERE PERMITTED BY CODE AND AHJ, LEAVE (2) OPENINGS IN CONDUIT KNOCKOUT FOR VENTING OF POWER PACK. VERIFY WITH AHJ PRIOR TO KNOCKOUT REMOVAL.

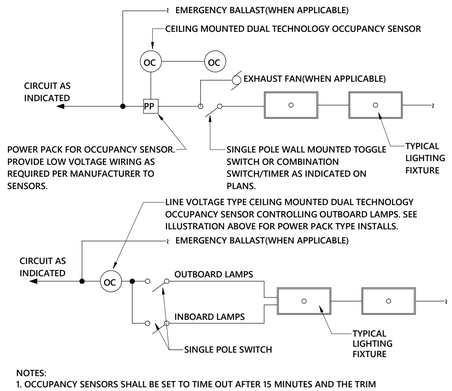
POWER PACK INSTALLED IN J-BOX

1 POWER PACK INSTALLATION
NOT TO SCALE



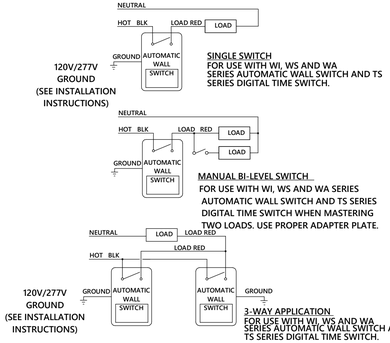
NOTE: CONNECT ONLY THE SUPPLY FOR THE VOLTAGE BEING USED. CAP UNUSED POWER SUPPLY WIRE.

2 POWER PACK WIRING DIAGRAM
NOT TO SCALE



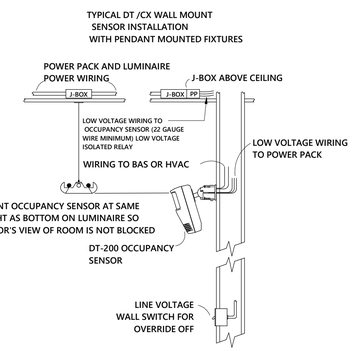
NOTES:
1. OCCUPANCY SENSORS SHALL BE SET TO TIME OUT AFTER 15 MINUTES AND THE TRIM POTENTIOMETER IS SET TO 90% FOR SENSITIVITY.
2. OCCUPANCY SENSORS SHALL BE PLACED AS TO NOT FUNCTION UPON SOMEONE JUST PASSING BY THE ROOM DOOR BUT BY ACTUALLY ENTERING THE ROOM IN AS MUCH AS POSSIBLE.

3 TYPICAL CEILING MOUNTED OCCUPANCY SENSOR WIRING DIAGRAMS
NOT TO SCALE



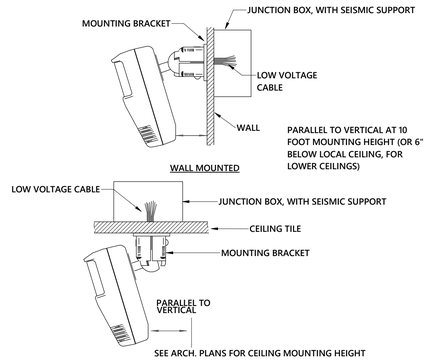
*WHEN THESE SWITCHES ARE WIRED IN A THREE-WAY WIRING CONFIGURATION THEY WILL ONLY OPERATE AS THREE-WAY SWITCHES IF THEY ARE LEFT IN AUTOMATIC MODE. IF ONE SWITCH IS TURNED OFF, THE LIGHTS WILL NOT COME AUTOMATICALLY ON UNTIL THAT SWITCH IS TURN BACK TO THE AUTOMATIC POSITION.

4 SINGLE POLE OCC. SENSOR SWITCH
NOT TO SCALE



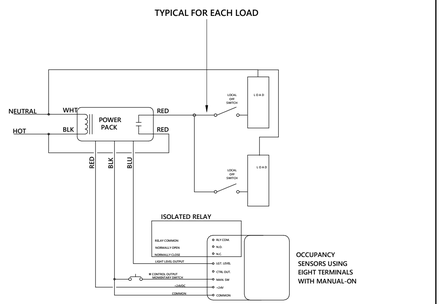
DT-200/CX SERIES MOUNTING DETAIL WITH PENDANT MOUNTED FIXTURES

5 DT-200 PENDANT FIXTURE
NOT TO SCALE

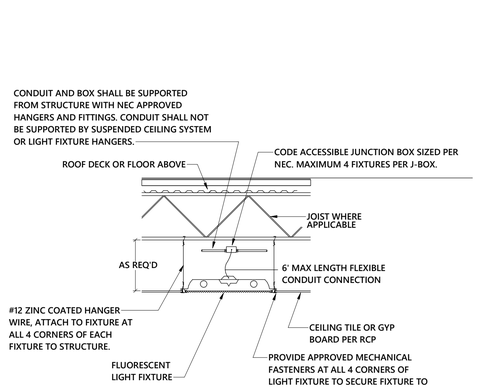


NOTES:
1. TILT SENSOR TOWARD CENTER OF ROOM FOR MAXIMUM EFFECTIVENESS.
2. CALIBRATE SENSITIVITY AND DIRECTION AFTER INSTALLATION.
3. PROVIDE WALL MOUNT BRACKET AND INSTALL AT CORNER MOST SECTION OF ROOM. PATTERN IS BASED ON CONICAL SHAPE.

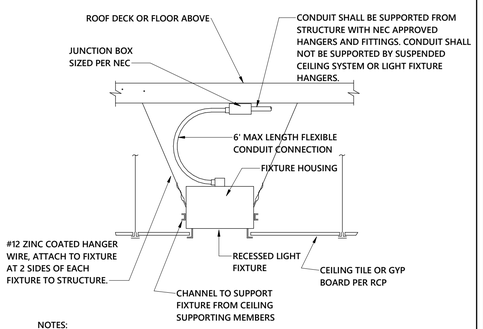
6 CORNER MOUNT SENSOR
NOT TO SCALE



7 DT-200/300
NOT TO SCALE

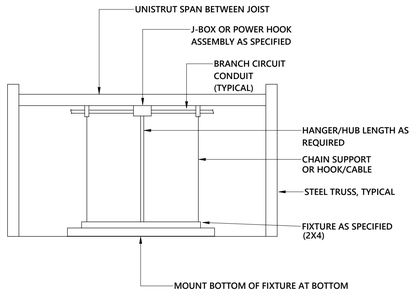


8 TYPICAL LAY-IN FIXTURE DIAGRAM
NOT TO SCALE



NOTES:
1. WHERE ROOF DECKING IS THE IS THE ALLOWABLE SUPPORT STRUCTURE, AND PATHWAY SYSTEM IS NOT IMC OR RMC, THE MINIMUM DISTANCE FROM ROOF DECKING SHALL BE 1.5" FOR ALL BOXES AND CONDUIT.

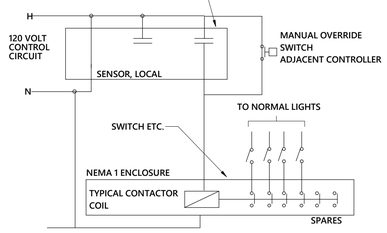
9 TYPICAL RECESSED DOWN LIGHT FIXTURE INSTALLATION DIAGRAM
NOT TO SCALE



NOTES:
1. ORIENTATION SHOWN IS FOR PERPENDICULAR TO FLOOR APPLICATIONS. FOR SLOPED JOIST INSTALLATION, MATCH SLOPE OF JOIST AND MOUNT FLUSH WITH JOIST. ADJUST UNISTRUT AS REQUIRED.

10 HI-BAY FIXTURE
NOT TO SCALE

TORK DZS200 TWO CHANNEL LIGHTING CONTROLLER. MOUNT IN ELECTRICAL ROOM ADJACENT TO PANEL IN A NEMA 3 ENCLOSURE.



CONTACTOR	COIL VOLTAGE	POLES	CIRCUITS SWITCHED	ZONE DESCRIPTION
LC-1	120	4	L2-12,13	EXTERIOR LIGHTING

NOTE: EMERGENCY FIXTURES SHALL HAVE "AVAILABLE" POWER AT ALL TIMES.

11 LIGHTING CONTACTOR DETAIL W-TIMER
NOT TO SCALE

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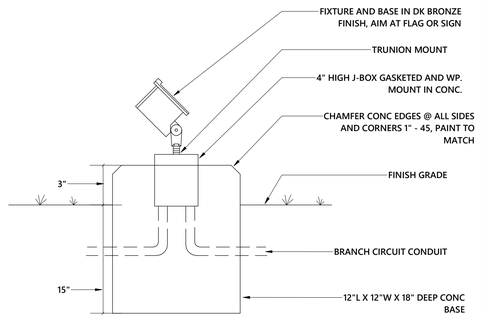
GORDON ROAD FIRE DEPARTMENT

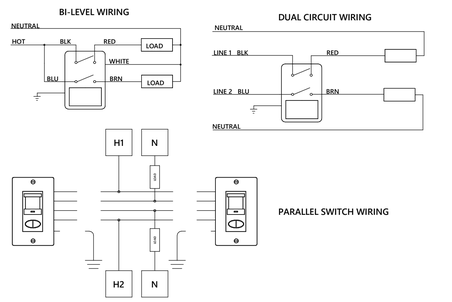
ELECTRICAL DETAILS - LIGHTING

Sheet No.
E6.03

Opt # 22-0369

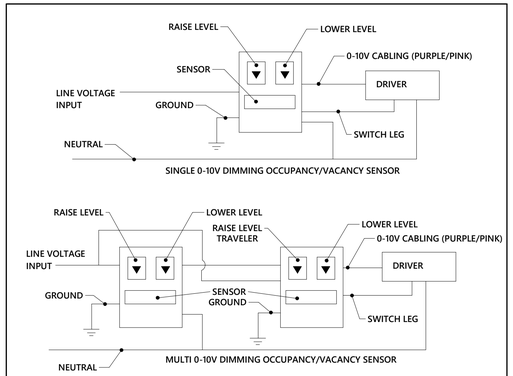


1 FLOOD LIGHT DIAGRAM
NOT TO SCALE



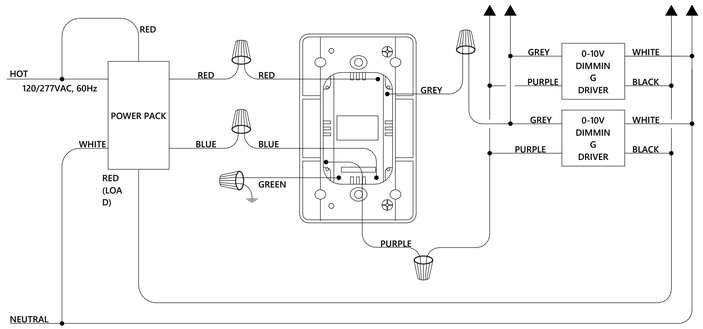
NOTES:
1. COLOR CODING AND WIRING MAY VARY PER MANUFACTURER.
2. IF SEQUENCE OF OPERATION PROVIDED, SEE SEQUENCE FOR SETTING REQUIREMENTS. OTHERWISE SET TIME AFTER NO OCCUPANCY DETECTED FOR 15 MINUTES.
3. OCCUPANCY AND/OR VACANCY SENSORS APPLY.
4. BOTH SENSORS MUST TIME OUT FOR LIGHTS TO TURN OFF.
5. SWITCHING IS LINE VOLTAGE.
6. WHEN REQUIRED CONNECT NEUTRAL TO WHITE LEAD (NEUTRAL OF SWITCH).

2 DUAL RELAY WALL SWITCH SENSORS
NOT TO SCALE



NOTES:
1. MOST MANUFACTURERS ONLY PROVIDE SINGLE SWITCH SENSOR WITH DIMMING SENSOR IN THREE WAY. WHERE THREE WAY TO THREE WAY DIMMING SWITCHES ARE REQUIRED, PROVIDE WATTSTOPPER DW-311 OR EQUAL.
2. WHERE LISTED AS VACANCY, SET FOR MANUAL ON, AUTOMATIC OFF.
3. ADJUST SENSITIVITY TO MAX SETTING.
4. SEE PLANS AND SPECIFICATIONS FOR TIMER SETTING. IF NO SETTING LISTED, 15 MINUTE SHALL BE BASIS.

4 DIMMING OCCUPANCY/VACANCY SWITCH 0-10V
NOT TO SCALE



NOTE:
1. PROVIDE POWER PACK WITH SWITCH

3 DIMMING CONTROL AND ON/OFF WIRING DIAGRAM
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GORDON ROAD FIRE DEPARTMENT

ELECTRICAL DETAILS - LIGHTING

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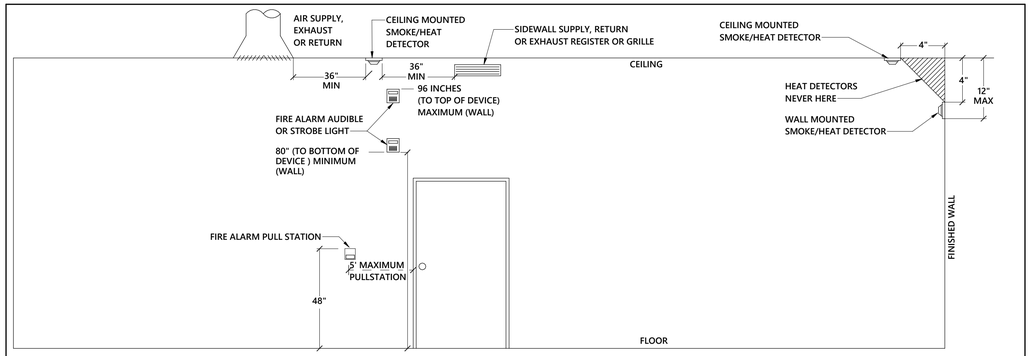
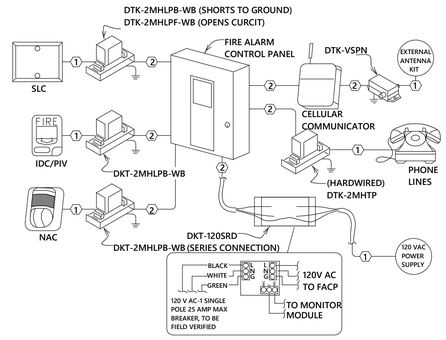


NOTES:
1. LOCATIONS WHERE TV MOUNT IS BACK TO BACK ON SAME WALL, AN OFFSET OF 8-12" WILL BE NEEDED FOR INSTALLATION OF JACK/RECEPTACLE.
2. DEVICES ABOVE COUNTER TOPS SHALL BE A MAXIMUM OF 48" TO TOP OF DEVICE.
3. DEVICES NEXT TO DOOR EXIT SHALL BE WITHIN 8" (MAXIMUM) TYPICAL OF DOOR UNLESS OBSTACLES SUCH AS SIDELITES, ETC.
4. ALL DEVICES ARE TO CENTER LINE OF DEVICE, UNLESS OTHERWISE NOTED.

1 MOUNTING HEIGHTS OF DEVICES - ELEVATION
NOT TO SCALE

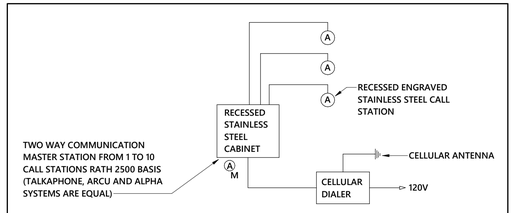


KEY NOTES:

① HIGH SURGE RISK CONNECTION, TYPICAL

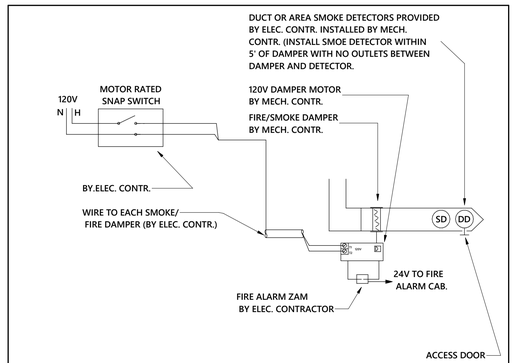
② PROTECTED COPPER CONNECTION, TYPICAL. MINIMUM 3; TO PROTECTION EQUIPMENT.

2 SURGE PROTECTION FIRE ALARM
NOT TO SCALE



NOTES:
1. ALL EQUIPMENT SHALL BE OF THE SAME MANUFACTURER AND MEET THE REQUIREMENTS OF ADA AND ALL OTHER CODES AND REQUIREMENTS.
2. SYSTEM SHALL BE WIRED IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS IN MINIMUM OF 1/2" CONDUIT.
3. OPERATION OF SYSTEM SHALL BE HANDS FREE.
4. AREA STATIONS TO HAVE PANIC BUTTONS LABELED "PUSH FOR HELP" MOUNTED AT 44"A.F.F TO CENTER.
5. SEE PLANS FOR EXACT LOCATIONS AND QUANTITY. MASTER STATION LOCATION SHALL BE COORDINATED BEFORE INSTALLATION.
6. CELLULAR GATEWAY DIALER WITH ANTENNA. UNIT SHALL BE PROGRAMMED TO CALL OUT TO 911 IN THE EVENT THE MASTER STATION IS NOT PICKED UP.
7. COMMAND UNIT SHALL HAVE BATTERY BACK UP FOR A MINIMUM OF (3) HOURS. ALL BATTERY BACK UP SHALL BE CONCEALED ABOVE LOCAL UNIT OR WITHN MASTER STATION (FLUSH).
8. PATHWAY SURVIVABILITY OF 2 HOURS, IS REQUIRED FOR ALL CABLING.

3 TWO WAY COMMUNICATION SYSTEM DETAIL
NOT TO SCALE



NOTES:
1. ALL FIRE/SMOKE DAMPERS FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. ALL FIRE ALARM WIRING SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR. 120V WIRING TO DAMPER FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.

4 FIRE-SMOKE DAMPER DIAGRAM
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GORDON ROAD FIRE DEPARTMENT

ELECTRICAL DETAILS - FIRE ALARM

Sheet No.
E6.05

Opt # 22-0369

FIRE ALARM SYSTEM MATRIX	ACTIVATE COMMON ALARM SIGNAL INDICATOR	ACTIVATE AUDIBLE ALARM SIGNAL	ACTIVATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTIVATE AUDIBLE SUPERVISORY INDICATOR	ACTIVATE COMMON TROUBLE SIGNAL INDICATOR	ACTIVATE AUDIBLE TROUBLE SIGNAL	ACTUATE ZONE OR DEVICE ALARM ADDRESS INDICATOR	ACTUATE GENERAL EVACUATION SIGNAL	DISPLAY CHANGE OF STATUS	ACTUATE ADA ROOM STROBE	ACTUATE UNIQUE SIGNAL IN CO DETECTOR	ACTUATE SINGLE SUITE SOUNDER BASES	ACTUATE ALL SOUNDER BASES IN BUILDING	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION						BUILDING SYSTEM OUTPUTS: SHUT DOWN RESPECTIVE HVAC	CLOSE ALL FIRE/SMOKE DAMPERS	UNLOCK EXITS AND CONTROL DOORS	RELEASE MAGNETICALLY HELD DOORS	-	
MANUAL FIRE ALARM PULL BOXES	X	X					X	X	X	X			X	X								X	X	X	X		
DUCT SMOKE DETECTOR			X	X			X		X	X			X		X									X	X		
AREA HEAT DETECTOR	X	X					X	X	X	X			X	X								X	X	X	X		
SPRINKLER WATER FLOW	X	X					X	X	X	X			X	X								X	X	X	X	X	
SPRINKLER TAMPER			X	X			X		X						X												
NOTIFICATION DEVICE SHORT CIRCUIT					X	X			X							X											
OPEN CIRCUIT					X	X			X							X						X					
GROUND FAULT					X	X			X							X											
FIRE ALARM A.C. POWER FAILURE					X	X			X							X											
FIRE ALARM SYSTEM LOW BATTERY					X											X											
GENERATOR RUNNING									X																		
GENERATOR SYSTEM LOW FUEL			X	X			X								X												
GENERATOR SYSTEM NOT IN AUTOMATIC			X	X			X								X												
GENERATOR FAULT			X	X			X								X												
AREA OF REFUGE TWO-WAY COMMUNICATION STATUS			X	X			X								X												
SPRINKLER CONTROL LOW/ HIGH PRESSURE			X	X			X								X												
BDA SYSTEM					X	X	X									X											

1 FIRE ALARM MATRIX

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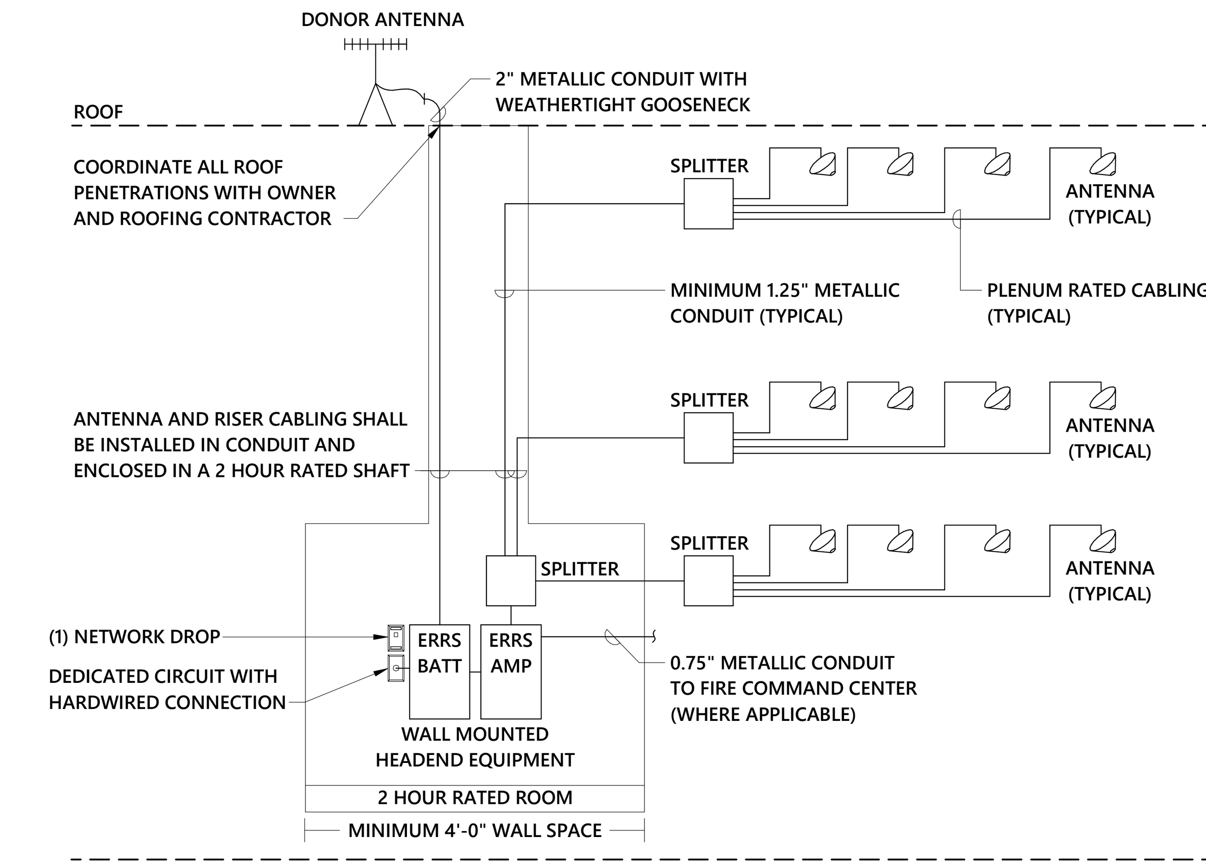

GENERAL NOTES:

A. ELECTRICAL CONTRACTOR SHALL PROVIDE THE SYSTEM SURVEY IN THEIR BASE BID. ELECTRICAL CONTRACTOR SHALL PROVIDE AN ADD ALTERNATE FOR THE COMPLETE SYSTEM COVERING 100% OF THE BUILDING. IF ONLY A PARTIAL SYSTEM IS REQUIRED BASED ON THE SYSTEM SURVEY AND AHJ, THEN THE COST OF THE REDUCED SYSTEM SCOPE SHALL BE NEGOTIATED.

B. EMERGENCY RESPONDER RADIO SYSTEM (ERRS) MAY ALSO BE REFERRED TO AS BI-DIRECTIONAL ANTENNA SYSTEM (BDA) OR FIRST RESPONDER DISTRIBUTED ANTENNA SYSTEM.

C. ERRS SYSTEM SURVEY SHALL CONSIST OF TWO PARTS. PART ONE SHALL BE ADMINISTERED AT THE START OF CONSTRUCTION TO DOCUMENT THE AVAILABLE SIGNAL AT THE SITE. PART TWO SHALL BE ADMINISTERED WHEN ALL STEEL, GYPBOARD, AND WINDOWS HAVE BEEN INSTALLED.

D. DETAIL IS DIAGRAMATIC AND ONLY INDICATES MAIN COMPONENTS AND APPROXIMATE LOCATIONS. QUANTITY AND LOCATIONS OF EQUIPMENT ARE DETERMINED BY THE 3RD PARTY DELIGATED DESIGN. SYSTEM DESIGN SHALL BE BASED ON THE ACTUAL CONSTRUCTION OF THE BUILDING. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS WITH VENDOR.

SPECIFICATIONS:

A. ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL, AND TEST A COMPLETE AND OPERATING EMERGENCY RESPONDER RADIO SYSTEM ("SYSTEM"). THE SYSTEM SHALL BE PROVIDED FOR THE PURPOSE OF ASSURING RELIABLE EMERGENCY COMMUNICATIONS.

B. THE REQUIREMENTS ESTABLISHED BY THE AHJ IN EFFECT AT THE TIME OF SYSTEM INSTALLATION SUPERSEDE THE SPECIFICATIONS IN THIS SECTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THE INSTALLED SYSTEM COMPLIES WITH ALL CURRENTLY APPLICABLE LOCAL, NATIONAL AND INDUSTRY CODES AS ADOPTED BY THE AHJ.

C. TWO SETS OF FREQUENCIES ARE TO BE UTILIZED ON THE SYSTEM. THE FOLLOWING FCC-LICENSED FACILITIES ARE TO BE CARRIED ON THE SYSTEM: FCC CALL SIGN, DOWNSTREAM/BASE TO MOBILE FREQUENCY, UPSTREAM/MOBILE TO BASE FREQUENCY AND CHANNEL BANDWIDTH. TRANSMISSIONS ON EACH SET OF FREQUENCIES MUST INDIVIDUALLY MEET THE COVERAGE, MINIMUM SIGNAL AND MINIMUM VOICE QUALITY REQUIREMENTS OF THE AHJ. EQUIPMENT SELECTED FOR THIS SYSTEM MUST BE CAPABLE OF BEING CONFIGURED TO DIFFERENT FREQUENCY PAIRS IN THE 700-800 Mhz PUBLIC SAFETY FREQUENCY BANDS. THESE CHANGES MAY LATER BE NECESSARY DUE TO FUTURE ADDITIONS OR OPTIMIZATION OF RADIO SYSTEMS MAINTAINED BY THE AHJ. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM THE FREQUENCIES IN USE WITH THE AHJ BEFORE PROCEEDING WITH THE SYSTEM INSTALLATION. ALL CABLE AND PASSIVE ELECTRONIC COMPONENTS SHALL HAVE A MINIMUM PASS BAND OF 400-2700 Mhz.

SPECIFICATIONS (CONTINUED):

D. SIGNALS AT OR ABOVE THE MINIMUM LEVELS ARE TO BE RECEIVABLE TO AND FROM 95% OF ALL AREAS WITHIN THE BUILDING. SPACES OR ROOMS DEFINED AS CRITICAL AREAS REQUIRE 99% COVERAGE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A SYSTEM DESIGN AND INSTALLATION THAT PROVIDES ENHANCEMENT ONLY TO THOSE AREAS OF THE BUILDING WHERE EXISTING OFF-AIR SERVICE DOES NOT MEET THE MINIMUM LEVELS AS DESCRIBED IN THE LATEST VERSIONS OF NFPA 72 AND IFC. CARE MUST BE TAKEN IN ENGINEERING A SYSTEM THAT WILL NOT CAUSE INTERFERENCE TO THE AUTHORITY'S RADIO SYSTEM OUTSIDE THE BUILDING AND SHALL NOT CAUSE HARMFUL INTERFERENCE TO OTHER RF SYSTEMS INSIDE THE BUILDING.

E. THE SYSTEM SHALL BE DESIGNED FOR CONTINUOUS, ALWAYS-ON SERVICE. SIX (6) MALFUNCTION ALARMS FOR THE SYSTEM SHALL BE PROVIDED AND CONNECTED TO THE BUILDING FIRE ALARM SYSTEM. CONTRACTOR SHALL PROVIDE 24 HOUR BATTERY BACKUP. BATTERIES SHALL BE CONTAINED IN A NEMA 4 TYPE WATERPROOF CABINET.

F. ALL CABLING, WITH THE EXCEPTION OF RADIATING CABLE AND ANTENNA JUMPER CABLES MEASURING LESS THAN 2 FEET IN LENGTH, SHALL BE INSTALLED IN CONDUIT. ALL EXPOSED CABLE, INCLUDING FLEXIBLE JUMPER CABLES, SHALL BE PLENUM RATED, UTILIZING A JACKET OF NON-HALOGENATED, FIRE RETARDANT POLYOLEFIN.

G. GROUND AND BOND CABLE SHIELDS AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS AND LATEST NFPA 70 NEC REQUIREMENTS. THE DONOR ANTENNA MAST SHALL BE GROUNDED PER LATEST NFPA 70 NEC REQUIREMENTS. GROUNDING BLOCKS AND SURGE PROTECTION SHALL BE PROVIDED FOR OUTSIDE CABLING.

H. SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER AND AHJ PRIOR TO INSTALLATION. PROVIDE A SYSTEM BLOCK DIAGRAM INDICATING THE DONOR ANTENNA(S), HEADEND EQUIPMENT, PASSIVE COMPONENTS AND IN-BUILDING ANTENNAS. INCLUDE THE RF LINK BUDGET. PROVIDE A OVERLAY OF THE SYSTEM DESIGN ON BUILDING FLOOR PLAN DRAWINGS AND OVERLAY ON FLOOR PLAN DRAWINGS OF THE PREDICTED SIGNAL STRENGTH WITHIN THE COVERAGE AREA INDICATING, AT A MINIMUM, THE –95 DBM DOWNLINK (BASE TO MOBILE) SIGNAL STRENGTH FOR ALL COVERAGE AREAS.

I. CONTRACTOR SHALL PROVIDE THE FOLLOWING DOCUMENTS AT PROJECT CLOSEOUT: AS-BUILT DRAWINGS IN PDF AND AUTOCAD FORMATS, COVERAGE/ACCEPTANCE TEST RESULTS, DONOR ANTENNA ISOLATION, SPECTRUM ANALYSIS DEMONSTRATING ONLY THE INTENDED FREQUENCIES ARE BEING CARRIED ON THE SYSTEM, SPECTRUM ANALYSIS DEMONSTRATING NO SPURIOUS OSCILLATIONS, PIM OR OTHER INTERMODULATION DISTURBANCES ARE BEING CARRIED ON THE SYSTEM, SIGNAL LEVELS RECEIVED AT THE DONOR ANTENNA, SIGNAL LEVELS AT THE INPUT AND OUTPUT OF THE HEADEND EQUIPMENT, GAIN SETTINGS, OPERATION AND MAINTENANCE MANUAL IN HARDCOPY AND PDF FORMAT AND WARRANTY DOCUMENTS.

J. CONTRACTOR SHALL PROVIDE A ONE YEAR WARRANTY ON PARTS AND LABOR AND PROVIDE A ONE YEAR MAINTENANCE AGREEMENT. MAINTENANCE AGREEMENT SHALL INCLUDE 24/7 EMERGENCY RESPONSE WITHIN TWO HOURS OF NOTIFICATION AND ANNUAL TESTING.

2 EMERGENCY RESPONDER RADIO SYSTEM (ERRS) - DIAGRAMATIC ONLY

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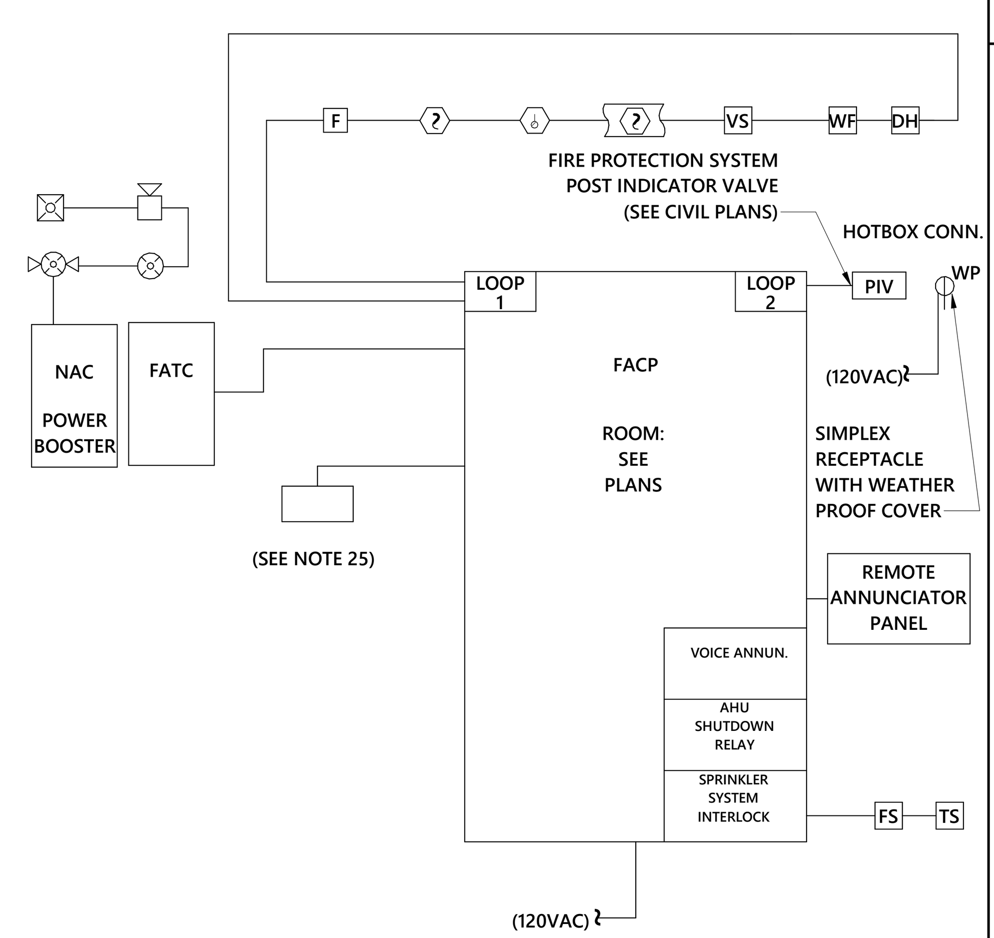

FIRE ALARM NOTES

1. FACP SHALL HAVE A MINIMUM 24HR. BATTERY BACKUP.
2. FACP SHALL BE FULLY ANALOG ADDRESSABLE.
3. FACP SHALL BE CONNECTED TO A UL APPROVED CENTRAL STATION.
4. ZONE PER NFPA 72, 2013 AND MANUFACTURER'S RECOMMENDATIONS WITH NO ONE ZONE EXCEEDING 15,000 S.F. PER FLOOR.
5. COORDINATE QUANTITY AND LOCATIONS OF DEVICES WITH CONTRACT DRAWINGS.
6. LOCATE SMOKE DETECTOR WITHIN 5' OF THE MAGNETIC HOLD OPEN DOORS. (TYPICAL)
7. LOCATE FIRE ALARM PULL STATION WITHIN 5' OF THE EXIT DOOR.
8. LOCATE SMOKE/HEAT DETECTOR WITHIN 5' OF THE FA EQUIPMENT (FACP, FATC, NAC).
9. LOCATION OF CEILING MOUNTED SMOKE/HEAT DETECTOR SHALL BE FIELD COORDINATED PRIOR TO ROUGH IN. THE DETECTOR SHALL BE A MINIMUM OF 2' AWAY FROM LIGHT FIXTURE AND A MINIMUM OF 3' AWAY FROM AIR DISTRIBUTION DEVICES.
10. AUTOMATIC DOOR CLOSING SHALL BE ACCOMPLISHED BY THE ACTIVATION OF THE BUILDING FIRE ALARM SYSTEM. SMOKE DETECTOR ACTIVATION SHALL ALERT THE BUILDING FIRE ALARM SYSTEM. THE FIRE ALARM SYSTEM SHALL CAUSE ALL HOLD OPEN DOORS TO CLOSE UPON ALARM ACTIVATION IN THE BUILDING.
11. ACTIVATION OF AN ALARM ZONE SHALL CAUSE ALL AIR HANDLING EQUIPMENT TO SHUT DOWN (ALL DAMPERS, AIR HANDLERS AND EXHAUST FANS MUST STOP).
12. ACTIVATION OF KITCHEN HOOD SUPPRESSION SYSTEM PROVIDES SIGNAL TO FACP WHICH IN TURN ACTIVATES ALL ANNUNCIATING ZONES & SHUTS DOWN HOOD SUPPLY AIR. HOOD EXHAUST SHALL CONTINUE TO OPERATE.
13. ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF ALL FLOW, PRESSURE, & TAMPER SWITCHES WITH FIRE PROTECTION CONTRACTOR PRIOR TO INSTALLATION.
14. ALL VISUAL DEVICES WITHIN THE SAME AREA SHALL BE SYNCHRONIZED.
15. ALL FIRE ALARM WIRING SHALL BE IN RED COLORED CONDUIT.
16. PROVIDE MULTI-TEMPORAL SOUNDING CAPABILITY AT ALL AUDIO DEVICES FOR EMERGENCY NOTIFICATION FOR NON VOICE SYSTEMS COMPONENTS.
17. THE FIRE ALARM SYSTEM MANUFACTURER SHALL PROVIDE NOTIFICATION APPLIANCE CIRCUIT (NAC) POWER EXTENDERS AS REQUIRED.
18. THE DUCT SMOKE DETECTORS SHALL COMPLY WITH IFC 907.2.12.1.2 AND 907.3.1.
19. PROVIDE DITEK #DTK-DF120S1 SERIES OR EQUAL TVSS FOR 120V SUPPLY TO FIRE ALARM CONTROL PANELS, WITH TVSS DRY CONTACT TO BE MONITORED BY FACP. PROVIDE DITEK DTK-2MHLP24F-WB OR EQUAL FOR ALL FIRE ALARM CABLES THAT EXIT THE PHYSICAL BUILDING. TAMPER SWITCHES DTK-2MHLP24B-WB, AND EACH UB/EXTENDER FIRE ALARM PANEL. NAC, PIV, IDC SURGE: DTK-2MHLP24B-WB OR EQUAL. DIALER SURGE: DTK -2MHTPWB FIBER MEDIA CONVERTER PROTECTOR DTK-PVPIP OR EQUAL.
20. THE CIRCUIT FEEDING THE FIRE ALARM PANEL IS DEDICATED FOR THE FIRE ALARM ONLY. BREAKER SHALL BE PROVIDED WITH A LABEL "FIRE ALARM CIRCUIT" AND SHALL BE RED. PROVIDE BREAKER LOCK ON DEVICE.
21. PROVIDE REMOTE LIGHT WITH TEST SWITCH FOR DUCT SMOKE DETECTOR ON CEILING WHERE UNIT IS ABOVE CEILING.
22. CONTRACTOR SHALL INCLUDE IN BID LABOR AND MATERIAL FOR UP TO (2) DUCT DETECTORS. (5) ANNUNCIATION DEVICES, (2) SMOKE DETECTORS AND (2) PULL STATIONS 100' FROM LOCAL PANEL (IN WALL) AS REQUIRED BY LOCAL AHJ/ENGINEER. INCLUDE ALL PROGRAMMING COSTS.
23. CONTRACTOR RESPONSIBLE FOR SHOP DRAWINGS AS REQUIRED BY LOCAL AHJ.
24. DUCT DETECTORS SHALL BE VERIFIED WITH THE MECHANICAL DRAWINGS FOR QUANTITY AND LOCATION. TOTAL QUANTITY MINIMUM SHALL BE BASED ON BOTH MECHANICAL SCHEDULES AND MECHANICAL PLAN LOCATIONS AND ELECTRICAL PLANS. WHEN DEVICE QUANTITIES (ELECTRICAL VS. MECHANICAL) ARE IN CONFLICT, PROVIDE THE GREATER QUANTITY OF DETECTORS.
25. DIGITAL ALARM COMMUNICATOR TRANSMITTER SHALL BE ACCEPTABLE TO THE REMOTE CENTRAL STATION AND SHALL COMPLY WITH UL 632. CELLULAR LINE – SINGLE MAIN SOURCE. PROVIDE NAPCO STARLINK (SLD-CMDA-FIRE) FIRE ALARM COMMUNICATOR AND SLE-ANTEXT50 EXTERNAL ANTENNA TO OR EQUAL AND COORDINATED WITH THE CELLULAR DIAL OUT SERVICE. CELLULAR DIAL OUT SHALL BE BACKED UP AS PART OF BATTERY BACKUP AS WELL AS GENERATOR BACKED UP WHERE AVAILABLE. FUNCTIONAL PERFORMANCE: UNIT SHALL RECEIVE AN ALARM, SUPERVISORY, OR TROUBLE SIGNAL FROM FIRE-ALARM CONTROL UNIT AND AUTOMATICALLY CAPTURE A PRESET NUMBER FOR A REMOTE CENTRAL STATION. WHEN CONTACT IS MADE WITH CENTRAL STATION(S), SIGNALS SHALL BE TRANSMITTED. IF SERVICE ON THE CELLULAR LINE IS INTERRUPTED FOR LONGER THAN 45 SECONDS, TRANSMITTER SHALL INITIATE A LOCAL TROUBLE SIGNAL. TRANSMITTER SHALL AUTOMATICALLY REPORT CELLULAR SERVICE RESTORATION TO THE CENTRAL STATION. IF SERVICE IS LOST, TRANSMITTER SHALL INITIATE THE LOCAL TROUBLE SIGNAL.
26. SLEEPING AREAS SHALL COMPLY WITH NPFA 72 2013 SECTION 18.4.5.3. WHERE AUDIBLE APPLIANCES ARE PROVIDED TO PRODUCT SIGNALS FOR SLEEPING AREAS. AUDIBLE DEVICE SHALL PRODUCE A LOW FREQUENCY ALARM SIGNAL OF 520HZ SQUAREWAVE ALARM SIGNAL.

3 FIRE ALARM RISER DIAGRAM

NOT TO SCALE

Ref North

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GORDON ROAD FIRE DEPARTMENT

ELECTRICAL DETAILS - FIRE ALARM

Sheet No.
E6.06

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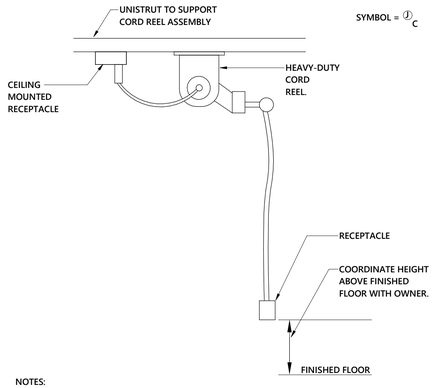
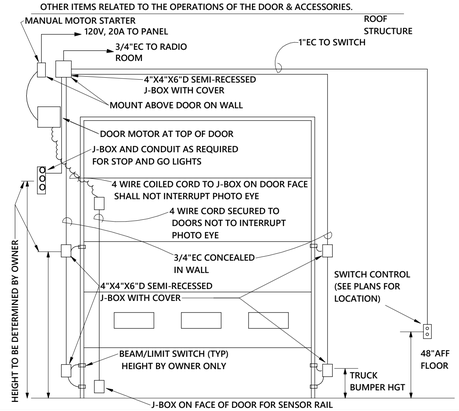


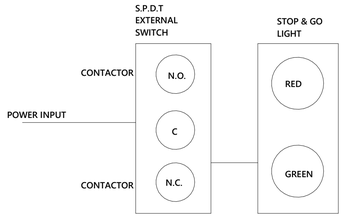
NOTES:
1. COORDINATE EXACT LOCATION WITH OWNER.
2. PROVIDE GFI BREAKER FOR CORD REEL CIRCUIT.
3. PROVIDE UNISTRUT MOUNTED STRUCTURE ABOVE CEILING TO SUPPORT CORD REEL ASSEMBLY.

1 OVERHEAD CORD REEL DETAIL
NOT TO SCALE

NOTES:
1. E.C. AND G.C. SHALL COORDINATE ALL ITEMS WITH OWNER AND DOOR PROVIDER PRIOR TO DOOR INSTALLATION.
2. E.C. TO REVIEW OVERHEAD DOOR SPECIFICATIONS FOR ALL ELECTRICAL AND OTHER ITEMS RELATED TO THE OPERATIONS OF THE DOOR & ACCESSORIES.

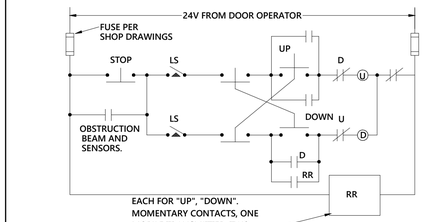


2 APPARATUS BAY ROLLING DOOR DETAIL
NOT TO SCALE



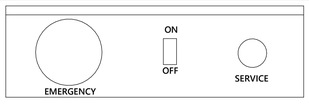
NOTES:
1. CONTRACTORS BASED ON MANUFACTURER REQUIREMENTS. E.C. SHALL SUPPLY SIGNAL LIGHTS AND ALL REQUIRED EQUIPMENT FOR CONTROL.
2. E.C. TO COORDINATE CONTROL WIRING WITH OVERHEAD DOOR INSTALLER/MANUFACTURER. PROVIDE LOW VOLTAGE TRANSFORMER AS REQUIRED BY OVERHEAD DOOR INSTALLER. CONNECT TO LOCAL 120V CIRCUIT.
3. OPERATION OF LIGHTS SHALL BEBASED ON:
   A. DOOR OPEN - GREEN
   B. DOOR CLOSED - RED
4. DOOR SHALL ONLY SHOW GREEN AFTER DOOR HAS ACTIVATED MOTOR LIMIT SWITCH (OPEN) AND DOOR IS IN OPEN REST STATE
5. BASED ON: TRI LITE SG10-115RG-LED.

3 STOP & GO SIGNALING SYSTEM
NOT TO SCALE



NOTES:
1. OVERHEAD DOORS ARE TO OPERATE FROM LOCAL WALL-MOUNTED SWITCHES. FRONT AND REAR DOORS ARE TO ALSO OPERATE FROM MOBILE UNITS IN THE TRUCKS.
2. SEE POWER PLANS FOR EXACT QUANTITY OF MOTORS.
3. ONE SYSTEM EACH DOOR.
4. WIRING BY E.C.
5. SEE SPEC. SECTION ON SECTIONAL OVERHEAD DOORS.
6. MASTER CONTROL LOCATION, SHALL ACT AS A THREE WAY CONTROL. MASTER CONTROL SHALL BE ONE UP/DOWN/STOP PER DOOR. I.E. (12) TOTAL APPARATUS BAY DOORS SHALL HAVE (12) TOTAL INDIVIDUAL UP/DOWN/STOP CONTROL SWITCHES LOCATED AT THE MASTER CONTROL LOCATION.
7. UNDER NORMAL CONDITIONS THE DOORS ARE CLOSED, THE HEATERS ARE CONTROLLED VIA THERMOSTAT (BY MC). WHEN DOORS OPEN THE HEATERS TURN OFF. PROVIDE RELAYS AS NECESSARY. COORDINATE WITH MECHANICAL.

4 DOOR CONTROL SCHEMATIC
NOT TO SCALE

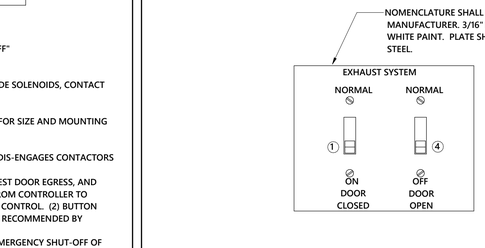


FLUSH PANEL - SEE PLANS FOR LOCATION
TYPICAL DIMENSIONS: 6"HX11.875"WX4"D

NOTES:
1. PROVIDE PHENOLIC LABEL ABOVE PUSH BUTTON: "EMERGENCY SHUT-OFF"
2. PROVIDE WITH PANIC BUTTON COVER.
3. MANUAL KEYED RESET AT PANEL.
4. SEE PLUMBING PLANS FOR GAS SOLENOID LOCATIONS. E.C. SHALL PROVIDE SOLENOIDS, CONTACT ENCLOSURE, AND PANEL. (ALL COMPONENTS OF ISIMET SYSTEM)
5. P.C. SHALL INSTALL SOLENOIDS. E.C. SHALL CONNECT CONTROL LEADS.
6. WALL BOX IS PROVIDED WITH SYSTEM. SEE MANUFACTURER DRAWINGS FOR SIZE AND MOUNTING INSTRUCTIONS.
7. PROVIDE 120V SOURCE CIRCUIT FOR CONTROLLER FROM LOCAL CIRCUIT.
8. TYPICAL OPERATION: OUTPUT SIGNAL FROM CONTROLLER ENGAGES OR DIS-ENGAGES CONTACTORS FOR ELECTRIC (OVEN) AND SOLENOIDS FOR GAS (RANGE TOP).
9. PROVIDE A REMOTE OPERATOR FOR GAS OUTDOOR GRILL. LOCATE NEAREST DOOR EGRESS, AND NOT LOCATED DIRECTLY ADJACENT THE GRILL. PROVIDE 1/2" CONDUIT FROM CONTROLLER TO ABOVE CEILING FOR 24V CABLING TO MAIN CONTROLLER AND SOLENOID CONTROL. (2) BUTTON "STOP" AND "OPERATE" CONTROLLER. PROVIDE WEATHERPROOF BOX AS RECOMMENDED BY MANUFACTURER.
10. PROVIDE 24VAC INPUT FROM FIRE ALARM/DISPATCH FOR AUTOMATIC EMERGENCY SHUT-OFF OF GAS. (COORDINATE ANY TIME DELAY WITH OWNER)

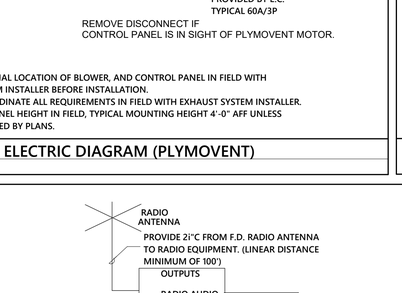
MODEL INFORMATION:
KITCHEN CONTROLLER - FLA-2235-R-C
REMOTE GRILL OPERATOR - LA-7221-G-C-W
GAS SOLENOIDS TYPE S-301,S-302, OR S-303. SEE PLUMBING DESIGN FOR PORT SIZE REQUIREMENTS. SIZES RANGE FROM 1/2" TO 1".
E-31-1X2/50-S - (1) 2 POLE 50A CONTACTOR (FOR ELECTRIC RANGE/OVEN IF NEEDED)
E-31-1X1/20-S - (1) 1 POLE 20A CONTACTOR (FOR GAS IGNITER IF NEEDED)
EQUALS: JOHNSON CONTROLS, EATON CUTLER HAMMER, AGS

5 KITCHEN CONTROL ISIMET GAS & ELEC
NO SCALE



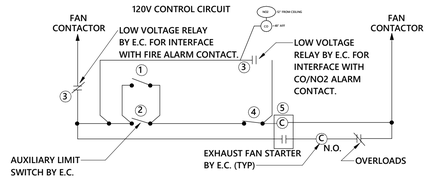
NOTES:
1. CORRESPOND TO EXHAUST SYSTEM SCHEMATIC. SEE DETAIL Ⓧ
2. SINGLE POLE SWITCHES BY E.C.

6 EXHAUST SYSTEM SWITCH PLATE DETAIL
NOT TO SCALE



NOTES:
1. COORDINATE FINAL LOCATION OF BLOWER, AND CONTROL PANEL IN FIELD WITH EXHAUST SYSTEM INSTALLER BEFORE INSTALLATION.
2. E.C. SHALL COORDINATE ALL REQUIREMENTS IN FIELD WITH EXHAUST SYSTEM INSTALLER.
3. COORDINATE PANEL HEIGHT IN FIELD, TYPICAL MOUNTING HEIGHT 4'-0" AFF UNLESS OTHERWISE NOTED BY PLANS.

7 EXHAUST ELECTRIC DIAGRAM (PLYMOVENT)
NOT TO SCALE

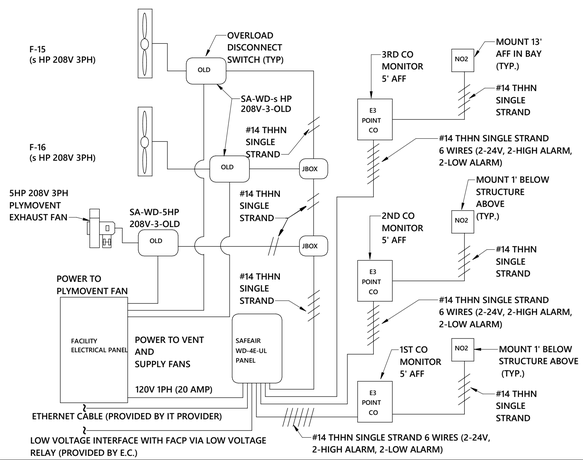


TRUCK EXHAUST SYSTEM OPERATION:

A. "ON: WHEN RESPECTIVE DOOR IS OPENING. LIMIT SWITCH CLOSED. ②
B. "OFF" WHEN RESPECTIVE DOOR IS CLOSED. LIMIT SWITCH OPEN.
C. "ON" WHEN RESPECTIVE DOOR IS CLOSED AND MANUAL 1 OVERRIDE SWITCH IS ACTIVATED.
D. "OFF" WHEN RESPECTIVE DOOR IS OPEN AND RESPECTIVE MANUAL OVERRIDE SWITCH IS IN "OVERRIDE" POSITION. ④
E. WHEN DETECTOR REACHES 25PMM, LOW VOLTAGE RELAY ③ AUTOMATICALLY OVERRIDES SYSTEM. IN CASE DOORS ARE OPEN AND MANUAL OVERRIDE IS ACTIVATED, EXHAUST/HEATER SYSTEMS WILL COME ON AUTOMATICALLY UPON ALARM. CO NOT CONNECTED TO F.A.
F. SYSTEM WILL OPERATE VIA TIMER RELAY 5 FOR 10 MIN.

NOTES:
1. ALL LIMIT SWITCHES FURNISHED BY ELECTRICAL CONTRACTOR.
2. ELECTRICAL CONTRACTOR SHALL WIRE EXHAUST/HEATER SYSTEM CONTROLS PER SCHEMATICS.
3. UNDER NORMAL CONDITIONS THE DOORS ARE CLOSED, THE HEATERS ARE ON AND THE FANS ARE OFF. WHEN DOORS OPEN, THE HEATERS TURN OFF, AND THE FANS TURN ON.

8 EXHAUST SYSTEM SCHEMATIC
NOT TO SCALE



NOTES:

EQUIPMENT INSTALLED AND PROVIDED BY MECHANICAL CONTRACTOR

(1) SAFEAIR CONTROL PANEL 120V-1PH (20 AMP)
(1) OLD FOR 5HP 208V 3PH PLYMOVENT FAN
(2) OLD'S FOR 5 HP 3PH VENTILATION FAN
(3) E3 POINT TOXIC GAS MONITOR UNIT(S)
(3) CO CARTRIDGE FOR E3 POINT MONITOR(S)
(2) NO2 REMOTE SENSOR(S)
(4) REMOTE VEHICLE TRANSMITTER
SAFEAIR SYSTEM STARTUP AND COMMISSIONING
EQUIPMENT INSTALLED AND PROVIDED BY ELECTRICAL CONTRACTOR:

1. ALL CONDUIT FOR CONTROL WIRE FROM THE SAFEAIR PANEL TO THE FOLLOWING: OLDS, E3 POINTS MONITOR(S) AND NO2 SENSOR(S)
2. ALL 208V-3PH AND 120V-1PH POWER TO RESPECTIVE SYSTEMS: TO INCLUDE CONDUIT AND WIRE.
3. MOUNTING OF THE FOLLOWING: OLD(S), SAFEAIR PANEL, E3 POINT MONITOR(S) AND NO2 SENSOR(S)
4. FURNISHING AND INSTALLING CONTROL WIRE FROM THE SAFEAIR PANEL TO THE FOLLOWING: OLD(S), E3 POINT MONITOR(S) AND TO NO2 SENSOR(S)
5. ALL ELECTRICAL DISCONNECT SWITCHES IF REQUIRED.
6. INTERFACE WITH FACP FOR SHUTDOWN DURING FULL BUILDING ALARM VIA LOW VOLTAGE RELAY.

NOTE:
CARBON MONOXIDE AND NITROGEN DIOXIDE DETECTORS SHALL ACTIVATE FANS SET UPON A DETECTION OF CO EXCEEDING 25 P.P.M. AND NO2 EXCEEDING 0.7 P.P.M.

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FOR MORE INFORMATION AT:
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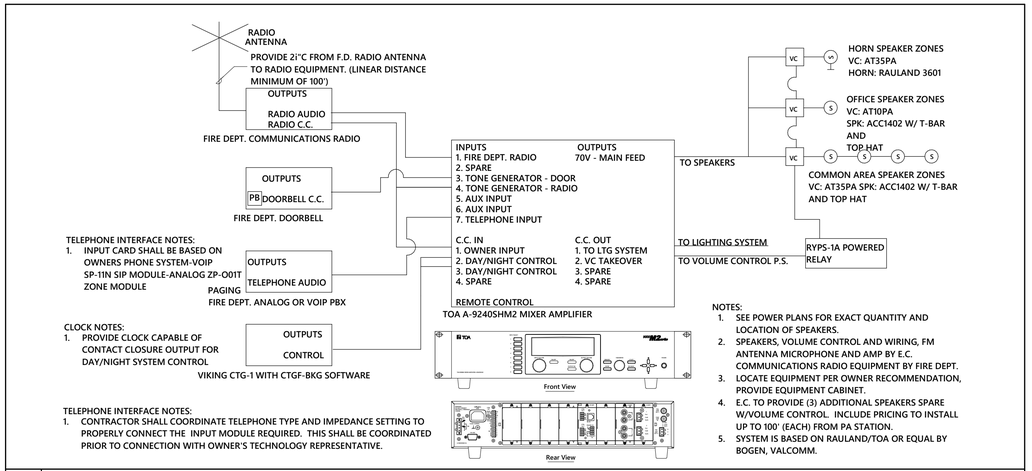
EMAIL: BLEFAVOR@ACSCAROLINAS.COM

9 SAFEAIR CONTROL PANEL ELECTRICAL FLOW DIAGRAM BASE BID
NOT TO SCALE



NOTES:
1. SEE POWER PLANS FOR EXACT QUANTITY AND LOCATION OF SPEAKERS.
2. SPEAKERS, VOLUME CONTROL AND WIRING, FM ANTENNA MICROPHONE AND AMP BY E.C. COMMUNICATIONS RADIO EQUIPMENT BY FIRE DEPT.
3. LOCATE EQUIPMENT PER OWNER RECOMMENDATION, PROVIDE EQUIPMENT CABINET.
4. E.C. TO PROVIDE (3) ADDITIONAL SPEAKERS SPARE W/VOLUME CONTROL. INCLUDE PRICING TO INSTALL UP TO 100' (EACH) FROM PA STATION.
5. SYSTEM IS BASED ON RAULAND/TOA OR EQUAL BY BOGEN, VALCOMM.

10 RADIO/PA SYSTEM RISER
NOT TO SCALE

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GORDON ROAD FIRE DEPARTMENT

ELECTRICAL DETAILS - FIRE STATION

Sheet No.
E6.07

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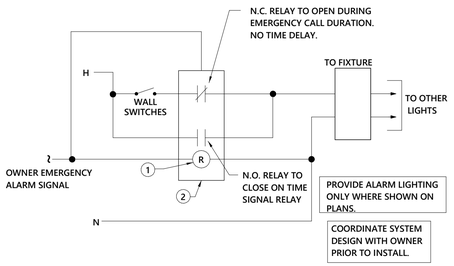


KEY NOTES: (X)

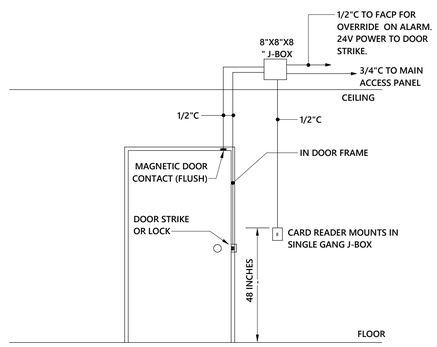
1. TIME DELAY RELAYS SHALL BE INSTALLED TO TURN "ON" SELECTED LIGHT FIXTURES WHEN A SIGNAL IS RECEIVED FROM OWNER SYSTEM. VERIFY TIME LENGTH WITH OWNER.
2. PROVIDE NEMA 1 ENCLOSURE.

GENERAL NOTES:

1. PROVIDE $1500.00 ALLOWANCE FOR REQUIRED EQUIPMENT TO INTERFACE WITH OWNER SIGNAL.
2. ALARM LIGHTING SHALL BE ALWAYS "OFF" WITH INPUT SIGNAL PRODUCING "ON" OR MOMENTARY BLINKS EVERY 5 SECONDS UNLESS OTHERWISE NOTED (VERIFY WITH OWNER FOR TIME LENGTH). PROVIDE ADDITIONAL N.O. CONTACTOR AS REQUIRED.
3. ALL INPUT VOLTAGE FOR CONTACTORS AND RELAYS SHALL BE COORDINATED WITH OWNER RADIO SYSTEM PRIOR TO PURCHASE.

1 ALARM LIGHTING WIRING

NOT TO SCALE



2 CARD READER-DOOR LOCK

NOT TO SCALE

ELECTRICAL CONTRACTOR SCOPE OF WORK:
1. PROVIDE PERMIT IF NEEDED
2. PROVIDE WIRE
3. PROVIDE WIRE RUNS PER NFPA 70 CODE
4. ALL WIRE RUNS TO BE CLEARLY TAGGED & LABELED
5. PROVIDE ALL WIRING MATERIALS (HANGARS, CONDUIT, SURFACE MOLD,WIRE TIES, BOXES, ETC)
6. PROVIDE HIGH VOLTAGE ELECTRICAL RELAY CONNECTIONS IF NEEDED
7. PROVIDE OTHER HIGH VOLTAGE CONNECTIONS IF NEEDED
8. PROVIDE ELECTRICAL POWER WHERE NEEDED (DEDICATED/UNDEDICATED)
9. PROVIDE COMPLETE SYSTEM INSTALLATION (INCLUDING HEAD END EQUIPMENT)
10. PROVIDE AS-BUILT DRAWINGS AFTER INSTALLATION
11. PROVIDE 1 YEAR OF WARRANTY ON LABOR AND MATERIAL
12. PROVIDE AN ON-SITE REPRESENTATIVE WHEN FINAL CONNECTIONS ARE MADE

WIRE SPECIFICATIONS:
1. CONTROLLER INTERCONNECTS – CAT5/6, 18/2 PLENUM SHIELDED
2. REMOTE TOUCH SCREEN (RTS) – CAT5/6 (QTY - 2)
3. REMOTE MICROPHONE – 24/4 PLENUM SHIELDED MICROPHONE CABLE
4. 25/70V APPARATUS BAY, EXTERNAL AND CEILING/WALL SPEAKERS – 18/2 PLENUM SHIELDED
5. SELF-AMPLIFIED APPARATUS BAY, EXTERNAL AND CEILING/WALL SPEAKERS – 18/4 PLENUM SHIELDED
6. LED SPEAKER RING WIRING – 18/4 PLENUM SHIELDED
7. MESSAGE BOARD – CAT5/6
8. TURN OUT TIMER – CAT5/6
9. PRINTER – CAT5/6
10.PUSHBUTTONS – 18/4 PLENUM SHIELDED (ILLUMINATED STYLE BUTTON)
11.DORM REMOTES – 18/4 TWISTED PAIR PLENUM SHIELDED
12.UNIT PRESENCE DETECTOR – 18/4 PLENUM SHIELDED
13.WAN CONNECTION – CAT5/6
14.RADIO CONNECTIONS – 18/2 PLENUM SHIELDED
15.BAY DOOR CONTROLLER CONNECTION – 18/2 PLENUM SHIELDED
16.AMBIENT NOISE SENSOR AND MODULES – 18/2 PLENUM SHIELDED
17.CAMERA CONTROL UNIT (CCU) – 18/2 PLENUM SHIELDED,CAT5/6,24/4 MICROPHONE CABLE
18.TOWER LIGHT – 18/8 PLENUM
19. ROTATING LIGHT – 18/2 PLENUM SHIELDED
20. 3.5" DISC LED LIGHT – 18/2 PLENUM SHIELDED
21. STROBE LIGHT – 18/2 PLENUM SHIELDED

WIRE LENGTH FOR DEVICE CONNECTIONS - 16"

PURVIS SYSTEMS SCOPE OF WORK:
1. PROVIDE SHOP DRAWINGS OF FIELD DEVICES
2. PROVIDE SYSTEM COMPONENTS
3. PROVIDE TECHNICAL SUPPORT TO ELECTRICAL CONTRACTOR
4. PROVIDE ALL PROGRAMMING AND CALIBRATIONS
5. PROVIDE END USER TRAINING
6. PROVIDE 1 YEAR OF SYSTEM WARRANTY - ELECT. CONT. MAY ASSIST PURVIS SYSTEMS FOR PAYMENT TO
MAKE REPAIRS/REPLACEMENTS AS NEEDED

WIRE TYPES:
CAT5/6 - SOUTHWEST WIRE (57557401) 24/4 PAIR
24/4 MIC CABLE - CANARE WIRE 200M STARQUAD MIC WIRE(CANL4E5CBLA200M)
18/2 PLENUM SHIELDED - WEST PENN (WP 25293BGY1000) 18G STRD SHLD PLENUM GREY(FORMERLY 25293B)
18/4 PLENUM SHIELDED - CHARLOTTE WIRE AND CABLE (CW09423) PLENUM SHIELDED
18/4 PLENUM - WP 25244BGY1000 (FORMERLY 25244B) PLENUM UNSHIELDED
18/8 - OMNI CABLE (G121808) 18G 8C PLEN N-SHD
18/4 – TWISTED SHIELDED PAIR

MOUNTING HEIGHTS:
ALL ARE ABOVE FINISHED FLOOR (AFF) TO BOTTOM OF THE BOX
REMOTE TOUCH SCREEN (RTS) – 54" OR DESKTOP
MIC XLR PLATE – BEHIND RTS OR UNDER TABLE TOP
APPARATUS BAY SPEAKERS TO BE HUNG 16' A.F.F.
VOLUME CONTROLS – 48"
LCDS, LEDS, AND POWER OUTLETS - 80"
APPARATUS BAY LCDS & POWER OUTLETS - 95"
TURN OUT TIMER – TO THE LEFT SIDE OF EACH BAY DOOR AND 6' A.F.F
PRINTER STAND/SHELF - 36"
PUSHBUTTONS (MANUAL/ACKNOWLEDGMENT/RESET/TEST/DOORBELL) - 48"
DORM REMOTES - 48"
UNIT PRESENCE DETECTOR – CENTERED OVER EACH APPARATUS FRONT/BACK, SIDE TO SIDE
CAMERA CONTROL UNIT (CCU) – CCU WITHIN 25' OF THE CAMERA, SPEAKER/MIC BOX - 48",
CAMERA – TBD
TOWER LIGHT - TBD
SINGLE COLOR TRIP LIGHTS – CENTERED ON CEILING
LED LIGHT – CENTERED ON CEILING
STROBE LIGHT - TBD

AUDIO AND LIGHT ZONES:
SEE FLOOR PLAN AND PULL SCHEDULE
REQUIRED BOXES:
ALL CAT5/6 LOCATIONS - SINGLE GANG 3" DEEP BOX
MICROPHONE XLR PLATE - SINGLE GANG 3" DEEP BOX
VOLUME CONTROL - SINGLE GANG 4" DEEP BOX
PUSHBUTTONS - SINGLE GANG 3" DEEP BOX
DORM REMOTE - SINGLE GANG 3" DEEP BOX
UNIT PRESENCE DETECTOR – TWO GANG 3" DEEP BOX
CAMERA CONTROL UNIT (CCU) POE INJECTOR – SINGLE GANG DUPLEX
TOWER LIGHT – DOUBLE GANG BOX (GANG PLATE PROVIDED WITH DEVICE (WALL OR CEILING)
SINGLE COLOR TRIP LIGHT – SIX SQUARE BOX
LED LIGHT – DOUBLE GANG, CEILING OCTAGON (T-GRID BOX HANGER)
STROBE LIGHT – DOUBLE GANG BOX

AC POWER: (ALL OUTLETS TO BE WITHIN 5' OF THE DEVICE)
CONTROLLER LOCATION – 20AMP DEDICATED
REMOTE TOUCH SCREEN (RTS) – SINGLE GANG DUPLEX
MESSAGE BOARD – SINGLE GANG DUPLEX
TURN OUT TIMER – SINGLE GANG DUPLEX
PRINTER – SINGLE GANG DUPLEX
CAMERA CONTROL UNIT (CCU) – SINGLE GANG DUPLEX
SURFACE MOUNT OPTIONS:
WIRE MOLD – 700 SERIES

CONTROLLER DIMENSIONS AND WEIGHTS:
STATION CONTROL UNIT (SCU) – 5.2"H X 18.0"D X 17.3"W (32LBS)
AUDIO RELAY EXPANSION MODULE (ARXM) – 3.5"H X 18.0"D X 17.3"W (14LBS)
NETWORK SWITCH 16 PORT – 1.75"H X 6.7"D X 11"W (3.15LBS)
NETWORK SWITCH 24/28 PORT – 1.75"H X 7.99"D X 17.35"W (5.05LBS)
DORM REMOTE GATEWAY 2/4 PORT (DRG) – .92"H X 3.5"D X 3.6"W (5LBS)
DORM REMOTE GATEWAY 8/16/32 PORT (DRG) – 1.75"H X 17.1"D X 10.38"W (7LBS)
AMPLIFIER – 3.5"H X 18.25"D X 17.0"W (41LBS)
UPS - 3.5"H X 15.75"D X 17.25"W (58LBS)
CAMERA CONTROL UNIT – CONTROLLER – 12"H X 6"D X 12"W (16LBS)
CAMERA INTERCOM – 6.5"L X 4.6"W X 3/1"H (.86LBS)
CAMERA – 6.4"W X 4.06"H (1.84LBS)

3 PURVIS DETAILS

NOT TO SCALE

Ref North

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Revisions:

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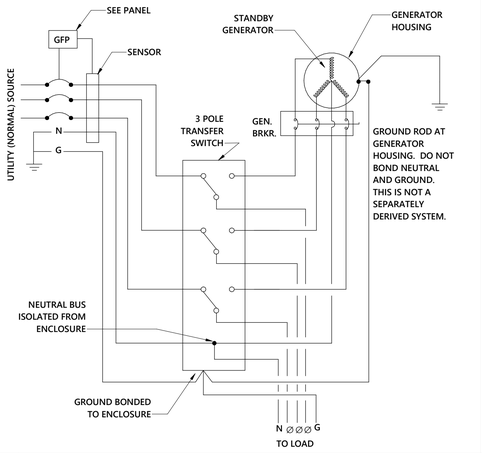
GORDON ROAD FIRE DEPARTMENT

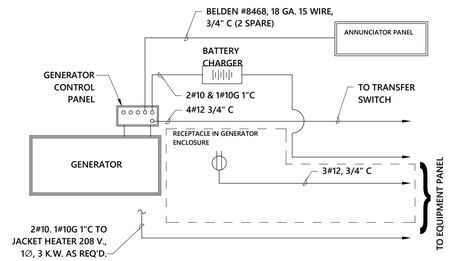
ELECTRICAL DETAILS - FIRE STATION

Sheet No.
E6.08

Opt # 22-0369

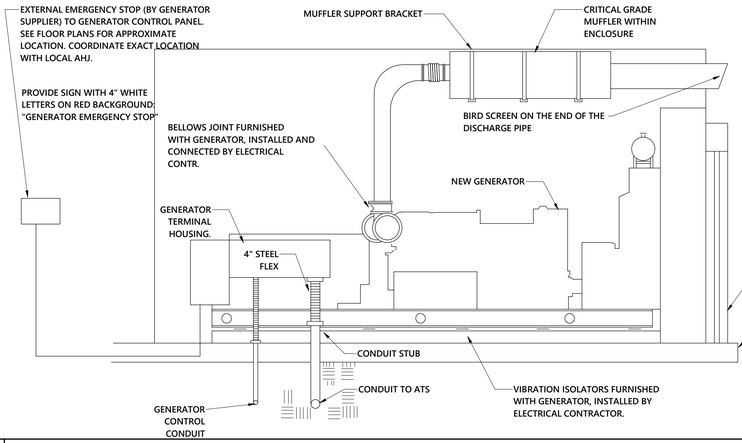


1 GENERATOR GROUNDING DETAIL
NOT TO SCALE



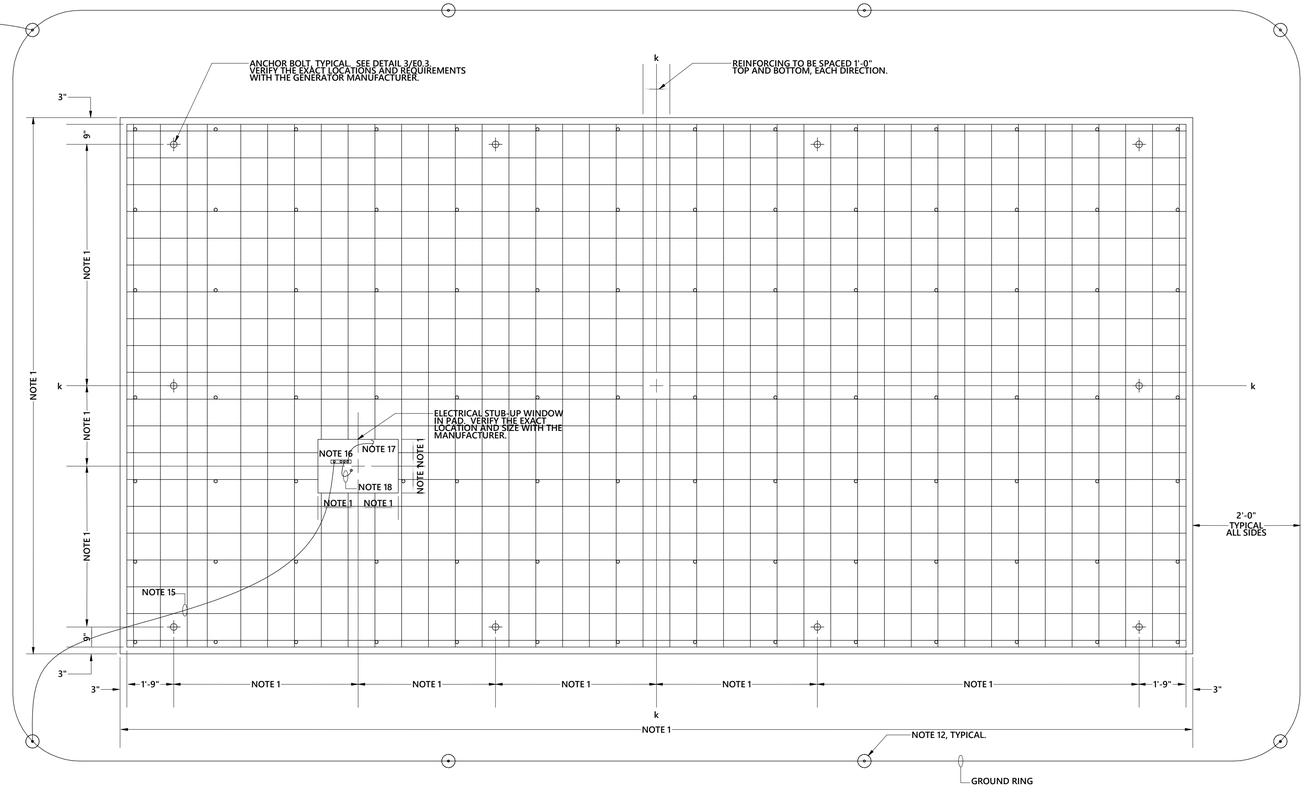
NOTES:
1. ALL CONDUIT ENTERING AND EXIT THE GENERATOR SHALL HAVE CONDUIT SEAL OFFS.

2 STANDBY GENERATOR SYSTEM DIAGRAM
NOT TO SCALE



NOTES:
1. GENERATOR MUST MEET UL 2200.
2. ENCLOSURE TO SHALL BE LIMITED TO THE FOLLOWING:
   A. 16 GAUGE FORMED STEEL CONSTRUCTION.
   B. AIR INTAKE LOUVERS BASED ON 95° F OUTSIDE AIR.
   C. ALL DOORS TO HAVE "PIANO HINGES" AND KEY LOCK LATCHES.
   D. AN ANGLE IRON FRAME ATTACHED TO THE BOTTOM OF ENCLOSURE ENABLING ENCLOSURE TO BE BOLTED TO THE CONCRETE MOUNTING BASE.
3. SOUND ATTENUATION TO MEET SPECIFICATIONS.

3 SECTION AT WEATHERPROOF GENERATOR HOUSEING
NOT TO SCALE



4 GENERATOR PAD AND GROUNDING PLAN
NOT TO SCALE

SHEET NOTES:

1. FOUNDATION LOADS, ANCHOR BOLT SIZES, AND ANCHOR BOLT PATTERNS FOR THE GENERATOR MODULE INDICATED ARE BASED ON TYPICAL INSTALLATIONS. EXACT PAD REQUIREMENTS SHALL BE BASED ON THE GENERATOR MANUFACTURER'S REQUIREMENTS BUT IN NO CASE SHALL THE THE PAD BE LESS THAN 18" THICK.
2. THE PAD SITE SHALL BE TESTED FOR SUITABLE FOUNDATION BEARING CAPACITY.
3. ALL SITE PREPARATION, FILL AND BACKFILL SHALL BE PLACED IN ACCORDANCE WITH ASTM STANDARDS.
4. ALL CONCRETE SHALL ATTAIN A 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI, UNLESS OTHERWISE NOTED.
5. THE CONCRETE SLUMP SHALL BE BETWEEN A MAXIMUM OF 4" AND A minimum of 2".
6. CONCRETE PERMANENTLY EXPOSED TO WEATHER SHALL BE 4% TO 7% AIR ENTRAINED.
7. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60. SPLICES SHALL BE LAPPED A MINIMUM OF 24 DIAMETERS.
8. ALL EXTERNAL EDGES SHALL HAVE A 1", 45° CHAMFER.
9. APPROVED MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
10. ANCHOR BOLTS SHALL BE ASTM A307 (CARBON STEEL). GENERATOR PAD TO BE INSTALLED BY THE GENERAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GC FOR PAD REQUIREMENTS. THE GROUND RING SHALL BE BY THE ELECTRICAL CONTRACTOR. TEST WELL. PROVIDE WITH APPROVED AND LISTED COUPLING TO ACHIEVE A DEPTH OF 20'-0" OR POINT OF REFUSAL, WITH TOP PORTION AND ALL CONNECTIONS ACCESSIBLE FOR INSPECTION AT THE TEST WELL. TYPICAL AT ALL GROUND ROD LOCATIONS. GROUND ROD CLAMP FOR SINGLE CONDUCTOR CONNECTIONS SHALL BE CAST BRONZE WITH MINIMUM TWO STAINLESS STEEL BOLTS (EAST COAST LIGHTNING EQUIPMENT #GC3/4 OR APPROVED EQUAL). GROUND ROD CLAMP FOR GROUND RING CONDUCTOR CONNECTION SHALL BE CAST BRONZE U-BOLT TYPE WITH STAINLESS STEEL BOLT, NUTS AND WASHERS (ECLE #GCUB OR APPROVED EQUAL). TEST/INSPECTION WELL SHALL BE NOMINAL 12" SQ x 12" DEEP FIBER-GLASS REINFORCED PRECAST POLYMER CONCRETE BOX WITH THE FOLLOWING FEATURES: LIGHT GREEN COLOR, "GROUND" LOGO ON COVER, OPEN BOTTOM, (2)-3/8-16 UNC STAINLESS STEEL HEX HEAD BOLTS W/ WASHER, 1/2" x 2" PULL SLOT, AND 0.5 COF SKID RESISTANT SURFACE (QUAZITE #PC1212BA12 BOX W/ #PC1212CA00 COVER).
12. THE GROUND RING SHALL BE 1-500KCMIL BARE TINNED COPPER CONDUCTOR BURIED A MINIMUM OF 30" BELOW FINISHED GRADE.
13. THE EARTH SHALL BE COMPACTED AND MADE TIGHT AGAINST ALL GROUND RODS, GROUND RING, CONDUCTORS, ETC.
14. 1-500KCMIL BARE TINNED COPPER CONDUCTOR FOR CONNECTION FROM GROUND RING TO GENERATOR OUTPUT BREAKER GROUND BAR. CONDUCTOR SHALL BE BURIED A MINIMUM OF 30" BELOW FINISHED GRADE BETWEEN GROUND RING AND GENERATOR.
15. APPROXIMATE LOCATION OF GENERATOR OUTPUT CIRCUIT BREAKER GROUND BAR. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION AS REQUIRED.
16. 1#3/0 COPPER GROUND (THWN) FROM GENERATOR OUTPUT CIRCUIT BREAKER GROUND BAR TO MARKED GENERATOR FRAME GROUND CONNECTION POINT. CLEAN CONNECTION POINT AS REQUIRED.
17. 1#3/0 COPPER GROUND (THWN) FROM GENERATOR OUTPUT CIRCUIT CIRCUIT BREAKER GROUND BAR TO GENERATOR HOUSING BASE I-BEAM. CLEAN CONNECTION POINT AS REQUIRED.
18. 1#3/0 BARE TINNED COPPER CONDUCTOR FOR CONNECTION FROM GROUND RING TO THE MASTER GROUND BAR.

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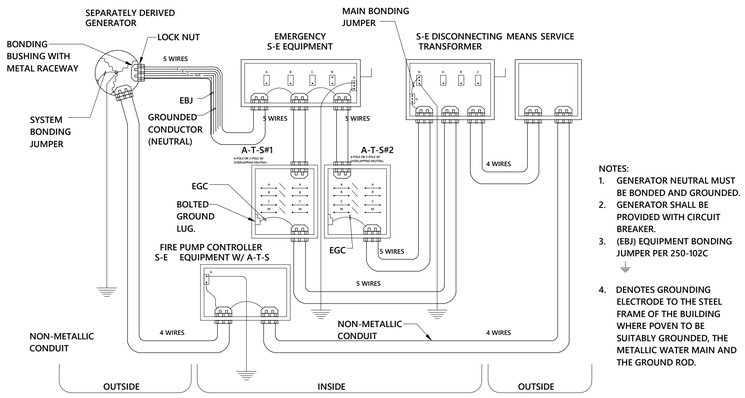
ELECTRICAL DETAILS - GENERATOR

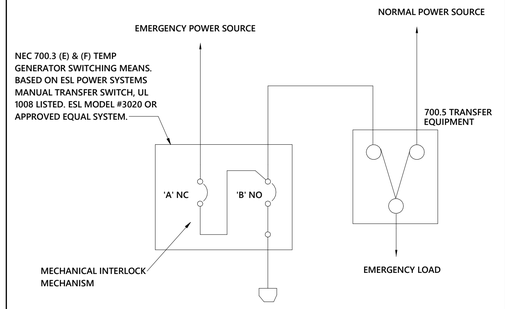
Sheet No.
E6.09

Opt # 22-0369



NOTES:
1. GENERATOR NEUTRAL MUST BE BONDED AND GROUNDED.
2. GENERATOR SHALL BE PROVIDED WITH CIRCUIT BREAKER.
3. (EBJ) EQUIPMENT BONDING JUMPER PER 250-102C
4. DENOTES GROUNDING ELECTRODE TO THE STEEL FRAME OF THE BUILDING WHERE POVEN TO BE SUITABLY GROUNDED, THE METALLIC WATER MAIN AND THE GROUND ROD.

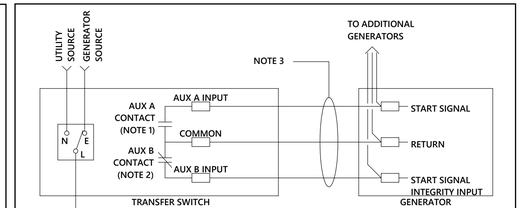
1 EMERGENCY GENERATOR OUTSIDE THE BUILDING
NO SCALE



SWITCH FUNCTIONS:
1. NORMAL OPERATION: EMERGENCY POWER SROUCE IS AVAILABLE AND CONNECTED TO THE 'ATS' SWITCH VIA NORMAL CLOSED BREAKER 'A'. BREAKER 'B' ARE NORMALLY OPEN.
2. CONNECTION OF TEMPORARY EMERGENCY POWER SOURCE: BREAKER 'B' IS CLOSED WHICH IS OF TEMPORARY EMERGENCY POWER SOURCE.

MODEL #S ARE BASED ON 480V AND 70A C/B's

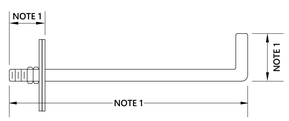
2 TRANSFER EQUIPMENT - ALTERNATE POWER & LOAD BANK
NO SCALE



AUX A	AUX B	CONTACT CONDITION	ACTION
CLOSED	OPEN	NORMAL W/ UTILITY AVAILABLE	NONE
OPEN	CLOSED	NORMAL W/ UTILITY NOT AVAILABLE	START GENERATOR(S)
OPEN	OPEN	ABNORMAL (FAULT/BREAK)	START GENERATOR(S)
CLOSED	CLOSED	ABNORMAL (FAULT/SHORT)	START GENERATOR(S)

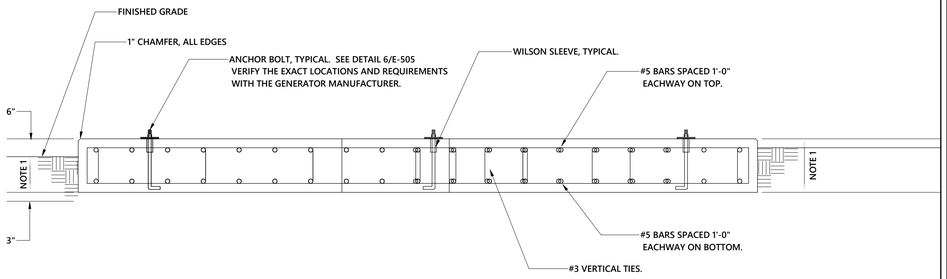
NOTES:
1. AUX CONTACT "A" (START SIGNAL) SHALL BE NORMALLY OPEN - HELD CLOSED WHEN UTILITY IS AVAILABLE AND OPEN WHEN UTILITY IS NOT AVAILABLE.
2. AUX CONTACT "B" (START SIGNAL INTEGRITY CIRCUIT) SHALL BE NORMALLY CLOSED - HELD OPEN WHEN UTILITY IS AVAILABLE AND CLOSED WHEN UTILITY IS NOT AVAILABLE.
6. CONTROL CONDUCTORS INSTALLED BETWEEN THE TRANSFER EQUIPMENT AND THE GENERATOR(S) SHALL BE KEPT ENTIRELY INDEPENDENT OF ALL OTHER WIRING AND SHALL MEET THE CONDITIONS OF NEC 700.10(D)(2) - INSTALLED IN A FULLY SPRINKLED SPACE (SPRINKLERS REQUIRED ABOVE LAY-IN CEILING IF APPLICABLE), 2-HR RATED LISTED CABLE ASSEMBLY, INSTALLED IN A 2-HR RATED ENCLOSURE, INSTALLED WITH MINIMUM 2" CONCRETE COVER. THE INTEGRITY OF THE GENERATOR START CIRCUIT SHALL BE MONITORED FOR BROKEN, DISCONNECTED, OR SHORTED WIRES. LOSS OF INTEGRITY SHALL START THE GENERATOR(S).
4. THE INTENT OF THIS DETAIL IS TO SHOW ONE METHOD OF COMPLIANCE WITH NEC 700.10(D)(4). ALTERNATE METHODS TO MEET THIS REQUIREMENT ARE ACCEPTABLE.

3 GENERATOR START SIGNAL - SINGLE ATS
NOT TO SCALE



3/4"∅ AB W/2HHN, 2FW, UNLESS AS REQUIRED PER NOTE

4 ANCHOR BOLT DETAIL
NOT TO SCALE



5 GENERATOR PAD SECTION
NOT TO SCALE

EMERGENCY POWER SYSTEM

GENERAL

1. CONTRACTOR SHALL FURNISH AND INSTALL, AS INDICATED ON THE PLANS AND AS HEREIN SPECIFIED, A COMPLETE SYSTEM FOR THE GENERATION, CONTROL, AND DISTRIBUTION OF ELECTRICAL POWER UPON FAILURE OF NORMAL SOURCE.
2. SYSTEM SHALL INCLUDE ENGINE-GENERATOR UNIT, AUTOMATIC TRANSFER SWITCHES, NO. 2 FUEL OIL (DIESEL) FUEL SUPPLY SYSTEM, AND ALL OTHER WIRING, RACEWAYS, EQUIPMENT, HARDWARE, ETC., NECESSARY FOR A COMPLETE AND PROPERLY FUNCTIONING SYSTEM, WHETHER OR NOT EVERY SUCH ITEM IS SPECIFICALLY SHOWN OR MENTIONED.
3. SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 37, NEC ARTICLE 700, UL 2200, STATE BUILDING CODE, AND ALL LOCAL CODES AND REQUIREMENTS.
4. UPON FAILURE TO NORMAL POWER SOURCE TO THE AUTOMATIC TRANSFER SWITCH, SYSTEM SHALL FUNCTION AUTOMATICALLY TO RESTORE POWER TO DESIGNATED LOADS FROM THE ENGINE-GENERATOR SET WITHIN 10 SECONDS.
5. POWER RATING OF THE ENGINE-GENERATOR SET SHALL BE BASED ON OPERATION AT 1800 RPM WHEN EQUIPPED WITH ALL NECESSARY OPERATION ACCESSORIES SUCH AS AIR CLEANERS, LUBRICATING OIL PUMP, JACKET WATER PUMP, GOVERNOR, ALTERNATING CURRENT GENERATOR, AND EXCITER REGULATOR. RADIATOR FAN SHALL BE INCLUDED AS NECESSARY OPERATING ACCESSORY. RATING SHALL APPLY AT SITE CONDITIONS.
6. THE ENGINE SHALL BE WATER-COOLED, IN-LINE VEE TYPE, WITH FOUR-STROKE CYCLE.
7. THE ENGINE SHALL BE COMPRESSION IGNITION DIESEL WHICH MEETS SPECIFICATIONS FOR OPERATING ON NO. 2 FUEL OIL.
8. THE ENGINE SHALL BE EQUIPPED WITH LUBE OIL, INTAKE AIR FILTERS, LUBE OIL COOLER, FUEL TRANSFER PUMP, FUEL PRIMING PUMP, RUNNING TIME METER, CHARGING ALTERNATOR, GEAR-DRIVEN WATER PUMP, AND INSTRUMENTS, INCLUDING A FUEL PRESSURE GAUGE, WATER TEMPERATURE GAUGE, LUBRICATING OIL PRESSURE GAUGE AS HEREIN SPECIFIED.
9. AN AUTOMATIC VOLTS PER HERTZ TYPE, SOLID STATE EXCITER/REGULATOR, MANUFACTURED BY THE GENERATOR MANUFACTURER, SHALL BE INCLUDED AND SHOCK MOUNTED INSIDE THE GENERATOR. VOLTAGE REGULATION SHALL BE +1% FROM NO LOAD TO FULL RATED LOAD. READILY ACCESSIBLE VOLTAGE DROOP, VOLTAGE LEVEL, AND VOLTAGE GAIN CONTROLS SHALL BE INCLUDED IN THE MODULE. VOLTAGE LEVEL ADJUSTMENTS SHALL BE MINIMUM OF +10%. THE MODULE SHALL INCLUDE THE FOLLOWING PROTECTIVE FEATURES:
10. VOLTAGE REGULATOR SHALL BE THREE PHASE SENSING. SINGLE SENSING SHALL NOT BE ACCEPTABLE.
11. AN ENGINE-MOUNTED RADIATOR WITH FLOWER-TYPE FAN SHALL BE PROVIDED TO MAINTAIN SAFE OPERATION AT 110 DEGREE F* (43 DEGREES C) AMBIENT TEMPERATURE. TOTAL AIR FLOW RESTRICTION TO AND FROM THE RADIATOR SHALL NOT EXCEED 0.5 IN. H20 (0, 12 kPA).
12. THE ENGINE COOLING SYSTEM SHALL BE PRETREATED BY THE ENGINE SUPPLIER FOR THE INHIBITION OF INTERNAL CORROSION. IN ADDITION, A SOLUTION OF 50% ETHYLENE GLYCOL SHALL BE ADDED, TO PREVENT FREEZING OF SYSTEM DUE TO EXTREME TEMPERATURES.
13. A CRITICAL EXHAUST SILENCER, AND ALL REQUIRED ACCESSORIES AND FITTINGS, SHALL BE PROVIDED. THE EXHAUST SILENCER SHALL BE MOUNTED DIRECTLY ON THE EXHAUST ELBOW OF THE ENGINE AND SUCH THAT ITS WEIGHT IS NOT SUPPORTED BY THE ENGINE NOR WILL EXHAUST SYSTEM GROWTH, DUE TO THERMAL EXPANSION, BE IMPOSED ON THE ENGINE. THE EXHAUST PIPE SIZE SHALL BE SUFFICIENT TO ENSURE THAT EXHAUST BACK-PRESSURE DOES NOT EXCEED THE MAXIMUM LIMITATIONS SPECIFIED BY THE ENGINE MANUFACTURER.
14. THE ENGINE SHALL BE EQUIPPED WITH A 24 VOLT ELECTRIC STARTING SYSTEM WITH POSITIVE ENGAGEMENT DRIVE AND OF SUFFICIENT CAPACITY TO CRANK THE ENGINE AT A SPEED WHICH WILL START THE ENGINE UNDER OPERATING CONDITIONS. THE STARTING PINION WILL DISENGAGE AUTOMATICALLY WHEN THE ENGINE STARTS. THE STARTING SYSTEM SHALL INCORPORATE AN AUTOMATICALLY RESET CIRCUIT BREAKER FOR ANTIBATTERY ENGAGEMENT.
15. FULLY AUTOMATIC GENERATOR SET START-STOP CONTROLS IN THE GENERATOR CONTROL PANEL SHALL BE PROVIDED. CONTROLS SHALL PROVIDE SHUTDOWN FOR LOW OIL PRESSURE, HIGH WATER TEMPERATURE, OVERSPEED, OVERCRANK, AND ONE AUXILIARY CONTACT FOR ACTIVATING ACCESSORY ITEMS. CONTROLS SHALL INCLUDE ONE 30-SECOND CRACKING CYCLE WITH LOCKOUT AND MANUAL RESET FEATURE.
16. AN ENGINE-MOUNTED THERMAL CIRCULATION TANK-TYPE IMMERSION WATER HEATER INCORPORATING AN ADJUSTABLE THERMOSTATIC SWITCH SHALL BE FURNISHED TO MAINTAIN ENGINE JACKET WATER TO 90 DEGREES F (32.2 DEGREES C) IN A STILL AIR, AMBIENT TEMPERATURE OF 30 DEGREES F (-1.1 DEGREES C). THE HEATER SHALL BE 208 VOLT, SINGLE PHASE, 5KW, 60HZ. VEE-TYPE ENGINES OF 12 CYLINDERS OR MORE SHALL HAVE ONE HEATER PER EACH BANK OF CYLINDERS.
17. A LEAD-ACID STORAGE BATTERY SET OF THE HEAVY-DUTY DIESEL STARTING TYPE SHALL BE PROVIDED. BATTERY VOLTAGE SHALL BE COMPATIBLE WITH THE STARTING SYSTEM. THE BATTERY SET SHALL BE RATED NO LESS THAN 220 AMPERE HOURS. A BATTERY RACK CONSTRUCTED IN CONFORMANCE WITH NEC REQUIREMENTS AND NECESSARY CABLES AND CLAMPS SHALL BE PROVIDED. BATTERIES SHALL BE CAPABLE OF CRANKING ENGINE AT RATED AMBIENT FOR A MINIMUM OF FIVE MINUTES.
18. A CURRENT LIMITING, FLOAT-EQUALIZE CHARGER SHALL BE FURNISHED TO AUTOMATICALLY RECHARGE BATTERIES. THE CHARGER SHALL FLOAT AT 2.17 VOLTS PER CELL AND EQUALIZE AT 2.33 VOLTS PER CELL. IT SHOULD INCLUDE OVERLOAD PROTECTION, SILICON DIODE FULL WAVE RECTIFIERS, VOLTAGE SURGE SUPPRESSERS, DC AMMETER, AND FUSED C OUTPUT. AC INPUT VOLTAGE SHALL BE 120 VOLTS, SINGLE PHASE. AMPERAGE OUTPUT SHALL BE NO LESS THAN 5 AMPERES. CHARGER SHALL BE WALL- MOUNTING TYPE IN NEMA 1 ENCLOSURE.
19. MAIN LINE MOLDED CASE, THREE-POLE, SINGLE THROW CIRCUIT BREAKERS RATED AS INDICATED ON THE DRAWINGS, AT 104 DEGREES F (40 DEGREES C) AMBIENT TEMPERATURE SHALL BE INSTALLED FOR THREE PHASE OVERLOADS AND/OR SHORT CIRCUIT PROTECTION. THESE RATINGS SHALL INCLUDE AT LEAST 10% ADDITIONAL CAPACITY FOR OVERLOAD AND OPERATING TEMPERATURE RISE OVER 104 DEGREES F (40 DEGREES C). IT SHALL OPERATE BOTH MANUALLY FOR NORMAL SWITCHING FUNCTIONS AND AUTOMATICALLY DURING OVERLOAD AND SHORT CIRCUIT CONDITIONS.
20. GENERATOR SHALL BE PROVIDED WITH THE FOLLOWING NON-STANDARD OPTIONS: EXTENDED WARRANTY, CRITICAL EXHAUST SILENCER, FLEXIBLE FUEL LINES, BATTERY HEATER, MAIN LINE CIRCUIT BREAKERS AND 21-LIGHT REMOTE ANNUNCIATOR.

1. THE WEATHERPROOF, SOUND-ATTENUATED (LEVEL II) ENCLOSURE FOR THE GENERATOR AND ALL OTHER ITEMS SHALL BE DESIGNED AND BUILT BY THE ENGINE MANUFACTURER AS AN INTEGRAL PART OF THE ENTIRE GENERATOR SET AND BE DESIGNED TO PERFORM WITHOUT OVERHEATING IN THE AMBIENT TEMPERATURE SPECIFIED.
2. THE EXHAUST SILENCER SHALL BE MOUNTED IN THE WEATHERPROOF, SOUND-ATTENUATED ENCLOSURE ENCLOSURE AND PROTRUDE THROUGH THE ENCLOSURE. A RAIN CAP SHALL BE PROVIDED.
3. THE UNIT SHALL BE CONSTRUCTED OF 16 GAUGE CORROSION RESISTANT SHEET METAL, SUITABLY REINFORCED TO BE VIBRATION FREE IN THE OPERATING MODE. THE ROOF SHALL BE PEAKED TO ALLOW DRAINAGE OF RAIN WATER.
4. THE UNIT SHALL HAVE A BAKED ENAMEL FINISH WITH PRIMER AND FINISH COAT TO BE PAINTED BEFORE ASSEMBLY. ALL FASTENERS SHALL BE RUST RESISTANT.
5. THE UNIT SHALL HAVE SUFFICIENT GUARDS TO PREVENT ENTRANCE BY SMALL ANIMALS.
6. THE BATTERIES SHALL FIT INSIDE ENCLOSURE AND ALONG SIDE THE ENGINE. BATTERIES UNDER THE GENERATOR ARE NOT ACCEPTABLE.
7. THE UNIT SHALL HAVE COOLANT AND OIL DRAINS OUTSIDE THE UNIT TO FACILITATE MAINTENANCE. EACH DRAIN LINE SHALL HAVE A HIGH QUALITY VALVE LOCATED NEAR THE FLUID SOURCE.

SUB-BASE FUEL TANK

1. THE SUB-BASE FUEL TANK SHALL BE CONSTRUCTED IN ACCORDANCE WITH NEMA, UL, AND ASTM STANDARDS.
2. THE FUEL TANK SHALL BE DOUBLE-WALLED WITH LEAK DETECTION AND ALARM CONNECTED TO THE REMOTE STATUS MONITOR AND CONTROL PANEL.
3. THE FUEL TANK CAPACITY SHALL BE AS NOTED ON THE DRAWINGS.
4. MONITORED FUEL LEVELS SHALL BE CRITICAL HIGH, HIGH (PUMP OFF), LOW (PUMP ON) AND CRITICAL LOW (SHUT-OFF). PROVIDE FUEL LEVEL STATUS AT THE CONTROL AND REMOTE ANNUNCIATOR PANEL.

AUTOMATIC TRANSFER SWITCH (ATS)

1. PROVIDE AND INSTALL AUTOMATIC TRANSFER SWITCH(ES) TO OPERATE ON A 3-PHASE, 4-WIRE, 60HZ SYSTEM VOLTAGE. VOLTAGE AND AMPERAGE AND OTHER REQUIREMENTS SHALL BE AS NOTED ON THE DRAWINGS. THE TRANSFER SWITCH SHALL BE 3-POLE WITH SOLID NEUTRAL UNLESS INDICATED AS 4-POLE ON THE POWER RISER DIAGRAM. THE ENTIRE ASSEMBLY SHALL BE UL LISTED UNDER UL-1008 AND COMPLY WITH NATIONAL ELECTRICAL CODE REQUIREMENTS.
2. THE TRANSFER SWITCH SHALL BE DOUBLE THROW, ACTUATED BY A SINGLE ELECTRICAL OPERATOR, MOMENTARILY ENERGIZE, AND CONNECTED TO THE TRANSFER MECHANISM BY A SINGLE OVER-CENTER-TYPE LINKAGE WITH A TOTAL TRANSFER TIME NOT TO EXCEED ONE-HALF SECOND. THE TRANSFER SWITCH SHALL BE CAPABLE OF TRANSFERRING SUCCESSFULLY IN EITHER DIRECTION WITH 70% OF RATED VOLTAGE APPLIED TO THE SWITCH TERMINALS.
3. THE NORMAL AND EMERGENCY CONTACTS SHALL BE POSITIVELY INTERLOCKED MECHANICALLY AND ELECTRICALLY TO PREVENT SIMULTANEOUS CLOSING. THE MAIN CONTACTS SHALL BE MECHANICALLY LOCKED IN POSITION IN BOTH THE NORMAL AND EMERGENCY POSITIONS WITHOUT THE USE OF HOOKS, LATCHES, MAGNETS OR SPRINGS AND SHALL BE SILVER-TUNGSTEN ALLOY. SEPARATE ARCING CONTACTS, WITH MAGNETIC BLOWOUTS, SHALL BE PROVIDED ON ALL TRANSFER SWITCHES. INTERLOCKED MOLDED CASE CIRCUIT BREAKERS OR CONTACTORS ARE NOT ACCEPTABLE. THE TRANSFER SWITCH SHALL BE EQUIPPED WITH A PERMANENTLY ATTACHED SAFE MANUAL OPERATOR DESIGNED TO PREVENT INJURY TO OPERATING PERSONNEL.
4. THE MANUAL OPERATOR SHALL PROVIDE A SAME CONTACT-TO-CONTACT TRANSFER SPEED AS THE ELECTRICAL OPERATOR TO PREVENT A FLASH-OVER FROM SWITCHING THE MAIN CONTACTS SLOWLY.
5. PROVIDE INTEGRAL MODULE OPTION FOR INTERFACE TO BAS CONTROLS. CONTRACTOR SHALL COORDINATE WITH BAS CONTRACTOR FOR EXACT REQUIREMENTS, PROTOCOL LANGUAGE, APPURTENANCES, ETC. PRIOR TO SUBMITTING SUBMITTALS FOR REVIEW.

TESTING AND COMMISSIONING

1. THE GENERATOR SET SHALL BE TESTED AT THE EQUIPMENT MANUFACTURER'S FACILITY PRIOR TO SHIPMENT. ALL TESTS SHALL BE RECORDED AND SUBMITTED TO THE ARCHITECT/ENGINEER. MINIMUM TESTING SHALL INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
   1.1. TRANSIENT RESPONSE
   1.2. VOLTAGE DIP AT 50, 75, AND 100% LOAD
   1.3. FREQUENCY DIP
   1.4. RECOVERY TIME
2. CAREFULLY "OHM" OUT CONTROL WIRING BETWEEN THE ATS AND GENERATOR SET PRIOR TO CONNECTING, CHECKING FOR OPENS, SHORTS, AND/OR GROUNDS. TEST THE ATS FUNCTIONS PRIOR TO CONNECTING LOAD. PRIOR TO CONNECTION, CHECK THE NORMAL AND EMERGENCY INPUT FEEDERS FOR INSULATION BREAKAGE, OPENS, SHORTS, AND/OR GROUNDS.
3. UPON COMPLETION OF THE INSTALLATION, START-UP SHALL BE PERFORMED BY THE GENERATOR SET MANUFACTURER, OR A TRAINED DEALER SERVICE REPRESENTATIVE. PARTS BOOKS COVERING THE ENGINE, GENERATOR, AND MAJOR AUXILIARY EQUIPMENT SHALL BE PROVIDED TO THE OWNER AT THIS TIME. PROCEDURES ON OPERATING AND MAINTENANCE OF THE SYSTEM SHALL BE EXPLAINED TO OPERATING PERSONNEL.
4. EQUIPMENT FURNISHED UNDER THIS SPECIFICATION SHALL BE GUARANTEED AGAINST DEFECTIVE PARTS AND WORKMANSHIP UNDER THE TERMS OF THE MANUFACTURER'S AND DEALER'S STANDARD WARRANTY, BUT IN NO EVENT, SHALL IT BE FOR A PERIOD OF LESS THAN TWO YEARS FROM DATE OF INITIAL START-UP OF THE SYSTEM AND SHALL INCLUDE LABOR AND TRAVEL TIME FOR NECESSARY REPAIRS AT THE JOB SITE. RUNNING HOURS SHALL NOT BE A LIMITING FACTOR FOR THE SYSTEM WARRANTY.
5. SYSTEM TESTING SHALL INCLUDE AN 8-HOUR, 100% LOAD BANK AND TRANSIENT TESTING UTILIZING POWER QUALITY ANALYZERS FOR WAVEFORM CAPTURE AS WELL AS VERIFICATION OF ALL ATS TRANSFER AND OPERATION FUNCTIONS AND SETPOINTS.
6. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR EQUIPMENT/SYSTEM COMMISSIONING AS DIRECTED BY THE COMMISSIONING AUTHORITY (CxA). THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE COMMISSIONING AUTHORITY AND PROVIDE ALL NECESSARY TIME, MATERIALS, AND PROCEDURES REQUIRED FOR A FULLY COMMISSIONED PROJECT.

Ref North

Project No.
1691

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GORDON ROAD FIRE DEPARTMENT

ELECTRICAL DETAILS - GENERATOR

Sheet No.
E6.10

Opt # 22-0369

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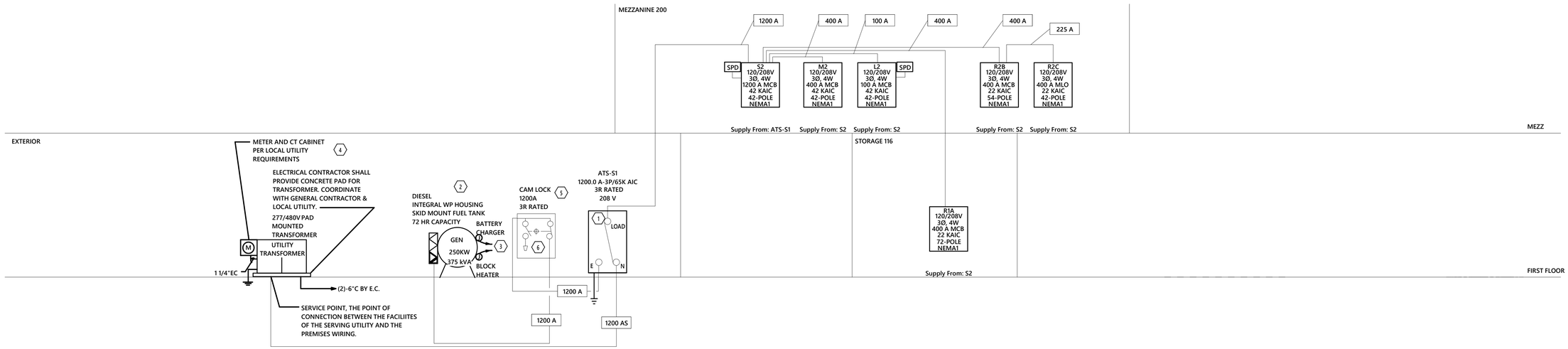

1 **ELECTRICAL DIAGRAM - ONE LINE**
NOT TO SCALE

FEEDER SCHEDULE FOR COPPER (<100A) &...

FEEDER AMPS	WIRE SIZE TEMP 75°C (CU)	WIRE SIZE TEMP 75°C (AL)
100 A	4#3, 1#8G, 1-1/4"C	4#1, 1#6G, 2"C (4#1/0, 1#6G, 2"C FOR 60C LUGS)
225 A	4#4/0, 1#4G, 2-1/2"C	4-300 KCMIL, 1#2G, 3"C
400 A	(2)-4#3/0, 1#3G, 2-1/2"C	(2) 4-250 KCMIL, 1#1 G, 3"C
800 A	(3) 4-300 KCMIL, 1#1/0G, 3"C	(3) 4-400 KCMIL, 1#3/0G, 3-1/2"C
800 AS	(3) 4-300 KCMIL, 3"C	(3) 4-400 KCMIL, 3-1/2"C
1200 A	(4) 4-350 KCMIL, 1#3/0G, 3"C	(4) 4-500 KCMIL, 1-250 KCMIL G, 3-1/2"C
1200 AS	(4) 4-350 KCMIL, 3"C	(4) 4-500 KCMIL, 3-1/2"C

NOTES:
1.) FOR TERMINATIONS RATED 100A OR LESS, THE ELECTRICAL CONTRACTOR SHALL VERIFY THE TERMINATIONS ARE LISTED FOR 75°C. WHERE 100A OR LESS RATED TERMINATIONS ARE LISTED 60°C, THE ELECTRICAL CONTRACTOR SHALL USE THE 60°C FEEDER LISTED IN THE TABLE.
2.) WHERE ALUMINUM CONDUCTORS ARE ALLOWED BY THE ENGINEER, THE CONTRACTOR SHALL MAKE EVERY PROVISION TO INSTALL ALUMINUM CONDUCTORS CORRECTLY, INCLUDING TERMINATIONS IN PANELBOARDS, DISCONNECTS, ETC. ALL TERMINALS SHALL BE LISTED SUITABLE FOR ALUMINUM. APPLY OXIDE INHIBITING PASTE TO ALUMINUM CONDUCTORS AT TERMINATIONS.

CONDUCTOR LENGTH TABLE

THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR MEETING ALL NEC VOLTAGE DROP REQUIREMENTS REGARDLESS OF WHAT THE PANEL SCHEDULE INDICATES. BRANCH CIRCUIT (COPPER CONDUCTORS) ARE TO BE SIZED TO ALLOW A MAXIMUM OF 3% VOLTAGE DROP FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE ON THE BRANCH CIRCUIT AND ACHIEVE A MAXIMUM OF 5% VOLTAGE DROP ACROSS THE ENTIRE BRANCH CIRCUIT: SEE BELOW FOR THIS PROJECTS COMMONLY USED BRANCH CIRCUIT TYPES.

DISTANCE	AMPS	VOLTAGE	BRANCH CIRCUIT
0 - 60FT	20	120V 1-PHASE	#12
60 - 100FT	20	120V 1-PHASE	#10
100 - 160FT	20	120V 1-PHASE	#8
160 - 260FT	20	120V 1-PHASE	#6
260 - 400FT	20	120V 1-PHASE	#4
400 - 700FT	20	120V 1-PHASE	#2

GENERAL NOTES:
1. PROVIDE PERMANENT PLACARD LOCATED ABOVE THE MAIN SERVICE DISCONNECT.
2. PROVIDE 4" HIGH REINFORCED CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL GEAR WHETHER SHOWN OR NOT SHOWN.
3. PROVIDE AN ARC FLASH ANALYSIS PER NFPA 70E AND OSHA 29 CFR 1910 AND LABEL ALL PANELS ACCORDINGLY WITH THE SPECIFIC HAZARD LEVEL. SEE SPECIFICATIONS.
4. INSTALL COPY OF FINAL RISER DIAGRAM ON MAIN ELECTRICAL ROOM WALL ADJACENT TO MAIN DISTRIBUTION PANEL. RISER SHALL BE LAMINATED AND FRAMED IN PLEXIGLASS. MINIMUM SIZE SHALL BE 24"X36".
5. PROVIDE PERMANENT NAMEPLATE LOCATED AT MAIN SERVICE DISCONNECTS INDICATING "SERVICE 1".
6. ELECTRICAL CONTRACTOR SHALL PROVIDE CONCRETE PAD FOR UTILITY TRANSFORMER. COORDINATE WITH GENERAL CONTRACTOR AND LOCAL UTILITY.
7. SERVICE GROUNDS SHALL BE BONDED PER E0.02 ELECTRICAL SPECIFICATIONS. PROVIDE GROUNDING RODS AS SPECIFIED IN SPEC SECTION.
8. ALUMINIUM IS ACCEPTABLE FOR USE IN MAIN FEEDERS OVER 100A. ALL OTHER FEEDERS AND BRANCH CIRCUITS SHALL BE COPPER.

KEYED NOTES:
1. AUTOMATIC TRANSFER SWITCH (ATS) IN NEMA-3R ENCLOSURE. 42KAIC, 208/120 VOLTS. 800 AMPS, 80% RATED, 3 POLE. NEC 702 USE, S.E. RATED.
2. NEC 702 STANDBY GENERATOR . 800A 80% BREAKER, WEATHERPROOF ENCLOSURE, GENERATOR SHALL PROVIDE FULL BUILDING STANDBY POWER FOR 72 HOURS. E.C. SHALL PROVIDE ALL CONDUIT STUBBED UP 6" ABOVE GRADE WITH PULL STRING ANDCONDUIT CAP FOR ALL REQUIRED INTERCONNECTIONS (INCLUDING BUT NOT LIMITED TO THE FACP, ATS AND GENERATOR ANNUNCIATOR).
3. SEE SITE PLAN FOR GENERATOR BATTERY CHARGER AND HEATER CIRCUIT NUMBERS.
4. 49,570 AIC AVAILABLE FAULT CURRENT BASED ON 500KVA PAD MOUNTED TRANSFORMER FAULT CURRENT TABLE PROVIDED FROM DUKE ENERGY PROJECT MANUAL.

ELECTRICAL EQUIPMENT RISER SCHEDULE

PANEL NAME	SHORT CIRCUIT RATING	VOLTAGE	Isc	MAINS	CALCULATED MAXIMUM 80%	TOTAL ESTIMATED DEMAND CIRCUIT	NUMBER OF POLES	NUMBER OF WIRES	FEEDER WIRE & CONDUIT (CU)	PANEL LOCATION	PANEL FED FROM
S2	42 KAIC	208 V		1200 A	960 A	779 A	3	4	(4) 4-350 KCMIL, 1#3/0G, 3in C	Space 157	ATS-S1
ATS-S1	65 KAIC	208 V		1200 A	960 A	779 A	3	4	(3) 4-300KCMIL, 3in C		UTILITY TRANSFORMER
R2B	22 KAIC	208 V		400 A	320 A	136 A	3	4	(2) 4#3/0, 1#3G, 2-1/2in C	Space 157	S2
R1A	22 KAIC	208 V		400 A	320 A	131 A	3	4	(2) 4#3/0, 1#3G, 2-1/2in C	STORAGE 116	S2
M2	42 KAIC	208 V		400 A	320 A	228 A	3	4	(2) 4#3/0, 1#3G, 2-1/2in C	Space 157	S2
R2C	22 KAIC	208 V		400 A	320 A	121 A	3	4	(2) 4#3/0, 1#3G, 2-1/2in C	Space 157	S2
L2	42 KAIC	208 V		100 A	80 A	35 A	3	4	4#1, 1#8G, 1-1/2in C	Space 157	S2

ELECTRICAL EQUIPMENT RISER SCHEDULE

PANEL NAME	SHORT CIRCUIT RATING	VOLTAGE	Isc	MAINS	PANEL TYPE * HIDE	CALCULATED MAXIMUM 80%	TOTAL ESTIMATED DEMAND CIRCUIT	CALC. MAX-DEMAND DIFFERENTIAL * HIDE	NUMBER OF POLES	NUMBER OF WIRES	FEEDER INPUT * HIDE	FEEDER INPUT Y/N * HIDE	FEEDER WIRE & CONDUIT (CU)	PANEL OVERLOAD * HIDE ADVICE	PANEL LOCATION	PANEL FED FROM
S2	42 KAIC	208 V		1200 A	1200A MCB	960 A	779 A	180.9 A	3	4		No	(4) 4-350 KCMIL, 1#3/0G, 3in C	-	Space 157	ATS-S1
ATS-S1	65 KAIC	208 V		1200 A	ASCO 800A	960 A	779 A	180.9 A	3	4	(3) 4-300KCMIL, 3in C	Yes	(3) 4-300KCMIL, 3in C	-		UTILITY TRANSFORMER
R2B	22 KAIC	208 V		400 A	400A MCB	320 A	136 A	183.7 A	3	4		No	(2) 4#3/0, 1#3G, 2-1/2in C	-	Space 157	S2
R1A	22 KAIC	208 V		400 A	400A MCB	320 A	131 A	188.7 A	3	4		No	(2) 4#3/0, 1#3G, 2-1/2in C	-	STORAGE 116	S2
M2	42 KAIC	208 V		400 A	400A MCB	320 A	228 A	91.9 A	3	4		No	(2) 4#3/0, 1#3G, 2-1/2in C	-	Space 157	S2
R2C	22 KAIC	208 V		400 A	400A MLO	320 A	121 A	199.0 A	3	4		No	(2) 4#3/0, 1#3G, 2-1/2in C	-	Space 157	S2
L2	42 KAIC	208 V		100 A	100A MCB	80 A	35 A	44.9 A	3	4		No	4#1, 1#8G, 1-1/2in C	-	Space 157	S2

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ELECTRICAL DIAGRAMS

Sheet No.
E7.01

Opt # 22-0369

PANEL: S2

VOLTAGE: 208Y/120 3Ø — **FED FROM:** ATS-S1

MOUNTING: SURFACE — **MAIN TYPE:** MCB — **MFR:**
ENCLOSURE: NEMA1 — **PHASE:** 3 — **TYPE:**
MAIN: 1200.0 A — **WIRE:** 4 — **AIC:** 42 KAIC

LC Abbr	Load Served	Wire	Trip	Ckt No	Pole	A		B		C		Pole	Ckt No	Trip	Wire	Load Served	LC Abbr
MISC.	SPD	6	60 A	1	3	0.00	27.89					3	2	400 A	SR	PANEL M2	F
				3				0.00	27.58				4				
				5						0.00	26.71		6				
F	PANEL L2	SR	100 A	7	3	3.23	20.21					3	8	250 A	SR	PANEL R1A	F
				9				3.95	15.97				10				
				11						2.91	19.07		12				
F	PANEL R2B	SR	400 A	13	3	19.06	17.50					3	14	175 A	2/0	DOAS-1	VENTIL...
				15				17.86	17.50				16				
				17						17.76	17.50		18				
Spare	SPARE	-	200 A	19	3	0.00	0.00					3	20	100 A	-	SPARE	Spare
				21				0.00	0.00				22				
				23						0.00	0.00		24				
				25									26				
				27									28				
				29									30				
				31									32				
				33									34				
				35									36				
				37									38				
				39									40				
				41									42				

	LOAD	Connected...	Demand...	Estimated...
L	LIGHTS	9.05 kVA	125.00%	11.31 kVA
LE	LIGHTING - EXTERIOR	1.36 kVA	125.00%	1.70 kVA
H	HEATING	2.56 kVA	100.00%	2.56 kVA
C	COOLING	32.54 kVA	100.00%	32.54 kVA
V	VENTILATION	55.88 kVA	100.00%	55.88 kVA
M	MOTORS	17.49 kVA	100.00%	17.49 kVA
K	KITCHEN	0.00 kVA	0.00%	0.00 kVA
R	RECEPTACLES	50.34 kVA	59.93%	30.17 kVA
...	WATER HEATER	0.00 kVA	0.00%	0.00 kVA
MS	MISC.	125.54 kVA	100.00%	125.54 kVA
S	Spare	0.00 kVA	0.00%	0.00 kVA
E	ELEVATOR	0.00 kVA	0.00%	0.00 kVA
LD	LAUNDRY	0.00 kVA	0.00%	0.00 kVA
EV	EV CHARGING	0.00 kVA	0.00%	0.00 kVA

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. THIS PANEL SHALL BE U.L. LISTED FOR USE AS S.E. EQUIP.
8. PROVIDE AN ENERGY REDUCING MAINTENANCE SWITCH WITH LOCAL STATUS INDICATOR.

TOTAL KVA...	298.24 kVA	TOTAL PER PHASE: (CONNECTED)		
TOTAL KVA (DEMAND):	280.67 kVA	863.2 A	804.7 A	822.1 A
TOTAL AMP....	828 A			
TOTAL AMP. (DEMAND):	779 A	**TOTAL AMP. (DEMAND) x...**	973.8 A	

LOAD CLASSIFICATION ABBREVIATIONS (CONT.)
F - FEEDER FOR DOWN STREAM PANEL. LOADS ARE INCLUDED IN THE PANEL LOAD...

PANEL: L2

VOLTAGE: 208Y/120 3Ø — **FED FROM:** S2

MOUNTING: SURFACE — **MAIN TYPE:** MCB — **MFR:**
ENCLOSURE: NEMA1 — **PHASE:** 3 — **TYPE:**
MAIN: 100.0 A — **WIRE:** 4 — **AIC:** 42 KAIC

LC Abbr	Load Served	Wire	Trip	Ckt No	Pole	A		B		C		Pole	Ckt No	Trip	Wire	Load Served	LC Abbr
MISC.	SPD	10	30 A	1	3	0.00	0.65					1	2	20 A	12	LTS - TRAINING/CONFERENCE	L
				3				0.00	1.14			1	4	20 A	12	LTS - OFFICES/MISC	L
				5						0.00	0.87	1	6	20 A	12	LTS - CORRIDOR/SLEEP (NOTE 8)	L
L	LTS - KITCHEN	12	20 A	7	1	0.97	0.97					1	8	20 A	12	LTS - APPARATUS BAY MIDDLE	L
L	LTS - APPARATUS BAY	12	20 A	9	1			1.36	0.58			1	10	20 A	12	LTS - APPARATUS BAY NL (NOT...	L
L	LTS - MISC.	12	20 A	11	1					1.02	0.39	1	12	20 A	12	LTS - EXTERIOR	LE
LE	LTS - EXTERIOR	12	20 A	13	1	0.47	0.17					1	14	20 A	12	LTS - MEZZANINE	L
LI...	LTS - COORIDOR LIGHTS	12	20 A	15	1			0.08	0.80			1	16	20 A	12	LTS TRAINING 110	LI...
S...	SPARE	-	20 A	17	1					0.00	0.64	1	18	20 A	12	LTG - EXT. COVE	LI...
S...	SPARE	-	20 A	19	1	0.00	0.00					1	20	20 A	-	SPARE	S...
S...	SPARE	-	20 A	21	1			0.00	0.00			1	22	20 A	-	SPARE	S...
S...	SPARE	-	20 A	23	1					0.00	0.00	1	24	20 A	-	SPARE	S...
S...	SPARE	-	20 A	25	1	0.00	0.00					1	26	20 A	-	SPARE	S...
S...	SPARE	-	20 A	27	1			0.00	0.00			1	28	20 A	-	SPARE	S...
S...	SPARE	-	20 A	29	1					0.00	0.00	1	30	20 A	-	SPARE	S...
S...	SPARE	-	20 A	31	1	0.00	0.00					1	32	20 A	-	SPARE	S...
S...	SPARE	-	20 A	33	1			0.00	0.00			1	34	20 A	-	SPARE	S...
S...	SPARE	-	20 A	35	1					0.00	0.00	1	36	20 A	-	SPARE	S...
	SPACE ONLY	-	--	37	1	--	--					1	38	--	-	SPACE ONLY	
	SPACE ONLY	-	--	39	1			--	--			1	40	--	-	SPACE ONLY	
	SPACE ONLY	-	--	41	1					--	--	1	42	--	-	SPACE ONLY	

	LOAD	Connected...	Demand...	Estimated...
L	LIGHTS	8.75 kVA	125.00%	10.93 kVA
LE	LIGHTING - EXTERIOR	1.36 kVA	125.00%	1.70 kVA
H	HEATING	0.00 kVA	0.00%	0.00 kVA
C	COOLING	0.00 kVA	0.00%	0.00 kVA
V	VENTILATION	0.00 kVA	0.00%	0.00 kVA
M	MOTORS	0.00 kVA	0.00%	0.00 kVA
K	KITCHEN	0.00 kVA	0.00%	0.00 kVA
R	RECEPTACLES	0.00 kVA	0.00%	0.00 kVA
...	WATER HEATER	0.00 kVA	0.00%	0.00 kVA
MS	MISC.	0.00 kVA	0.00%	0.00 kVA
S	Spare	0.00 kVA	0.00%	0.00 kVA
E	ELEVATOR	0.00 kVA	0.00%	0.00 kVA
LD	LAUNDRY	0.00 kVA	0.00%	0.00 kVA
EV	EV CHARGING	0.00 kVA	0.00%	0.00 kVA

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. PROVIDE BREAKER WITH HANDLE LOCK-ON DEVICE.
8. PROVIDE AFCI BREAKER.

TOTAL KVA...	10.10 kVA	TOTAL PER PHASE: (CONNECTED)		
TOTAL KVA (DEMAND):	12.63 kVA	27.4 A	33.4 A	24.3 A
TOTAL AMP....	28 A			
TOTAL AMP. (DEMAND):	35 A	**TOTAL AMP. (DEMAND) x...**	43.8 A	

LOAD CLASSIFICATION ABBREVIATIONS (CONT.)
F - FEEDER FOR DOWN STREAM PANEL. LOADS ARE INCLUDED IN THE PANEL LOAD...

PANEL: M2

VOLTAGE: 208Y/120 3Ø — **FED FROM:** S2

MOUNTING: SURFACE — **MAIN TYPE:** MCB — **MFR:**
ENCLOSURE: NEMA1 — **PHASE:** 3 — **TYPE:**
MAIN: 400.0 A — **WIRE:** 4 — **AIC:** 42 KAIC

LC Abbr	Load Served	Wire	Trip	Ckt No	Pole	A		B		C		Pole	Ckt No	Trip	Wire	Load Served	LC Abbr
M...	GEN CHARGER	12	20 A	1	1	1.00	0.50					2	2	20 A	12	GEN - HEATER (NOTE 7)	MISC.
COO...	IDU-5,7,8,9,10,11,12,13	12	15 A	3	2			0.96	0.50				4				
				5						0.96	0.78	2	6	15 A	12	IDU-1,2,3,4,6	COO...
COO...	IDU-14,15,16,17,18,19,20,21,22,23	12	15 A	7	2	0.88	0.78						8				
				9				0.88	0.20			1	10	15 A	12	IH1-1,2 IR HEATERS	M...
O...	FAN - APP BY 149	12	20 A	11	1					0.72	0.33	2	12	20 A	12	IDU - 24,25,26,27	COO...
HEA...	EWH-1	12	20 A	13	2	1.13	0.33						14				
				15				1.13	0.48			3	16	15 A	12	EF-G1	VENTIL...
H...	PATIO - IR HEATER	12	20 A	17	1					0.41	0.48		18				
VENTIL...	SF - G1	12	15 A	19	3	0.48	0.48						20				
				21				0.48	2.80			3	22	30 A	10	VEH-1	MISC.; M...
				23						0.48	2.80		24				
MISC.	WH1	-	30 A	25	3	0.00	2.80						26				
				27				0.00	0.50			1	28	20 A	12	RCP1	M...
				29						0.00	0.60	1	30	20 A	12	MISC.	LI...
COOLING	CU-1	1	110 A	31	3	9.33	9.83					3	32	125 A	1	ODU-1	MISC.; C...
				33				9.33	9.83				34				
				35						9.33	9.83		36				
M...	WH1	12	15 A	37	1	0.36	0.00					1	38	20 A	-	SPARE	S...
V...	EF - 2,3,4,5,6	12	15 A	39	1			0.50	0.00			1	40	20 A	-	SPARE	S...
S...	SPARE	-	20 A	41	1					0.00	0.00	1	42	20 A	-	SPARE	S...

	LOAD	Connected...	Demand...	Estimated...
L	LIGHTS	0.00 kVA	0.00%	0.00 kVA
LE	LIGHTING - EXTERIOR	0.00 kVA	0.00%	0.00 kVA
H	HEATING	2.56 kVA	100.00%	2.56 kVA
C	COOLING	32.54 kVA	100.00%	32.54 kVA
V	VENTILATION	3.38 kVA	100.00%	3.38 kVA
M	MOTORS	8.69 kVA	100.00%	8.69 kVA
K	KITCHEN	0.00 kVA	0.00%	0.00 kVA
R	RECEPTACLES	0.00 kVA	0.00%	0.00 kVA
...	WATER HEATER	0.00 kVA	0.00%	0.00 kVA
MS	MISC.	32.96 kVA	100.00%	32.96 kVA
S	Spare	0.00 kVA	0.00%	0.00 kVA
E	ELEVATOR	0.00 kVA	0.00%	0.00 kVA
LD	LAUNDRY	0.00 kVA	0.00%	0.00 kVA
EV	EV CHARGING	0.00 kVA	0.00%	0.00 kVA

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. PROVIDE CLASS B GFI (30mA-EQUIPMENT) BRKR.

TOTAL KVA...	82.18 kVA	TOTAL PER PHASE: (CONNECTED)		
TOTAL KVA (DEMAND):	82.18 kVA	233.5 A	231.0 A	222.6 A
TOTAL AMP....	228 A			
TOTAL AMP. (DEMAND):	228 A	**TOTAL AMP. (DEMAND) x...**	285.1 A	

LOAD CLASSIFICATION ABBREVIATIONS (CONT.)
F - FEEDER FOR DOWN STREAM PANEL. LOADS ARE INCLUDED IN THE PANEL LOAD...

PANEL: R1A

VOLTAGE: 208Y/120 3Ø — **FED FROM:** S2

MOUNTING: SURFACE — **MAIN TYPE:** MCB — **MFR:**
ENCLOSURE: NEMA1 — **PHASE:** 3 — **TYPE:**
MAIN: 400.0 A — **WIRE:** 4 — **AIC:** 22 KAIC

LC Abbr	Load Served	Wire	Trip	Ckt No	Pole	A		B		C		Pole	Ckt No	Trip	Wire	Load Served	LC Abbr
R	REC - OFFICES/ADMIN	12	20 A	1	1	1.20	1.08					1	2	20 A	12	REC - CONFERENCE RM	R
R	REC - TRAINING	12	20 A	3	1			0.90	0.36			1	4	20 A	12	REC - TRAINING	R
R	REC - TRAINING	12	20 A	5	1					0.36	0.36	1	6	20 A	12	REC - TRAINING	R
R	REC - TRAINING	12	20 A	7	1	0.36	0.72					1	8	20 A	12	REC - TRAINING	R
MS	EWC (NOTE 8)	12	20 A	9	1			1.00	0.54			1	10	20 A	12	REC - LOBBY, TOILET	R
R	REC - REPORT ROOM	12	20 A	11	1					0.72	1.00	1	12	20 A	12	PRINTER - REPORT ROOM	MS
R	REC - CORRIDOR	12	20 A	13	1	0.90	1.62					1	14	20 A	12	REC - OFFICES	R
R	REC - OFFICES, MISC	12	20 A	15	1			1.26	1.00			1	16	20 A	12	REC - DATA	MS
MS	REC - DATA	12	20 A	17	1					1.00	1.00	1	18	20 A	12	REC - DATA	MS
MS	REC - DATA	12	20 A	19	1	1.00	1.00					1	20	20 A	12	REC - DATA	MS
R	REC - IT ROOM	12	20 A	21	1			0.36	1.80			1	22	20 A	12	REC - OFFICES	R
R	REC - OFFICES/WORK ROOM	12	20 A	23	1					1.44	0.90	1	24	20 A	12	REC - OFFCIES/STOARGE	R
R	REC - CORRDIOR	12	20 A	25	1	0.54	0.50					1	26	20 A	12	FACP (NOTE 7)	MS
R	REC - DAYROOM/PENINSULA	12	20 A	27	1			0.54	1.08			1	28	20 A	12	REC - OFFICE/VEST/JAN	R
MS	EQUIPMENT - JANITOR	12	20 A	29	2					1.50	1.00	1	30	20 A	12	OUTDOOR GRILL (NOTE 8)	MS
				31		1.50	1.26					1	32	20 A	12	REC - OUTDOOR	R
R	REC - KITCHEN	12	20 A	33	1			0.54	1.00			1	34	20 A	12	REFRIGERATOR (NOTE 8)	MS
MS	OVEN (DIRECT WIRE)	6	50 A	35	2					4.00	0.54	1	36	20 A	12	REC - KITCHEN/PANTRIES	R
				37		4.00	1.00					1	38	20 A	12	REFRIGERATOR (NOTE 8)	MS
MS	REFRIGERATOR (NOTE 8)	12	20 A	39	1			1.00	1.00			1	40	20 A	12	REFRIGERATOR (NOTE 8)	MS
R	REC - DECON.TLT/SHOWER	12	20 A	41	1					0.90	1.26	1	42	20 A	12	REC - TLT/SHOWER/CORRIDOR	R
R...	TV - TRAINING 110	12	20 A	43	1	0.66	0.54					1	44	20 A	12	RCPT - KITCHEN/DINING 129	R...
M...	ISOMET - KITCHEN	12	20 A	45	1			0.72	0.54			1	46	20 A	12	COUNTER REC- JANITOR 134	R...
R...	RECEPTACLES ADMIN SUPPOR...	12	20 A	47	1					0.72	1.33	3	48	30 A	10	REC CORRIDOR 140	MISC.
R...	MICROWAVE - KITCHEN	12	20 A	49	1	1.00	1.33						50				
R...	MICROWAVE - KITCHEN	12	20 A	51	1			1.00	1.33				52				
R	REC - EXTERIOR	12	20 A	53	1					0.54	0.50	1	54	20 A	12	NAC - STORAGE 116 (NOTE 7)	M...
S...	SPARE	-	20 A	55	1	0.00	0.00					1	56	20 A	-	SPARE	S...
S...	SPARE	-	20 A	57	1			0.00	0.00			1	58	20 A	-	SPARE	S...
S...	SPARE	-	20 A	59	1					0.00	0.00	1	60	20 A	-	SPARE	S...
S...	SPARE	-	20 A	61	1	0.00	0.00					1	62	20 A	-	SPARE	S...
S...	SPARE	-	20 A	63	1			0.00	0.00			1	64	20 A	-	SPARE	S...
S...	SPARE	-	20 A	65	1					0.00	0.00	1	66	20 A	-	SPARE	S...
	SPACE ONLY	-	--	67	1	--	--					1	68	--	-	SPACE ONLY	
	SPACE ONLY	-	--	69	1			--	--			1	70	--	-	SPACE ONLY	
	SPACE ONLY	-	--	71	1					--	--	1	72	--	-	SPACE ONLY	

	LOAD	Connected...	Demand...	Estimated...
L	LIGHTS	0.00 kVA	0.00%	0.00 kVA
LE	LIGHTING - EXTERIOR	0.00 kVA	0.00%	0.00 kVA
H	HEATING	0.00 kVA	0.00%	0.00 kVA
C	COOLING	0.00 kVA	0.00%	0.00 kVA
V	VENTILATION	0.00 kVA	0.00%	0.00 kVA
M	MOTORS	0.00 kVA	0.00%	0.00 kVA
K	KITCHEN	0.00 kVA	0.00%	0.00 kVA
R	RECEPTACLES	25.94 kVA	69.28%	17.97 kVA
...	WATER HEATER	0.00 kVA	0.00%	0.00 kVA
MS	MISC.	29.32 kVA	100.00%	29.32 kVA
S	Spare	0.00 kVA	0.00%	0.00 kVA
E	ELEVATOR	0.00 kVA	0.00%	0.00 kVA
LD	LAUNDRY	0.00 kVA	0.00%	0.00 kVA
EV	EV CHARGING	0.00 kVA	0.00%	0.00 kVA

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. PROVIDE BREAKER WITH HANDLE LOCK-ON DEVICE.
8. PROVIDE CLASS A GFI (6mA PERSONNEL) BREAKER (250' MAX).

TOTAL KVA...	55.26 kVA	TOTAL PER PHASE: (CONNECTED)		
TOTAL KVA (DEMAND):	47.29 kVA	172.4 A	133.1 A	162.9 A
TOTAL AMP....	153 A			
TOTAL AMP. (DEMAND):	131 A	**TOTAL AMP. (DEMAND) x...**	164.1 A	

LOAD CLASSIFICATION ABBREVIATIONS (CONT.)
F - FEEDER FOR DOWN STREAM PANEL. LOADS ARE INCLUDED IN THE PANEL LOAD...

PANEL: R2B

VOLTAGE: 208Y/120 3Ø — **FED FROM:** S2

MOUNTING: SURFACE — **MAIN TYPE:** MCB — **MFR:**
ENCLOSURE: NEMA1 — **PHASE:** 3 — **TYPE:**
MAIN: 400.0 A — **WIRE:** 4 — **AIC:** 22 KAIC

LC Abbr	Load Served	Wire	Trip	Ckt No	Pole	A		B		C		Pole	Ckt No	Trip	Wire	Load Served	LC Abbr
R	REC - SLEEPING ROOMS	12	20 A	1	1	1.62	1.62					1	2	20 A	12	REC - SLEEPING ROOMS	R
R	REC - SLEEPING ROOMS	12	20 A	3	1			1.80	1.00			1	4	20 A	12	WASHING MACHINE (NOTE 8)	MS
MS	DRYER	10	30 A	5	2					4.00	1.00	1	6	20 A	12	WASHING MACHINE (NOTE 8)	MS
				7		4.00	4.00					2	8	30 A	10	DRYER	MS
R	EWC (NOTE 8)	12	20 A	9	1			1.00	4.00				10				
R	REC - EXERCISE/VESTIBULE	12	20 A	11	1					0.54	0.54	1	12	20 A	12	REC - EXERCISE	R
R	REC - CLEAN	12	20 A	13	1	1.08	0.18					1	14	20 A	12	REC - DIRTY	R
S...	SPARE	-	20 A	15	1			0.00	0.54			1	16	20 A	12	REC - COMPRESSOR ROOM	R
R	REC - CORD REEL (NOTE 8)	12	20 A	17	1					1.00	1.00	1	18	20 A	12	REC - CORD REEL (NOTE 8)	R
R	REC - CORD REEL (NOTE 8)	12	20 A	19	1	1.00	1.00					1	20	20 A	12	REC - CORD REEL (NOTE 8)	R
R	REC - CORD REEL (NOTE 8)	12	20 A	21	1			1.00	1.00			1	22	20 A	12	REC - CORD REEL (NOTE 8)	R
R...	RCPT - EXTERIOR FRONT BAY	12	20 A	23	1					0.54	0.90	1	24	20 A	12	REC - EXTERIOR	R
R	REC - APPARATUS BAY	12	20 A	25	1	0.54	0.54					1	26	20 A	12	REC - APPARATUS BAY	R
M...	DOOR MOTOR - APPARATUS BAY	10	25 A	27	1			2.20	2.20			1	28	25 A	10	DOOR MOTOR - APPARATUS BAY	M...
M...	DOOR MOTOR - APPARATUS BAY	10	25 A	29	1					2.20	2.20	1	30	25 A	10	DOOR MOTOR - APPARATUS BAY	M...
S...	SPARE	-	20 A	31	1	0.00	0.00					1	32	20 A	-	SPARE	S...
S...	SPARE	-	20 A	33	1			0.00	0.00			1	34	20 A	-	SPARE	S...
R...	REC - CORD REEL (NOTE 8)	12	20 A	35	1					1.00	2.12	3	36	30 A	10	AIR COMPRESSOR	MS
R...	REC - CORD REEL (NOTE 8)	12	20 A	37	1	1.00	2.12						38				
R...	REC - CORD REEL (NOTE 8)	12	20 A	39	1			1.00	2.12				40				
R...	RCPT - REPORT ROOM 103	12	20 A	41	1					0.72	0.00	1	42	20 A	-	SPARE	S...
S...	SPARE	-	20 A	43	1	0.00	0.36					1	44	20 A	12	MESSAGE BOARD - CORRIDOR...	O...
S...	SPARE	-	20 A	45	1			0.00	0.00			1	46	20 A	-	SPARE	S...
S...	SPARE	-	20 A	47	1					0.00	0.00	1	48	20 A	-	SPARE	S...
S...	SPARE	-	20 A	49	1	0.00	0.00					1	50	20 A	-	SPARE	S...
	SPACE ONLY	-	--	51	1			--	--			1	52	--	-	SPACE ONLY	
	SPACE ONLY	-	--	53	1					--	--	1	54	--	-	SPACE ONLY	

	LOAD	Connected...	Demand...	Estimated...
L	LIGHTS	0.00 kVA	0.00%	0.00 kVA
LE	LIGHTING - EXTERIOR	0.00 kVA	0.00%	0.00 kVA
H	HEATING	0.00 kVA	0.00%	0.00 kVA
C	COOLING	0.00 kVA	0.00%	0.00 kVA
V	VENTILATION	0.00 kVA	0.00%	0.00 kVA
M	MOTORS	8.80 kVA	100.00%	8.80 kVA
K	KITCHEN	0.00 kVA	0.00%	0.00 kVA
R	RECEPTACLES	21.16 kVA	73.63%	15.58 kVA
...	WATER HEATER	0.00 kVA	0.00%	0.00 kVA
MS	MISC.	24.36 kVA	100.00%	24.36 kVA
S	Spare	0.00 kVA	0.00%	0.00 kVA
E	ELEVATOR	0.00 kVA	0.00%	0.00 kVA
LD	LAUNDRY	0.00 kVA	0.00%	0.00 kVA
EV	EV CHARGING	0.00 kVA	0.00%	0.00 kVA

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. PROVIDE BREAKER WITH HANDLE LOCK-ON DEVICE.
8. PROVIDE CLASS A GFI (6mA PERSONNEL) BREAKER (250' MAX).

TOTAL KVA...	54.68 kVA	TOTAL PER PHASE: (CONNECTED)		
TOTAL KVA (DEMAND):	49.10 kVA	159.0 A	149.0 A	148.0 A
TOTAL AMP....	152 A			
TOTAL AMP. (DEMAND):	136 A	**TOTAL AMP. (DEMAND) x...**	170.4 A	

LOAD CLASSIFICATION ABBREVIATIONS (CONT.)
F - FEEDER FOR DOWN STREAM PANEL. LOADS ARE INCLUDED IN THE PANEL LOAD...

PANEL: R2C

VOLTAGE: 208Y/120 3Ø — **FED FROM:** S2

MOUNTING: SURFACE — **MAIN TYPE:** MLO — **MFR:**
ENCLOSURE: NEMA1 — **PHASE:** 3 — **TYPE:**
MAIN: 400.0 A — **WIRE:** 4 — **AIC:** 22 KAIC

LC Abbr	Load Served	Wire	Trip	Ckt No	Pole	A		B		C		Pole	Ckt No	Trip	Wire	Load Served	LC Abbr
MS	SCBA - COMPRESSOR RM	1	100 A	1	3	7.62	2.67					3	2	30 A	10	GEAR DRYER	MS
				3				7.62	2.67				4				
				5						7.62	2.67		6				
MS	LIGHTING CONTACTOR	12	20 A	7	1	0.50	0.50					1	8	20 A	12	BDA (NOTE 7)	MS
R	REC - MEZZANINE	12	20 A	9	1			0.54	0.30			1	10	20 A	12	TV - DAYROOM 128	M...
R...	RECEPTACLES DAYROOM 128	12	20 A	11	1					0.72	0.66	1	12	20 A	12	REC CONFERENCE 119	R...
R...	EXERCISE 151	12	20 A	13	1	0.36	0.72					1	14	20 A	12	STOP/GO EXIT LGT- APP BAYS...	M...
M...	STOP/GO LGT ENTRANCE	12	20 A	15	1			0.72	0.18			1	16	20 A	12	RECEPTACLES TLT/SHR 155	R...
R...	RECEPTACLES COMPRESSOR...	12	20 A	17	1					0.54	0.54	1	18	20 A	12	REC COMPRESSOR ROOM 156	R...
LI...	CEILING FANS - DORM (NOTE 7)	12	20 A	19	1	0.30	0.36					1	20	20 A	12	TOUCH PAD - APP BAY	O...
S...	SPARE	-	20 A	21	1			0.00	1.67			3	22	30 A	10	WASHER EXT DECON	MISC.
S...	SPARE	-	20 A	23	1					0.00	1.67		24				
O...	RCPT - MESSAGE RM. 128, 102	12	20 A	25	1	0.72	1.67						26				
				27					0.00			1	28	20 A	-	SPARE	S...
S...	SPARE	-	20 A	29	1					0.00	0.00	1	30	20 A	-	SPARE	S...
S...	SPARE	-	20 A	31	1	0.00	0.00					1	32	20 A	-	SPARE	S...
S...	SPARE	-	20 A	33	1			0.00	0.00			1	34	20 A	-	SPARE	S...
S...	SPARE	-	20 A	35	1					0.00	0.00	1	36	20 A	-	SPARE	S...
	SPACE ONLY	-	--	37	1	--	0.00					1	38	20 A	-	SPARE	S...
	SPACE ONLY	-	--	39	1			--	--			1	40	--	-	SPACE ONLY	
	SPACE ONLY	-	--	41	1					--	--	1	42	--	-	SPACE ONLY	

	LOAD	Connected...	Demand...	Estimated...
L	LIGHTS	0.30 kVA	125.00%	0.38 kVA
LE	LIGHTING - EXTERIOR	0.00 kVA	0.00%	0.00 kVA
H	HEATING	0.00 kVA	0.00%	0.00 kVA
C	COOLING	0.00 kVA	0.00%	0.00 kVA
V	VENTILATION	0.00 kVA	0.00%	0.00 kVA
M	MOTORS	0.00 kVA	0.00%	0.00 kVA
K	KITCHEN	0.00 kVA	0.00%	0.00 kVA
R	RECEPTACLES	3.24 kVA	100.00%	3.24 kVA
...	WATER HEATER	0.00 kVA	0.00%	0.00 kVA
MS	MISC.	38.90 kVA	100.00%	38.90 kVA
S	Spare	0.00 kVA	0.00%	0.00 kVA
E	ELEVATOR	0.00 kVA	0.00%	0.00 kVA
LD	LAUNDRY	0.00 kVA	0.00%	0.00 kVA
EV	EV CHARGING	0.00 kVA	0.00%	0.00 kVA

NOTES:
1. BREAKER FRAME SHALL BE AS REQ'D PER PANEL AIC RATING.
2. SHALL BE FULLY RATED - SERIES RATINGS NOT ALLOWED.
3. ALL BUSSING, INCL GND AND NEUTRAL, SHALL BE COPPER.
4. ALL INCOMING PANEL & BRKR LUGS SHALL MATCH FEEDERS.
5. PROVIDE HINGED DOOR-IN-DOOR WITH OUTER DOOR LOCK.
6. PROVIDE METAL DIRECTORY FRAME.
7. PROVIDE BREAKER WITH RED HANDLE LOCK-ON DEVICE.
8. PROVIDE CLASS A GFI (6mA PERSONNEL) BREAKER (250' MAX).

TOTAL KVA...	43.52 kVA	TOTAL PER PHASE: (CONNECTED)		
TOTAL KVA (DEMAND):	43.60 kVA	129.4 A	114.1 A	121.0 A
TOTAL AMP....	121 A			
TOTAL AMP. (DEMAND):	121 A	**TOTAL AMP. (DEMAND) x...**	151.3 A	

LOAD CLASSIFICATION ABBREVIATIONS (CONT.)
F - FEEDER FOR DOWN STREAM PANEL. LOADS ARE INCLUDED IN THE PANEL LOAD...

Ref North

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NOT FOR CONSTRUCTION

Seal Date

GORDON ROAD FIRE DEPARTMENT

PANEL SCHEDULES

Sheet No.
E8.01

Opt # 22-0369

GENERAL NOTES

A. COORDINATE LOCATIONS OF CEILING MOUNTED DEVICES WITH ALL OTHER TRADES (ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, TECHNOLOGY, ETC).

B. ANY DIRECTION GIVEN IN THE FIELD THAT DEVIATES FROM THE CONSTRUCTION DOCUMENTS MUST BE DOCUMENTED AND VERIFIED WITH THE ENGINEER.

C. PROVIDE ALL REQUIRED HARDWARE FOR A COMPLETE INSTALLATION.

D. IF A CONTRADICTION OF DIRECTION IS IDENTIFIED WITHIN THE RESPONSIBILITY MATRIX, DRAWINGS AND/OR SPECIFICATIONS, CONTRACTOR SHALL REQUEST CLARIFICATION PRIOR TO FINALIZING BID OR INCLUDE THE HIGHER COST OPTION IN THEIR BID.

E. EACH 4" LOW VOLTAGE SITE CONDUIT SHALL BE PROVIDED WITH 3" 3-CELL FABRIC MESH INNERDUCT.

F. ALL CONDUITS SHALL BE CONCEALED UNLESS OTHERWISE NOTED. WHERE CONDUITS ARE TO BE INSTALLED IN EXPOSED CEILINGS, CONDUITS SHALL BE INSTALLED TIGHT TO STRUCTURE AND PAINTED TO MATCH ADJACENT SURFACE.

G. NO SECTION OF LOW VOLTAGE CONDUIT SHALL CONTAIN MORE THAN (2) 90° BENDS, OR EQUIVALENT BETWEEN PULL POINTS. PROVIDE PULL BOX SIZED PER NEC OR AS INDICATED.

H. NO SECTION OF LOW VOLTAGE CONDUIT SHALL BE LONGER THAN 100'-0" BETWEEN PULL POINTS. PROVIDE PULL BOX SIZED PER NEC OR AS INDICATED.

I. ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT CONDUIT ROUTING FOR TELECOMMUNICATIONS HORIZONTAL CABLING WITH STRUCTURED CABLING CONTRACTOR PRIOR TO INSTALLATION.

J. ALL CONDUITS 2" AND LARGER SHALL BE LABELED ON BOTH ENDS INDICATING SOURCE AND DESTINATION.

K. ALL JUNCTION BOXES MOUNTED IN EXTERIOR WALLS SHALL BE WEATHERPROOF AND GASKETED.

L. ELECTRICAL CONTRACTOR SHALL PROVIDE PULLSTRINGS (INTERIOR) OR MULE TAPE (EXTERIOR) FOR ALL CONDUITS TO BE UTILIZED FOR LOW VOLTAGE SYSTEMS.

M. ELECTRICAL CONTRACTOR SHALL MAINTAIN FIRE RATINGS OF WALLS, PARTITIONS, FLOORS OR CEILINGS PER NEC & IBC WHEN INSTALLING RECESSED BOXES. BOXES IN RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE NOT LESS THAN 24". THE HORIZONTAL DISTANCE MAY BE REDUCED, BUT SHALL NOT BE LESS THAN THE DEPTH OF THE WALL CAVITY, WHERE FILLED WITH CELLULOSE LOOSE FILL, ROCKWOOL OR SLAG MINERAL WOOL INSULATION OR WHERE PROTECTED BY LISTED PUTTY PADS OR OTHER LISTED MATERIALS/METHODS. ELECTRICAL CONTRACTOR SHALL PROVIDE LISTED PUTTY PADS AS REQUIRED. IN NO CASE SHALL THE AGGREGATE AREA OF OPENINGS EXCEED 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL SPACE. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH LOW VOLTAGE CONTRACTOR TO VERIFY FINAL INSTALLATION WILL SATISFY CODE REQUIREMENTS.

N. INSTALLATION OF AC VOLTAGE CABLING IN LOW VOLTAGE PATHWAYS IS NOT ACCEPTABLE.

O. CABLING SHALL PASS STRAIGHT THROUGH ANY PULL BOX. CHANGE OF DIRECTION IN A PULL BOX IS NOT ACCEPTABLE.

P. CONDUITS SHALL NOT EXCEED A MAXIMUM 40% FILL RATIO.

Q. FACEPLATES SHALL MATCH ADJACENT ELECTRICAL DEVICES. FINAL COLOR AND FINISH TO BE APPROVED BY ARCHITECT AND OWNER.
R. ALL FACEPLATES AND PATCH PANELS SHALL UTILIZE MODULAR JACKS.

S. ALL CABLING SHALL BE PLENUM RATED UNLESS OTHERWISE NOTED.

T. ALL CABLING, TERMINATIONS AND HOUSINGS ARE TO BE RATED FOR THE ENVIRONMENTS IN WHICH THEY ARE INSTALLED.

U. CABLING SHALL NOT BE PAINTED. MANUFACTURERS WARRANTY MAY BE VOIDED.

V. DO NOT INSTALL BRUISED, KINKED, SCORED, DEFORMED, OR ABRADED CABLE. REMOVE AND DISCARD CABLE IF DAMAGED DURING INSTALLATION AND REPLACE IT WITH NEW CABLE.

W. TERMINATE ALL CABLING ON DEDICATED SYSTEM PATCH PANEL. (WIRELESS, DATA, SECURITY, ETC.)

X. PROVIDE OUTSIDE PLANT CATEGORY CABLING FOR IN/UNDERSLAB OR OUTDOOR APPLICATIONS. CONDUIT CONTAINING OUTSIDE PLANT CABLING SHALL BE EXTENDED TO LOCAL TELECOMMUNICATIONS ROOM. INDOOR/OUTDOOR CATEGORY CABLING IS AN ACCEPTABLE ALTERNATIVE.

Y. ALL CABLING SHALL BE TERMINATED, TESTED AND LABELED PER SPECIFICATIONS. ALL LABELING SHALL BE MACHINE PRINTED. HAND WRITTEN LABELS ARE NOT ACCEPTABLE.

Z. PROVIDE PATCH CORD FOR EACH TERMINATED PORT IN TELECOMMUNICATIONS ROOM. COORDINATE EXACT LENGTH WITH OWNER.

AA. PROVIDE EQUIPMENT CORD FOR EACH WIRELESS ACCESS POINT AND NETWORK CAMERA. COORDINATE EXACT LENGTH WITH OWNER.

BB. PROVIDE SURGE SUPPRESSION MODULE AT DEVICES UTILIZING IN/UNDERSLAB CONDUIT AND EXTERIOR WIRELESS ACCESS POINT, CAMERA, AND NETWORK SPEAKER LOCATIONS. DITEK: DTK-MRJPOES OR APPROVED EQUAL. REFER TO EXTERIOR NETWORK DEVICE DETAIL. PROVIDE 24 CHANNEL RACK MOUNTED SURGE SUPPRESSION AT RACK LOCATION FOR NETWORK PROTECTION. DITEK: DTK-RM24NETS OR APPROVED EQUAL. PROVIDE PATCH CORDS AS REQUIRED. INSTALL SURGE SUPPRESSION DEVICES WITHIN 24" OF BUILDING ENTRY OR EQUIPMENT ENCLOSURE.

CC. ALL PENETRATIONS THROUGH RATED WALLS MUST BE FIRESTOPPED.

DD. PROVIDE METALLIC J-HOOKS FOR CABLING IN ACCESSIBLE CEILING SPACES WITHOUT CABLE TRAY, BETWEEN CONDUITS, AND BETWEEN CONDUITS AND CABLE TRAY AT 3'-5' IRREGULAR INTERVALS. PANDUIT, COOPER B-LINE, NVENT CADDY, OR APPROVED EQUAL. PER NFPA 1221 SECTION 5.5, J-HOOKS ARE NOT ACCEPTABLE WITHIN AN EMERGENCY SERVICES COMMUNICATIONS CENTER. CABLE TRAY OR CONDUIT SHALL BE PROVIDED.

EE. THE USE OF J-HOOKS IN EXPOSED CEILING AREAS IS NOT ACCEPTABLE. PROVIDE CONDUIT OR SOLID BOTTOM CABLE TRAY. CONDUITS AND/OR SOLID BOTTOM CABLE TRAY SHALL BE PAINTED TO MATCH ADJACENT SURFACE.

FF. THE USE OF J-HOOKS ABOVE INACCESSIBLE CEILING AREAS IS NOT ACCEPTABLE. PROVIDE CONDUIT.

GG. NYLON CABLE TIE WRAPS ARE NOT ACCEPTABLE FOR BINDING OR SECURING CABLE BUNDLES. UTILIZE HOOK AND LOOP STRAPS TO SECURE CABLING IN TELECOMMUNICATIONS ROOM. STRAPS SHALL BE EVENLY SPACED THROUGHOUT THE DRESSED LENGTH AND PLENUM RATED WHERE APPLICABLE.

HH. PROVIDE (2) CATEGORY 6 CABLES TO EACH FIRE ALARM CONTROL PANEL FROM LOCAL TELECOMMUNICATIONS ROOM FOR NETWORK INTERFACE. EXTEND INCOMING ANALOG DEMARK TO LOCAL TELECOMMUNICATIONS ROOM AS REQUIRED. COORDINATE LOCATION AND REQUIREMENTS WITH FIRE ALARM CONTRACTOR.

II. PROVIDE (2) CATEGORY 6 CABLES TO EACH SECURITY ALARM PANEL FROM LOCAL TELECOMMUNICATIONS ROOM FOR NETWORK INTERFACE. EXTEND INCOMING ANALOG DEMARK TO LOCAL TELECOMMUNICATIONS ROOM AS REQUIRED. COORDINATE LOCATION AND REQUIREMENTS WITH SECURITY CONTRACTOR.

JJ. PROVIDE (1) CATEGORY 6 CABLE TO EACH HVAC CONTROLLER (JACE) FROM LOCAL TELECOMMUNICATIONS ROOM FOR NETWORK INTERFACE. COORDINATE LOCATION AND REQUIREMENTS WITH HVAC CONTRACTOR

KK. PROVIDE (1) CATEGORY 6 CABLE TO EACH LIGHTING CONTROL PANEL FROM LOCAL TELECOMMUNICATIONS ROOM FOR NETWORK INTERFACE. COORDINATE LOCATION AND REQUIREMENTS WITH ELECTRICAL CONTRACTOR.

LL. PROVIDE (1) CATEGORY 6 CABLE TO MAIN SWITCHBOARD FROM LOCAL TELECOMMUNICATIONS ROOM FOR NETWORK INTERFACE. COORDINATE LOCATION AND REQUIREMENTS WITH ELECTRICAL CONTRACTOR.

MM. PROVIDE (1) CATEGORY 6 CABLE TO EACH AUTOMATIC TRANSFER SWITCH FROM LOCAL TELECOMMUNICATIONS ROOM FOR NETWORK INTERFACE. COORDINATE LOCATION AND REQUIREMENTS WITH ELECTRICAL CONTRACTOR.

SYMBOLS:

SYMBOL	DESCRIPTION
◀ (#)	NETWORK OUTLET. STANDARD HEIGHT (+18" AFF). ELECTRICAL CONTRACTOR SHALL PROVIDE 2-GANG JUNCTION BOX WITH 1-GANG TRIM RING AND 1.25" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE TWO (2) CATEGORY 6 CABLES (UNLESS OTHERWISE INDICATED BY SUBSCRIPT) AND 4-PORT FACEPLATE.
◀	NETWORK WALL PHONE OUTLET. ELEVATED HEIGHT (+42" AFF). ELECTRICAL CONTRACTOR SHALL PROVIDE 2-GANG JUNCTION BOX WITH 1-GANG TRIM RING AND 1" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (1) CATEGORY 6 CABLE AND PHONE WALL MOUNT FACEPLATE.
◀ RS	ROOM RESERVATION OUTLET. ELEVATED HEIGHT (+48" AFF). ELECTRICAL CONTRACTOR SHALL PROVIDE 2-GANG JUNCTION BOX WITH 1-GANG TRIM RING AND 1" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (1) CATEGORY 6 CABLE.
WAP	WIRELESS ACCESS POINT CONNECTION (CEILING). WHEN INSTALLED IN HARD/OPEN CEILING, ELECTRICAL CONTRACTOR SHALL PROVIDE 2-GANG JUNCTION BOX WITH 1-GANG TRIM RING AND 1.25" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. REFER TO WIRELESS ACCESS POINT DETAIL (HARD/OPEN CEILING). STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (2) CATEGORY 6A CABLES FOR EACH WIRELESS ACCESS POINT CONNECTION. WHEN INSTALLED IN ACCESSIBLE CEILING, STRUCTURED CABLING CONTRACTOR SHALL PROVIDE ABOVE CEILING BRACKET AND SURFACE BOX. REFER TO WIRELESS ACCESS POINT DETAIL (ACCESSIBLE CEILING). STRUCTURED CABLING CONTRACTOR SHALL PROVIDE 3'-0" EQUIPMENT CORD. WIRELESS ACCESS POINT EQUIPMENT SHALL BE OWNER FURNISHED, CONTRACTOR INSTALLED. COORDINATE WITH OWNER EXACT LOCATION AND MOUNTING METHOD OF WIRELESS ACCESS POINT EQUIPMENT.
TV	STANDARD TV OUTLET. ELECTRICAL CONTRACTOR SHALL PROVIDE 2-GANG JUNCTION BOX WITH 1-GANG TRIM RING AND 1.25" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (2) CATEGORY 6 CABLES AND (1) SERIES-6 COAXIAL CABLE. REFER TO DISPLAY DETAIL FOR ADDITIONAL INFORMATION.
AV1	TV OUTLET WITH AV. ELECTRICAL CONTRACTOR SHALL PROVIDE RECESSED AV WALL BOX, 2" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE FOR NETWORK AND AV CABLING, 2" CONDUIT TO ASSOCIATED WALL PLATE FOR AV CABLING, 0.75" CONDUIT FOR POWER AND DUPLEX RECEPTACLE. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (2) CATEGORY 6 CABLES, (1) SERIES-6 COAXIAL CABLE, AND BRUSHED CABLE PASSTHROUGH . REFER TO AV DISPLAY DETAIL FOR ADDITIONAL INFORMATION.
AV2	TV OUTLET WITH AV. ELECTRICAL CONTRACTOR SHALL PROVIDE RECESSED AV WALL BOX, 2" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE FOR NETWORK AND AV CABLING, 1-1/4" CONDUIT TO ASSOCIATED FLOOR BOX FOR AV CABLING, 0.75" CONDUIT FOR POWER AND DUPLEX RECEPTACLE. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (4) CATEGORY 6 CABLES, (1) SERIES-6 COAXIAL CABLE, AND BRUSHED CABLE PASSTHROUGH TO FLOORBOX. REFER TO AV DISPLAY DETAIL FOR ADDITIONAL INFORMATION.
FB6	6-GANG MULTI-SERVICE FLOOR BOX. ELECTRICAL CONTRACTOR SHALL PROVIDE FLOOR BOX, COVER, CONDUITS, ELECTRICAL DEVICES AND ASSOCIATED MOUNTING PLATES FOR A COMPLETE INSTALLATION. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (4) CATEGORY 6 CABLES. LEGRAND: EVOLUTION EFB6S-OG OR APPROVED EQUAL.
FB8	6-GANG MULTI-SERVICE FLOOR BOX. ELECTRICAL CONTRACTOR SHALL PROVIDE FLOOR BOX, COVER, CONDUITS, ELECTRICAL DEVICES AND ASSOCIATED MOUNTING PLATES FOR A COMPLETE INSTALLATION. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (4) CATEGORY 6 CABLES. SEE DETAIL ON SHEET T5.02. FSR FL-500P-4-B OR APPROVED EQUAL.
	CONDUIT/SLEEVE. 4" UNLESS OTHERWISE NOTED.
	LADDER RUNWAY IN TELECOMMUNICATION ROOMS.
	TWO-POST EQUIPMENT RACK WITH VERTICAL WIRE MANAGEMENT. PROVIDED BY TELECOMMUNICATIONS CONTRACTOR.
	3/4" A/C GRADE FIRE-RATED PLYWOOD. MOUNT VERTICALLY TO WALLS WITH BOTTOM EDGE 8" AFF AND GRADE "A" SURFACE EXPOSED. FIRE RATING STAMP MUST REMAIN VISIBLE.
PBB	PRIMARY BONDING BUSBAR
X	DRAWING NOTE

SYMBOLS:

SYMBOL	DESCRIPTION
	NETWORK CAMERA OUTLET. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (2) CATEGORY 6 CABLES FOR EACH CAMERA LOCATION. WHEN INSTALLED IN HARD/OPEN CEILING, ELECTRICAL CONTRACTOR SHALL PROVIDE 2-GANG JUNCTION BOX WITH 1-GANG TRIM RING AND 1" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. REFER TO CAMERA DETAIL (HARD/OPEN CEILING). WHEN INSTALLED IN ACCESSIBLE CEILING, STRUCTURED CABLING CONTRACTOR SHALL PROVIDE ABOVE CEILING BRACKET AND SURFACE BOX. REFER TO CAMERA DETAIL (ACCESSIBLE CEILING).
	NETWORK CAMERA OUTLET (EXTERIOR WALL). ELECTRICAL CONTRACTOR SHALL PROVIDE 12"x12"x6" DEEP JUNCTION BOX ON INTERIOR SIDE, 1" SLEEVE TO EXTERIOR AND 1.25" CONDUIT TO NEAREST ACCESSIBLE CEILING SPACE. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE (2) CATEGORY 6 CABLES FOR EACH CAMERA LOCATION. STRUCTURED CABLING CONTRACTOR SHALL PROVIDE SURGE PROTECTION AND 1'-0" EQUIPMENT CORD. REFER TO EXTERIOR NETWORK DEVICE DETAIL ON SHEET T5.03.
CR	CARD READER. ELECTRICAL CONTRACTOR SHALL PROVIDE 2-GANG JUNCTION BOX AND 3/4" CONDUIT TO ACCESS CONTROL JUNCTION BOX ON SECURE SIDE OF DOOR. SECURITY CONTRACTOR SHALL PROVIDE DEVICE AND CABLING.
DC	DOOR CONTACT. ELECTRICAL CONTRACTOR SHALL PROVIDE 3/4" CONDUIT TO ACCESS CONTROL JUNCTION BOX ON SECURE SIDE OF DOOR. SECURITY CONTRACTOR SHALL PROVIDE DEVICE AND CABLING.
EL	ELECTRIFIED LOCKSET. ELECTRICAL CONTRACTOR SHALL PROVIDE 3/4" CONDUIT WITH PULL STRING IN DOOR FRAME TO ACCESS CONTROL JUNCTION BOX ON SECURE SIDE OF DOOR. HARDWARE CONTRACTOR SHALL PROVIDE DEVICE AND SECURITY CONTRACTOR SHALL PROVIDE CABLINING.

TELECOMMUNICATIONS STANDARDS:

INSTALLATION SHALL CONFORM TO THE FOLLOWING STANDARDS:

A. TIA-568.0-E (GENERIC TELECOMMUNICATIONS CABLING FOR CUSTOMER PREMISES)

B. TIA-568.1-E (COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING)

C. TIA-568.2-D (BALANCED TWISTED-PAIR TELECOMMUNICATIONS CABLING AND COMPONENTS)

D. TIA-568.3-E (OPTICAL FIBER CABLING AND COMPONENTS)

E. TIA-569-E (TELECOMMUNICATIONS PATHWAYS AND SPACES)

F. TIA-606-D (ADMINISTRATION STANDARD FOR TELECOMMUNCATIONS INFRASTRUCTURE)

G. TIA-607-D (TELECOMMUNICATIONS BONDING AND GROUNDING FOR CUSTOMER PREMISES)

CABLE SERVICE LOOP SCHEDULE

CABLE	SOURCE	DESTINATION	NOTES
HORIZONTAL - COPPER - DATA	10'-0"	1'-6"	
HORIZONTAL - COPPER - WAP	10'-0"	20'-0"	
HORIZONTAL - COPPER - CAMERA	10'-0"	20'-0"	
HORIZONTAL - COAXIAL	10'-0"	1'-6"	

NOTES:
A. UTILIZE FIGURE EIGHT CONFIGURATION FOR LARGE SERVICE LOOPS.
B. COIL CABLING FOR FIELD DEVICE LOCATIONS AT CABLE TRAY/J-HOOKS ABOVE ACCESSIBLE CEILING.
C. PROVIDE 20'-0" SERVICE LOOP WERE A ROOM IS UTILIZED AS A PULL POINT AND NO TERMINATIONS ARE MADE.

CABLE COLORS

DATA:	BLUE CAT6 CABLE - BLUE JACK
WIRELESS ACCESS:	WHITE CAT6A CABLE - YELLOW JACK
CAMERAS:	BLUE CAT6 CABLE - ORANGE JACK
DOOR ACCESS:	BLUE CAT6 CABLE - BLUE JACK
COAXIAL:	BLACK SERIES-6 CABLE

CONDUIT CAPACITY SCHEDULE

CONDUIT		1.25"	1.50"	2.00"	2.50"	3.00"	4.00"
CABLES		7	10	18	25	40	70

NOTES:
A. UPSIZE CONDUIT TO NEXT SIZE SHOWN IN THIS SCHEDULE WHEN CABLE CAPACITY HAS BEEN EXCEEDED.
B. CONDUIT CAPACITY CALCULATED WITH 0.30" O.D. CATEGORY CABLE AT 40% FILL RATIO.

CONDUIT/SLEEVE SCHEDULE

CLASSROOMS	(2) 2" CONDUITS TO CABLE TRAY/J-HOOKS IN ACCESSIBLE CEILING SPACE IN CORRIDOR.
OFFICES	(2) 2" CONDUITS TO CABLE TRAY/J-HOOKS IN ACCESSIBLE CEILING SPACE IN CORRIDOR.
WORKSPACES	(2) 2" CONDUITS TO CABLE TRAY/J-HOOKS IN ACCESSIBLE CEILING SPACE IN CORRIDOR.
CONFERENCE RMS.	(2) 2" CONDUITS TO CABLE TRAY/J-HOOKS IN ACCESSIBLE CEILING SPACE IN CORRIDOR.
VESTIBULES	(1) 2" CONDUIT TO CABLE TRAY/J-HOOKS IN ACCESSIBLE CEILING SPACE IN CORRIDOR.

ADDITIONAL REQUIREMENTS:

A. PROVIDE A MINIMUM OF (2) 4" CONDUITS BETWEEN ALL ACCESSIBLE CEILING SPACES SEPARATED BY A HARD CEILING GREATER THAN 3'-0" UNLESS OTHERWISE NOTED. REFER TO TELECOMMUNICATIONS CONDUIT CAPACITY SCHEDULE.

B. PROVIDE A MINIMUM OF (1) 2" CONDUIT BETWEEN ALL ACCESSIBLE CEILING SPACES SEPARATED BY A WALL THAT IS CONSTRUCTED TO DECK UNLESS OTHERWISE NOTED. REFER TO TELECOMMUNICATIONS CONDUIT CAPACITY SCHEDULE.

PULL BOX SIZING SCHEDULE

CONDUIT	PULL BOX WIDTH	PULL BOX LENGTH	PULL BOX DEPTH	PULL BOX WITH MULTIPLE CONDUITS (NOTE A)
1.00"	4.00"	16.00"	3.00"	2.00"
1.25"	6.00"	20.00"	3.00"	3.00"
1.50"	8.00"	27.00"	4.00"	4.00"
2.00"	8.00"	36.00"	4.00"	5.00"
2.50"	10.00"	42.00"	5.00"	6.00"
3.00"	12.00"	48.00"	5.00"	6.00"
4.00"	15.00"	60.00"	8.00"	8.00"

NOTES:
A. FOR EACH ADDITIONAL CONDUIT, ADD INDICATED DIMENSION TO PULL BOX WIDTH.
B. SIZING INDICATED IS FOR MINIMUM PULL BOX SIZE. INCREASE AS REQUIRED.

SECURITY GENERAL NOTES

A. ACCESS CONTROL SYSTEM: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL ACCESS CONTROL SYSTEM PATHWAYS. CABLING AND DEVICES ARE OUTSIDE OF THE CONTRACTOR'S SCOPE AND WILL BE PROVIDED UNDER A SEPARATE CONTRACT BY THE OWNER'S SECURITY VENDOR.

B. SECURITY CAMERA SYSTEM: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL CAMERA SYSTEM PATHWAYS AND CABLING. CAMERAS ARE OUTSIDE OF THE CONTRACTOR'S SCOPE AND WILL BE PROVIDED UNDER A SEPARATE CONTRACT BY THE OWNER'S SECURITY VENDOR.

C. CAMERA LOCATIONS ARE SHOWN FOR REFERENCE AND INDICATE GENERAL OUTLET LOCATION.

D. ALL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

E. PATHWAYS SHALL BE CONCEALED WITHIN WALLS WHEREVER POSSIBLE. CONDUIT SHALL BE INSTALLED ABOVE HARD-CEILINGS OR INACCESSIBLE AREAS TO THE CLOSEST APPROVED TECHNOLOGY CABLE SUPPORT SYSTEM (CABLE TRAY OR J-HOOKS). BRIDLE RINGS SHALL NOT BE INSTALLED. SECURITY SYSTEM CABLES SHALL HAVE A DEFINED AREA IN THE CABLE SUPPORT SYSTEM AND SHALL NOT COMMINGLE WITH OTHER SYSTEMS CABLES. AC VOLTAGE SHALL NOT BE INSTALLED IN THE TECHNOLOGY CABLE SUPPORT SYSTEM.

F. CONDUIT BODIES (LB, LR, LL, TEES, ETC.) OF ANY TYPE OR MANUFACTURER SHALL NOT BE INSTALLED FOR ANY SECURITY OR TECHNOLOGY CABLING.

ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE	MH	MANHOLE
ADA	AMERICANS WITH DISABILITIES ACT	MIN	MINIMUM
AFF	ABOVE FINISHED FLOOR (ELEVATION TAKEN FROM FINISHED FLOOR)	NEC	NATIONAL ELECTRICAL CODE
		NVR	NETWORK VIDEO RECORDER
AFG	ABOVE FINISHED GRADE (ELEVATION TAKEN FROM FINISHED GRADE)	OSP	OUTSIDE PLANT
		PBB	PRIMARY BONDING BUSBAR
AV	AUDIO/VISUAL	PDU	POWER DISTRIBUTION UNIT
AVC	AUDIO/VISUAL CONTRACTOR	PoE	POWER OVER ETHERNET
AWG	AMERICAN WIRE GAUGE	PVC	POLYVINYL CHLORIDE
BOCT	BOTTOM OF CABLE TRAY	QTY	QUANTITY
C	CONDUIT	SBB	SECONDARY BONDING BUSBAR
CAM	CAMERA	SC	SECURITY CONTRACTOR
CATV	CABLE TELEVISION	SQ	SQUARE
CLG	CEILING	SPECS	SPECIFICATIONS
CMU	CONCRETE MASONRY UNIT	TC	TELECOMMUNICATIONS CONTRACTOR
EC	ELECTRICAL CONTRACTOR	TELECOM	TELECOMMUNICATIONS
ETR	EXISTING TO REMAIN	TBB	TELECOMMUNICATIONS BONDING BACKBONE
EXT	EXTERIOR	TTB	TELEPHONE TERMINAL BACKBOARD
EV	ELECTRIC VEHICLE CHARGER	TYP	TYPICAL
FACP	FIRE ALARM CONTROL PANEL	UON	UNLESS OTHERWISE NOTED
GYP	GYPSUM BOARD	UPS	UNINTERRUPTIBLE POWER SUPPLY
HDMI	HIGH DEFINITION MULTIMEDIA INTERFACE	VoIP	VOICE OVER INTERNET PROTOCOL
HDTV	HIGH DEFINITION TELEVISION	WAP	WIRELESS ACCESS POINT
HH	HANDHOLE	WM	WIRE MANAGEMENT
IoT	INTERNET OF THINGS	WP	WEATHERPROOF
IP	INTERNET PROTOCOL	#D	QUANTITY OF DATA CONNECTIONS
J-BOX	JUNCTION BOX	#V	QUANTITY OF VOICE CONNECTIONS

Project No.
1691

Date:
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GORDON ROAD FIRE DEPARTMENT

TELECOM LEGEND AND NOTES

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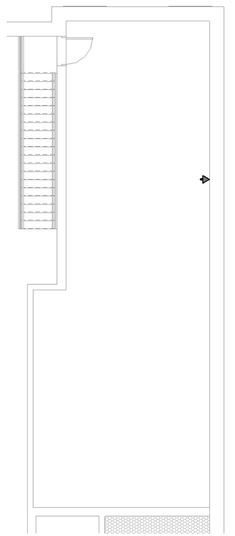
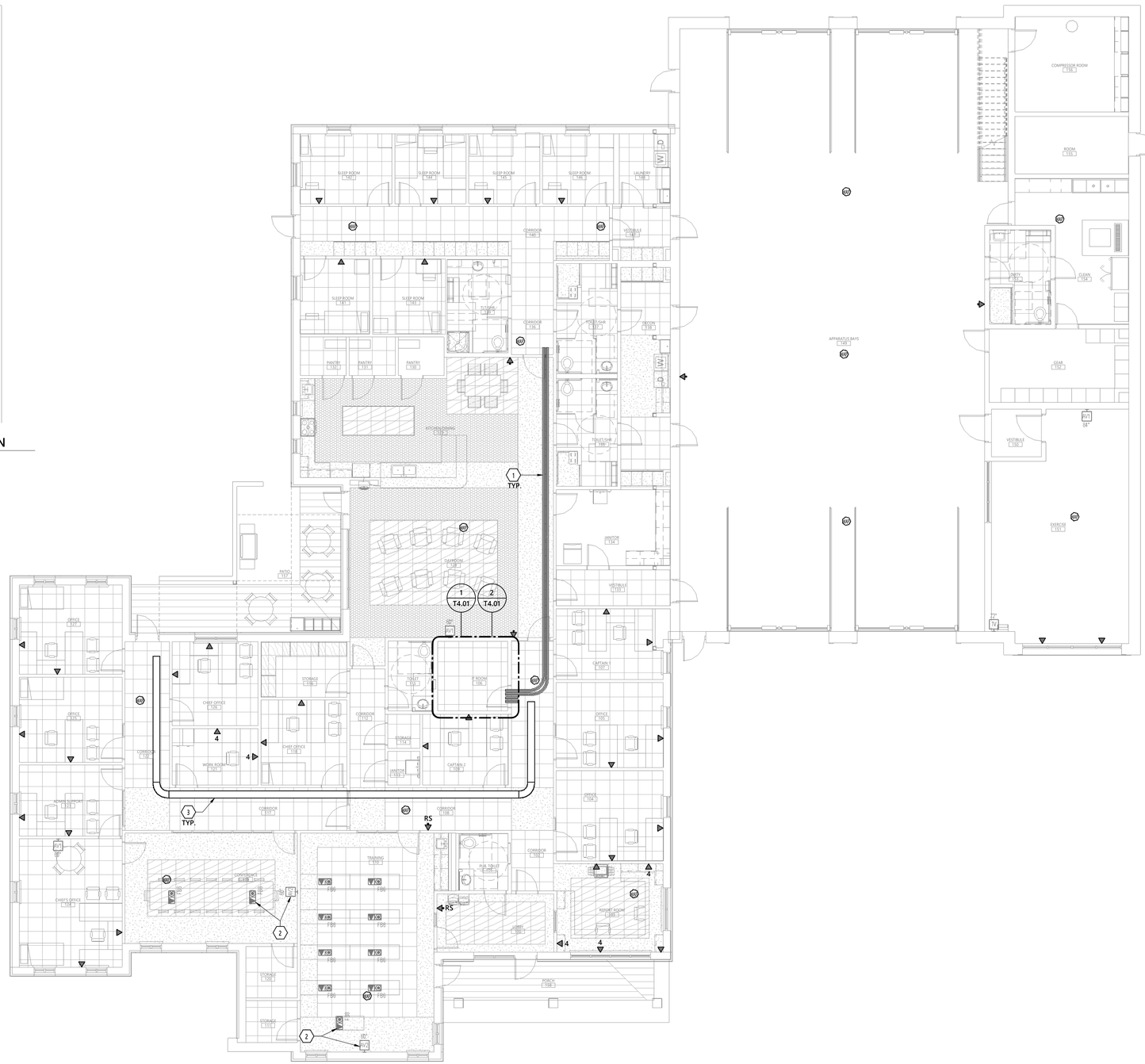


2 **MEZZANINE NETWORK PLAN**
1/8" = 1'-0"



1 **FIRST FLOOR NETWORK PLAN**
1/8" = 1'-0"

GENERAL NOTES:

A. THERE SHALL BE NO EXPOSED CABLING IN APPARATUS BAY. ALL CABLING IN BAY MUST BE INSTALLED IN CONDUIT.

B. OVERHEAD DEVICES AND OUTLET BOXES IN OPEN CEILING AREAS MUST BE SECURED TO STRUCTURAL STEEL. COORDINATE EXACT PLACEMENT WITH OTHER TRADES AND EQUIPMENT.

C. IN AREAS WITH DROP CEILING WITHOUT CABLE TRAY, UTILIZE J-HOOKS ABOVE ACCESSIBLE CEILING FOR HORIZONTAL CABLE DISTRIBUTION.

KEYED NOTES:

1. PROVIDE 4" CONDUITS DEDICATED FOR LOW-VOLTAGE TELECOMMUNICATIONS CABLING. INSTALL CONDUITS ABOVE CEILING AS INDICATED.
2. PROVIDE 1-1/4" CONDUIT CONNECTION BETWEEN FLOOR BOX AND AV BACKBOX. REFER TO DETAILS ON SHEET T5.2.
3. PROVIDE 12" WIDE BY 2" DEEP WIRE MESH CABLE TRAY MOUNTED ABOVE CEILING. COORDINATE ROUTING WITH OTHER TRADES.

Project No.
1691

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NETWORK PLANS

Sheet No.
T1.01

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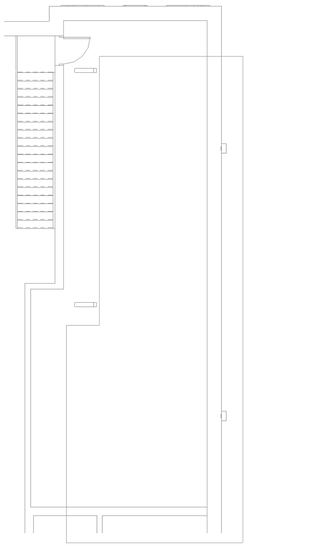
Opt # 22-0369



2 **MEZZANINE SECURITY PLAN**
1/8" = 1'-0"

1 **FIRST FLOOR SECURITY PLAN**
1/8" = 1'-0"

GENERAL NOTES:

A. THERE SHALL BE NO EXPOSED CABLING IN APPARATUS BAY. ALL CABLING IN BAY MUST BE INSTALLED IN CONDUIT.

KEYED NOTES:

1. WALL-MOUNTED ACCESS CONTROL PANEL LOCATED IN IT ROOM 106.

Project No.
1691

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GORDON ROAD FIRE DEPARTMENT

SECURITY PLANS

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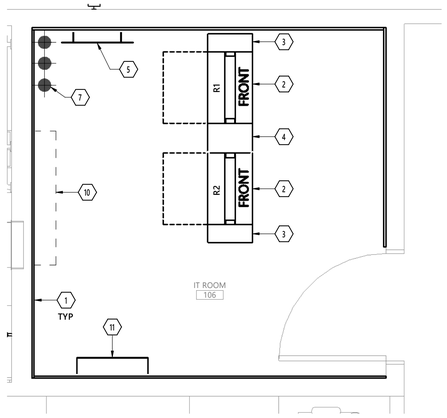
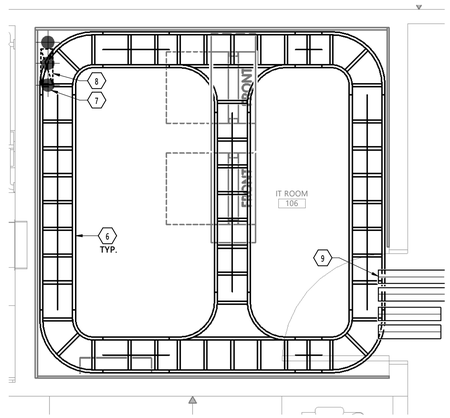
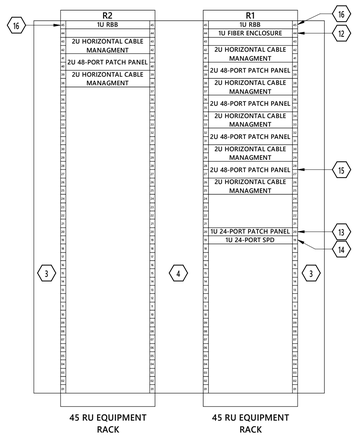


1 IT ROOM 106 - ENLARGED EQUIPMENT PLAN
NOT TO SCALE



2 IT ROOM 106 - ENLARGED RUNWAY PLAN
NOT TO SCALE



3 EQUIPMENT RACK ELEVATION
NOT TO SCALE

GENERAL NOTES:

A. PROVIDE D-RINGS AS NEEDED TO DRESS CABLING RUN ALONG TTB.

KEYED NOTES:

1. PROVIDE TELECOM TERMINAL BACKBOARD (TTB) ALONG ALL WALLS OF TELECOM ROOM. ENSURE FIRE RATING STAMP IS VISIBLE. DO NOT PAINT.
2. PROVIDE 45RU 2-POST EQUIPMENT RACK. SECURE TO FLOOR PER MANUFACTURER'S INSTRUCTIONS.
3. PROVIDE 6" VERTICAL CABLE MANAGEMENT ON THE END OF EACH ROW OF EQUIPMENT RACKS.
4. PROVIDE 10" VERTICAL CABLE MANAGEMENT BETWEEN EQUIPMENT RACKS.
5. PROVIDE PRIMARY BONDING BUSBAR (PBB) MOUNTED TO TBB AT 6' AFF.
6. PROVIDE 12" WIDE LADDER-TYPE CABLE RUNWAY MOUNTED HORIZONTALLY AT 7' 6" AFF. SECURE TO WALLS AND EQUIPMENT RACKS PER MANUFACTURER'S INSTRUCTIONS.
7. PROVIDE THREE (3) 4" SERVICE ENTRANCE CONDUITS FROM COMMUNICATIONS HANDHOLE TO TELECOM ROOM, STUBBED UP THROUGH FLOOR SLAB. PROVIDE 3" 3-CELL FABRIC MESH INNERDUCT IN EACH CONDUIT. REFER TO ELECTRICAL SITE PLAN FOR ROUTING INFORMATION.
8. PROVIDE 12" WIDE LADDER-TYPE CABLE RUNWAY MOUNTED VERTICALLY TO TTB BETWEEN SERVICE ENTRANCE CONDUITS AND HORIZONTAL CABLE RUNWAY.
9. PROVIDE FOUR (4) 4" CONDUITS THROUGH WALL AT 10' 8" AFF. TWO (2) WILL SLEEVE INTO ADJACENT CORRIDOR 102. TWO (2) WILL CONTINIUE TO CORRIDOR 136. REFER TO FLOORPLANS FOR ROUTING.
10. SPACE RESERVED FOR WALL-MOUNTED SERVICE PROVIDER AND DEMARCATION EQUIPMENT.
11. WALL-MOUNTED ELECTRONIC SECURITY EQUIPMENT, BY OWNER'S SECURITY CONTRACTOR.
12. PROVIDE 1RU FIBER ENCLOSURE FOR INCOMING SERVICE. PROVIDE COUPLER PANELS FOR DUPLEX LC-TYPE CONNECTORS.
13. PROVIDE 1RU 24-PORT CAT6 PATCH PANEL DEDICATED FOR CAMERA CABLING.
14. PROVIDE 1RU 24-PORT SURGE PROTECTION DEVICE FOR CAT6 CAMERA CABLING. BOND TO RBB PER TIA-607.
15. PROVIDE 2RU 48-PORT CAT6A PATCH PANEL DEDICATED FOR WAP CABLING.
16. PROVIDE 1R RACK BONDING BUSBAR MOUNTED TO THE REAR SIDE OF THE EQUIPMENT RACK. BOND PER TIA-607.

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GORDON ROAD FIRE DEPARTMENT

TELECOM ENLARGED PLANS

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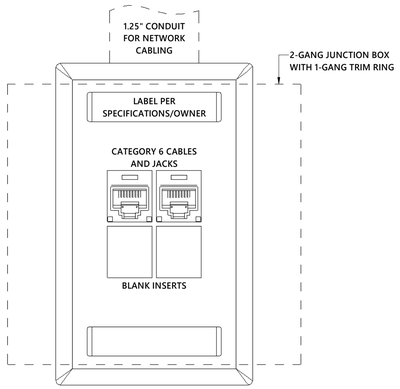
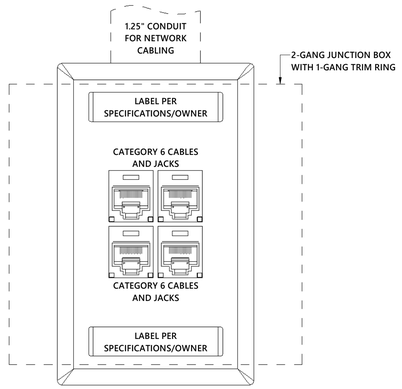
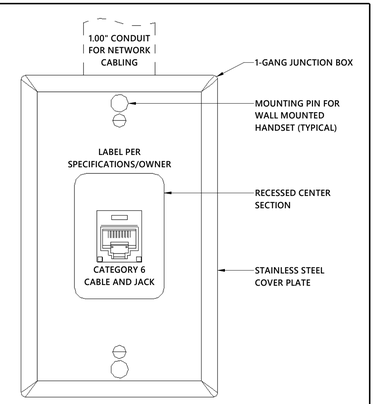


1 NETWORK OUTLET DETAIL - 2 PORT
NOT TO SCALE

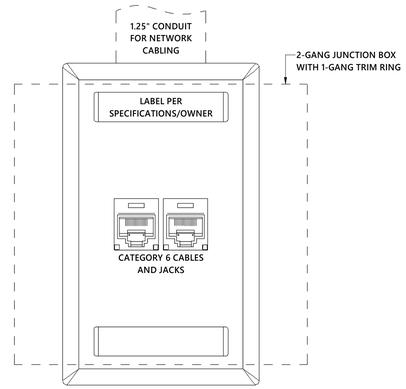


2 NETWORK OUTLET DETAIL - 4 PORT
NOT TO SCALE

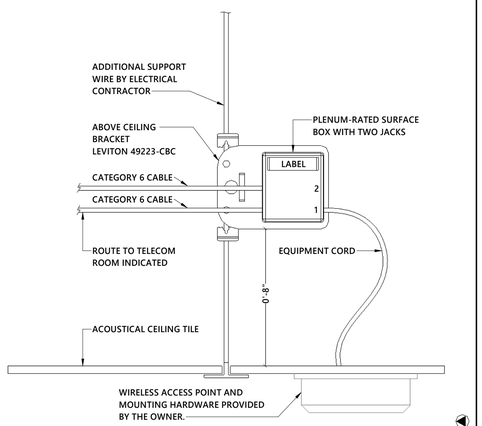


PANDUIT: KWPK6 OR APPROVED EQUAL

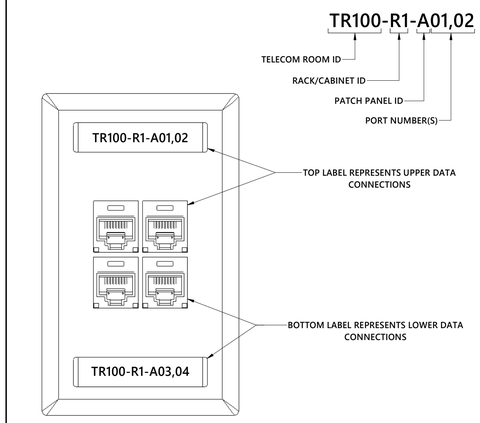
3 WALL PHONE OUTLET DETAIL
NOT TO SCALE



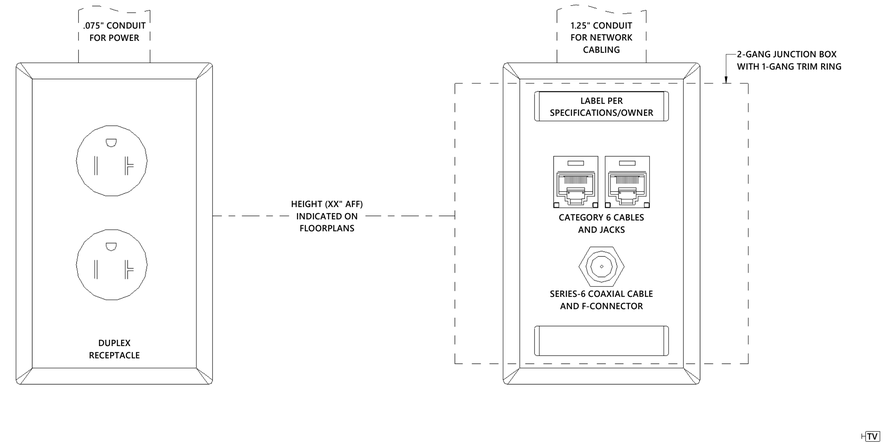
4 WIRELESS ACCESS POINT DETAIL (OPEN CEILING)
NOT TO SCALE



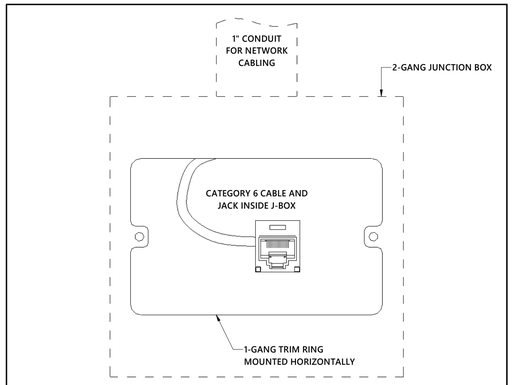
5 WIRELESS ACCESS POINT DETAIL (ACCESSIBLE CEILING)
NOT TO SCALE



6 NETWORK OUTLET LABELING DETAIL
NOT TO SCALE



7 TV OUTLET DETAIL
NOT TO SCALE



NOTES:
1. OWNER-PROVIDED ROOM SCHEDULER WILL MOUNT DIRECTLY TO TRIM RING.
2. PROVIDE WITH 6" PATCH CORD FOR CONNECTION TO DEVICE.

RS

8 NETWORK OUTLET DETAIL - ROOM SCHEDULER
NOT TO SCALE

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GORDON ROAD FIRE DEPARTMENT

TELECOM DETAILS

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Opt # 22-0368

GENERAL NOTES:

A. BASIS OF DESIGN: FSR FL-500P-4-B OR APPROVED EQUAL. PROVIDE HARDWARE AS REQUIRED TO CONNECT DEVICES AND CONDUITS AS INDICATED.

B. PROVIDE (2) 5-20R RECEPTACLES.

C. PROVIDE ALL INSTALLATION HARDWARE AS REQUIRED.

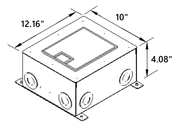
D. ROUTE STRUCTURED CABLING TO TELECOMMUNICATIONS ROOM INDICATED.

E. FLOOR BOX & COVER, CONDUIT, RECEPTACLES AND POWER WIRING SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.

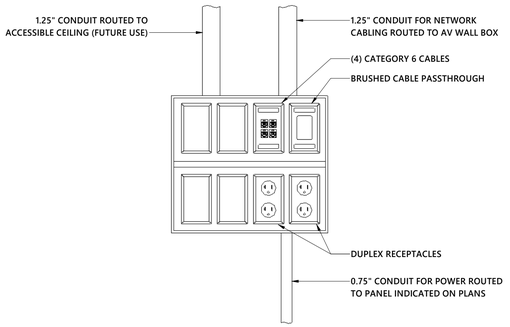
F. STRUCTURED CABLING AND ASSOCIATED HARDWARE SHALL BE PROVIDED BY STRUTURED CABLING CONTRACTOR.

G. A/V CABLING AND ASSOCIATED HARDWARE SHALL BE PROVIDED BY AV CONTRACTOR.

H. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.



DIMENSIONAL VIEW



FB8

1 8-GANG MULTI-SERVICE FLOOR BOX
NOT TO SCALE

GENERAL NOTES:

A. BASIS OF DESIGN: LEGRAND EVOLUTION FLOOR BOX EFB6S-OG OR APPROVED EQUAL. PROVIDE HARDWARE AS REQUIRED TO CONNECT DEVICES AND CONDUITS AS INDICATED.

B. PROVIDE (2) 5-20R RECEPTACLES.

C. PROVIDE ALL INSTALLATION HARDWARE AS REQUIRED.

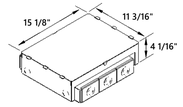
D. ROUTE STRUCTURED CABLING TO TELECOMMUNICATIONS ROOM INDICATED.

E. FLOOR BOX & COVER, CONDUIT, RECEPTACLES AND POWER WIRING SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.

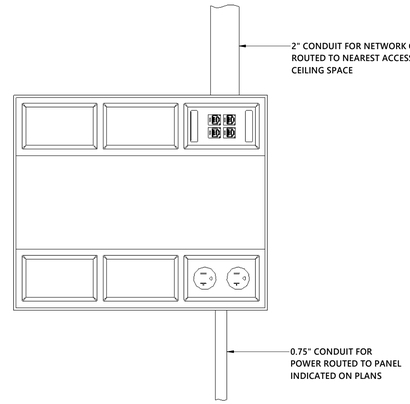
F. STRUCTURED CABLING AND ASSOCIATED HARDWARE SHALL BE PROVIDED BY STRUCTURED CABLING CONTRACTOR.

G. A/V CABLING AND ASSOCIATED HARDWARE SHALL BE PROVIDED BY AV CONTRACTOR.

H. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.



DIMENSIONAL VIEW



FB6

2 6-GANG MULTI-SERVICE FLOOR BOX
NOT TO SCALE

GENERAL NOTES:

A. BASIS OF DESIGN: LEGRAND EVOLUTION WALL BOX EFSB4 OR APPROVED EQUAL. PROVIDE HARDWARE AS REQUIRED TO CONNECT DEVICES AND CONDUITS AS INDICATED.

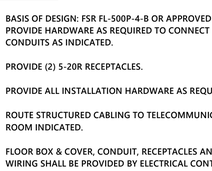
B. PROVIDE (2) 5-20R RECEPTACLES.

C. PROVIDE INSTALLATION HARDWARE AS REQUIRED. COORDINATE WITH ARCHITECTURAL DRAWINGS.

D. ROUTE STRUCTURED CABLING TO TELECOMMUNICATIONS ROOM INDICATED.

E. WALL BOX, CONDUIT, RECEPTACLES AND POWER WIRING SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.

F. STRUCTURED CABLING AND ASSOCIATED HARDWARE SHALL BE PROVIDED BY STRUTURED CABLING CONTRACTOR.



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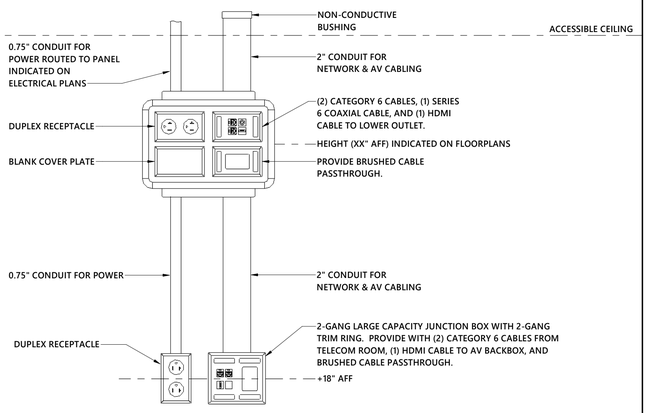


AV1

6 AV BACKBOX WITH WALL PLATE DETAIL
NOT TO SCALE

GENERAL NOTES:

A. BASIS OF DESIGN: LEGRAND WMPAC526 WALL BOX OR APPROVED EQUAL. PROVIDE HARDWARE AS REQUIRED TO CONNECT DEVICES AND CONDUITS AS INDICATED.

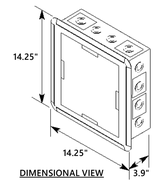
B. PROVIDE (1) 5-20R RECEPTACLE.

C. PROVIDE INSTALLATION HARDWARE AS REQUIRED. COORDINATE WITH ARCHITECTURAL DRAWINGS.

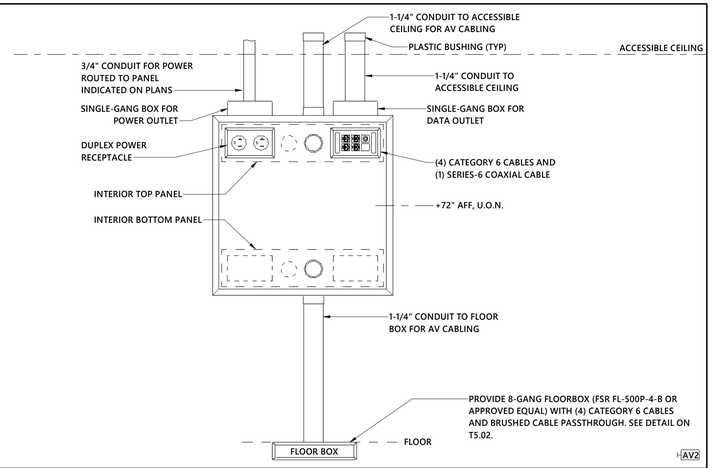
D. ROUTE STRUCTURED CABLING TO TELECOMMUNICATIONS ROOM INDICATED.

E. WALL BOX, FLOOR BOX, CONDUIT, RECEPTACLES AND POWER WIRING SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.

F. STRUCTURED CABLING AND ASSOCIATED HARDWARE SHALL BE PROVIDED BY STRUCTURED CABLING CONTRACTOR.

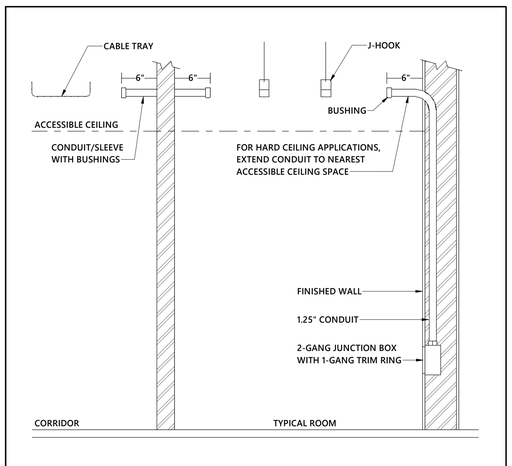


DIMENSIONAL VIEW

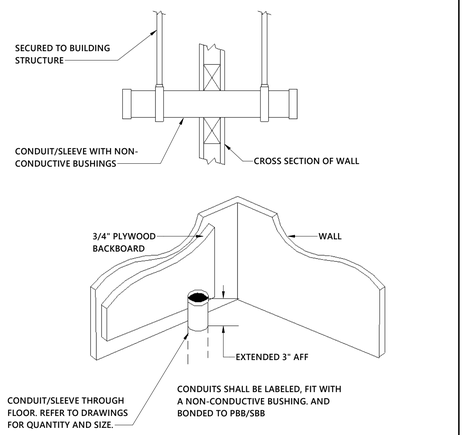


AV2

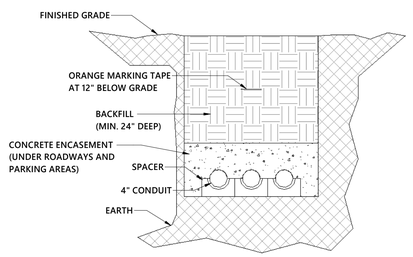
7 AV BACKBOX WITH FLOOR BOX DETAIL
NOT TO SCALE



3 NETWORK OUTLET STUB UP DETAIL
NOT TO SCALE



4 TELECOMMUNICATIONS CONDUIT/SLEEVE DETAIL
NOT TO SCALE



NOTES:
A. PROVIDE 3" 3-CELL FABRIC MESH INNERDUCT WITH PULL TAPE IN EACH 4" SITE CONDUIT.
B. PROVIDE MINIMUM 3" OF SEPARATION BETWEEN CONDUITS IN DUCTBANK.
C. PROVIDE ALL CONDUITS WITH DUCT PLUGS ON BOTH ENDS.
D. PROVIDE TRACER WIRE IN ONE CONDUIT IN THE DUCTBANK.
E. CONDUIT BEND RAIUS SHALL BE NO LESS THAN 10 TIMES THE CONDUIT OUTER DIAMETER.

5 3-WAY 4" TELECOM DUCTBANK DETAIL
NOT TO SCALE

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TELECOM DETAILS

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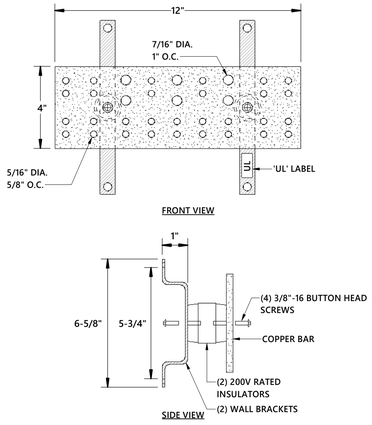
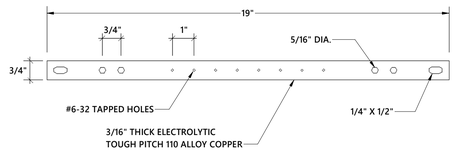


CPI: 40153-012 OR APPROVED EQUAL

1 PRIMARY BONDING BUSBAR 'PBB'

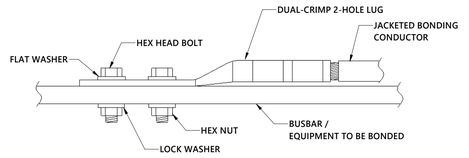
NOT TO SCALE



CPI: 10610-019 OR APPROVED EQUAL

2 RACK BONDING BUSBAR 'RBB'

NOT TO SCALE

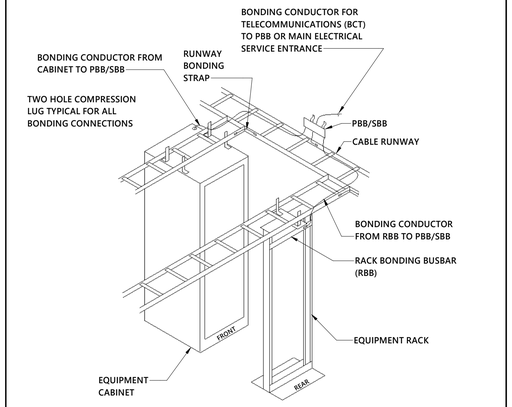


INSTALLATION NOTES:

1. PROVIDE APPROPRIATELY SIZED LUG FOR BONDING CONDUCTOR.
2. PROVIDE APPROPRIATELY SIZED BOLTS WITH A MINUMUM OF TWO EXPOSED THREADS.
3. REMOVE PAINT FROM MATING SURFACE IN AREA OF LUG CONTACT.
4. APPLY ANTI-OXIDANT COMPOUND TO MATING SURFACE AND WIPE CLEAN EXCESS COMPOUND.

3 2-HOLE GROUNDING LUG TERMINATION

NOT TO SCALE



4 CABLE TRAY BONDING AND GROUNDING

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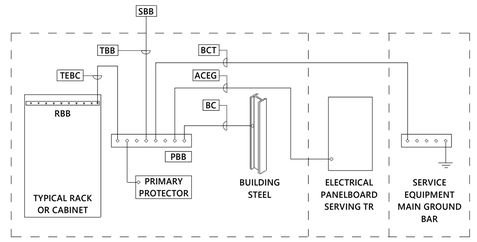

TELECOMMUNICATIONS GROUNDING LEGEND

PBB	PRIMARY BONDING BUSBAR
SBB	SECONDARY BONDING BUSBAR
TBB	TELECOMMUNICATIONS BONDING BACKBONE. SIZE PER TABLE ON THIS SHEET.
TEBC	TELECOMMUNICATIONS EQUIPMENT BONDING CONDUCTOR. PROVIDE A MINIMUM #6 AWG GROUND.
BC	BONDING CONDUCTOR. PROVIDE A MINIMUM #6 AWG GROUND.
ACEG	ALTERNATING CURRENT EQUIPMENT GROUND. PROVIDE A MINIMUM #6 AWG GROUND.
BCT	BONDING CONDUCTOR FOR TELECOMMUNICATIONS. PROVIDE A MINIMUM #3/0 AWG GROUND IN 3/4" C.
RBB	RACK BONDING BUSBAR

5 TYPICAL PBB CONNECTIONS

NOT TO SCALE

TELECOM BACKBONE BONDING (TBB) CONDUCTOR SIZE VS LENGTH TABLE

TBB/GE LINEAR LENGTH (FT)	TBB/GE SIZE (AWG)
13	6
14-20	4
21-26	3
27-33	2
34-41	1
42-52	1/0
53-66	2/0
67-84	3/0
85-105	4/0
106-125	250 kcmil
126-150	300 kcmil
151-175	350 kcmil
176-250	500 kcmil
251-300	600 kcmil
GREATER THAN 301	750 kcmil

NOTES:

A. TBB SIZING TABLE PER LATEST EDITION OF TIA-607-D.
B. THE MINIMUM TBB CONDUCTOR SIZE SHALL BE A NO. 6 AMERICAN WIRE GAUGE (AWG).

6 TELECOM BACKBONE BONDING (TBB) TABLE

NOT TO SCALE

GENERAL NOTES:

A. DOOR DETAIL INDICATES DOOR HANDLE OR CRASHBAR ON SECURED SIDE OF DOOR FOR REFERENCE ONLY. LOCK POWER WILL VARY DEPENDING ON LOCK TYPE AND DOOR HARDWARE. CONTRACTOR SHALL CROSS REFERENCE WITH DOOR HARDWARE SCHEDULE/SPECIFICATIONS TO CONFIRM FINAL REQUIREMENTS.

B. ALL CONDUITS SHALL BE CONCEALED; UNLESS OTHERWISE NOTED

C. PROVIDE AND INSTALL PULL STRINGS IN ALL CONDUITS.

KEYNOTES: (#)

1. DOOR CONTACT: PROVIDE FLUSH MOUNTED DOOR STATUS MONITOR.
2. DOOR CONTACT CONDUIT: PROVIDE 3/4"C. FROM DOOR FRAME TO SECURITY ENCLOSURE ABOVE DOOR.
3. CARD READER: PROVIDE 4"X4"X2-1/8" FLUSH BACK-BOX AND SINGLE GANG MUD RING MOUNTED ON NON-SECURED SIDE OF DOOR AT 42" AFF.
4. CARD READER CONDUIT: PROVIDE 3/4"C. FROM JUNCTION BOX TO SECURITY ENCLOSURE ABOVE DOOR.
5. SECURITY ENCLOSURE ABOVE DOOR ON SECURE SIDE: PROVIDE 12"X12"X4" PAINTABLE ENCLOSURE MOUNTED ABOVE FINISHED ACCESSIBLE CEILING OR 10' AFF IN AREAS WITHOUT A CEILING ON SECURED SIDE OF DOOR.
6. SECURITY ENCLOSURE CONDUIT: PROVIDE 3/4"C. TO NEAREST ACCESSIBLE CEILING, CABLE TRAY OR TELECOM ROOM.
7. ELECTRIFIED LOCKSET: ELECTRIFIED LOCKSET WITH INTEGRATED REX SWITCH, SHOWN FOR REFERENCE ONLY.
8. POWER TRANSFER HINGE: HINGE WITH ISOLATED ELECTRICAL CONNECTIVITY, SHOWN FOR REFERENCE ONLY.
9. POWER TRANSFER HINGE CONDUIT/ELECTRIFIED LOCKSET CONDUIT: PROVIDE 3/4"C. FROM DOOR FRAME TO SECURITY ENCLOSURE.

7 SINGLE DOOR - ELECTRIFIED HARWARE W/INTEGRATED REX

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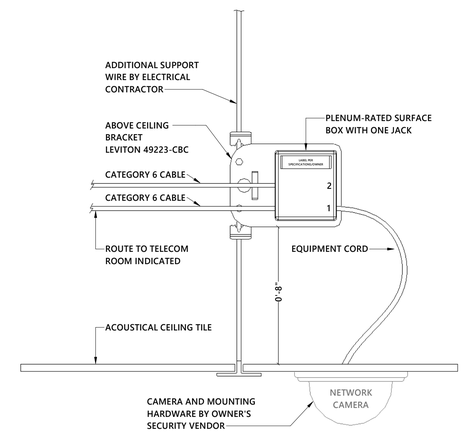

8 INTERIOR CAMERA DETAIL - ACCESSIBLE CEILING

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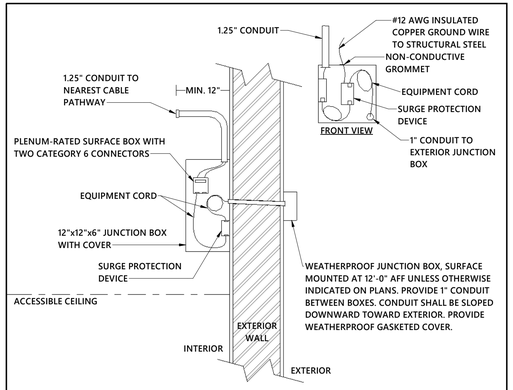

GENERAL NOTES:

A. ALL DEVICES MUST BE SECURED INSIDE JUNCTION BOX.
B. EQUIPMENT CORD BETWEEN CAMERA AND SURGE PROTECTION DEVICE MUST BE MINIMUM 3' IN LENGTH.
C. SURGE PROTECTION DEVICE MUST BE GROUNDED WITHIN 10' OF ENTERING BUILDING.

9 EXTERIOR NETWORK DEVICE DETAIL

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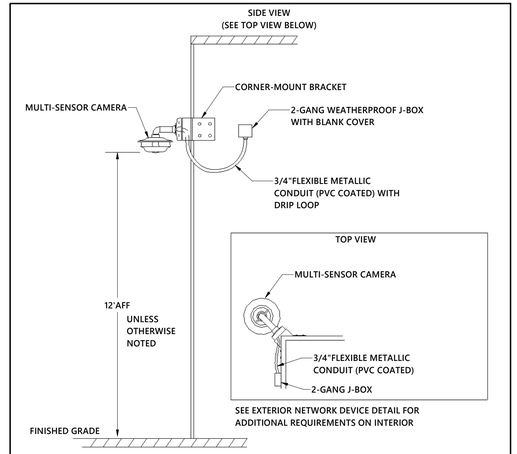

10 EXTERIOR CAMERA - CORNER MOUNT MULTI-SENSOR

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1691

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GORDON ROAD FIRE DEPARTMENT

TELECOM DETAILS

Sheet No.
T5.03

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Opt # 22-0368