

SPRINKLER SYSTEM ENGINEERING CRITERIA

OVERALL DESCRIPTION:

THE EXISTING BUILDING, BUILT IN 1935, IS A 24,360 SQFT, 2-STORY BUILDING WITH A BASEMENT. THE BUILDING CONTAINS A FEDERAL COURTHOUSE, AS WELL AS TENANT SPACES FOR THE FBI, FISH AND WILDLIFE, U.S. MARSHALS, U.S. ATTORNEYS, AND A FEDERAL POST OFFICE SPACE.

OCCUPANCY AND CONSTRUCTION TYPE:

THE BUILDING IS TYPE II, UNPROTECTED NON-COMBUSTIBLE CONSTRUCTION. THE BUILDING IS MIXED OCCUPANCIES OF ASSEMBLY A-3 (COURTROOM) AND BUSINESS (POST OFFICE, OFFICES).

GOVERNING STANDARDS:

SYSTEM DESIGN AND INSTALLATION SHALL COMPLY WITH THE 2013 EDITION OF NFPA 13, THE 2013 EDITION OF NFPA 24, THE 2014 EDITION OF NFPA 70, THE 2013 EDITION OF NFPA 72, 2015 EDITION OF PBS-P100, AS WELL AS THE 2015 INTERNATIONAL BUILDING CODE, THE 2015 INTERNATIONAL PLUMBING CODE, AND THE 2015 INTERNATIONAL FIRE CODE.

POINT OF SERVICE:

A NEW 6" FIRE SERVICE MAIN AND BACKFLOW PREVENTER WILL BE ADDED AS A SUPPLY FOR THE BUILDING'S FIRE SPRINKLER SYSTEMS.

AREA CLASSIFICATIONS:

ALL AREAS ARE LIGHT HAZARD, UNLESS NOTED OTHERWISE. ALL STORAGE, MECHANICAL, ELECTRICAL, EQUIPMENT ROOMS AND THE SALLY PORT SHALL BE CONSIDERED ORDINARY HAZARD GROUP I. THE POST OFFICE SHALL BE CONSIDERED ORDINARY HAZARD GROUP II.

DESIGN APPROACH:

THE SYSTEM SHALL BE COMPRISED OF THREE (3) WET-PIPE FIRE SPRINKLER RISERS. A DEDICATED RISER SHALL SERVE EACH FLOOR.

LIGHT HAZARD AREAS SHALL BE DESIGNED FOR 0.10 GPM/SQFT OVER THE MOST REMOTE 1,500 SQFT PLUS 100 GPM HOSE ALLOWANCE, USING QUICK RESPONSE HEADS RATED FOR ORDINARY TEMPERATURES AND SPACED AT A MAXIMUM COVERAGE AREA OF 225 SQFT PER HEAD AND 15' APART MAX.

ORDINARY HAZARD GROUP I AREAS SHALL BE DESIGNED FOR 0.15 GPM/SQFT OVER THE MOST REMOTE 1,500 SQFT PLUS 250 GPM HOSE ALLOWANCE, USING QUICK RESPONSE HEADS RATED FOR ORDINARY TEMPERATURES AND SPACED AT A MAXIMUM COVERAGE AREA OF 130 SQFT PER HEAD AND 15' APART MAX.

ORDINARY HAZARD GROUP II AREAS SHALL BE DESIGNED FOR 0.20 GPM/SQFT OVER THE MOST REMOTE 1,500 SQFT PLUS 250 GPM HOSE ALLOWANCE, USING QUICK RESPONSE HEADS RATED FOR ORDINARY TEMPERATURES AND SPACED AT A MAXIMUM COVERAGE AREA OF 130 SQFT PER HEAD AND 15' APART MAX.

THE ATTIC AREA IS CONSTRUCTED OF NON-COMBUSTIBLE MATERIALS (STEEL I-BEAMS AND POURED CONCRETE DECK) AND SHALL NOT REQUIRE SPRINKLER PROTECTION. THE ATTIC/UNCONDITIONED SPACES SHALL BE MAINTAINED ABOVE 40° F (REFER TO MECHANICAL DRAWINGS) SO THAT THE 2ND FLOOR AND MECHANICAL MEZZANINE PIPING MAY BE A WET-PIPE SYSTEM.

NOTE: EXTENDED COVERAGE SPRINKLERS ARE ALLOWED AND THEY MUST BE SPACED ACCORDING TO THEIR LISTING. NO DECREASES IN THE DESIGN AREAS ARE PERMITTED.

WATER SUPPLY CHARACTERISTICS:

THE WATER SUPPLY IS FROM THE 8" LOOPED CITY WATER MAIN RUNNING ALONG FRANKLIN STREET. A 6" BRANCH WILL BE RUN FROM THE CITY WATER MAIN TO THE RISER LOCATION IN THE BASEMENT ON THE NORTHEAST CORNER OF THE BUILDING AS SHOWN. THE DURATION OF THE SUPPLY WILL BE ADEQUATE FOR THIS APPLICATION.

FLOW TEST INFORMATION:

A FLOW TEST WAS CONDUCTED ON 11/6/2017 AT 2:00 PM BY MATT SLAUGHTER OF THE CITY OF DUBLIN ENGINEERING DEPARTMENT. THE TEST HYDRANT LOCATIONS ARE UNDERSTOOD TO BE ON THE HYDRANTS ON FRANKLIN STREET BETWEEN MADISON AND GAINES ACROSS FROM THE FEDERAL COURTHOUSE.

THE RESULTS OF THE TEST WERE AS FOLLOWS:

STATIC PRESSURE: 80 PSI
RESIDUAL PRESSURE: 64 PSI
FLOW: 1,500 GPM

VALVING AND ALARM REQUIREMENTS:

EACH WET-PIPE ZONE SHALL HAVE A CONTROL VALVE WITH TAMPER SWITCH, RISER CHECK VALVE, FLOW SWITCH AND INSPECTOR'S TEST CONNECTION AT THE FIRE RISER LOCATION. IN ADDITION, ALL SPRINKLERS INSTALLED IN THE ELEVATOR MACHINE ROOM OR ELEVATOR PIT(S) SHALL BE PROVIDED WITH SEPARATE CONTROL VALVE WITH TAMPER SWITCH, FLOW SWITCH, AND TEST/DRAIN CONNECTION OUTSIDE THE ROOM OR AREA. CONTROL VALVES ON THE BACKFLOW PREVENTER SHALL AND TEST VALVE SHALL ALSO BE PROVIDED WITH TAMPER SWITCHES. ALL SWITCHES SHALL BE CONNECTED TO THE EXISTING BUILDING FIRE ALARM SYSTEM FOR LOCAL AUDIBLE ALARM AND CENTRAL STATION MONITORING (FIRE ALARM AND DESIGN CONTRACTORS). ACTIVATION OF ANY WATER FLOW SWITCH SHALL CAUSE AN ALARM AT THE POST INDICATOR VALVE SHALL BE LOCKED IN THE OPEN POSITION.

SPRINKLER SYSTEM ENGINEERING CRITERIA CONTINUED

MIC RISK EVALUATION:

THERE IS A MINIMAL EXPECTED RISK OF MIC IN THE WATER SUPPLY FOR THIS LOCATION ACCORDING TO MICHAEL CLAY WITH THE CITY OF DUBLIN UTILITY DEPARTMENT, AND NO CORRECTIVE MEASURES HAVE BEEN DESIGNED FOR THE SYSTEM.

BACKFLOW PREVENTION DETAILS:

A NEW 6" DOUBLE CHECK BACKFLOW PREVENTER DESIGNED FOR FIRE PROTECTION APPLICATIONS WILL BE INSTALLED IN THE FIRE MAIN WITH A MAXIMUM ALLOWABLE PRESSURE DROP OF 5 PSI. COORDINATE BACKFLOW PREVENTER TYPE WITH CIVIL ENGINEER AND GENERAL CONTRACTOR AND VERIFY HYDRAULIC CALCULATIONS.

COMPONENT SPECIFICATIONS:

ALL PIPING, SPRINKLERS, AND OTHER COMPONENTS TO BE UL LISTED OR FM APPROVED MATERIALS FOR USE WITH FIRE PROTECTION SYSTEMS. NEW SPRINKLER PIPING SHALL BE ASTM A795/ASTM A53 BLACK STEEL PIPING, SCHEDULE 40 THREADED PIPING FOR SIZES 2" AND SMALLER AND SCHEDULE 10 ROLL-GROOVED FOR PIPING LARGER THAN 2". PIPING SHALL HAVE A CORROSION RESISTANCE RATIO OF 1 OR GREATER. NO LIGHT-WALL OR CPVC PIPING SHALL BE ALLOWED. FLEXIBLE SPRINKLER CONNECTIONS SHALL NOT BE USED.

ALL COMPONENTS MUST BE BUY AMERICAN ACT COMPLIANT.

STRUCTURAL SUPPORT PROVISION:

ALL PENETRATIONS OF RATED ASSEMBLIES, WALLS, AND FLOORS, ETC. SHALL BE SEALED USING UL LISTED FIRESTOPPING METHODS TO PRESERVE THE INTEGRITY OF THOSE BARRIERS. EXTERIOR PENETRATIONS SHALL BE SEALED WATER-TIGHT. PROVIDE WEATHER RESISTANT WALL PLATES AT EXTERIOR PENETRATIONS. PROVIDE CHROME WALL PLATES AT ALL INTERIOR PENETRATIONS VISIBLE TO STAFF.

AS-BUILT DRAWINGS & HYDRAULIC CALCULATIONS:

THE ENGINEERING PLANS ARE NOT FABRICATION LEVEL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING FIRE PROTECTION PIPING SYSTEM(S) WITH ALL STRUCTURAL COMPONENTS AND BUILDING SYSTEMS. ANY ADDITIONAL OFFSETS OR FITTINGS REQUIRED FOR PROPER INSTALLATION, COORDINATION WITH OTHER TRADES, AND/OR TO MAINTAIN PROPER CLEARANCES SHALL BE PROVIDED. CONTRACTOR SHALL PREPARE A FULL SET OF AS-BUILT DRAWINGS PER THE REQUIREMENTS OF NFPA 13 INCLUDING HYDRAULIC CALCULATIONS BASED UPON FIELD SURVEY AND INSTALLED CONDITIONS. CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS, HYDRAULIC CALCULATIONS, AND PRODUCT SUBMITTALS TO NEPTUNE FIRE PROTECTION ENGINEERING AND GSA REGIONAL FIRE PROTECTION ENGINEER FOR REVIEW TO VERIFY COMPLIANCE WITH ENGINEERING DOCUMENTS.

OTHER:

1. CIVIL SITE UTILITY PLAN SHOWN FOR REFERENCE ONLY. FIRE SPRINKLER DESIGN SCOPE OF WORK BEGINS 1'-0" INSIDE THE RISER ROOM.
2. ADHERE TO AND OBTAIN ALL PERMITS, LICENSES, AND ALL GSA AND GOVERNMENT REQUIREMENTS.
3. PENDENT HEADS IN ALL AREAS TO BE UNEXPOSED OR CONCEALED TYPE WITH WHITE COVER PLATES (REFER TO SPRINKLER HEAD LEGEND). ACCEPTABLE MANUFACTURERS FOR SPRINKLERS ARE VIKING, TYCO, VICTAULIC, AND RELIABLE.
4. AUXILIARY DRAIN SHALL BE PROVIDED IN EACH SECTION OF PIPING THAT IS TRAPPED FROM DRAINING BACK TO THE RISER PER THE REQUIREMENTS OF NFPA 13. ANY DRAINS OR CONNECTIONS REQUIRED TO BE PIPED TO THE INTERIOR SHALL DISCHARGE TO PAVED AREAS OR SHALL HAVE A CONCRETE SPLASH BLOCK PROVIDED.
5. CUTTING OF STRUCTURAL MEMBERS TO BE DONE ONLY WITH THE WRITTEN APPROVAL OF THE ARCHITECT AND A QUALIFIED STRUCTURAL ENGINEER.
6. PIPING SHALL BE CLEANED AND CLEANED BEFORE ASSEMBLY.
7. METHODS OF HANGING AND SUPPORTING PIPING AND HEADERS SHALL BE IN ACCORDANCE WITH NFPA 13.
8. ALL COMPONENTS SHALL BE LISTED FOR THE MAXIMUM SYSTEM PRESSURE, 175 PSI MINIMUM.
9. VALVES ON THE FIRE PROTECTION SYSTEM TO BE ELECTRICALLY SUPERVISED. TYPE AND EXACT LOCATION OF FLOW, PRESSURE, AND SUPERVISORY SWITCHES SHALL BE COORDINATED BETWEEN THE DIFFERENT RESPONSIBLE TRADES.
10. ALL FIRE ALARM & DETECTION AND POWER WIRING SHALL BE ACCOMPLISHED UNDER THE ELECTRICAL DIVISION. COORDINATE ALL FIRE ALARM, DETECTION, AND ELECTRICAL ITEMS WITH ELECTRICAL CONTRACTOR AND ENSURE PROPER INSTALLATION.
11. PROVIDE SPRINKLERS ABOVE AND BELOW EXPOSED DUCTWORK OR OBSTRUCTIONS LARGER THAN FOUR (4) FEET IN WIDTH.
12. SPRINKLER HEAD GUARDS SHALL BE PROVIDED ON ALL SPRINKLER HEADS LESS THAN SEVEN (7) FEET ABOVE FINISHED FLOOR, IN ELEVATOR MACHINE ROOMS AND PITS, AND IN ELECTRICAL CLOSETS AND EQUIPMENT ROOMS.
13. SPRINKLERS TO BE LOCATED IN THE CENTER-OF-TILE IN ALL AREAS WITH ACOUSTICAL CEILING TILES.
14. PROVIDE HYDRAULIC DESIGN INFORMATION SIGNS AT EACH SYSTEM RISER.
15. PROVIDE STOCK OF SPARE SPRINKLERS AND HEAD WRENCH(S) IN A MOUNTED CABINET AS REQUIRED.
16. SYSTEM(S) SHALL BE HYDROSTATICALLY TESTED ACCORDING TO NFPA 13 AT 200 PSI FOR A MINIMUM 2 HOURS.
17. ELECTRONIC FILES OF THESE DRAWINGS WILL BE MADE AVAILABLE TO THE CONTRACTOR UPON REQUEST. ALL PIPING DESIGN AND HYDRAULIC CALCULATIONS WERE DONE USING SPRINKCAD AND AUTOCAD 2014.
18. UNDERGROUND CONTRACTOR SHALL PROVIDE A MATERIAL AND TEST CERTIFICATE FOR THE UNDERGROUND PIPING, AS SPECIFIED BY NFPA 13 AND NFPA 24. INTERIOR SPRINKLER PIPING TO BE INSPECTED AND HYDROSTATICALLY TESTED IN ACCORDANCE WITH NFPA 13. ALL ACCEPTANCE CERTIFICATES SHALL BE COMPILED BY THE SPRINKLER CONTRACTOR FOR REVIEW UPON REQUEST.

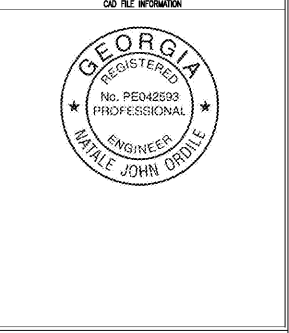


GENERAL SERVICES ADMINISTRATION
PUBLIC BUILDING SERVICE
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ATLANTA, GA 30333



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Gainesville, FL 32606
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COA: FL #26693

KEY PLAN



REVISION NUMBER	REVISION DESCRIPTION	REVISION DATE

CONTINUE	A/E	GS-04P-16-EX-C-7070
CONSTRUCT	EQ4PC1-16-5002	
PRIME A/E	AKEA, INC.	
ADDRESS	3603 NW 98TH STREET	
	GAINESVILLE	FL 32606
PRIME A/E	JAMEY CLAYTON	
SUB A/E	NEPTUNE FIRE PROTECTION ENG. LLC	
ADDRESS	80 OCEAN BLVD., STE. 6	
	ATLANTIC BEACH	FL 32233
SUB A/E		
ADDRESS		
NAME	J. ROY ROWLAND CT	
ADDRESS	300 NORTH FRANKLIN ST.	
	DUBLIN	GA 31021
BLDG NO.	GAD0336ZZ	
ADDT. FACILITY		
TITLE	INSTALL FIRE SPRINKLER SYSTEM	
DESCRIPTION	DESIGN-BUILD (DB)	
PROJECT	FIRE SPRINKLER SYSTEM	
PERMISSION	100% DRAWINGS	SUB. DATE 3/07/2018
PRJ. MGR.	MICHAEL POPE	
DESIGN ENR.	ARNOLD J. HEDDT, III	
PROJ. NO.	VG400038 / EQ4PC1-16-5002	
DRAWN BY	CEG	DATE DRAWN 3/06/2018
CHECKED BY	NJO	DATE CHKD 3/06/2018
FILE NAME	FP_DRAWINGS.DWG	
FLOOR NO.	N/A	
TITLE	FIRE SPRINKLER DESIGN CRITERIA	
NUMBER		2 of 20
DISCIPLINE		
SHEET TYPE		
SEQUENCE		

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MARCH 7, 2018
100% DRAWINGS
APPROVED FOR CONSTRUCTION