EGRESS TABLE			
TOTAL FLOOR AREA	9,500 SQUARE FEET		
TOTAL NUMBER OF OCCUPANTS	80 PESONS (CALCULATED)		
EXIT WIDTH REQUIRED	LEVEL - 12 INCHES	STAIRS - 16 INCHES	
EXIT WIDTH PROVIDED	LEVEL - 84 INCHES	STAIRS - 76 INCHES	
MAXIMUM TRAVEL DISTANCE	115 FEET		
MAXIMUM DEAD END CORRIDOR	14 FEET		
MAXIMUM COMMON PATH OF TRAVEL	57 FEET		

## LIFE SAFETY PLAN LEGEND

SMOKE TIGHT PARTITION

ONE HOUR RATED FIRE PARTITION

ONE HOUR RATED FIRE/SMOKE PARTITION

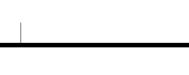
TWO HOUR RATED FIRE PARTITION

10lb ABC EXTINGUISHER IN SEMI-RECESSED CABINET

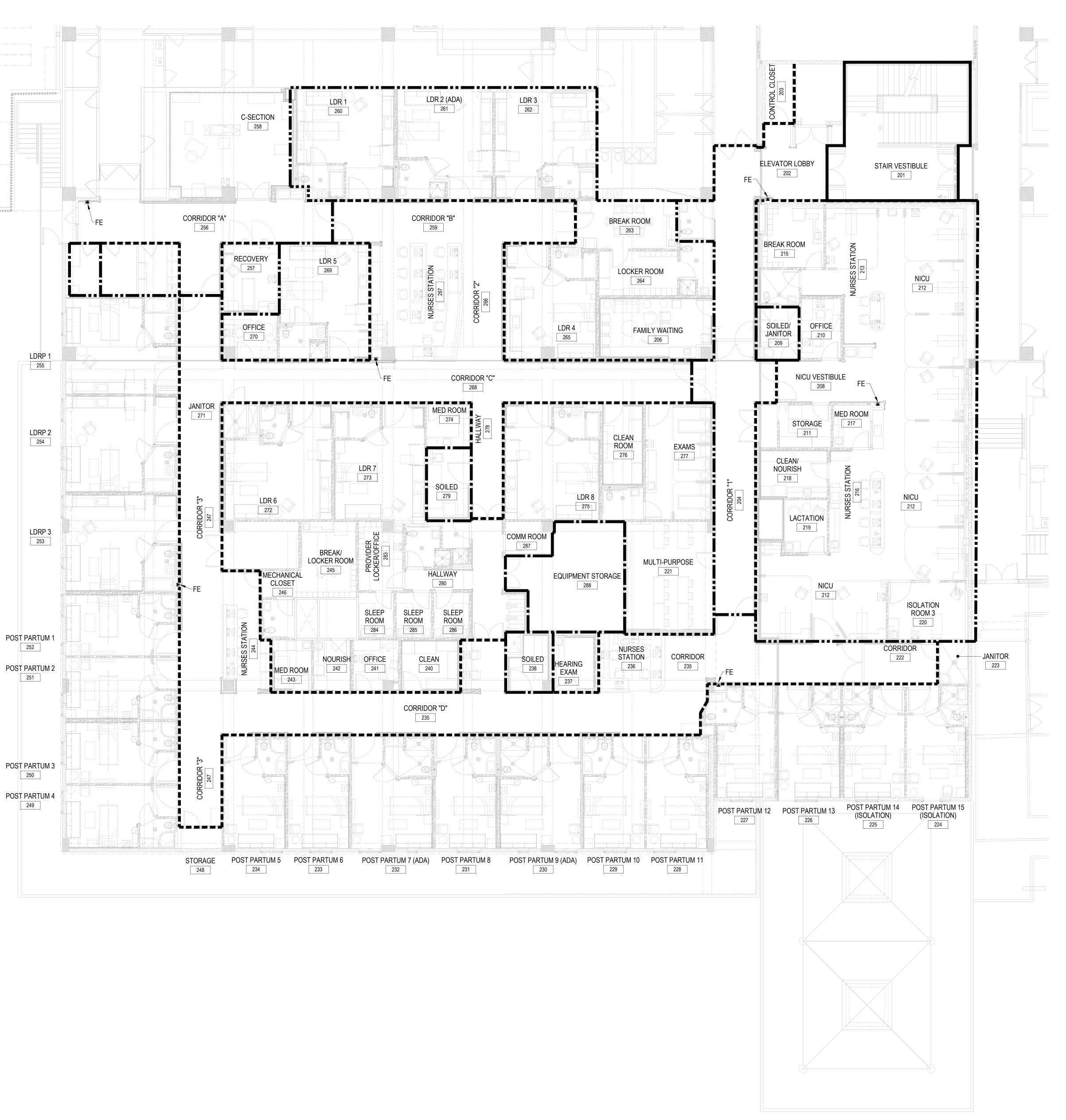
POST PARTUM 3 250

249



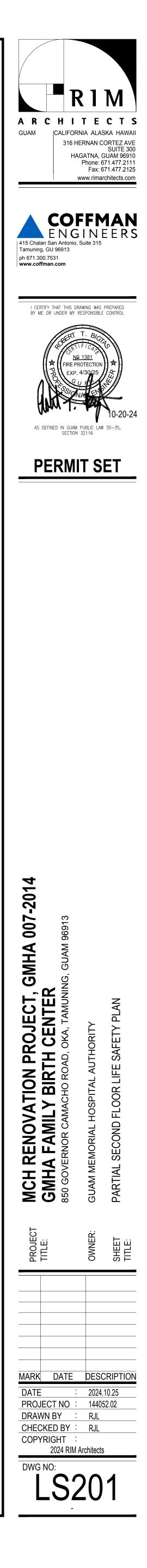














MAPPED SPECTRAL ACCELERATION FOR SHORT PERIODS

SEISMIC OCCUPANCY CATEGORY OF BUILDING

SEISMIC DESIGN CATEGORY BASED ON SDS

SEISMIC DESIGN CATEGORY BASED ON SD1

COMPONENT RESPONSE MODIFICATION FACTOR

DESIGN CATEGORY 'C' & 'D'.

COMPONENT IMPORTANCE FACTOR

COMPONENT AMPLIFICATION FACTOR

 $F_{P} = \underbrace{0.4 * A_{P} * S_{DS} * W_{P}}_{P} * (1+2*\underline{Z}) + \underbrace{Vv_{P} - 1.13 + W_{P}}_{H} + \underbrace{F_{P} = \underline{C_{P} * W_{P}}}_{H}$ 

FLUSHED IN ACCORDANCE WITH:

SYSTEMS) - 2013 EDITION

CHANGE 3, 1 MARCH 2013

PENETRATIONS.

MAPPED SPECTRAL ACCELERATION FOR A 1-SECOND PERIOD

MAXIMUM SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS

**GENERAL NOTES** 

SPRINKLER SYSTEM SHALL BE DESIGNED, INSTALLED, TESTED, AND

UFC 3-600-01 - FIRE PROTECTION ENGINEERING FOR FACILITIES-

NO INSTALLATION OF ANY PIPING OR EQUIPMENT IS TO BEGIN PRIOR TO

THE FIRE SPRINKLER SYSTEM SHOWN IS CONCEPTUAL. THE EQUIPMENT IS SHOWN IN SUGGESTED LOCATIONS, FINAL QUANTITY AND LAYOUT SHALL

RECOMMENDATIONS, AND EQUIPMENT LISTING. SHOP SUBMITTALS SHALL

APPROVAL OF PLANS BY THE DEPARTMENT OF PUBLIC WORKS.

BE IN ACCORDANCE WITH APPLICABLE CODES, MANUFACTURER'S

SHOW SPRINKLER DETAILS IN ACCORDANCE WITH FNPA 13 AND THE MANUFACTURER'S EQUIPMENT LISTING INSTALLATION REQUIREMENTS.

PROVIDE SPLIT-CHROME WALL PLATES AT ALL EXPOSED WALL

PIPE | FITTINGS AND OUTLETS

1" TO 2" SCHEDULE-40 BLACK CLASS-125 CAST IRON THREADED

FITTINGS (175 PSI RATED)

2.5" TO 4" SCHEDULE-40 WELDED OUTLETS WITH GROOVED ENDS AND PAINTED

DUCTILE IRON GROOVED FITTINGS (300 PSI RATED)

 $\textcircled{\begin{tabular}{c} \bullet \\ \bullet \end{array}}$ 

1-01-01-01-0

ALL SPRINKLERS SHALL BE CENTERED WITH 1"± OF THE CENTER POINTS OF CEILING TILES. (QUARTER POINTS ARE

ACCEPTABLE AS SHOWN OF PLANS)

 $oldsymbol{O}$ 

1-01-0

1.1. NFPA 13 (STANDARD FOR THE INSTALLATION OF SPRINKLER

NEHRP, AND ASCE/SEI 7-10 CRITERIA.

SITE CLASS

BASE

1.2.

PIPE SIZE

ц\_\_\_\_

 $\bigcirc$ 

SEISMIC BRACING REQUIREMENTS

DESCRIPTION OF SITE CONDITIONS

MAXIMUM SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIODS SD = 0.59

SEE CALCULATIONS BELOW FOR DETERMINATION OF FORCE FACTOR FOR SEISMIC

HEIGHT IN STRUCTURE OF POINT OF ATTACHMENT W/ RESPECT TO THE | Z = 10.0

AVERAGE ROOF HEIGHT OF STRUCTURE WITH RESPECT TO THE BASE H = 10.0

 $C_{P}$  = FORCE FACTOR  $F_{P}$  = SEISMIC DESIGN FORCE,

Ŵ<sub>p</sub> = 1.15 TIMES WEIGHT OF WATER FILLED PIPE

EARTHQUAKE BRACING SHALL CONFORM WITH N.F.P.A. #13 (2013 EDITION),

PROVI
FOUNE
FRANC
RESIS
NOMIN
PIPE
SIZE
INCH
1
1.25
1.5
2
2.5
3
4
6

S<sub>s</sub> = 2.79

 $S_1 = 0.68$ 

 $S_{DS} = 1.86$ 

| I<sub>⊳</sub> = 1.50

 $A_{P} = 2.50$ 

F<sub>P</sub>=<u>1.86 \* W<sub>P</sub></u>

R<sub>□</sub>= 4.50

WHERE -ON ALL EXCEED DIAMET

MOVEM -RESTF

-WIRE THE HAI RESISTS SURGE 



OPTION



## FIRE PUMP

TYPICAL RETURN BEND

BUILDING HAS AN EXISTING ELECTRIC DRIVEN HORIZONTAL SPLIT-CASE FIRE PUMP WITH THE FOLLOWING RATINGS BASED UPON NAME PLATE DATA:

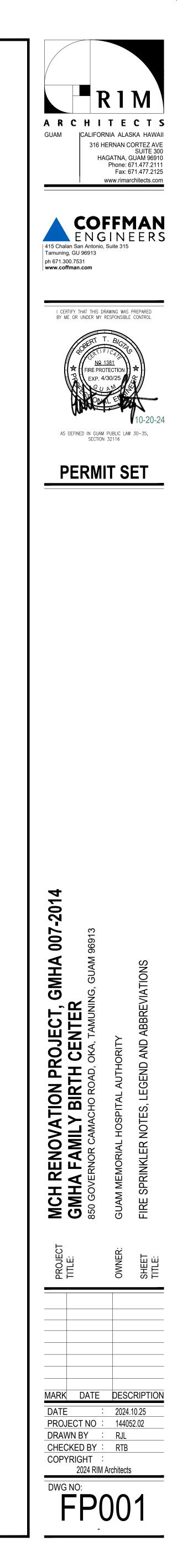
MODEL: AURORA 3-481-10 (S/N 1183012) RATED: 70 PSI AT 500 GPM

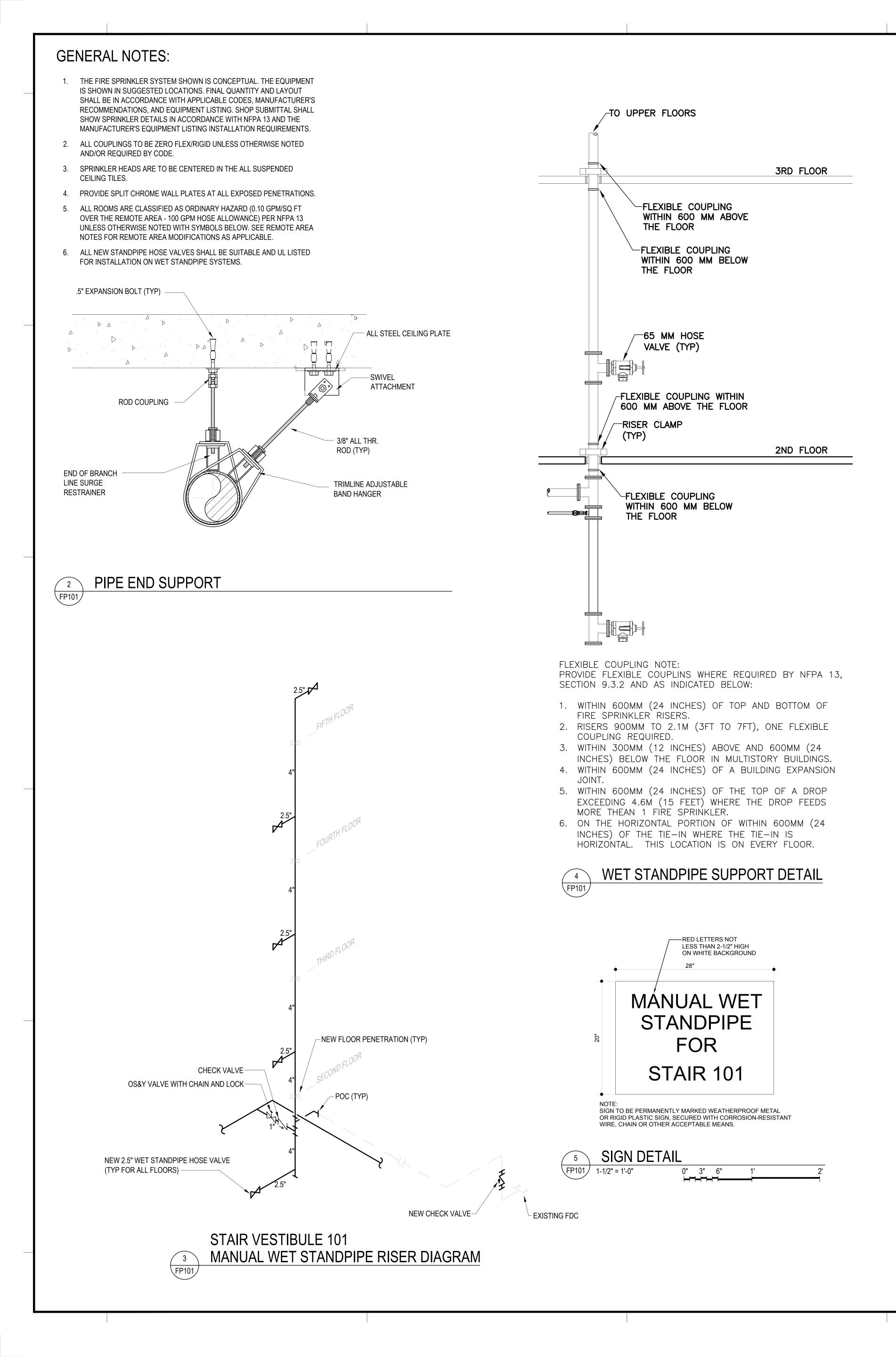
	SEISMIC C	CLEARANCE REQUIREMENTS		
/IDE CLEARANCE AT ALL PIPING EXTENDING THROUGH WALLS, FLOORS, NDATIONS. NO CLEARANCE REQUIRED AT GYPSUM BOARD OR EQUALLY IGIBLE CONSTRUCTION THAT IS NOT REQUIRED TO HAVE A FIRE STANCE RATING.				
NAL E E H	CORE DRILL HOLE OR PIPE SLEEVE SIZE INCH 3	AT CONTRACTORS OPTION FLEXIBLE COUPLINGS MAY BE INSTALLED WITHIN 12" OF THE WALL SURFACE ON EACH SIDE AND THE CLEARANCES NOTED ARE NOT REQUIRED.		
5	4 4 4 6	FIRE CAULK HOLE AND PROVIDE SPLIT CHROME WALL PLATES AT ALL EXPOSED WALL LOCATIONS.		
	6 8 10	(NOTE THAT AT <u>NON-RATED</u> FRANGIBLE GYPSUM BOARD WALLS NO CLEARANCE IS REQUIRED)		

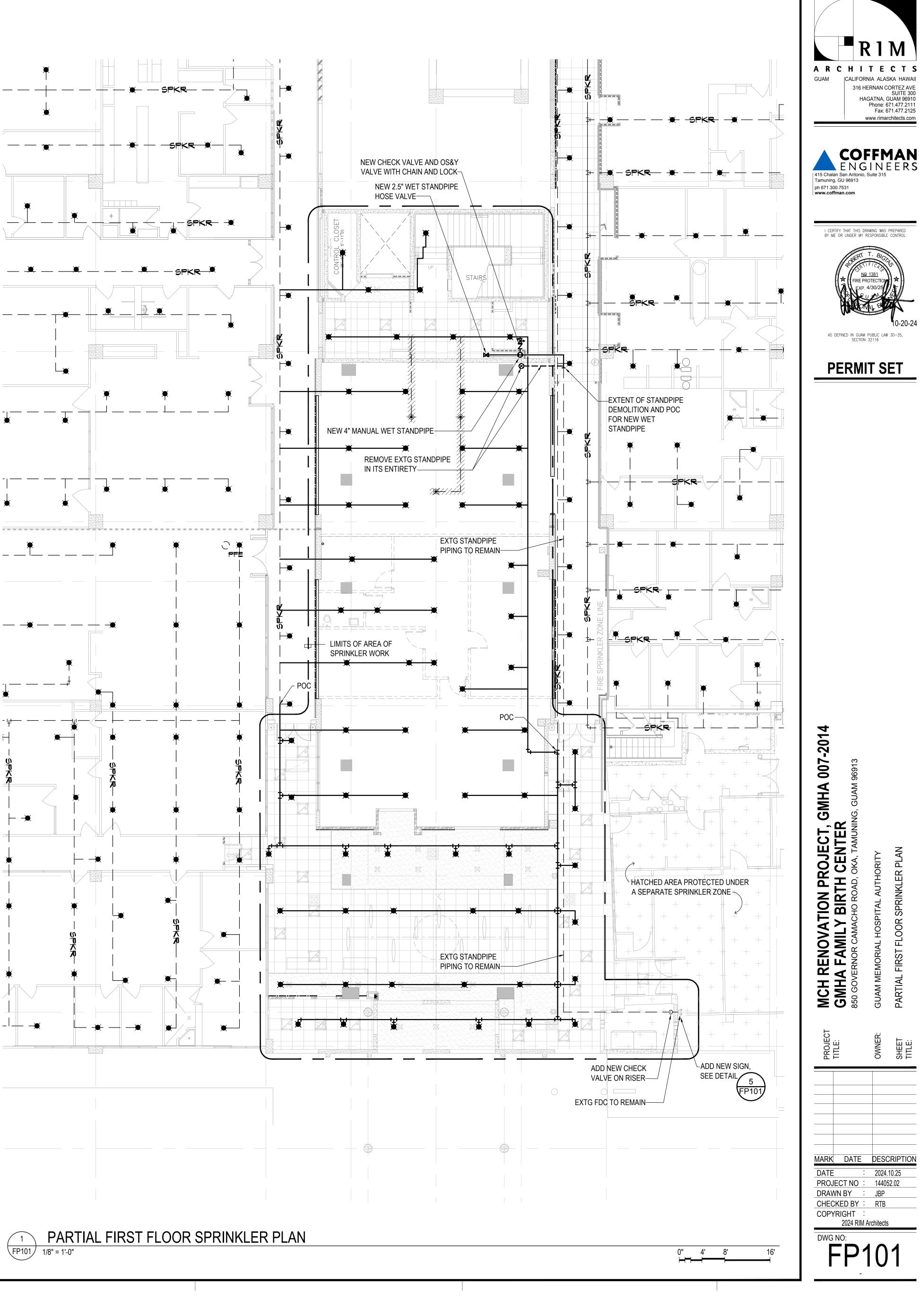
BRANCHLINE RESTRAINT REQUIREMENTS				
PER N.F.P.A 2013, CHAPTER 9.3.6SEISMIC COEFFICIENT, $C_P = 1.32$ STEEL BRANCH LINE SIZESEE SEISMIC CALCULATIONS FOR $C_PVALUES$ 1"1.25"1.5"2"MAXIMUM SPACING OF BRANCH LINE RESTRAINTS26'27'29'31'				
<u>WHERE NOT REQUIRED</u> : -NO RESTRAINT REQUIRED IF HANGER ROD IS LESS THAN 6" LONG MEASURED BETWEEN THE TOP OF THE PIPE AND THE POINT OF ATTACHMENT TO THE BUILDING STRUCTURE.				
$\frac{\text{WHERE REQUIRED:}}{-ON ALL BRANCH LINES (WITH HANGER ROD >6") AT INTERVALS NOT EXCEEDING THOSE SPECIFIED IN TABLE ABOVE BASED ON BRANCH LINE DIAMETER AND THE VALUE OF Cp.$				
-SPRIG-UPS 4'-0" OR LONGER SHALL BE RESTRAINED AGAINST LATERAL MOVEMENT.				
<ul> <li>-RESTRAINT SHALL BE PROVIDED BY USE OF ONE OF THE FOLLOWING:</li> <li>1. A LISTED SWAY BRACE ASSEMBLY</li> <li>2. A WRAPAROUND U-HOOK</li> <li>3. #12, 440-LB WIRE INSTALLED AT LEAST 45° FROM THE VERTICAL PLANE AND ANCHORED ON BOTH SIDES OF THE PIPE.</li> <li>4. A HANGER NOT LESS THAN 45 DEGREES FROM VERTICAL INSTALLED WITHIN 6" OF THE VERTICAL HANGER ARRANGED FOR RESTRAINT AGAINST UPWARD MOVEMENT, PROVIDED IT IS UTILIZED SUCH THAT L/R DOES NOT EXCEED 300, WHERE THE ROD SHALL EXTEND TO THE PIPE OR HAVE A SURGE CLIP RESTRAINT.</li> <li>5. OTHER APPROVED MEANS</li> </ul>				
-WIRES USED FOR PIPING RESTRAINTS SHOULD BE ATTACHED TO THE BRANCH LINE WITH TWO TIGHT TURNS AROUND THE PIPE AND FASTENED WITH FOUR TIGHT TURNS WITHIN 1.5" AND ATTACHED TO THE STRUCTURE WITH MEANS APPROVED BY NFPA.				
-WIRE USED FOR RESTRAINT SHALL BE LOCATED WITHIN 2 FT OF A HANGER. THE HANGER CLOSEST TO A WIRE RESTRAINT SHALL BE OF A TYPE THAT RESISTS UPWARD MOVEMENT OF A BRANCH LINE SUCH AS A TOLCO FIG. 25 SURGE CLIP OR EQUAL.				
1/4"x2" LONG CONCRETE SIDEWINDER INSTALLED VERTICALLY EACH SIDE OF PIPE				
#12 SPLAYED SEISMIC RESTRAINT WIRE WITH (4) TIGHT TURNS MINIMUM AT SCREW				
(2) TIGHT TURNS AROUND PIPE AND WITHIN 24" OF HANGER WITH SURGE CLIP				
OPTION A - BRANCHLINE RESTRAINT				
TO HANGER 45° TO 60° THREADED SIDE BEAM BRACKET BEND TO CORRECT ANGLE				
3/8" ALL THREAD ROD TO A MAXIMUM LENGHT OF 2'-4"				
SURGE RESTRAINT CLIP AT EACH PIPE RING.				

**OPTION B - BRANCHLINE RESTRAINT** 

FIRE SPRINKLER LEGEND			
SYMBOL	DESCRIPTION		
-	PRINKLER TEMPERATURES MAYBE NOTED NEXT TO SYMBOL MEDIATE; HIGH = HIGH TEMPERATURE)		
	PENDENT SPRINKLER ON - LINE		
	PENDENT SPRINKLER ON - LINE PENDENT SPRINKLER ON - LINE		
<b>X</b>	PENDENT SPRINKLER ON - LINE		
	PENDENT SPRINKLER ON - DROP		
) () () () () () () () () () () () () ()	PENDENT SPRINKLER ON - DROP PENDENT SPRINKLER ON - DROP		
	PENDENT SPRINKLER ON - DROP		
0	UPRIGHT SPRINKLER ON - LINE		
0 X	UPRIGHT SPRINKLER ON - SPRIG UPRIGHT SPRINKLER ON - LINE		
×	UPRIGHT SPRINKLER ON - LINE		
	DOUBLE COMPLIMENT SPRINKLER SIDEWALL SPRINKLER HEAD		
$\triangleright$	SIDEWALL SPRINKLER HEAD		
$\bigcirc$	SIDEWALL SPRINKLER HEAD		
	EXISTING PENDENT SPRINKLER EXISTING UPRIGHT SPRINKLER		
	LATERAL OR LONGITUDINAL SWAY BRACE		
4	COMBINATION LATERAL AND LONGITUDINAL SWAY BRACE		
FS TS	FLOW SWITCH TAMPER SWITCH		
<u></u>	SOLENOID VALVE		
	LOW AIR ALARM PRESSURE REDUCING VALVE		
PRV PS	PRESSURE REDUCING VALVE PRESSURE SWITCH		
	CHECK VALVE		
≝w, OR <b>125</b> <b>⊢∝⊡</b>	BUTTERFLY VALVE (GROOVED OR SCREWED) ANGLE VALVE		
	GLOBE VALVE		
× I	OUTSIDE STEM & YOKE GATE VALVE		
<u></u>	POST INDICATOR VALVE FREE STANDING FIRE DEPARTMENT CONNECTION		
XX-XX	PIPE CENTERLINE FROM FINISHED FLOOR		
	HYDRAULIC NODE POINT		
	CEILING HEIGHT RISER		
*	DISTANCE PIPE FROM DECK		
	FLANGE GROOVED ELBOW UP		
G G	GROOVED ELBOW DOWN		
æ	GROOVED COUPLING		
 	SCREWED ELBOW DOWN SCREWED ELBOW UP		
	HANGER SYMBOL #1		
	HANGER SYMBOL #2		
	HANGER SYMBOL #3 HANGER SYMBOL #4		
	HANGER SYMBOL #5		
AFF	SEISMIC RESTRAINT ABOVE FINISHED FLOOR		
AFF ATR	ABOVE FINISHED FLOOR ALL THREAD ROD		
A.S.	AUTOMATIC SPRINKLER		
CIF DN	CUT IN FIELD		
FG	DOWN FINISHED GRADE		
GALV	GALVANIZED		
GBE GOE	GROOVE BOTH ENDS GROOVE ONE END		
GOE	GALVANIZED MALLEABLE IRON		
OS&Y	OUTSIDE STEM & YOKE		
RN TBE	RISER NIPPLE THREAD BOTH ENDS		
TOE	THREAD ONE END		
T&G			
UON W/	UNLESS OTHERWISE NOTED WITH		







## **GENERAL NOTES:**

- 1. THE FIRE SPRINKLER SYSTEM SHOWN IS CONCEPTUAL. THE EQUIPMENT IS SHOWN IN SUGGESTED LOCATIONS. FINAL QUANTITY AND LAYOUT SHALL BE IN ACCORDANCE WITH APPLICABLE CODES, MANUFACTURER'S RECOMMENDATIONS, AND EQUIPMENT LISTING. SHOP SUBMITTAL SHALL SHOW SPRINKLER DETAILS IN ACCORDANCE WITH NFPA 13 AND THE MANUFACTURER'S EQUIPMENT LISTING INSTALLATION REQUIREMENTS.
- BY CODE.

- AREA 100 GPM HOSE ALLOWANCE) PER NFPA 13 UNLESS OTHERWISE NOTED WITH SYMBOLS BELOW. SEE REMOTE AREA NOTES FOR REMOTE AREA MODIFICATIONS AS APPLICABLE.
- (OH1) ORDINARY HAZARD GROUP 1 0.15 GPM/SQ FT OVER REMOTE AREA 250 GPM HOSE (OH2) ORDINARY HAZARD GROUP 2 - 0.20 GPM/SQ FT OVER REMOTE AREA - 250 GPM HOSE
- INSTALLATION ON WET STANDPIPE SYSTEMS.

