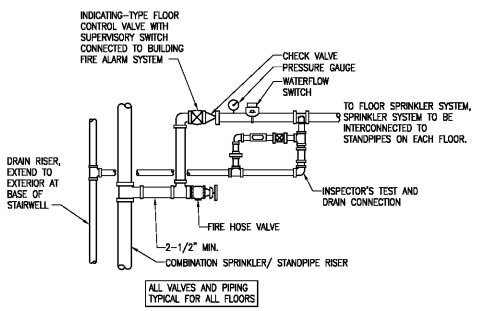
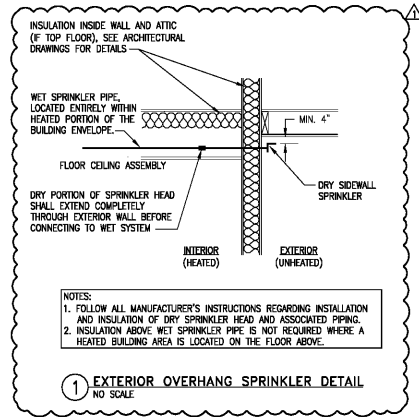
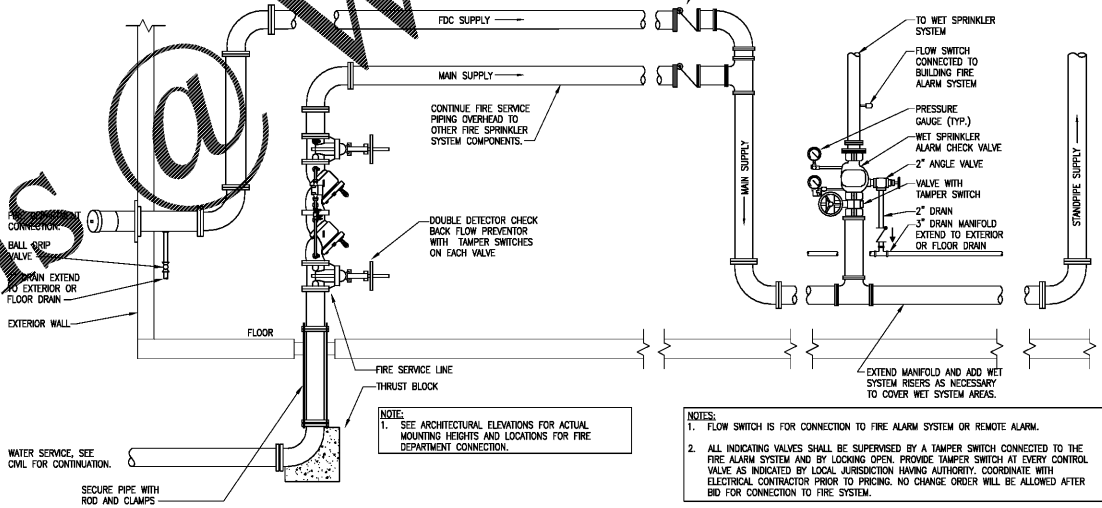


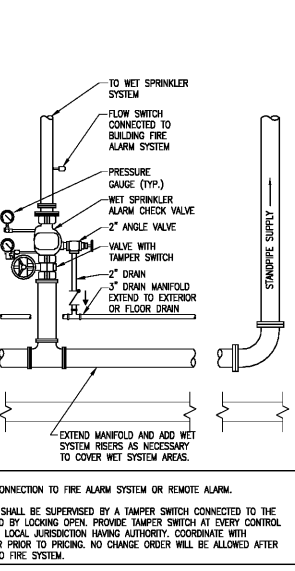
FLOW TEST DATA	
UPON AWARDING OF CONTRACT THE FIRE PROTECTION CONTRACTOR SHALL PERFORM A FLOW TEST ON THE TWO HYDRANTS NEAREST THE SITE AND FORWARD THE DATA TO THE ENGINEER AND ARCHITECT.	
PROVIDER OF TEST	TENNESSEE AMERICAN WATER CO.
DATE OF TEST	06/13/2017
TIME OF DAY OF TEST	10:55
LOCATION OF FLOW HYDRANT	W 33RD & WILLIAMS ST
ELEVATION OF HYDRANT	864 FT
STATIC PRESSURE	86 PSI
RESIDUAL PRESSURE	84 PSI
FLOW	919 GPM



2 COMBINATION STANDPIPE FLOOR CONNECTIONS
SCALE: NO SCALE



3 FIRE PROTECTION SERVICE ENTRANCE
NO SCALE



4 WET SPRINKLER RISER
NO SCALE

FIRE PROTECTION SCOPE - NEW SYSTEM

THE CONTRACTOR SHALL PROVIDE A RISER AND FULL DISTRIBUTION PIPING, SPRINKLER HEADS, AND ALL OTHER COMPONENTS TO PROVIDE A COMPLETE SYSTEM. PROVIDE SPRINKLER HEADS AND PIPING TO MEET THE CEILING TYPE AND HAZARD CLASSIFICATION (DESIGN CRITERIA). THE SYSTEM SHALL BE HYDRAULICALLY DESIGNED. SUBMIT SHOP DRAWINGS INCLUDING HYDRAULIC CALCULATIONS DETAILING THE SYSTEM DESIGN AND PERFORMANCE.

SPRINKLER CONTRACTOR SHALL OBTAIN A NEW FLOW TEST UPON AWARDING OF THE PROJECT TO THE SPRINKLER CONTRACTOR. THE SPRINKLER SYSTEM SHALL BE DESIGNED TO WORK WITHIN THE PRESSURE AND FLOW LIMITS OF THIS FLOW TEST WITHOUT THE USE OF A FIRE PUMP UNLESS A FIRE PUMP HAS BEEN INDICATED ON THIS SET OF DRAWINGS. IF THE SYSTEM CANNOT BE MADE TO WORK WITHOUT THE USE OF A FIRE PUMP, THE CONTRACTOR SHALL PROVIDE THE ENGINEER A WRITTEN NOTIFICATION OF THE NEED FOR A FIRE PUMP. THIS NOTIFICATION SHALL INCLUDE HYDRAULIC CALCULATIONS FOR THE SYSTEM SHOWING THAT THE AVAILABLE PRESSURE IS ADEQUATE.

FOLLOW THE SPECIFICATIONS, NOTES, AND SCHEDULES IN THIS DRAWING SET FOR ADDITIONAL REQUIREMENTS.

NOTE:

- THE FIRE SPRINKLER CONTRACTOR SHALL PROVIDE AND INSTALL A BACKFLOW PREVENTER (LISTED) AT A LOCATION INDICATED BY THE PLUMBING AND/OR CIVIL DRAWINGS. BFP SHALL BE SIZED TO MINIMIZE PRESSURE DROP. IF THE BACKFLOW PREVENTER IS LOCATED OUTSIDE OF THE SPRINKLER CONTRACTOR'S SCOPE OF WORK (I.E. IS IN A WALL AND PART OF SITE UTILITY WORK), THE SPRINKLER CONTRACTOR, THE INSTALLING CONTRACTOR, AND THE GENERAL CONTRACTOR SHALL HAVE A FACE TO FACE MEETING TO COORDINATE THE NEEDS OF THE SPRINKLER DESIGN AND CHARACTERISTICS OF THE BACKFLOW PREVENTER PRIOR TO THE BFP BEING ORDERED. RECORDS OF THIS MEETING, INCLUDING MEETING MINUTES AND ATTENDEES, SHALL BE MADE AVAILABLE TO THE OWNER AND THE DESIGN TEAM UPON REQUEST. THE BACKFLOW PREVENTER MUST COMPLY WITH THE CHARACTERISTICS REQUIRED OF THE SPRINKLER DESIGN AND SHALL MATCH THE CHARACTERISTICS USED IN THE SPRINKLER HYDRAULIC CALCULATIONS.
- HYDRAULIC CALCULATIONS SHALL TAKE INTO ACCOUNT THE BFP AND EXTERIOR PIPING FROM THE FLOW TEST HYDRANT.
- CONTRACTOR SHALL CONFIRM THAT WATER FLOW AND PRESSURE IS ADEQUATE FOR THE DESIGN AND IF NOT NOTIFY THE ARCHITECT AND ENGINEER PRIOR TO INSTALLING OR ORDERING SYSTEM COMPONENTS.
- ALL PIPING ABOVE GRADE SHALL BE PROPERLY SUPPORTED FROM THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR BE SUPPORTED FROM CEILING TILES.
- FIRE PROTECTION PIPING IS NOT TO BE INSTALLED IN ELECTRICAL ROOMS OR CLOSETS, OR TELEPHONE ROOMS EXCEPT THAT PIPING SERVING THAT SPECIFIC ROOM.
- LOCATE ALL SECTIONAL OR MAIN CONTROL VALVES WITHIN 1'-0" FROM ACCESS PANELS, CEILING TILES, OR OTHER POINT OF ACCESS.
- PROVIDE A MANUFACTURED EXPANSION DEVICE OR FABRICATED EXPANSION LOOP ON ALL PIPING SYSTEMS CROSSING BUILDING EXPANSION JOINTS.
- CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL FIRE PROTECTION EQUIPMENT WITH THE ELECTRICAL DRAWINGS AND THE ELECTRICAL CONTRACTOR, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN THEREIN.
- THE FIRE PROTECTION CONTRACTOR, ELECTRICAL CONTRACTOR, HVAC CONTRACTOR, PLUMBING CONTRACTOR, GENERAL CONTRACTOR, AND ANY OTHER CONTRACTOR THAT MAY HAVE INSTALLATION WORK TO PERFORM WHERE SPRINKLER PIPING IS TO BE INSTALLED, SHALL HAVE A FACE TO FACE MEETING PRIOR TO BEGINNING CONSTRUCTION TO COORDINATE THE INSTALLATION NEEDS OF THE SPRINKLER SYSTEM WITH OTHER TRADES FOR THE PURPOSE OF IDENTIFYING AND AVOIDING INSTALLATION CONFLICTS DURING CONSTRUCTION. RECORDS OF THIS MEETING, INCLUDING MEETING MINUTES AND A LIST OF ATTENDEES, SHALL BE MADE AVAILABLE TO THE OWNER AND THE DESIGN TEAM UPON REQUEST.
- ALL PIPE PENETRATIONS OF FIRE AND/OR SMOKE-RATED ASSEMBLIES SHALL BE FIRE-STOPPED AS REQUIRED TO RESTORE ASSEMBLY TO ORIGINAL INTEGRITY. FIRE BARRIER PRODUCTS SHALL BE AS MANUFACTURED BY 3M COMPANY, CP25 CHALK, CS195 COMPOSITE PANEL, FS195 WRAP/STRIP, OR PSS 7800 SERIES SYSTEMS AS RECOMMENDED BY MANUFACTURER FOR PARTICULAR APPLICATION, OR EQUIVALENT SYSTEM AS APPROVED BY LOCAL CODE OFFICIALS.

FIRE PROTECTION - UNHEATED SPACES

THERE ARE SEVERAL SPACES ON THIS PROJECT THAT ARE LOCATED IN AREAS WHERE FREEZING CONDITIONS MAY OCCUR. THE CONTRACTOR SHALL PROVIDE A SPRINKLER SYSTEM IN THESE AREAS THAT WILL BE PROTECTED FROM FREEZING TEMPERATURES. THE CONTRACTOR SHALL ALSO PROTECT ANY SUPPLY PIPING THAT IS ROUTED THROUGH THESE AREAS. PROTECTION MAY BE IN THE FORM OF DRY SYSTEMS, DRY TYPED HEADS, HEAT TRACE, ANTI-FREEZE SOLUTIONS, OR A COMBINATION OF THESE SYSTEMS AS APPROVED BY THE LOCAL AUTHORITY.

AT THE TIME OF DESIGN, THE SPACES LISTED BELOW ARE KNOWN TO BE UNHEATED AND SUBJECT TO FREEZING. OTHER AREAS NOT LISTED MAY ALSO BE SUBJECT TO FREEZING TEMPERATURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE FULL SET OF DRAWINGS FOR THE PROJECT, INCLUDING ALL ARCHITECTURAL AND HVAC PLANS AND IDENTIFYING THESE ADDITIONAL AREAS.

- BALCONIES
- PORCHES
- STAIRWELLS
- STORAGE ROOMS
- ATTIC AREAS

SPRINKLER SYSTEM DESIGN CRITERIA							
AREA DESCRIPTION	HAZARD CLASS	SYSTEM TYPE	DENSITY (GPM/SF)	COVERAGE AREA	HOSE STREAM	SPRINKLER TEMP. RATING	KEY NOTES
RESIDENTIAL UNITS AND CORRIDORS	LIGHT	WET NFPA 13R	0.05	4 MOST REMOTE HEADS	-	ORDINARY 158°F	(1)

GENERAL SPRINKLER SYSTEM NOTES:

- PRIOR TO BEGINNING THE SPRINKLER SYSTEM DESIGN, THE SPRINKLER CONTRACTOR SHALL MEET WITH THE OWNER OR OWNER'S REPRESENTATIVE AND DISCUSS THE TYPE, COLOR, AND GENERAL LOCATIONS OF ALL SPRINKLER HEADS IN THE PROJECT. THE SPRINKLER CONTRACTOR'S DESIGN MUST REFLECT THE AGREED UPON SPRINKLER TYPES FOR ALL AREAS. A RECORD OF THIS MEETING SHALL BE AVAILABLE TO THE ENGINEER UPON REQUEST.
- PRIOR TO THE MEETING BETWEEN THE OWNER AND THE SPRINKLER CONTRACTOR, SPRINKLER HEADS SHALL BE ASSUMED TO BE AS FOLLOWS UNLESS NOTED OTHERWISE ELSEWHERE:
 - SPRINKLER HEADS SHALL BE CONCEALED TYPE (RECESSED WITH COVER PLATE), FAST RESPONSE SPRINKLERS IN ALL AREAS WITH A CEILING OF ANY TYPE, INCLUDING LAY-IN.
 - SPRINKLER HEADS SHALL BE UPRIGHT PENDANT, FAST RESPONSE SPRINKLERS IN ALL AREAS WITHOUT A CEILING.
 - SIDE WALL SPRINKLER HEADS MAY NOT BE USED WHERE A CEILING CAVITY EXISTS THAT WILL ALLOW FOR THE INSTALLATION OF SPRINKLERS IN THE CEILING.
 - SIDE WALL HEADS MAY ONLY BE USED IF THE PIPING FOR A SPRINKLER HEAD LOCATED ON THE CEILING WOULD BE EXPOSED TO A FREEZING CONDITION.
 - IF SPRINKLER CONTRACTOR AND OWNER AGREE TO USING DIFFERENT HEAD TYPES FOR CERTAIN AREAS CONTRACTOR MUST INCLUDE LETTER FROM OWNER STATING THE CHANGE IS ACCEPTED PER THE PROVISIONS IN ITEM "A" ABOVE.
- MULTI-STORY BUILDINGS EXCEEDING TWO STORES IN HEIGHT SHALL HAVE A FLOOR CONTROL VALVE, CHECK VALVE, MAIN DRAIN VALVE, AND A FLOW SWITCH FOR ISOLATION, CONTROL, AND ANNUNCIATION OF WATER FLOW AT EACH LEVEL. IN A NON-HIGH RISE BUILDING, THE TOP FLOOR MAY BE SUPPLIED FROM THE CONTROL VALVE ON THE FLOOR BELOW. LIGHT HAZARD BUILDINGS WITH A TOTAL COMBINED FLOOR AREA OF LESS THAN 52,000 SQ. FT. ARE EXEMPT FROM THIS REQUIREMENT UNLESS REQUIRED BY THE LOCAL AHA.
- THE SPRINKLER CONTRACTOR SHALL MAKE A REASONABLE ATTEMPT TO DESIGN THE SPRINKLER SYSTEM TO WORK WITHOUT THE USE OF A FIRE PUMP BY USING LARGE PIPE SIZES, EFFICIENT PIPE ROUTING, DEVICES WITH LOW PRESSURE DROP CHARACTERISTICS, ETC. THE ENGINEER'S CALCULATIONS HAVE ASSUMED THAT THE ABOVE PRESSURE LOSS ACROSS THE SYSTEM SHALL BE NO MORE THAN 0.02 PSI PER FT.
- THE VELOCITY OF WATER IN THE SPRINKLER PIPING SYSTEM SHALL BE LIMITED TO 15 FEET PER SECOND OR LESS.
- IF, AT THE TIME OF CONSTRUCTION, ONE OR MORE AREAS ARE NOT CLEARLY DEFINED, THE SPRINKLER DESIGN SHALL BE BASED ON THE HYDRAULICALLY MOST DEMANDING CRITERIA OF THE POSSIBLE CHOICES.
- LISTED, EXTENDED HEADS, MAY BE USED WHERE APPROPRIATE ON THIS PROJECT.
- SEE CIVIL SITE PLAN AND SPECIFICATIONS FOR BACKFLOW PREVENTER REQUIREMENTS FOR THE FIRE PROTECTION WATER SERVICE UNLESS BACKFLOW PREVENTER IS NOTED ON PLUMBING PLANS AS LOCATED INSIDE THE BUILDING.
- SEE CIVIL OR OTHER AVAILABLE SITE DRAWINGS FOR LOCATION OF WATER MAIN AND INFORMATION ON PUBLIC WATER MAIN CHARACTERISTICS.
- ALL SPRINKLER COMPONENTS SHALL COMPLY WITH THE LISTING AND PERFORMANCE REQUIREMENTS OF NFPA 13.
- ALL STANDPIPES SHALL BE CONSIDERED MANUAL WET, MEETING THE FOLLOWING:
 - A MANUAL WET STANDPIPE SYSTEM SHALL BE A WET STANDPIPE SYSTEM THAT MAY SHARE A WATER SUPPLY WITH AN AUTOMATIC SPRINKLER SYSTEM. THIS WATER SUPPLY IS CAPABLE OF DELIVERING THE FLOW AND PRESSURE DEMANDS OF THE SPRINKLER SYSTEM BUT IS NOT CAPABLE OF DELIVERING THE STANDPIPE SYSTEM DEMANDS WITHOUT ADDITIONAL PRESSURE SUPPLIED BY A FIRE DEPARTMENT PUMPER TRUCK.
 - CPCV SPRINKLER PIPING SHALL BE USED WHERE ALLOWED BY NFPA, THE LOCAL FIRE MARSHAL, AND THE LISTING DOCUMENTATION OF THE CPCV PIPING. USE OF CPCV PIPING MUST BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.
 - THE CONTRACTOR MUST COMPLY WITH ALL LOCAL CODES, ORDINANCES, AND OTHER REQUIREMENTS FOR THE SPRINKLER SYSTEM DESIGN. THIS MAY INCLUDE PROVIDING SPRINKLERS FOR AREAS THAT ARE NOT INDICATED ABOVE.
- ALL PENETRATIONS THAT THE REQUIREMENTS INDICATED IN THIS SCHEDULE SHOULD BE CLEARLY MARKED ON THE SPRINKLER DRAWINGS WITH THE RELEVANT CODE SECTION ALLOWING THE EXEMPTION NOTED.
- NO WET SPRINKLER PIPING SHALL BE RUN IN A LOCATION SUBJECT TO FREEZING TEMPERATURES. THIS INCLUDES RUNNING PIPE ABOVE ISOLATED UNHEATED AREAS OF THE BUILDING, UNLESS IT IS INSULATED ENVELOPE OF THE BUILDING.
- ALL SPRINKLER PIPING SHALL BE RUN TIGHT TO STRUCTURE ABOVE (OR INSIDE) JUST SPACE IF APPLICABLE) IN ORDER TO MAXIMIZE THE POTENTIAL FOR THE CEILING TO BE RAISED TO A HIGHER ELEVATION IN THE FUTURE WITH MINIMAL IMPACT TO THE SPRINKLER PIPING SYSTEM. ONLY PIPING FOR INDIVIDUAL SPRINKLER HEADS MAY BE DROPPED TO THE CEILING ELEVATION IN AREAS WITH LARGE ABOVE CEILING CAVITIES UNLESS DIRECTED OTHERWISE IN WRITING BY THE OWNER, ARCHITECT, OR PLUMBING ENGINEER.

SPRINKLER SYSTEM KEY NOTES:

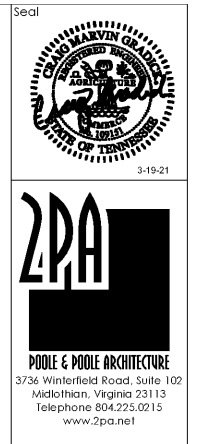
- PROVIDE DRY PENDANT OR SIDEWALL, FAST RESPONSE SPRINKLERS AT ALL BALCONIES, PORCHES, OUTDOOR CORRIDORS, UNHEATED STORAGE ROOMS, UNHEATED ELECTRICAL ROOMS, AND BELOW ALL EXTERIOR OVERHANGS, ROOFS, OR CANOPIES EXCEEDING 4 FEET IN WIDTH.

STANDPIPE NOTES

- ALL BUILDINGS FOUR STORES OR MORE IN HEIGHT SHALL BE PROVIDED WITH STANDPIPE SYSTEMS MEETING THE FOLLOWING REQUIREMENTS:
 - CONTRACTOR SHALL PROVIDE STANDPIPES IN ALL STAIRS AND OTHER LOCATIONS AS INDICATED ON PLANS.
 - CONSULT ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF ALL STANDPIPES.
 - STANDPIPES LOCATED IN STAIRWELLS SHALL BE ON INTERMEDIATE OR MAIN LANDINGS AS DIRECTED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
 - ALL STANDPIPE SYSTEMS MUST COMPLY WITH THE REQUIREMENTS OF NFPA 14.
 - STANDPIPE HOSE VALVES SHALL BE MOUNTED BETWEEN 36" AND 48" ABOVE THE FINISHED FLOOR.
 - WET STANDPIPE SYSTEMS MAY BE USED AS COMBINATION STANDPIPES TO SUPPLY WATER TO THE BUILDING FIRE SPRINKLER SYSTEM.
 - STANDPIPES LOCATED IN UNHEATED AREAS SHALL BE DRY STANDPIPES.
 - UNLESS LOCATED IN A HIGH-RISE, STANDPIPES IN HEATED AREAS SHALL BE CONSIDERED MANUAL WET, MEETING THE FOLLOWING FROM NFPA 14:
 - A MANUAL WET STANDPIPE SYSTEM SHALL BE A WET STANDPIPE SYSTEM THAT MAY SHARE A WATER SUPPLY WITH AN AUTOMATIC SPRINKLER SYSTEM. THIS WATER SUPPLY IS CAPABLE OF DELIVERING THE FLOW AND PRESSURE DEMANDS OF THE SPRINKLER SYSTEM BUT IS NOT CAPABLE OF DELIVERING THE STANDPIPE SYSTEM DEMANDS WITHOUT ADDITIONAL PRESSURE SUPPLIED BY A FIRE DEPARTMENT PUMPER TRUCK.
 - STANDPIPES IN HIGH RISE BUILDINGS SHALL BE AUTOMATIC STANDPIPES WITH AN OUTLET PRESSURE OF 100 PSI ON THE TOP FLOOR.

FIRE PROTECTION NOTES

- ALL PIPING ABOVE GRADE SHALL BE PROPERLY SUPPORTED FROM THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR BE SUPPORTED FROM CEILING TILES.
- FIRE PROTECTION PIPING IS NOT TO BE INSTALLED IN ELECTRICAL ROOMS OR CLOSETS, OR TELEPHONE ROOMS EXCEPT THAT PIPING SERVING THAT SPECIFIC ROOM.
- LOCATE ALL SECTIONAL OR MAIN CONTROL VALVES WITHIN 1'-0" FROM ACCESS PANELS, CEILING TILES, OR OTHER POINT OF ACCESS.
- PROVIDE A MANUFACTURED EXPANSION DEVICE OR FABRICATED EXPANSION LOOP ON ALL PIPING SYSTEMS CROSSING BUILDING EXPANSION JOINTS.
- CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL FIRE PROTECTION EQUIPMENT WITH THE ELECTRICAL DRAWINGS AND THE ELECTRICAL CONTRACTOR, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN THEREIN.
- ALL PIPE PENETRATIONS OF FIRE AND/OR SMOKE-RATED ASSEMBLIES SHALL BE FIRE-STOPPED AS REQUIRED TO RESTORE ASSEMBLY TO ORIGINAL INTEGRITY. FIRE BARRIER PRODUCTS SHALL BE AS MANUFACTURED BY 3M COMPANY, CP25 CHALK, CS195 COMPOSITE PANEL, FS195 WRAP/STRIP, OR PSS 7800 SERIES SYSTEMS AS RECOMMENDED BY MANUFACTURER FOR PARTICULAR APPLICATION, OR EQUIVALENT SYSTEM AS APPROVED BY LOCAL CODE OFFICIALS.



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Borough 33
 an Apartment Community by
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 in Chattanooga, Tennessee

Drawing Title:
 FIRE PROTECTION

FPO.1

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