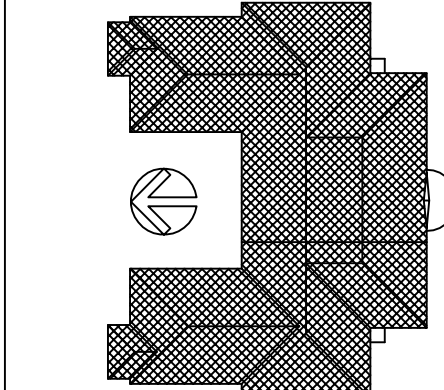


KEY PLAN



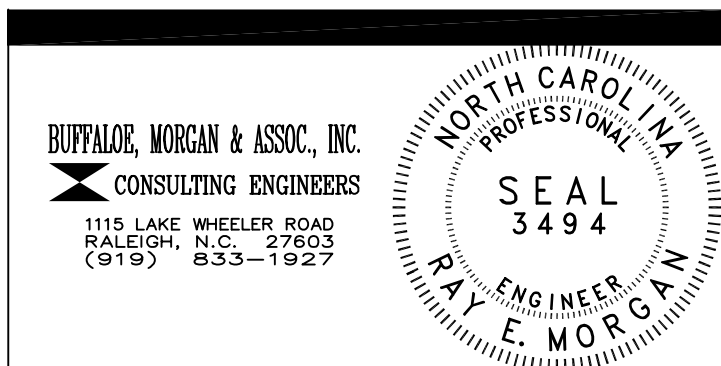
FP1
12
ATTIC
FLOOR PLAN
SCALE: 1/16" = 1'-0"

NOTES

1. FOR FIREWALL PENETRATIONS, REFER TO THE FOLLOWING DETAILS THIS SHEET:

1 HOUR RATED	2 HOUR RATED
FP1-105	FP1-101
FP1-106	FP1-102
FP1-107	FP1-103
	FP1-104
	FP1-105
	FP1-106
	FP1-107

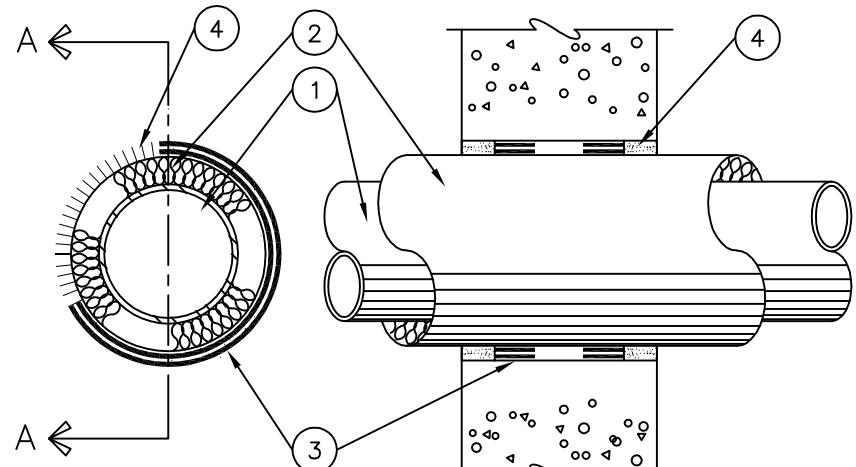
- ELECTRICAL OUTLET BOXES IN FIRE RATED WALLS SHALL NOT EXCEED 16 SQ. IN. SURFACE AREA WITH THE AGGREGATE SURFACE AREA OF MULTIPLE BOXES NOT EXCEEDING 100 SQ. IN. PER 100 SQ. FT. OF WALL SURFACE AREA. OUTLET BOXES ON OPPOSITE SIDES OF A FIRE RATED WALL SHALL BE SPACED MINIMUM 24" O.C. FOR HOLLOW WALL ASSEMBLIES (GYPSUM BOARD & STUD, ETC.). INSTALL OUTLET BOXES WITH MAXIMUM 1/8" CLEARANCE BETWEEN BOX AND WALL. FOR MASONRY UNIT WALL ASSEMBLIES, FILL VOID AREAS EXPOSED BY OUTLET BOX OPENING WITH CONCRETE, MORTAR OR GROUT WITHIN MINIMUM 4" OF BOX.
- AN EQUAL MEANS OF FIREPROOFING PENETRATIONS IS ACCEPTED WHEN APPROVED BY THE ENGINEER.



DRAWING REVISIONS:		
NO.	DATE:	REMARKS:

DATE: 16 MAY 1994
PROJECT#: 9305
DESIGNED BY: SAB
DRAWN BY: SMC
CHECKED BY: SAB
CHECKED BY: REM

SYSTEM NO. CAJ5002
FIRE RATING - 2 AND 3 HOUR
TEMPERATURE RATING - 1/2 AND 1 HOUR



SECTION A-A

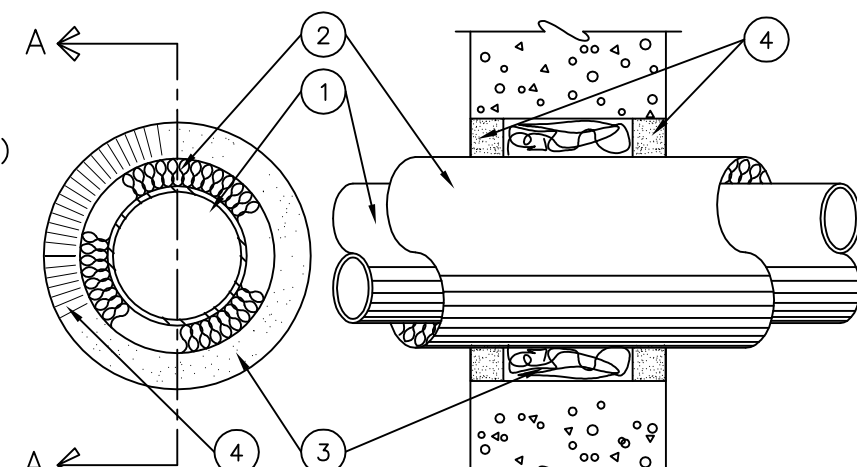
- PIPE: NOM. 4" DIA. (OR SMALLER) TYPE L (OR HEAVIER) COPPER PIPE OR NOM. 30" DIA. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE CENTERED IN THE OPENING AND RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY.
- PIPE COVERING: NOM. 1", 2" OR 3" THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN. 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET - LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR WITH BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT.
- FILL VOID OR CAVITY MATERIAL - WRAP STRIP: NOM. 1/4" THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2" WIDE x 24" LONG STRIPS - NOM. 2" W. STRIP TIGHTLY WRAPPED AROUND PIPE COVERING (FOIL SIDE EXPOSED) TO FILL ANNULAR SPACE - EACH LAYER OF WRAP STRIP IS TO BE INSTALLED WITH A BUTTED SEAM, WITH THE BUTTED SEAMS IN SUCCESSIVE LAYERS STAGGERED BOUND WITH STEEL WIRE OR ALUMINUM FOIL TAPE AND SLID INTO ANNULAR SPACE SUCH THAT THE TOP EDGES ARE RECESSED MIN. 1/2" FROM TOP SURFACE OF FLOOR - IN WALL ASSEMBLIES, THE WRAP STRIP LAYERS SHALL BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF THE WALL - THE MINIMUM NUMBER OF WRAP STRIPS LAYERS REQUIRED IS DEPENDENT UPON THE MAXIMUM PIPE SIZE AND THE PIPE COVERING THICKNESS, AS SHOWN BELOW.

MIN. FLOOR OR WALL THICKNESS (INCHES)	MAX. PIPE DIAMETER (INCHES)	NOM. PIPE COVERING THICKNESS (INCHES)	ANNULAR SPACE (INCHES)	MIN. NO. OF WRAP STRIP LAYERS	FIRE RATING (HOURS)	TEMPERATURE RATING (HOURS)
20	6	1	0 - 0	1	2	1
20	6	2	0 - 0	2	2	1
20	12	1	0 - 0	1	2	10
40	12	1	0 - 0	1	2	1
40	12	2	0 - 0	2	2	1
40	20	1	0 - 1	2	3	1
40	30	2	0 - 10	3	2	1
40	20	3	1 - 10	4	2	1

- FILL VOID OR CAVITY MATERIAL - CAULK: APPLIED TO FILL THE ANNULAR SPACE (OVER EDGES OF WRAP STRIP LAYERS) TO A MINIMUM DEPTH OF 1/2", FLUSH WITH TOP OF FLOOR SURFACE OR BOTH SURFACES OF WALL.

FP1
02
RATED FLOOR OR WALL PENETRATION - INSULATED PIPE
DETAIL
NO SCALE

SYSTEM NO. CAJ5001
FIRE RATING - 10, 2 AND 3 HOUR
TEMPERATURE RATING - 0, 1/2, 3/4 AND 1 HOUR



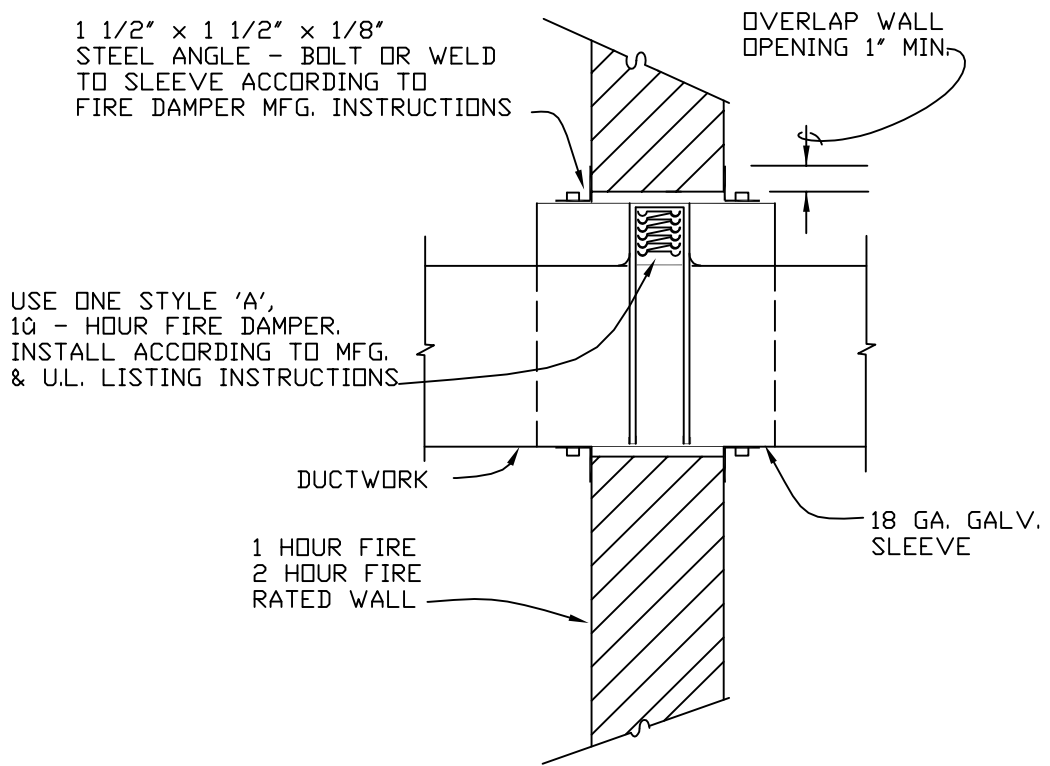
SECTION A-A

- PIPE: NOM. 4" DIA. (OR SMALLER) TYPE L (OR HEAVIER) COPPER PIPE OR NOM. 12" DIA. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE CENTERED IN THE OPENING AND RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY.
- PIPE COVERING: NOM. 1" OR 2" THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN. 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET - LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR WITH BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT.
- PACKING MATERIAL: MIN. 1" THICKNESS OF FIRMLY PACKED MINERAL WOOL BATT INSULATION USED AS A PERMANENT FORM - PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM 4).
- FILL VOID OR CAVITY MATERIAL - CAULK: APPLIED TO FILL THE ANNULAR SPACE FLUSH WITH THE TOP SURFACE OF THE FLOOR OR FLUSH WITH BOTH SURFACES OF THE WALL - WHEN NOM. PIPE COVERING THICKNESS IS 2", THE MINIMUM THICKNESS OF CAULK FILL MATERIAL IS 2" - WHEN NOM. PIPE COVERING THICKNESS IS 1", THE MINIMUM THICKNESS OF CAULK FILL MATERIAL IS 1".

THE HOURLY FIRE AND TEMPERATURE RATINGS OF THE FIRESTOP SYSTEM ARE DEPENDENT UPON THE THICKNESS OF THE FLOOR OR WALL, THE SIZE OF THE PIPE, THE THICKNESS OF THE PIPE COVERING MATERIAL, THE SIZE OF THE ANNULAR SPACE (BETWEEN THE PIPE COVERING MATERIAL) AND THE EDGE OF THE CIRCULAR THROUGH OPENING AND THE FILL MATERIAL TYPE, AS SHOWN BELOW.

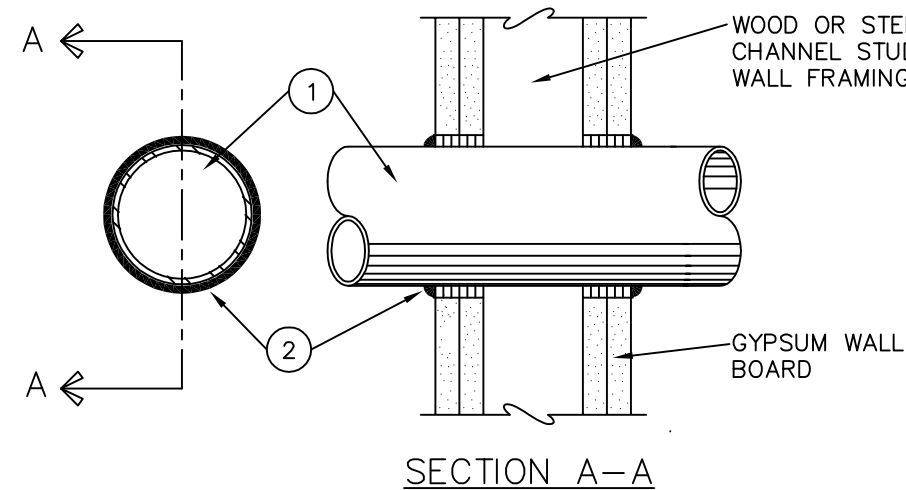
MIN. FLOOR OR WALL THICKNESS (INCHES)	MAX. PIPE DIAMETER (INCHES)	NOM. PIPE COVERING THICKNESS (INCHES)	ANNULAR SPACE (INCHES)	FIRE RATING (HOURS)	TEMPERATURE RATING (HOURS)
20	4	1	0 - 0	2	1
40	4	1	0 - 1	3	1
40	4	2	10 - 2	2	10
20	12	1	0 - 1	2	0
20	12	1	0 - 10	2	0
40	12	1	1 - 10	2	0
40	12	1	0 - 0	3	1
40	12	1	1 - 10	10	0

FP1
01
RATED FLOOR OR WALL PENETRATION - INSULATED PIPE
DETAIL
NO SCALE



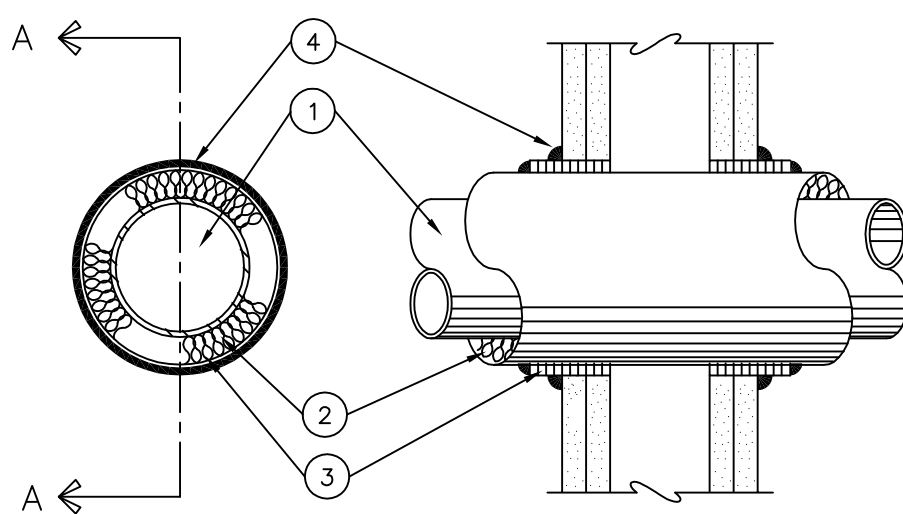
FP1
06
RATED WALL PENETRATION - DUCT
DETAIL
NO SCALE

SYSTEM NO. WL1001
FIRE RATING - 1, 2, 3, AND 4 HOUR
TEMPERATURE RATING - 0, 1, 2, 3, AND 4 HOUR



SECTION A-A

SYSTEM NO. WL5001
FIRE RATING - 1 AND 2 HOUR
TEMPERATURE RATING - 1 AND 10 HOUR



SECTION A-A

FIRESTOP SYSTEM SHALL BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY - THE HOURLY FIRE RATING OF THE FIRESTOP SYSTEM IS 1 HOUR WHEN INSTALLED IN A 1 HOUR FIRE RATED WALL AND IS 2 HOURS WHEN INSTALLED IN A 2 HOUR FIRE RATED WALL - THE T-RATINGS OF THE FIRESTOP SYSTEM IS 1 HOUR WHEN INSTALLED IN A 1 HOUR FIRE RATED WALL AND 10 HOURS WHEN INSTALLED IN A 2 HOUR FIRE RATED WALL ASSEMBLY.

- PIPE: NOM. 12" DIA. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE NOM. 4" DIA. (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING - STEEL PIPES LARGER THAN NOM. 4" DIA. MAY ONLY BE USED IN WALLS CONSTRUCTED USING STEEL CHANNEL STUDS - A MAX. OF ONE PIPE IS PERMITTED IN THE FIRESTOP SYSTEM - PIPE TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.
- PIPE COVERING: NOM. 1" OR 2" THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN. 3.5PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET - LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY APPLIED SELF-SEALING LAP TAPE - TRANSVERSE JOINTS SEALED WITH METAL FASTENERS OR WITH BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT - WHEN NOM. 1" THICK PIPE COVERING IS USED, THE ANNULAR SPACE BETWEEN THE PIPE COVERING AND THE CIRCULAR CUTOUT IN THE GYPSUM WALLBOARD LAYERS ON EACH SIDE OF THE WALL SHALL BE MIN. 1/4" TO MAX. 3/8" - WHEN NOM. 2" THICK PIPE COVERING IS USED, THE ANNULAR SPACE BETWEEN THE PIPE COVERING AND THE CIRCULAR CUTOUT IN THE GYPSUM WALLBOARD LAYERS ON EACH SIDE OF THE WALL SHALL BE MIN. 1/2" TO MAX. 3/4".
- FILL VOID OR CAVITY MATERIAL - WRAP STRIP: NOM. 1/4" THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2" WIDE STRIPS - NOM. 2" WIDE STRIP TIGHTLY WRAPPED AROUND PIPE COVERING (FOIL SIDE OUT) WITH SEAM BUTTED - WRAP STRIP LAYER SECURELY BOUND WITH STEEL WIRE OR ALUMINUM FOIL TAPE AND SLID INTO ANNULAR SPACE APPROX. 10" SUCH THAT APPROX. 3/4" OF THE WRAP STRIP WIDTH PROTRUDES FROM THE WALL SURFACE - ONE LAYER OF WRAP STRIP IS REQUIRED WHEN NOM. 1" THICK PIPE COVERING IS USED; TWO LAYERS OF WRAP STRIP ARE REQUIRED WHEN NOM. 2" THICK PIPE COVERING IS USED.
- FILL VOID OR CAVITY MATERIAL - CAULK: MIN. 1/4" DIA. CONTINUOUS BEAD APPLIED TO WRAP STRIP/WALL INTERFACE AND TO THE EXPOSED EDGE OF THE WRAP STRIP LAYER APPROX. 3/4" FROM THE WALL SURFACE.

FP1
07
RATED WALL PENETRATION - PIPE
DETAIL
NO SCALE

- PIPE OR CONDUIT: NOM. 12" DIA. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE, NOM. 6" DIA. (OR SMALLER) STEEL CONDUIT, NOM. 4" DIA. (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR TYPE L (OR HEAVIER) COPPER TUBING OR NOM. 1" DIA. (OR SMALLER) FLEXIBLE STEEL CONDUIT.
- WHEN COPPER PIPE OR FLEXIBLE STEEL CONDUIT IS USED, MAX. FIRE RATING OF FIRESTOP SYSTEM IS 2 HOURS.

STEEL PIPES OR CONDUITS LARGER THAN NOM. 4" DIA. MAY ONLY BE USED IN WALLS CONSTRUCTED USING STEEL CHANNEL STUDS - A MAXIMUM OF ONE PIPE OR CONDUIT IS PERMITTED IN THE FIRESTOP SYSTEM - PIPE OR CONDUIT TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.

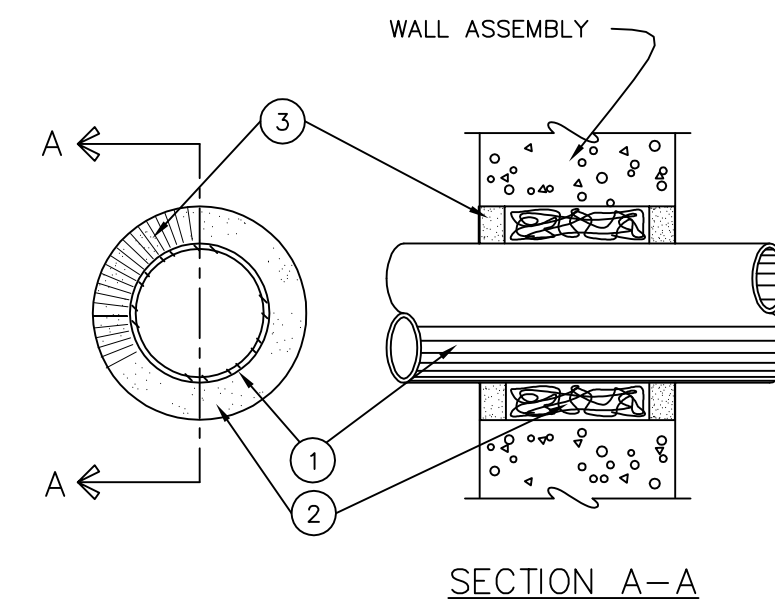
FILL VOID OR CAVITY MATERIAL - CAULK: CAULK FILL MATERIAL INSTALLED TO COMPLETELY FILL ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND GYPSUM WALLBOARD AND WITH A MINIMUM 1/4" DIA. BEAD OF CAULK APPLIED TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WALL - CAULK INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY - THE HOURLY FIRE RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS SHOWN IN THE TABLE BELOW - THE HOURLY T-RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE OR SIZE OF THE PIPE OR CONDUIT AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED AS TABULATED BELOW

MAX. PIPE OR CONDUIT DIA. (INCHES)	ANNULAR SPACE (INCHES)	FIRE RATING (HOURS)	TEMPERATURE RATING (HOURS)
1	0 - 0	1 OR 2	0 1/2 OR 2
1	0 - 0	3 OR 4	3 OR 4
4	0 - 0	1 OR 2	0
6	0 - 0	3 OR 4	0
12	0 - 0	1 OR 2	0

WHEN COPPER PIPE IS USED, T-RATING IS 0 HOURS

FP1
05
RATED WALL PENETRATION - PIPE
DETAIL
NO SCALE

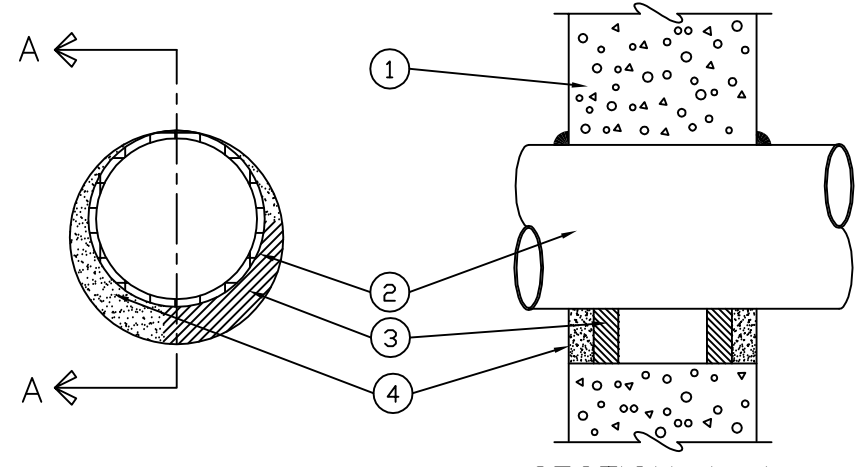
SYSTEM NO. CAJ1014
FIRE RATING - 0 HOUR
TEMPERATURE RATING - 0 HOUR



SECTION A-A

- THROUGH PENETRANTS: ONE METALLIC PIPE OR CONDUIT TO BE CENTERED WITHIN THE FIRESTOP SYSTEM - A NOMINAL ANNULAR SPACE OF 3/4" IS REQUIRED WITHIN THE FIRESTOP SYSTEM - PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY - THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED: STEEL PIPE: NOM. 4" DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE CONDUIT: NOM. 4" DIAMETER (OR SMALLER) ELECTRICAL METALLIC TUBING OR STEEL CONDUIT.
- PACKING MATERIAL: MIN. 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM - PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL - MIN. THICKNESS OF PACKING MATERIAL IN FLOORS TO BE 2" AND IN WALLS TO BE 2".
- FILL VOID OR CAVITY MATERIAL: MIN. 1/2" THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL - AS AN ALTERNATE, THE PERMANENT FORMING MATERIAL (ITEM #2) MAY BE OMITTED IF THE FILL MATERIAL THICKNESS IS INCREASED TO A MINIMUM OF 1".

FP1
04
RATED FLOOR OR WALL PENETRATION - PIPE
DETAIL
NO SCALE



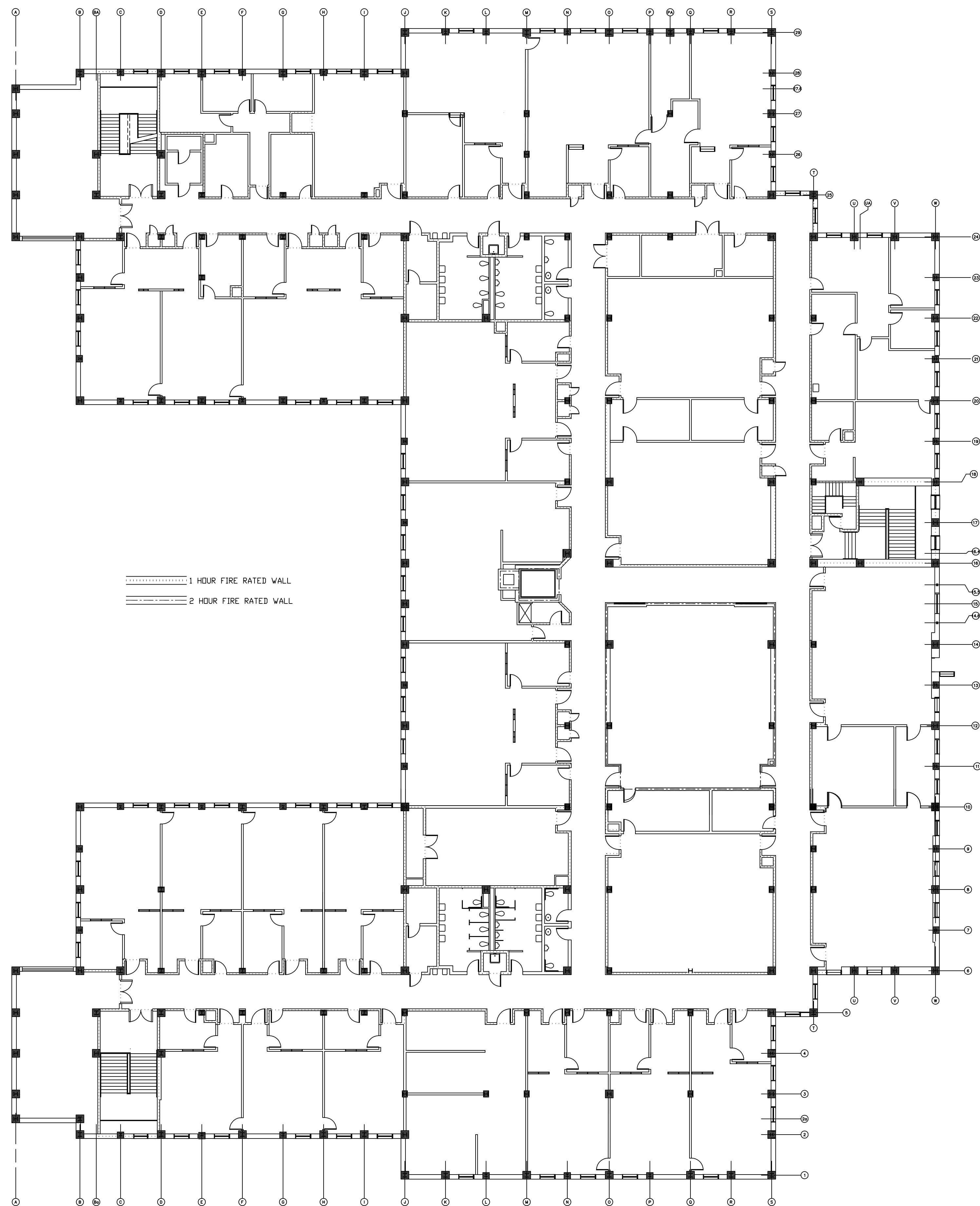
SECTION A-A

SYSTEM NO. CAJ1001
FIRE RATING - 2 HOUR
TEMPERATURE RATING - 0 HOUR

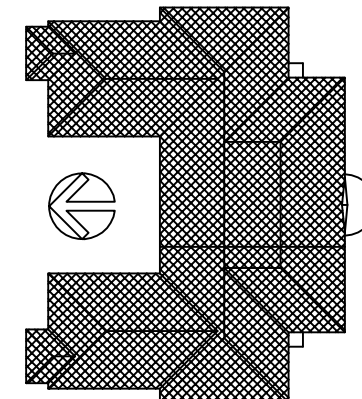
- STEEL SLEEVE OPTIONAL (NOT SHOWN) 12" DIA. OR SMALLER, SCHEDULE 40 OR HEAVIER.

- FIRE RATED FLOOR OR WALL ASSEMBLY MINIMUM 12" OR MASONRY UNITS WITH 200" MAX. DIAMETER OF CIRCULAR THROUGH OPENING.
- 6" DIA. (OR SMALLER) COPPER TUBE 4" DIA. (OR SMALLER) CAST IRON PIPE MAX. ONE PIPE PER THROUGH OPENING.
- MIN. 1" THICK FORMING MATERIAL FIRMLY PACKED AND CENTERED WITHIN VOID AROUND PIPE. USE MINERAL WOOL INSULATION (MIN. 4.4 PCF DENSITY).
- MIN. 1" THICK UL CLASSIFIED FILL MATERIAL FLUSH WITH SURFACE OF WALL/ FLOOR SYMMETRICALLY INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

FP1
03
RATED FLOOR OR WALL PENETRATION
DETAIL
NO SCALE

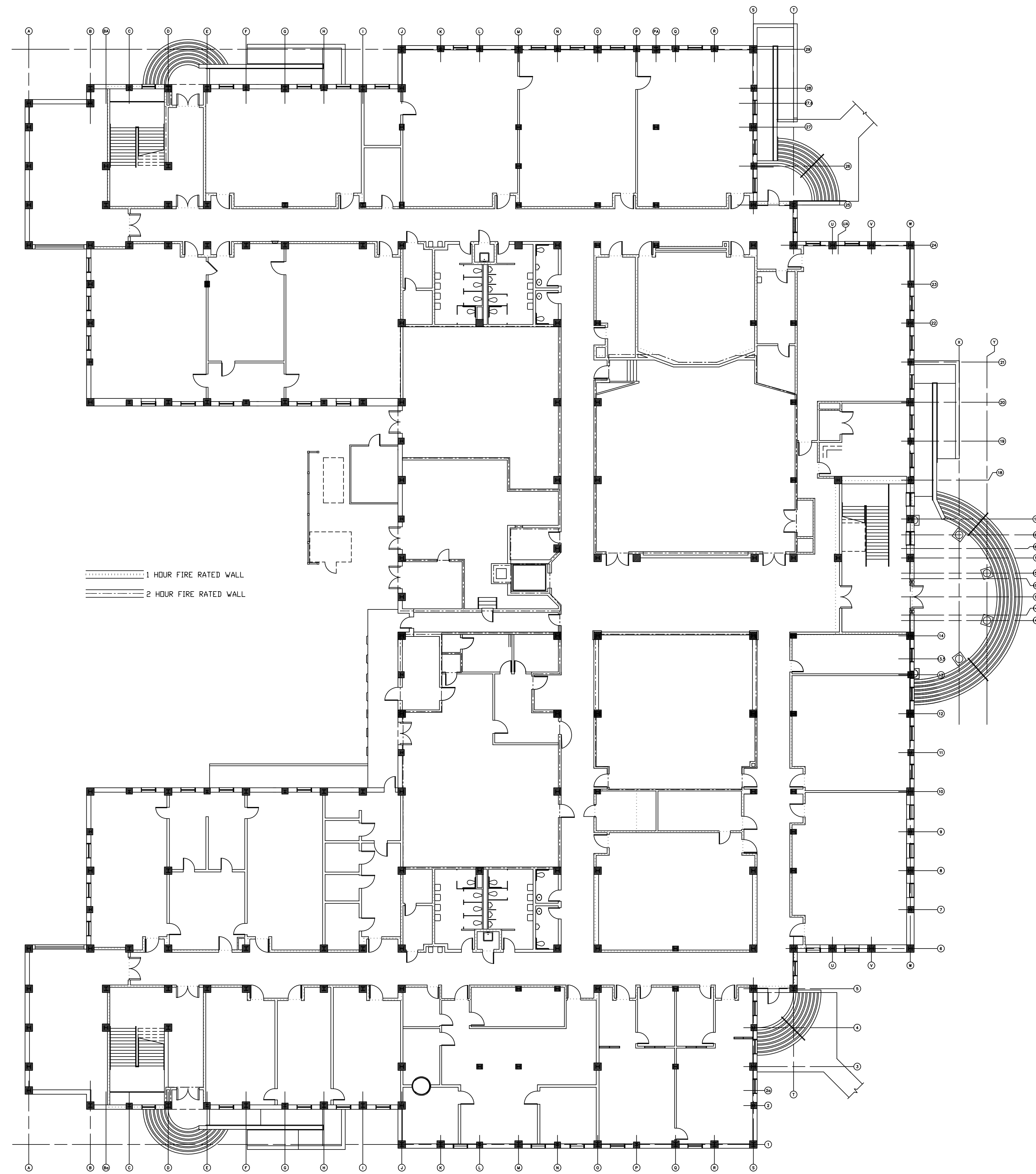


KEY PLAN

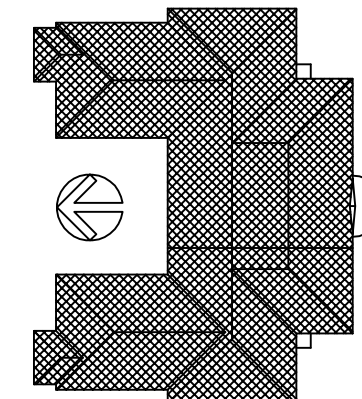


FP2
02

SECOND FLOOR
FLOOR PLAN
SCALE: 1/16" = 1'-0"

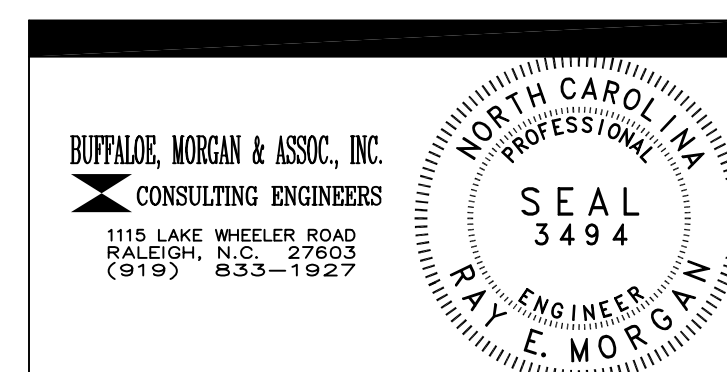


KEY PLAN



FP2
01

FIRST FLOOR
FLOOR PLAN
SCALE: 1/16" = 1'-0"



DRAWING REVISIONS:		
NO.	DATE	REMARKS

DATE: 16 MAY 1994
PROJECT#: 9305
DESIGNED BY: SAB
DRAWN BY: SMC
CHECKED BY: SAB
CHECKED BY: REM

SHEET NO.:

FP2

OF 2



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CODE 49388 ITEM 301 ID#6089280301A

SHEET TITLE:

FIRE PROTECTION
FIRST AND SECOND FLOOR