U ≥

O

F	FEEDE	R AND	BRANCH	H CIRCU	IT SCHE	EDULE									
FEEDER/BRANCH		ONDUCTOR N,&THWN-2		CONDUIT SIZE AND QUANTITY [QUANTITY IS 1, UNLESS NOTED IN ()]											
CIRCUIT DESIGNATION	PHASE & NEUTRAL	EQUIPMENT GROUND	1P, 1N, 1G, 2P, 1G	2P, 1N, 1G, 3P, 1G	3P, 1N, 1G	3P, 2N, 1G	3P, 3N, 1G	3P, 1N, 2G							
F20	12	12	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"							
F30	10	10	3/4"	3/4"	3/4"	1"	1"	1"							
F40-50	8	10	3/4"	1"	1"	1 1/4"	1 1/4"	1 1/4"							
F60	6	10	1"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"							
F70-F80	4	8	1"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"							
F90-F100	3	8	1 1/4"	1 1/4"	1 1/2"	1 1/2"	2"	1 1/2"							
F110	2	6	1 1/4"	1 1/2"	1 1/2"	2"	2"	2"							
F125	1	6	1 1/2"	2"	2"	2"	2 1/2"	2"							
F150	1/0	6	1 1/2"	2"	2"	2 1/2"	2 1/2"	2 1/2"							
F175	2/0	6	2"	2"	2 1/2"	2 1/2"	3"	2 1/2"							
F200	3/0	6	2"	2 1/2"	2 1/2"	3"	3"	3"							
F225	4/0	4	2"	2 1/2"	3"	3"	3"	3"							
F250	250	4	2 1/2"	3"	3"	3 1/2"	3 1/2"	3-1/2"							
F300	350	4	3"	3"	3 1/2"	3 1/2"	4"	3 1/2"							
F350	2/0	3	(2) 2"	(2) 2 1/2"	(2) 2 1/2"	(2) 2 1/2"	(2) 3"	(2) 2 1/2"							
F400	3/0	3	(2) 2"	(2) 2 1/2"	(2) 2 1/2"	(2) 3"	(2) 3"	(2) 2 1/2"							
F450	4/0	2	(2) 2"	(2) 2 1/2"	(2) 2 1/2"	(2) 3"	(2) 3"	(2) 3"							
F500	250	2	(2) 2 1/2"	(2) 3"	(2) 3"	(2) 3"	(2) 3 1/2"	(2) 3 1/2"							
F600	350	1	(2) 2 1/2"	(2) 3"	(2) 3"	(2) 3"	(2) 3 1/2"	(2) 3"							
F800	300	1/0	(3) 2 1/2"	(3) 3"	(3) 3"	(3) 3 1/2"	(3) 3 1/2"	(3) 3 1/2"							
F900	350	2/0	(3) 3"	(3) 3"	(3) 3 1/2"	(3) 3 1/2"	(3) 4"	(3) 3 1/2"							
F1000	400	2/0	(3) 3"	(3) 3"	(3) 3 1/2"	(3) 3 1/2"	(3) 4"	(3) 4"							
F1200	350	3/0	(4) 3"	(4) 3"	(4) 3 1/2"	(4) 3 1/2"	(4) 4"	(4) 4"							
F1600	400	4/0	(5) 3"	(5) 3"	(5) 3 1/2"	(5) 3 1/2"	(5) 4"	(5) 4"							
			(0) ="	(0) 77	(0) 7 4 (0"	(0) 7 4 /0"	(0) 4"	(0) 4"							

NOTES:
1. DO NOT COMBINE NEUTRAL CONDUCTORS FOR ALL CIRCUITS. USE SEPARATE INDEPENDENT NEUTRAL CONDUCTORS FOR ALL CIRCUITS.

(7) 3 1/2"

(8) 3 1/2"

(10) 3 1/2" (10) 4"

(7) 3"

(8) 3"

(10) 3"

250

350

400

500

500

500

500

(6) 3" | (6) 3 1/2" | (6) 3 1/2" | (6) 4" |

(7) 4"

(8) 4"

(10) 4"

(7) 4"

(10) 4"

(7) 4"

(8) 4"

VOLTAGE DROP FOR 1¢, 20A BRANCH CIRCUITS												
	DISTANCE ALLOWED											
FEEDER SIZE TO USE	120V	208V	277V	480V								
F20	0 - 45 FEET	0 - 79 FEET	0 - 105 FEET	0 - 182 FEET								
F30	45 - 72 FEET	79 - 126 FEET	105 - 168 FEET	182 - 290 FEET								
F40-50	72 - 115 FEET	126 - 201 FEET	168 - 267 FEET	290 - 463 FEET								
F60	115 - 183 FEET	201 - 318 FEET	267 - 423 FEET	463 - 733 FEET								
F70-80	183 - 292 FEET	318 - 506 FEET	423 - 675 FEET	733 - 1169 FEET								
F90-100	292 - 367 FEET	506 - 637 FEET	675 - 848 FEET	1169 - 1469 FEET								
F110	367 - 464 FEET	637 - 804 FEET	848 - 1071 FEET	1469 - 1856 FEET								

464 - 584 FEET | 804 - 1013 FEET | 1071 - 1349 FEET | 1856 - 2338 FEET | 584 - 738 FEET | 1013 - 1279 FEET | 1349 - 1703 FEET | 2338 - 2951 FEET

- 1. 20 A BRANCH CIRCUITS SHALL BE SIZED FOR VOLTAGE DROP. WIRE SIZES ARE NOT INDICATED ON THE DRAWINGS TO COMPENSATE FOR VOLTAGE DROP FOR THESE CIRCUITS. CONTRACTOR SHALL UTILIZE WIRE SIZE SHOWN ABOVE FOR DISTANCES LISTED ABOVE.
- 2. VOLTAGE DROP WIRE SIZES WILL BE STRICTLY ENFORCED. CONTRACTOR SHALL SUBMIT A LIST OF CIRCUITS THAT WILL EXCEED THE DISTANCES ALLOWED AND INDICATE WIRE SIZE TO BE USED PRIOR TO ANY WIRE BEING INSTALLED.

MOTOR CONTROL CENTER SCHEDULE											
MCC I.D. MCC VOLTAGE 208/480 PHASE/WIRE 30/4 WIRE MAIN 400A IC RATING VERIFY KAIC											
MOUNT SURFACE GROUND BUS YES LOCATION PENTHOUSE REMARKS											
EQUIPMENT SERVED	EQUIF	PMENT D	ATA	5	STARTER DAT	Ά		REMOTE	REMARKS		
	HP	FLA	PHS	DISCONNE	CT SWITCH	STAR	RTER	KVAR	0.20.310.2		
				TYPE FUSE/C.B.	AMP_FUSE/ TRIP	TYPE	NEMA SIZE				
HW PUMP #1	5	7.6	3						EXISTING - VERIFY ALL INFORMATION		
HW PUMP #2	5	7.6	3						EXISTING - VERIFY ALL INFORMATION		
PANEL *2HDP*			3	СВ	300				EXISTING 300A BREAKER FOR 2ND FL		
OAHU-N (NORTH OUTSIDE AIR HANDLER)			3	СВ	15				INSTALL CB IN AVALABLE SPACE		
OAHU-S (SOUTH OUTSIDE AIR HANDLER)			3	СВ	15				INSTALL CB IN AVALABLE SPACE		
	UNT SURFACE	VOLTAGE 208/480 F UNT SURFACE G EQUIPMENT SERVED EQUIF HP HW PUMP #1 5 HW PUMP #2 5 PANEL "2HDP" OAHU—N (NORTH OUTSIDE AIR HANDLER)	VOLTAGE 208/480 PHASE/NUMBER 208/480 PHASE/NUMBER STATE GROUND	VOLTAGE 208/480 PHASE/WIRE	VOLTAGE 208/480 PHASE/WIRE 3\$\tilde{\psi} 4 \text{ WIRE}	C I.D. MCC VOLTAGE 208/480 PHASE/WIRE 36/4 WIRE MAIN 400	C I.D. MCC	C I.D. MCC	C I.D. MCC		

F2000

F2500

F3000

F3500

MCC LOAD ANALYSIS

EXISTING LOAD -

5HP HOT WATER PUMP - 7.6A @480V 3\(\phi\) (PER NEC)

189.38A

5HP HOT WATER PUMP - 7.6A @480V 3\((PER NEC) - 164.58A (PER PANELBOARD SCHEDULE

FROM 2ND FL REMODEL)

NEW LOAD -

3HP OAHU-N

3HP OAHU-S

PANEL 2HDP

- 4.8A **©**480V 3φ (PER NEC) - 4.8A @480V 3\(\phi\) (PER NEC)

TOTAL LOAD -

CKT NO.					208Y/1				PANEL M		ì:	SURFAC				
NO.		PHASE:			3 PHASE	, 4 WIRE			ALL BRE	AKERS:		10,000	AIC			
_	LOAD	LOAD	CONN.	BRE	AKER	COI	NECTED L	OAD	BRE	AKER	CONN.	LOAD	LOAD	T		
1	DESCRIPTION	CODE	KVA	AMPS	POLE	A	В	С	AMPS	POLE	KVA	CODE	DESCRIPTION			
	Recepts - I.T. Rm 217	R	0.80	20	1	1.86	><		20	1	1.06	L	Lts - Rm 247	I		
3	Recepts - I.T. Rm 217	R	0.80	20	1		1.61	><	20	1	0.81	L	Lts - RM 216-17, 236,240,252	T		
5	Recepts - I.T. Rm 217	R	0.80	20	1		><	1.65	20	1	0.85	L	Lts - Rm 218,224,234			
7	Recepts - I.T. Rm 217	R	0.80	20	1	1.94	><	><	20	1	1.14	L	Lts - RM 254	T		
9	Recepts - I.T. Rm 217	R	0.80	20	1		1.92		20	1	1.12	L	Lts - Rm 211, 213	T		
11	Recepts - I.T. Rm 217	R	0.80	20	1		> <	1.91	20	1	1.11	L	Lts - RM 204, 270	T		
13	Recepts - I.T. Rm 217	R	0.80	20	1	1.65	><		20	1	0.85	L	Lts - RM 207,209-10	T		
15	Recepts - P.M. Rm 243	R	0.80	20	1		1.30	><	20	1	0.50	P	Temp. Control Center (RM249)			
17	Recepts - P.M. Rm 243	R	0.80	20	1			1.30	20	1	0.50	P	Temp. Control Center (RM249)	I		
19	Spare			20	1	0.50	><	><	20	1	0.50	р	Temp. Control Center (RM263)			
21	Temp. Control Center (PENT.)	P	0.50	20	1		1.00		20	1	0.50	P	Temp. Control Center (RM202)			
23	Spare			20	1		><	0.50	20	1	0.50	P	Temp. Control Center (RM223)			
25						0.00	><	><								
27							0.00	><								
29						><	><	0.00								
31						0.00	><	><								
33						><	0.00	><								
35						><	><	0.00								
37						0.00	><	><						\perp		
39						><	0.00	><								
41						><	><	0.00								
						5.94	5.83	5.35	KVA							
	TOTAL CONNECTED AMPS:		49.53	AMPS		49.53	48.58	44.62	AMPS							
	TOTAL CONNECTED LOAD:		17.13	KVA												
	TOTAL DEMAND AMPS:		37.00	AMPS												

LIGHTING

LOAD CODES:

MECHANICAL/EQUIPMENT

COMPUTER

PANELBOARD

DESIGNATION: 100 A MB PANELBOARD GL2A BUS SIZE: 225 AMP ROOM 223 2 4 6 8 10 12 14 16 18 20 22 24

RECEPTACLES

TOTAL DEMAND LOAD:

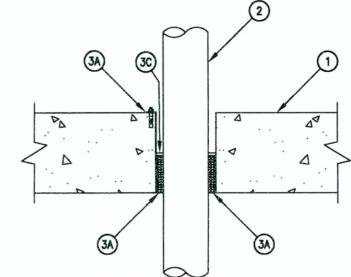
(6) 4"

(7) 4"

(8) 4"

(10) 4"

12.84 KVA



SECTION A-A

1. FLOOR OR WALL ASSEMBLY - MIN 2-1/2 IN. (64 MM) THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF CIRCULAR OPENING IS 6-1/2 IN. (165 MM).

SYSTEM NO. C-AJ-2002

May 18, 2005 F Rating - 2 Hr T Ratings - 0 and 2 Hr L Rating at Ambient - 7 CFM/sq ft L Rating at 400 F - less than 1 CFM/sq ft (See Item 3C) W Rating - Class I (See Item 3)

SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. NONMETALLIC PIPE OR CONDUIT - NOM 4 IN. (102 MM) DIAM (OR SMALLER) SCHEDULE 40 SOLID CORE OR CELLULAR CORE, POLYVINYL CHLORIDE (PVC) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS OR RIGID NONMETALLIC CONDUIT++ OR SDR 13.5 CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS. A MAX OF ONE PIPE OR CONDUIT IS PERMITTED IN THE FIRESTOP SYSTEM. EXCEPT AS NOTED IN ITEM B, THE PIPE OR CONDUIT SHALL BE CENTERED IN THE THROUGH OPENING. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

SEE RIGID NONMETALLIC CONDUIT (DZKT) CATEGORY IN THE UL ELECTRICAL CONSTRUCTION MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS.

3. FIRESTOP SYSTEM - THE HOURLY T RATINGS FOR THE FIRESTOP SYSTEM ARE DEPENDENT UPON THE FIRESTOP ORIENTATION (WALL OR FLOOR), THE SIZE OF THE NONMETALLIC PIPE OR CONDUIT, AND THE FLOOR THICKNESS, AS TABULATED BELOW:

ORIENTATION (a)	NOMINAL PIPE DIAMETER In. (mm)	ANNULAR SPACE In. (mm)	F RATING HR	T RATING HR
F(b)	1/2-2 (13-51 mm)	1/4-1 (6-25 mm)	2	0
F(b)	2-1/2, 3 (64, 76 mm)	1/2-1 (13-25 mm)	2	0
W,F	1/2-2 (13-51 mm)	1/4-1 (6-25 mm)	2	2
W,F	2-1/2, 3 (64, 76 mm)	1/2-1 (13-25 mm)	2	2
W,F	3-1/2, 4 (89, 102 mm)	3/4-1 (19-25 mm)	2	2

(a) W = WALL, F = FLOOR(b) MIN CONCRETE FLOOR THICKNESS IS 2-1/2 IN. (64 MM). THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:

A. STEEL SUPPORT CLIPS - NOM 1 IN. (25 MM) WIDE BY NOM 0.019 IN. (0.5 MM) THICK (28 GAUGE) GALV STEEL STRIPS FIELD-FORMED INTO "Z"-SHAPE WITH HEIGHT OF Z-SHAPE EQUAL TO THE FLOOR THICKNESS AND WITH WIDTH OF BOTTOM (AS INSTALLED) LEG OF SUFFICIENT LENGTH TO SPAN ANNULAR SPACE. TOP (AS INSTALLED) LEG OF Z-SHAPE TO BE MIN 2 IN. (51 MM) LONG AND MAY OR MAY NOT BE SECURED TO TOP SURFACE OF FLOOR WITH MASONRY ANCHORS. AS AN ALTERNATE TO THE Z-SHAPE CLIPS, THE GALV STEEL STRIPS MAY BE FORMED INTO "L"-SHAPE WITH HEIGHT EQUAL TO 2 IN. (51 MM) AND WITH BOTTOM (AS INSTALLED) LEG OF SUFFICIENT LENGTH TO SPAN ANNULAR SPACE, CLIPS SECURED TO OUTERMOST WRAP STRIP LAYER WITH STEEL WIRE TIE PRIOR TO INSERTION IN THROUGH OPENING. MIN OF THREE STEEL SUPPORT CLIPS TO BE USED, SYMMETRICALLY LOCATED, WITH BOTTOM LEG OF CLIPS FLUSH WITH BOTTOM PLANE OF FLOOR, WHEN ANNULAR SPACE AROUND NOM 1/2 IN. TO 2 IN. (13 MM TO 51 MM) DIAM PIPE IN FLOOR ASSEMBLY IS 1/4 IN. TO 3/8 IN. (6 MM TO 10 MM), STEEL SUPPORT CLIPS ARE NOT REQUIRED.

B. FILL, VOID OR CAVITY MATERIALS* - WRAP STRIP - NOM 1/4 IN. (6 MM) THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 IN. (51 MM) WIDE STRIPS. NOM 2 IN. (51 MM) WIDE STRIPS TIGHTLY WRAPPED AROUND NONMETALLIC PIPE (FOIL SIDE EXPOSED) TO FILL ANNULAR SPACE AROUND PIPE. A MIN OF ONE LAYER OF WRAP STRIP IS REQUIRED FOR NOM 1/2 IN. TO 2 IN. (13 MM TO 51 MM) DIAM PIPES. A MIN OF TWO LAYERS OF WRAP STRIP IS REQUIRED FOR NOM 2-1/2 IN. AND 3 IN. (64 MM AND 76 MM) DIAM PIPES. A MIN OF THREE LAYERS OF WRAP STRIP IS REQUIRED FOR NOM 3-1/2 IN. AND 4 IN. (89 MM AND102 MM) DIAM PIPES. EACH LAYER OF WRAP STRIP TO BE INSTALLED WITH BUTTED SEAM WITH BUTTED SEAMS IN SUCCESSIVE LAYERS STAGGERED. WRAP STRIP LAYERS SECURELY BOUND WITH STEEL WIRE OR ALUMINUM FOIL TAPE AND SLID INTO THROUGH OPENING SUCH THAT THE BOTTOM EDGES ARE FLUSH WITH THE BOTTOM PLANE OF THE FLOOR AND ARE RESTING ON THE STEEL SUPPORT CLIP LEGS. WHEN NOM 2 IN. TO 4 IN. (51 MM TO 102 MM) DIAM PVC PIPE IS USED IN MIN 4-1/2 IN. (114 MM) THICK CONCRETE FLOOR, THE PIPE MAY BE INSTALLED ECCENTRICALLY IN THE THROUGH OPENING (MIN ZERO CLEARANCE AT POINT CONTACT LOCATION) PROVIDED THAT (1) THE INSIDE DIAM OF THE THROUGH OPENING IS 1.3 TO 1.5 TIMES LARGER THAN THE OUTSIDE DIAM OF THE PIPE, (2) THE ANNULAR SPACE BETWEEN THE PIPE AND THE SIDES OF THE OPENING AT THE BOTTOM 2 IN. (51 MM) OF THE THROUGH OPENING IS COMPLETELY FILLED WITH WRAP STRIP LAYERS INSTALLED FOLLOWING THE CONTOUR OF THE PIPE AND (3) THE BOTTOM EDGES OF THE WRAP STRIP LAYERS ARE RELIABLY SUPPORTED BY "Z"-SHAPED STEEL SUPPORT CLIPS ANCHORED TO THE TOP SURFACE OF THE CONCRETE FLOOR. IN WALL ASSEMBLIES, THE WRAP STRIP LAYERS ON THE NONMETALLIC PIPE ARE TO BE INSTALLED IN THE SAME MANNER USED FOR FLOOR ASSEMBLIES, BUT SHALL BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF THE WALL WITH THE EXPOSED EDGES OF THE WRAP STRIP LAYERS FLUSH WITH THE WALL

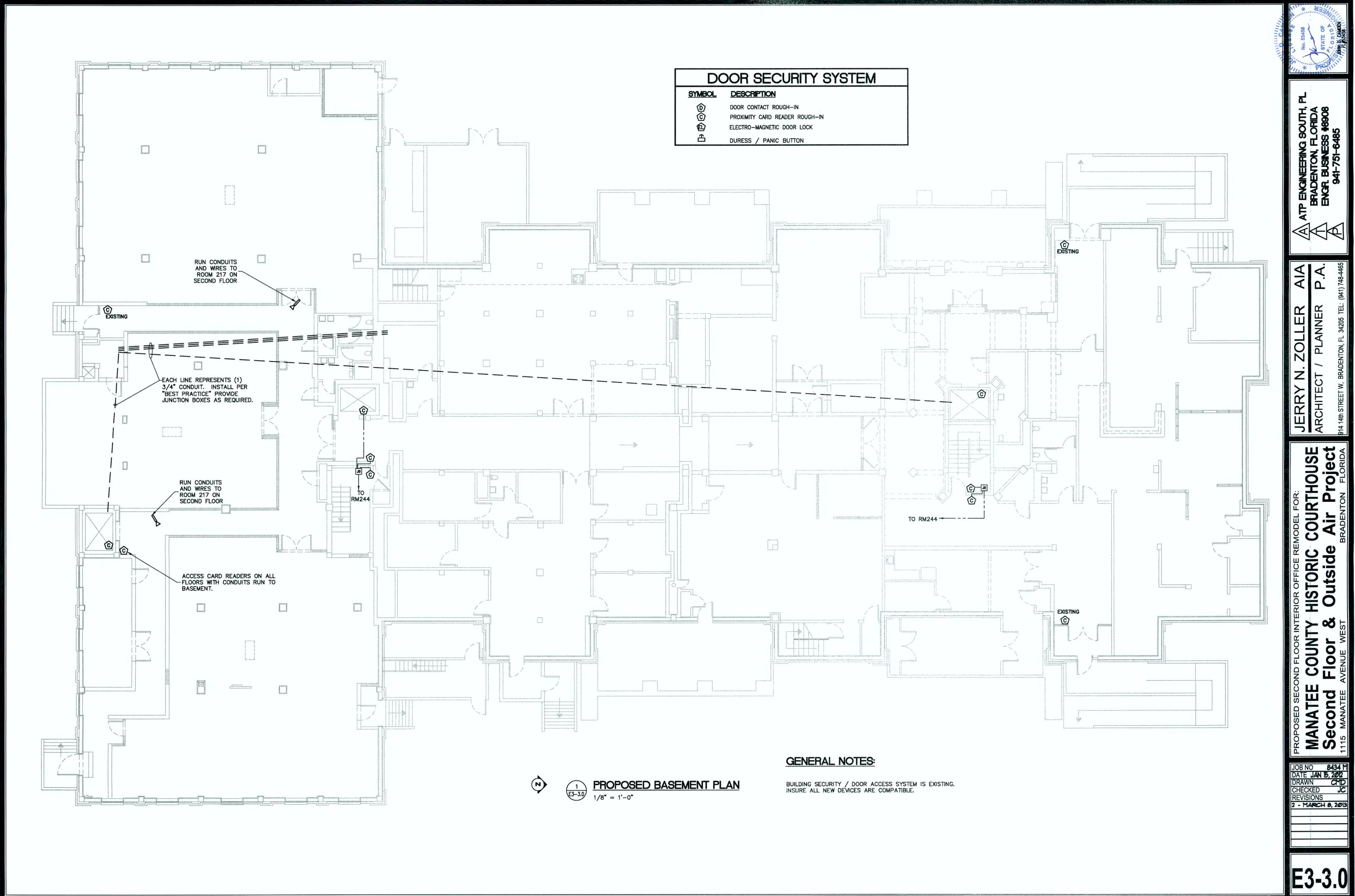
C. FILL, VOID OR CAVITY MATERIALS* - CAULK OR SEALANT -- MIN 1/4 IN. (6 MM) DIAM CONTINUOUS BEAD APPLIED TO INSIDE WALLS OF THROUGH OPENING PRIOR TO INSTALLATION OF STEEL SUPPORT CLIPS AND/OR WRAP STRIP. CAULK BEAD TO BE RECESSED 1 IN. (25 MM) FROM THE BOTTOM PLANE OR FLOOR. IN WALL ASSEMBLIES, CAULK BEAD TO BE RECESSED 1 IN. (25 MM) FROM WALL SURFACE ON BOTH SIDES OF WALL. IN FLOOR ASSEMBLIES, A NOM 1/2 IN. (13 MM) THICK COATING OF CAULK IS TO BE APPLIED TO THE TOP EDGES OF THE WRAP STRIP LAYERS AND TO FILL ALL GAPS AT THE WRAP STRIP/ CONCRETE INTERFACE. IN WALL ASSEMBLIES, THE EXPOSED EDGES OF THE WRAP STRIP LAYERS AND ALL GAPS AT THE WRAP STRIP/CONCRETE INTERFACE ON BOTH SIDES OF THE WALL TO BE COATED WITH THIN LAYER OF

(NOTE: W RATING APPLIES ONLY WHEN FB-3000 WT SEALANT IS USED. CP 25WB+ NOT SUITABLE FOR USE WITH CPVC PIPES.) *BEARING THE UL CLASSIFICATION MARKING ++BEARING UL LISTING MARK



CONCRETE WALL OR FLOOR PENETRATION DETAIL

NOT TO SCALE



FIRE PROTECTION SITE PLAN

(TO BE USED FOR HYDRAULIC REFERENCE ONLY)

XX KEY NOTE DENOTED BY THIS SYMBOL. SEE PLAN.

KEY NOTE LEGEND (SITE PLAN):

BUILDINGS).

- EXISTING 12" CIRCULATING/GRIDDED UNDERGROUND
- EXISTING 10" P.V.C. UNDERGROUND SUPPLY MAIN.
- EXISTING 8" P.V.C. UNDERGROUND SUPPLY MAIN. EXISTING FIRE DEPARTMENT CONNECTION (ADJACENT
- EXISTING FIRE HYDRANT # 1-185 (TEST HYDRANT).
- EXISTING "POINT OF SERVICE", 8" HERSEY DDCII DOUBLE CHECK DETECTOR ASSEMBLY. A FIXED 7 PSI LOSS IS INCLUDED IN THE NEW HYDRAULIC
- EXISTING FIRE DEPARTMENT CONNECTION ON THE SPRINKLER SYSTEM SIDE OF THE DOUBLE CHECK

CALCULATIONS FOR THIS DEVICE ASSEMBLY.

- EXISTING 8" UNDERGROUND SUPPLY RISE.
- EXISTING 6" STANDPIPE RISER LOCATED IN BASEMENT. EXISTING 6" UP TO 1ST FLOOR. SEE FIRE PROTECTION FIRST FLOOR PLAN-EXISTING ON SHEET FP-2 FOR CONTINUATION.

NORTH

	TABLE 1 — MINIMUM DESIGN AREA (PER NFPA 13)												
CALCULATION ID #	MAX. CEILING HEIGHT	% RED. IN DESIGN AREA = $-3x/2 + 55$ (x=CEILING HEIGHT) (PER FIGURE 11.2.3.2.3.1)	INCREASE FOR SLOPES OVER 2:12 (SECTION 11.2.3.2.4)	MIN. ALLOWABLE DESIGN AREA (COMBINED PER 11.2.3.2.7, STARTING AT 1500 SQ.FT.)									
2011-0252-B	14'-0" (BOTTOM OF DECK)	-34%	+0% (FLAT CEILING ON THIS CALC)	990									
2011-0252-C	10'-0"	-40%	+0% (FLAT CEILING ON THIS CALC)	900									

	HYDRAULIC DESIGN DATA													
SYSTEM OR CALC. ID.	SPECIFIC AREA PROTECTED	DENSITY (GPM/SQ. FT.)	DESIGN AREA (SQ. FT.)	HOSE ALLOW. (GPM) INSIDE/OUTSIDE	NUMBER OF HEADS CALCULATED	OCCUPANCY CLASSIFICATION	COMMODITY CLASSIFICATION	MAXIMUM STORAGE HEIGHT	WATER DEMAND AT NODE 'TEST' INCLUDING HOSE DEMAND (GPM @ PSI)	WATER DEMAND AT THE BASE OF THE RISER (NODE AFF) (GPM @ PSI)				
2011-0252-A	3RD FLR HISTORIC COURTROOM (TEMPORARY BENCH STORAGE)	0.15	1,500	0 / 250	14	ORDINARY HAZARD GROUP I	N/A	8'-0"	504.5 GPM @ 48.6 PSI	254.5 GPM @ 42.7 PSI				
2011-0252-B	2ND FLR HISTORIC COURTROOM (TEMPORARY BENCH STORAGE)	0.15	ENTIRE	0 / 250	6	ORDINARY HAZARD GROUP I	N/A	8'-0"	366.1 GPM @ 43.2 PSI	116.1 GPM @ 37.4 PSI				
2011-0252-C	2ND FLR OFFICE AREA	0.10	906	0 / 100	9	LIGHT HAZARD	N/A	N/A	254.9 GPM @ 41.5 PSI	154.9 GPM @ 35.6 PSI				
2011-0252-D	2ND FLR STAIR 270	0.10	ENTIRE	0 / 100	4	LIGHT HAZARD	N/A	N/A	160.7 GPM @ 29.1 PSI	60.7 GPM @ 23.3 PSI				

							SPRI	NKLER	HEADS	AND	LEGEND - BASIS OF DESIGN	
MANUF.	MODEL	ТҮРЕ	RESPONSE	"K"	NPT	TEMP.	FINISH-HD / ESC	SPRK ID #	SYMBOL	QTY.	COMMENTS	SPARE HEAD COUNT BY TYPE
TYCO	TY-FRB	RECESSED PENDENT	QUICK	5.6	1/2"	155 ° F	WHITE / WHITE	TY3231	•	174		6
TYCO	TY-FRB	UPRIGHT	QUICK	5.6	1/2"	155 ° F	BRASS	TY3131	0	21		1
TYCO	TY-FRB	UPRIGHT ON SPRIG	QUICK	5.6	1/2"	155 °F	BRASS	TY3131	Os	1	UPRIGHT IS ON A 1" SCHEDULE 40 SPRIG	
TYCO	TY-FRB	PENDENT	QUICK	5.6	1/2"	155 °F	BRASS	TY3231	0	22	PENDENT ONLY, NO ESCUTCHEON REQUIRED	1
												TOTAL SPARE HEADS = 8
								тоти	AL NEW HEADS	218	TOTAL DOES NOT INCLUDE SPARE HEAD COUNT	LOCATE SPARE HEAD CABINET NEXT
THE SPRIM	THE SPRINKLER HEAD COUNT SHOWN ON THIS PLAN SHALL BE CONSIDERED APPROXIMATE UNTIL VERIFIED BY THE CONTRACTOR, ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ENGINEER'S ATTENTION											TO THE RISER

FIRE SPRINKLER GENERAL NOTES AND SPECIFICATIONS

I. GENERAL PROJECT SCOPE

THE PROJECT INVOLVES MODIFICATIONS TO A WET PIPE FIRE SPRINKLER SYSTEMS TO PROTECT A EXISTING OFFICE/COURTHOUSE BUILDING. EXISTING STANDPIPES AND ZONE CONTROL VALVES WILL BE UTILIZED TO FEED THE MODIFICATION AREAS.

2nd FLOOR SYSTEM: APPROXIMATELY 22,040 SQ. FT. 3rd FLOOR SYSTEM: APPROXIMATELY 2,292 SQ. FT.

II. DESIGN PARAMETERS

- A. ALL WORK IS TO BE IN ACCORDANCE WITH NFPA 13, 2007 EDITION; NFPA 101, 2009 EDITION; FLORIDA FIRE PREVENTION CODE, 2010 EDITION; AND THE LOCAL AUTHORITIES HAVING JURISDICTION. THE FIRE SPRINKLER CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE REFERENCED CODES. DEVIATIONS OR ABNORMAL CONDITIONS THAT WOULD RESULT IN NON-CODE OR STANDARD COMPLIANCE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING FOR ASSISTANCE IN THE RESOLUTION OF THE PROBLEM.
- B. CLASSROOM, OFFICE AREAS, GENERAL ASSEMBLY, CORRIDORS, BATHROOMS, STAIRS, ETC: LIGHT HAZARD OCCUPANCY WITH A DESIGN DENSITY OF 0.10 GPM/SQ.FT. OVER THE HYDRAULICALLY MOST REMOTE 1,500 SQ.FT. AREA, WITH AN OUTSIDE HOSE ALLOWANCE OF 100 GPM. A REDUCTION IN THE HYDRAULIC DESIGN AREA, FOR THE USE OF QUICK RESPONSE HEADS, PER NFPA 13, SHALL BE ALLOWED. SEE TABLE #1 ON SHEET FOR MINIMUM DESIGN AREA.
- C. MECHANICAL ROOMS & ELECTRICAL ROOMS: ORDINARY HAZARD (GROUP 1) OCCUPANCY WITH A DESIGN DENSITY OF 0.15 GPM/SQ.FT. OVER THE HYDRAULICALLY MOST REMOTE 1,500 SQ.FT. AREA, WITH AN OUTSIDE HOSE ALLOWANCE OF 250 GPM. A REDUCTION IN THE HYDRAULIC DESIGN AREA, FOR THE USE OF QUICK RESPONSE HEADS, PER NFPA 13, SHALL BE ALLOWED.
- D. SMALL STORAGE ROOMS, JANITOR CLOSETS & TEMPORARY BENCH STORAGE IN THE HISTORIC COURTHOUSE AREA: ORDINARY HAZARD (GROUP 1) OCCUPANCY WITH A DESIGN DENSITY OF 0.15 GPM/SQ.FT. OVER THE HYDRAULICALLY MOST REMOTE 1,500 SQ.FT. AREA, WITH AN OUTSIDE HOSE ALLOWANCE OF 250 GPM. A REDUCTION IN THE HYDRAULIC DESIGN AREA, FOR THE USE OF QUICK RESPONSE HEADS, PER NFPA 13, SHALL BE ALLOWED.
- F. THIS AREA IS NOT KNOWN TO HAVE PROBLEMS WITH MICROBIAL INDUCED CORROSION. NO PREVENTATIVE MEASURES HAVE BEEN DESIGNED INTO THIS SYSTEM

E. ALL HANGERS TO BE ACCORDANCE WITH NFPA-13. TRAPEZE HANGER SHALL BE UTILIZED WHERE NECESSARY TO COMPLY WITH THE HANGER SPACING OF NFPA 13.

- G. THE ENGINEER HAS OBSERVED THE ROOF FRAMING DESIGN AND IS SATISFIED THAT THE SPRINKLER PIPING CAN BE SAFELY SUPPORTED FROM THE STRUCTURE.
- H. CONTRACTOR'S SUBMITTALS &/OR INSTALLATION WHICH SIGNIFICANTLY DEVIATES FROM THE DESIGN SHOWN IN THIS PLAN SET SHALL BE CONSIDERED A MATERIAL DEVIATION. ALL MATERIAL DEVIATIONS REQUIRE THE APPROVAL OF THE ENGINEER OF RECORD AND THE LOCAL AUTHORITY HAVING JURISDICTION.

III. MATERIALS

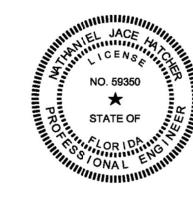
- A. SEE THE "BASIC PIPE AND MATERIAL REQUIREMENTS" TABLE ON THIS SHEET FOR MINIMUM MATERIAL REQUIREMENTS ON THIS PROJECT..
- B. SPRINKLER HEADS SHOWN ON THIS SHEET OR IN THIS PLAN SET SHALL BE THE BASIS OF THE DESIGN. EQUAL HEADS BY OTHER MANUFACTURERS WILL BE EVALUATED AND APPROVED IF

IV. PROJECT REQUIREMENTS

- THE FIRE SPRINKLER CONTRACTOR SHALL PREPARE A SHOP DRAWING SUBMITTAL AND EQUIPMENT CUTSHEET PACKAGE SUBMITTAL, AND SUBMIT TO THE ENGINEER AND AUTHORITY HAVING JURISDICTION. FOR APPROVAL. APPROVAL OF SHOP DRAWINGS AND EQUIPMENT SHALL BE OBTAIN PRIOR TO STARTING WORK. THE ENGINEER OF RECORD SHALL FURNISH THE FIRE SPRINKLER CONTRACTOR WITH AUTOCAD VERSION 2004 DRAWINGS PREPARED WITH HYDRACAD SPRINKLER DESIGN SOFTWARE FOR USE IN PREPARING SHOP DRAWINGS AND AS-BUILTS.
- 2. THE FIRE PROTECTION ENGINEER OF RECORD SHALL FURNISH THE FIRE SPRINKLER CONTRACTOR, UP TO FOUR (4) SETS OF ENGINEERING DRAWING BLUEPRINTS BEARING THE SEAL OF THE ENGINEER, FOR PERMITTING SHOP DRAWINGS.
- 3. SPRINKLER CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AS-BUILTS. THE CONTRACTOR SHALL SUPPLY THE OWNER WITH AS-BUILT DRAWINGS PRIOR TO FINAL PAYMENT.
- 4. ALL PENETRATIONS THROUGH RATED WALLS/FLOORS SHALL BE FIRE STOPPED/WATERPROOFED TO MATCH THE RATING OF THE WALL/FLOOR.
- NO UNDERGROUND WORK IS ANTICIPATED ON THIS PROJECT.
- V. COMPLETION AND TESTING REQUIREMENTS
- 1. THE FIRE SPRINKLER SYSTEM SHALL BE PRESSURE TESTED AT 200 PSI FOR 2 HOURS IN ACCORDANCE WITH NFPA 13. THE SYSTEM SHALL MAINTAIN THE TEST PRESSURE FOR THE REQUIRED PERIOD WITHOUT LOSS. ALL REQUIREMENTS OF CHAPTER 16 OF NFPA 13 "SYSTEM ACCEPTANCE" SHALL BE COMPLETED BY THE INSTALLING FIRE SPRINKLER CONTRACTOR.
- 2. CONTRACTOR'S MATERIAL AND TEST CERTIFICATION DOCUMENTS SHALL BE COMPLETED FOR THIS PROJECT AND DELIVERED TO THE AUTHORITY MAKING THE FINAL INSPECTION.
- 3. THE CONTRACTOR SHALL PROVIDE A COPY OF NFPA 25 AND MANUFACTURERS EQUIPMENT AND MAINTENANCE CUTSHEETS TO THE OWNER, UPON COMPLETION OF THE WORK AND AS PART OF THE APPLICATION FOR PAYMENT.
- 4. A HYDRAULIC PLACARD SHALL BE INSTALLED ON THE FIRE SPRINKLER RISER FOR EACH DESIGN AREA.
- VI. MISCELLANEOUS REQUIREMENTS
- 1. IN AREAS WHERE PIPING IS PAINTED, HEADS SHALL NOT BE PAINTED AND SHALL BE TEMPORARILY PROTECTED FROM OVERSPRAY WITH PAPER BAGS OR ALUMINUM FOIL. CARE SHALL BE TAKEN AT ALL TIMES NOT TO DAMAGE THE SPRINKLER HEAD'S FRANGIBLE BULB.
- 2. A SITE PLAN HAS BEEN SHOWN ON THESE PLANS IN ORDER TO SHOW THE UNDERGROUND HYDRAULIC NODES USED IN THE CALCULATIONS. THE SITE PLAN SHOWN ON THESE PLANS IS TO BE USED FOR HYDRAULIC REFERENCE ONLY. SEE THE SITE UTILITY DRAWINGS FOR CONSTRUCTION REQUIREMENTS.
- 3. THE FIRE DEPARTMENT CONNECTION IS EXISTING AND LOCATED AT THE BACKFLOW PREVENTER ON THE SYSTEM SIDE. FIRE DEPARTMENT CONNECTION TO REMAIN AS-IS WITH NO NEW WORK
- 4. QUICK RESPONSE SPRINKLER HEADS SHALL BE INSTALLED THROUGHOUT (UNLESS OTHERWISE NOTED)
- 5. THIS IS A CENTER-OF-TILE INSTALLATION. IN ALL COMMON ACCESS AREAS, SPRINKLER HEADS SHALL BE INSTALLED WITHIN 1" OF THE CENTER-OF-TILE (OR QUARTER TILE) AS INDICATED ON THESE PLANS. IN ALL SOFFITED AREAS, HEADS SHALL BE ALIGNED WITH ADJACENT LIGHTING WHERE INDICATED ON THESE PLANS. IN STORAGE AND MECHANICAL ROOMS IT WILL NOT BE NECESSARY TO CENTER HEADS IN THE CEILING GRID.

BASIC PIPE AND FITTING MATERIAL REQUIREMENTS:									
MINIMUM PIPE SCHEDULE FOR VEND PIPING:	WELD/GROOVED/PLAIN	MISCELLANEOUS MATERIAL REQUIREMENTS:							
SCH. 7 (DYNAFLOW, ETC.)	BLACK STEEL PIPE	DOMESTIC MATERIAL ONLY							
√ SCH. 10	GALVANIZED PIPE	☑ DOMESTIC OR FOREIGN MATERIAL ACCEPTABLE							
☐ SCH. 40	"SEAMLESS"	MATERIAL TO MEET THE MINIMUM REQUIREMENTS OF NFPA 13							
☐ SCH. 80	SHOP PAINTED	MATERIAL TO BE UL LISTED AT A MINIMUM							
☐ CPVC		☐ MATERIAL TO BE UL LISTED <u>&</u> FM APPROVED							
		☐ DRAIN PIPE & FITTINGS TO BE "GALVANIZED"							
MINIMUM PIPE SCHEDULE FOR T	HREADED PIPING:	GALVANIZED PIPE & FITTINGS REQUIRED FOR EXTERIOR WALL PENETRATIONS & EXTERIOR PIPING RUNS.							
☐ "THREADABLE" LIGHTWALL	BLACK STEEL PIPE	HANGER MATERIAL							
✓ SCH. 40	GALVANIZED PIPE	HANGER MATERIAL							
☐ SCH. 80	"SEAMLESS"	STANDARD LOOP HANGER RINGS							
	SHOP PAINTED	CLEVIS HANGERS REQUIRED							
		☐ ALL THREAD ROD TO 'BLACK'							
		ALL THREAD ROD TO BE 'CAD PLATED'							
FITTINGS UTILIZED ON THIS PRO	JECT:	☐ "STAINLESS" HANGER MATERIAL REQUIRED							
GROOVED (STANDARD TAKEOUT)	C.I. SCREWED								
* GROOVED (SHORT RADIUS)		MISCELLANEOUS NOTES:							
GROOVED COUPLINGS (RIGID)									
GROOVED COUPLINGS (FLEXIBLE)		 All short radius ellbows are called out on the plans (when used). 							
	*▼ FLANGED 125#	2. Flanged fittings only used at the riser stub-up.							
WELDED OUTLETS MECHANICAL TEES	*☑ FLANGED 125# ☐ FLANGED 250#	2. Flanged fittings only used at the riser stub—up.							

GENERAL NOTES, LEGENDS & DETAILS



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NATHANIEL J. HATCHER, #59350 ENGINEER OF RECORD

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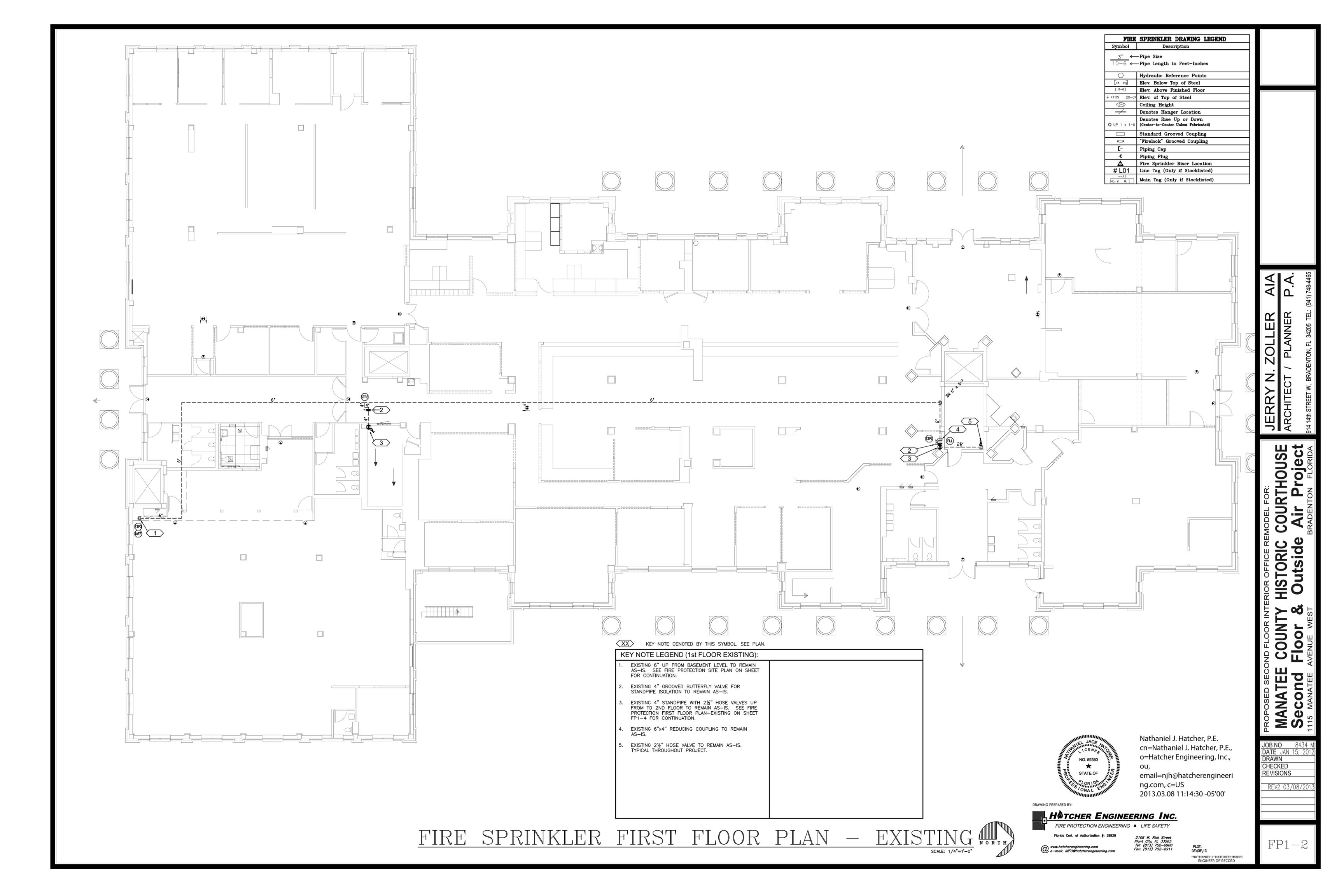
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REMOVE & DISCARD ALL SPRINKLER MAIN, BRANCH

LINE PIPE, FITTINGS, DROPS, HEADS, VALVES & HANGERS BEYOND THIS EXISTING 4"x2" MECHANICAL

TEE GROOVED OUTLET. REMAINING 2" GROOVED

OUTLET TO BE CAPPED.

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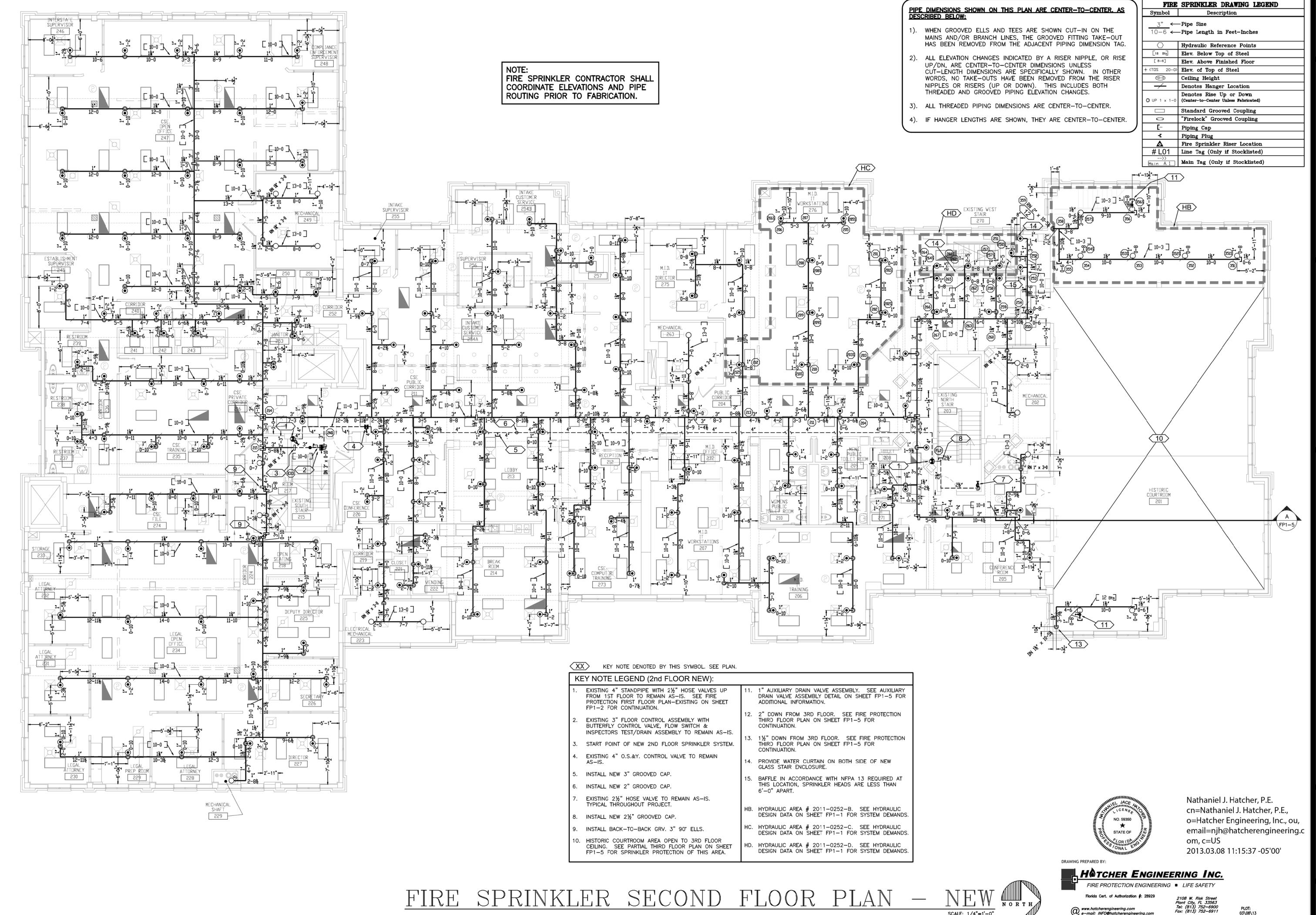
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HATCHER ENGINEERING INC. FIRE PROTECTION ENGINEERING LIFE SAFETY FIRE SPRINKLER SECOND FLOOR PLAN - EXISTING/DEMO

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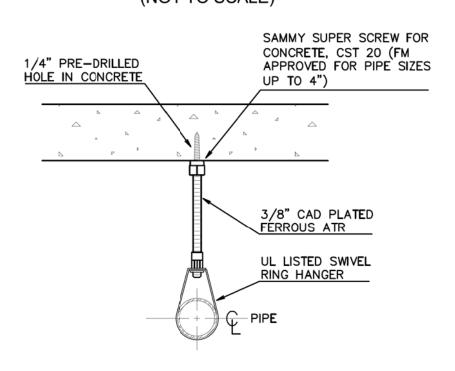
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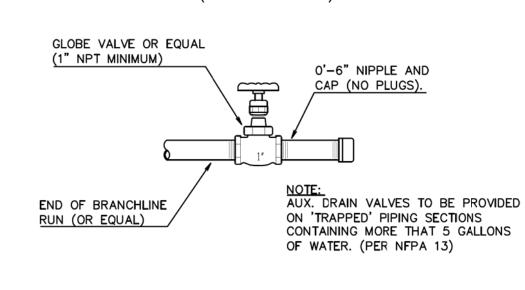
PIPE SUPPORT

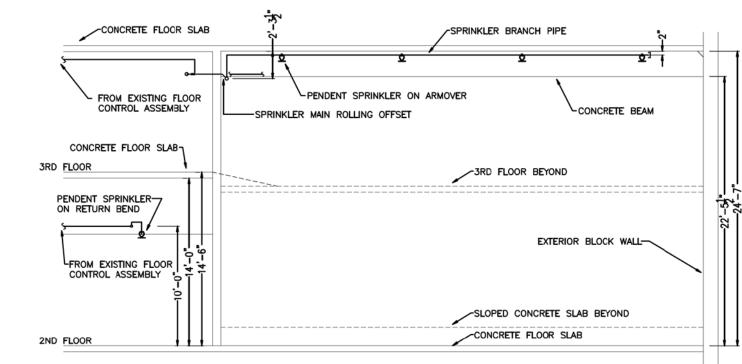
SAMMY SUPER SCREW FOR CONCRETE W/ RING HANGER (NOT TO SCALE)



AUXILIARY DRAIN VALVE

(NOT TO SCALE)





PARTIAL BUILDING SIMPLE CROSS SECTION SCALE: 1/8" = 1'-0"SCALE: 1/8" = 1'-0"

PIPE DIMENSIONS SHOWN ON THIS PLAN ARE CENTER—TO—CENTER. AS DESCRIBED BELOW:

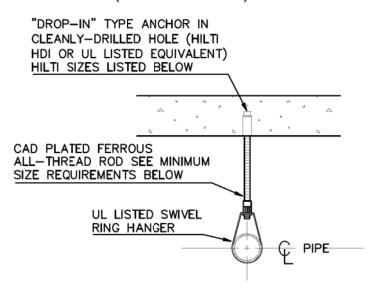
- 1). WHEN GROOVED ELLS AND TEES ARE SHOWN CUT-IN ON THE MAINS AND/OR BRANCH LINES, THE GROOVED FITTING TAKE-OUT HAS BEEN REMOVED FROM THE ADJACENT PIPING DIMENSION TAG.
- 2). ALL ELEVATION CHANGES INDICATED BY A RISER NIPPLE, OR RISE UP/DN, ARE CENTER-TO-CENTER DIMENSIONS UNLESS CUT-LENGTH DIMENSIONS ARE SPECIFICALLY SHOWN. IN OTHER WORDS, NO TAKE-OUTS HAVE BEEN REMOVED FROM THE RISER NIPPLES OR RISERS (UP OR DOWN). THIS INCLUDES BOTH THREADED AND GROOVED PIPING ELEVATION CHANGES.
- 3). ALL THREADED PIPING DIMENSIONS ARE CENTER-TO-CENTER.
- 4). IF HANGER LENGTHS ARE SHOWN, THEY ARE CENTER-TO-CENTER.

Symbol	Description										
	-Pipe Size										
10−6 ←	10−6 ← Pipe Length in Feet-Inches										
[18 Bts]	Elev. Below Top of Steel										
[8–6]	Elev. Above Finished Floor										
+ (TOS 20-0)	Elev. of Top of Steel										
10-0	Ceiling Height Denotes Hanger Location										
/											
○ UP 1 x 1-0	Denotes Rise Up or Down (Center-to-Center Unless Fabricated)										
	Standard Grooved Coupling										
	"Firelock" Grooved Coupling										
[-	Piping Cap										
-E	Piping Plug										
▲	Fire Sprinkler Riser Location										
# L01	Line Tag (Only if Stocklisted)										
>> Main A.1	Main Tag (Only if Stocklisted)										

FIRE SPRINKLER DRAWING LEGEND

PIPE SUPPORT

DROP-IN ANCHOR W/ RING HANGER (NOT TO SCALE)

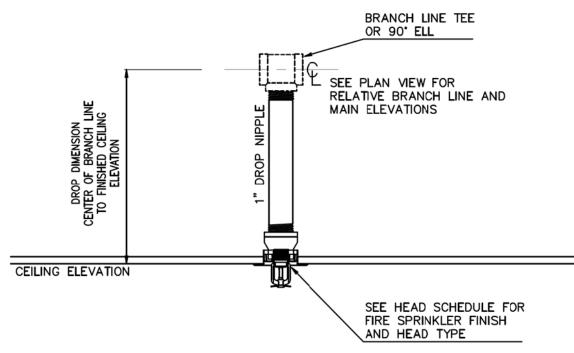


HILTI DROP-IN ANCHOR SIZES PIPE SIZES 1" - 2" -- HDI SIZE = 3/8" PIPE SIZES 2 1/2" - 8" -- HDI SIZE = 1/2"

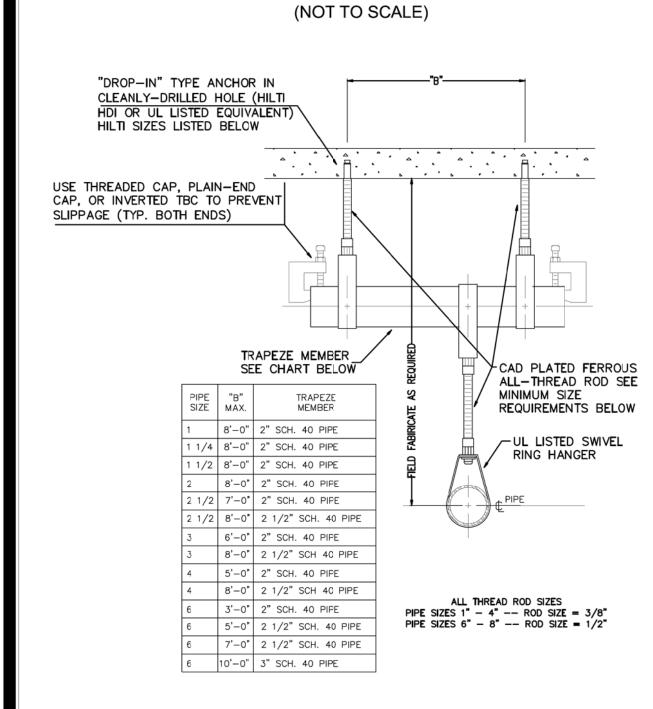
ALL THREAD ROD SIZES PIPE SIZES 1" - 4" -- ROD SIZE = 3/8" PIPE SIZES 5" - 8" -- ROD SIZE = 1/2"

TYPICAL RECESSED PENDENT

(NOT TO SCALE)

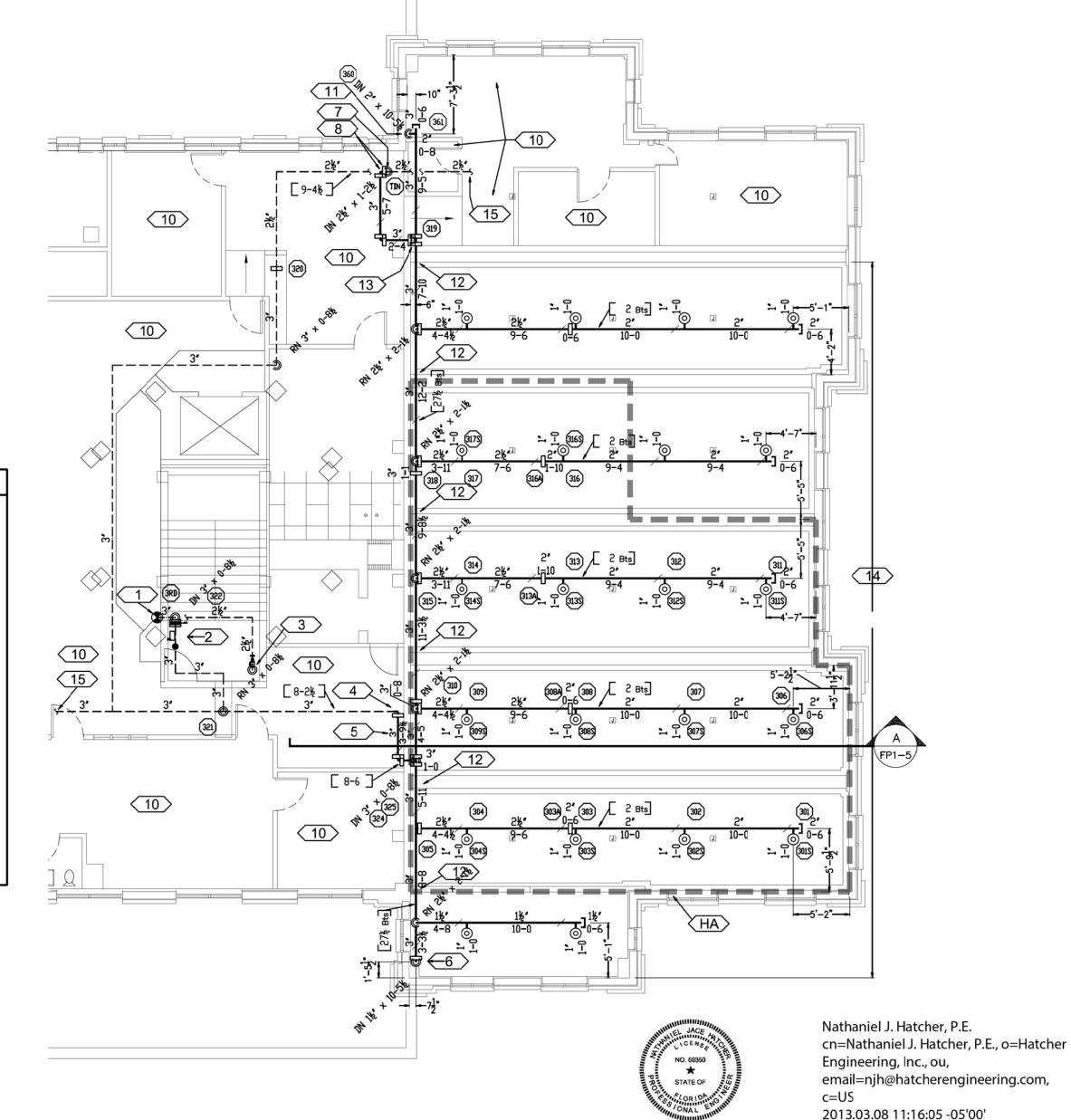


PIPE SUPPORT - TRAPEZE DROP-IN ANCHOR W/ RING HANGER



KEY NOTE DENOTED BY THIS SYMBOL. SEE PLAN.

K	EY NOTE LEGEND (3rd FLOOR NEW):				
1.	EXISTING 4" STANDPIPE WITH 2½" HOSE VALVES UP FROM 2ND FLOOR TO REMAIN AS—IS. SEE FIRE PROTECTION FIRST FLOOR PLAN—EXISTING ON SHEET FP1—4 FOR CONTINUATION.		NOT USED. THIS IS AN EXISTING OFFICE AREA WITH SPRINKLERS TO REMAIN AS—IS. OFFICE FINISHES SHALL BE PROTECTED FROM DAMAGE DURING INSTALLATION OF	HA.	HYDRAULIC AREA # 2011-0252-A. SEE HYDRAULIC DESIGN DATA ON SHEET FOR SYSTEM DEMANDS.
2.	EXISTING 3" FLOOR CONTROL ASSEMBLY WITH BUTTERFLY CONTROL VALVE, FLOW SWITCH & INSPECTORS TEST/DRAIN ASSEMBLY TO REMAIN AS-IS.	l	NEW SPRINKLER PIPING. 2" DOWN TO LOWER LEVEL SPRINKLERS. SEE FIRE PROTECTION SECOND FLOOR PLAN ON SHEET FP1-4		
3.	EXISTING 2½" HOSE VALVE TO REMAIN AS-IS. TYPICAL THROUGHOUT PROJECT.	12.	FOR CONTINUATION. INSTALL NEW 3" GROOVED MAIN TIGHT TO UNDERSIDE		
4.	REMOVE EXISTING 3" GROOVED CAP. INSTALL NEW 3" GROOVED ELBOW & NEW SPRINKLER PIPING.		OF EXISTING STRUCTURAL BEAMS. MAIN TO BE COVERED BY FUTURE SOFFIT.		
5.	NEW 3" ROLLING OFFSET MAIN UP TO NEW ELEVATION OF +8'-6" CENTER LINE OF NEW PIPE.	13.	NEW 3" GROOVED 45° ELBOW & ROLLED 3" GROOVED BULLHEAD TEE OFFSET DOWN TO NEW ELEVATION TIGHT TO UNDERSIDE OF STRUCTURAL BEAMS.		
6.	$1\frac{1}{2}$ " DOWN TO LOWER LEVEL SPRINKLERS. SEE FIRE PROTECTION SECOND FLOOR PLAN ON SHEET FP1-4 FOR CONTINUATION.	14.	PROVIDE PENDENT HEADS ON 1" ARMOVERS IN HISTORIC COURTROOM. THIS AREA WILL BE MODIFIED IN THE FUTURE WITH RECESSED POCKET CEILINGS &		
7.	REMOVE EXISTING 2½" GROOVED ELBOW LOCATED AT THE BOTTOM OF THE EXISTING DROP PIPE. INSTALL NEW 2½" GROOVED TEE FOR NEW SPRINKLER SYSTEM SUPPLY.		CONCEALED PENDENT SPRINKLERS. 1" OUTLETS ON THE BRANCH LINE WILL BE UTILIZED TO INSTALL THE FUTURE SPRINKLERS. BRANCH LINE PIPING TO BE INSTALLED TIGHT TO UNDERSIDE OF EXISTING COURTROOM CEILINGS.		
8.	INSTALL NEW 3"x2½" GROOVED REDUCING COUPLING & 3" GROOVED ELBOW.	15.	EXISTING SPRINKLER SYSTEM CONTINUATION TO REMAIN AS-IS.		



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FIRE SPRINKLER PARTIAL THIRD FLOOR PLAN -

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