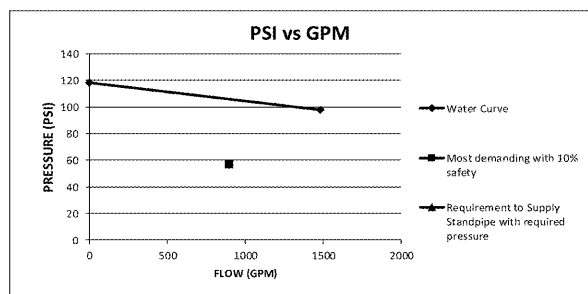
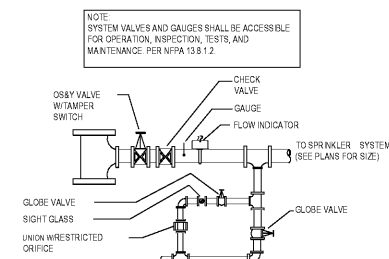


Hazard	Light Hazard	inputs=	
Density	0.1	Important values=	
Hose Demand	250	Q	22.5 225
Total GPM	900	K-value	5.6
Distance to riser	110	4	0.7
Elbows	2	4	0.1
Tees	2	4	0.1
Riser/DCV loss		6	10.0
Distance to test hydrant	1150	12	1.0
Elevation	42	18.2	
PSI required at most demanding sprinkler		16.1	10 lb Safety
Total PSI loss		46.2	56.2

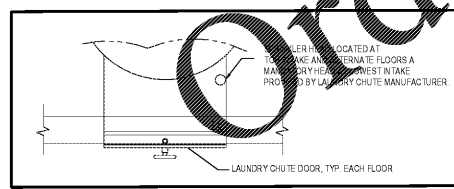
HYDRANT DATA:  
 STATIC PRESSURE 118PSI  
 RESIDUAL PRESSURE 98 PSI  
 FLOW RATE 1482 GPM  
 DATE 1-11-2019



- NOTE:
- PER ASHLAND CITY FIRE DEPARTMENT DIRECTOR FIRE PUMP IS NOT REQUIRED. CONTACT INFORMATION: CHUCK WALKER, DIRECTOR ASHLAND CITY FIRE, BUILDING AND LIFE SAFETY (615) 762-4211.
  - CONTRACTOR TO PROVIDE A LATEST HYDRO TEST TO BE WITNESSED BY FIRE DEPARTMENT PRIOR TO SUBMITTING SHOP DRAWINGS FOR REVIEW. A FEE MAYBE REQUIRED AND TO BE PAID BY FIRE PROTECTION CONTRACTOR.



FLOOR CONTROL VALVE  
SCALE: N.T.S.



SPRINKLER AT LAUNDRY CHUTE DETAIL  
SCALE: NONE

NOTE: SPRINKLER HEADS SHALL BE RECESSED OUT OF THE CHUTE AREA THROUGH WHICH MATERIAL TRAVELS. (NFPA 13 8.3.2)

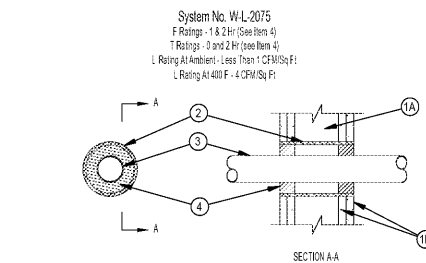
Order Plans @ WWW.LDRAINING.COM

### FIRE SPRINKLER LEGEND

SYMBOL	FINISH	DESCRIPTION
●	WHITE	CONCEALED PENDENT SPRINKLER
○	WHITE	WOODRIM PENDENT SPRINKLER
○	CHROME	DRY PENDENT SPRINKLER
○	CHROME	UPRIGHT SPRINKLER
▽	WHITE	SIDEWALL SPRINKLER
▽	CHROME	DRY SIDEWALL SPRINKLER
●	WHITE	COATED SPRINKLER FOR CHLORINE RICH ENVIRONMENT

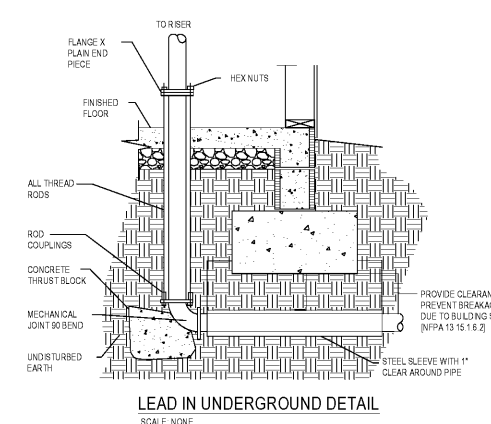
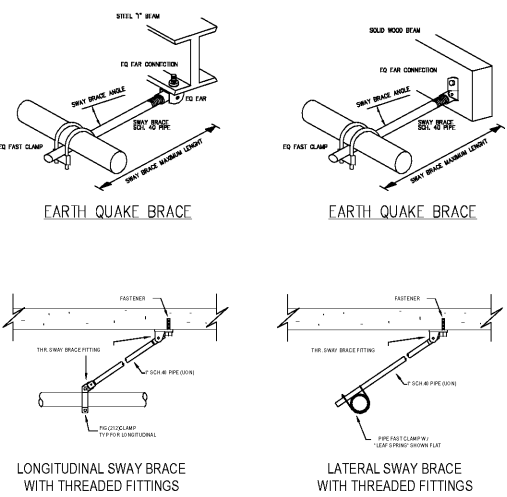
ALL SPRINKLER HEADS ARE QUICK RESPONSE

ABBREVIATIONS	
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
REF.	FOR REFERENCE ONLY



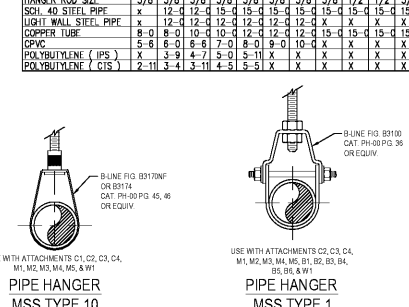
- Floor or Wall Assembly - The fire-rated gypsum wallboard/ stud assembly shall be constructed of the materials and in the manner specified in the Individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:  
 A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.  
 B. Gypsum Board - Nom 5/8 in. thick gypsum wallboard, as specified in the Individual Wall and Partition Design. Max diam of opening is 4 in.  
 C. Metallic Sleeve (Optional) - Nom 4 in. diam (or smaller) Schedule 40 (or thinner) steel pipe cast into wall assembly with joint compound and installed flush with wall surfaces.  
 D. Electrical Nonmetallic Tubing (ENT) - Nom 2 in. diam (or smaller) corrugated wall electrical nonmetallic tubing (ENT) constructed of polyvinyl chloride (PVC) tubing to be rigidly supported on both sides of wall assembly. A nominal space of 3/4 in. is required within the fire-rated system.  
 E. See Electrical Nonmetallic Tubing (ENT) category in the Electrical Construction Materials Directory for names of manufacturers.  
 F. Fill, Void or Covey Material - Sealed - Installed symmetrically on both sides of the wall. The hourly F Rating of the firestop system is equal to the hourly F rating of the wall assembly in which it is installed. Fill material applied within the annulus with each side of the steel stud to the thickness shown in the table below:  

F Rating hr	1	2	5/8	1-1/4
1	0	2	5/8	1-1/4
  - MILIT CONSTRUCTION CHEMICALS, MILIT INC. - ES-ONE SECTION  
 1 Bearing the UL Listing Mark  
 \*Bearing the UL Classification Marking
- ABOVE: FIRE STOP DETAILS REPRESENT ANTICIPATED FIRE STOP SYSTEMS REQUIRED FOR THIS PROJECT. CONTACT HILTI CUSTOMER SERVICE (800-879-8000) FOR ADDITIONAL FIRE STOP SYSTEMS AS REQUIRED FOR ALL FIELD CONDITIONS.



### HANGER SIZE AND SPACING

PIPE SIZE	1"	1-1/2"	2"	2-1/2"	3"	4"	6"	8"	10"
HANGER ROD SIZE	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	1/2"	1/2"	5/8"
SOIL-40 STEEL PIPE	X	12-4	12-4	12-4	12-4	12-4	12-4	12-4	12-4
LIGHT WALL STEEL PIPE	X	12-4	12-4	12-4	12-4	12-4	12-4	12-4	12-4
COPPER TUBE	X	8-0	8-0	10-4	12-4	12-4	12-4	12-4	12-4
PVDF	X	5-6	6-0	6-8	7-0	8-0	8-0	8-0	8-0
POLYETHYLENE (IPS)	X	3-9	4-7	5-0	5-11	X	X	X	X
POLYURETHANE (GIS)	X	2-11	3-11	3-11	4-5	5-5	X	X	X



- ### FIRE PROTECTION PROJECT NOTES
- ALL FIRE PROTECTION WORK SHALL BE DONE IN ACCORDANCE WITH ALL STATE AND LOCAL LAWS AND ORDINANCES AND IN A MANNER SATISFACTORY TO THE AUTHORITY HAVING JURISDICTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND PAY ALL APPLICABLE FEES. ALL FIRE PROTECTION SYSTEMS TO MEET RELEVANT STANDARDS OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), INCLUDING BUT NOT LIMITED TO 13, 24, 24.1 AND 70.
  - FIRE PROTECTION/SPRINKLER CONTRACTOR SHALL PROVIDE SPRINKLER SYSTEM PER SPECIFICATIONS.
  - THE CONTRACTOR SHALL FURNISH AND INSTALL ONE WATER GONG OUTSIDE THE RISER ROOM IN A LOCATION APPROVED BY THE LOCAL FIRE DEPARTMENT.
  - THE CONTRACTOR SHALL FURNISH ALL LABOR, INSTALL ALL MATERIALS AND EQUIPMENT AND INCLUDE SERVICES AND INCIDENTALS TO THE INSTALLATION OF WORK INVOLVED FOR A COMPLETE AND OPERATING SYSTEM.
  - COORDINATE WORK WITH OTHER TRADES TO AVOID INTERFERENCES. CUTTING AND PATCHING SHALL BE RESTORED IN A MANNER ACCEPTABLE TO THE ARCHITECT AND OWNER.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR ASSEMBLING ANY EQUIPMENT SHIPPED IN SECTIONS, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
  - HEAD LOCATIONS SHOWN ON DRAWINGS ARE FOR ESTIMATING PURPOSES ONLY. BEFORE BEGINNING CONSTRUCTION THE SPRINKLER CONTRACTOR IS TO CONFIRM FLOW DATA AND PRESSURE HYDRAULIC SPRINKLER DESIGN. CONTRACTOR TO VERIFY LOCATION & SIZE OF EACH RATED FLOW TEST IS NOT TO OCCUR MORE THAN ONE YEAR BEFORE THE ISSUE OF THE BUILDING DEPARTMENT PERMITS.
  - WALL AND FLOOR PENETRATIONS:
    - SLEEVES ARE REQUIRED WHERE A PIPE PASSES THROUGH A WALL OR FLOOR. PIPING PASSING THROUGH A WALL OR FLOOR MUST BE INDIVIDUALLY PROTECTED.
    - SLEEVES SHALL FINISH FLUSH WITH THE WALL SURFACE AND FINISH 1" ABOVE FINISHED FLOOR.
    - SLEEVES SHALL BE AS FOLLOWS:
      - THROUGH MASONRY WALLS - GALVANIZED STEEL PIPE - THROUGH PARTITION WALLS - GALVANIZED STEEL PIPE - THROUGH PARTITION WALLS - GALVANIZED STEEL PIPE
      - THROUGH MASONRY WALLS - GALVANIZED STEEL PIPE - THROUGH PARTITION WALLS - GALVANIZED STEEL PIPE
      - THROUGH PARTITION WALLS - GALVANIZED STEEL PIPE
      - THROUGH PARTITION WALLS - GALVANIZED STEEL PIPE
      - THROUGH PARTITION WALLS - GALVANIZED STEEL PIPE
  - MAXIMUM SPACING OF SPRINKLERS TO NOT EXCEED SPRINKLER HEAD MANUFACTURER'S PUBLISHED SPACING LIMITATIONS.
  - UNLESS OTHERWISE SHOWN ON DRAWINGS, INSTALL UPRIGHT HEADS IN AREAS WITHOUT CEILING PROVIDE PROTECTION PLATE FOR AREAS WITH CEILING. TEMPERATURE RATING OF SPRINKLERS SHALL BE AS REQUIRED BY NFPA 13.
  - INSPECTOR'S TEST AND DRAIN CONNECTIONS AND DRAIN RISERS.
  - TAMPER SWITCHES ON ALL OSBY VALVES: TAMPER SWITCHES SHALL BE FURNISHED AND INSTALLED BY FIRE PROTECTION CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR. CHAIN AND LOCK ALL OSBY VALVES IN FULLY OPEN POSITION.
  - COMPLETE SPRINKLER SHOP DRAWINGS AND ASSOCIATED CALCULATIONS MUST BE DRAWN AND SIGNED BY A REGISTERED FIRE PROTECTION CONTRACTOR'S RESPONSIBLE MANAGING EMPLOYEE. THE SPRINKLER SHOP DRAWINGS AND ASSOCIATED CALCULATIONS MUST BE SUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL BY THE FIRE PROTECTION ENGINEER AFTER DESIGN IN TENT HAS BEEN APPROVED BY THE AHJ.
  - ALL PIPING FROM 'POINT OF SERVICE' INCLUDING UNDERGROUND USED FOR SPRINKLER OR STANDPIPE SYSTEM MUST BE INSTALLED BY A REGISTERED SPRINKLER CONTRACTOR.
  - HOSE CONNECTIONS AND HOSE STATIONS MUST BE UNOBSTRUCTED AND LOCATED BETWEEN 3 FT AND 5 FT ABOVE FINISHED FLOOR.
  - SYSTEM WATER SUPPLY VALVES, ISOLATION CONTROL VALVES, AND OTHER VALVES IN FEED MAINS ARE TO BE SUPERVISED IN AN APPROVED MANNER IN THE OPEN POSITION BY A LOCAL SIGNALING SERVICE THAT INITIATES AN AUDIBLE SIGNAL AT A CONSTANTLY ATTENDED LOCATION. SEE NFPA 14 6.2.7.
  - DRAINS MUST BE PLACED AT ALL SYSTEM LOW POINTS. DRAINS MUST BE LOCATED DOWNSTREAM OF ISOLATION VALVES AND DRAIN TO A LOCATION APPROVED BY THE AHJ.
  - THE MAXIMUM PRESSURE AT ANY POINT IN THE SYSTEM AT ANY TIME SHALL NOT EXCEED 175 PSI.
  - PROVIDE A FLOW SWITCH OR ALARM CHECK VALVE CONNECTION TO THE BUILDING FIRE ALARM SYSTEM (MUST SOUND WITHIN FIVE MINUTES OF FLOW) (NFPA 13 8.3.1)
  - ALL SYSTEM GAUGES AND VALVES MUST BE ACCESSIBLE FOR INSPECTION AND MAINTENANCE. (NFPA 13 8.5.1.2)
  - SOLENOID VALVES USED FOR ELEVATOR HOISTWAYS AND MACHINE ROOMS SHALL BE LISTED FOR THE PARTICULAR APPLICATION AND BE SUPERVISED BY THE FIRE ALARM SYSTEM. STAND ALONE SOLENOID VALVES SERVING A DRY SYSTEM BRANCHLINE FOR ELEVATOR HOISTWAYS AND MACHINE ROOMS IS NOT AN ACCEPTABLE ALTERNATIVE TO A PREACTION SPRINKLER SYSTEM.
  - FIRE SPRINKLER CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ELECTRIC BELL WIRING OF ELECTRIC BELL SHALL BE BY FIRE ALARM CONTRACTOR. IN THE EVENT THAT A FIRE ALARM SYSTEM IS NOT PROVIDED OR IS NOT WITHIN THE PROJECT SCOPE, THE FIRE SPRINKLER CONTRACTOR SHALL PROVIDE AND INSTALL A STAND ALONE FIRE ALARM CONTROL PANEL DEDICATED TO MONITORING THE FIRE RISER FLOW AND TAMPER SWITCHES AS WELL AS OPERATING THE ELECTRIC BELL. THE FIRE ALARM CONTROL PANEL SHALL INCLUDE BATTERY BACKUP AND DIAL OUT CAPABILITY. FIRE SPRINKLER CONTRACTOR SHALL SUBCONTRACT A LICENSED FIRE ALARM CONTRACTOR FOR ALL WIRING.
  - CONTRACTOR TO INSPECT ALL DRAWINGS CAREFULLY FOR LOCATIONS SUBJECT TO FREEZING CONDITIONS. DO NOT INSTALL PIPING IN AREAS EXPOSED TO AMBIENT CONDITIONS UNLESS ADEQUATELY PROTECTED. PIPING SYSTEMS THROUGHOUT THE BUILDING SHALL BE PROTECTED FROM FREEZING, GENERALLY BY INSTALLING PIPES ON THE HEATED SIDE OF BUILDING INSULATION. PIPING ADJACENT TO EXTERIOR WALLS SHALL BE INSTALLED IN FURRED SPACES WITH BUILDING INSULATION BETWEEN THE PIPING AND THE EXTERIOR WALL.
  - THIS IS A CONCEPTUAL PLAN ONLY. FIRE PROTECTION CONTRACTOR SHALL PROVIDE A COMPLETE FIRE PROTECTION SYSTEM IN ACCORDANCE WITH ALL CODES. ANY ADDITIONAL SPRINKLER HEADS ABOVE WHAT IS SHOWN ON THIS PLAN SHALL BE PROVIDED AT NO ADDITIONAL COST.
  - ALL SPRINKLER PIPE IS TO BE RUN AS HIGH AS POSSIBLE AND COORDINATED WITH ALL TRADES STANDPIPES.
  - GAUGES ARE TO BE LISTED 90 mm (3 1/2 in) DIAL SPRING PRESSURE GAUGE TYPE. GAUGES ARE TO BE CONNECTED TO EACH DISCHARGE PIPE FROM THE FIRE PUMP AND AT THE TOP OF EACH STANDPIPE. GAUGES ARE TO BE LOCATED IN A PLACE SO AS NOT TO FREEZE. EACH VALVE SHALL INCLUDE AN ARRANGEMENT FOR DRAINING. SEE NFPA 14 5.6.
  - STANDPIPES SHALL BE SUPPORTED BY ATTACHMENTS CONNECTED DIRECTLY TO THE STANDPIPE IN AGREEMENT WITH NFPA 14 6.4.1.
  - 65 mm (2 1/2 in) HOSE CONNECTIONS FOR CLASS 1 SYSTEMS MUST BE LOCATED AT EACH INTERMEDIATE LANDING BETWEEN FLOOR LANDING IN EVERY REQUIRED EXIT STAIR, SEE NFPA 14 7.3.2. HOSE CONNECTIONS CAN BE RELOCATED TO THE MAIN FLOOR LANDING WHEN APPROVED BY AHJ, SEE NFPA 14 7.3.1.
  - A DRAIN RISER MUST BE INSTALLED ADJACENT TO EACH STANDPIPE EQUIPPED WITH PRESSURE REGULATING DEVICES.
  - SEISMIC
  - SEISMIC RESTRAINT FOR SPRINKLER PIPING IS REQUIRED. PROVIDE FLEXIBLE COUPLINGS AT FLEXURE JOINTS PER NFPA 13 8.3.2.1 AND CLEARANCES AROUND PIPING PASSING THROUGH FLOORS AND WALLS AND FOUNDATIONS PER NFPA 13 9.4.
  - FIRE PUMP
  - FIRE PUMP IS NOT REQUIRED.

NOTE: FIRE PROTECTION CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND ASSOCIATED CALCULATIONS, DRAWN AND SIGNED BY A TENNESSEE REGISTERED FIRE PROTECTION SPRINKLER CONTRACTOR'S RESPONSIBLE MANAGING EMPLOYEE, TO THE LOCAL FIRE MARSHAL'S OFFICE AND MUST BE APPROVED PRIOR TO INSTALLATION AFTER APPROVAL BY THE MECHANICAL ENGINEER OF RECORD (PROCESSED WITH THE ENGINEER'S SHOP DRAWING REVIEW 811) HYDRAULIC CALCULATIONS SHALL INCLUDE A 10% SAFETY FACTOR. DESIGN AREAS MUST NOT BE REDUCED BELOW 1,500 SF.

1 HOUR FIRE RATED PARTITION

2 HOUR FIRE RATED PARTITION

Architect: M.A. Cartwright & Associates  
 1701 Drake Ave., Chattanooga, Tennessee 37406  
 P.O. Box 1000, Chattanooga, Tennessee 37402  
 Phone: (423) 696-6673

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