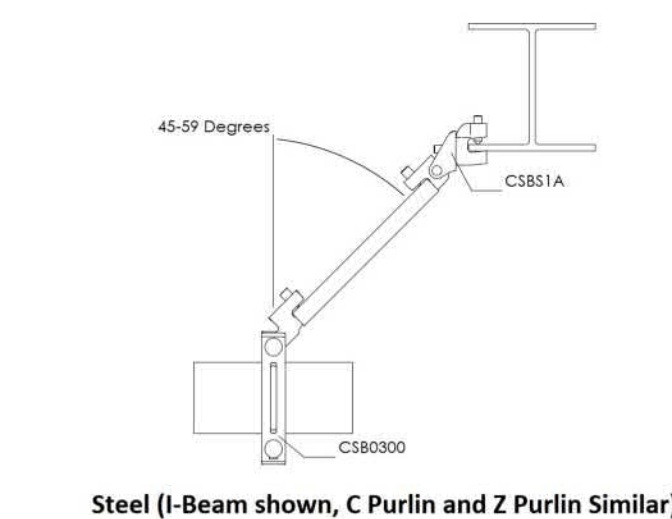
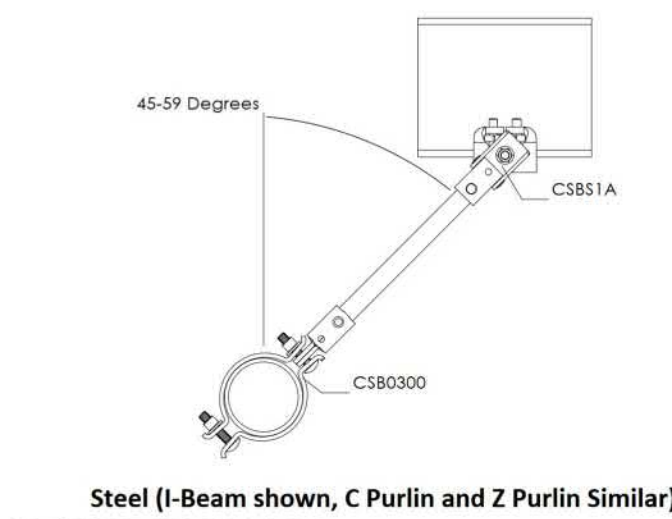




SEISMIC BRANCH LINE RESTRAINT
(Cp=0.79):
1\"/>

LINE RESTRAINT DETAIL

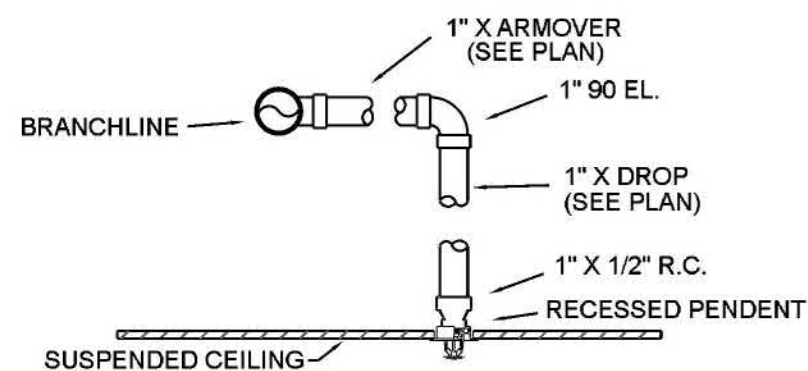
BRANCHLINE RESTRAINT SYMBOL SHOWN ON PLAN



FLEXIBLE COUPLINGS SHALL BE INSTALLED AS FOLLOWS:

- WITHIN 24\"/>

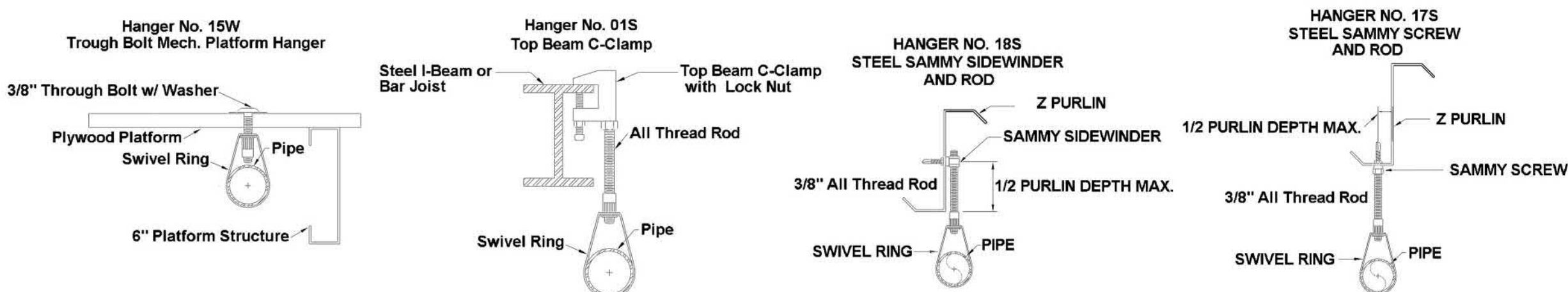
SEISMIC BRACING DETAILS



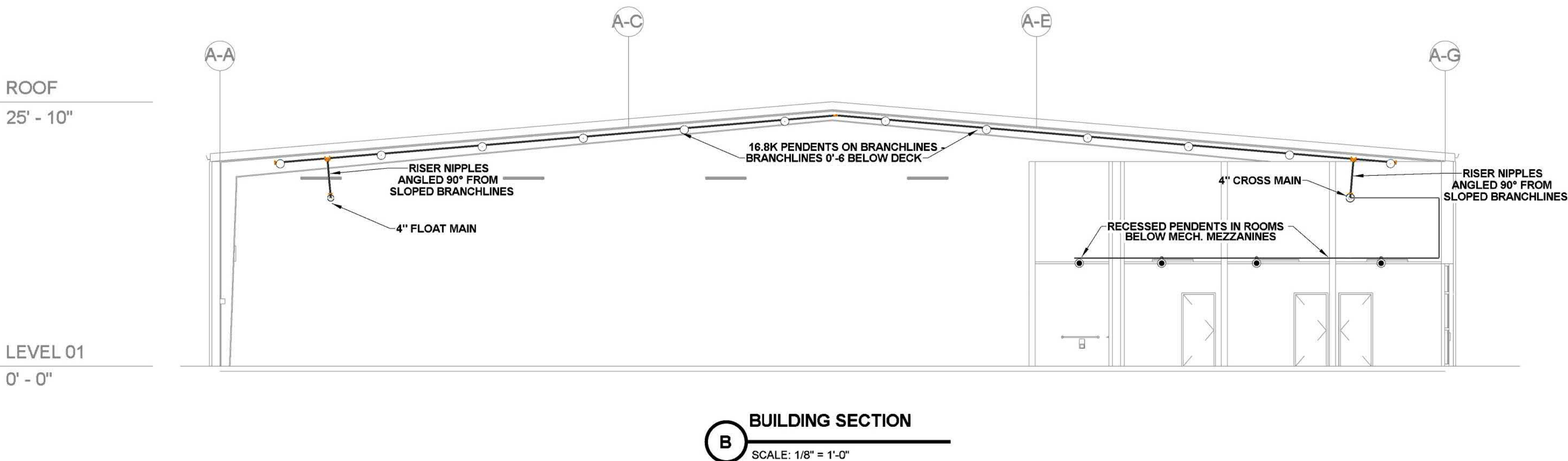
TYP. SPRINKLER CONNECTION ASSEMBLY

MAXIMUM DISTANCE BETWEEN HANGERS (FT.-IN.)

	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
STEEL PIPE EXCEPT THREADED LIGHTWALL	NA	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0

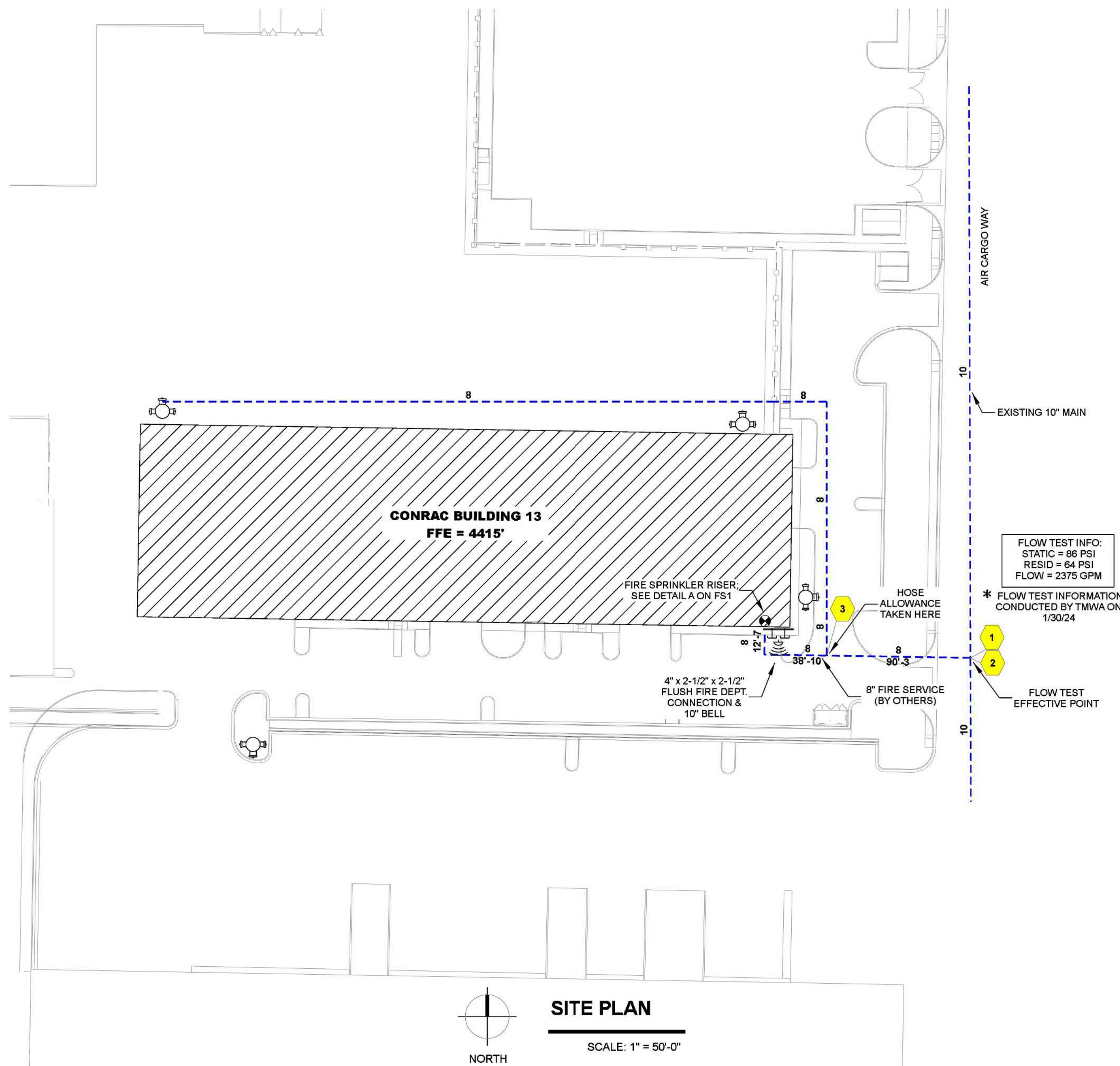


HANGER DETAILS



BUILDING SECTION

SCALE: 1/8\"/>



SITE PLAN

SCALE: 1\"/>

Sprinkler Legend - BUILDING 13											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temp	MAX. Spacing
●	Tyco	TY7223	ESFR-17	500	16.8	Pendent	1/2"	Fast	Brass	212°F	N/A
○	Tyco	TY323	TY-FRB	85	5.6	Pendent	3/4"	Quick	Chrome	200°F	15' x 15'
○	Tyco	TY4151	TY-B	9	8	Upright	3/4"	Standard	Natural Brass	200°F	100 S.F.
Total = 574											

SCOPE OF WORK

HAS BEEN CONTRACTED TO INSTALL A NEW TWO ZONE WET PIPE SPRINKLER SYSTEM IN A WAREHOUSE. THE WAREHOUSE WILL BE 48,280 SQ FT DESIGNED TO EXTRA HAZARD GROUP 1. THE EACH ZONE IS GRIDDED WITH A TOTAL OF XXX NEW ESFR PENDENT SPRINKLERS WITH HEADS SPACED AT A MAXIMUM OF 100 SQ FT AREAS UNDER MECHANICAL MEZZANINES IN FINISHED ROOMS WILL BE PROTECTED BY 64 NEW SSP SPRINKLERS. NO WORK WILL BEGIN UNTIL PLANS HAVE BEEN APPROVED.

GENERAL INFORMATION

- INTERNATIONAL BUILDING CODE (2018)
 - OCCUPANCY: S-1
 - TYPE OF CONSTRUCTION: II-B
 - SPRINKLERED AREAS (APPROXIMATE - SEE ARCHITECTURAL PLANS FOR ACTUAL)
 - WET ZONE 1 (AREA A & B) = 25,100 S.F.
 - WET ZONE 2 (AREA C) = 24,000 S.F.
 - AUTHORITY HAVING JURISDICTION (AHJ) = CITY OF RENO
 - DESIGN & INSTALLATION STANDARDS: NFPA-13 (2016), NFPA-20 (2016)
- SPRINKLER PIPE TYPES:
 - WET:
 - 1\"/>
 - 1-1/4\"/>
 - 2\"/>
- DESIGN CRITERIA:
 - LIGHT HAZARD AREAS INCLUDE OFFICE/ADMINISTRATIVE, RESTROOMS, AND CORRIDORS
 - ORDINARY HAZARD GROUP I AREAS INCLUDE MECHANICAL AND ELECTRICAL ROOMS
 - ESFR STORAGE PROTECTION PER NOTES BELOW

- NOTES:
 - ALL MATERIAL TO BE NEW AND MEET U.L. STANDARDS
 - HANGERS TO BE INSTALLED IN ACCORDANCE WITH NFPA 13 - SEE PLAN FOR HANGING
- SYMBOLS USED ON DRAWINGS:

- PIPE ELEVATION ABOVE FINISH FLOOR
- PIPE ELEVATION BELOW BOTTOM OF PURLIN
- ROOM HAZARD CLASSIFICATION (ALL ROOMS ARE CONSIDERED LIGHT HAZARD U.N.O.)
- SMALL ROOM DESIGN CONSIDERATIONS HAVE BEEN APPLIED TO THIS COMPARTMENT
- HYDRAULIC CALCULATION JUNCTION POINT
- CEILING HEIGHT
- HANGER LOCATION
- WET BLACK STEEL PIPE
- UNDERGROUND PIPE

ESFR SYSTEM INFORMATION

- GENERAL REQUIREMENTS
 - SPRINKLERS CAN PROTECT A MAXIMUM OF 100 SQ. FT. ON AVERAGE
 - 36\"/>
 - OPEN TOP CONTAINERS SHALL NOT BE PERMITTED TO BE USED WITHIN THE STRUCTURE FOR
 - SOLID SHELVING SHALL NOT BE PERMITTED TO BE USED WITHIN THE BUILDING
- BUILDING PROPERTIES
 - SPRINKLERS CAN PROTECT A MAXIMUM OF 100 SQ. FT. ON AVERAGE
 - MAXIMUM BUILDING HEIGHT OF 30'-0\"/>
- STORAGE CRITERIA
 - IDLE PALLETS OF ANY TYPE ARE PERMITTED TO BE STORED WITHIN THE BUILDING ON THE FLOOR OR IN RACKS
 - NO OPEN TOP CONTAINERS ALLOWED ON RACKS AND SHELVES; ALL CONTAINERS SHALL BE CLOSED TOP
 - ALL SHELVES SHALL BE OPEN; SOLID SHELVES SHALL NOT BE PERMITTED WITHIN THE FACILITY
 - DESIGN AREAS INCLUDE 12 SPRINKLERS TOTAL; FOUR SPRINKLERS ON THREE BRANCH LINES UNLESS OTHERWISE SPECIFIED
 - DESIGN AREAS INCLUDE 12 SPRINKLERS TOTAL; FOUR SPRINKLERS ON THREE BRANCH LINES UNLESS OTHERWISE SPECIFIED
 - K16.8 PENDENT SPRINKLERS SELECTED; CLASS 1, 2, 3, AND 4, CARTONED NONEXPANDED GROUP A PLASTICS, CARTONED EXPANDED GROUP A PLASTICS, AND EXPOSED NONEXPANDED GROUP A PLASTICS PROTECTED
 - NO PROTECTION FOR EXPOSED EXPANDED GROUP A PLASTICS; STORAGE OF EXPOSED EXPANDED GROUP A PLASTICS NOT ALLOWED

AHJ APPROVAL BOX

REVISIONS

REV	DATE	DESCRIPTION
1	3-1-25	AREA A FOR FAB
2	3-1-25	FIRE PUMP ROOM COORDINATION
3	3-1-25	AREA C RELEASED FOR FAB
4	3-1-25	ADDITIONAL WALL FOR THE DUMP ROOM

THESE PLANS ARE PREPARED AND SUBMITTED BY THE CONTRACTOR AS AN EXEMPTION TO NRS 603.005 FOR WORK UNDER THE CONTRACTORS LICENSE

FIRE SPRINKLER PLANS

SITE PLAN, DETAILS, AND SECTION

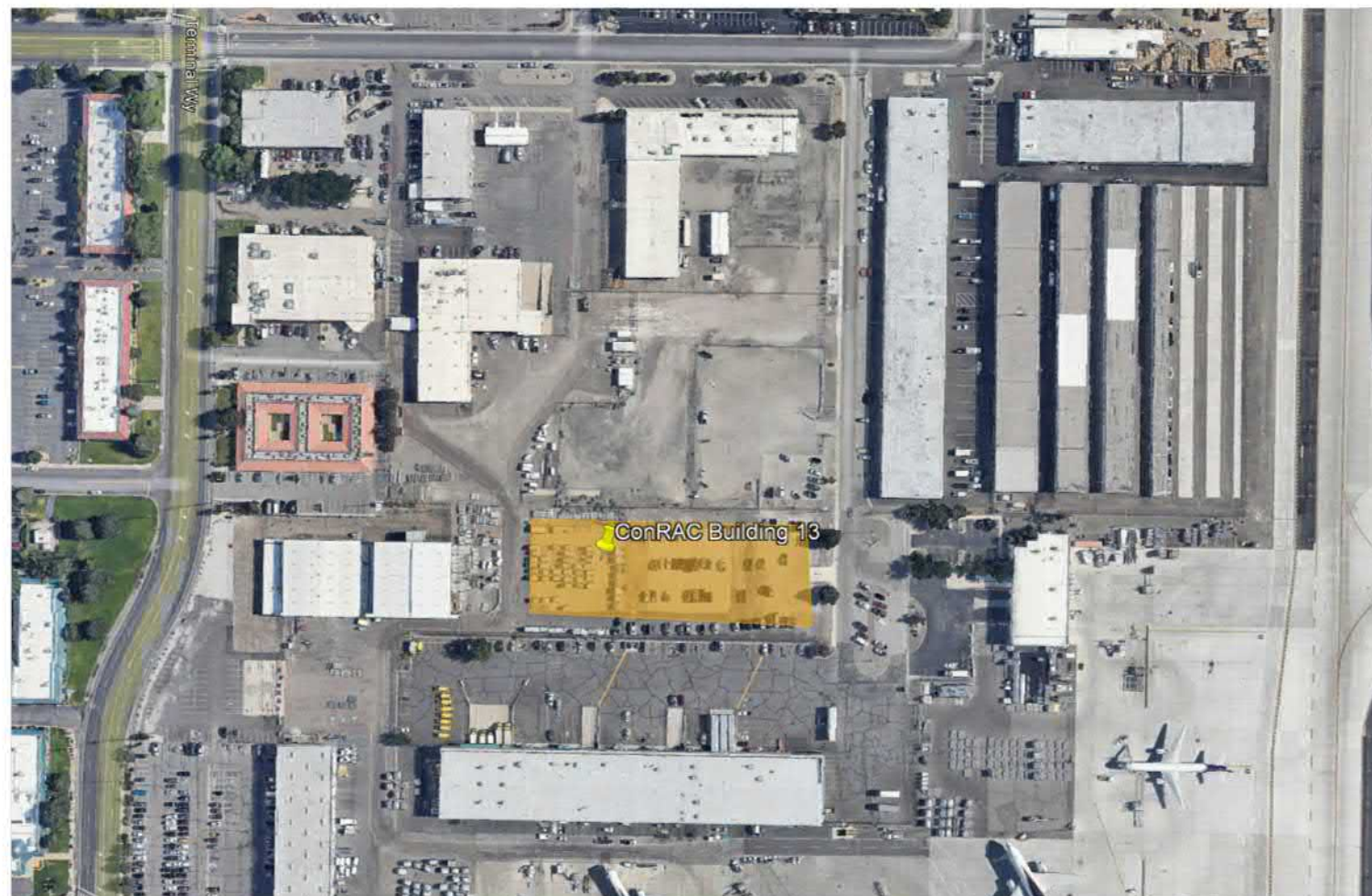
Reno-Tahoe International Airport Building 13
1335 Air Cargo Way
Reno, Nevada 89502,
APN 015-210-34 & 013-361-04

DRAWN BY:	ADR
CHECKED BY:	RH
DATE:	3-7-25
PROJECT NO.	5724194

SCALE: AS NOTED

Sheet No:

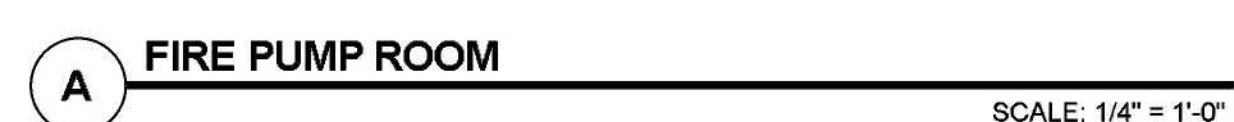
FS1 of 4



VICINITY MAP



NTS



18
17
16

6" TO ZONE 2 (24,000 S.F.)

14
13
12

4" TO ZONE 1 (25,100 S.F.)

1-1/4" TO PUMP ROOM

8" HOSE HEADER SUPPLY PIPE

8" SUCTION PIPE

4" TO FDC

JOCKEY PUMP CONTROLLER

FIRE PUMP CONTROLLER

21

15

10

9

8

7

6

5

4

3

2

1

19

20

8009

8008

8007

8006

8005

8004

8003

8001

8002

BYPASS LOOP CONNECTIONS

JOCKEY PUMP

FFE = 4415'-0"

SECTION VIEW

SCALE: 1/4" = 1'-0"



REV	DATE	DESCRIPTION
1	3-10-25	AREA RELEASED FOR FAB
2	3-17-25	FIRE PUMP ROOM COORDINATION
3	3-12-25	AREA C RELEASED FOR FAB
4	5-1-25	ADDITIONAL WALL FOR FIRE PUMP ROOM

THESE PLANS ARE PREPARED AND SUBMITTED BY THE CONTRACTOR AS AN EXEMPTION TO NRS 623.035 FOR WORK UNDER THE CONTRACTOR'S LICENSE

FIRE SPRINKLER PLANS

FIRE PUMP DETAILS

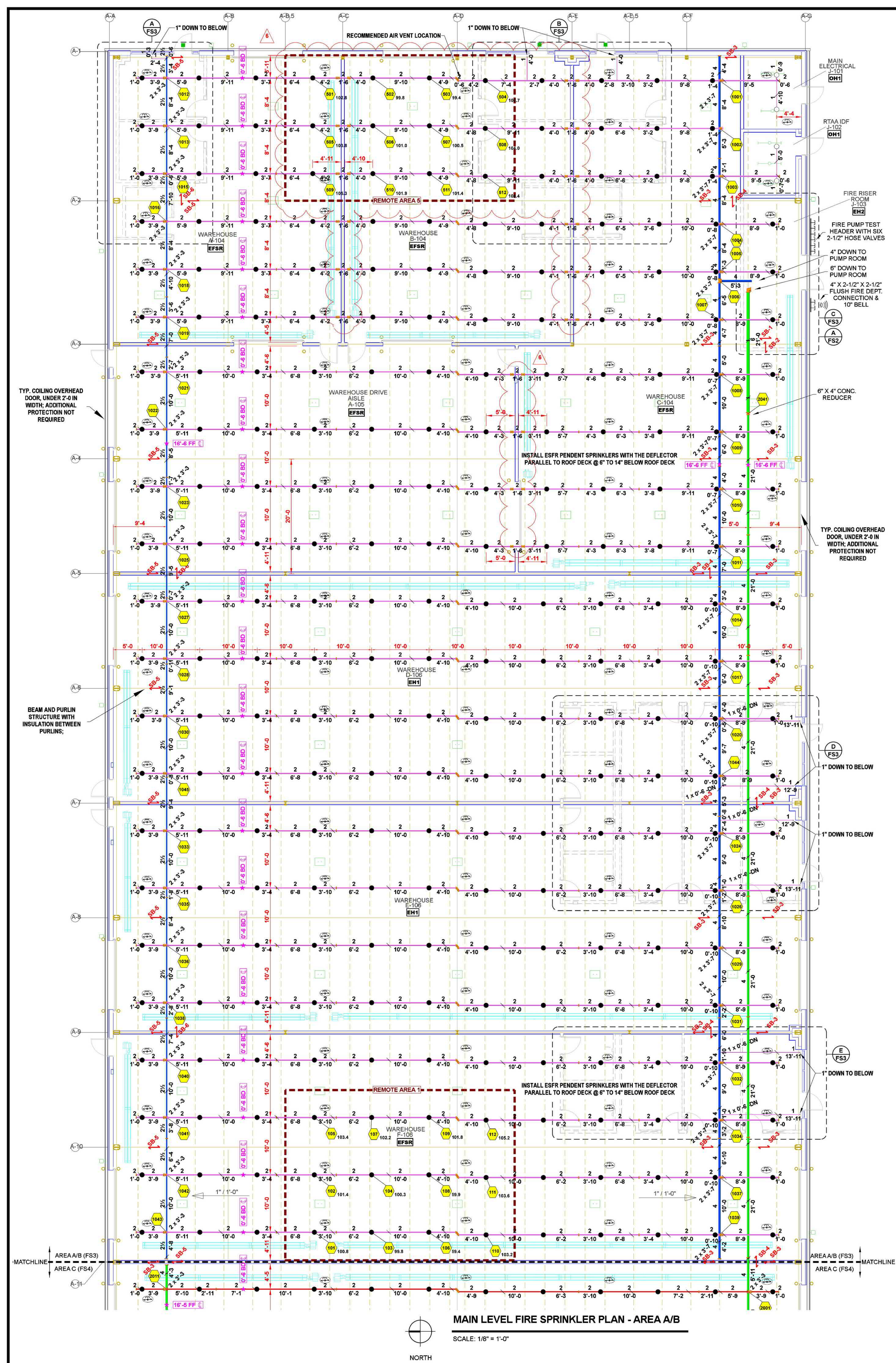
Reno-Tahoe International Airport Building 13
1335 Air Cargo Way
Reno, Nevada 89502,
APN 015-210-34 & 013-351-04

DRAWN BY:	ADK
CHECKED BY:	RH
DATE:	3-7-25
PROJECT NO.	5724194

0 2 4 6 8 10 12
SCALE: $\frac{1}{8}" = 1'-0"$

Sheet No:

FS2 of 4



WAREHOUSE A-104/B-104	
Remote Area 5	
OCCUPANCY CLASSIFICATION	ESFR
MIN. END HEAD PRESSURE	15.0 (ESFR)
TOTAL HOSE STREAMS	500.0
TOTAL HEADS FLOWING	12
K-FACTOR	16.8
TOTAL WATER REQUIRED	1727.1
TOTAL PRESSURE REQUIRED	38.3
BASE OF RISER (gpm)	1227.1
BASE OF RISER (psi)	104.4
SAFETY MARGIN (psi)	+35.5 (48.1%)

NOTE:
ESFR CALC FOR PALLETIZED, SOLID-PILED, OR RACK STORAGE OF CLASS I THROUGH CLASS IV AND GROUP A PLASTIC COMMODITIES

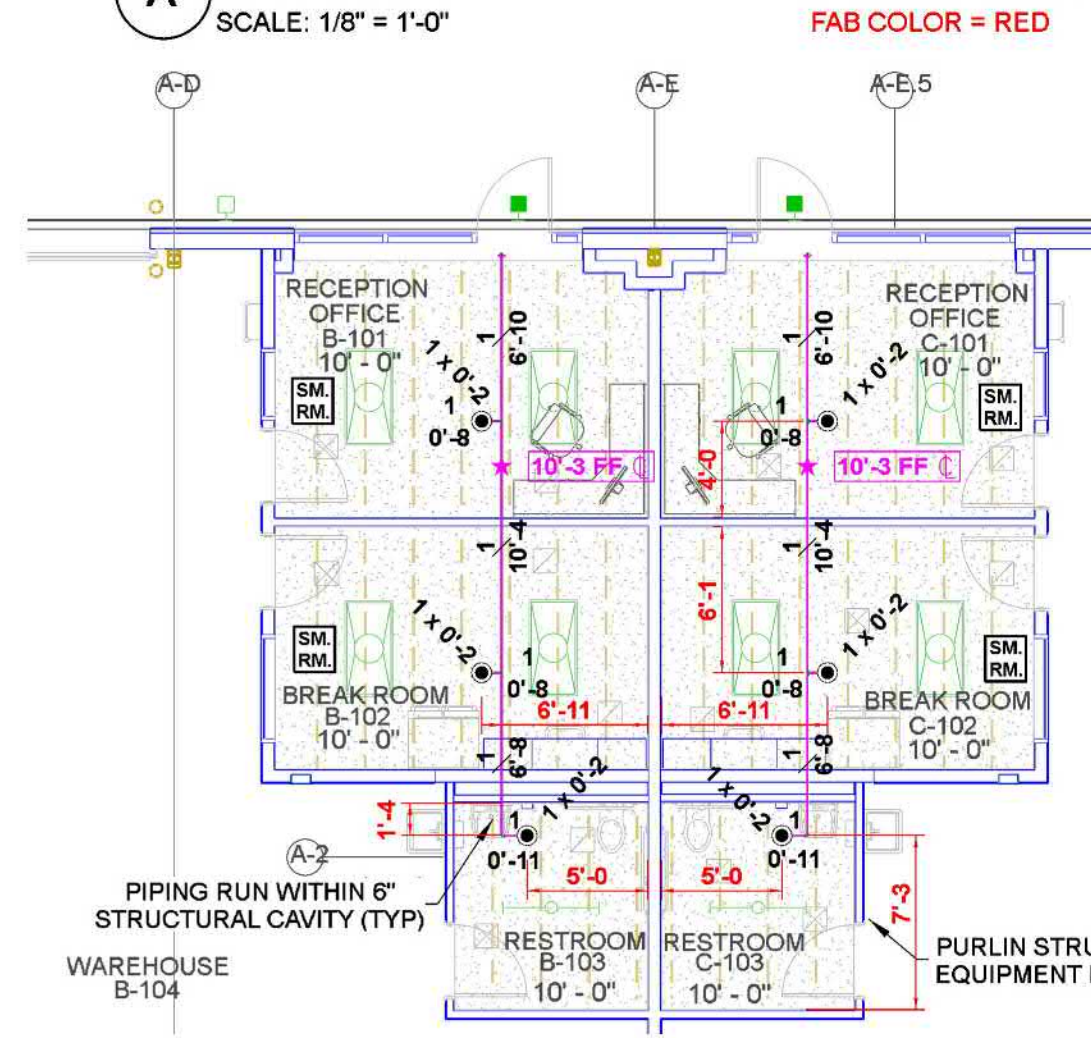
FIRE RISER ROOM J-103	
Remote Area 4	
OCCUPANCY CLASSIFICATION	Extra Hazard Group II
DENSITY (gpm/ft ²)	0.40 for 2600ft ² (Actual 262ft ²)
TOTAL HOSE STREAMS	3
TOTAL HEADS FLOWING	3
K-FACTOR	8
TOTAL WATER REQUIRED	622.6
TOTAL PRESSURE REQUIRED	47.0
BASE OF RISER (gpm)	122.6
BASE OF RISER (psi)	40.9
SAFETY MARGIN (psi)	+131.2 (155.9%)

NOTE:
ENTIRE EH2 SYSTEM CALCULATED

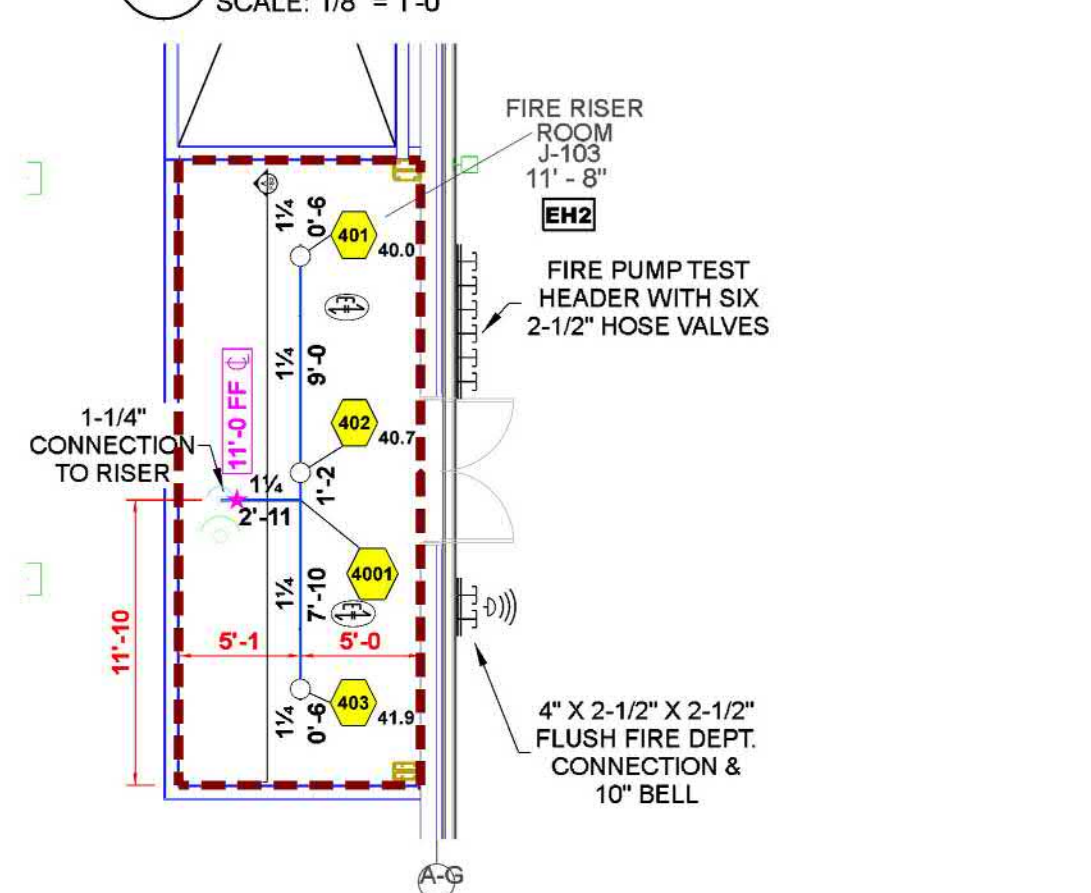
WAREHOUSE F-106	
Remote Area 1	
OCCUPANCY CLASSIFICATION	ESFR
MIN. END HEAD PRESSURE	15.0 (ESFR)
TOTAL HOSE STREAMS	500.0
TOTAL HEADS FLOWING	12
K-FACTOR	16.8
TOTAL WATER REQUIRED	1721.0
TOTAL PRESSURE REQUIRED	61.4
BASE OF RISER (gpm)	1221.0
BASE OF RISER (psi)	120.2
SAFETY MARGIN (psi)	+12.4 (16.8%)

NOTE:
ESFR CALC FOR PALLETIZED, SOLID-PILED, OR RACK STORAGE OF CLASS I THROUGH CLASS IV AND GROUP A PLASTIC COMMODITIES

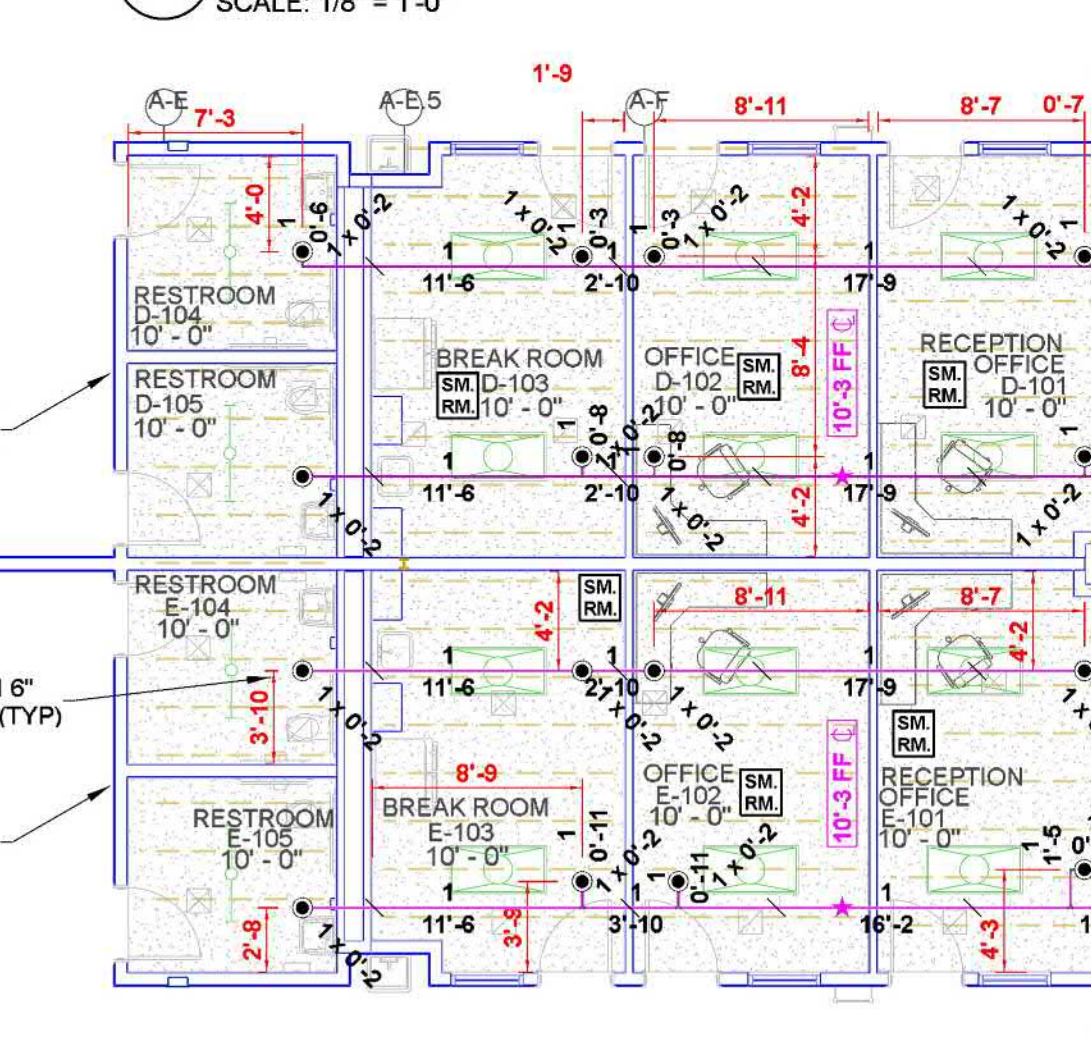
LOW CEILING SPRINKLER PLAN - AREA A



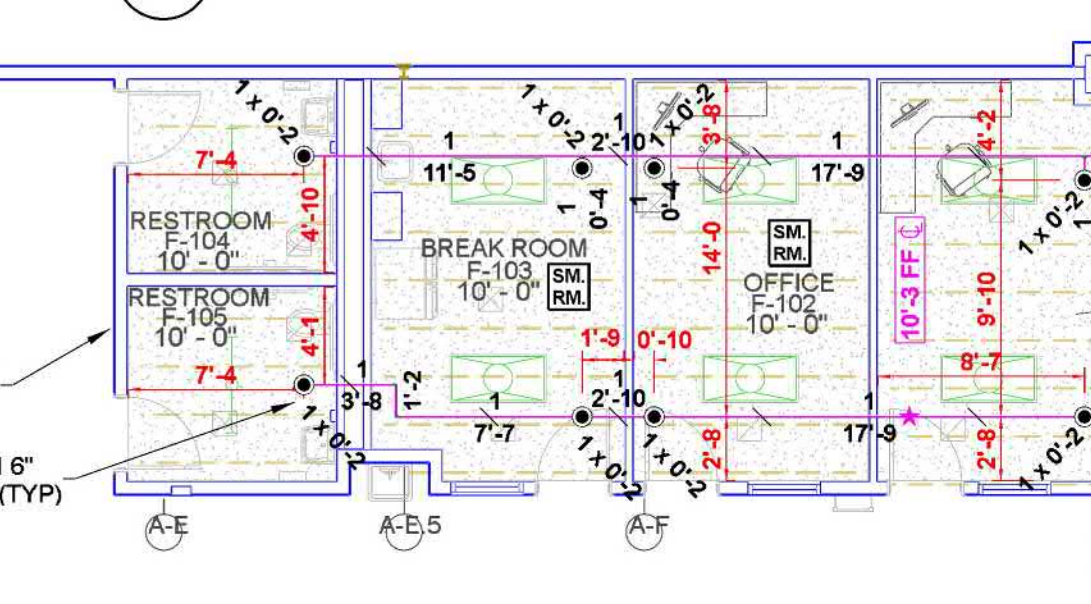
LOW CEILING SPRINKLER PLAN - AREA A



LOW CEILING SPRINKLER PLAN - AREA A



LOW CEILING SPRINKLER PLAN - AREA B



LOW CEILING SPRINKLER PLAN - AREA B

Sprinkler Legend - BUILDING 13											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temp	MAX. Spacing
●	Tyco	TY7223	ESFR-17	500	16.8	Pendent	3/4"	Fast	Brass	212°F	N/A
○	Tyco	TY3233	TY-FRB	65	5.6	Pendent	1/2"	Quick	Chrome	200°F	15' x 15'
○	Tyco	TY4151	TY-B	9	8	Upright	3/4"	Standard	Natural Brass	200°F	100 S.F.
				Total = 574							

KEY PLAN

A
B
C

REVISIONS

REV	DATE	DESCRIPTION
1	05/12/21	AREA A SPRINKLER PLAN FOR FAB
2	05/12/21	FIRE PUMP ROOM COORDINATION
3	05/12/21	AREA C RELEASED FOR FAB
4	05/12/21	PUMP ROOM RELEASED FOR FAB
5	05/12/21	PUMP ROOM RELEASED FOR FAB
6	05/12/21	ADDITIONAL SPRINKLER HEADS
7	05/12/21	ADDITIONAL SPRINKLER HEADS
8	05/12/21	ADDITIONAL SPRINKLER HEADS

EXEMPTION TO NRS 603.005 FOR WORK UNDER THE CONTRACTOR'S LICENSE

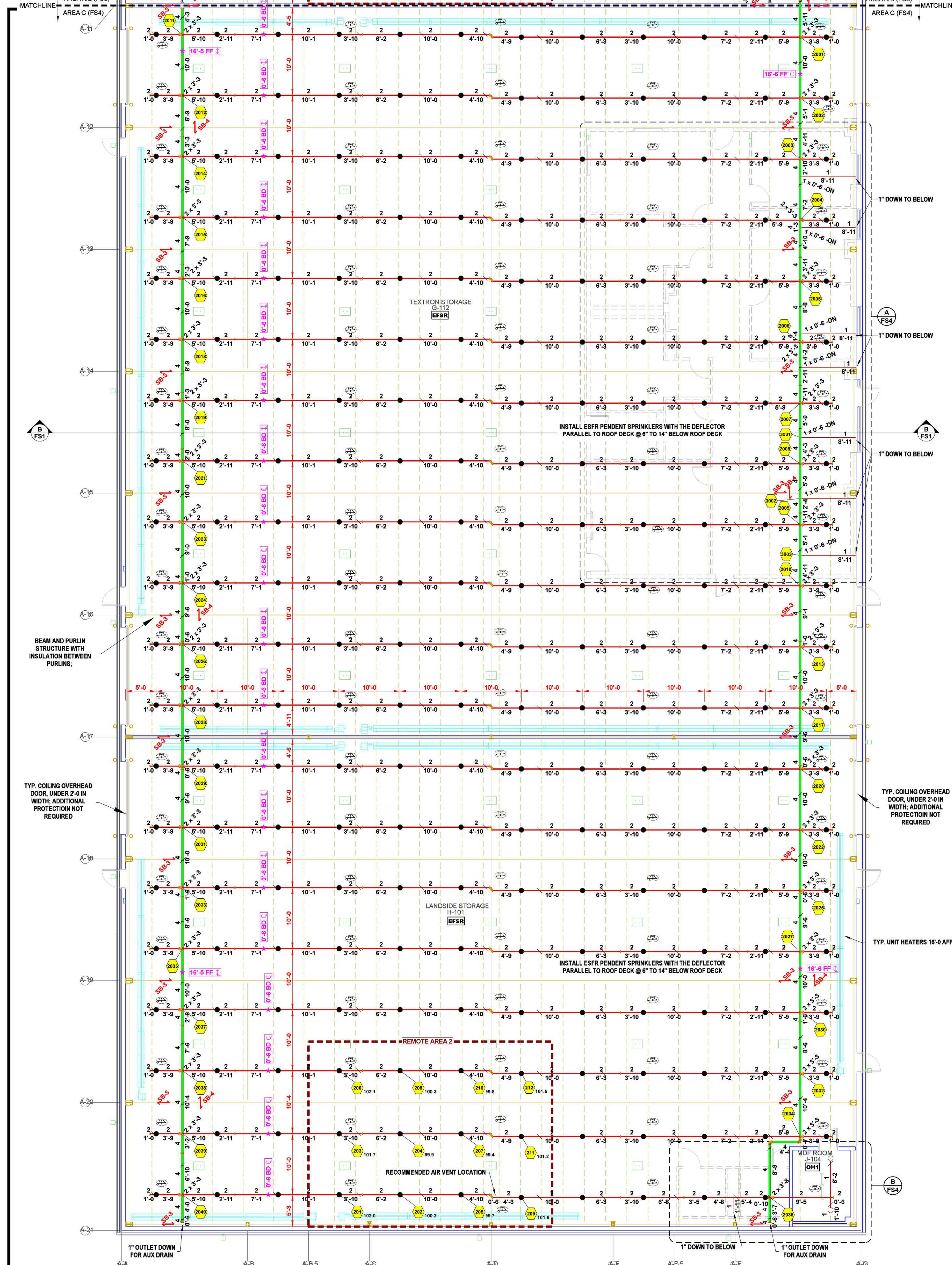
APPROVAL BOX

AREA A & B

Reno-Tahoe International Airport Building 13
1335 Air Cargo Way
Reno, Nevada 89502
APN 015-210-34 & 013-361-04

PRINTED ON 05/12/21 AT 10:34:22 AM KAC Building 13 Rev 6. OpenGL_A5 2023

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MAIN LEVEL FIRE SPRINKLER PLAN - AREA C

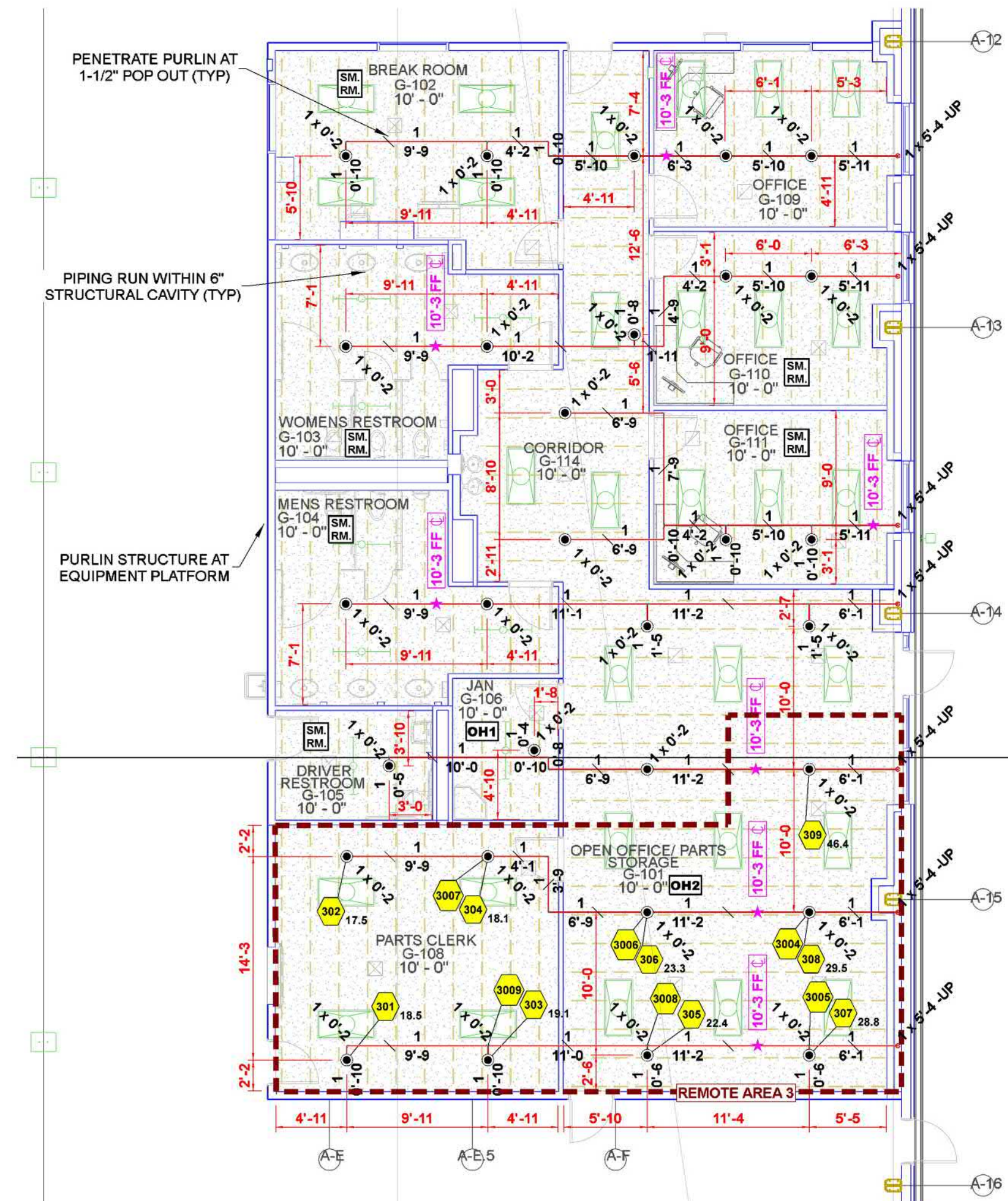
SCALE: 1/8" = 1'-0"

OFFICE / PARTS STORAGE G-101	
Remote Area 3	
OCCUPANCY CLASSIFICATION	Ordinary Group II
DENSITY (gpm/ft ²)	0.20 for 1500ft ² (Actual 909ft ²)
QUICK RESPONSE REDUCTION	10'-0" Ceiling (40.0%) 900ft ²
TOTAL HOSE STREAMS	250.0
TOTAL HEADS FLOWING	9
K-FACTOR	5.6
TOTAL WATER REQUIRED	473.6
TOTAL PRESSURE REQUIRED	8.2
BASE OF RISER (gpm)	223.6
BASE OF RISER (psi)	96.2
SAFETY MARGIN (psi)	+76.7 (80.4%)

NOTE:
HYDRAULICALLY CALCULATED USING THE QUICK
RESPONSE AREA REDUCTION METHOD FOR 10'-0"
CEILING HEIGHTS PER NFPA 13 (2016) 11.2.3.2.1

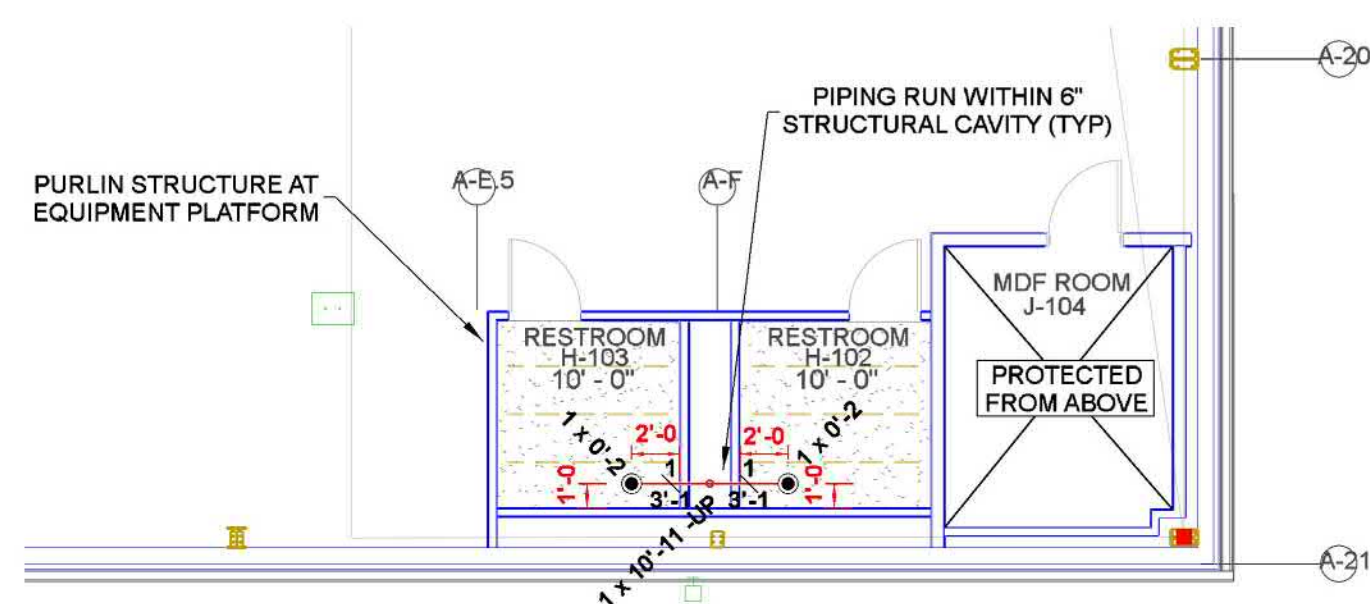
LANDSIDE STORAGE H-101	
Remote Area 2	
OCCUPANCY CLASSIFICATION	ESFR
MIN. END HEAD PRESSURE	15.0 (ESFR)
TOTAL HOSE STREAMS	500.0
TOTAL HEADS FLOWING	12
K-FACTOR	16.8
TOTAL WATER REQUIRED	1709.3
TOTAL PRESSURE REQUIRED	69.0
BASE OF RISER (gpm)	1209.3
BASE OF RISER (psi)	131.4
SAFETY MARGIN (psi)	+15.1 (20.4%)

NOTE:
ESFR CALC FOR PALLETIZED, SOLID-PILED, OR RACK
STORAGE OF CLASS I THROUGH CLASS IV AND GROUP A
PLASTIC COMMODITIES



LOW CEILING SPRINKLER PLAN - AREA C

SCALE: 1/8" = 1'-0"



LOW CEILING SPRINKLER PLAN - AREA C

SCALE: 1/8" = 1'-0"

Sprinkler Legend - BUILDING 13											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temp	MAX. Spacing
●	Tyco	TY7223	ESFR-17	500	16.8	Pendent	3/4"	Fast	Brass	212°F	N/A
●	Tyco	TY323	TY-FRB	65	5.6	Pendent	1/2"	Quick	Chrome	200°F	15' x 15'
○	Tyco	TY4151	TY-B	9	8	Upright	1/2"	Standard	Natural Brass	200°F	100 S.F.
				Total = 574							

KEY PLAN

A
B
C

REVISIONS	
REV	DESCRIPTION
1	AREA C RELEASE FOR FAB
2	3-12-25 FIRE PUMP ROOM COORDINATION
3	3-13-25 AREA C RELEASE FOR FAB
4	5-13-25 ADDITIONAL WALL FOR THE PUMP ROOM

FIRE SPRINKLER PLANS

AREA C

Reno-Tahoe International Airport Building 13
1335 Air Cargo Way
Reno, Nevada 89502
APN 015-210-34 & 013-351-04

DRAWN BY: ADK
CHECKED BY: RH
DATE: 3-7-25
PROJECT NO: 5724194

Sheet No: 13

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