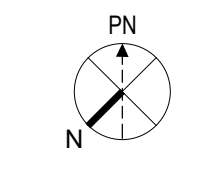


## **Wilmington International Airport (ILM) Curbside Improvements Phase 2**

---

Addendum No. 3 | Issue Date: 05/05/2025

1. **Revised** Scopes work (addendum 2 changes will be in **purple**)
  - a. 07C –Metal Panels
2. **RS&H Addendum 3**
  - a. Volume 1 Base Bid –Specs, Drawings & Narrative
  - b. Volume 2 Base Bid –Drawings & Narrative
  - c. Volume 2 Alternate 2 - Drawings & Narrative
  - d. Volume 2 Alternate 4 - Drawings & Narrative



SCALE: 1/16" = 1'-0"

[illegible]

**PROJECT TITLE:**  
ILM AIRPORT ROADWAY AND  
PARKING IMPROVEMENTS -  
PHASE II

---

**PROJECT ADDRESS:**  
1740 AIRPORT BLVD.  
WILMINGTON, NC 28405

---

**KEY PLAN**

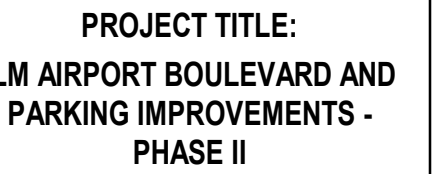
A diagram showing three areas labeled A, B, and C. Area A is a white rectangle on the left. Area B is a gray rectangle to the right of A. Area C is a dark gray rectangle on top of the right side of B.

DATE ISSUED:	03/14/2025
REVIEWED BY:	SG
DRAWN BY:	KS
DESIGNED BY:	FG
PROJECT NUMBER:	
2003-0070-006	
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**SHEET TITLE:**

PARTIAL SECOND  
FLOOR PLAN - AREA B

**PROJECT STATUS:**  
100% BID SET



**PROJECT ADDRESS:**  
1740 AIRPORT BLVD.  
WILMINGTON, NC 28405

[illegible]

DATE ISSUED:	03/14/2025
VIEWED BY:	SG
AWN BY:	KS
SIGNED BY:	FG

PROJECT NUMBER:  
**2003-0070-006**  
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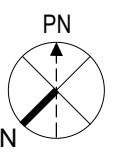
SHEET TITLE:  
PARTIAL THIRD FLOOR  
PLAN - AREA A

A108

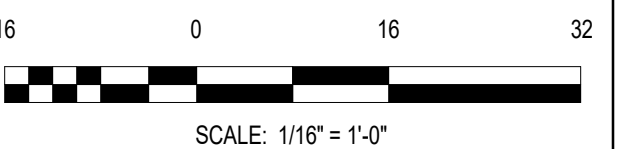
**PROJECT STATUS:**  
100% BID SET

### GENERAL SHEET NOTES

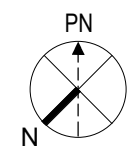
1. ALL EXTERIOR WALLS TO BE DIMENSIONED TO THE FACE OF SHEATHING OR CONCRETE U.N.O.
2. ALL INTERIOR WALLS TO BE DIMENSIONED TO THE FACE OF STUD U.N.O.
3. SEE ENLARGED PLANS FOR PARTITION TAGS NOT IDENTIFIED ON OVERALL FLOOR PLANS.
4. PROVIDE 1/2" WATER RESISTANT GYPSUM LIEU OF TYPICAL GYPSUM ON ALL WET AREAS INCLUDING, BUT NOT LIMITED TO:
  - A. RESTROOMS
  - B. JANITOR CLOSETS
  - C. EXTEND SMOKE BARRIER PARTITION WALLS TO BOTTOM OF UPPER FLOOR STRUCTURE.
5. FIELD VERIFY ALL DIMENSIONS, REPORT ANY DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATION PRIOR TO PROCEEDING WITH CONSTRUCTION.
6. SEAL ALL PENETRATIONS ON EXTERIOR WALLS.
7. ALL PLYWOOD TO BE FIRE TREATED U.N.O.
8. DOOR FRAMES TO BE LOCATED 4" FROM CORNER OF WALL U.N.O.



**A1** PARTIAL THIRD FLOOR PLAN - AREA A  
SCALE: 1/16" = 1'-0"





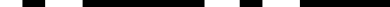







A1

SCALE: 1/16" = 1'-0"

PARTITION LEGEND	
	NON-RATED WALL SYSTEM
	1-HOUR RATED WALL SYSTEM
	3-HOUR RATED WALL SYSTEM
	PRECAST OR C.I.P. CONCRETE WALL SYSTEM
	CONCRETE MASONRY UNIT WALL SYSTEM
<p><b>NOTE:</b> REFER TO PARTITION TAGS ON PLANS AND PARTITION TYPE DETAILS</p>	
	REFER TO VOLUME 2 PACKAGE

1. ALL EXTERIOR WALLS TO BE DIMENSIONED TO THE FACE OF SHEATHING OR CONCRETE U.N.O.
2. ALL INTERIOR WALLS TO BE DIMENSIONED TO THE FACE OF STUD U.N.O.
3. SEE ENCLOSED PLANS FOR PARTITION TAGS NOT IDENTIFIED ON ALL OVERFLOOR PLANS.
4. PROVIDE 5/8" WATER-RESISTANT GWB IN LIEU OF TYPICAL GWB AT ALL WEAT AREAS INCLUDING, BUT NOT LIMITED TO:
  - A. RESTROOMS
  - B. JANITOR CLOSETS
5. EXTEND ALL EXTERIOR PARTITION WALLS TO BOTTOM OF UPPER FLOOR STRUCTURE.
6. FIELD VERIFY ALL DIMENSIONS. REPORT ANY DISCREPANCIES TO THE ARCHITECT FOR CLARIFICATION PRIOR TO PROCEEDING WITH CONSTRUCTION.
7. SEAL ALL PENETRATIONS ON EXTERIOR WALLS.
8. ALL PL WOOD TO BE FIRE TREATED U.N.O.
9. DOOR FRAMES TO BE LOCATED 4" FROM CORNER OF WALL U.N.O.



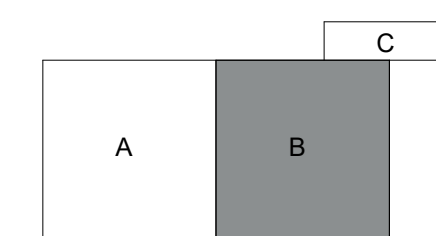
1520 South Blvd., Suite 200  
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Phone: 704-752-0610, Fax: 704-949-2672  
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F-0493 \* C-28



**PROJECT TITLE:**  
**ILM AIRPORT BOULEVARD AND**  
**PARKING IMPROVEMENTS -**  
**PHASE II**

**PROJECT ADDRESS:**  
1740 AIRPORT BLVD.  
WILMINGTON, NC 28405

### KEY PLAN

[illegible]

DATE ISSUED:	03/14/2006
REVIEWED BY:	S
DRAWN BY:	P
DESIGNED BY:	F
PROJECT NUMBER:	2003-0070-006

SEAL:

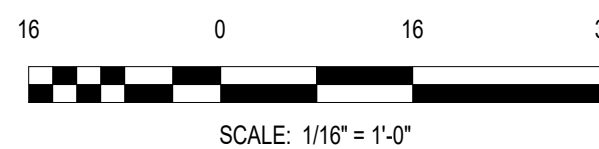
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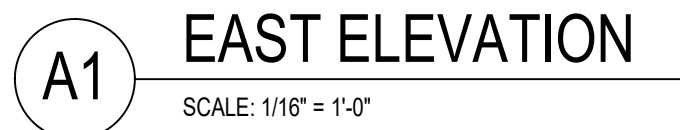
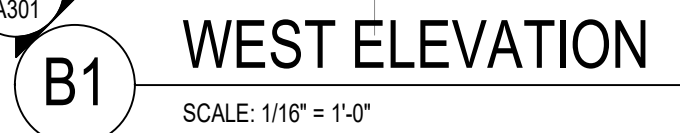
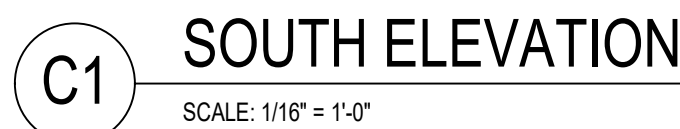
**SHEET TITLE:**  
**PARTIAL THIRD FLOOR**  
**PLAN - AREA B**

SHEET ID:

A109

**PROJECT STATUS:**  
100% BID SET





1. DO NOT SCALE DIMENSIONS FROM DRAWINGS - THE CONTRACTOR MUST REQUEST NECESSARY DIMENSIONS NOT SHOWN ON THE DRAWINGS FROM THE ARCHITECT.
2. ALL DIMENSIONS ARE TO BE FIELD VERIFIED. IF ANY DEVIATIONS OR DISCREPANCIES OCCUR, CONTACT THE ARCHITECT FOR VERIFICATION PRIOR TO PROCEEDING WITH THE WORK.
3. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE BUILDING CODE OF THE STATE OF NORTH CAROLINA.
4. THE DIMENSIONS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS.
5. THE CONTRACTOR WILL FIELD VERIFY DIMENSIONS AND REPORT IN WRITING ANY CONFLICTS PRIOR TO FABRICATION.
6. PROTECT THE TRANSITION STRIPS WHEN GRINDING TERRAZZO TO POLISH FINISH WITH PROTECTION TAPE.
7. SEE ELECTRICAL PLANS FOR OPERATIONAL LAYOUT. CONTRACTOR SHALL VERIFY AND COORDINATE WITH OWNER'S VENDOR FOR CORRECT PLACEMENT OF HARDWARE PRIOR TO FABRICATION.
8. EXISTING AND FUTURE UNDERLAY LIGNWORK FOR REFERENCE PURPOSES ONLY. ANY CIVIL RELATED WORK, SEE CIVIL PACKAGE FOR DETAILS.
9. THESE DRAWINGS ARE PROVIDED FOR A SPECIFIC DESIGN INTENT ONLY. THE SIGN CONTRACTOR SHALL BE RESPONSIBLE FOR ENGINEERING AND INTERNAL CONSTRUCTION OF ALL SIGNS, ANY PRODUCTS OR MATERIALS SPECIFIED MAY BE SUBSTITUTED WITH EQUAL OR LONG AS THE OVERALL DIMENSIONS, APPEARANCE, AND FUNCTIONALITY OF THE DESIGN IS RETAINED.
10. THE SIGN CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ALL ANCHORAGES, ALL ELECTRICAL, FIXTURES AND REQUIRED CONNECTIONS INTO CIRCUITS, AND WILL SUBMIT SHOP DRAWINGS, MESSAGE SCHEDULE, AND DETAILS FOR REVIEW.
11. LIGHTING SHALL BE CENTERED EQUALLY BETWEEN BAFFLES. REFER TO ELECTRICAL LIGHTING LAYOUT FOR MOUNTING HEIGHTS. THE BOTTOM OF LIGHTING FIXTURE HEIGHT SHALL BE MOUNTED TO CLEAR THE BOTTOM OF THE BAFFLES.

REFER TO VOLUME 2 PACKAGE



**PROJECT TITLE:**  
**LM AIRPORT BOULEVARD AND**  
**PARKING IMPROVEMENTS -**  
**PHASE II**

**PROJECT ADDRESS:**  
740 AIRPORT BLVD.  
DURHAM, NC 28405

[illegible]

DATE ISSUED: 03/14/2025  
VIEWED BY: SG  
DRAWN BY: KS  
DESIGNED BY: FG  
PROJECT NUMBER:  
**2003-0070-006**  
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AL:

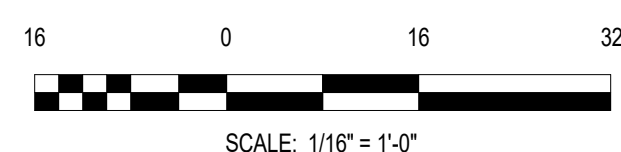
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**SHEET TITLE:**  
**BUILDING ELEVATIONS**

**SHEET ID:**

A201

**PROJECT STATUS:**  
100% BID SET







A2 SECTION AT PERFORATED METAL PANEL B



**A5** GARAGE FACE AT PEDESTRIAN BRIDGE  
SCALE: 1/2" = 1'-0"

2 0 2

SCALE: 1/2" = 1'-0"

### GENERAL NOTES

1. DO NOT SCALE DIMENSIONS FROM DRAWINGS - THE CONTRACTOR MUST REQUEST NECESSARY DIMENSIONS NOT SHOWN ON THE DRAWINGS FROM THE ARCHITECT.
2. ALL DIMENSIONS ARE TO BE FIELD VERIFIED. IF ANY DEVIATIONS OR DISCREPANCIES OCCUR, CONTACT THE ARCHITECT FOR VERIFICATION PRIOR TO PROCEEDING WITH THE WORK.
3. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE BUILDING CODE OF THE STATE OF NORTH CAROLINA.
4. THE DIMENSIONS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS.
5. THE CONTRACTOR WILL FIELD VERIFY DIMENSIONS AND REPORT IN WRITING ANY CONFLICTS PRIOR TO FABRICATION.
6. PROTECT THE TRANSITION STRIPS WHEN GRINDING TERRAZZO TO POLISH FINISH WITH PROTECTION TAPE.
7. SEE ELECTRICAL PLANS FOR OPERATIONAL LOGIC. CONTRACTOR SHALL VERIFY AND COORDINATE WITH OWNERS VENDOR FOR CORRECT PLACEMENT OF HARDWARE PRIOR TO FABRICATION.
8. EXISTING AND FUTURE UNDERLAY/INWORK FOR REFERENCE PURPOSES ONLY, ANY CIVIL RELATED WORK, SEE CIVIL PACKAGE FOR DETAILS.
9. THESE DRAWINGS ARE PROVIDED FOR A SPECIFIC DESIGN INTENT ONLY, THE SIGN CONTRACTOR SHALL BE RESPONSIBLE FOR ENGINEERING AND INTERNAL CONSTRUCTION OF ALL SIGNS, ANY PRODUCTS OR MATERIALS SPECIFIED ARE TO BE SUBSTITUTED WITH EQUAL OR LONG AS THE OVERALL DIMENSIONS, APPEARANCE, AND FUNCTIONALITY OF THE DESIGN IS RETAINED.
10. THE SIGN CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ALL ANCHORAGES, ALL ELECTRICAL FIXTURES AND REQUIRED CONNECTIONS INTO CIRCUITS, AND WILL SUBMIT SHOP DRAWINGS, LIGHTING SCHEDULE, AND DETAILS FOR REVIEW.
11. LIGHTING SHALL BE CENTERED EQUALLY BETWEEN BAFLES. REFER TO ELECTRICAL, LIGHTING LAYOUT FOR MOUNTING HEIGHTS. THE BOTTOM OF LIGHTING FIXTURE HEIGHT SHALL BE MOUNTED TO CLEAR THE BOTTOM OF THE BAFLES.

REFER TO VOLUME 2 PACKAGE



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PROJECT TITLE:  
ILM AIRPORT BOULEVARD AND  
PARKING IMPROVEMENTS -  
PHASE II

**PROJECT ADDRESS:**  
1740 AIRPORT BLVD.  
WILMINGTON, NC 28405

## REVISIONS

[illegible]

DATE ISSUED:	03/14/20
REVIEWED BY:	
DRAWN BY:	
DESIGNED BY:	

PROJECT NUMBER:  
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**SHEET TITLE:**  
**GARAGE WALL  
SECTIONS**

SHEET ID:

A311

**PROJECT STATUS:**  
100% BID SET



[illegible]

DATE ISSUED:	03/14/2025
VIEWED BY:	SG
AWN BY:	SS
SIGNED BY:	FG

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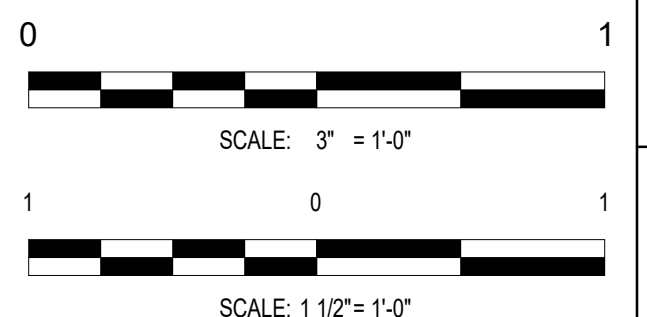
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**SHEET TITLE:**  
PERFORATED METAL  
PANEL DETAILS

SHEET ID:

A504 }

**PROJECT STATUS:**  
100% BID SET





**PROJECT ADDRESS:**  
1740 AIRPORT BLVD.  
WILMINGTON, NC 28405

[illegible]

DATE ISSUED: 03/14/2014

VIEWED BY: \_\_\_\_\_

AWN BY: \_\_\_\_\_

SIGNED BY: \_\_\_\_\_

SHEET NUMBER \_\_\_\_\_

2003-0070-006

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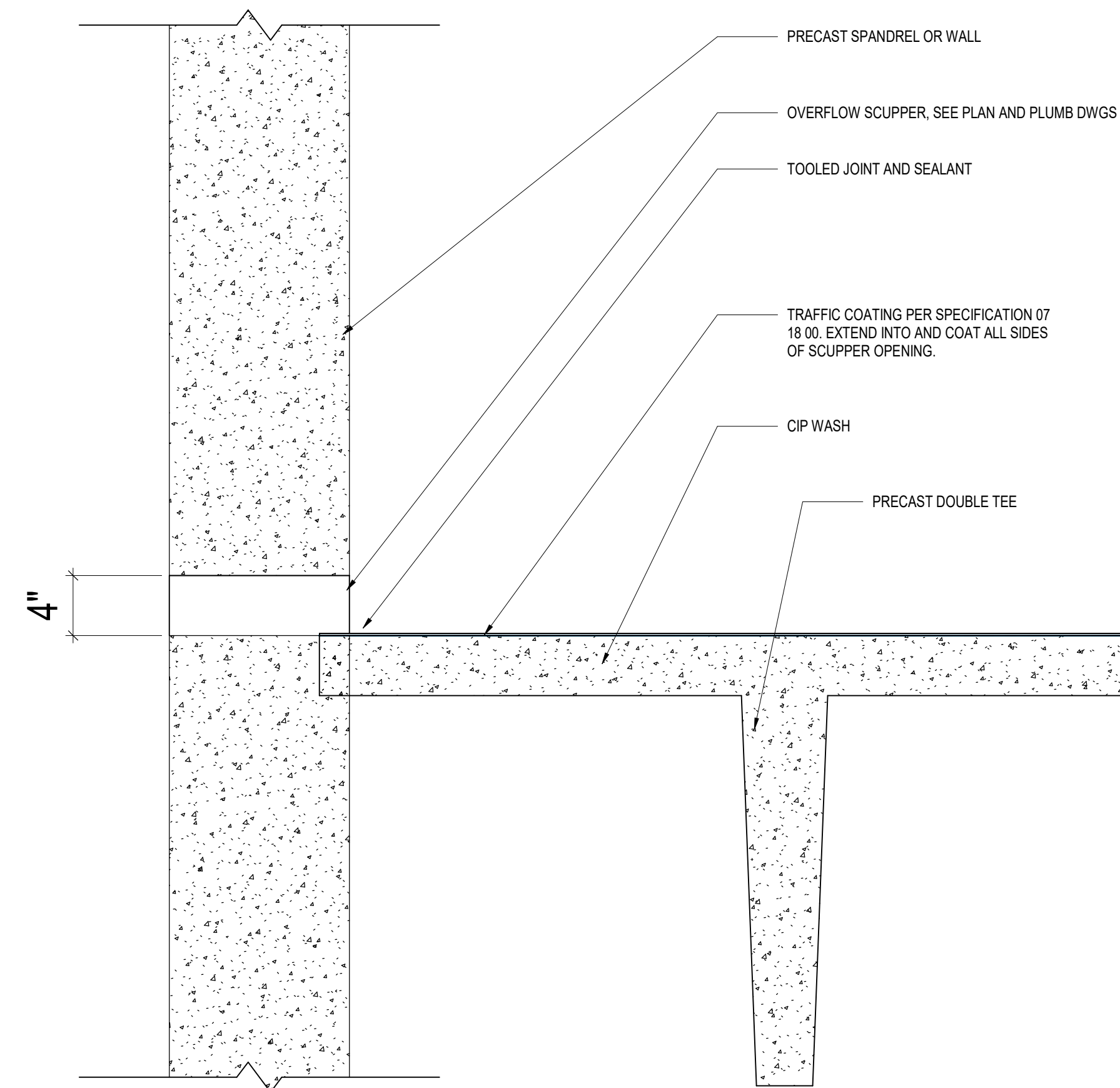
**SHEET TITLE:**

## SCUPPER DETAILS

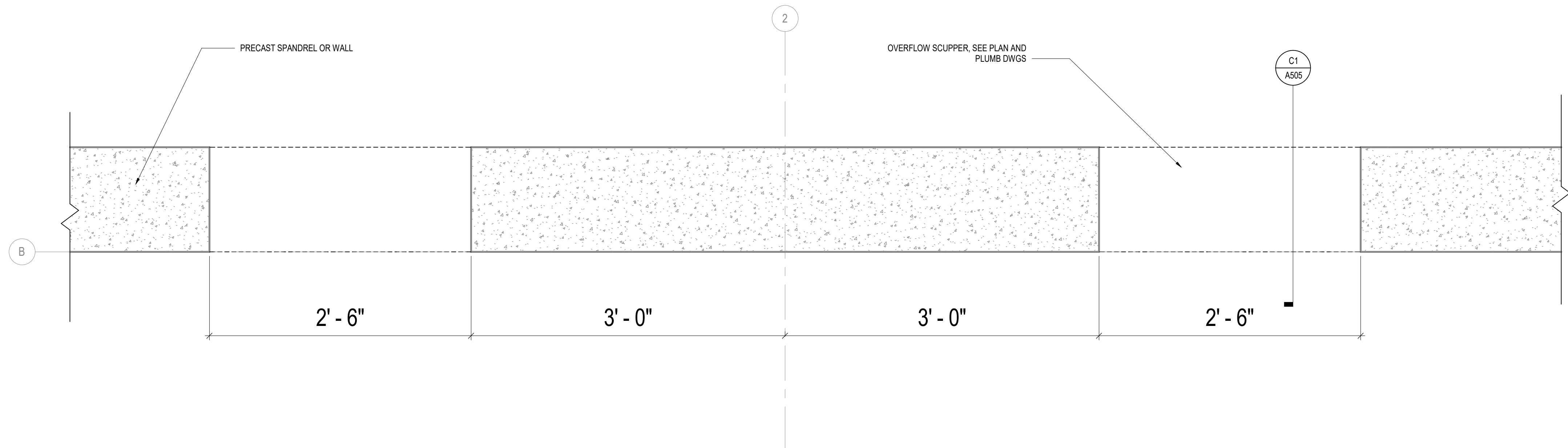
SHEET ID:

A505

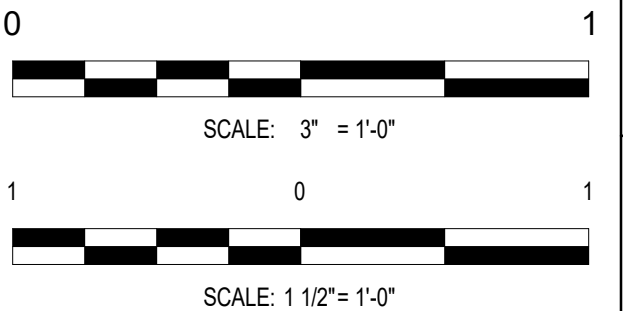
**PROJECT STATUS:**  
100% BID SET



**C1** SCUPPER SECTION DETAIL  
SCALE: 1 1/2" = 1'-0"

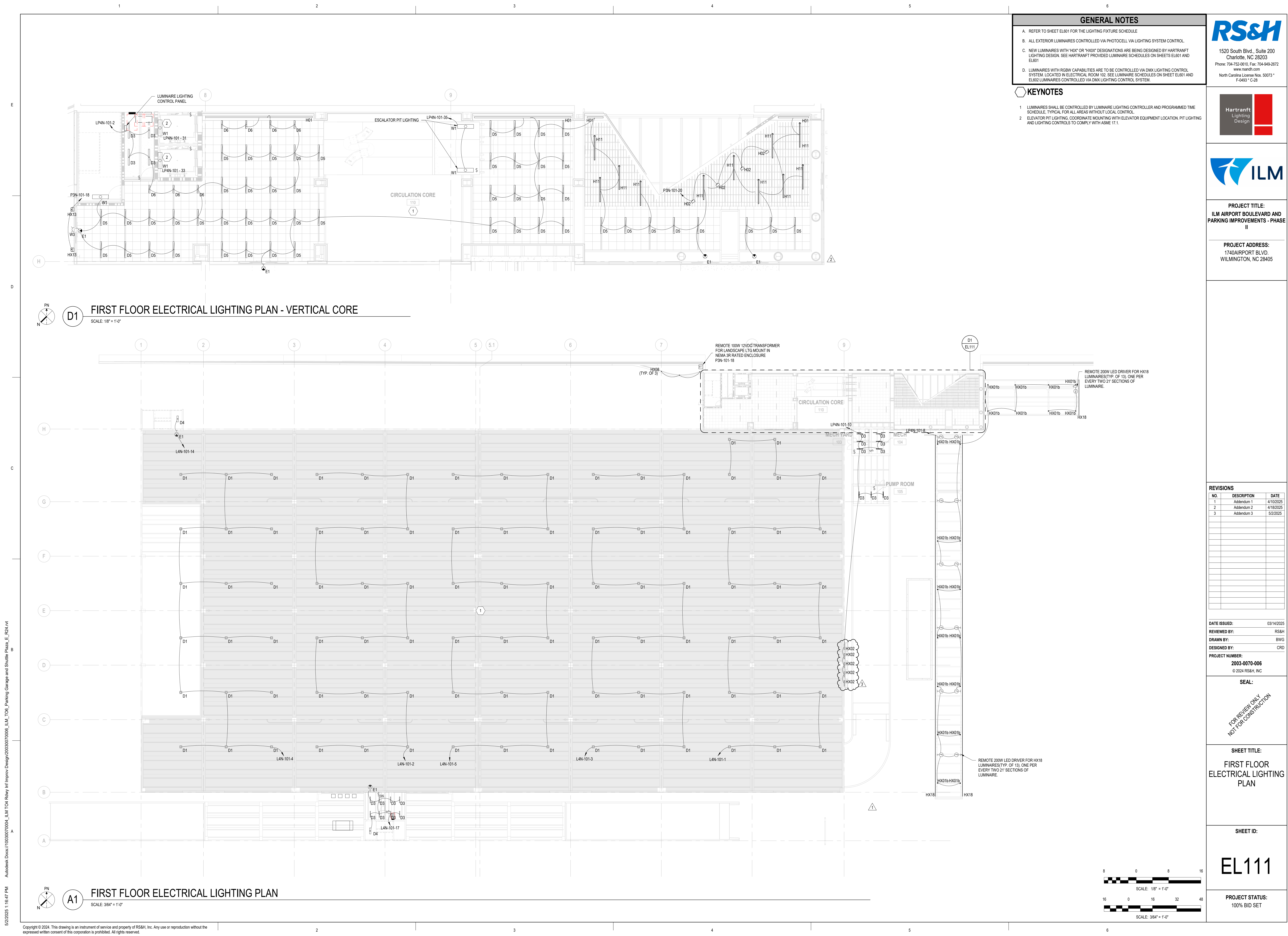


**A1** SCUPPER PLAN DETAIL  
SCALE: 1 1/2" = 1'-0"





5/2/2025 1:15:47 PM Autodesk Docs://10030070004\_ILM\_T04\_Retry v4 Improv Design/20030070006\_ILM\_T05\_Parking Garage and Shuttle Plaza\_E\_R04.rvt



# GENERAL NOTES

- A. REFER TO SHEET EL001 FOR THE LIGHTING FIXTURE SCHEDULE
- B. ALL EXTERIOR LUMINAIRES CONTROLLED VIA PHOTOCELL VIA LIGHTING SYSTEM CONTROL
- C. NEW LUMINAIRES WITH "HX" OR "HY" DESIGNATIONS ARE BEING DESIGNED BY HARTRANFT LIGHTING DESIGN. SEE HARTRANFT PROVIDED LUMINAIRE SCHEDULES ON SHEETS EL001 AND EL001
- D. LUMINAIRES WITH RGBW CAPABILITIES ARE TO BE CONTROLLED VIA DMX LIGHTING CONTROL SYSTEM. LOCATED IN ELECTRICAL ROOM 102. SEE LUMINAIRE SCHEDULES ON SHEET EL001 AND EL002 LUMINAIRES CONTROLLED VIA DMX LIGHTING CONTROL SYSTEM.

## KEYNOTES

- LUMINAIRES SHALL BE CONTROLLED BY LUMINAIRE LIGHTING CONTROLLER AND PROGRAMMED TIME SCHEDULE, TYPICAL FOR ALL AREAS WITHOUT LOCAL CONTROL.
- ELEVATOR PIT LIGHTING. COORDINATE MOUNTING WITH ELEVATOR EQUIPMENT LOCATION. PIT LIGHTING AND LIGHTING CONTROLS TO COMPLY WITH ASME 17.1.



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PROJECT TITLE:  
ILM AIRPORT BOULEVARD AND  
PARKING IMPROVEMENTS - PHASE  
II

PROJECT ADDRESS:  
1740AIRPORT BLVD.  
WILMINGTON, NC 28405

## REVISIONS

NO.	DESCRIPTION	DATE
1	Addendum 1	4/10/2025
2	Addendum 2	4/18/2025
3	Addendum 3	5/2/2025

DATE ISSUED: 03/14/2025  
REVIEWED BY: RS&H  
DRAWN BY: BWG  
DESIGNED BY: CRD

PROJECT NUMBER:  
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## SEAL:

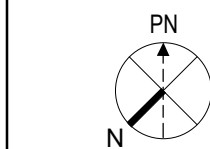
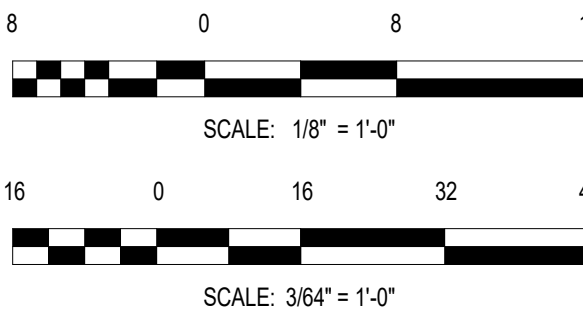
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SHEET TITLE:  
FIRST FLOOR  
ELECTRICAL LIGHTING  
PLAN

## SHEET ID:

EL111

PROJECT STATUS:  
100% BID SET



A1

## FIRST FLOOR ELECTRICAL LIGHTING PLAN

SCALE: 3/64\"/>





## KEYNOTES

- 1 PROVIDE 500KW DIESEL GENERATOR, WITH LEVEL 2 SOUNDS ATTENUATED ENCLOSURE, AND A BELL TANK SIZED FOR 24HR RUNTIME AT 80% LOAD. EXHAUST TO BE DIRECTED TO THE EXTERIOR OF THE GARAGE.
- 2 5'X11" WALL MOUNTED PULL BOX MOUNTED 3'FG. CONDUIT FROM SWITCHBOARD TO PULLBOX TO BE ROUTED OVERHEAD. CONDUITS FROM PULLBOX TO TRANSFORMERS ARE TO BE ROUTED BELOW GRADE. CONDUIT ROUTING SHOWN IS APPROXIMATE COORDINATE EXACT ROUTING IN THE FIELD.
- 3 2- MIN. 1" CONDUITS FOR FOUNTAIN LIGHTING AND CONTROLS, COORDINATE REQUIREMENTS WITH MANUFACTURER.



**PROJECT ADDRESS:**  
1740AIRPORT BLVD.  
WILMINGTON, NC 28405

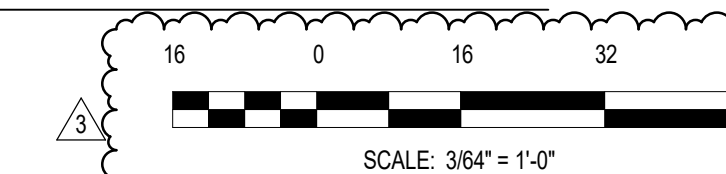
DATE ISSUED:	03/14/2025
REVIEWED BY:	RS&H
DRAWN BY:	BWG
DESIGNED BY:	CRD

SEAL:

SHEET TITLE:

SHEET ID:

**PROJECT STATUS:**  
100% BID SET





[illegible]




















**HARTRANFT LIGHTING STUDIOS**  
Diane McNabb Rodriguez - [diane@hartranftlighting.com](mailto:diane@hartranftlighting.com)  
Sarah Boyer - [sarah@hartranftlighting.com](mailto:sarah@hartranftlighting.com)  
Samm Dubey - [samm@hartranftlighting.com](mailto:samm@hartranftlighting.com)

## LUMINAIRE SCHEDULE - CONSTRUCTION DOCUMENTATION

**PROJECT: ILM AIRPORT BOULEVARD AND PARKING IMPROVEMENTS**

SPECIFICATION NOTES FOLLOW THIS SCHEDULE AND ARE INCORPORATED HEREIN

LUMINAIRE TYPE	IMAGE	DESCRIPTION	LAMPING	MANUFACTURER and SERIES	CATALOG NUMBER	POWER SUPPLY/ CONTROL PROTOCOL	SYSTEM WATTS (w)	VOLTAGE(V)	DEPTH	MOUNTING	LOCATION	NOTES
EXTERIOR LIGHTING												
HX01		CYLINDER DOWNLIGHT TYPE IV DISTRIBUTION	3000K LED 2407 LUMENS 90 CRI	LUMINIS SYRIOS PRO	SY600-L1L25-LD5-30K-MVOLT-SWK-SP-FINISH TBD-MG	INTEGRAL 0-10V DIMMING TO 1%	19	MVOLT	13"	SURFACE / BACKBOX	DRIVE CANOPY	OPERATING TEMP OF -22 DEGREE TO 113 DEGREE F BACKBOX WITH CONDUIT PUNCHOUTS MARINE GRADE FINISH
HX01a		CYLINDER DOWNLIGHT TYPE IV DISTRIBUTION	3000K LED LUMENS 90 CRI	LUMINIS SYRIOS PRO	SY600-L1 MODIFIED 3000 LM OUTPUT-LD5-30K-MVOLT-SWK-SP-FINISH TBD-MG	INTEGRAL 0-10V DIMMING TO 1%	19	MVOLT	13"	SURFACE / BACKBOX	CANOPY PEDESTRIAN WALKWAY CANOPY	OPERATING TEMP OF -22 DEGREE TO 113 DEGREE F BACKBOX WITH CONDUIT PUNCHOUTS MARINE GRADE FINISH
HX01b		CYLINDER DOWNLIGHT TYPE II DISTRIBUTION	3000K LED LUMENS 90 CRI	LUMINIS SYRIOS PRO	SY600-L1L25-LD3-30K-MVOLT-SWK-SP-FINISH TBD-MG	INTEGRAL 0-10V DIMMING TO 1%	19	MVOLT	13"	SURFACE / BACKBOX	PEDESTRIAN WALKWAY CANOPY	OPERATING TEMP OF -22 DEGREE TO 113 DEGREE F BACKBOX WITH CONDUIT PUNCHOUTS MARINE GRADE FINISH
HX02		4' LINEAR DIRECT VIEW ACCENT	RGBW LED 462 LUMENS - FULL ON	COLOR KINETICS VAYA TUBE, G2	316-100029-01	DMX	13.6	24DC	2.61"	SURFACE	DRIVE CANOPY PERLINS	EC TO PROVIDE ALL FEEDS, CONNECTORS, CAPS ETC TO FORM A COMPLETE WORKING SYSTEM
HX02a		1' LINEAR DIRECT VIEW ACCENT	RGBW LED 462 LUMENS - FULL ON	COLOR KINETICS VAYA TUBE, G2	316-100029-00	DMX	3.4	24DC	2.61"	SURFACE	DRIVE CANOPY PERLINS	EC TO PROVIDE ALL FEEDS, CONNECTORS, CAPS ETC TO FORM A COMPLETE WORKING SYSTEM
HX03		CYLINDER DOWNLIGHT TYPE III DISTRIBUTION	RGBW UPLIGHT 3000K LED DOWNLIGHT 2403 LUMENS DOWNLIGHT 349 LUMENS UPLIGHT 90 CRI	LUMINIS SYRIOS PRO	SY600-L1L25-LD3-30K-MVOLT-SWK-SP-FINISH TBD-MG	INTEGRAL 0-10V DIMMING TO 1%	19	MVOLT	13"	SURFACE	DRIVE CANOPY OUTERMOST GIRDERS	OPERATING TEMP OF -22 DEGREE TO 113 DEGREE F BACKBOX WITH CONDUIT PUNCHOUTS MARINE GRADE FINISH
HX04		CANOPY DOWNLIGHT	3000K LED 1436 LUMENS 80 CRI	LUMINIS OCULUS	OC750-L1L15-FLD-30K-MVOLT-DR10-SL-GL-CUSTOM COLOR TBD-MG	REMOTE 0-10V DIMMING	14	MVOLT	5.83"	RECESSED	TERMINAL ENTRIES	REQUIRES 7" CLEAR PLENUM IP66
HX05		INGRADE UPLIGHT	3000K LED 1453 LUMENS 80 CRI	HYDREL TIERRA	IGF6-SS-LED-P1-80CRI-30K-MVOLT-7 DEGREE-OT-SLCSR-CONDUIT ENTRIES TBD-IHL-ZT-FINISH TBD	INTEGRAL 0-10V DIMMING TO 1%	24	MVOLT	10.5"	INGRADE	TERMINAL ENTRY	INTERNAL HONEYCOMB LOUVER FOR GLARE CONTROL AIMING ADJUSTMENT 0 TO 20 DEGRESS
HX05a		FLAG POLE INGRADE UPLIGHT	3000K LED 4205 LUMENS 80 CRI	HYDREL M9700C	M9720C-DOOR MATERIAL TBD-P2-30K-MVOLT-NSP-FLC20SR-CONDUIT ENTRIES TBD-GS-LDIM-FINISH TBD + ZINC UNDERCOAT	INTEGRAL 0-10V DIMMING TO 10%	35	MVOLT	16"	INGRADE	FLAG POLES	DOUBLE LENS, OPTICAL AND MECHANICAL AIMING SLIP RESISTANT LENS GLARE SHIELD
NOT USED												
HX07		LINEAR GRAZER	3000K LED 3719 LUMENS 84 CRI	COLOR KINETICS GRAZE IIX	523-000114-56	ETHERNET INTERFACE	83.2	MVOLT	2.7"	ARCHITECTURAL MOUNTING ARM 120-000206-00	GARAGE METAL PANELS	EC TO PROVIDE ALL FEEDS, CONNECTORS, CAPS ETC TO FORM A COMPLETE WORKING SYSTEM
NOT USED												
HX08		LANDSCAPE ACCENT	RGBW LED 674 LUMENS 90 CRI	HYDREL ASPEN LED	ASPEN-A-P1-90CRI-30K-12-45DEG-WSL-350R-STK-IHL-C3-FINIS H + Z9 / REMOTE TRANSFORMER	REMOTE 12V TRANSFORMER	8	12	8.65"	STAKE	LANDSCAPE	DOUBLE LENS HONEYCOMB LOUVER 45 DEGREE CUT EXTERNAL CAP 350 DEGREE ROTATIONAL KNUCKLE
HX09		ARM MOUNTED SIGN LIGHTER	3000K LED 674 LUMENS 90 CRI	ELLIPTIPAR STYLE S175	S-175-H-8"-H-FINISH-M-V-0-935-EL / HUBS AS REQUIRED-CANTILEVER HANGER WITH 24" ARM	ELDOLED 0-10V DIMMING TO 1%	13 PER FOOT	MVOLT	4" NOMINAL	SURFACE	GARAGE	FINISH PER ARCHITECT AIMING LOCKS WITH SET SCREWS FIELD SERVICABLE LIGHT ENGINE
HX10	NOT USED											
HX11	NOT USED											
HX12	NOT USED											
HX13		LED PROJECTOR	5500K LED 3000 LUMENS	ROSCO X-EFFECTS LED PROJECTOR	XF1LED-X-EFFECTS-90-5-C-LENS TBD-ACCESSORY TBD-S-P / 29600005101 / CUSTOM COLOR TBD	ONBOARD DIMMING AND SPEED CONTROLS	90	100-240 VAC		WALL MOUNT	GARAGE LOBBY	WEIGHT: 9 POUNDS PROVIDE BRACING AS REQUIRED FOR WALL MOUNTING
HX14	NOT USED											
HX14a	NOT USED											
HX15	NOT USED											
HX16	NOT USED											
HX17		RGBW TREE UPLIGHT	RGBW LED 1645 LUMENS FULL ON	COLOR KINETICS BURST POWERCORE	423-000030-FINISH TBD / FULL GLARE SHIELD / (1) LENS TO BE DETERMINED	DMX	31.3	MVOLT	10.75"	STAKE	PALM TREES DRIVE APPROACH	8 DEGREE BEAM ANGLE NATIVE FULL GLARE SHIELD...
HX18		RGBW FLEXIBLE DIRECT VIEW	RGBW LED	KELVIK SIGNWAVE 5	SWSS-LENGTH PER PLAN-RGBW-FEED POINT TBD-FEED LENGTH TBD-IP68 / END CAPS AS REQUIRED / SW-E-CHAL-FLX-1M	DMX	4.6 PER FOOT	24V DC	1.12"	SURFACE	PEDESTRIAN WALKWAY CANOPY	POWER FEED EVERY 21 FEET FLEXIBLE ALUMINUM CHANNEL

**SPECIFICATION NOTES (MUST BE INCLUDED ON DRAWINGS WITH LUMINAIRE SCHEDULE):**

- 1 ELECTRICAL ENGINEER TO SPECIFY AND CONFIRM ALL VOLTAGES AND PROPERLY SIZE ALL REMOTE POWER SUPPLIES
- 2 CONTRACTOR SHALL PROVIDE LUMINAIRES AND LIGHTING EQUIPMENT THAT MEETS PERFORMANCE, AESTHETICS, AND MATERIAL AS NOTED IN THE WRITTEN LUMINAIRE SPECIFICATION. ALTERNATES OR SUBSTITUTIONS ARE NOT PERMITTED WITHOUT REVIEW AND APPROVAL BY THE LIGHTING DESIGNER. CONTRACTOR TO COORDINATE LEAD TIMES, DEPOSIT REQUIREMENTS, SHOP DRAWING DEVELOPMENT AND SUBMITTAL, ETC. TO ASSURE TIMELY DELIVERY IN ACCORDANCE WITH OVERALL PROJECT SCHEDULE. ALL PROPOSED SUBSTITUTIONS MUST BE SUBMITTED NO LESS THAN FOURTEEN (14) DAYS PRIOR TO THE BID DUE DATE. FAILURE TO SUBMIT PROPOSED SUBSTITUTIONS WITHIN THAT DEADLINE CONSTITUTES A GUARANTEE THAT THE SPECIFIED PRODUCTS WILL BE SUPPLIED.
- 3 INSTALLATION CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL WIRING SCHEMES AND OTHER INSTALLATION DETAILS WITH MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS.
- 4 SUBSTANTIAL COMPLETION IN THIS CONTEXT REFERS TO COMPLETELY INSTALLED AND OPERATIONAL LIGHTING AND LIGHTING CONTROL SYSTEMS. CONTRACTOR SHALL VERIFY THE CORRECT INSTALLATION AND DIMMING OPERATION OF ALL LUMINAIRES, SENSORS, AND OF THE CONTROL SYSTEM AS A WHOLE PRIOR TO REQUESTING THE LIGHTING DESIGNER'S ATTENDANCE AT ANY FOCUSING OR LEVEL SETTING SESSIONS. IN THE EVENT THAT THE LIGHTING CONTROL ZONES OR OTHER OPERATIONAL CHARACTERISTICS OF THE COMPLETED SYSTEM ARE NOT FULLY READY AT THE TIME OF THE FIRST FOCUSING APPOINTMENT, THE LIGHTING DESIGNER SHALL BE ENTITLED TO REQUEST FEES FOR ADDITIONAL SERVICES FROM THE CONTRACTOR WHICH SHALL NOT BE PASSED ON TO THE CLIENT.
- 5 CATALOGUE OR SERIES NUMBERS ARE INTENDED TO PROVIDE ASSISTANCE IN ESTABLISHING IDENTIFICATION OF MANUFACTURER'S MODEL, SERIES, OR LUMINAIRE STYLE, AND MAY NOT BE COMPLETE AND SHALL NEVER BE USED TO ORDER LUMINAIRES. MANUFACTURER'S CATALOG NUMBERS ARE SUBJECT TO CHANGE AND ANY DISCREPANCIES BETWEEN THE CATALOG NUMBER, LUMINAIRE DESCRIPTION, REMARKS, LAMP AND SUPPLY VOLTAGE, AND ARCHITECTURAL DRAWINGS MUST BE BROUGHT TO THE ATTENTION TO THE LIGHTING DESIGNER PRIOR TO THE RELEASE OF A PURCHASE ORDER.
- 6 CATALOGUE CUTS, WHEN INCLUDED, ARE FOR GENERAL ASSISTANCE AND IMAGE REFERENCE ONLY AND ARE NOT A PART OF THESE SPECIFICATIONS. MANUFACTURER'S CATALOG CUTS ARE SUBJECT TO CHANGE AND CURRENT CATALOG CUTS FROM THE MANUFACTURER ARE REQUIRED TO BE SUBMITTED DURING SHOP DRAWING REVIEW FOR APPROVAL....
- 7 AUXILIARY EMERGENCY EQUIPMENT OPTIONS MUST BE DETERMINED, VERIFIED, AND APPROVED BY THE ELECTRICAL ENGINEER.
- 8 "CONTINUOUS", WHEN NOTED, REQUIRES BUTTED END TO END LAYOUTS WITH NO GAPS BETWEEN LUMINAIRE HOUSINGS. NOTE MINIMUM OR MAXIMUM GAPS OR LAYOUT WHEN PROVIDED.
- 9 "FLANGELESS" OR "TRIMLESS" OR "FLUSH", WHEN NOTED, REQUIRES CONTRACTOR TO REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR PLASTER FRAME. PROPER ALIGNMENT OF BOTTOM OF APERTURE THROAT WITH FACE OF FINISHED CEILING IS CRITICAL FOR INSTALLATION; CONTRACTOR TO COORDINATE.
- 10 "REMOTE DRIVERS" OR "ACCESSIBLE" WHEN NOTED REQUIRES CONTRACTOR TO COORDINATE WITH BOTH THE ARCHITECT AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS TO LOCATE A SUITABLE LOCATION REMOVED FROM THE LUMINAIRE ITSELF FOR THE DRIVER/POWER SUPPLY. SAID LOCATION SHALL BE CONCEALED FROM GENERAL VIEW, WELL VENTILATED, SECURE AND REACHABLE BY NO MORE THAN A 10' LADDER PLACED SECURELY ON FLAT GROUND.
- A. ELECTRICAL CONTRACTOR TO COORDINATE MOUNTING DETAILS AND ELECTRICAL CONNECTIONS, ADVISE MANUFACTURER OF LEAD LENGTHS, AND VERIFY THAT INSTALLATION COMPLIES WITH NATIONAL AND LOCAL CODES, AND PROVIDE FUSE FOR SECONDARY WIRING, WHEN REQUIRED.
- B. LUMINAIRE MANUFACTURER TO DETERMINE REQUIRED WIRE SIZE BETWEEN LUMINAIRES AND DRIVERS, LENGTH OF RUNS, OR QUANTITY OF LUMINAIRES PER CIRCUIT, AND TO ASSURE THAT VOLTAGE DROP DOES NOT EXCEED 5% - VERIFICATION OF VOLTAGE DROP MUST BE CONDUCTED ON SITE BY THE ELECTRICAL CONTRACTOR USING A "TRUE RMS" VOLTMETER TO MEASURE THE SECONDARY VOLTAGE.
- 11 "ALLOWANCES", WHEN NOTED, ARE TO BE IN U.S. DOLLARS AND COVER THE COST, TO THE OWNER, OF THE LIGHTING LUMINAIRES, LAMPS, AND ACCESSORIES AS NOTED. AN ALLOWANCE DOES NOT INCLUDE LAMPS, DELIVERY TO THE SITE, HANDLING, INSTALLATION OR CONTRACTOR'S OVERHEAD OR MARK-UP. CONTRACTOR MUST PROVIDE UNIT PRICING TO THE ARCHITECT. FOR EACH LUMINAIRE TYPE COMPLETE WITH ALL ACCESSORIES AND LAMP.
- 12 SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND LIGHTING CONSULTANT FOR REVIEW AND APPROVAL IN ACCORDANCE WITH ARCHITECT'S GENERAL TERMS AND CONDITIONS. DO NOT OBTAIN LUMINAIRES WITHOUT APPROVAL.
- A. SHOP DRAWINGS FOR ALL LIGHTING EQUIPMENT SHALL INCLUDE DETAILS AND CUTS OF EACH LUMINAIRE TYPE, AND SHALL INCLUDE INFORMATION ON LIGHT SOURCE, HOUSING SIZE AND MATERIAL, DRIVER TYPE (WHERE APPLICABLE), LENSES, Baffles, FINISHES, AND MEANS AND METHODS OF ATTACHMENT AND SUPPORT, JOINING, AND ELECTRICAL CONNECTION.
- B. IN ADDITION, SHOP DRAWINGS FOR CONTINUOUS OR CUSTOM LENGTH LIGHTING EQUIPMENT REQUIRE FIELD DIMENSIONS, AND SHOP DRAWINGS SHALL INCLUDE FIELD DIMENSIONS AND LAYOUTS.
- 13 CONTROL SAMPLES WHEN REQUESTED, SUBMIT AT LEAST 1 WORKING SAMPLE OF EACH LUMINAIRE TYPE SPECIFIED FOR USE AS A CONTROL SAMPLE TO VERIFY COLOR FIDELITY AND COMPATIBILITY WITH CONTROL SYSTEM. CONTROL SAMPLES SHALL BE PROVIDED DURING SHOP DRAWING SUBMITTAL PROCESS AND SHALL BE OF THE SAME BIN/PRODUCTION RUN AS THE LUMINAIRES ULTIMATELY SUPPLIED FOR THE PROJECT AS A WHOLE. AFTER APPROVAL, CONTROL SAMPLES MAY BE INSTALLED AS PART OF THE OVERALL LUMINAIRE COUNT, OR MAY SERVE AS A PORTION OF THE ATTIC STOCK REQUIRED FOR THE PROJECT. LUMINAIRES SPECIFIED AS PART OF A SERIES (HA, HA-1, E.G.) MAY BE REPRESENTED BY A SINGLE SAMPLE, BUT ADDITIONAL UNITS MAY STILL BE REQUIRED AS ATTIC STOCK.
- 14 "FOCUSING REQUIRED", WHEN NOTED, REQUIRES CONTRACTOR TO PROVIDE ALLOWANCE FOR LABOR, SCAFFOLDING, AND TOOLS TO ADJUST, AIM, OR INSTALL LUMINAIRES AND ACCESSORIES PER THE LIGHTING CONSULTANT'S DIRECTION DURING EVENING HOURS (IF REQUIRED). FOCUSING CAN ONLY OCCUR AFTER INSTALLATION AND CONFIRMED OPERATION OF ALL LUMINAIRES, AND AFTER THE CONTRACTOR HAS VERIFIED INSTALLATION AND CONFIRMED OPERATION OF CONTROL SYSTEMS. SPECIFIC ARCHITECTURAL ORNAMENT OR ART INTENDED TO BE ILLUMINATED MUST BE IN PLACE PRIOR TO FOCUS SESSION.
- A. WHEN KNOWN INITIAL AIMING ANGLES ARE DEFINED ABOVE, LUMINAIRES MAY BE "PRE-AIMED" AS INDICATED. HOWEVER, THESE "INITIAL" AIMING ANGLES WILL BE VERIFIED IN THE FIELD BY THE LIGHTING DESIGNER AND MAY REQUIRE ADDITIONAL RE-AIMING FOR FINAL FOCUSING.
- B. DURING FINAL FOCUSING THE LIGHTING DESIGNER WILL PROVIDE AIMING DIRECTION, INSTRUCTION, AND DEFINE AIMING ANGLES FOR TYPICAL LUMINAIRES SO THE CONTRACTOR MAY COMPLETE THE FOCUSING DURING DAYTIME HOURS. THE CONTRACTOR IS TO LOCK BUT NOT OVER-TIGHTEN ALL LUMINAIRES SO THAT LAMP HOLDERS WILL NOT MOVE DURING SUBSEQUENT RELAMPING.
- 15 "CUSTOM COLOR", WHEN NOTED, REQUIRES THE CONTRACTOR TO COORDINATE AND PROVIDE SPECIAL COLORS. CONTRACTOR TO VERIFY ALL OCCURRENCES WITH THE ARCHITECT, AND NOTE LUMINAIRE TYPES MAY BE INSTALLED AT DIFFERENT ARCHITECTURAL CEILING OR WALL FINISHES. THIS SEPARATE COLORS FOR EACH MATERIAL MAY BE REQUIRED. INCLUDE WITHIN COST ADDITIONAL SET-UP CHARGES FOR "CUSTOM COLORS".
- 16 ATTIC STOCK: CONTRACTOR TO INCLUDE COST OF 20% ATTIC STOCK IN BID FOR THE FOLLOWING TYPES OF LUMINAIRES, ACCESSORIES, AND COMPONENTS: LINEAR LUMINAIRE TYPES IN QUANTITIES AND LENGTHS AS REPRESENTED IN THE DRAWINGS, LENSES, REMOVABLE LUMINAIRE TRIMS, DRIVERS, BOTH REMOTE AND INTEGRAL, HOUSINGS, WHERE LUMINAIRE AND HOUSING ARE SEPARATE ENTITIES, CUSTOMIZED COMPONENTS INCLUDING HOUSINGS WITH CUSTOMIZED FINISHES (ARMS, MOUNTING BRACKETS, ETC.) LUMINAIRE TYPES WHICH ARE SUPPLIED ON SPOOLS, REQUIRE ONE ADDITIONAL FULL SPOOL.
- 17 CONTROL SYSTEM: CONTRACTOR TO PROVIDE PERSONNEL AND EQUIPMENT AS REQUIRED BY LIGHTING CONTROL SYSTEM MANUFACTURER FOR SYSTEM START-UP, LEVEL SET, AND COMMISSIONING. UNDER NO CIRCUMSTANCES SHALL CONTRACTOR EXCLUDE THE COST OF FACTORY START-UP AND TRAINING VISITS FROM THEIR BID IF SUCH SERVICES ARE REQUIRED BY CONTROL SYSTEM MANUFACTURER. CONTRACTOR TO NOTE THAT CONTROL SYSTEM MANUFACTURER MAY HAVE SPECIFIC TIME-LINES AND/OR REQUIRED, PHASED, SITE VISITS DURING THE INSTALLATION OF THE SYSTEM AND TO COORDINATE SAME WITH PROJECT SCHEDULE AND LEAD TIME.
- A. AS NOTED IN #4 ABOVE, ALL DIMMING, SENSOR OPERATION, AND CONTROL ZONE GROUPINGS SHALL BE TESTED AND OPERATIONAL PRIOR TO COMMENCING ANY START-UP ACTIVITIES.
- 18 A CONTROL SYSTEMS INTEGRATOR IS REQUIRED FOR THIS PROJECT. GENERAL CONTRACTOR, OR THEIR ELECTRICAL SUB TO CONTRACT WITH A QUALIFIED LIGHTING CONTROL SYSTEMS INTEGRATOR TO ENSURE THAT THE CONTROL INTENT SPECIFIED ELSEWHERE CAN BE ACHIEVED AND THAT THE LUMINAIRES CONTROLLED VIA DMX-512A AND THOSE CONTROLLED BY OTHER PROTOCOLS CAN BE OPERATED SIMULTANEOUSLY AND WITHOUT VISIBLE LAGS....
- B. LED REPLACEMENT LAMPS: WHERE NOTED REQUIRES DISTRIBUTOR TO COORDINATE AND PROVIDE APPROPRIATE LED REPLACEMENT LAMPS FOR LUMINAIRES WITH SCREW BASE SOCKETS. TAKE CARE TO ASSURE THAT ALL REPLACEMENT LAMPS, REGARDLESS OF BASE ARE CONSISTENT IN COLOR APPEARANCE AND WILL DIM WITH SPECIFIED SYSTEM. ALL NON-SHIELDED LAMPS SHALL HAVE FILAMENT STYLE LIGHT ELEMENT. PROVIDE A FULL SUITE OF LAMPS FOR LIGHTING DESIGNER'S APPROVAL WITH SUBMISSION. PROVIDE A COMPLETE LIST OF ALL LAMPS WHICH WILL BE FURNISHED ON THE PROJECT. THIS LIST SHALL BE ORGANIZED ALPHABETICALLY BY LUMINAIRE TYPE INDICATED ON THE LUMINAIRE SCHEDULE, AND INCLUDE THE MANUFACTURER AND EXACT MODEL ORDERING CODE OF EACH LAMP.
- 20 CUSTOM OR CUSTOMIZED LUMINAIRE: WHERE NOTED REFERS TO EITHER A LUMINAIRE DESIGNED FOR THIS SPECIFIC PROJECT ONLY, OR MAY REFER TO A SPECIFIC ELEMENT OF THE LUMINAIRE THAT IS BEING CHANGED FOR USE WITHIN THIS PROJECT. IN EITHER CASE, BIDDERS ARE ENCOURAGED TO COMMUNICATE WITH MANUFACTURERS WHERE NOTED DURING THE PREPARATION OF BIDS AND TO REFER ANY QUESTIONS TO THE DESIGN TEAM IN THE FORM OF RFIs. REQUESTS FOR CHANGE ORDERS THAT COULD HAVE BEEN RESOLVED IN ADVANCE, BASED ON THE INFORMATION PROVIDED AND A STANDARD RFI WILL NOT BE HONORED OR REFERRED TO THE CLIENT. IN INSTANCES WHERE THE LUMINAIRE IS DESCRIBED AS IN DEVELOPMENT WITH THE SELECTED MANUFACTURER, CONFIRM THAT PROVIDED PRICE IS SUFFICIENT TO INCLUDE ADJUSTMENTS TO THE OVERALL SIZE, FINISH, MATERIALS, ETC. DURING THE SUBMISSION PROCESS.



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PROJECT TITLE:  
ILM AIRPORT BOULEVARD AND  
PARKING IMPROVEMENTS - PHASE  
II

**PROJECT ADDRESS:**  
1740AIRPORT BLVD.  
WILMINGTON, NC 28405

## REVISIONS

NO.	DESCRIPTION	DATE
1	Addendum 1	4/10/2025
2	Addendum 3	5/2/2025

DATE ISSUED:	03/14/2025
REVIEWED BY:	RS&H
DRAWN BY:	BWG
DESIGNED BY:	CRD
PROJECT NUMBER:	

PROJECT NUMBER:  
**2003-0070-006**  
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SEAL:

FOR REVIEW ONLY  
NOT FOR CONSTRUCTION

**SHEET TITLE:**  
**EXTERIOR LUMINAIRE**  
**SCHEDULE**

**SHEET ID:**

# EL602

**PROJECT STATUS:**

00% BID SE



480Y/277 VAC 3 PHASE/4 WIRE				SWITCHBOARD LOCATION		S4N-101 ELECTRICAL 132		1200 A BUS W/ 1200 A 65 KA SCCR.		
CKT NO	BREAKER FRAME	BREAKER TRIP / POLE	LOAD CLASS & LOCATION			ID	NOTES	A	B	C
1	200 A	200 A	3	L4N-101				14862 VA	13226 VA	11528 VA
2	400 A	400 A	3	L4N-101				60785 VA	58781 VA	51137 VA
3	60 A	60 A	3	T-3				2178 VA	3120 VA	3386 VA
4	60 A	60 A	3	T-4				5311 VA	7886 VA	4458 VA
5	200 A	200 A	3	T-5				30743 VA	30743 VA	30743 VA
6	200 A	200 A	3	T-6				30743 VA	30743 VA	30743 VA
7	200 A	200 A	3	T-7				30743 VA	30743 VA	30743 VA
8	200 A	200 A	3	T-8(FUTURE)				30743 VA	30743 VA	30743 VA
9	30 A	30 A	3	T-11				3727 VA	3316 VA	1370 VA
10	30 A	30 A	3	T-10				2218 VA	2918 VA	2420 VA
11	30 A	30 A	3	T-9				2218 VA	2975 VA	2476 VA
12										
13										
14										
15										
16										
17										
18	30 A	30 A	3	SPD				0 VA	0 VA	0 VA
CONNECTED LOAD:								214271 VA	215195 VA	199758 VA
<b>Load Classification</b>		<b>Connected Load</b>	<b>Demand Factor</b>	<b>Estimated Demand</b>						
MOTR		81743 VA	105.6%	86302 VA						
HVAC		54943 VA	100.0%	54943 VA						
EQUIPMENT		422327 VA	100.0%	422327 VA						
HEAT		7125 VA	100.0%	7125 VA						
LITE		49826 VA	100.0%	49826 VA						
RCPT		13260 VA	87.7%	11630 VA						
GENERAL NOTES:										
NOTES:										

Branch Panel: L4N-101

Location: ELECTRICAL 132

Supply From: S4N-101

Mounting: SURFACE

Enclosure: NEMA 1

Volts: 480Y/277 VAC

Phases: 3

Wires: 4

A.I.C. Rating: 30KA

Mains Type: MCB

Mains Rating: 200 A

Notes:

CKT	Circuit Description	Trip	Poles	Notes	A	B	C	Notes	Poles	Trip	Circuit Description	CKT
1	1ST FLOOR LTG	20 A	1		4.28 kVA	3.85 kVA				1	20 A 1ST FLOOR LTG	2
3	1ST FLOOR LTG	20 A	1			3.85 kVA	3.85 kVA			1	20 A 1ST FLOOR LTG	2
5	1ST FLOOR LTG	20 A	1					3.85 kVA	2.27 kVA	1	20 A 2ND FLOOR LTG	4
7	2ND FLOOR LTG	20 A	1		1.91 kVA	1.64 kVA				1	20 A 2ND FLOOR LTG	8
9	2ND FLOOR LTG	20 A	1			2.06 kVA	3.00 kVA			1	20 A ROOF LTG	10
11	2ND FLOOR LTG	20 A	1					1.91 kVA	1.80 kVA	1	20 A ROOF LTG	12
13	ROOF LTG	20 A	1		2.10 kVA	1.09 kVA				1	20 A NW STAIR LIGHTING	14
15	RENTAL CAR RAMP LIGHTING	20 A	1				0.46 kVA	Y 3				16
17	SOUTH CENTER STAIR LTG	20 A	1					1.70 kVA				18
19												20
21												22
23												24
25												26
27												28
29												30
31												32
33												34
35												36
37												38
39												40
41												42
Total Load:					14862 VA	13226 VA	11528 VA					
Total...					54.6 A	48.7 A	41.6 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
LITE	39615 VA	100.0%	39615 VA	
				Total Conn. Load: 39615 VA
				Total Est. Demand: 39615 VA
				Total Conn.: 47.6 A
				Total Est. Demand: 47.6 A

Branch Panel: LP4N-101

Location: ELECTRICAL 102

Supply From: S4N-101

Mounting: SURFACE

Enclosure: NEMA 1

Voltage: 480Y/277 VAC

Phases: 3

Wires: 4

A.I.C. Rating: 30KA

Mains Type: MCB

Mains Rating: 400 A

Notes:

CKT	Circuit Description	Trip	Poles	Notes	A	B	C	Notes	Poles	Trip	Circuit Description	CKT
1	ESCALATOR	30 A	3		3.88 kVA 2.52 kVA							2
5						3.88 kVA 0.69 kVA				1	20 A VERTICAL CORE LTG 1ST FLR	4
6							3.88 kVA 1.67 kVA			1	20 A VERTICAL CORE LTG 2ND...	4
7	ESCALATOR	30 A	3		3.88 kVA 3.01 kVA							6
9						3.88 kVA 0.34 kVA				1	20 A CANOPY LIGHTING	8
11							3.88 kVA 1.11 kVA			1	20 A LITE ROOM 103, 104, 105	10
13	ESCALATOR	30 A	3		3.88 kVA 1.11 kVA							12
15						3.88 kVA 1.11 kVA						14
17							3.88 kVA 2.00 kVA					16
19	ELEVATOR	30 A	3		6.08 kVA 2.00 kVA							18
21						6.08 kVA 2.00 kVA				3	15 A SAHU-02	20
23							6.08 kVA 3.77 kVA					22
25	ELEVATOR	30 A	3		6.08 kVA 3.77 kVA							24
27						6.08 kVA 3.77 kVA				3	20 A SCU-01	26
29							6.08 kVA 7.32 kVA					28
31	ELEVATOR PIT LTG	20 A	1		0.02 kVA 7.32 kVA							30
33	ELEVATOR PIT LTG	20 A	1			0.02 kVA 7.32 kVA						32
35	ESCALATOR PIT LIGHTING	20 A	1				0.03 kVA					34
37												36
39												38
41												40
43					6.44 kVA							42
45						7.23 kVA						44
47							7.18 kVA		3	70 A	T-2(45KVA	46
49					10.82 kVA 0.00 kVA							48
51	T-1(45KVA)	70 A	3			12.52 kVA 0.00 kVA			3	20 A	SPD	50
53							4.27 kVA 0.00 kVA					52
Total Load:					60785 VA	58781 VA	51137 VA					
Total...					223.7 A	216.5 A	184.8 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
EQUIPMENT	19766 VA	100.0%	19766 VA	
LITE	9902 VA	100.0%	9902 VA	Total Conn. Load: 170703 VA
HVAC	44959 VA	100.0%	44959 VA	Total Est. Demand: 175261 VA
HEAT	6113 VA	100.0%	6113 VA	Total Conn.: 205.3 A
MOTR	81743 VA	105.6%	86302 VA	Total Est. Demand: 210.8 A
RCPT	8220 VA	100.0%	8220 VA	

Branch Panel: P3N-101

Location: ELECTRICAL 102

Supply From: T-1

Mounting: SURFACE

Enclosure: NEMA1

Volts: 208Y/120 VAC

Phases: 3

Wires: 4

A.I.C. Rating: 18KA


Mains Type: MCB

Mains Rating: 150 A

Notes:

CKT	Circuit Description	Trip	Poles	Notes	A		B		C		Notes	Poles	Trip	Circuit Description	CKT	
1	SLIDING DOOR POWER 1ST	20 A	1		1.80 kVA	0.92 kVA									2	
3	SLIDING DOOR POWER 2ND	20 A	1				1.20 kVA	0.92 kVA				2	20 A	SUMP PUMP	4	
5	SLIDING DOOR POWER 3RD	20 A	1						0.60 kVA	0.00 kVA					6	
7	EHW-1	40 A	2		3.00 kVA	0.00 kVA								20 A	SUMP PUMP	8
9							3.00 kVA	0.92 kVA						20 A	SUMP PUMP	10
11									0.04 kVA	0.92 kVA						12
13	HWRP1	20 A	1													14
15	CU-01	30 A	2		1.00 kVA	3.33 kVA						2	45 A	FOUNTAIN CONTROL PANEL	16	
17	BMS RCPT	20 A	1				1.00 kVA	3.33 kVA				1	20 A	LANDSCAPE LTG	18	
19	BMS RCPT	20 A	1		0.18 kVA	0.36 kVA			0.18 kVA	0.51 kVA		1	20 A	TUNNEL PROJECTORS	20	
21	EF-01	20 A	2				0.20 kVA	1.73 kVA				1	20 A	CAB LTG AND POWER	22	
23									0.20 kVA	1.73 kVA		1	20 A	CAB LTG AND POWER	24	
25	HEAT TRACE HT-01	20 A	2	1	0.06 kVA	0.18 kVA	0.06 kVA	0.18 kVA				1	20 A	ELEVATOR PIT RCPT	26	
27	ARCHITECTURAL PENDANT	20 A	1						0.10 kVA	0.33 kVA	3	1	20 A	ELEVATOR PIT RCPT	28	
29																30
31																32
33																34
35																36
37																38
39																40
41																42
43																44
45	SPARE	20 A	1				0.00 kVA	0.00 kVA				1	20 A	SPARE	46	
47	SPARE	20 A	1						0.00 kVA	0.00 kVA		1	20 A	SPARE	48	
49	SPARE	20 A	1		0.00 kVA	0.00 kVA										50
51	SPARE	20 A	1				0.00 kVA	0.00 kVA				3	20 A	SPD	52	
53	SPARE	20 A	1						0.00 kVA	0.00 kVA						54
Total Load:					10818 VA		12519 VA		4274 VA							
Total...:					98.5 VA		112.7 A		35.6 A							

Legend:

1. GFCI CIRCUIT BREAKER 

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
EQUIPMENT	7056 VA	100.0%	7056 VA	
LITE	969 VA	100.0%	969 VA	Total Conn. Load: 27611 VA
HVAC	2392 VA	100.0%	2392 VA	Total Est. Demand: 29275 VA
HEAT	6113 VA	100.0%	6113 VA	Total Conn.: 76.6 A
MOTR	10361 VA	116.1%	12025 VA	Total Est. Demand: 81.3 A
RCPT	720 VA	100.0%	720 VA	

Branch Panel: P3N-102

Location: ELECTRICAL 102

Supply From: T-2

Mounting: SURFACE

Enclosure: NEMA1

Volts: 208Y/120 VAC

Phases: 3

Wires: 4

A.I.C. Rating: 18KA

Mains Type: MCB

Mains Rating: 150 A

Notes:

CKT	Circuit Description	Trip	Poles	Notes	A	B	C	Notes	Poles	Trip	Circuit Description	CKT
1	INTERCOM	20 A	1		0.18 kVA	0.36 kVA				1	20 A RCPT TOP RCPT	2
3	INTERCOM	20 A	1			0.18 kVA	0.56 kVA			1	20 A AUTO PLUMBING FIXTURES	4
5	RCPT MECH YARD	20 A	1				0.36 kVA	0.50 kVA		1	20 A COMM EQUIPMENT	6
7	RCPT ELEC. RM 102	20 A	1		0.72 kVA	1.62 kVA				1	20 A RCPT RM 202	8
9	RCPT CIRCULATION CORE	20 A	1			0.90 kVA	1.00 kVA			1	20 A EWC	10
11	FIDS MONITORS	20 A	1				0.54 kVA	1.44 kVA		1	20 A RCPT 3RD FLR	12
13	COMM EQUIPMENT	20 A	1	0.50 kVA	0.50 kVA	1.92 kVA	0.50 kVA			1	20 A COMM EQUIPMENT	14
15	COMM EQUIPMENT	20 A	1			1.92 kVA	0.50 kVA			1	20 A COMM EQUIPMENT	16
17	COMM EQUIPMENT	20 A	1				1.92 kVA	0.50 kVA		1	20 A COMM EQUIPMENT	18
19	BACKLIT MIRRORS	20 A	1	0.64 kVA	1.92 kVA	0.25 kVA	1.92 kVA			1	20 A COMM EQUIPMENT	20
21	SECURITY POLE	20 A	1							1	20 A COMM EQUIPMENT	22
23								1.92 kVA		1	20 A COMM EQUIPMENT	24
25												26
27												28
29												30
31												32
33												34
35												36
37												38
39												40
41												42
43							0.00 kVA			1	20 A SPARE	44
45								0.00 kVA	0.00 kVA	1	20 A SPARE	46
47	SPARE	20 A	1									48
49	SPARE	20 A	1	0.00 kVA	0.00 kVA	0.00 kVA	0.00 kVA					50
51	SPARE	20 A	1			0.00 kVA	0.00 kVA			3	20 A SPD	52
53	SPARE	20 A	1					0.00 kVA	0.00 kVA			54
Total Load:					6441 VA	7230 VA	7180 VA					
Total...					53.7 A	61.2 A	60.9 A					

Legend:

Load Classification				Connected Load	Demand Factor	Estimated Demand	Panel Totals	
EQUIPMENT				12710 VA	100.0%	12710 VA		
LITE				641 VA	100.0%	641 VA	Total Conn. Load: 20851 VA	
RCPT				7500 VA	100.0%	7500 VA	Total Est. Demand: 20851 VA	
							Total Conn.: 57.9 A	
							Total Est. Demand: 57.9 A	

Branch Panel: P3N-201

Location: IDF/ELEC 221

Supply From: T-3

Mounting: SURFACE

Enclosure: NEMA 1

Volts: 208Y/120 VAC

Phases: 3

Wires: 4

A.I.C. Rating: 18KA


Mains Type: MCB

Mains Rating: 100 A

Notes:

CKT	Circuit Description	Trip	Poles	Notes	A	B	C	Notes	Poles	Trip	Circuit Description	CKT
1	EXT RCPT	20 A	1		0.18 kVA	0.50 kVA				1	20 A COMM EQUIPMENT	2
3	RCPT IDF/ELECTRICAL 221	20 A	1			0.72 kVA	1.92 kVA			1	20 A COMM EQUIPMENT	4
5	COMM EQUIPMENT	20 A	1				1.92 kVA	1.00 kVA				6
7	COMM EQUIPMENT	20 A	1		0.50 kVA	1.00 kVA				2	20 A CU-02	8
9	INTERCOM	20 A	1			0.18 kVA	0.30 kVA					10
11	INTERCOM	20 A	1				0.18 kVA	0.30 kVA	1	2	20 A HEAT TRACE HT-04	12
13												14
15												16
17												18
19												20
21												22
23												24
25												26
27												28
29												30
31												32
33	SPARE	20 A	1			0.00 kVA	0.00 kVA			1	20 A SPARE	34
35	SPARE	20 A	1					0.00 kVA	0.00 kVA		20 A SPARE	36
37	SPARE	20 A	1		0.00 kVA	0.00 kVA						38
39	SPARE	20 A	1			0.00 kVA	0.00 kVA			3	20 A SPD	40
41	SPARE	20 A	1					0.00 kVA	0.00 kVA			42
Total Load:					2178 VA	3120 VA	3398 VA					
Total...					18.2 A	27.2 A	29.5 A					

Legend:

1. GFCI CIRCUIT BREAKER 

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
EQUIPMENT	4840 VA	100.0%	4840 VA	
HVAC	1997 VA	100.0%	1997 VA	Total Conn. Load: 6897 VA
HEAT	600 VA	100.0%	600 VA	Total Est. Demand: 6897 VA
RCPT	1260 VA	100.0%	1260 VA	Total Conn.: 24.1 A
				Total Est. Demand: 24.1 A

Branch Panel: P3N-202

Location: IDF/ELEC 232

Supply From: T-4

Mounting: SURFACE

Enclosure: NEMA 1

Volts: 208Y/120 VAC

Phases: 3

Wires: 4

A.I.C. Rating: 16kA

Mains Type: MCB

Mains Rating: 100 A

Notes:

2#4, 1#6GND IN 1-1/2"C

CKT	Circuit Description	Trip	Poles	Notes	A		B		C		Notes	Poles	Trip	Circuit Description	CKT
1	INTERCOM	20 A	1		0.18 kVA	0.18 kVA						1	20 A	EXT RCPT	2
3	INTERCOM	20 A	1				0.18 kVA	1.54 kVA				1	20 A	GEN. BATTERY CHARGER	4
5	INTERCOM	20 A	1						0.36 kVA	0.20 kVA		1	20 A	GEN ALT HEATER	6
7	RCPT IDF/ELEC 232	20 A	1		0.72 kVA	1.33 kVA						2	20 A	GENERATOR COOLANT HEATER	8
9	COMM EQUIPMENT	20 A	1				1.92 kVA	1.33 kVA				1	30 A	ENTRY TRAFFIC CTRL ARM	10
11	COMM EQUIPMENT	20 A	1						0.50 kVA	2.40 kVA	1	1	30 A	ENTRY TRAFFIC CTRL ARM	12
13	COMM EQUIPMENT	20 A	1		0.50 kVA	2.40 kVA					1	1	30 A	ENTRY TRAFFIC CTRL ARM	14
15	COMM EQUIPMENT	20 A	1				1.92 kVA	1.00 kVA				2	20 A	CU-03	16
17										1.00 kVA					18
19															20
21															22
23															24
25															26
27															28
29															30
31															32
33								0.00 kVA				1	20 A	SPARE	34
35	SPARE	20 A	1						0.00 kVA	0.00 kVA		1	20 A	SPARE	36
37	SPARE	20 A	1		0.00 kVA	0.00 kVA						3	20 A	SPARE	38
39	SPARE	20 A	1				0.00 kVA	0.00 kVA							40
41	SPARE								0.00 kVA	0.00 kVA					42
Total Load:					5311 VA		7886 VA		4458 VA						
Total...					45.4 A		66.8 A		37.2 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
EQUIPMENT	14038 VA	100.0%	14038 VA	
HVAC	1097 VA	100.0%	1097 VA	Total Conn. Load: 17655 VA
RCPT	1620 VA	100.0%	1620 VA	Total Est. Demand: 17655 VA
				Total Conn.: 49 A
				Total Est. Demand: 49 A

**RS&H**

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[www.rsandh.com](http://www.rsandh.com)

North Carolina License Nos. 50073 \*  
F-0493 \* C-28

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**Hartranft**  
Lighting  
Design



PROJECT TITLE:  
ILM AIRPORT BOULEVARD AND  
PARKING IMPROVEMENTS - PHAS  
II

**PROJECT ADDRESS:**  
1740AIRPORT BLVD.  
WILMINGTON, NC 28405

[illegible]

DATE ISSUED:	03/14/2022
REVIEWED BY:	RS&A
DRAWN BY:	BW
DESIGNED BY:	CR

PROJECT NUMBER:  
**2003-0070-006**  
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SEAL:

FOR REVIEW ONLY  
NOT FOR CONSTRUCTION

**SHEET TITLE:**  
**ELECTRICAL POWER  
PANEL SCHEDULES**

SHEET ID:

EP602

**PROJECT STATUS:**  
100% BID SET

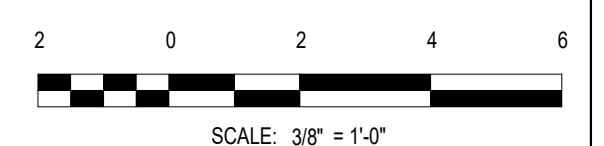


















**PROJECT STATUS:**  
100% BID SET

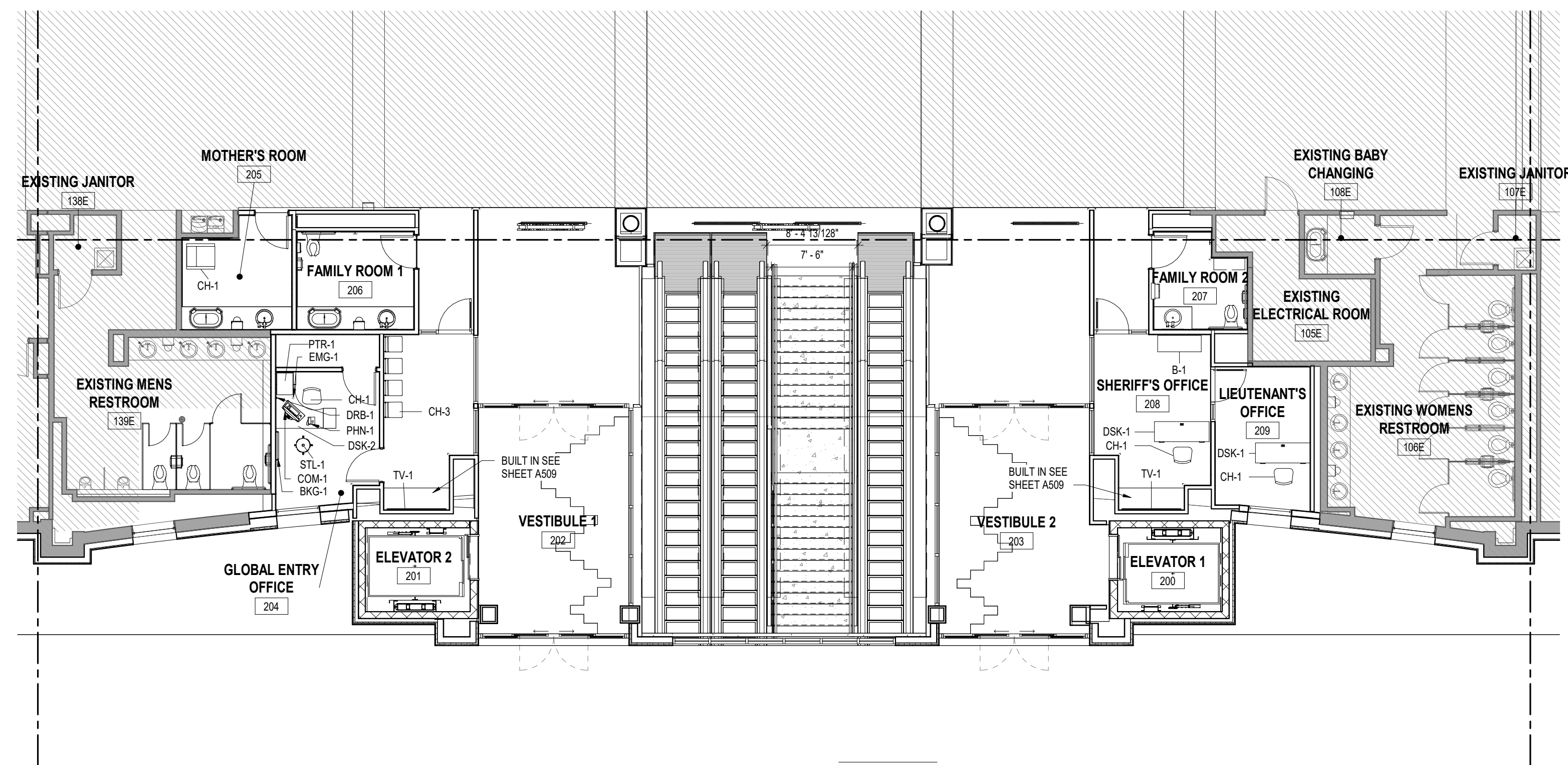




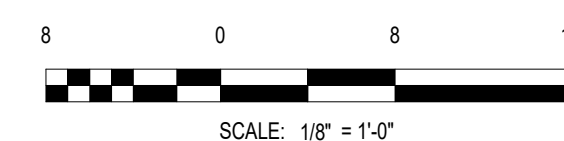




FF&E LEGEND						
TAG	DESCRIPTION	MANUFACTURER	POWER REQUIREMENT	COMMENTS	COUNT	Type Image
B-1	72" BENCH	GRID	NO	BENCH TOP: 1/2" THICK SOLID SURFACE WITH 1 1/2" DROP EDGE. PROVIDE 18" EASED EDGES ON BENCH SIDES. SUBSTRATE IS SOLID PLYWOOD ROUTED TO CONNECT THE 6" BASE PLATE. 0 LEG PEDESTAL LEGS. 1-1/2" W X 1/4" THICK POWDER COATED SILVER EXTRUDED STAINLESS STEEL	2	
B-2	60" BENCH	GRID	NO	BENCH TOP: 1/2" THICK SOLID SURFACE WITH 1 1/2" DROP EDGE. PROVIDE 18" EASED EDGES ON BENCH SIDES. SUBSTRATE IS SOLID PLYWOOD ROUTED TO CONNECT THE 6" BASE PLATE. 0 LEG PEDESTAL LEGS. 1-1/2" W X 1/4" THICK POWDER COATED SILVER EXTRUDED STAINLESS STEEL	2	
B-3	48" BENCH	GRID	NO	BENCH TOP: 1/2" THICK SOLID SURFACE WITH 1 1/2" DROP EDGE. PROVIDE 18" EASED EDGES ON BENCH SIDES. SUBSTRATE IS SOLID PLYWOOD ROUTED TO CONNECT THE 6" BASE PLATE. 0 LEG PEDESTAL LEGS. 1-1/2" W X 1/4" THICK POWDER COATED SILVER EXTRUDED STAINLESS STEEL	1	
B-4	42" BENCH	GRID	NO	BENCH TOP: 1/2" THICK SOLID SURFACE WITH 1 1/2" DROP EDGE. PROVIDE 18" EASED EDGES ON BENCH SIDES. SUBSTRATE IS SOLID PLYWOOD ROUTED TO CONNECT THE 6" BASE PLATE. 0 LEG PEDESTAL LEGS. 1-1/2" W X 1/4" THICK POWDER COATED SILVER EXTRUDED STAINLESS STEEL	1	
B-5	36" BENCH	GRID	NO	BENCH TOP: 1/2" THICK SOLID SURFACE WITH 1 1/2" DROP EDGE. PROVIDE 18" EASED EDGES ON BENCH SIDES. SUBSTRATE IS SOLID PLYWOOD ROUTED TO CONNECT THE 6" BASE PLATE. 0 LEG PEDESTAL LEGS. 1-1/2" W X 1/4" THICK POWDER COATED SILVER EXTRUDED STAINLESS STEEL	1	
CH-1	DESK CHAIR	GLOBAL FURNITURE GROUP	NO	BENCH TOP: 1/2" THICK SOLID SURFACE WITH 1 1/2" DROP EDGE. PROVIDE 18" EASED EDGES ON BENCH SIDES. SUBSTRATE IS SOLID PLYWOOD ROUTED TO CONNECT THE 6" BASE PLATE. 0 LEG PEDESTAL LEGS. 1-1/2" W X 1/4" THICK POWDER COATED SILVER EXTRUDED STAINLESS STEEL	3	
DSK-2	DESK FOR HEIGHT ADJUSTABLE BASE	GLOBAL FURNITURE GROUP	YES	DESK TOP: 1/2" THICK SOLID SURFACE WITH 1 1/2" DROP EDGE. PROVIDE 18" EASED EDGES ON BENCH SIDES. SUBSTRATE IS SOLID PLYWOOD ROUTED TO CONNECT THE 6" BASE PLATE. 0 LEG PEDESTAL LEGS. 1-1/2" W X 1/4" THICK POWDER COATED SILVER EXTRUDED STAINLESS STEEL	1	
L-1	12" W X 12" D X 72" H DOUBLE TIER METAL LOCKER WITH VENTED DOORS	ASI	NO	CONTINUOUS WHITE SLOPED TOP, ZEE BASE. LOCKS. LOCKER NUMBER, COLOR: WHITE #29. REFER TO SPECIFICATION 10 51 13 FOR ADDITIONAL INFORMATION.	28	
L-2	12" W X 12" D X 72" H DOUBLE TIER METAL LOCKER WITH VENTED DOORS	ASI	NO	CONTINUOUS WHITE SLOPED TOP, ZEE BASE. LOCKS. LOCKER NUMBER, COLOR: SKY BLUE #31. REFER TO SPECIFICATION 10 51 13 FOR ADDITIONAL INFORMATION.	40	
STL-1	STOOL ON CASTERS	KIMBALL	NO	PRODUCT NAME: WHIMSY, DOUBLE WHEEL CASTERS, PNEUMATIC HEIGHT ADJUSTMENT, UPHOLSTERY: KRYPTON	1	



**A1** PARTIAL TICKETING LEVEL FUNITURE PLAN - AREA B  
SCALE: 1/8" = 1'-0"



### FURNITURE NOTES & LEGEND

1. FURNITURE SHOWN FOR REFERENCE ONLY TO BE PROVIDED BY OWNER
- CH-1: MOTHERS ROOM CHAIR
- CH-2: OFFICE CHAIR
- CH-3: WAITING AREA CHAIR
- STL-1: STOOL
- BOH-1: HAND CUFF BENCH
- DSK-1: DESK
- DSK-2: MODULAR DESK WITH WALL CABINETS
- TV-1: WALL MOUNTED MONITOR
- BKG-1: CHANGEABLE BACKGROUND
- PRT-1: PRINTER
- COM-1: COMPUTER
- PHN-1: PHONE
- DRB-1: DOOR RELEASE BUTTON
- EMG-1: EMERGENCY BUTTON



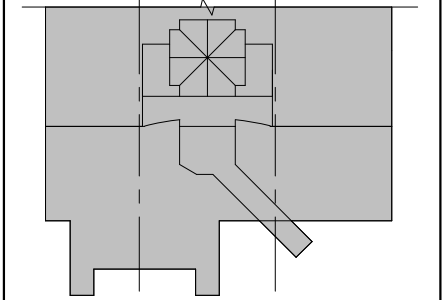
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F-0493 \* C-28



**PROJECT TITLE:**  
**ILM AIRPORT BOULEVARD AND**  
**PARKING IMPROVEMENTS - PHASE**  
**II**

**PROJECT ADDRESS:**  
1740 AIRPORT BLVD.  
WILMINGTON, NC 28405

### KEY PLAN



## REVISIONS

[illegible]

DATE ISSUED:	03/14/2025
REVIEWED BY:	SG
DRAWN BY:	KS
DESIGNED BY:	FG

SEAL:

FOR REVIEW ONLY  
NOT FOR CONSTRUCTION

**SHEET TITLE:**

**OVERALL TICKETING  
LEVEL FURNITURE  
PLAN**

**SHEET ID:**

A812

**PROJECT STATUS:**  
100% BID SET



## Bid Package – #07C – Insulated Metal Panels

### Description of Work

In general, this Bid Package is comprehensive to specific CSI Division Work and related Work as referenced, indicated on, or implied by the Project Drawings, Specifications and Project Manual. Subcontractor acknowledges that the following Scope of Work detail is provided as a complementary document and must be used in conjunction with all Project Documents. Scope of Work listed is not intended to describe a complete and final work scope. It is provided as a summary overview only.

The scope of the work is identified in the following Specification(s) and further described below:

Specification	Description
Division 00 (All)	Procurement and Contracting Requirements
Division 01 (All)	General Requirements
07 42 00	Perforated Metal Wall Panels
07 42 13.19	Insulated Metal Wall Panels
<b>07 42 13.23</b>	<b>Metal Composite Material Wall Panels</b>
07 62 00	Sheet Metal Flashing and Trim
07 92 00	Joint Sealants
05 58 13	Metal Column Covers
05 70 00	Decorative Metal

### Scope of Work Summary/Inclusions:

It is understood and agreed that this **Insulated Metal Panels** package includes all inclusions as described in the following subparagraphs regardless of whether or not they are included in the above specifications or any other specification section or shown on the plans:

#### *Trade Specific Requirements:*

1. This Subcontractor shall provide all metal composite wall panels, aluminum siding, aluminum soffits, and all trim, attachment systems, cavity insulation, sealants, closures, framing, etc. for a complete system from the face of air barriers (provided by others) to face of finished assemblies.
2. Includes all insulation behind metal panels and rainscreens.
3. All metal wall panels and rainscreens shall be field measured prior to fabrication of materials or fabricated based on hold dimensions provided by CMAR.
4. Includes selection of metal panel materials from manufacturers full range of colors and finishes including metallic finishes.
5. Includes all miscellaneous sub framing including Z girts, hat channels, or other furring/framing members required for completion of metal panels, aluminum siding, and rainscreen scope of work.
6. Includes rainscreen attachment systems meeting structural requirements as well as thermal and building envelope requirements

7. Rainscreen attachment systems shall not utilize continuous framing profiles penetrating insulation. Utilize clips vertically to substrate, vertical angle rails to clips, and horizontal hat channel rails attached to vertical rails as required.
8. Provide thermal insulation of rainscreen attachment system and fasteners as indicated in specifications.
9. Inspect all substrates prior to installation of materials and shim or align panels as required to achieve plumb and planar final installation.
10. Include shop drawings stamped by a licensed structural engineer in the state of North Carolina detailing all panel sizes, fastening, engineering and structural calculations, Sealant locations, flashings, transitions, terminations, closures, attachment systems, etc.
11. Provide flat strapping or additional rails as required for attachment of panels at panel ends.
12. Provide all closures, flashing, angles, transitions, etc. as required to neatly trim and provide moisture protection to all adjacent finishes. Include all trims indicated as “matching Metal Panel color”
13. Remove all protective films after completion of installations.
14. Provide phased delivery and installation of materials as required by CMAR.
15. Provide all metal panel to metal panel joint sealants required. Metal panels to adjacent non similar materials will be by waterproofing contractor.
16. Provide wet seals to all horizontal metal panels installations or where indicated.
17. Include all drop column covers with laser cut silver metallic finish and include stainless steel base. Metal framing will be done by drywall scope.
18. Include mockups of all assemblies, corners, transitions, terminations, soffits, supports, attachments, and accessories. Delivery and installation of mockup materials to be expedited.
19. *Per Addendum 3, include perforated wall panels and aluminum support structure at parking garage. Subcontractor to assume all anchor plates and anchors will be post fixed and by the subcontractor. Support structure to be delegated design by the subcontractor.*

*Scope Specific Safety Requirements:*

1. This subcontractor shall provide and install the following safety related materials:
2. Leading edge protection and warning flags from the start of roof to final acceptance of roof. Leading edge to be established from each entry stair to full perimeter of roof area.
3. The parapet is not suitable height for fall prevention and all Monteith and OSHA regulations related to fall protection will be enforced while working on the roof.
4. Provide project specific Safety manual to construction manager prior to commencing work. Include the following:



5. Hoisting plans for materials
6. Project specific fall protection plan.
7. Identification of OSHA approved competent person onsite daily.
8. MSDS documentation

*Project Specific Scope of Work Inclusions:*

1. The following is provided as a courtesy and is not intended to fully represent the scope of work required by plans and specifications. Drawing references are intended to be references to similar details relevant to the scope and may not be limited to the details referenced.
2. Provide any flashings installed behind metal panels including thruwall flashings, head of wall flashing, two piece counter flashings, etc.
3. Provide all aluminum J trims or aluminum angle trims at insulation terminations where indicated adjacent to metal panels or as “color to match soffit (or metal Panel)”
4. Provide flexible flashings above thruwall flashing installed behind metal panels or rainscreen attachment systems. Includes flexible flashing, termination bar with caulking on top edge, and peel and stick transition membrane over termination bar.
5. Provide “J style” metal closure trims around all penetrations in ribbed metal panels. Closure trims to be sealed to air barriers and extend to outside of widest rib.
6. Include prefinished metal coping top of wall at metal panels.

*Schedule Requirements:*

**TIME IS OF THE ESSENCE**

Due to the nature of the project and the extreme cost of delayed delivery of the project, every effort shall be made by the Subcontractor to meet or improve upon the scheduled durations and dates provided below. The subcontractor shall contract with material suppliers, manufacturers, or vendors that have adequate capacity to supply materials or labor as required per schedule. Additionally, the subcontractor has included, in their base bid, sufficient manpower to achieve the below dates and concurrent workflows as required to complete the project on, or ahead of, schedule.

The below schedule requirements are contractually binding for durations of activities indicated. The dates associated with each activity are subject to change based on coordination with other trades, however durations shall remain constant.

1. *Submittals and Shop Drawings:*

- Shop Drawings: 8 weeks to submit
- Drawings Approval: 2 week for review

*Allowances and Unit Prices:*

Lump sum and quantity allowances, when included, are to be utilized only when authorized, in writing, by the Construction Manager. Allowances are in addition to the requirements stated in this

bid package or contract documents and are not to be used for costs associated with the required scope of work. All allowances are to be carried in the base bid.

*Lump Sum Allowances:*

Lump Sum Allowances are those listed herein with fixed dollar amounts and are representative of the direct cost of the work performed. As such, overhead and profit is included in the base contract. In the event that a lump sum allowance is not utilized in full, applicable markups will be deducted from the remaining contract amount. Should the fixed dollar amount allowance be exceeded in the execution of the work as directed by Monteith, the subcontract will be increased by the direct cost of work plus overhead and profit as outlined in the General Conditions of the Contract. Utilization of a lump sum allowance is based on established unit rates, or on a time and material basis where Unit Prices are not specified.

*Quantity Allowances:*

Quantity allowances, when included, are to be carried at the quantity specified and a unit rate provided for each distinct unit requested in addition to the quantities required per contract documents. Reconciliation of quantity allowances will be based on agreed upon unit rates. All unutilized allowances will be deducted from the subcontract amount at the completion of this Scope of Work. The Unit Price may also be used to increase the contract sum as required or authorized by Monteith. Unit prices shall include all costs, benefits, overhead and fees. Total cost of quantity allowances are to be stated on bid forms.

**A summary of allowances are as follows:**

*Lump Sum Allowances:*

1. N/A

*Quantity Allowances:*

1. N/A

*Alternates:*

Alternates listed in the bid documents shall be carefully reviewed for impacts to the scope of this bid package. Alternate Prices shall include all costs associated with the changes, omissions, additions, or other adjustments to the work of the Bid Package as described in the alternate, or are reasonably inferable there from. Claims for extras resulting from changes caused by the acceptance or rejection of any alternate will not be allowed. Alternate Prices shall also include all cost of overhead, profit, and bond premiums associated with the work of the Alternate whether additive or deductive. The Drawings, Specifications, Project Manual, Addendum(s), and other Contract Documents shall be considered appropriately modified by either the acceptance or rejection of the various Alternatives. The Construction Manager and Owner expressly reserve the right to accept or reject any, or all, Alternate Prices and in any sequence. Acceptance or rejection of any alternate does not relieve the Bidder of timely completion of the Work within the time periods indicated.



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**Add Alternate No. 1 (Locker Room) – See Drawings Volume 2 Alternate No. 1**

All work to rooms 115,116, 117,118

**Add Alternate No. 2 (History Corridor)– See Drawings Volume 2 Alternate No. 2**

All work to rooms 109, 110,119,120,121,122, Corridor Outside of Locker Rooms

**Deduct Alternate No. 3 (Drop Off Canopy Reduction) – See Drawings Volume 2  
Alternate No. 3**

Revise layout of entry canopy.

**Deduct Alternate No. 4 (Delete Tunnel) – See Drawings Volume 2 Alternate No. 4**

Delete all work to Connector 112, Atrium 111, Elevator 1 and 2,  
Mechanical Room 124, Storage 123

100% Bid Set Submittal - Addendum 3  
Date: 5-2-2025

Project: ILM Airport Boulevard – Parking Improvements Program  
Phase 2 – Volume 1

RS&H Project No.: 2003-0070-006

-----  
Revised Contract Documents. See the itemized list below.

**Contract Drawings**

A106 - PARTIAL SECOND FLOOR PLAN - AREA B  
**ADDED** SECTION AND PERFORATED METAL PANELS

A108 - PARTIAL THIRD FLOOR PLAN - AREA A  
**ADDED** SCUPPER AND PLAN DETAIL CALLOUT  
**ADDED** SCUPPERS

A109 - PARTIAL THIRD FLOOR PLAN - AREA B  
**ADDED** SECTION AND PERFORATED METAL PANELS  
**ADDED** SCUPPERS

A201 - BUILDING ELEVATIONS  
**ADDED** PERFORATED METAL PANELS

A311 - GARAGE WALL SECTIONS  
**ADDED** SECTION

A504 - PERFORATED METAL PANEL DETAILS  
**ADDED** SHEET AND DETAILS FOR PERFORATED METAL PANEL

A505 - SCUPPER DETAILS  
**ADDED** SHEET AND DETAILS FOR SCUPPER DETAILS

EL111  
**ADD** SAIL LIGHTING

EL131  
**UPDATE/ADD** VERTICAL CORE AND SAIL LIGHTING

EP111  
**UPDATE** GRAPHIC SCALE



EL601

**UPDATE** LUMINAIRE SCHEDULES

EL602

**UPDATE** LUMINAIRE SCHEDULE

EP602

**UPDATE** PANEL SCHEDULES WITH ADDITIONAL LOADS

### **Specifications**

05 51 13 – Metal Pan Stair

**REVISED** specification.

09 91 13 – Exterior Painting

**REVISED** specification. Section 3.6

END OF NARRATIVE

100% Bid Set Submittal - Addendum 3  
Date: 5-2-2025

Project: ILM Airport Boulevard – Parking Improvements Program  
Phase 2 – Volume 2 **Alternate 2**

RS&H Project No.: 2003-0070-006

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Revised Contract Documents. See the itemized list below.

**Contract Drawings**

A803-2 - PARTIAL RAMP LEVEL INTERIOR FINISH PLAN - AREA B & AREA C  
FLOORING TYPE UPDATED

END OF NARRATIVE



100% Bid Set Submittal - Addendum 3  
Date: 5-2-2025

Project: ILM Airport Boulevard – Parking Improvements Program  
Phase 2 – Volume 2 **Alternate 2**

RS&H Project No.: 2003-0070-006

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Revised Contract Documents. See the itemized list below.

**Contract Drawings**

A401-4 - ENLARGED VESTIBULE PLANS AND ELEVATIONS  
ADDED DOOR TAGS

END OF NARRATIVE

100% Bid Set Submittal - Addendum 3  
Date: 5-2-2025

Project: ILM Airport Boulevard – Parking Improvements Program  
Phase 2 – Volume 2 **Base Bid**

RS&H Project No.: 2003-0070-006

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Revised Contract Documents. See the itemized list below.

**Contract Drawings**

A811 - FLOOR FINISH TRANSITION DETAILS  
FLOOR DRAIN DETAIL REMOVED

A812 - OVERALL TICKETING LEVEL FURNITURE PLAN  
DESK CLARIFICATION

**Specifications**

05 51 13 – Metal Pan Stair  
**REVISED** specification.

09 91 13 – Exterior Painting  
**REVISED** specification. Section 3.6

END OF NARRATIVE



## SECTION 05 51 13 - METAL PAN STAIRS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Preassembled steel stairs with concrete-filled treads.
  - 2. Steel tube railings and guards attached to metal stairs.
  - 3. Steel tube handrails attached to walls adjacent to metal stairs.

#### 1.2 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for metal stairs, railings, and guards.
  - 1. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, blocking for attachment of wall-mounted handrails, and items with integral anchors, that are to be embedded in concrete or masonry.
  - 2. Deliver such items to Project site in time for installation.
- C. Coordinate locations of hanger rods and struts with other work so they do not encroach on required stair width and are within fire-resistance-rated stair enclosure.
- D. Schedule installation of railings and guards so wall attachments are made only to completed walls.
  - 1. Do not support railings and guards temporarily by any means that do not satisfy structural performance requirements.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For metal pan stairs and the following:
  - 1. Perforated metal.
  - 2. Woven-wire mesh.
  - 3. Welded-wire mesh.

4. Prefilled metal-pan-stair treads.
5. Abrasive nosings.
6. Shop primer products.
7. Nonslip-aggregate concrete finish.
8. Abrasive-coating finish to formed-metal stairs.
9. Handrail wall brackets.
10. Grout.

B. Shop Drawings:

1. Include plans, elevations, sections, details, and attachments to other work.
2. Indicate sizes of metal sections, thickness of metals, profiles, holes, and field joints.
3. Include plan at each level.
4. Indicate locations of anchors, weld plates, and blocking for attachment of wall-mounted handrails.

C. Delegated Design Submittal: For stairs, railings and guards, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
  2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification.
1. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers.
  2. Protect steel members and packaged materials from corrosion and deterioration.



3. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures.
  - a. Repair or replace damaged materials or structures as directed.

## **PART 2 - PRODUCTS**

### **2.1 PERFORMANCE REQUIREMENTS**

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design stairs, railings and guards, including attachment to building construction.
- B. Structural Performance of Stairs: Metal stairs withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
  1. Uniform Load: 100 lbf/sq. ft. (4.79 kN/sq. m).
  2. Concentrated Load: 300 lbf (1.33 kN) applied on an area of 4 sq. in. (2580 sq. mm).
  3. Uniform and concentrated loads need not be assumed to act concurrently.
  4. Stair Framing: Capable of withstanding stresses resulting from railing and guard loads in addition to loads specified above.
  5. Limit deflection of treads, platforms, and framing members to  $L/360$  or 1/4 inch (6.4 mm), whichever is less.
- C. Structural Performance of Railings and Guards: Railings and guards, including attachment to building construction, withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
  1. Handrails and Top Rails of Guards:
    - a. Uniform load of 50 lbf/ft. (0.73 kN/m) applied in any direction.
    - b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
    - c. Uniform and concentrated loads need not be assumed to act concurrently.
  2. Infill of Guards:
    - a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m).
    - b. Infill load and other loads need not be assumed to act concurrently.
  3. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

- a. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- D. Seismic Performance of Stairs: Metal stairs withstand the effects of earthquake motions determined according to ASCE/SEI 7.
  - 1. Component Importance Factor: 1.0.

## 2.2 METALS

- A. Metal Surfaces: Provide materials with smooth, flat surfaces unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- C. Steel Tubing for Railings and Guards: ASTM A500/A500M (cold formed)
  - 1. Provide galvanized finish for exterior installations and where indicated.
- D. Steel Pipe for Railings and Guards: ASTM A53/A53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
  - 1. Provide galvanized finish for exterior installations and where indicated.
- E. Uncoated, Cold-Rolled Steel Sheet: ASTM A1008/A1008M, structural steel, Grade 25 (Grade 170), unless another grade is required by design loads; exposed.
- F. Uncoated, Hot-Rolled Steel Sheet: ASTM A1011/A1011M, steel, Grade 30 (Grade 205), unless another grade is required by design loads.
- G. Galvanized Steel Sheet: ASTM A653/A653M, G90 (Z275) coating, structural steel, Grade 33 (Grade 230), unless another grade is required by design loads.
- H. Perforated Metal, Uncoated: Cold-rolled steel sheet, ASTM A1008/A1008M, or hot-rolled steel sheet, ASTM A1011/A1011M, commercial steel Type B, thickness and pattern indicated on architectural drawings.

## 2.3 FASTENERS

- A. General: Provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5 where built into exterior walls.
  - 1. Select fasteners for type, grade, and class required.

- B. Fasteners for Anchoring Railings and Guards to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings and guards to other types of construction indicated and capable of withstanding design loads.
- C. Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A; with hex nuts, ASTM A563 (ASTM A563M); and, where indicated, flat washers.
- D. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563 (ASTM A563M); and, where indicated, flat washers.
  - 1. Provide mechanically deposited or hot-dip, zinc-coated anchor bolts for exterior stairs.
- E. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E488/E488M, conducted by a qualified independent testing agency.
  - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.
  - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 2 (A4) stainless steel bolts, ASTM F593, and nuts, ASTM F594 (ASTM F836M).

## 2.4 MISCELLANEOUS MATERIALS

- A. Welding Electrodes: Comply with AWS requirements.
- B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
  - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
- C. Zinc-Rich Primer: Comply with SSPC-Paint 20, Type II, Level 2, and compatible with topcoat.
- D. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish system indicated.
- E. Galvanizing Repair Paint: High-zinc-dust-content paint complying with ASTM A780/A780M and compatible with paints specified to be used over it.



- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- G. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout; recommended by manufacturer for exterior use; noncorrosive and nonstaining; mixed with water to consistency suitable for application and a 30-minute working time.
- H. Prefilled Concrete Treads:
  - 1. Concrete Materials and Properties: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with minimum 28-day compressive strength of 3000 psi (20 MPa) and maximum aggregate size of 1/2 inch (13 mm) unless otherwise indicated.
  - 2. Nonslip-Aggregate Concrete Finish: Factory-packaged abrasive aggregate made from fused, aluminum-oxide grits or crushed emery; rustproof and nonglazing; unaffected by freezing, moisture, or cleaning materials.
  - 3. Plain Steel Welded-Wire Reinforcement: ASTM A1064/A10645M, galvanized steel, 6 by 6 inches (152 by 152 mm), W1.4 by W1.4, unless otherwise indicated on Drawings.
  - 4. Reinforcement Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening welded-wire reinforcement in place.
    - a. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete.
- I. For galvanized reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

## 2.5 FABRICATION, GENERAL

- A. Provide complete stair assemblies, including metal framing, hangers, struts, railings and guards, clips, brackets, bearing plates, and other components necessary to support and anchor stairs and platforms on supporting structure.
  - 1. Join components by welding unless otherwise indicated.
  - 2. Use connections that maintain structural value of joined pieces.
- B. Assemble stairs, railings, and guards in shop to greatest extent possible.
  - 1. Disassemble units only as necessary for shipping and handling limitations.
  - 2. Clearly mark units for reassembly and coordinated installation.
- C. Cut, drill, and punch metals cleanly and accurately.

1. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated.
  2. Remove sharp or rough areas on exposed surfaces.
- D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- E. Form exposed work with accurate angles and surfaces and straight edges.
- F. Weld connections to comply with the following:
1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  2. Obtain fusion without undercut or overlap.
  3. Remove welding flux immediately.
  4. Weld exposed corners and seams continuously unless otherwise indicated.
  5. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 - No evidence of welded joint
- G. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible.
1. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts unless otherwise indicated.
  2. Locate joints where least conspicuous.
  3. Fabricate joints that will be exposed to weather in a manner to exclude water.
  4. Provide weep holes where water may accumulate internally.

## 2.6 FABRICATION OF STEEL-FRAMED STAIRS

- A. NAAMM Stair Standard: Comply with NAAMM AMP 510, "Metal Stairs Manual," for Architectural Class, unless more stringent requirements are indicated.
- B. Stair Framing:
1. Stringers: Fabricate of steel channels unless indicated otherwise on Drawings.
    - a. Stringer Size: As required to comply with "Performance Requirements" Article
    - b. Provide closures for exposed ends of channel and rectangular tube stringers.
    - c. Finish: Galvanized.

2. Platforms: Construct of steel channel or steel rectangular tube headers and miscellaneous framing members as required to comply with "Performance Requirements" Article.
    - a. Provide closures for exposed ends of channel and rectangular tube framing.
    - b. Finish: Galvanized.
  3. Weld or bolt stringers to headers; weld or bolt framing members to stringers and headers. If using bolts, fabricate and join so bolts are not exposed on finished surfaces.
- C. Metal Pan Stairs: Form risers, subtread pans, and subplatforms to configurations shown from steel sheet of thickness needed to comply with performance requirements, but not less than 0.067 inch (1.7 mm).
1. Fabricate treads and landing subplatforms of exterior stairs so finished walking surfaces slope to drain.
  2. Steel Sheet, Uncoated: Cold-rolled steel sheet unless otherwise indicated.
  3. Galvanized Steel Sheet: Galvanized steel sheet
  4. Directly weld metal pans to stringers; locate welds on top of subtreads where they will be concealed by concrete fill. Do not weld risers to stringers.
  5. Shape metal pans to include nosing integral with riser.
  6. Attach abrasive nosings to risers.
  7. At Contractor's option, provide stair assemblies with metal pan subtreads filled with reinforced concrete during fabrication.

## 2.7 FABRICATION OF STAIR RAILINGS AND GUARDS

- A. Comply with applicable requirements in Section 055213 "Pipe and Tube Railings."
- B. Fabricate railings and guards to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of member, post spacings, wall bracket spacing, and anchorage, but not less than that needed to withstand indicated loads.
1. Rails and Posts: 1-5/8-inch- (41-mm-) diameter top and bottom rails and 1-1/2-inch- (38-mm-) square posts.
  2. Picket Infill: 3/4-inch- (19-mm-) round pickets spaced to prohibit the passage of a 4-inch (100-mm) diameter sphere.
  3. Perforated-Metal Infill: Perforated-metal panels edged with U-shaped channels made from metal sheet, of same metal as perforated metal, and not less than 0.043 inch (1.1 mm) thick. Orient perforated metal with pattern as indicated on Drawings.



4. Intermediate Rails Infill: 1-5/8-inch- (41-mm-) diameter intermediate rails spaced less than 12 inches (305 mm) clear.
- C. Welded Connections: Fabricate railings and guards with welded connections.
1. Fabricate connections that are exposed to weather in a manner that excludes water.
    - a. Provide weep holes where water may accumulate internally.
  2. Cope components at connections to provide close fit, or use fittings designed for this purpose.
  3. Weld all around at connections, including at fittings.
  4. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  5. Obtain fusion without undercut or overlap.
  6. Remove flux immediately.
  7. Finish welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 - No evidence of a welded joint as shown in NAAMM AMP 521.
- D. Form changes in direction of railings and guards as follows:
1. By flush bends or by inserting prefabricated flush-elbow fittings.
- E. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- F. Close exposed ends of railing and guard members with prefabricated end fittings.
- G. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated.
1. Close ends of returns unless clearance between end of rail and wall is 1/4 inch (6 mm) or less.
- H. Connect posts to stair framing by direct welding unless otherwise indicated.
- I. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnecting components and for attaching to other work.
1. Furnish inserts and other anchorage devices for connecting to concrete or masonry work.
  2. For galvanized railings and guards, provide galvanized fittings, brackets, fasteners, sleeves, and other ferrous-metal components.

3. For nongalvanized railings and guards, provide nongalvanized ferrous-metal fittings, brackets, fasteners, and sleeves, except galvanize anchors embedded in exterior masonry and concrete construction.
- J. Fillers: Provide fillers made from steel plate, or other suitably crush-resistant material, where needed to transfer wall bracket loads through wall finishes to structural supports.
  1. Size fillers to suit wall finish thicknesses and to produce adequate bearing area to prevent bracket rotation and overstressing of substrate.

## 2.8 FINISHES

- A. Finish metal stairs after assembly.
- B. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
  1. Do not quench or apply post-galvanizing treatments that might interfere with paint adhesion.
  2. Fill vent and drain holes that are exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- C. Preparation for Shop Priming: Prepare uncoated, ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."
- D. Apply shop primer to uncoated surfaces of metal stair components, except those with galvanized finishes and those to be embedded in concrete or masonry unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify elevations of floors, bearing surfaces and locations of bearing plates, and other embedments for compliance with requirements.
  1. For wall-mounted railings, verify locations of concealed reinforcement within gypsum board and plaster assemblies.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION OF METAL PAN STAIRS

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal stairs to in-place construction.
  - 1. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal stairs. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.
- C. Install metal stairs by welding stair framing to steel structure or to weld plates cast into concrete unless otherwise indicated.
  - 1. Grouted Baseplates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates.
    - a. Clean bottom surface of plates.
    - b. Set plates for structural members on wedges, shims, or setting nuts.
    - c. Tighten anchor bolts after supported members have been positioned and plumbed.
    - d. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
    - e. Promptly pack grout solidly between bearing surfaces and plates so no voids remain.
      - 1) Neatly finish exposed surfaces; protect grout and allow to cure.
      - 2) Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- E. Fit exposed connections accurately together to form hairline joints.
  - 1. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations.
  - 2. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
  - 3. Comply with requirements for welding in "Fabrication, General" Article.
- F. Place and finish concrete fill for treads and platforms to comply with Section 03 30 00 "Cast-in-Place Concrete."
  - 1. Install abrasive nosings with anchors fully embedded in concrete.



2. Center nosings on tread width.
- G. Install precast concrete treads with adhesive supplied by manufacturer.
- H. Install precast terrazzo treads according to manufacturer's written instructions.

### 3.3 INSTALLATION OF RAILINGS AND GUARDS

- A. Adjust railing and guard systems before anchoring to ensure matching alignment at abutting joints with tight, hairline joints.
  1. Space posts at spacing indicated or, if not indicated, as required by design loads.
  2. Plumb posts in each direction, within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
  3. Align rails and guards so variations from level for horizontal members and variations from parallel with rake of stairs for sloping members do not exceed 1/4 inch in 12 feet (6 mm in 3.5 m).
  4. Secure posts, rail ends, and guard ends to building construction as follows:
    - a. Anchor posts to steel by welding or bolting to steel supporting members.
    - b. Anchor handrail and guard ends to concrete and masonry with steel round flanges welded to rail and guard ends and anchored with post-installed anchors and bolts.
- B. Install railing gates level, plumb, and secure for full opening without interference.
  1. Attach hardware using tamper-resistant or concealed means.
  2. Adjust hardware for smooth operation.
- C. Attach handrails to wall with wall brackets.
  1. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
  2. Secure wall brackets to building construction as required to comply with performance requirements.

### 3.4 REPAIR

- A. Touchup Painting:
  1. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

- a. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.
- B. Repair of Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

**END OF SECTION 05 51 13**

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## SECTION 09 91 13 - EXTERIOR PAINTING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Primers.
  - 2. Finish coatings.
  - 3. Floor sealers and paints.

- B. Related Requirements:

- 1. Section 05 12 00 "Structural Steel Framing" for shop priming of metal substrates.
  - 2. Section 05 50 00 "Metal Fabrications" for shop priming metal fabrications.
  - 3. Section 05 52 13 "Pipe and Tube Railings" for shop priming and painting pipe and tube railings.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- 1. Include preparation requirements and application instructions.
  - 2. Indicate VOC content.

- B. Samples for Verification: For each type of paint system and each color and gloss of topcoat.

- 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
  - 2. Apply coats on Samples in steps to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.

- C. Product Schedule: Use same designations indicated on Drawings and in the Exterior Painting Schedule to cross-reference paint systems specified in this Section. Include color designations.

#### 1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Paint Products: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

#### 1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
  - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
    - b. Other Items: Architect will designate items or areas required.
  - 2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

#### 1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air

temperatures are between 50 and 95 deg F (10 and 35 deg C).

- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Sherwin Williams
  - 2. Behr Process Corporation
  - 3. Benjamin Moore & Co.
  - 4. Dulux (formerly ICI Paints); a brand of AkzoNobel.
  - 5. Glidden Professional.
  - 6. Kwal Paint; Comex Group
- B. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include but are not limited to products listed in the Exterior Painting Schedule for the paint category indicated.

### **2.2 PAINT, GENERAL**

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
  - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.
- D. Colors: As selected by Architect from manufacturer's full range.



## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Concrete: 12 percent.
  - 2. Fiber-Cement Board: 12 percent.
  - 3. Masonry (Clay and Concrete Masonry Units): 12 percent.
  - 4. Wood: 15 percent.
  - 5. Portland Cement Plaster: 12 percent.
  - 6. Gypsum Board: 12 percent.
- C. Portland Cement Plaster Substrates: Verify that plaster is fully cured.
- D. Exterior Gypsum Board Substrates: Verify that finishing compound is dry and sanded smooth.
- E. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers.
- F. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - 1. Application of coating indicates acceptance of surfaces and conditions.

### **3.2 PREPARATION**

- A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified in this Section.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
  - 1. SSPC-SP 2.
  - 2. SSPC-SP 3.
  - 3. SSPC-SP 7/NACE No. 4.
  - 4. SSPC-SP 11.
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Wood Substrates:
  - 1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
  - 2. Sand surfaces that will be exposed to view, and remove sanding dust.
  - 3. Prime edges, ends, faces, undersides, and backsides of wood.
  - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

### 3.3 INSTALLATION

- A. Apply paints in accordance with manufacturer's written instructions.
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
  - 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
  - 4. Paint the entire exposed surface of window frames and sashes.
  - 5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - 6. Primers specified in the Exterior Painting Schedule may be omitted on items that are factory primed or factory finished if compatible with intermediate and topcoat coatings and acceptable to intermediate and topcoat paint manufacturers.
- B. Tint undercoats same color as topcoat but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
  - 1. Paint the following work where exposed to view:
    - a. Equipment, including panelboards and switch gear.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Tanks that do not have factory-applied final finishes.

### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written instructions, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written instructions.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
  1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
  2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
  3. Allow empty paint cans to dry before disposal.
  4. Collect waste paint by type and deliver to recycling or collection facility.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.6 EXTERIOR PAINTING SCHEDULE

- A. Steel, ~~and~~ Iron, Galvanized Metal and Aluminum Substrates:
  1. High-Performance Architectural System (Field painted system)
    - a. Prime Coat: Macropoxy 646, B58-620.
    - b. Intermediate Coat: Matching topcoat.
    - c. Topcoat: Topcoat: S-W Acrolon 218, B65 Series, [gloss].
  2. Water-Based Urethane Light-Industrial Coating System (Non-Coated Galvanized Metal):
    - a. Prime Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-1300 Series
    - b. Intermediate Coat: Matching topcoat.
    - c. Topcoat: S-W Acrolon 218, B65 Series, [gloss].



3. ~~Water-Based, Light Industrial Coating System:~~

- a. ~~Prime Coat: Shop primer specified in Section in which substrate is specified.~~
- b. ~~Intermediate Coat: Matching topcoat.~~
- c. ~~Topcoat: Exterior, water-based, light industrial coating, semigloss.~~

B. ~~Galvanized-Metal Substrates:~~

1. ~~Latex System:~~

- a. ~~Prime Coat: Water-based, galvanized-metal primer.~~
- b. ~~Intermediate Coat: Matching topcoat.~~
- c. ~~Topcoat: Exterior latex paint, semigloss.~~

C. ~~Aluminum Substrates:~~

1. ~~Latex System~~

- a. ~~Prime Coat: Quick-drying aluminum primer.~~
- b. ~~Intermediate Coat: Matching topcoat.~~
- c. ~~Topcoat: Exterior latex paint, semigloss.~~

**END OF SECTION 09 91 13**