

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
●	Tyco	TY9237	EC-11	332	11.2	Pendent	1/2"	Quick	Chrome	200°F	RECESSED
●	Tyco	TY9231	TY-FRB	218	5.6	Pendent	1/2"	Quick	Chrome	200°F	CONCEALED
●	Tyco	TY9232	ELOC	32	11.2	Pendent	1/2"	Quick	White	160°F	CONCEALED
●	Tyco	TY9131	TY-FRB	156	5.6	Upright	1/2"	Quick	Natural Brass	200°F	N/A
●	Tyco	TY9335	DS-1	4	5.6	Pendent	1/2"	Quick	Chrome	200°F	STANDARD
●	Tyco	TY9131	TY-FRB	5	5.6	Upright	1/2"	Quick	Natural Brass	200°F	N/A
●	Tyco	TY9339	DS-3	1	11.2	Sidewall	1"	Quick	Chrome	200°F	STANDARD
●	Tyco	TY9131	TY-FRB	3	5.6	Upright	1/2"	Quick	Natural Brass	286°F	N/A
●	Tyco	TY9231	TY-FRB	2	5.6	Pendent	1/2"	Quick	Chrome	286°F	RECESSED
●	Tyco	TY9137	EC-11	23	11.2	Upright	1/2"	Quick	Natural Brass	200°F	N/A
				Total = 776							

NOTE:

PIPE SCHEDULE ~
 1" THROUGH 2" = SCH. 40
 2 1/2" & LARGER = SCH. 10

DESIGN CRITERIA ~
 LIGHT HAZARD AREAS -
 DESIGNED TO DELIVER 0.10 GPM/S.F.
 OVER THE MOST DEMANDING 1500 S.F.

ORDINARY HAZARD GROUP 1 AREAS -
 DESIGNED TO DELIVER 0.15 GPM/S.F.
 OVER THE MOST DEMANDING 1500 S.F.

REMOTE AREA REDUCTIONS HAVE BEEN
 TAKEN WHERE APPLICABLE PER NFPA

FIRE CAULKING ~
 ALL FIRE RATED WALLS TO BE CAULKED
 W/ HILTI FS-1 INTUMESCENT FIRE CAULK AS PER
 U.L. LISTING FOR WALL TYPE & RATING

AUX. DRAINS ~
 SHALL BE PROVIDED WHERE A CHANGE
 IN PIPING DIRECTION PREVENTS
 DRAINAGE OF SYSTEM PIPING
 THROUGH THE MAIN DRAIN VA.

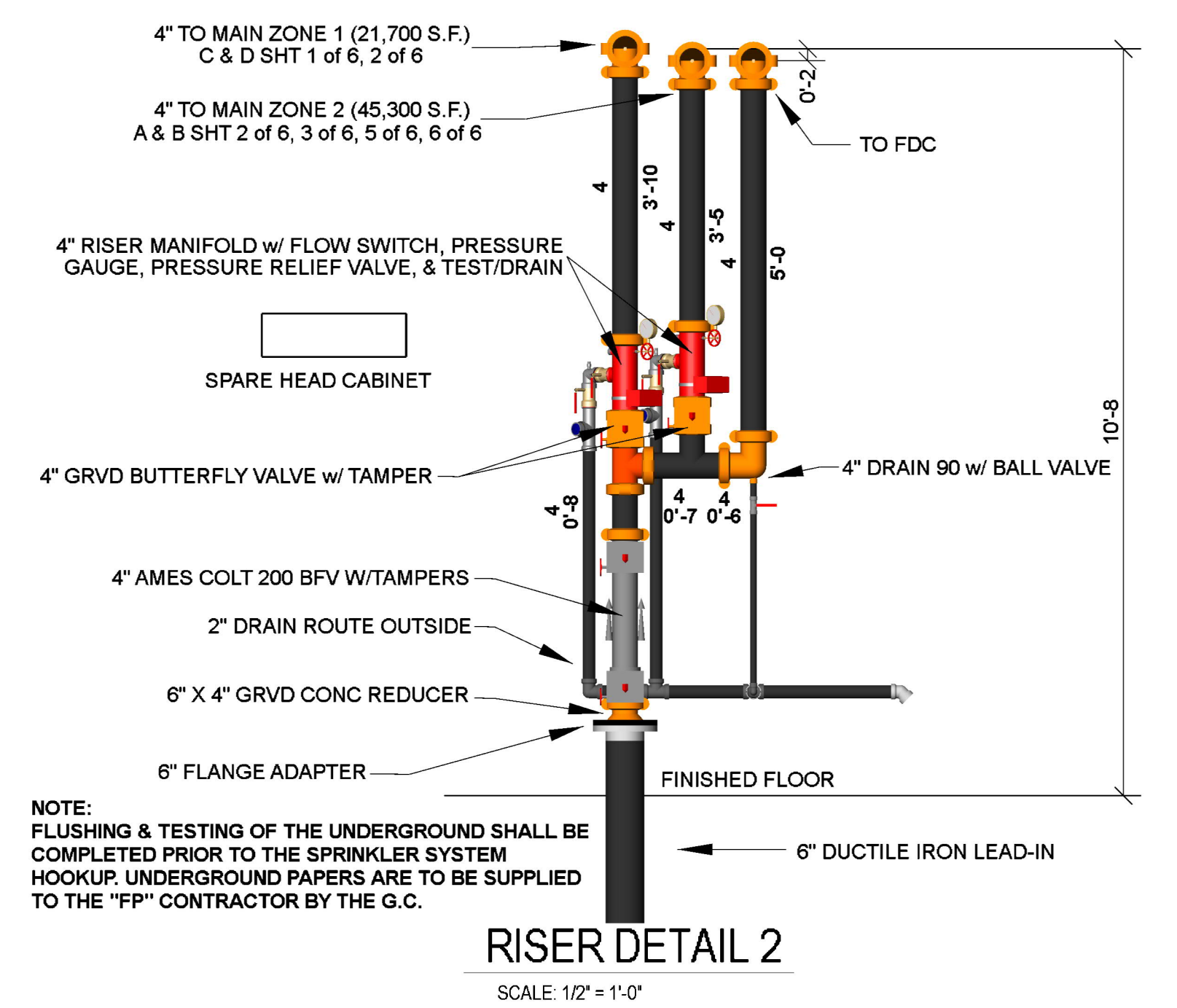
OBSTRUCTIONS ~
 ALL SPRINKLER LOCATIONS TO BE
 SPACED IN ACCORDANCE W/
 OBSTRUCTIONS TO MAINTAIN
 CLEARANCES = PER NFPA-13 (EXIT SIGNS
 & SECURITY EQUIPMENT SHALL NOT BE
 OBTAINED BY FIRE PROTECTION
 SYSTEM)

ELEC. EQUIP ~
 PROVIDE SHIELDS OR BAFFLES WHERE
 WATER DAMAGE MAY RESULT FROM
 HEADS TO CLOSE TO ELEC. PANELS

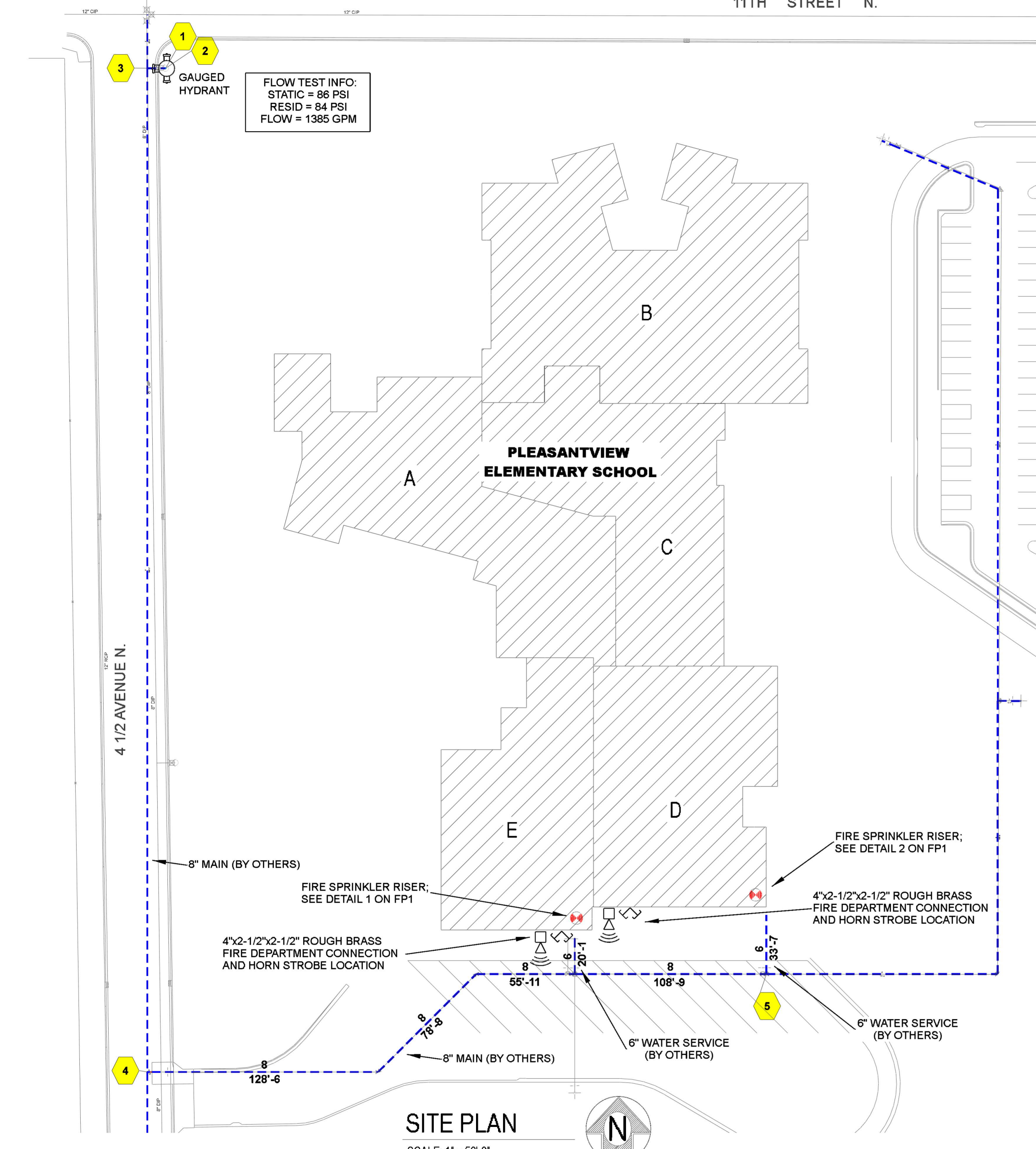
SYMBOLS USED ON DRAWING
 *x*FF E PIPE ELEVATION A.F.F.
 OHM ROOM HAZARD CLASSIFICATION (ALL
 ROOMS ARE CONSIDERED LIGHT
 HAZARD UNLESS NOTED)
 HJ HYDRAULIC CALCULATION JUNCTION
 POINT
 -9'-6" CEILING HEIGHT
CONSTRUCTION TYPE
 II-B (UNPROTECTED NON-COMBUSTIBLE)

SCOPE OF WORK:

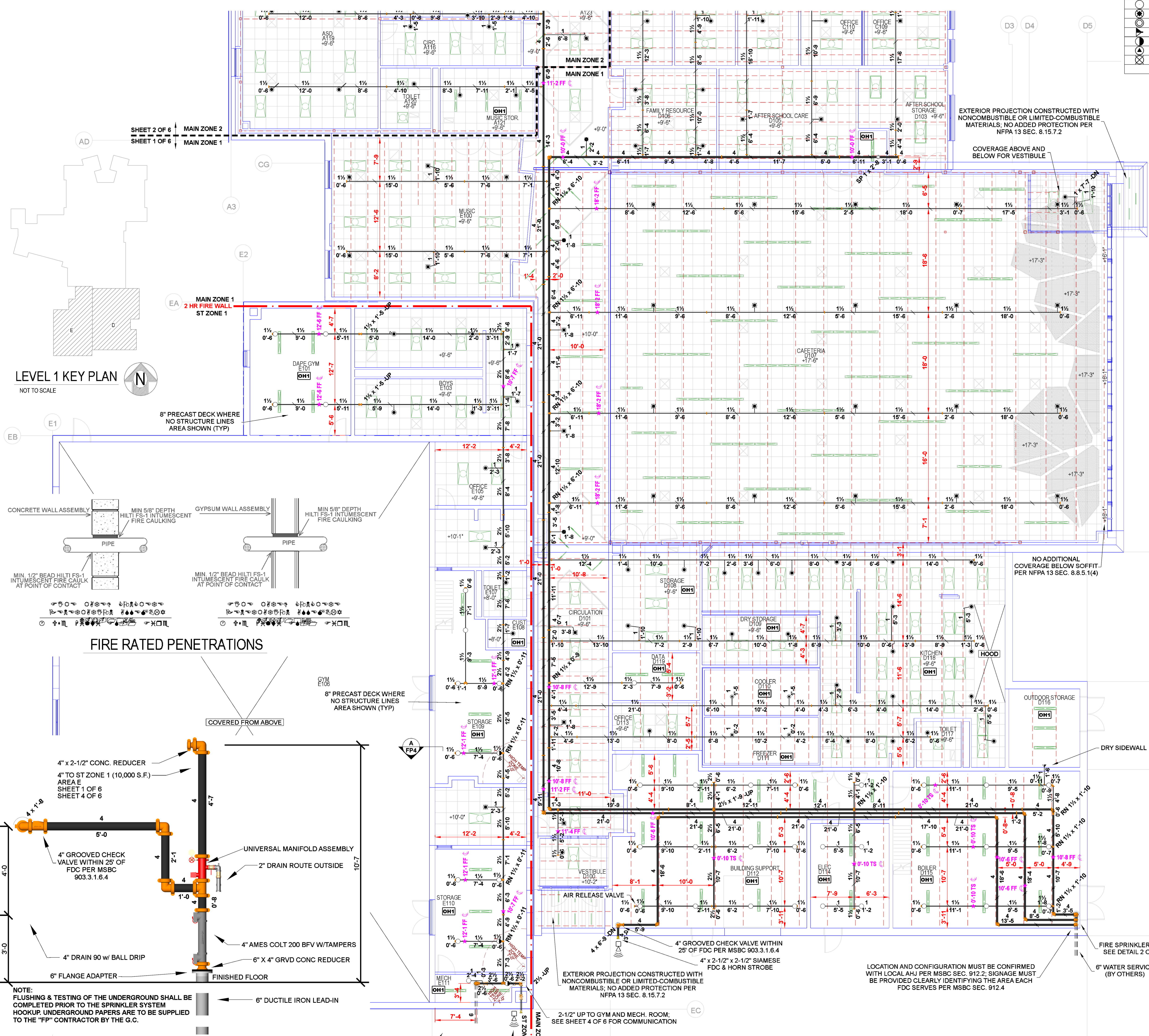
TO INSTALL NEW WET SPRINKLER SYSTEM IN THE NEW PLEASANTVIEW
 ELEMENTARY SCHOOL AS SHOWN ON SHOP DRAWINGS. ALL PIPING TO BE STEEL WITH
 SEMI-RECESSED CHROME, CONCEALED WHITE, AND UPRIGHT BRASS SPRINKLER HEADS. FDC
 WILL BE LOCATED ON EXTERIOR WALL AT RISER LOCATION.



RISER DETAIL 2
 SCALE 1/2" = 1'-0"



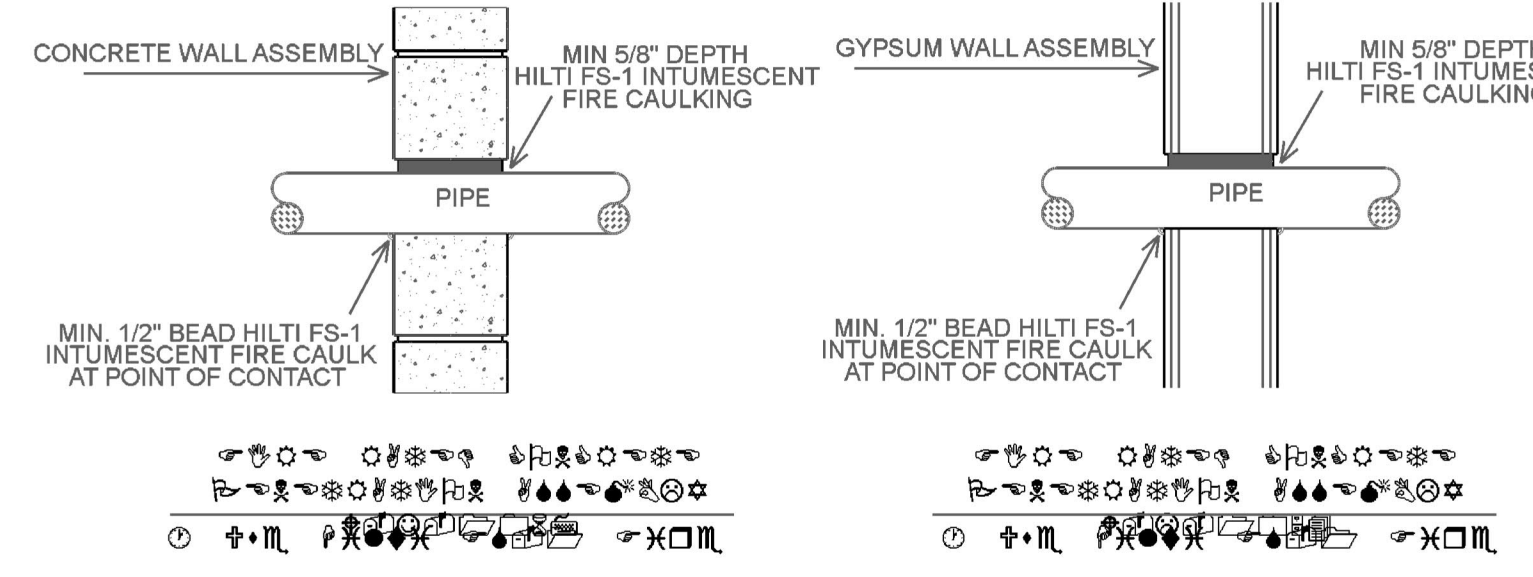
SITE PLAN
 SCALE 1" = 50'-0"



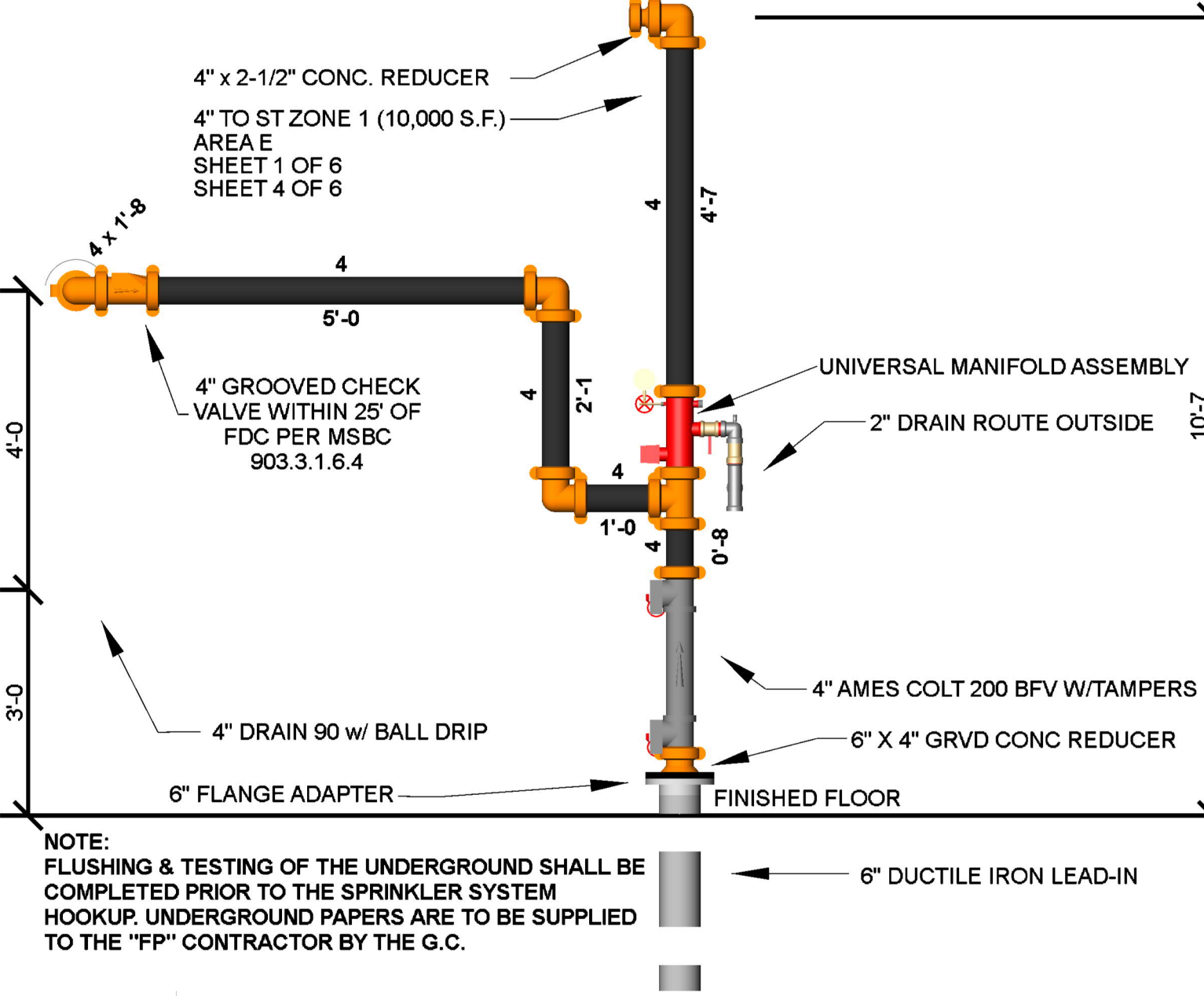
FIRST LEVEL FLOOR PLAN - MAIN ZONE 1



LEVEL 1 KEY PLAN
 NOT TO SCALE



FIRE RATED PENETRATIONS



RISER DETAIL 1
 SCALE 1/2" = 1'-0"

FIRST LEVEL FLOOR PLAN - ST ZONE 1
 SCALE = 1/8" = 1'-0"

- General Notes**
- System installed per NFPA-13 (2016 Edition) and Dept. of Labor and Industry.
 - All equipment for this system shall be U.L. listed.
 - Minimum pipe size shall be 1" nominal pipe.
 - All main and branch line piping has welded outlets & grooved fittings all welding per NFPA 13 (2-2.2).
 - No installation or fabrication to begin without approved shop dwgs.
 - All Pipe Locations are to be Field Measured Prior to Fabrication and Installation by Sprinkler Contractor.
 - All Dimensions Shown are Center to Center.
 - High Temperature Heads are to be Field Located Where Required.
 - Provide one spare head cabinet w/ 6 hds. & one hd wrench.
 - Hangers are to be U.L. Listed and F.M. Approved.
 - Electrical wiring, alarm, detection and supervisory by owner.
 - Owner's responsibility to provide adequate heating to prevent wet system piping from freezing.

DRIVEN
 FIRE CONSULTANTS

910 N. SYCAMORE AVENUE; SIOUX FALLS, SD 57110 PHONE: (605)-444-9290

Drawing Title: **FIRE PROTECTION PLAN - FITTER PRINT**

PLEASANTVIEW ELEMENTARY SCHOOL

1009 SIXTH AVE NORTH
 SAUK RAPIDS, MN 56379

Contract No. **C20-82**

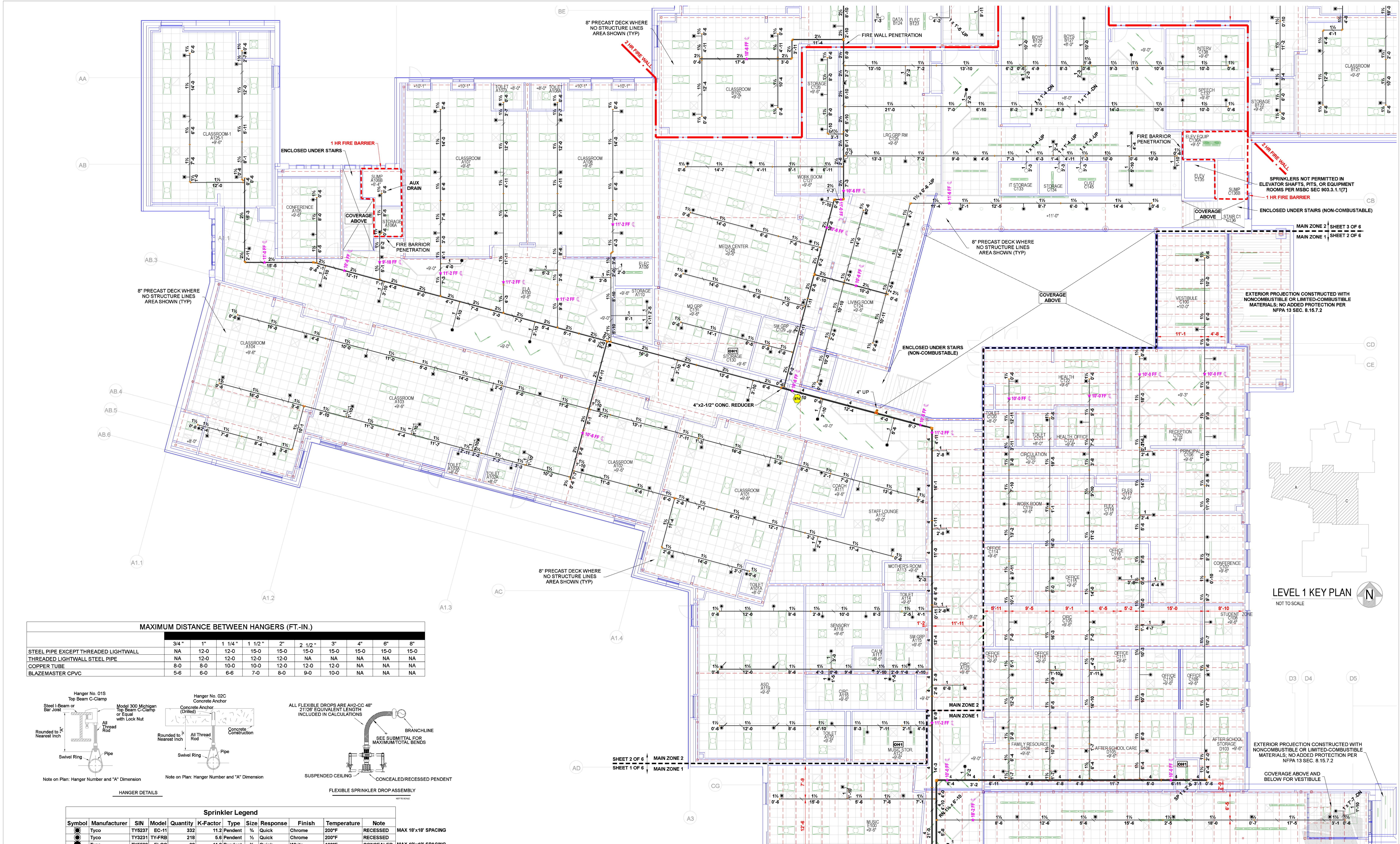
Drawing Date: 3/11/2021

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

Drawn By: **AUSTIN D KLEIN**
 WICET II

Approved By: **STATE FIRE MARSHAL DIV.**

SHEET NO. **1 of 6**

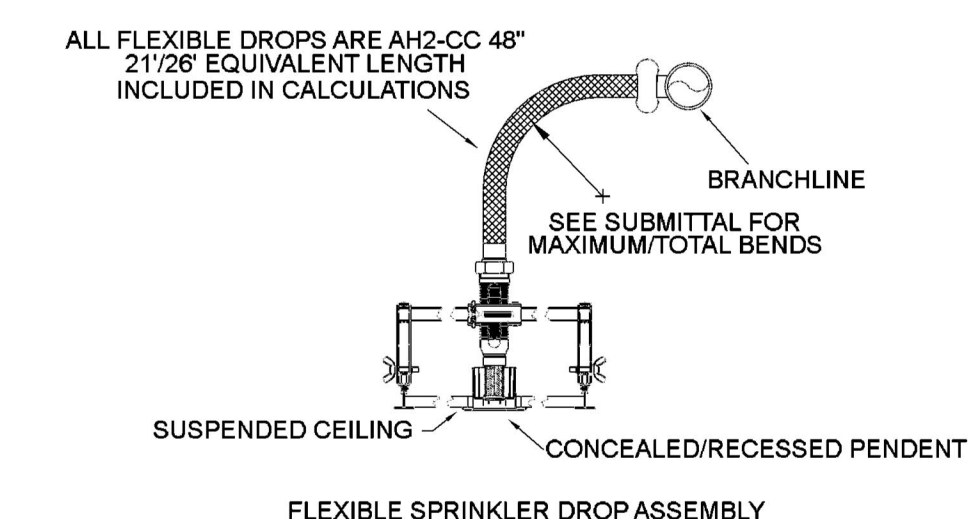
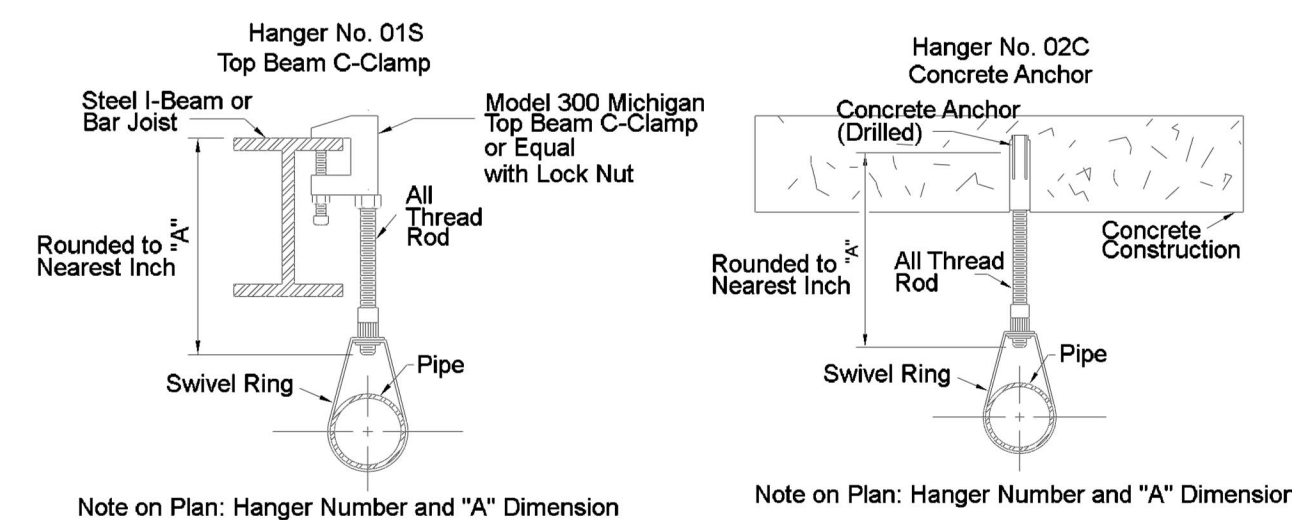


LEVEL 1 KEY PLAN
NOT TO SCALE

FIRST LEVEL FLOOR PLAN - MAIN ZONE 1 & 2

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
THREADED LIGHTWALL STEEL PIPE	NA	12-0	12-0	12-0	12-0	NA	NA	NA	NA	NA
COPPER TUBE	8-0	8-0	10-0	10-0	12-0	12-0	NA	NA	NA	NA
BLAZEMASTER CPVC	5-6	6-0	6-6	7-0	8-0	9-0	10-0	NA	NA	NA



Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
●	Tyco	TY6237	EC-11	332	11.2	Pendent	3/4"	Quick	Chrome	200°F	RECESSED MAX 18"x18" SPACING
●	Tyco	TY9231	TY-FRB	218	5.6	Pendent	3/4"	Quick	Chrome	200°F	RECESSED
●	Tyco	TY5622	ELOC	32	11.2	Pendent	3/4"	Quick	White	160°F	CONCEALED MAX 18"x18" SPACING
●	Tyco	TY1311	TY-FRB	156	5.6	Upright	3/4"	Quick	Natural Brass	200°F	N/A
●	Tyco	TY3935	DS-1	4	5.6	Pendent	1"	Quick	Chrome	200°F	STANDARD
●	Tyco	TY1311	TY-FRB	5	5.6	Upright	3/4"	Quick	Natural Brass	200°F	N/A
●	Tyco	TY6339	DS-3	1	11.2	Sidewall	1"	Quick	Chrome	200°F	STANDARD
●	Tyco	TY1311	TY-FRB	3	5.6	Upright	3/4"	Quick	Natural Brass	286°F	N/A
●	Tyco	TY9231	TY-FRB	2	5.6	Pendent	3/4"	Quick	Chrome	286°F	RECESSED
●	Tyco	TY6137	EC-11	23	11.2	Upright	3/4"	Quick	Natural Brass	200°F	N/A MAX 18"x18" SPA
Total = 776											

- General Notes
- System installed per NFPA-13 (2016 Edition) and Dept. of Labor and Industry.
 - All equipment for this system shall be U.L. listed.
 - Minimum pipe size shall be 1" nominal pipe.
 - All main and branch line piping has welded outlets & grooved fittings all welding per NFPA-51 (2022).
 - No installation or fabrication to begin without approved shop drawings.
 - All Pipe Locations are to be Field Measured Prior to Fabrication and Installation by Sprinkler Contractor.
 - All Dimensions Shown are Center to Center.
 - High Temperature Heads are to be Field Located Where Required.
 - Provide one spare head cabinet w/ 6 hds. & one hd wrench.
 - Hangers are to be U.L. Listed and F.M. Approved.
 - Electrical wiring, alarm, detection and supervisory by owner.
 - Owner's responsibility to provide adequate heating to prevent wet system piping from freezing.

DRIVEN
FIRE CONSULTANTS

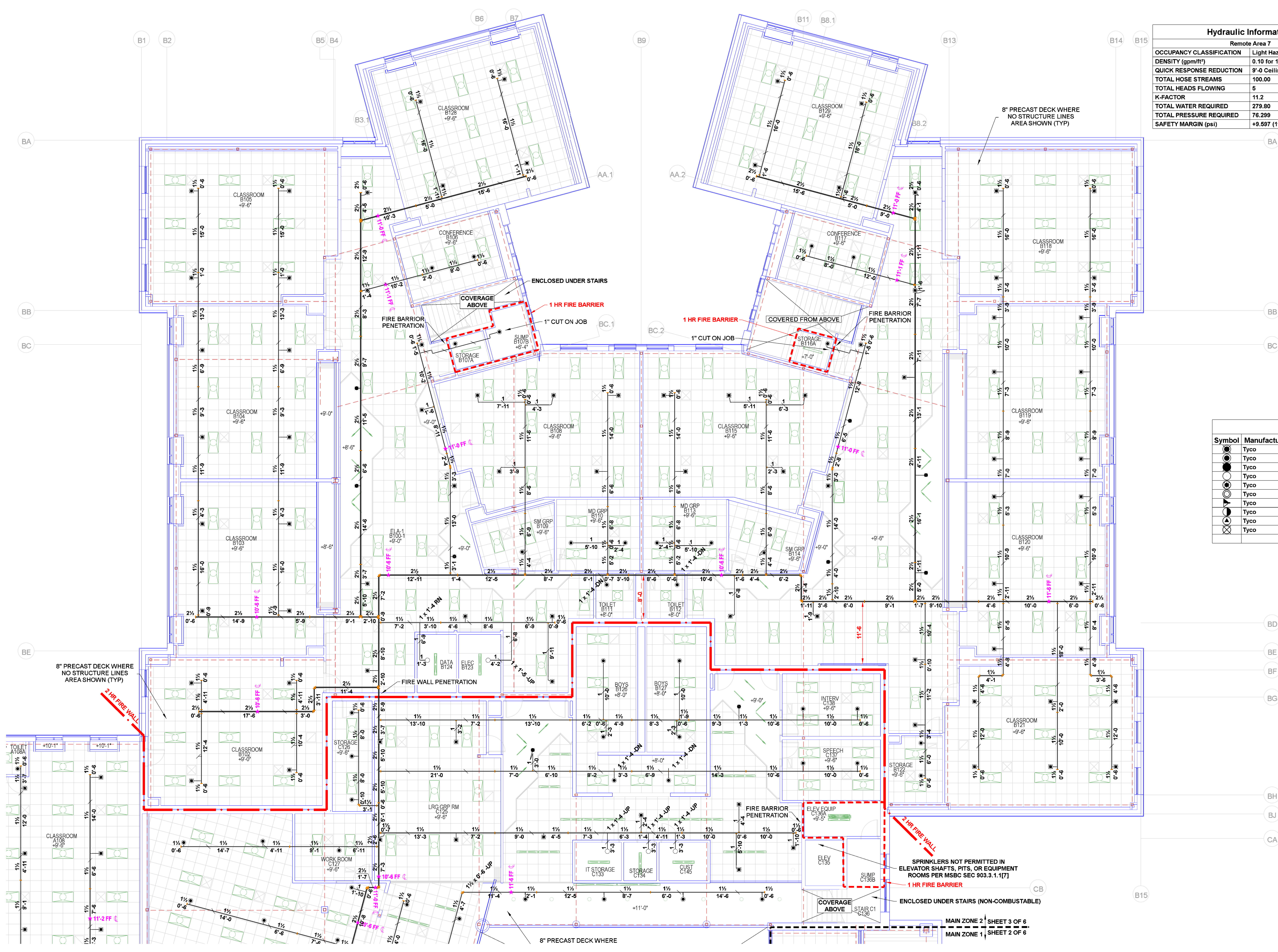
910 N. SYCAMORE AVENUE; SIOUX FALLS, SD 57110 PHONE: (605)-444-9290

Drawing Title: LOWER LEVEL AREA A & C - FITTER PRINT

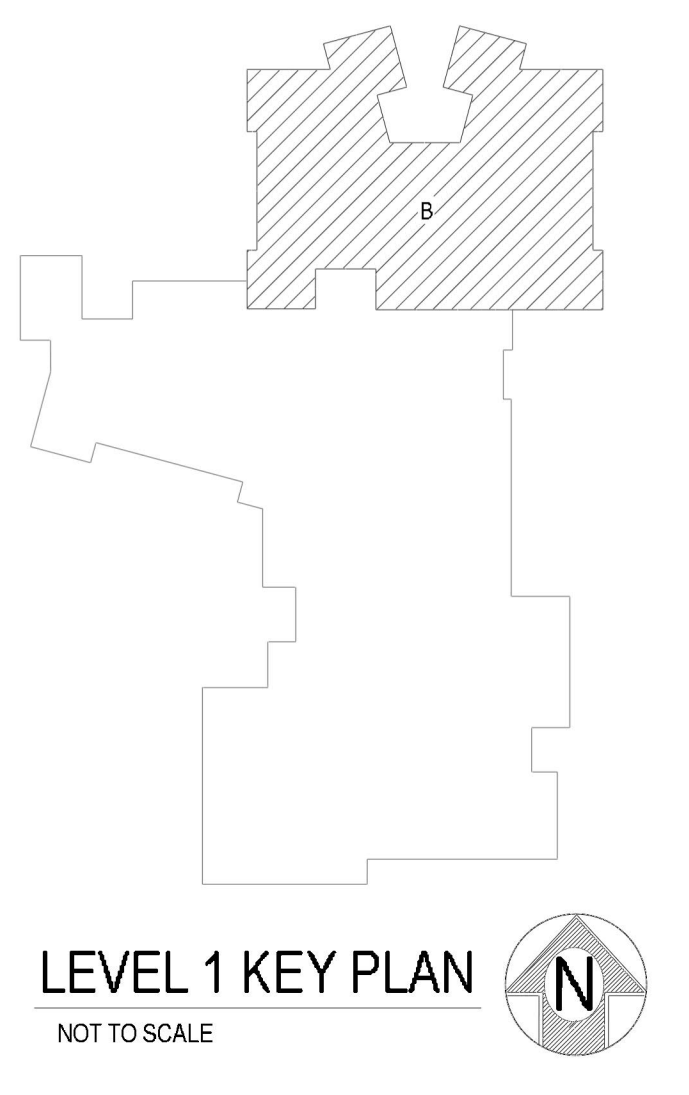
PLEASANTVIEW ELEMENTARY SCHOOL

1009 SIXTH AVE NORTH
SAUK RAPIDS, MN 56379

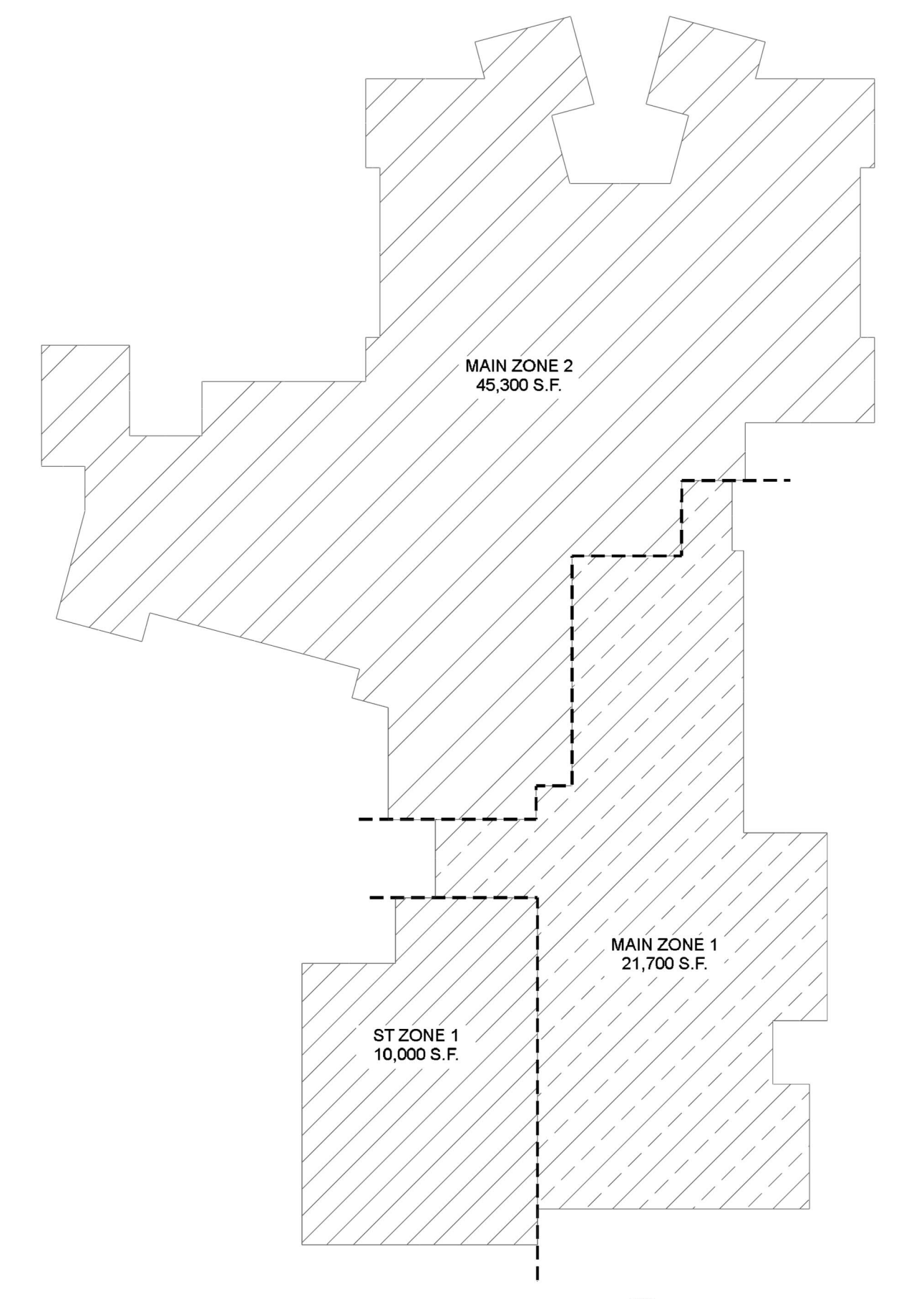
Contract No. **C20-82**
Drawing Date: 3/11/2021
Scale: 1/8" = 1'-0"
Drawn By: AUSTIN D KLEIN
Approval By: STATE FIRE MARSHAL DIV.
SHEET NO. **2 of 6**



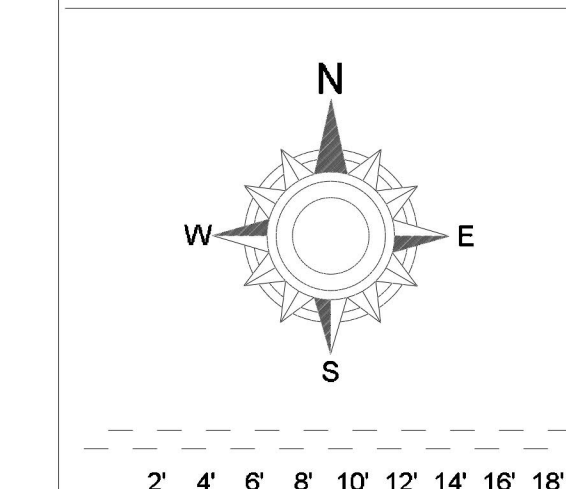
Hydraulic Information	
Remote Area 7	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft)	0.10 for 1500ft ² (Actual 1046ft ²)
QUICK RESPONSE REDUCTION	9'-0" Ceiling (40.0%) 800ft ²
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	5
K-FACTOR	11.2
TOTAL WATER REQUIRED	279.80
TOTAL PRESSURE REQUIRED	76.299
SAFETY MARGIN (psi)	+9.587 (11.2%)



Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
●	Tyco	TY9237	EC-11	332	11.2	Pendent	1/2"	Quick	Chrome	200°F	RECESSED
●	Tyco	TY2231	TY-FRB	218	5.6	Pendent	1/2"	Quick	Chrome	200°F	RECESSED
●	Tyco	TY5522	ELOC	32	11.2	Pendent	1/2"	Quick	White	160°F	CONCEALED
●	Tyco	TY3131	TY-FRB	156	5.6	Upright	1/2"	Quick	Natural Brass	200°F	N/A
●	Tyco	TY3935	DS-1	4	5.6	Pendent	1"	Quick	Chrome	200°F	STANDARD
●	Tyco	TY3131	TY-FRB	5	5.6	Upright	1/2"	Quick	Natural Brass	200°F	N/A
●	Tyco	TY3339	DS-3	1	11.2	Sidewall	1"	Quick	Chrome	200°F	STANDARD
●	Tyco	TY3131	TY-FRB	3	5.6	Upright	1/2"	Quick	Natural Brass	288°F	N/A
●	Tyco	TY3231	TY-FRB	2	5.6	Pendent	1/2"	Quick	Chrome	288°F	RECESSED
●	Tyco	TY137	EC-11	23	11.2	Upright	1/2"	Quick	Natural Brass	200°F	N/A
				Total =	776						



FIRST LEVEL FLOOR PLAN - MAIN ZONE 2
SCALE= 1/8" : 1'-0"



- General Notes
- System installed per NFPA-13 (2016 Edition) and Dept. of Labor and Industry.
 - All equipment for this system shall be U.L. listed.
 - Minimum pipe size shall be 1" nominal pipe.
 - All main and branch line piping has welded outlets & grooved fittings all welding per NFPA 13 (2-2.2).
 - No installation or fabrication to begin without approved shop dwgs.
 - All Pipe Locations are to be Field Measured Prior to Fabrication and Installation by Sprinkler Contractor.
 - All Dimensions Shown are Center to Center.
 - High Temperature Heads are to be Field Located Where Required.
 - Provide one spare head cabinet w/ 6 hds. & one hd wrench.
 - Hangers are to be U.L. Listed and F.M. Approved.
 - Electrical wiring, alarm, detection and supervisory by owner.
 - Owner's responsibility to provide adequate heating to prevent wet system piping from freezing.

DRIVEN
FIRE CONSULTANTS

910 N. SYCAMORE AVENUE; SIOUX FALLS, SD 57110 PHONE: (605)-444-9290

Drawing Title: FIRE PROTECTION PLAN - FITTER PRINT

PLEASANTVIEW ELEMENTARY SCHOOL

1009 SIXTH AVE NORTH
SAUK RAPIDS, MN 56379

Contract No. **C20-82**

Drawing Date: 3/11/2021

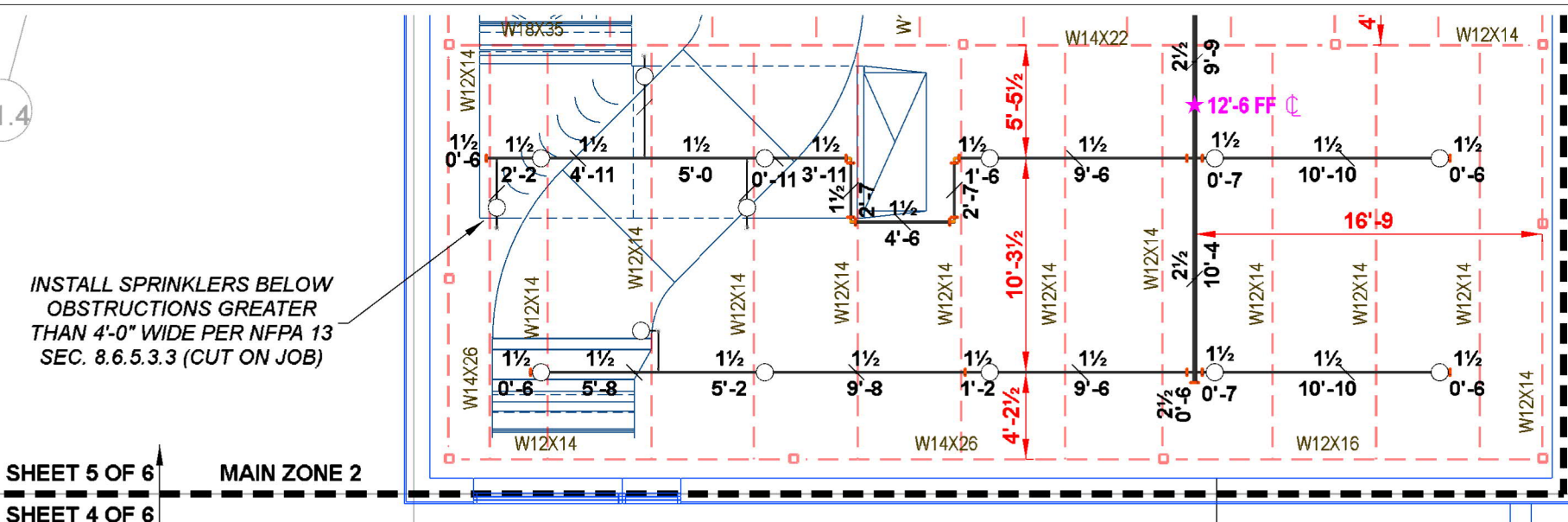
Scale: 1/8" = 1'-0"

Drawn By: AUSTIN D. KLEIN
NICOLE T.

Approved By: STATE FIRE MARSHAL DIV.

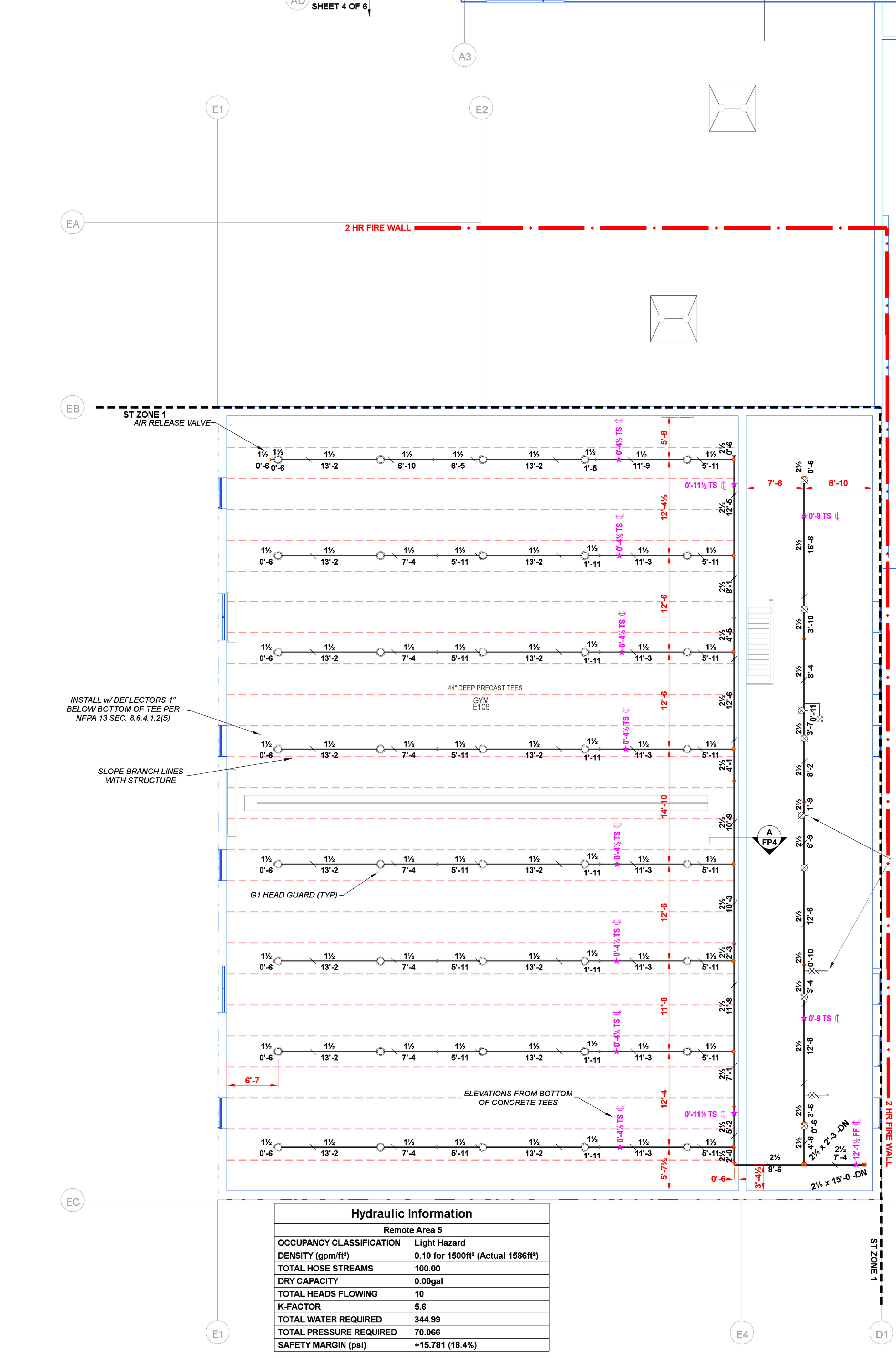
SHEET NO. **3 of 6**

Hydraulic Information	
Remote Area 3	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft ²)	0.15 for 1500ft ² (Actual 1018ft ²)
QUICK RESPONSE REDUCTION	14'-0" Ceiling (34.0%) 990ft ²
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	9
K-FACTOR	5.6
TOTAL WATER REQUIRED	437.90
TOTAL PRESSURE REQUIRED	44.180
SAFETY MARGIN (psi)	+41.582 (48.5%)



INSTALL SPRINKLERS BELOW OBSTRUCTIONS GREATER THAN 4'-0" WIDE PER NFPA 13 SEC. 8.6.5.3.3 (CUT ON JOB)

SHEET 5 OF 6
SHEET 4 OF 6

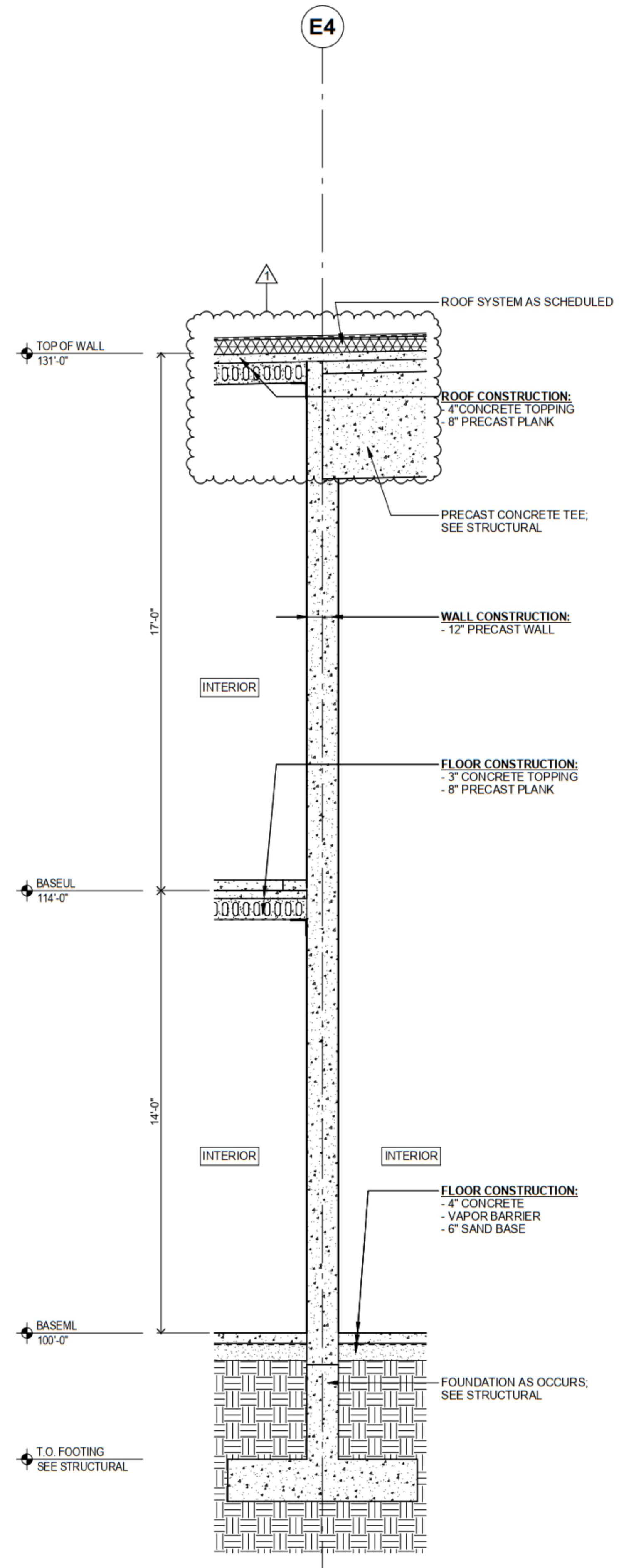
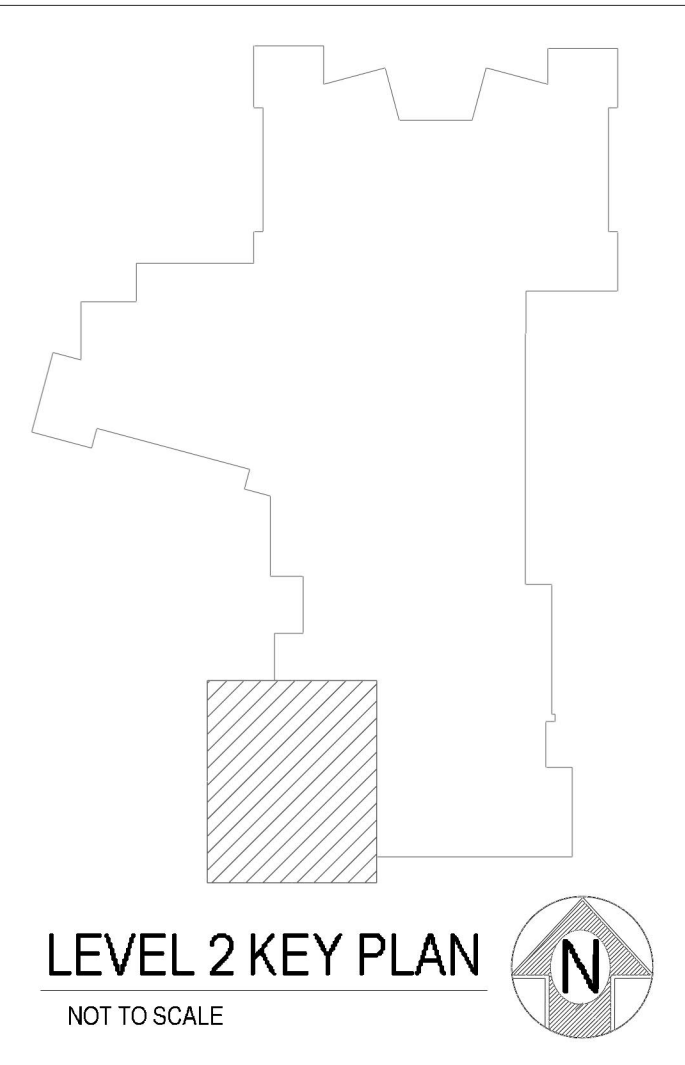


Hydraulic Information	
Remote Area 5	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft ²)	0.10 for 1500ft ² (Actual 1586ft ²)
TOTAL HOSE STREAMS	100.00
DRY CAPACITY	0.00gal
TOTAL HEADS FLOWING	10
K-FACTOR	5.6
TOTAL WATER REQUIRED	344.99
TOTAL PRESSURE REQUIRED	70.066
SAFETY MARGIN (psi)	+15.781 (18.4%)

Hydraulic Information	
Remote Area 6	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft ²)	0.15 for 1500ft ² (Actual 1633ft ²)
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	6
K-FACTOR	11.2
TOTAL WATER REQUIRED	555.89
TOTAL PRESSURE REQUIRED	68.326
SAFETY MARGIN (psi)	+17.304 (20.2%)

Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
●	Tyco	TY5237	EC-11	332	11.2	Pendent	1/2"	Quick	Chrome	200°F	RECESSED
●	Tyco	TY3231	TY-FRB	218	5.6	Pendent	1/2"	Quick	Chrome	200°F	RECESSED
●	Tyco	TY5622	ELOC	32	11.2	Pendent	1/2"	Quick	White	160°F	CONCEALED
●	Tyco	TY3131	TY-FRB	156	5.6	Upright	1/2"	Quick	Natural Brass	200°F	N/A
●	Tyco	TY3935	DS-1	4	5.6	Pendent	1"	Quick	Chrome	200°F	STANDARD
●	Tyco	TY3131	TY-FRB	5	5.6	Upright	1/2"	Quick	Natural Brass	200°F	N/A
●	Tyco	TY6339	DS-3	1	11.2	Sidewall	1"	Quick	Chrome	200°F	STANDARD
●	Tyco	TY3131	TY-FRB	3	5.6	Upright	1/2"	Quick	Natural Brass	288°F	N/A
●	Tyco	TY3231	TY-FRB	2	5.6	Pendent	1/2"	Quick	Chrome	288°F	RECESSED
●	Tyco	TY6137	EC-11	23	11.2	Upright	1/2"	Quick	Natural Brass	200°F	N/A
				Total = 776							

SECOND FLOOR PLAN - ST ZONE 1
SCALE = 1/8" = 1'-0"



SECTION A-A
NOT TO SCALE

General Notes

- System installed per NFPA-13 (2016 Edition) and Dept. of Labor and Industry.
- All equipment for this system shall be U.L. listed.
- Minimum pipe size shall be 1" nominal pipe.
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- All Pipe Locations are to be Field Measured Prior to Fabrication and Installation by Sprinkler Contractor.
- All Dimensions Shown are Center to Center.
- High Temperature Heads are to be Field Located Where Required.
- Provide one spare head cabinet w/ 6 hds. & one hd wrench.
- Hangers are to be U.L. Listed and F.M. Approved.
- Electrical wiring, alarm, detection and supervisory by owner.
- Owner's responsibility to provide adequate heating to prevent wet system piping from freezing.

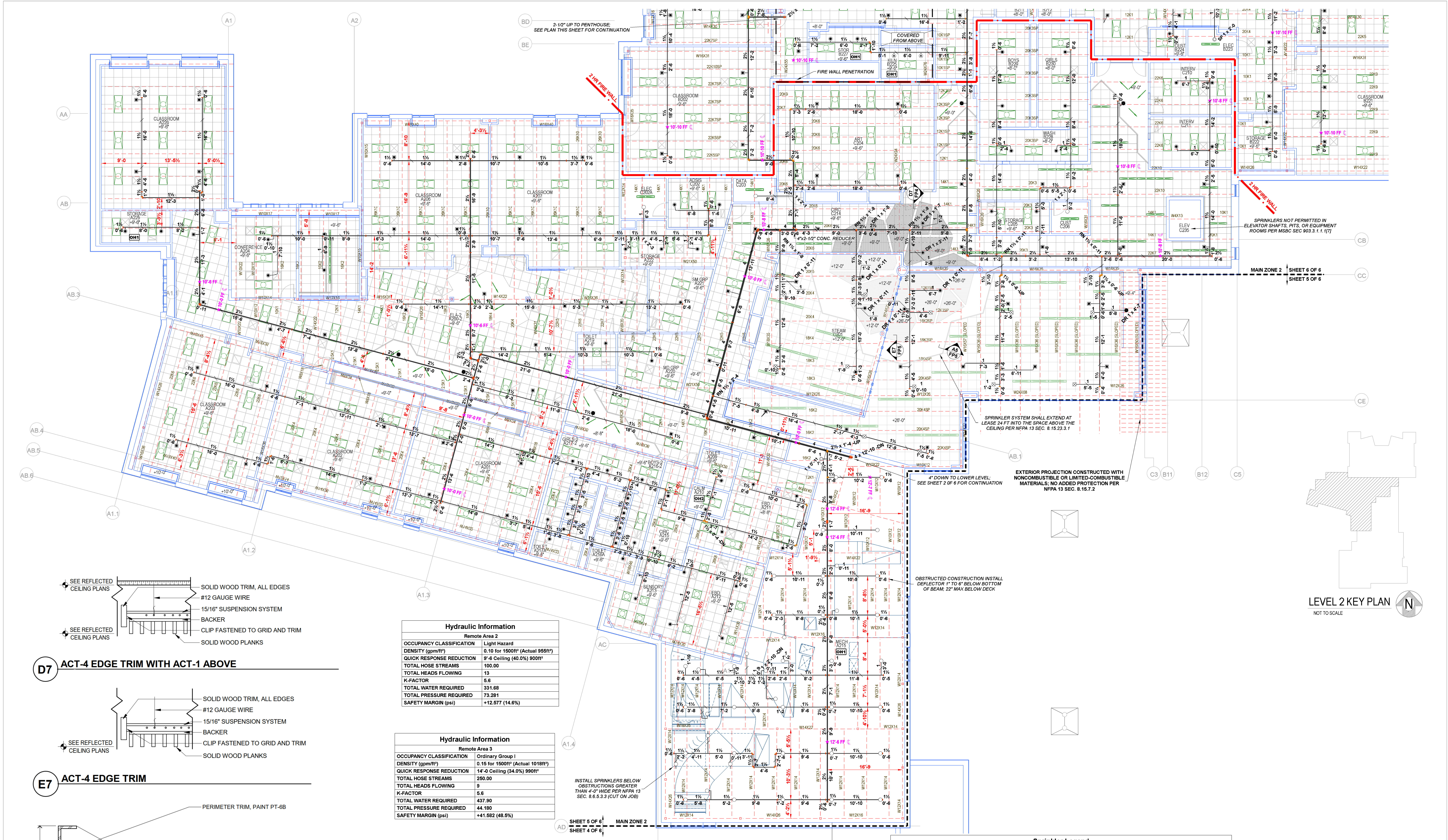
910 N. SYCAMORE AVENUE; SIOUX FALLS, SD 57110 PHONE: (605)-444-9290

Drawing Title: FIRE PROTECTION PLAN - FITTER PRINT

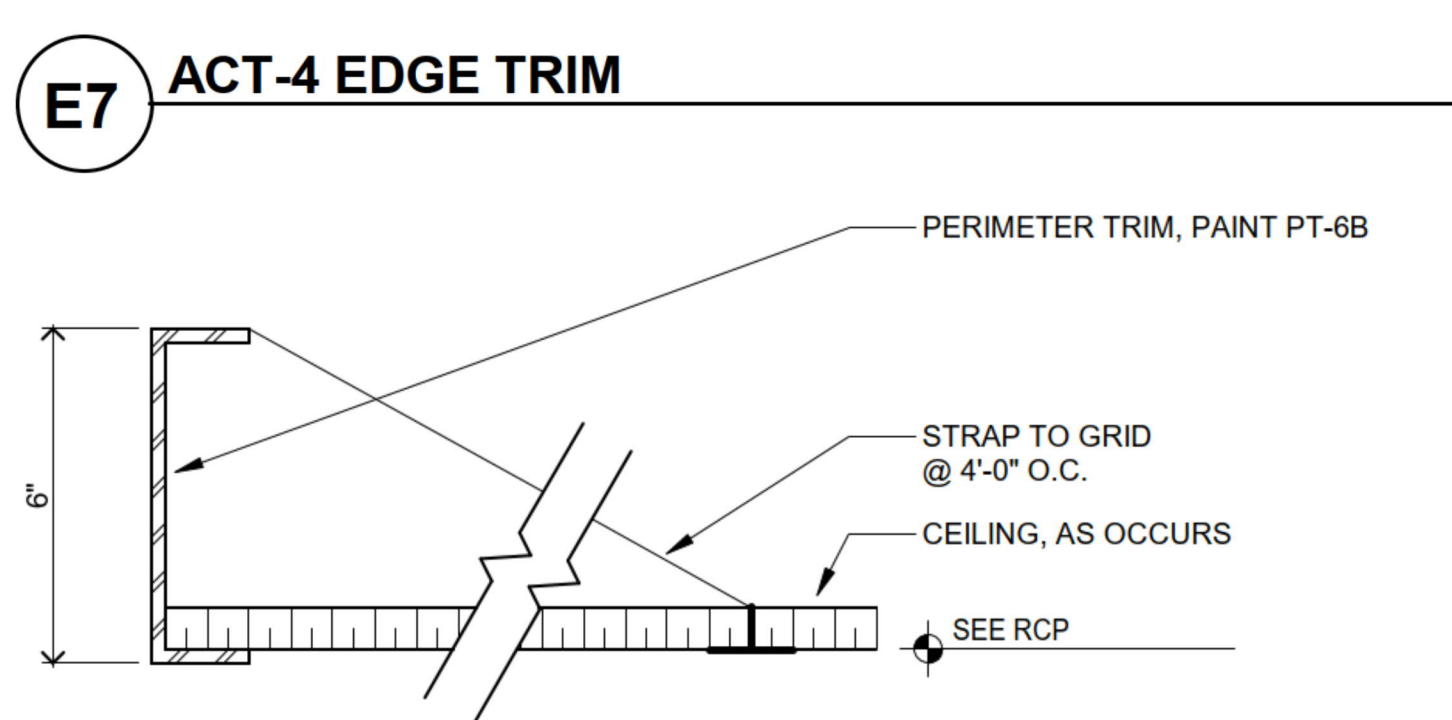
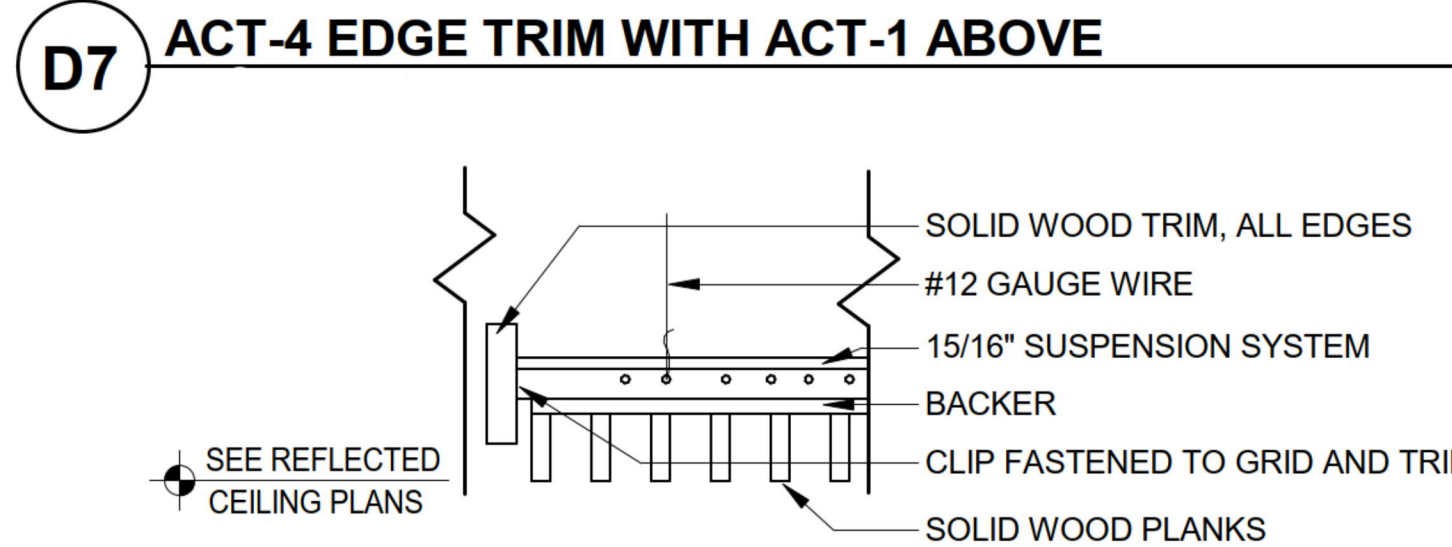
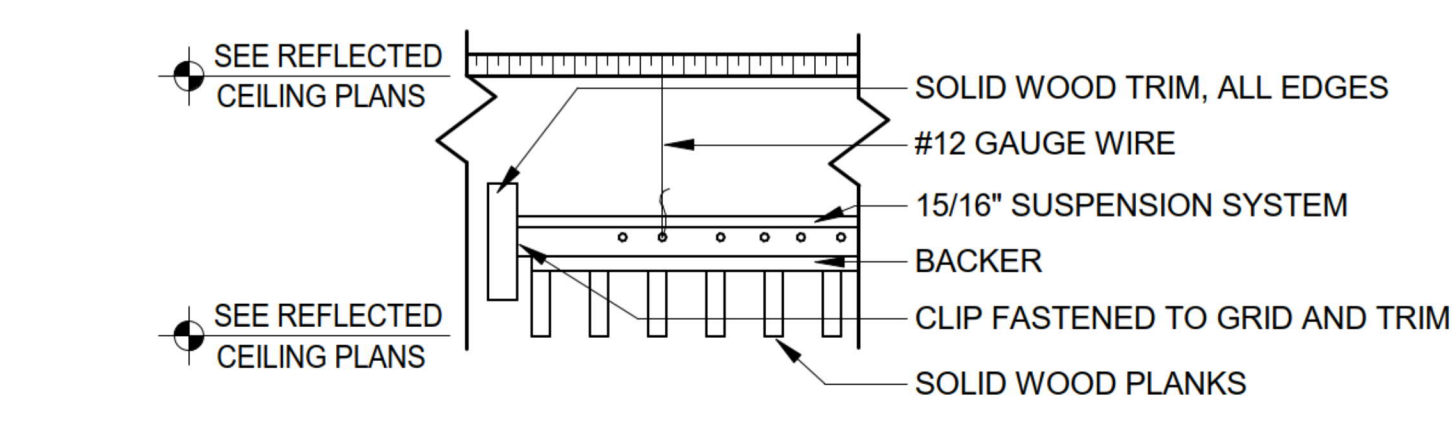
PLEASANTVIEW ELEMENTARY SCHOOL

1009 SIXTH AVE NORTH
SAUK RAPIDS, MN 56379

Contract No. **C20-82**
Drawing Date: 3/11/2021
Scale: 1/8" = 1'-0"
Drawn By: AUSTIN D. KLEIN
Approved By: STATE FIRE MARSHAL DIV.
SHEET NO. **4 of 6**



LEVEL 2 KEY PLAN
NOT TO SCALE



Hydraulic Information	
Remote Area 2	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (ppm/ft ³)	0.10 for 1500ft ³ (Actual 955ft ³)
QUICK RESPONSE REDUCTION	9'-6" Ceiling (40.0%) 900ft ³
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	13
K-FACTOR	5.8
TOTAL WATER REQUIRED	331.68
TOTAL PRESSURE REQUIRED	73.281
SAFETY MARGIN (psi)	+12.577 (14.6%)

Hydraulic Information	
Remote Area 3	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (ppm/ft ³)	0.15 for 1500ft ³ (Actual 1018ft ³)
QUICK RESPONSE REDUCTION	14'-0" Ceiling (34.0%) 990ft ³
TOTAL HOSE STREAMS	280.00
TOTAL HEADS FLOWING	9
K-FACTOR	5.8
TOTAL WATER REQUIRED	437.90
TOTAL PRESSURE REQUIRED	44.180
SAFETY MARGIN (psi)	+41.582 (48.5%)

Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
●	Tyco	TY2337	EC-11	332	11.2	Pendent	3/4"	Quick	Chrome	200°F	RECESSED
●	Tyco	TY2331	TY-FRB	219	5.6	Pendent	1/2"	Quick	Chrome	200°F	RECESSED
●	Tyco	TY6222	ELOC	32	11.2	Pendent	3/4"	Quick	White	160°F	CONCEALED
●	Tyco	TY3131	TY-FRB	156	5.6	Upright	1/2"	Quick	Natural Brass	200°F	N/A
●	Tyco	TY3935	DS-1	4	5.6	Pendent	1"	Quick	Chrome	200°F	STANDARD
●	Tyco	TY3131	TY-FRB	5	5.6	Upright	1/2"	Quick	Natural Brass	200°F	N/A
●	Tyco	TY5338	DS-3	1	11.2	Sidewall	1"	Quick	Chrome	200°F	STANDARD
●	Tyco	TY3131	TY-FRB	3	5.6	Upright	1/2"	Quick	Natural Brass	288°F	N/A
●	Tyco	TY2331	TY-FRB	2	5.6	Pendent	1/2"	Quick	Chrome	288°F	RECESSED
●	Tyco	TY5137	EC-11	23	11.2	Upright	3/4"	Quick	Natural Brass	200°F	N/A
				Total = 776							

- General Notes**
- System installed per NFPA-13 (2016 Edition) and Dept. of Labor and Industry.
 - All equipment for this system shall be U.L. listed.
 - Minimum pipe size shall be 1" nominal pipe.
 - All main and branch line piping has welded outlets & grooved fittings all welding per NFPA 13 (2016).
 - No installation or fabrication to begin without approved shop drawings.
 - All Pipe Locations are to be Field Measured Prior to Fabrication and Installation by Sprinkler Contractor.
 - All Dimensions Shown are Center to Center.
 - High Temperature Heads are to be Field Located Where Required.
 - Provide one spare head cabinet w/ 6 hds. & one hd wrench.
 - Hangers are to be U.L. Listed and F.M. Approved.
 - Electrical wiring, alarm, detection and supervisory by owner.
 - Owner's responsibility to provide adequate heating to prevent wet system piping from freezing.



Drawing Title: UPPER LEVEL AREA A & C - FITTER PRINT

PLEASANTVIEW ELEMENTARY SCHOOL

1009 SIXTH AVE NORTH
SAUK RAPIDS, MN 56379

Contract No. C20-82
Drawing Date: 3/11/2021
Scale: 1/8" = 1'-0"
Drawn By: AUSTIN D. KLEIN WICET I
Approved By: STATE FIRE MARSHAL DIV.
SHEET NO. 5 of 6