FIRE PROTECTION NOTES:

FIRE PROTECTION SUPPLY PIPE: ROUTE THE BUILDING FIRE MAIN TO THE WATER MAIN AND CONNECT TO THE SUPPLY LINE AT THE APPROPRIATE TIME AND LOCATION. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF WATER MAIN PRIOR TO START OF CONSTRUCTION. WORK INCLUDES BUT IS NOT LIMITED TO: INSTALLING A COMPLETE WET SYSTEM DESIGNED THROUGHOUT THE BUILDING. 1. RELATED WORK SPECIFIED ELSEWHERE:

- 1. WIRING OF FLOW ALARM SWITCHES AND TAMPER SWITCHES AND CONNECTION OF SWITCHES TO BUILDING ALARM SYSTEM ARE SPECIFIED IN ELECTRICAL DOCUMENTS. SPRINKLER DESIGN REQUIREMENTS: (FOR LIGHT HAZARD):
- 2. THE CONTRACTOR SHALL SUBMIT 4 COMPLETE SETS OF SPRINKLER SHOP DRAWINGS AND HYDRAULIC CALCULATIONS TO THE ARCHITECT FOR REVIEW, PRIOR TO ORDERING MATERIAL AND/OR CUTTING PIPE. CONTRACTOR SHALL NOT CUT ANY PIPING UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND ACCEPTED. THE CONTRACTOR SHALL SHOW IN DASHED LINES THE LOCATION OF ALL DUCTWORK, LIGHTS AND DIFFUSERS.
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING SPRINKLER PIPING AND HEADS LOCATIONS WITH OTHER TRADES. CONTRACTOR SHALL RELOCATE SPRINKLER PIPING AND HEADS AS NECESSARY IN ORDER TO AVOID CONFLICT WITH DUCTWORK, LIGHTS AND STRUCTURE.
- 4. PROVIDE AUXILIARY DRAINS AT LOW POINTS IN SYSTEM AND FOR TRAPPED SECTIONS AS REQUIRED BY NFPA-13. LOCATE AUXILIARY DRAINS IN MECHANICAL CLOSETS OR OTHER LOCATIONS OUT OF SIGHT.
- 5. THE CONTRACTOR SHALL INCLUDE A TEN POUND (10 PSI) BUFFER IN THE HYDRAULIC CALCULATIONS, I.E. THE PRESSURE REQUIRED FOR THE SPRINKLER SYSTEM (INCLUDING HOSE STREAM) SHALL BE A MINIMUM OF 10 PSI LESS THAN THE AVAILABLE PRESSURE AT THE REQUIRED FLOW.
- 6. THE CONTRACTOR SHALL PERFORM A FLOW TEST PRIOR TO COMMENCING DESIGN AND SHALL PROVIDE TEST INFORMATION TO THE ARCHITECT FOR APPROVAL. SPRINKLER SYSTEM DESIGN SHALL BE BASED UPON THE CONTRACTOR'S FLOW TEST. QUALITY CRITERIA: PERMITS, LICENSES, INSPECTION FEES:
- 1. OBTAIN AND PAY FOR PERMITS, LICENSES AND INSPECTION FEES AS MAY BE REQUIRED FOR PERFORMANCE AND APPROVAL OF THE WORK PERFORMED UNDER THIS SECTION OF THE SPECIFICATIONS.
- 2. COMPLY WITH ALL REQUIREMENTS OF NFPA 13D AND THE STATE FIRE MARSHALL AND LOCAL CODES. MATERIALS: MATERIALS SPECIFIED BY MANUFACTURER'S NAME SHALL BE USED UNLESS PRIOR APPROVAL OF A SUBSTITUTE IS GIVEN BY ADDENDA. SUBMITTALS: BEFORE MATERIALS AND EQUIPMENT ARE PURCHASED, SUBMIT FOR ARCHITECT'S APPROVAL, A COMPLETE SCHEDULE OF MATERIALS AND EQUIPMENT TO BE INCORPORATED IN THE WORK. SUBMITTALS SHALL INCLUDE THE FOLLOWING:
- 1. COMPLETE SHOP DRAWINGS WITH HYDRAULIC CALCULATIONS
- 2. ALL VALVES
- 3. SPRINKLER HEADS
- 4. TAMPER SWITCHES
- 5. PIPE HANGERS AND SUPPORTS
- 6. PIPE AND FITTINGS
- 7. CABINETS GROOVED JOINT COUPLINGS AND FITTINGS SHALL BE SHOWN ON DRAWINGS AND PRODUCT SUBMITTALS, AND BE SPECIFICALLY IDENTIFIED WITH THE APPLICABLE STYLE NUMBER. SPRINKLER HEADS SHALL BE REFERRED TO ON DRAWINGS, SUBMITTALS AND OTHER DOCUMENTATION, BY THE SPRINKLER IDENTIFICATION OR MODEL NUMBER AS SPECIFICALLY PUBLISHED IN THE APPROPRIATE AGENCY LISTING OR APPROVAL. TRADE NAMES OR OTHER ABBREVIATED DESIGNATIONS SHALL NOT BE ALLOWED. TESTING PIPE SYSTEMS: TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE ARCHITECT OR HIS DESIGNATED REPRESENTATIVE. EQUIPMENT, MATERIALS, AND INSTRUMENTS FOR TESTING SHALL BE FURNISHED BY THE CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER. AUTOMATIC SPRINKLER PIPING: THE AUTOMATIC SPRINKLER SYSTEMS SHALL BE HYDROSTATICALLY TESTED IN THEIR ENTIRETY OR IN ZONES DEFINED BY SHUT-OFF VALVES. THE PIPING SHALL BE TESTED AT A PRESSURE OF 200 PSIG. MEASURED AT THE LOW POINT IN THE SYSTEM OR ZONE, AND SHALL BE PROVED TIGHT AT THIS PRESSURE FOR A PERIOD OF NOT LESS THAN TWO HOURS. LEAKS DETECTED SHALL BE REPAIRED BY TIGHTENING, REWELDING JOINTS, OR REPLACING DAMAGED PIPE OR FITTINGS. CAULKING OF JOINTS WILL NOT BE PERMITTED. DRY PIPE AIR TEST: ALL DRY PIPE PIPING SHALL BE TESTED AT 40 PSIG AND ALLOWED TO STAND FOR 24 HOURS. ALL LEAKS WHICH ALLOW A LOSS OF PRESSURE OVER 1½ PSI SHALL BE REPAIRED. COMPRESSED AIR SYSTEM: ALL PIPING SHALL BE PNEUMATICALLY TESTED AT A PRESSURE OF 150 PSIG FOR A PERIOD OF NOT LESS THAN 2 HOURS. NO LOSS IN PRESSURE WILL BE PERMITTED. LEAKS DETECTED SHALL BE REPAIRED BY TIGHTENING OR REPLACING PIPE AND FITTINGS. CAULKING OF JOINTS WILL NOT BE PERMITTED. OPERATION AND MAINTENANCE INSTRUCTIONS: OPERATING AND MAINTENANCE INSTRUCTIONS, PRINTED AND BOUND IN HARD COVER THREE RING LOOSE LEAF NOTEBOOKS. SHALL BE PROVIDED FOR EACH ITEM OF EQUIPMENT LISTED BELOW: 5 SEPARATE COPIES SHALL BE PROVIDED. EACH NOTEBOOK SHALL BE PROVIDED WITHIN AN IDENTIFYING LABEL UNDER A CLEAR PLASTIC COVER SHIELD ON THE FRONT COVER WHICH SHALL IDENTIFY THE PROJECT, ENGINEER, CONTRACTOR AND DATE.
- 1. NATIONAL FIRE PROTECTION ASSOCIATION PAMPHLET NO. 25. PHOTO COPIES ARE NOT ACCEPTABLE.
- 2. COPIES OF ALL APPROVED SUBMITTAL DATA (LISTED ABOVE UNDER SUBMITTALS).
- 3. AS-BUILT COPIES OF DESIGN DRAWINGS AND HYDRAULIC CALCULATIONS. SEISMIC REQUIREMENTS: PROVIDE SEISMIC PROTECTION FOR THE SPRINKLER SYSTEM. DESIGN AND INSTALL SEISMIC PROTECTION IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13 SECTION TITLED "PROTECTION OF PIPING AGAINST DAMAGE WHERE SUBJECT TO EARTHQUAKES." SEISMIC REQUIREMENTS MAY BE WAIVED BY THE AUTHORITY HAVING JURISDICTION. PROVIDE WRITTEN DOCUMENTATION OF WAIVER. GUARANTEE: ALL EQUIPMENT SHALL BE GUARANTEED AS SPECIFIED UNDER THE GENERAL AND SPECIAL CONDITIONS. GUARANTEE ON ALL EQUIPMENT SHALL START AND COINCIDE WITH THE CONTRACTOR'S GUARANTEE OBLIGATIONS. PIPE AND FITTINGS: PIPE AND FITTINGS LISTED HEREIN SHALL BE FOR THE SERVICES INDICATED. SPRINKLER AND STANDPIPE:

JOINTS: MECHANICAL GROOVED JOINT COUPLINGS SHALL BE LISTED FOR USE IN FIRE PROTECTION SYSTEMS.

- 1. GROOVED END FITTINGS: FITTINGS SHALL BE DUCTILE IRON (ASTM A536); FORGED STEEL (ASTM A234); OR FABRICATED FROM CARBON STEEL PIPE (ASTM A53); WITH PRE-GROOVED ENDS FOR USE WITH MECHANICAL COUPLINGS OF THE SAME MANUFACTURER.
- 2. MECHANICAL COUPLINGS: COUPLING HOUSINGS SHALL BE DUCTILE IRON (ASTM A536). BOLTS AND NUTS SHALL BE CARBON STEEL TRACK-TYPE (ASTM A183), MINIMUM TENSILE 110,000 PSI. GASKETS SHALL BE GRADE "E" EPDM, FOR WATER SERVICES FROM -30 TO +230EF. AT JOINTS ALLOWING CONTROLLED MOVEMENT, EXPANSION, CONTRACTION OF DEFLECTION, FLEXIBLE COUPLINGS WITH SHALL BE USED. AT ALL JOINTS NOT REQUIRING FLEXIBILITY, A RIGID COUPLING SHALL BE USED.
- a. RIGID TYPE: COUPLING HOUSINGS CAST WITH OFFSETTING, ANGLE-PATTERN BOLT PADS SHALL BE USED TO PROVIDE SYSTEM RIGIDITY AND SUPPORT AND HANGING IN ACCORDANCE WITH NFPA 13D.
- b. FLEXIBLE TYPE: USE IN LOCATIONS WHERE VIBRATION ATTENUATION AND STRESS RELIEF ARE REQUIRED.
- 3. FLANGE ADAPTER: FLAT FACE, FOR DIRECT CONNECTION TO ANSI CLASS 125 OR 150 FLANGED COMPONENTS UNDERGROUND PIPE:
- 1. STANDARD WEIGHT DUCTILE IRON PIPE WITH MECHANICAL "BOLTED TYPE" JOINTS.
- PROVIDE TIE RODS AND THRUST BLOCKS AT EACH CHANGE OF DIRECTION OF THE UNDERGROUND FIRE SERVICE PIPING.
 INSTALL TIE RODS AND THRUST BLOCKS IN ACCORDANCE WITH NFPA-24 REQUIREMENTS. FIRE DEPARTMENT VALVES:
 VALVES:
- 1. VALVES OF THE SAME TYPE SHALL HAVE THE NAME OR TRADEMARK OF THE MANUFACTURERS AND THE WORKING PRESSURE STAMPED OR CAST ON THE VALVE BODY.
- 2. ALL VALVES INSTALLED IN HORIZONTAL LINES SHALL BE INSTALLED WITH THE STEMS HORIZONTAL OR ABOVE. VALVE HANDWHEELS SHALL BE ORIENTED. WHEN INSTALLED. TO PROVIDE MAXIMUM ACCESSIBILITY FOR OPERATION.
- 3. ALL VALVES REQUIRING PACKING SHALL BE DESIGNED AND CONSTRUCTED SUCH THAT THEY CAN BE REPACKED UNDER PRESSURE.
- 4. VALVE HANDWHEELS SHALL BE MALLEABLE IRON.
- FIRE DEPARTMENT VALVES: FIRE DEPARTMENT ANGLE VALVES SHALL BE 2½" SIZE PRESSURE REDUCING TYPE COMPLETE WITH CAP AND CHAIN. VALVES SHALL HAVE POLISHED BRASS FINISH AND SHALL BE ELKHART UP-25, POTTER-ROEMER 4085 OR EQUIVALENT BY NIBCO OR SIERRA. SPRINKLER HEADS: SPRINKLER HEADS SHALL BE GLASS-BULB TYPE. BODY SHALL BE DIE CAST BRASS. WITH HEX-SHAPED WRENCH BOSS CAST INTO THE BODY TO FACILITATE INSTALLATION AND REDUCE THE RISK OF DAMAGE DURING INSTALLATION. SPRINKLER HEAD TYPES SHALL BE COORDINATED WITH THE ARCHITECT. UPRIGHT SPRINKLER HEADS SHALL BE ½ INCH SPRAY TYPE WITH BRONZE FINISH. SPRINKLERS SHALL BE VIKING, CENTRAL SPRINKLER, RELIABLE, GRINNELL OR AUTOMATIC SPRINKLER. PENDENT SPRINKLER HEADS UNLESS OTHERWISE INDICATED PENDENT SPRINKLER HEADS SHALL BE QUICK RESPONSE ½ INCH SPRAY TYPE WITH CHROME PLATED FINISH AND WHITE ESCUTCHEON PLATE. SPRINKLERS SHALL BE VIKING, CENTRAL SPRINKLER. RELIABLE. GRINNELL OR AUTOMATIC SPRINKLER. SIDEWALL SPRINKLER HEADS SHALL BE QUICK RESPONSE 1/2 SPRAY TYPE WITH CHROME PLATED FINISH AND WHITE ESCUTCHEON. SPRINKLERS SHALL BE VIKING, CENTRAL SPRINKLER, RELIABLE, GRINNELL OR AUTOMATIC SPRINKLER. CONCEALED PENDENT SPRINKLER HEADS SHALL BE ½ INCH SPRAY TYPE WITH CHROME PLATED FINISH AND WHITE ESCUTCHEON AND CEILING PLAT. SPRINKLERS SHALL BE VIKING, CENTRAL SPRINKLER, RELIABLE, GRINNELL OR AUTOMATIC SPRINKLER. HANGERS: SUPPORTS FOR VERTICAL LINES PASSING THROUGH FLOOR SHALL BE RISER CLAMP TYPE. FEE & MASON FIG. NO. 241. CARPENTER AND PATTERSON NO. 126 OR EQUIVALENT BY B-LINE. ANVIL OR ERICO. GENERAL: UNLESS SPECIFICALLY STATED OTHERWISE. THE FIRE PROTECTION SYSTEM SHALL CONFORM TO ALL OTHER SECTIONS OF THIS SPECIFICATION WHICH APPLY TO PIPE INSTALLATION, ACCESSORIES AND CONTROLS. ALL THREADED HOSE OUTLETS SHALL COMPLY WITH THE LOCAL FIRE DEPARTMENT REQUIREMENTS. ALL SHOP DRAWINGS SUBMITTED ON ITEMS REQUIRING UNDERWRITERS' LISTING SHALL BEAR EVIDENCE OF UNDERWRITERS' APPROVAL. ALL EXPOSED FIRE SYSTEM PIPING INCLUDING VALVE ROOM PIPING SHALL BE CLEANED OF RUST, GREASE AND SCALED AND SHALL BE PROVIDED WITH A FIELD APPLIED PRIME COAT AND TWO COATS OF AN OIL BASED ENAMEL PAINT. COLOR SHALL BE RED OR AS DIRECTED BY ARCHITECT. THE CONTRACTOR SHALL PERFORM ALL TESTS OF FIRE PROTECTION SYSTEMS AS REQUIRED BY GOVERNING CODES AND LOCAL AUTHORITIES AT NO ADDITIONAL COST TO THE OWNER. TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE OWNERS REPRESENTATIVE. INSTALLATION: COORDINATE SPRINKLER INSTALLATION WITH BUILDING STRUCTURE AND OTHER TRADES. ROUTE [DRY PIPE] [ALARM] VALVE DRAINS TO [OUTSIDE BUILDING] [FLOOR DRAIN] AND TERMINATE 9" AFG. VERIFY LOCATIONS OF LIGHTS AND DIFFUSERS PRIOR TO INSTALLING SPRINKLER HEADS AND PIPING. SPRINKLER HEADS SHALL BE INSTALLED ON CENTERLINE WITH LIGHTS, DIFFUSERS AND DOORS, IN LIVING UNITS. CEILING THE SPRINKLER HEADS SHALL BE INSTALLED IN THE CENTER OF 2' X 2' TILES AND IN THE CENTER OF THE 1/2 TILE IN 2' X 4' TILES. CONTRACTOR SHALL PURGE AIR FROM ALL WET PIPE SPRINKLER SYSTEM PIPING PRIOR TO FINAL SYSTEM COMPLETION. INSTALL A SPARE SPRINKLER CABINET NEAR THE SPRINKLER RISER. PROVIDE NUMBER OF SPARE SPRINKLERS AS REQUIRED BY NFPA-13D, WITH AT LEAST ONE SPARE FOR EACH TYPE OF HEAD INSTALLED

CLIENT:	
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ALL DRAWINGS AND WRITTEN MATERIALS

APPEARING HEREIN CONSTITUTE THE

ORIGINAL AND UNPUBLISHED WORK OF THE

DESIGNER AND THE SAME MAY NOT BE

DUPLICATED, USED OR DISCLOSED WITHOU'

CONSENT OF THE DESIGNER.

NOTES

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3. THE CONTRACTOR MUST CHECK ALL DIMENSION AT SITE BEFORE COMMENCING

4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

	REV. NO.	DESCRIPTION	DATE	BY \
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FIRE GENERAL NOTES.

PROJ. NO. PROJ. ENGR. SCALE @ 24X36:

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DRAWING NO. REV.

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NOTES FOR NFPA 13D SPRINKLER SYSTEMS ONE & TWO FAMILY RESIDENTIAL FIRE SPRINKLER SYSTEMS

- Scope of work: Design and installation of an automatic fire sprinkler system for a single or two-family dwelling.
- One set of approved sprinkler plans with hydraulic calculations shall be retained at the job site at all times.
- The system shall be designed and installed in accordance with 2016 NFPA 13D and amendments as adopted by the local jurisdiction.
- All valves shall have permanently affixed signs that indicate their function
- The water flow switch shall be connected to the service panel on an uninterruptible house circuit.
- Bells/alarms shall be sized and located to be clearly audible in all rooms over background noise with all intervening doors closed. At least one bell/alarm shall be located near the address side or front side of the structure and shall be listed for exterior use. At least on bell/alarm shall be located inside the structure and may be placed in the attic in audibility of 15 dB above ambient, but not less than 70 dB, is achieved throughout the residence.
- Underground mains and lead-in connections shall be flushed before connection is make to sprinkler piping.
- Water meter shall be installed prior to final.
- Both rough and final inspections are required prior to occupancy being granted.
- 10. Systems shall be tested at a minimum of street pressure in accordance with NFPA 13D.
- . Exposed exterior riser valves shall be painted OSHA safety red. Fire sprinkler or supply pipe exposed or susceptible to wet conditions shall be painted (any color) or otherwise coated to inhibit corrosion. Stainless steel assemblies and piping may be left unpainted provided that any hose connections, valves, or other components operated by the fire department are painted
- 12. All sprinkler piping shall remain uncovered until inspected by City of La Habra Heights.
- 13. Ceiling configurations shall be in a final condition (pain, lights, etc.) at final inspection.
- 14. Fire Sprinkler heads shall not be installed at rough inspection. Only plugs shall be used.
- 15. Escutcheons shall be installed prior to final inspection. A spot check on fire sprinkler type may occur at final inspections.

THE TEST AND DRAIN VALVE MUST HAVE AN ORIFICE K-FACTOR NOT GREATER THAN THE SPRINKLER'S K-FACTOR, WHICH IS IN THIS CASE EQUALS TO 4.90.

612.3.2 Sprinkler Installation. Sprinklers shall be listed residential sprinklers and shall be installed in accordance with the sprinkler manufacturer's installation instructions.

612.3.3 Temperature Rating and Separation from **Heat Sources.** Sprinklers shall have a temperature rating of not less than 135°F (57°C) and not more than 170°F (77°C). Sprinklers shall be separated from heat sources in accordance with the sprinkler manufacturer's installation instructions.

Exception: Sprinklers located close to a heat source in accordance with Section 612.3.3.1 shall be intermediate temperature sprinklers.

612.3.3.1 Intermediate Temperature Sprin-

klers. Sprinklers shall have an intermediate temperature rating of not less than 175°F (79°C) and not more than 225°F(107°C) where installed in the following lowing locations:

- (1) Directly under skylights, where the sprinkler is exposed to direct sunlight.
- (2) In attics and concealed spaces located directly beneath a roof.
- (3) Within the distance to a heat source in accordance with Table 612.3.3.1.
- **612.3.5 Coverage Area Limit.** The area of coverage of a single sprinkler shall be based on the sprinkler listing and the sprinkler manufacturer's installation instructions. The area of coverage of a single sprinkler shall not exceed 400 square feet (37.16 m²)

SF

P	PRINKLER HEAD SCHEDULE (9 SPRINKLER HEAD)														
			D (CORRISION T)	ZONTAL	JANT	О Ш .	ALED PENDANT	ED JANT		D COVERAGE	HD TO BE VRELOCATED	Е	GENERAL LOCATION OF SPRINKLER HEADS	NOTE: ALL FINISHES ARE SUBJECT TO APPROVAL BY ARCHITECT.	MANUFACTURER MODEL No. & STYLE
STMBOL	UPRIGHT	PENDANT	RECESSED RESISTANT	DRY HORIZONTAL SIDEWALL	DRY PENDANT	EXTENDED COVERAGE SIDEWALL	CONCEAL	CONCEALED DRY PENDAN	SIDEWALL	EXTENDED	EXIST SP HD TO REMOVED/REL	QUICK RESPONSE	(REFER TO DRAWINGS FOR ACTUAL LOCATIONS)	TYPE/FINISH	MODEL NO. & STILL
3)													ALL FINISHED AREAS WITH HUNG CEILINGS UNLESS OTHERWISE NOTED	CONCEALED SPRINKLER, ORDINARY TEMP, FINISH SPECIFIED BY ARCHITECT	senju sprinkler Model RC-RES 4.9 K-factor
	'					·			'						

NFPA 13-D: 7.5.4

be used in mechanical closets.

NFPA 13-D: 7.5.6 Temperature Ratings.

ceiling temperatures do not exceed

100°F (38°C) shall be ordinary

intermediate-temperature rated

temperature-rated or

requirements of 7.5.6.3.

unless modified by 7.5.6.3.

NFPA 13-D: 7.5.6.2

NFPA 13-D: 8.1.1.2

psi (0.5 bar).

Quick-response sprinklers shall be permitted to

Sprinklers installed where maximum ambient

sprinklers throughout unless modified by the

Sprinklers installed where maximum ambient

ceiling temperatures are between 101°F

intermediate temperature-rated sprinklers

The sprinklers shall maintain the minimum

listed spacing, but no less than 8 ft (2.4 m),

to another, as shown in Figure 8.1.1.1

NFPA 13-D: 8.1.4 Operating Pressure.

with Specific Discharge Criteria

the design sprinklers.

NFPA 13-D: 7.2.4*

NFPA 13-D: 7.2.5

The minimum operating pressure of any

sprinkler shall be the higher of the minimum

operating pressure specified by the listing or 7

NFPA 13-D: 10.1.1* Sprinklers That Are Listed

The system shall provide at least the flow

required to produce a minimum discharge

density of 0.05 gpm/ft2 (2.0 mm/min) or the

Where water flow alarms are provided, test

The test connections, where provided, shall

the smallest sprinkler K-factor installed in the

contain a K-factor equal to or smaller than

connections shall be installed at locations

that allow flow testing of water supplies,

connections, and alarm mechanisms

sprinkler listing, whichever is greater, to

measured in the plan view from one sprinkler

and 150°F (38°C and 65°C) shall be

	Table A.5.2.2(a) SDR 13.5 IPS Pipe (CPVC)									
Nomi	nal Pipe Size	Avg. Outs	side Diam.	Avg. Inside Diam.						
(in.) (mm)		(in.)	(mm)	(in.)	(mm)					
3/4	20	1.05	26.70	0.87	22.10					
1	25	1.32	33.50	1.10	27.90					
1-1/	4 32	1.66	42.20	1.39	35.30					
1-1/	2 40	1.90	48.30	1.60	40.60					
2	50	2.38	60.50	2.00	50.80					
2-1/	2 65	2.88	73.20	2.42	61.50					
3	80	3.50	88.90	295.00	74.90					

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4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY TEMPORARY SUPPORT TO THE BUILDING AND ANY ADJACENT STRUCTURES.

612.3.6.1 Additional Requirements for Pen-

dent Sprinklers. Pendent sprinklers located within 3 feet (914) mm) of the center of a ceiling fan, surface-mounted ceiling luminaire, or similar object shall be considered to be obstructed, and additional sprinklers shall be provided.

612.3.8 Backflow Protection. A backflow preventer shall not be required to separate a sprinkler system

- the water distribution system provided that: (1) The system complies with NFPA 13D or Section
- R313, and (2) Piping material are suitable for potable water in accordance with the California Plumbing Code,
- (3) The system does not contain antifreeze or have a department connection.

612.4 Sprinkler Piping System. Sprinkler piping

shall be installed in accordance with Section 612.4.1 through Section 612.4.5.

612.3.6.2 Additional Requirements for Side-

wall Sprinklers. Sidewall sprinklers located within 5 feet (1524 mm) of the center of a ceiling fan, surface-mounted ceiling luminaire, or similar object shall be considered to be obstructed and additional sprinklers shall be provided.

612.4.1 General. Sprinkler piping shall be installed in accordance with the requirements for water distribution. piping. Sprinkler piping shall comply with the material requirements for cold water distribution piping. For multipurpose piping systems, the sprinkler piping shall connect to and be part of the cold water distribution piping system.

612.4.2 Nonmetallic Piping and Tubing. Nonmetallic pipe and tubing, such as CPVC, PEX-AL-PEX, PE-RT and PEX, shall be certified for residential sprinkler installations and shall have a pressure rating of not less than 130 psi (896 kPa) at 120°F (49°C).

612.4.5 Drain. A $\frac{1}{2}$ inch (15 mm) drain for the sprinkler ystem shall be provided on the system side of the water distribution shutoff valve.

NFPA13-D: 10.4.1

For specially listed piping products, friction loss for pipe and fittings shall be permitted to be calculated based on the manufacturer's data. 10.4.2 Minimum Pipe Size.

10.4.2.1

The minimum size of steel pipe shall be 1 in. (25 mm).

The minimum size of pipe other than steel pipe shall be 3/4 in. (20 mm) unless smaller sizes are permitted by 10.4.2.3.

NFPA 13-D: 7.2.6*

Where a pressure-reducing or pressure-regulating valve is installed on a stand-alone system, a test connection with a K-factor at least as large as the smallest sprinkler Kfactor on the system shall be installed downstream of the device.

NFPA 13-D: 7.4.4*

Sprinkler piping shall be supported in a manner that prevents the movement of piping upon sprinkler operation.

NFPA 13-D: 7.4.5*

Where sprinkler piping is exposed to the sprinkler protected area, it shall be supported with metal hangers or hangers made of the same material as the structure.

Project: PUNTA ARENAS

Pt: Pressure used for sizing the system in Table 612.5.3.2(4) thourgh Table 612.5.3.2(9)

Or Service Pipe Size=

Service Pipe Length= 300 ft.

Psup: Pressure available from the water supply source (flowing pressure)

PLws: Pressure loss in the water service pipe **PLm:** Pressure loss through the water meter

Pt SYSTEM PRESSURE CALCULATION SHEET

Pt = Psup - PLws - PLm - PLd - Ple - Psp

PLd: Pressure loss from devided other than the water meter

Ple: Pressure loss associated with changes in elevation

Psp: Maximum pressure required by a sprinkler

System Type	Standalone	
Service Pipe Size=	3/4	in.
Service Pipe Length=	0	ft.
ALL. 3/4" CPVC LENGTH	64	
ALL. 1" CPVC LENGTH	193	
Service Pipe Size=	1	in.
Elevation=	15	ft.
Sprinkler:		

Sprinkier:		
Density=	0.05	gpm/sq.f
Coverage=	200	sq.ft.
Active Sprinkler=	2	No.
Sprinklers Flow	20	gpm
Additional System Flow	0	gpm
Total Flow=	20	gpm
Psup =	23	PSI
PLws	27.6	PSI
PLm=	2	PSI
PLd=	3	PSI
PLe=	6.5	PSI
Psp=	7	PSI
_		

Psp=	7	PSI	
Pt =	4.5	PSI	
Allowable CPVC Length	193	FT.	
Actual Pipe Length	100	FT.	

MIN. PRESSURE DEMAN	D AT THE W/M =	
Pdemand =	18.5	PSI

REV. NO.	DESCRIPTION	DATE	BY
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FIRE CODE CHECKING AND CALCULATIONS.

PROJ. NO. | PROJ. ENGR. SCALE @ 24X36: DRAWING NO.

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GENERAL NOTES

- 1. SYSTEM DESIGN AND INSTALLATION SHALL COMPLY NFDA 13D 2016 AND LOCAL APPLICABLE CODES.
- 2. SYSTEM DESIGN BASIS: HYDRAULICALLY MOST DEMANDING 2 SPRINKLERS.

3. WATER SUPPLY:

HYDRANT FLOW TEST: 150 GPM

SYSTEM DEMAND:

REQUIRED PRESSURE: 33.64 PSI
TOTAL FLOW REQUIRED: 45.26 GPM

SAFETY MARGIN UNDER

- 4. ALL PIPE SHALL BE U.D.N. UNDERGROUND IPS POLLY PIPE RISER CPVC OVERHEAD CPVC
- 5. MANUFACTURERS OF RESIDENTIAL SPRINKLERS PUBLISH INFORMATION REGARDING THE SPACING OF THEIR SPRINKLERS WITH RESPECT TO HEAT PROUCING DEVICES (FIRE PLACES, RANGES, OVES, HEATING, VENTS, WATER HEATERS, FURNACES, ETC.) WHETHER OR NOT ALL HEAT PRODUCING DEVICES ARE SHOWN ON THE PLAN PROPER MINIMUM DISTANCES MUST BE MAINTAINED.
- 6. THE MINIMUM DISTANCE BETWEEN ANY 2 RESIDENTIAL SPRINKLERS ON THIS PRODUCT IS HYDRAULICALLY LIMITED TO 12 FEET. SPRIRNKLERS SHALL NT EXCEED 6 FEET FROM ANY WALL.
- 8. THE INIMUM DISTANCE A SPRINKLER CAN BE LOCATED FROM A WALL IS 4 INCHES.
- 9. PENDANT SPRINKLERS SHALL E A MINIMUM OF 36 FEET WAY FROM THE CENTER OF ANY OBSTRUCTIONS SUCH AS CEILING FANS AND LIGHT FIXTURES UNLESS THE REQUIREMENTS OF NFPA 13.3 8.2. ARE MET.
- 10. INSTALLATION OF ALL RESIDENTIAL SPRINKLERS SHALL BE IN STRICT COMPLIANCE WITH THE MANUFACTURERS INSTALLATION GUIDE.
- 11. PRIOR TO DRILLINGJOISTS, CONTACT STRUCTURAL ENGINEER FOR RECOMMENDED DRILLING GUIDELINES.

HANGER SPACING							
PIPE MATERIAL	3/4"	1"	1-1/4"	1-1/2"	2"	2 1/2"	3"
COPPER	8	8	10	10	12	12	12
CPVC	5.5	6	6.5	7	8	9	10
SCHEDULE 40 &10 STEEL	•	12	12	15	15	15	15
THREADABLE THINWALL	•	12	12	12	12	12	12

HANGER NOTES

- 1. ALL LIGHTING SHOWN ARE THE MAXIMUM RECOMMENDED DISTANCE BETWEEN HANGERS EXPRESSED.
- 2. PROVIDE A HANGER ITHIN 6 INCHES OF ALL DROPS TO SPRINKLER HEADS WHEN USING CPVC PIPE.
- 3. + STEEL PIPE IS NOT ALLOWED IN SIZES LESS THAN 1 INCH.

HYDRAULIC INFORMATION						
Remote Area	Bedroom and Living Room					
Occupancy Classification	Light Hazard					
Density (gpm/ft2)	0.05					
Total Hose Stream (GPM)	0					
Total Heads Flowing	2					
K-Factor	4.9					
Total Water Required (GPM)	20.0					
System Pressure P required (PSI)	18.5					

Sprinkler LegendSymbolSpacing - Pressure - FlowManufacturerSINModelKTypeSizeFinishTemp.QTY.(5)8 FT. - 175 PSI -SenjuSS8464RC-RES4.9Pendent1/2"White162 F9

SYMBOLS AND ABBREVIATIONS						
DESCRIPTION	A	ABBREVIATIONS				
	OLS AND ABBREVIATIONS INDICATED ARE NOT NECESSARILY WITHIN THE SCO					
X	NODE NO FIRE SPRINKLER					
SD	FIRE STANDPIPE PIPING	A.B.D.	AUTOMATIC BALL DRIP			
SP	SPRINKLER PIPING (SP.)	A.D.	ACCESS DOOR			
D	SPK DRAIN PIPING	CLG.	CEILING			
	JI K DIVANAT II IIAO	C.V.	CHECK VALVE			
	OS & Y VALVE W/ LOCK AND CHAIN	ηD.C.D.A.	DOUBLE CHECK DETECTOR ASSEMBLY			
	WATER FLOW SWITCH	DN.	DOWN			
	CAPPED OUTLET	ELEV.	ELEVATION			
	GATE VALVE (G.V.)	F.H.C.	FIRE HOSE CABINET			
4	LOCKSHIELD VALVE (GLOBE VALVE)	F.H.	FIRE HYDRANT			
	CHECK VALVE (C.V.)	F.H.R.	FIRE HOSE RACK			
	PRESSURE REGULATING VALVE	FL.	FLOOR			
	STRAINER	G.V.	GATE VALVE			
P		H.C.	HUNG CEILING			
	SHOCK ABSORBER	N.I.C.	NOT IN CONTRACT			
	PRESSURE GAUGE	O.S.&Y.	OUTSIDE SCREW & YOKE			
	UNION CONNECTION	P.O.	PLUGGED OUTLET			
HDCDA HOO	DOUBLE CHECK DETECTOR ASSEMBL	_Ψ.S.	TAMPER SWITCH			
HV	HOSE VALVE	WFS	WATER FLOW SWITCH			
HR SR	HOSE RACK SPRINKLER RIG ASSEMBLY	TS	TAMPER SWITCH			
RM	ROOF MANIFOLD	SPK	SPRINKLER			

FIRE PROTECTION MATERIAL SCHEDULE																				
SYSTEM					PIP	E						FIT	TIN	IGS	,)			JOII	VTS	
NOTES: 1. FOR REQUIRED PRESSURE RATINGS SEE RISER DIAGRAM. 2. ALL MATERIALS SELECTED ON THIS SCHEDULE MUST BE APPROVED BY THE LOCAL AUTHORITIES. 3. TO BE USED DOWNSTREAM OF SPRINKLER FLOOR CONTROL VALVE. 4. TO BE USED ON RISERS AND MAINS.	REQUIRED	TILE IRON	A HEAV	SDR 13	SCHED	STEEL SCHED 40		GALVANIZED	CEMENT LINED	MALLEABLE IRON	CLASS D	LINED	BLACK	GALVANIZED	VICTAULIC	DUCTILE IRON	THREADED	MECH.JOINT-FLANGED	VICTAULIC	CAULKED
BURIED BUILDING FIRE SERVICE		•	•						•		•	•				•				•
SPRINKLER (SEE NOTE 3)				•											•	•	•		•	
SPRINKLER (SEE NOTE 4)				•						•					•	•	•		•	
SPRINKLER DRAIN PIPE				•	(•			•			
FIRE STANDPIPE							•			•					•	•	•			

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REV. NO.	DESCRIPTION	DATE	BY

PROJECT:

FIRE GENERAL NOTES,

1 STORY ADU

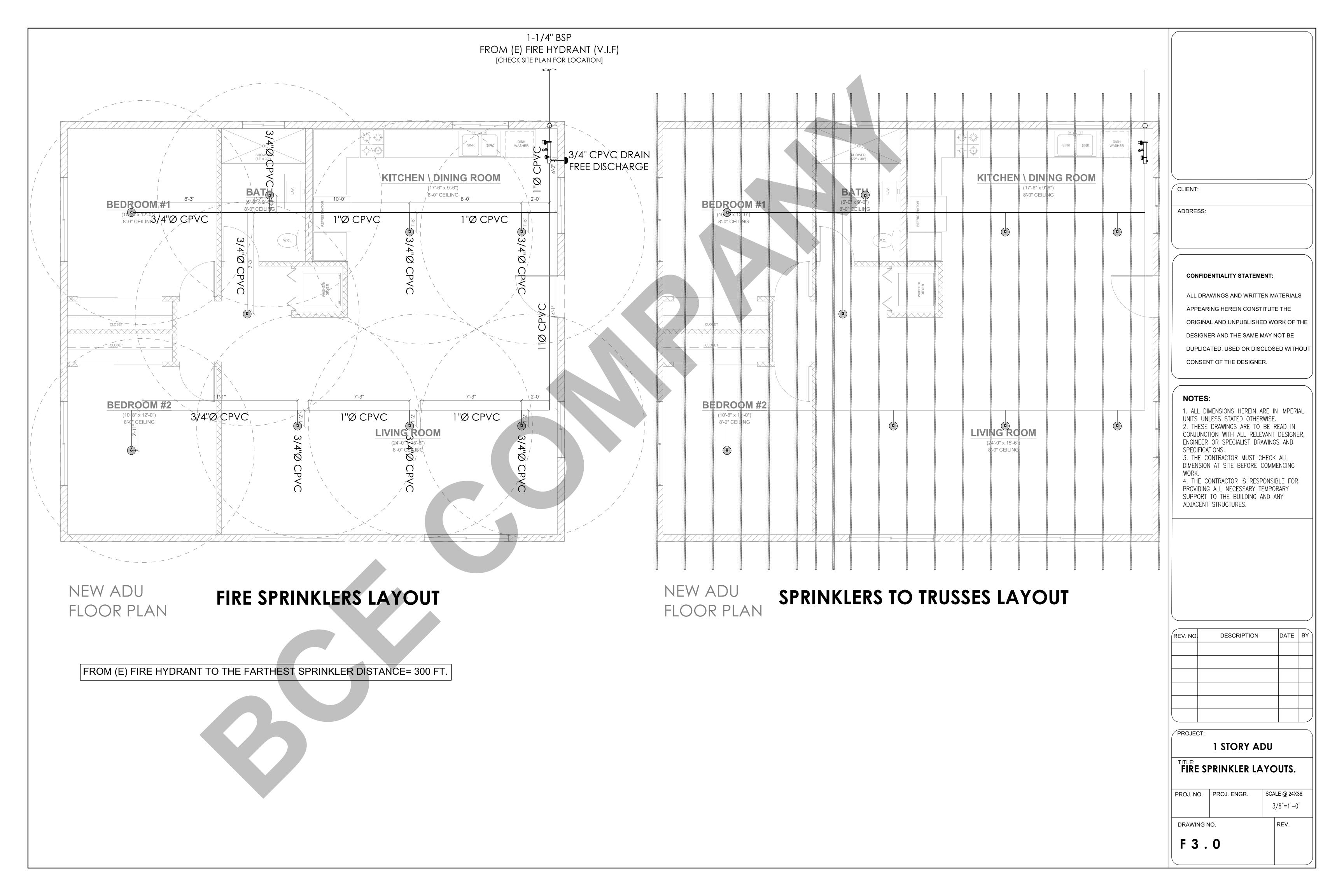
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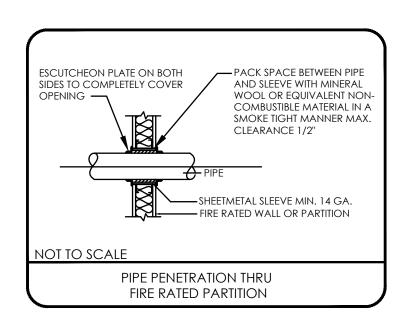
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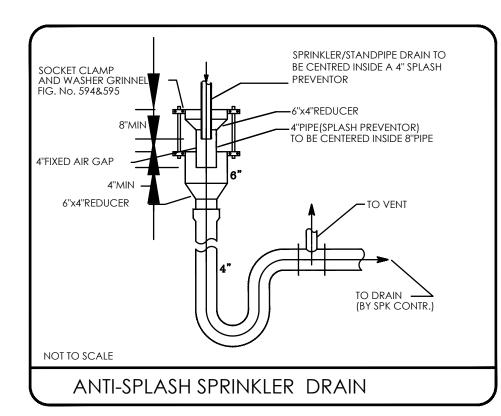
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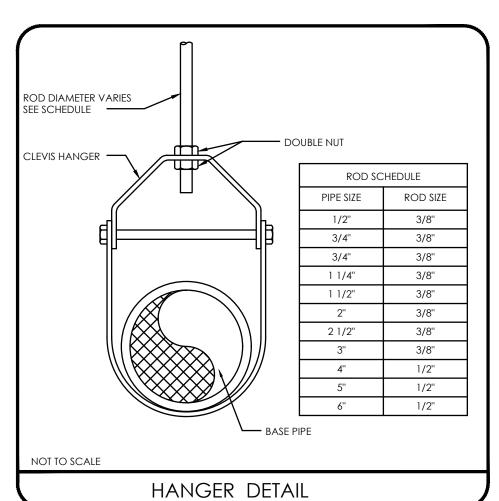
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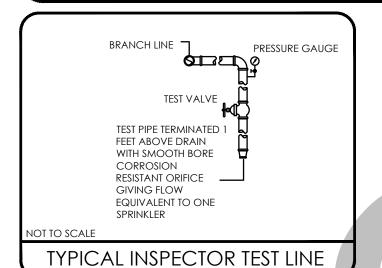
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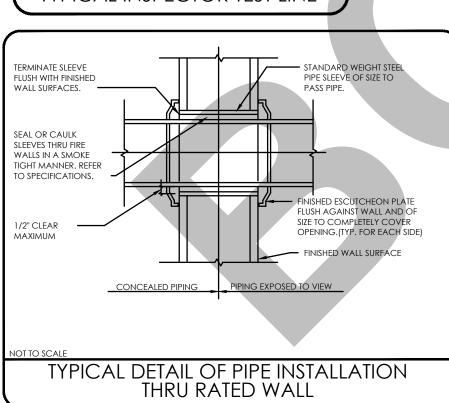


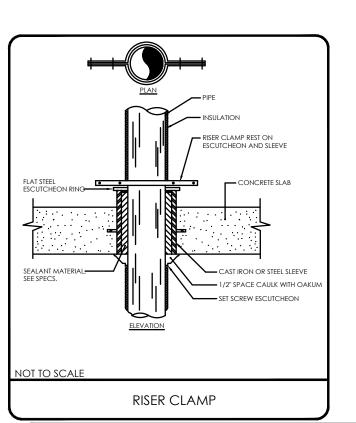


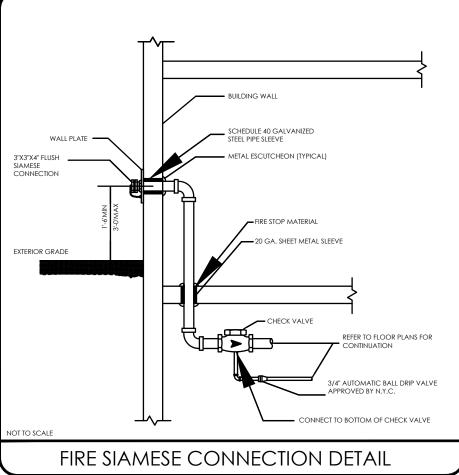


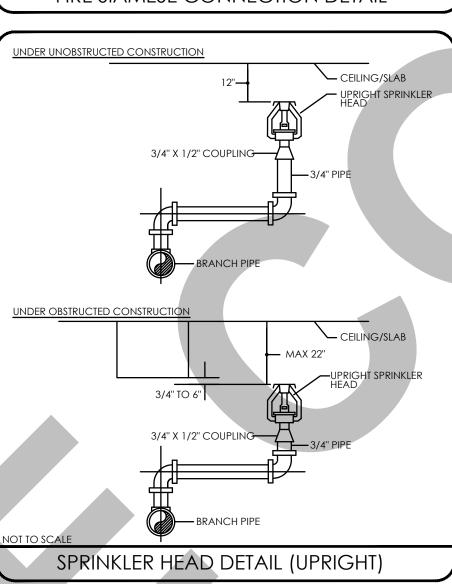


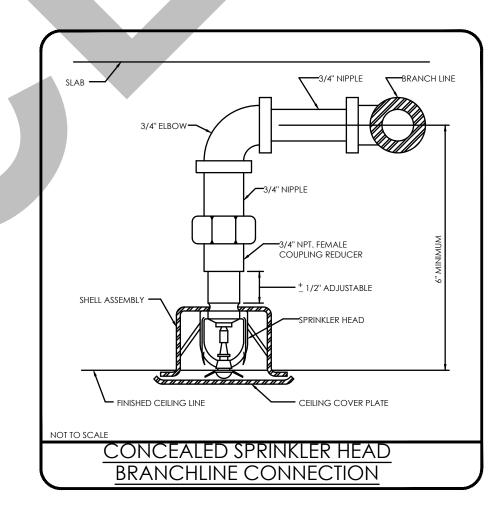










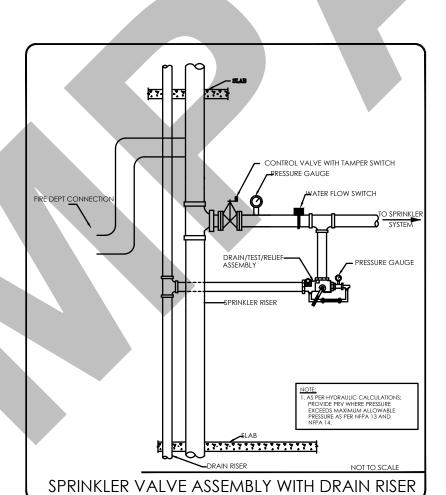


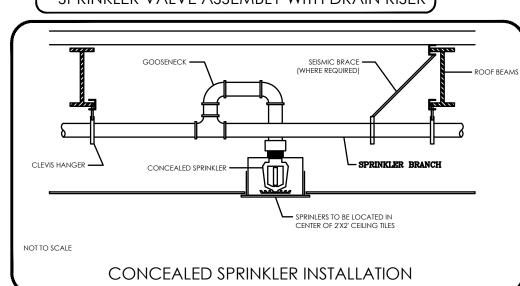
CPVC PIPING NOTES

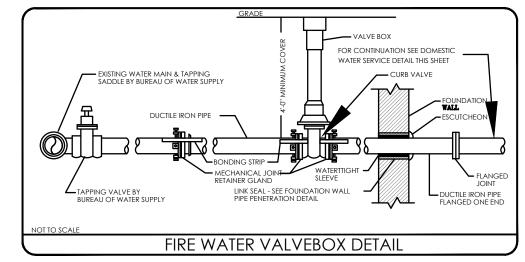
- 1. SYSTEM DESIGN AND INSTALLATION TO MEET THE REQUIREMENTS OF NFPA 13D (2019 ED.) AND CITY OF VCFD FIRE DEPARTMENT
- 2. THIS SYSTEM HAS BEEN HYDRAULICALLY CALCULATED TO PROVIDE 13 GPM @ TWO (2) REMOTE SPRINKLERS UTILIZING 16x6 COVERAGE OF THE TYCO CONC PENDENT (LFII) FIRE SPRINKLER OR (1) SPRNK AT 20 GPM USING 20X20 COVERAGE PER SPRINKLER
- 3. OBTAIN STRUCTURAL ENGINEERS APPROVAL BEFORE DRILLING ANY BEAMS.
- 4. ALL DIMENSIONS ARE +/- AND ARE A GUIDE FOR INSTALLATION ONLY.
- 5. CEILING HEIGHTS VARY AND ARE NOTED ON PLAN.
- 6. ALL PIPING SIZES IS 3/4" CPVC. SEE PLAN FOR ANY SIZING VARIATIONS. PROTECTION AGAINST FREEZING OF ALL PIPES, SPRINKLERS, AND VALVES IS THE RESPONSIBILTY OF THE OWNERS.
- 7. CPVC MAY BE RUN IN JOIST SPACES BETWEEN GYP. BOARD AND FLOOR PLY WITHOUT ADDED PROTECTION. 8. CPVC RUN IN UNSPRINKLERED AREAS SHALL BE COVERED OVER WITH COMMON INSULATION.
- 9. BRANCH LINES SHALL BE BRACED AT A DISTANCE OF SIX INCHES OR LESS FROM THE TEE OR ELBOW DROP TO THE SPRINKLER HEAD.
- 10. HANGER SPACING FOR 3/4" CPVC PIPE IS 6'-0" ON CENTER.
- 11. THE PIPE HANGER MUST HAVE A LOAD BEARING SURFACE AT LEAST 1/2 INCH WIDE OR PROVIDE SUPPORT IN TWO PLACES, SUCH AS A WRAP AROUND U-HANGER.
- 12. THE SYSTEM IS TO MEET THE REQUIREMENTS OF NFPA 13D AND CRC
- SPACING REQUIREMENTS OF SPRINKLERS IN HEAT ZONES
- MINIMUM DISTANCE OBJECT WATER HEATER
- UNINSULATED PIPE
- CEILING DIFFUSER
- FIREPLACE FRONT
- FIREPLACE SIDES UNINSULATED HEATING DUCT

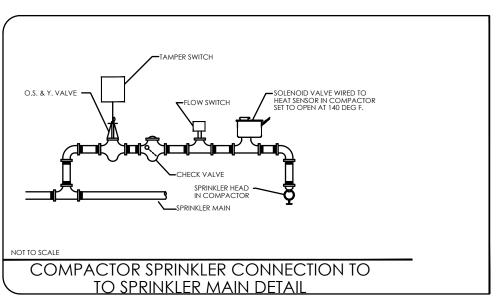
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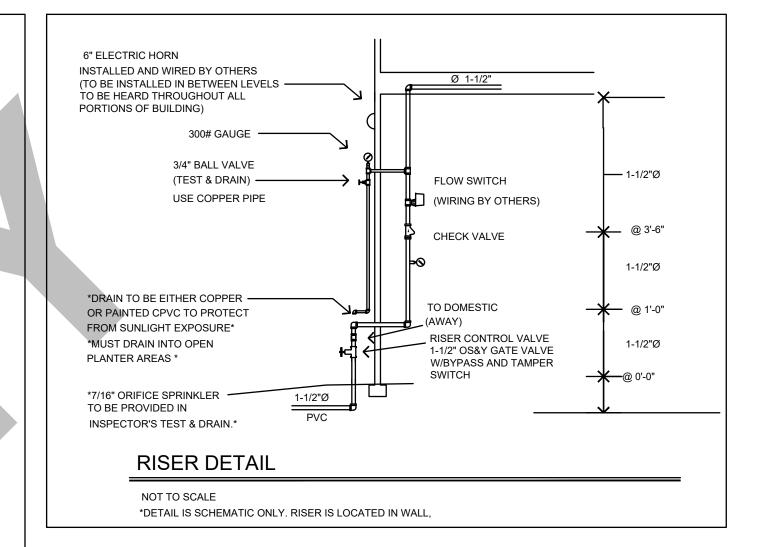
- WATER HEATER OR FURNACE FLUE
- **CEILING FAN**











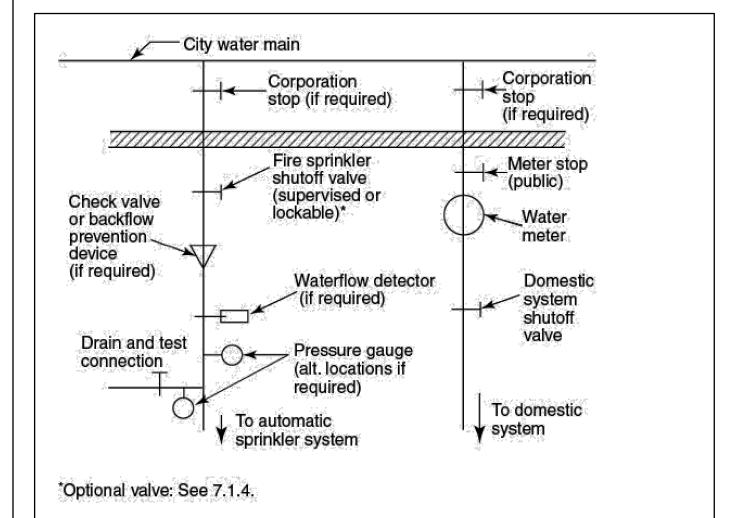
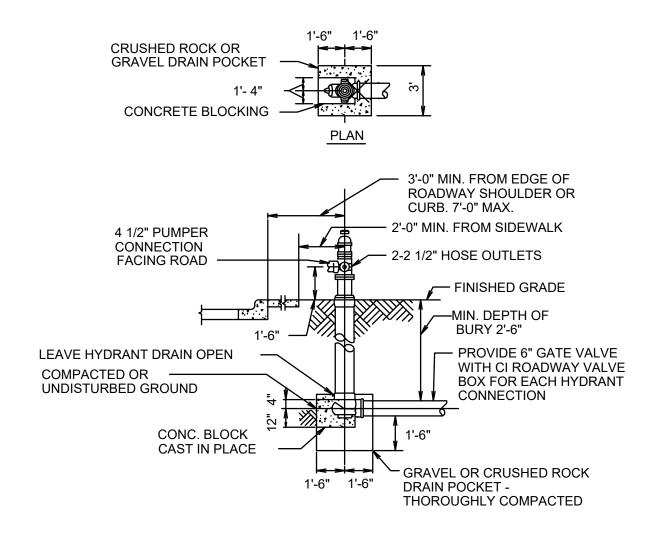


Figure A.6.2(d) Acceptable Arrangement for Stand-Alone Piping Systems — Option 3.



FIRE HYDRANT - WET TYPE

CLIENT: ADDRESS:

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DESCRIPTION DATE BY (REV. NO

PROJECT:

1 STORY ADU

FIRE GENERAL DETAILS.

PROJ. NO. PROJ. ENGR. SCALE @ 24X36: NTS DRAWING NO.

F4.0



INFRAMARK FIRE HYDRANT FLOW TEST RESULTS

(<u>28</u>)	DATE: 7 /26/27/ TIME: 10:00 (A.M) P.M.
	ADDRESS:
	CITY: <u>Perris</u> STATE: <u>Ca</u> . ZIP CODE: <u>92570</u>
Sc.	WATER MAIN SIZE: 8" (INCH) FIRE HYDRANT SIZE: 6"x 4"x 2 1/2" x 21/2"
	FIRE HYDRANT PORT SIZE TEST TAKEN FROM: 2 ½ " 4"
	te de la constant de
	FIRE HYDRANT FLOW TEST RESULTS
	STATIC PRESSURE: 49 (PSI) RESIDUAL PRESSURE: 23 (PSI)
	PITOT TUBE READING: 26 (PST) FLOW RATE: 856 (GPM)
	OFFICIAL CITY WITNESS: Jenjis Votes.
	FIRE FLOW TEST CONDUCTED BY Thomas Carranza
	Permit No: PMT 22-01859

PLEASE READ Permit No: PAT 22-01859 CALL (951) 956-2117 FOR INSPECTIONS

INSPECTIONS SHALL BE CALLED 24 HOURS IN ADVANCE (AND NO LATER THAN 3:00 PM) WHEN REQUESTING NEXT DAY INSPECTIONS. WHEN REQUESTING INSPECTIONS FOR A MONDAY ALL INSPECTIONS REQUESTED MUST BE RECEIVED BY 3:00 PM ON THE FRIDAY BEFORE.

BUILDING INSPECTIONS	DATE	INSPECTOR'S INITIALS	REMARKS	BUILDING INSPECTIONS	DATE	INSPECTOR'S
SETBACK				BOND BEAM/		- Addition to the Common to th
FOOTINGS/STEEL				STEEL 1-2-3		
SLAB/DRIVEWAY			Stade Faters sets that is a series for a constitution of security and security for the second security for the second security for the second security for the second seco	GROUT 1-2-3		
ROOF/VENT		The Decree Shirts Control		T-BAR CEILING		
FRAMING				POOL/ALARM		
SHEAR				STEEL/LOCATION		minutes and a second
INSULATION	50,			PRE-GUNITE		
DRYWALL				FENCE/GATE		
LATH		, c		SITE WALLS		4
PANELS				FINAL		
FIRE		INSPECTOR'S		FIRE		INSPECTOR
INSPECTIONS	DATE	INITIALS	REMARKS	INSPECTIONS	DATE	INITIALS
FIRE ACCESS RD				FIRE ALARM		1 000
FIRE SPRINKLERS				HYDRO INSPECTION		
ANNUAL INSPECTION				FINAL 7-2	4-2	250ht12
ELECTRICAL INSPECTIONS	DATE	INSPECTOR'S INITIALS	REMARKS	ELECTRICAL	DATE	INSPECTOR INITIALS
GROUNDING				ROUGH WIRING		
UNDER GROUND				POOL LIGHT/ELECT	ana mem	
ROUGH CONDUIT				GFI TEST/BONDING		
METER RELEASE				ELECT SERVICE		
SMOKE ALARM	, i			CELL TOWER		
TEMP POWER POLE						
SOLAR FINAL				FINAL		
PLUMPING INSPECTIONS	DATE	INSPECTOR'S INITIALS	REMARKS	MECHANICAL INSPECTIONS	DATE	INSPECTOR INITIALS
UNDERGROUND				PLENUMS/DUCTS		
ROUGH WORK				SHAFTS		
GAS TEST/PIPING			The second secon	HOODS		
SEWER/SEPTIC				FIRE DAMPERS		
FINAL				FINAL		
MANUFACTURED HOME INSPECTIONS	DATE	INSPECTOR'S INITIALS	REMARKS	MANUFACTURED HOME INSPECTIONS	DATE	INSPECTOR INITIALS
SETBACK				SEEAPAGE PIT/ LEACH LINES		
EXCAVATION & FORMS/STEEL				SEWER		
PERMANENT FOUNDATION_				YARD GAS LINE		
PIERS/ PIER FOOTING				ELECT SERV & GROUND		3
PIER JACK SYSTEM			2	FLOOR/ROOF MATING		
WATER SERVICE				ELECT RING OUT		
SEPTIC TANK				FINAL	jii 2000 07 434	9
				A COURT OF THE PARTY OF THE PAR		

City of Perris Building and Fire Marshal Water Availability/Fire Flow Form

-	SECTION A: To be completed by customer
Project Name:	Abel's ADU
Project Address/I	Parcel Number:
Applicant Phone	#:Fax #: ()
Area of largest bu	uilding 1,417 tt²; (measured without area separations wall unless they are 4-hrs)
Construction type	rinklered throughout? (check one) 1 Y
SECT	FION B: To be completed by Perris Building/Fire Marshal Division
Fire Flow Require By:	ment: 1,500 GPM 2 Hour Duration usa Hernandez Date: 06/29/2022
(§	ECTION C: To be completed by local water department/district or attach the local water department/district form that contains the same information
Water Departmen	WDistrict: City of Perris
	rate address or cross-streets & provide reference map): 1909 Punta Avenas
	s) (if applicable): NA
Date of Test: 7	-26-22 Time of test: 10:00
	FLOW TEST RESULTS

856 gpm | Flow calc'd at 20 psi:

Check the box if the test information above was obtained in a manner other than an actual flow test (i.e. by computer modeling).

I have witnessed and/or reviewed this water flow information and by personal knowledge and/or on-site observation certify that the above information is correct.

Name: Donna Anderson

Title: Operations Manager Signature: Date 7-26-22



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REV. NO.	DESCRIPTION	DATE	BY

PROJE	(
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1 STORY ADU

FIDE TEST

FIRE TEST REPORT

PROJ. NO.	PROJ. ENGR.	SCA	LE @ 24X36:
		N	TS
DRAWING N	Ю.		REV.
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