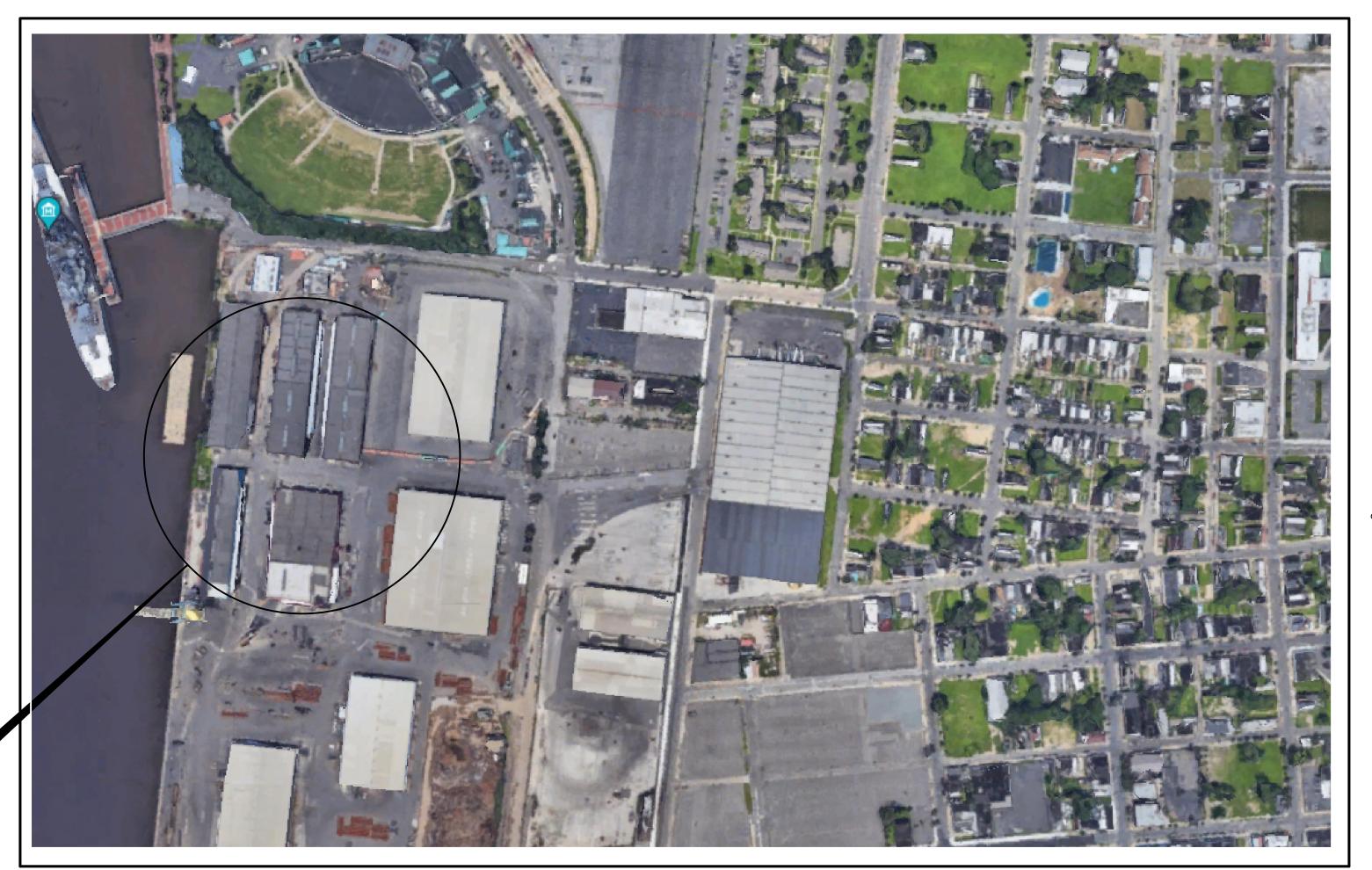
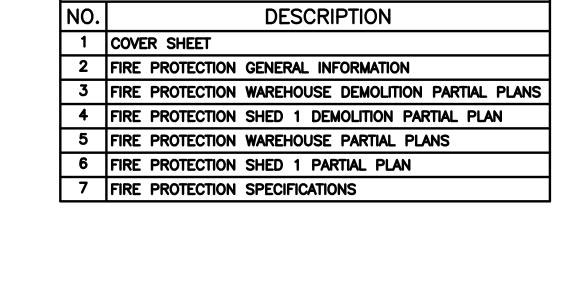
BALZANO MARINE TERMINALS SPRINKLER REPAIRS

COUNTY OF CAMDEN CAMDEN, NEW JERSEY

T&M PROJECT No. SJPC-00086





DRAWING INDEX

KEY MAP

PROJECT SITE: BALZANO MARINE TERMINAL 101 JOSEPH A. BALZANO BLVD CAMDEN, NJ 08103

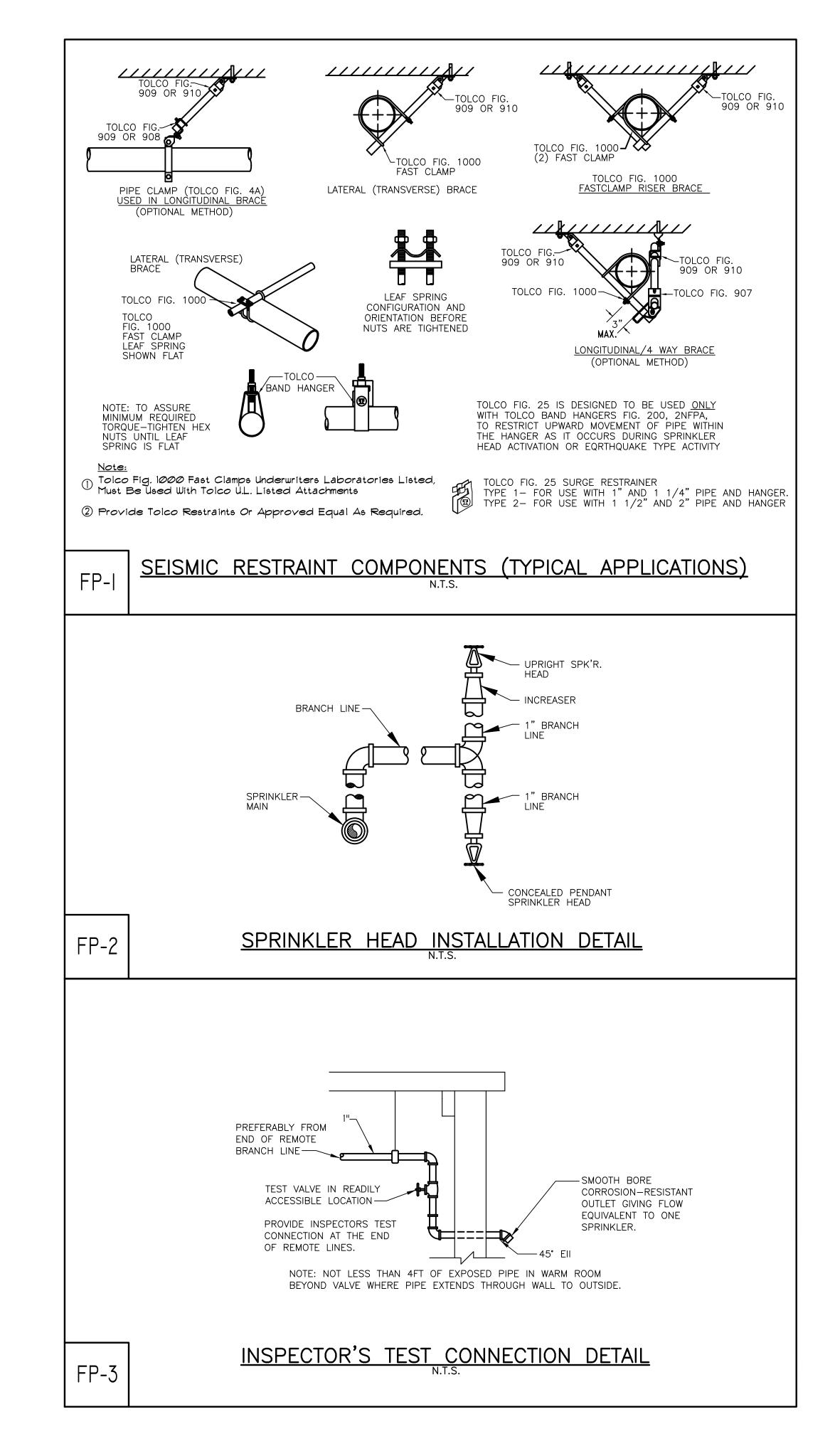
PREPARED BY

MARY ELAINE DASTI, PE

COMPANY PRACTICE LEADER



NEW JERSEY BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS CERTIFICATE OF AUTHORIZATION 24GA27987500



FIRE PROTECTION GENERAL NOTES

- ENTIRE INSTALLATION SHALL MEET THE REQUIREMENTS OF THE FOLLOWING: A. NFPA #13 STATE ADOPTED EDITION. B. INTERNATIONAL BUILDING CODE, 2018. (NJ EDITION) AND THE N.J. UNIFORM CONSTRUCTION CODE WITH AMENDMENTS. C. INSURANCE UNDERWRITER.
- 3. ALL SYSTEMS SHALL BE DESIGNED ON A HYDRAULICALLY CALCULATED BASIS BY THE FIRE PROTECTION CONTRACTOR. CALCULATIONS AND SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY WHICH WILL BE SUBMITTED TO LOCAL INSPECTOR FOR APPROVAL.
- 4. THE FIRE PROTECTION CONTRACTOR SHALL PREPARE ALL NECESSARY SHOP DRAWINGS AND HYDRAULIC CALCULATIONS BASED ON CONTRACTOR'S LAYOUT. SUBMISSION OF SPRINKLER SHOP DRAWINGS AND ASSOCIATED HYDRAULIC CALCULATION CONSTRUDES AS EVIDENCE THAT SPRINKLER PIPING LAYOUT SHOWN INCLUDES ALL REQUIRED, ELEVATIONS, OFFSETS, RISERS COORDINATED WITH ALL PROJECT TRADES AND BUILDING CONDITIONS.
- 5. THE FIRE PROTECTION CONTRACTOR SHALL MAKE ALL NECESSARY SUBMISSIONS (FEDERAL, STATE AND LOCAL AUTHORITIES) AND OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO STARTING FABRICATION AND CONSTRUCTION.
- PRIOR TO STARTING SHOP DRAWINGS. THE FIRE PROTECTION CONTRACTOR SHALL OBTAIN A FLOW TEST ON THE WATER SUPPLY PERFORMED WITHIN THE LAST 12 MONTHS INDICATING STATIC PRESSURE AND INSTANTANEOUS GALLONS PER MINUTE (GPM) WITH RESULTING RESIDUAL PRESSURES.
- 7. ALL EQUIPMENT, DEVICES AND MATERIAL USED IN THE INSTALLATION SHALL BE LISTED BY UNDERWRITER'S LABORATORY (UL) AND/OR APPROVED BY FACTORY MUTUAL (FM).
- THE FIRE PROTECTION CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE ENTIRE SYSTEM WITH ALL BUILDING AND CEILING ELEMENTS INCLUDING, BUT NOT LIMITED TO, PIPING, DUCTWORK, DIFFUSERS, LIGHTING FIXTURES, ETC.
- WHERE EXPOSED, THE SPRINKLER SYSTEM PIPING SHALL BE RUN PARALLEL AND/OR PERPENDICULAR TO STRUCTURAL ELEMENTS AS APPLICABLE.
- 10. PROVIDE ADDITIONAL SPRINKLER HEADS TO COMPLY WITH NFPA SPRINKLER COVERAGE, UNDERWRITER, LOCAL FIRE OFFICIAL, ETC., REQUIREMENTS ABOVE AND BEYOND THE MINIMUM QUANTITIES SPRINKLER HEAD SHOWN OR SPECIFIED.
- 11. SPRINKLER HEAD TYPES AND TEMPERATURE RATING SHALL BE BASED ON NFPA REQUIREMENTS FOR THE BUILDING CLASSIFICATION.
- A. LIGHT HAZARD OCCUPANCY: QUICK RESPONSE TYPE. B. ORDINARY HAZARD: STANDARD RESPONSE OR QUICK
- RESPONSE TYPE. MIN. K FACTOR: 5.6, 7 PSI MIN DISCHARGE. 12. PROVIDE TAMPER SWITCHES FOR ALL OS&Y GATE VALVES AND INDICATING TYPE VALVES.
- 13. PROVIDE TEST VALVES FOR EACH SPRINKLER ZONE.
- 14. DO NOT RUN PIPING OVER OR THROUGH ANY ELECTRICAL EQUIPMENT, UNLESS BRANCH LINE IS TO SERVE ROOM.
- 15. IT SHALL BE THE RESPONSIBILITY OF THE FIRE PROTECTION CONTRACTOR TO COORDINATE WITH THE ELECTRICAL CONTRACTOR DURING CONSTRUCTION TO IDENTIFY AND LOCATE ON THE CONTRACT DRAWINGS THE LOCATION AND POWER REQUIREMENTS FOR ALL EQUIPMENT AND COMPONENTS RELATED TO THE SPRINKLER SYSTEM.
- 16. THE BUILDING SHALL BE PROVIDED WITH SPRINKLER COVERAGE, BUT NOT LIMITED TO, UNDERSIDE OF ROOF, ABOVE CEILING AND OTHER CONCEALED SPACES, WHERE COMBUSTIBLES ARE PRESENT, IN ACCORDANCE WITH NFPA 13 AND THE AUTHORITIES HAVING JURISDICTION. REFER TO ARCHITECTURAL PLANS, ROOM FINISH SCHEDULE AND OTHER CONTRACT DRAWINGS.
- 17. THE MECHANICAL ROOMS, ELECTRICAL ROOMS AND STORAGE ROOMS. ORDINARY HAZARD GROUP I SPACES AS DEFINED BY NFPA 13 SHALL BE DESIGNED TO PROVIDE 0.15 GPM/SQ. FT. OVER THE MOST REMOTE 1500 SQ. FT. PLUS 250 GPM HOSE ALLOWANCE. 130 SQ. FT (MAX) PER SPRINKLER HEAD COVERAGE.
- 18. PROVIDE UPRIGHT SPRINKLERS IN CONCEALED AREA/ABOVE FINISH CEILING WHERE COMBUSTIBLE FLOOR WHERE ALL CONCEALED SPACES WHOLLY OR PARTLY BY EXPOSED COMBUSTIBLE CONSTRUCTED SHALL BE PROTECTED BY SPRINKLERS.
- 19. SPRINKLER NEAR HEAT SOURCES SHALL BE PROVIDED IN ACCORDANCE TO NFPA 13 WITH RESPECT TO TEMPERATURE RATING AND LOCATION.
- 20. FIRE PROTECTION CONTRACTOR TO KEEP THE FIRE ALARM SYSTEM OPERATIONAL IN ALL AREAS DURING DEMOLITION AND CONSTRUCTION.

FIRE PROTECTION LEGEND	
SYMBOL	DESCRIPTION
} x · x · x · x · }	DOMOLITION FIRE SPRINKLER PIPING.
\	EXISTING FIRE SPRINKLER PIPING.
	NEW FIRE SPRINKLER PIPING.
•	EXISTING DRY UPRIGHT SPRINKLER HEAD.
•	NEW DRY UPRIGHT SPRINKLER HEAD.
\bigcirc	POINT OF CONNECTION — NEW TO EXISTING

MARY ELAINE DASTI, PE PRACTICE LEADER

LICENSED PROFESSIONAL ENGINEER STATE OF NJ LICENSE No. 24GE05120300

ZANO MARINE TERMINALS
SPRINKLER REPAIRS GENERAL ON CTION RMATI PROTE(INFO

FIRE

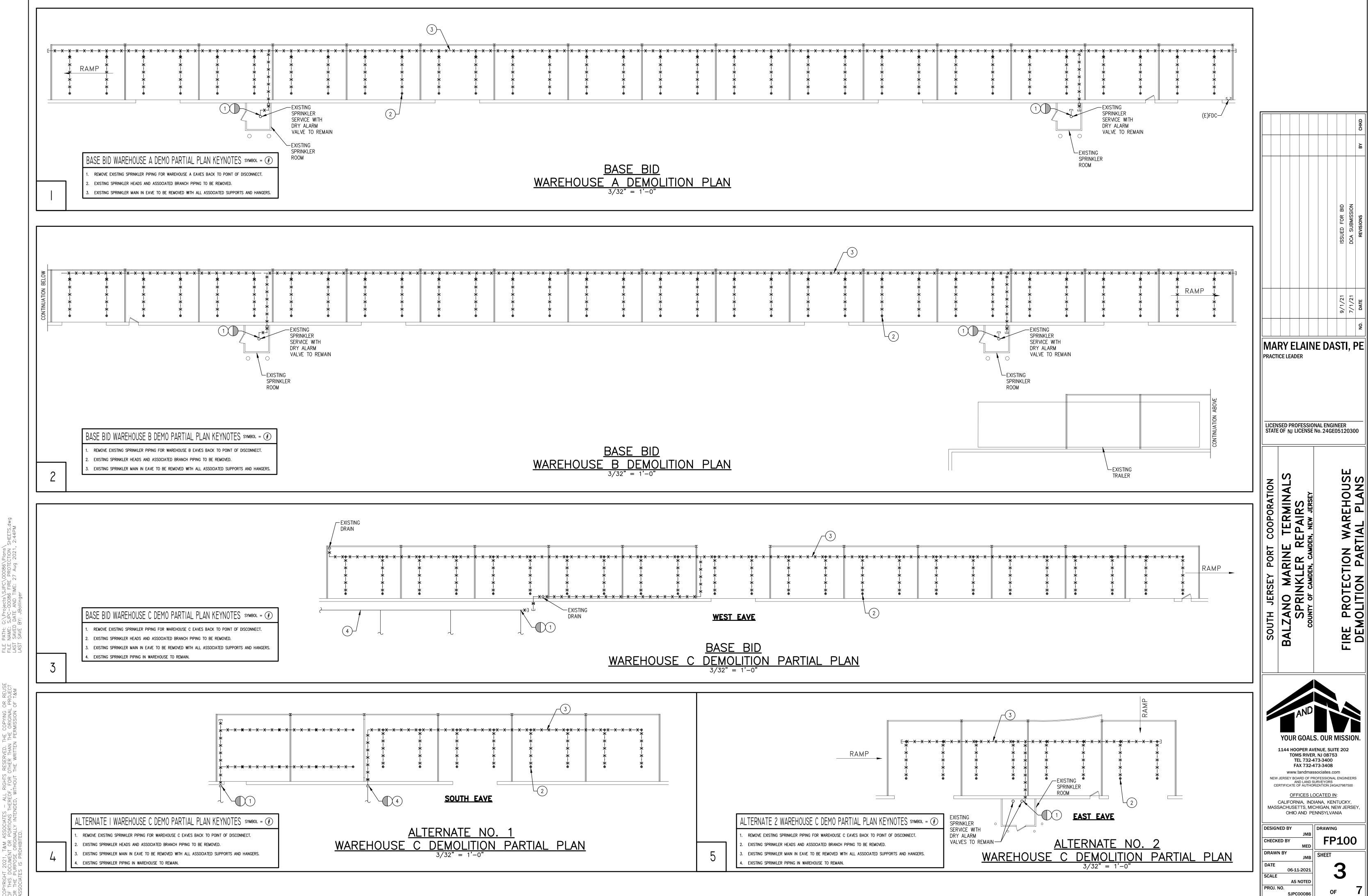
1144 HOOPER AVENUE, SUITE 202 TOMS RIVER, NJ 08753 TEL 732-473-3400

FAX 732-473-3408 www.tandmassociates.com NEW JERSEY BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS CERTIFICATE OF AUTHORIZATION 24GA27987500

OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

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PROJECT INFORMATION:
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FILE NAME: SJPC-00086
LAST SAVED DATE AND TI
LAST SAVE BY: JBollinger

SOUTH JERSEY PORT COOPORATION

BALZANO MARINE TERMINALS

SPRINKLER REPAIRS

COUNTY OF CAMDEN, CAMDEN, NEW JERSEY FIRE PROTECTION SHED 1 DEMOLITION PARTIAL PLAN



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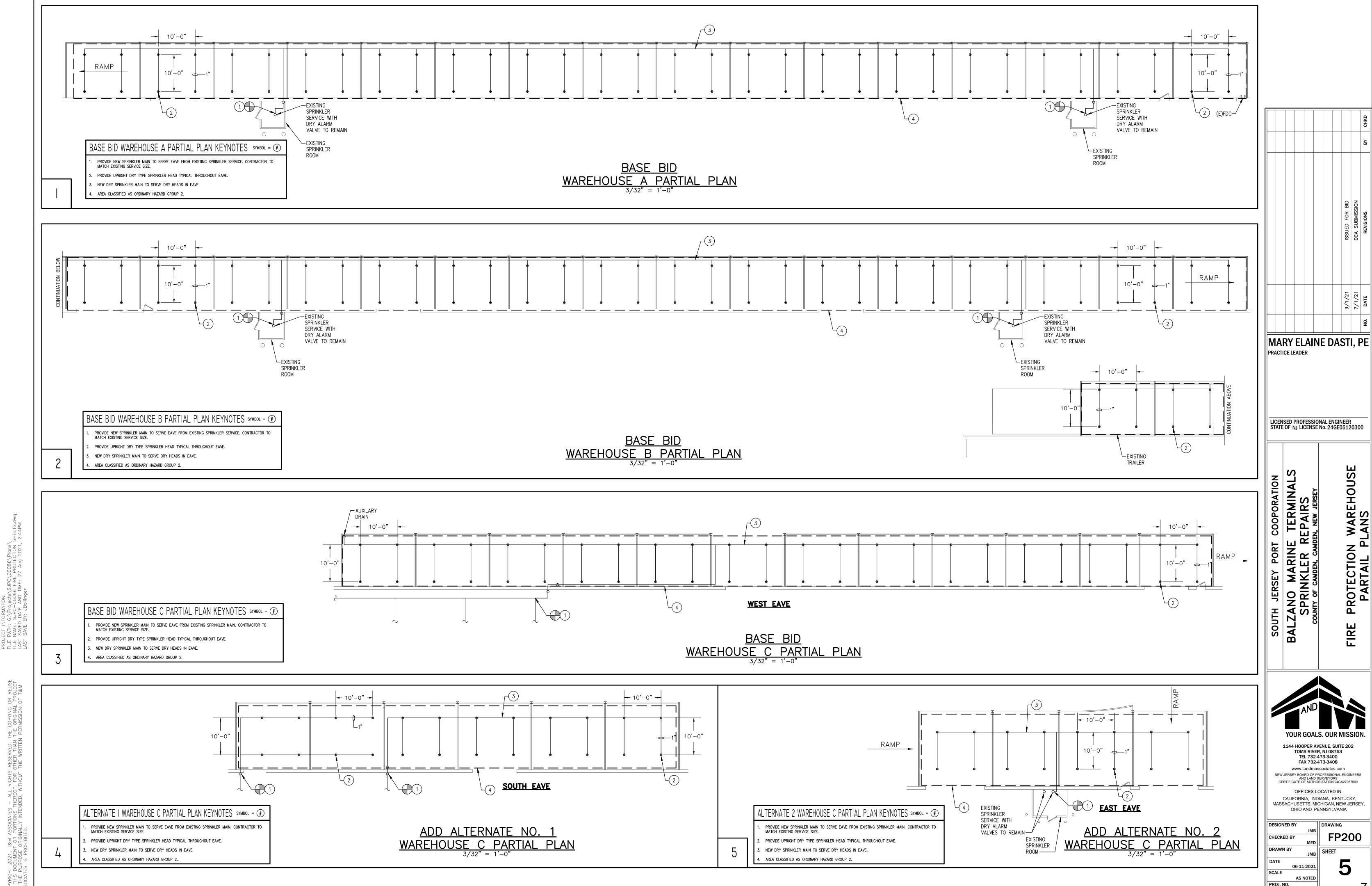
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LICENSED PROFESSIONAL ENGINEER STATE OF NJ LICENSE No. 24GE05120300 SOUTH JERSEY PORT COOPORATION

BALZANO MARINE TERMINALS

SPRINKLER REPAIRS

COUNTY OF CAMDEN, CAMDEN, NEW JERSEY PROTECTION SHED PARTAIL PLAN FIRE

PRACTICE LEADER

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210000 GENERAL REQUIREMENTS

c. PROVIDE: TO FURNISH AND INSTALL. d. FIRE PROTECTION CONTRACTOR, THE CONTRACTOR, THIS CONTACTOR: THE CONTRACTOR FOR FIRE PROTECTION WORK, WHICH IS SPECIFIED HEREIN AND SHOWN ON THE DRAWINGS.

e. OWNER: THE INDIVIDUAL OR ENTITY HOLDING OWNERSHIP OF THE PROPERTY, OR A DESIGNATED REPRESENTATIVE THEREOF, WHERE THE WORK IS TO BE PERFORMED, AND SHALL INCLUDE TENANTS LEASING SPACE AT THE LOCATION OF THE PROJECT, WHERE APPLICABLE. f. AUTHORITY HAVING JURISDICTION (AHJ): THE INDIVIDUAL OR ENTITY HAVING JURISDICTIONAL AUTHORITY OVER THE WORK OF THIS

SECTION AND MAY INCLUDE, BUT IS NOT LIMITED TO, THE LOCAL FIRE SUB-CODE OFFICIAL, THE FIRE MARSHAL AND THE LOCAL FIRE DEPARTMENT. THE AHJ IS THE FINAL ARBITER OF ALL DECISIONS RELATED TO THE WORK OF THIS SECTION.

g. WORKING PLANS: DOCUMENTS INCLUDING DRAWINGS AND CALCULATIONS PREPARED PURSUANT TO THE REQUIREMENTS OF NFPA 13 FOR OBTAINING APPROVAL OF THE AUTHORITY HAVING JURISDICTION.

B. COMPLY WITH THE LATEST ADOPTED EDITIONS OF ALL APPLICABLE CODES

AND STANDARDS, INCLUDING BUT NOT LIMITED TO: a. INTERNATIONAL BUILDING CODE –NEW JERSEY EDITION (IBC-NJ);

b. INTERNATIONAL FUEL GAS CODE (IFGC);

c. INTERNATIONAL FIRE CODE (IFC);

d. NEW JERSEY UNIFORM CONSTRUCTION CODE (NJUCC);

e. NATIONAL STANDARD PLUMBING (NSPC); f. NATIONAL ELECTRIC CODE (NEC/NFPA 70);

g. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA);

h. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM); i. FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA);

NEW JERSEY BARRIER-FREE REQUIREMENTS; k. APPLICABLE UNION AND EQUAL OPPORTUNITY STANDARDS OR

REQUIREMENTS.

C. CONTRACTOR-FURNISHED PRODUCTS

a. CONTRACTOR SHALL FURNISH PRODUCTS INDICATED. THE WORK INCLUDES UNLOADING, HANDLING, STORING, PROTECTING AND ASSEMBLING. CONTRACTOR-FURNISHED PRODUCTS AS DIRECTED AND TURNING THEM OVER TO OWNER AT PROJECT CLOSEOUT. b. SPARE PARTS

b.1. EXTRA SPRINKLERS: PROVIDE FINISHED, WALL-MOUNTED STEEL CABINET WITH HINGED COVER WITH A MINIMUM OF SIX SPARE SPRINKLERS PLUS SPRINKLER WRENCH FOR EACH TYPE OF SPRINKLER USED ON THE PROJECT. QUANTITIES OF SPARE SPRINKLERS SHALL BE ACCORDING TO NFPA 13.

D. ACCESS TO SITE a. LIMIT USE OF PROJECT SITE TO WORK IN AREAS INDICATED. DO NOT DISTURB PORTIONS OF PROJECT SITE BEYOND AREAS IN WHICH

THE WORK IS INDICATED. b. KEEP DRIVEWAYS, PARKING GARAGE, LOADING

AREAS, ENTRANCES, ETC. SERVING PREMISES CLEAR AND AVAILABLE TO OWNER, OWNER'S EMPLOYEES AND EMERGENCY VEHICLES AT ALL TIMES. DO NOT USE THESE AREAS FOR PARKING OR STORAGE OF MATERIALS

c. THE CONTRACTOR'S BID SHALL INCLUDE ALL COSTS ASSOCIATED WITH AFTER-HOURS WORK/PREMIUM TIME NECESSARY TO PREVENT DISRUPTION TO THE OWNER.

E. COORDINATION

a. COOPERATE WITH OWNER DURING CONSTRUCTION OPERATIONS TO MINIMIZE CONFLICTS AND FACILITATE OWNER USAGE. PERFORM THE WORK SO AS NOT TO INTERFERE WITH THE OWNER'S DAY-TO-DAY OPERATIONS.

b. COORDINATE THE FIRE PROTECTION WORK WITH ALL OTHER AFFECTED

WORK AND THE CONSTRUCTION SCHEDULE. c. COORDINATE WITH THE WORK OF OTHER TRADES. INDICATED ROUTING OF ALL PIPING SYSTEMS IS APPROXIMATE. PROVIDE OFFSETS AND MINOR DEVIATIONS TO INDICATED ROUTING AS REQUIRED TO COORDINATE WITH THE WORK OF OTHER TRADES AND

THE GENERAL BUILDING CONDITIONS. F. DELEGATED DESIGN

a. THE DESIGN OF THE AUTOMATIC SPRINKLER SYSTEM/FIRE PROTECTION SYSTEM IS A DELEGATED DESIGN. PREPARE WORKING PLANS AND HYDRAULIC CALCULATIONS IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13. WORKING PLANS AND HYDRAULIC CALCULATIONS SHALL BE PREPARED UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY,

AND SHALL BE SIGNED AND SEALED BY THE SAME. b. ARRANGE FOR A WATER FLOW TEST WITH THE LOCAL WATER UTILITY, AND PAY ALL ASSOCIATED FEES. FLOW TEST RESULTS SHALL BE USED IN PREPARATION OF HYDRAULIC CALCULATIONS c. SPRINKLER SYSTEM DESIGN SHALL BE APPROVED BY AUTHORITIES

HAVING JURISDICTION. d. INCLUDE A MINIMUM 10 PERCENT MARGIN OF SAFETY FOR AVAILABLE

WATER FLOW AND PRESSURE. e. SPRINKLER OCCUPANCY HAZARD CLASSIFICATIONS:

e.1. MECHANICAL/ELECTRICAL EQUIPMENT ROOMS: ORDINARY HAZARD, GROUP 1.

e.2. STORAGE AREAS: ORDINARY HAZARD, GROUP 1 e.3. OFFICE AND PUBLIC AREAS: LIGHT HAZARD.

e.4. RESTAURANT SERVICE AREAS: ORDINARY HAZARD, GROUP 1. e.5. SPECIAL OCCUPANCIES: AS DETERMINED BY AUTHORITIES

HAVING JURISDICTION. f. MINIMUM DENSITY FOR AUTOMATIC SPRINKLER PIPING DESIGN: f.1. LIGHT HAZARD OCCUPANCY: 0.10 GPM OVER 1500 SQ. FT.

f.2. ORDINARY HAZARD, GROUP 1: 0.15 GPM OVER 1500 SQ. FT.

f.3. ORDINARY HAZARD, GROUP 2: 0.20 GPM OVER 1500 SQ. FT. f.4. SPECIAL OCCUPANCY HAZARD: AS DETERMINED BY

AUTHORITIES HAVING JURISDICTION. f.5. FOR DRY PIPE SYSTEMS AND DOUBLE INTERLOCK PREACTION SYSTEMS THE AREA OF SPRINKLER OPERATION SHALL BE

INCREASED BY 30 PERCENT WITHOUT REVISING DENISTY. g. MAXIMUM PROTECTION AREA PER SPRINKLER SHALL BE IN ACCORDANCE WITH THE UL LISTING. EXCEPT AS INDICATED OTHERWISE, THE MAXIMUM PROTECTION AREA PER SPRINKLER SHALL

BE AS FOLLOWS: q.1. OFFICE AND PUBLIC SPACES: 225 SQ. FT.

g.2. MECHANICAL/ELECTRICAL EQUIPMENT ROOMS: 130 SQ. FT.

a.3. STORAGE AREAS: 130 SQ. FT. g.4. OTHER AREAS: ACCORDING TO NFPA 13 UNLESS OTHERWISE INDICATED.

h. TOTAL COMBINED HOSE STREAM DEMAND - ACCORDING TO NFPA 13 UNLESS OTHERWISE INDICATED: h.1. LIGHT-HAZARD OCCUPANCIES: 100 GPM FOR 30 MINUTES. h.2. ORDINARY-HAZARD OCCUPANCIES: 250 GPM FOR 60 TO 90

h.3. EXTRA-HAZARD OCCUPANCIES: 500 GPM FOR 90 TO 120

i. SEISMIC PERFORMANCE: SPRINKLER PIPING SHALL WITHSTAND THE

EFFECTS OF EARTHQUAKE MOTIONS DETERMINED ACCORDING TO NFPA 13 AND ASCE/SEI 7

i. DEVIATIONS FROM APPROVED WORKING PLANS FOR PIPING REQUIRE WRITTEN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

k. COORDINATE LAYOUT AND INSTALLATION OF SPRINKLERS WITH OTHER CONSTRUCTION INSTALLED IN CEILINGS INCLUDING BUT NOT LIMITED TO LIGHTING FIXTURES, HVAC AIR TERMINALS, ETC.

G. QUALIFICATIONS a. MANUFACTURER: COMPANY SPECIALIZING IN MANUFACTURING FIRE PROTECTION PRODUCTS WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.

b. INSTALLER: COMPANY SPECIALIZING IN PERFORMING WORK OF THIS

SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE. A. PROVIDE ALL MATERIALS, TOOLS, SUPERVISION AND LABOR REQUIRED FOR THE FIRE PROTECTION INSTALLATION SHOWN OR DESCRIBED ON THE

DRAWINGS AND IN THESE SPECIFICATIONS. B. ALL PRODUCTS AND MATERIALS SHALL BE NEW AND SHALL BE UL-LISTED

AND FM-APPROVED. C. COLOR AND FINISH SELECTIONS FOR ALL PRODUCTS AND MATERIALS SHALL BE AS DIRECTED OR APPROVED BY THE ENGINEER/OWNER.

D. ALL COMPONENTS AND ACCESSORIES OF EQUIPMENT, SYSTEMS AND PRODUCTS OF THE FIRE PROTECTION WORK SHALL BE INCLUDED SO AS TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT INDICATED OR SPECIFIED.

EXECUTION A. THE SCOPE OF WORK SHALL INCLUDE THE COMPLETE DESIGN, FABRICATION, INSTALLATION AND TESTING OF ALL MODIFICATIONS TO THE EXISTING WET-PIPE SPRINKLER SYSTEM REQUIRED TO ACCOMMODATE INTERIOR

RENOVATIONS DEPICTED, DESCRIBED OR IMPLIED ON ALL CONTRACT DOCUMENTS FOR THIS PROJECT IN ORDER TO PROVIDE A COMPLETE AND FUNCTIONAL FIRE PROTECTION SYSTEM AS OUTLINED IN THIS SPECIFICATION AND SHOWN ON THE DRAWINGS.

B. OBTAIN ALL PERMITS, PAY ALL FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.

C. THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION. D. COMPLY WITH THE REGULATIONS AND REQUIREMENTS OF ALL UTILITY

SERVICE PROVIDERS AND ALL AUTHORITIES HAVING JURISDICTION. E. COMPLY WITH ALL THE REQUIREMENTS OF THE OWNER'S INSURANCE

F. WHERE APPLICABLE, COMPLY WITH THE PUBLISHED REQUIREMENTS OR STANDARDS OF THE LANDLORD OR PROPERTY MANAGER.

G. INSTALL PIPING AND EQUIPMENT IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THE INSTALLATION COMPLIES WITH REQUIREMENTS AND SERVES INTENDED PURPOSES. MAINTAIN ALL REQUIRED AND RECOMMENDED CLEARANCES.

H. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE ALL CONDITIONS AFFECTING HIS SCOPE OF WORK AND BID I. SUBMITTALS:

a. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

a.1. ALL SCHEDULED FIRE PROTECTION EQUIPMENT AND PRODUCTS, INCLUDING BUT NOT LIMITED TO:

PIPE AND FITTINGS; SPRINKLERS AND ESCUTCHEONS; VALVES AND SPECIALTIES; HANGERS AND SUPPORTS;

SEISMIC-RESTRAINT DEVICES; a.2. INCLUDE ELECTRICAL DATA FOR ALL ITEMS WHICH REQUIRE ELECTRICAL POWER.

a.3. WORKING PLANS AND HYDRAULIC CALCULATIONS. a.4. SEISMIC-RESTRAINT CALCULATIONS AND DETAILS.

b. SUBMIT CLOSE-OUT DOCUMENTS, INCLUSIVE OF ALL EQUIPMENT O&M MANUALS, WARRANTIES, AND AS-BUILT DRAWINGS INDICATING ALL ALTERNATIONS, ADDITIONS AND DELETIONS OF THE SYSTEMS DESIGNED AND AS SHOWN ON THE CONTRACT DOCUMENTS. SUBMIT TEST AND INSPECTION REPORTS.

c. SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS WILL BE RETURNED REJECTED.

d. THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWING STAMP.

e. SUBSTITUTIONS: ALL SPECIFIED EQUIPMENT SHALL SERVE AS THE BASIS OF DESIGN. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER(S). SUBSTITUTIONS OF OTHER MANUFACTURER'S EQUIPMENT SHALL BE CONSIDERED BY THE ENGINEER. PROVIDED THE SUBSTITUTION IS INDICATED PRIOR TO BIDDING, WITH THE REASON FOR THE PROPOSED SUBSTITUTION IDENTIFIED, AND THE PROPOSED CREDIT TO THE OWNER INDICATED. THE CONTRACTOR ASSUMES RESPONSIBILITY FOR COORDINATING THE WORK OF OTHER TRADES THAT ARE AFFECTED BY SUBSTITUTIONS, INCLUSIVE OF ALL RELATED COSTS.

J. DRAWINGS

a. THE DRAWINGS ARE DIAGRAMMATIC AND SHOW THE APPROXIMATE LOCATIONS OF EQUIPMENT, PIPING, SPRINKLER HEADS, ETC. EXACT LOCATIONS OF SUCH ITEMS SHALL BE COORDINATED IN THE FIELD WITH THE ARCHITECTURAL DRAWINGS AND/OR THE OWNER AS CONSTRUCTION PROCEEDS. COORDINATE THE FIRE PROTECTION WORK WITH THE WORK OF OTHER TRADES

b. PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO COMPLETE WORK IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.

c. REFER TO ARCHITECTURAL DRAWINGS FOR COORDINATED REFLECTED CEILING PLANS FOR LOCATING SPRINKLER HEADS.

K. BASIC FIRE PROTECTION METHODS

a. ROUTE PIPING IN AN ORDERLY MANNER, PLUMB AND PARALLEL TO BUILDING FEATURES. INSTALL WORK TO CONSERVE BUILDING SPACE. b. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTED EQUIPMENT. c. REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE PIECE

REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. PROVIDE

FLANGED FITTINGS AT BASE OF RISERS d. EXTERIOR INSTALLATIONS TO BE WEATHER-PROOF IN ALL RESPECTS. e. EXTERIOR MATERIALS AND EQUIPMENT SHALL BE PAINTED TO

PREVENT CORROSION, COLOR PER ARCHITECT f. ALL MOTOR-OPERATED EQUIPMENT SHALL BE PROVIDED WITH VIBRATION ISOLATORS.

g. AT ALL PIPING PENETRATIONS THROUGH CONCRETE WALLS/PARTITIONS OR FLOOR/CEILING ASSEMBLIES PROVIDE GALVANIZED STEEL OR CAST IRON SLEEVE. SLEEVES THROUGH OTHER THAN CONCRETE ASSEMBLIES SHALL BE 20 GAGE GALVANIZED SHEET METAL WITH WELDED LONGITUDINAL JOINT. SLEEVES ARE NOT REQUIRED AT CORE-DRILLED HOLES.

h. SLEEVES AT PENETRATIONS THROUGH FIRE-RATED PARTITIONS OR

FLOOR/CEILING ASSEMBLIES SHALL BE SEALED WITH 3M BRAND UL-RATED FIRE BARRIER CAULK OR APPROVED EQUAL.

i. INSTALL SLEEVE-SEAL SYSTEMS IN SLEEVES IN EXTERIOR CONCRETE WALLS AND SLABS-ON-GRADE AT SERVICE PIPING ENTRIES INTO BUILDING. SLEEVE-SEAL SYSTEMS SHALL BE AS MANUFACTURED BY LINKSEAL MODULAR SEALS OR APPROVED EQUAL.

j. THE FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING AND PATCHING ASSOCIATED WITH THE FIRE PROTECTION WORK. FINISHED OPENINGS SHALL MATCH EXISTING ADJACENT CONSTRUCTION AND FINISHES. THE FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND

k. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE EQUIPMENT OR PRODUCT MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.

I. GROOVED PIPE ENDS SHALL BE ROLL-GROOVED ONLY. CUT GROOVING SHALL NOT BE ACCEPTABLE.

m. ALL PIPING IN FINISHED SPACES SHALL BE CONCEALED n. INSTALL PIPING ABOVE ACCESSIBLE CEILINGS TO ALLOW FOR CEILING o. INSTALL PIPE TO ALLOW FOR VALVE OPERATION AND MAINTENANCE

AND SERVICE OF EQUIPMENT. p. CLEAN INTERIOR OF PIPING. REMOVE DIRT AND DEBRIS AS WORK PROGRESSES. PLUG ENDS OF UNCOMPLETED PIPING AT THE END OF

EACH DAY AND WHEN WORK STOPS. q. REAM ENDS OF PIPES AND TUBES AND REMOVE BURRS. REMOVE SCALE, SLAG, DIRT AND DEBRIS FROM INSIDE AND OUTSIDE PIPES, TUBES AND FITTINGS BEFORE ASSEMBLING. BEVEL PLAIN ENDS OF

STEEL PIPE. r. LOW VOLTAGE WIRING SHALL BE PROVIDED BY THIS CONTRACTOR. THE CONTRACTOR FOR ELECTRICAL WORK SHALL BE RESPONSIBLE FOR LINE VOLTAGE WIRING.

s. PIPING SHALL NOT BE SUPPORTED FROM OTHER PIPE, CONDUIT OR DUCTWORK. t. PIPING HANGERS AND SUPPORTS SHALL BE IN ACCORDANCE WITH

MSS SP-58. u. SEISMIC RESTRAINTS SHALL BE PROVIDED IN ACCORDANCE WITH IBC

SECTION 1613 AND NFPA 13. v. ALL EQUIPMENT SHALL BE PROVIDED WITH APPROPRIATE SUPPORTS w. PROVIDE CHROME-PLATED ESCUTCHEONS AT ALL PIPING PENETRATIONS THROUGH FLOORS, WALLS AND CEILINGS IN ALL

FINISHED SPACES EXPOSED TO VIEW. x. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES AND UNIONS

L. WARRANTY

a. EQUIPMENT, MATERIALS AND WORKMANSHIP OF THE FIRE PROTECTION INSTALLATION SHALL BE WARRANTED BY THE CONTRACTOR FOR FIRE PROTECTION WORK FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER.

b. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROMPTLY REPAIR AND CORRECT ANY FAULTY MATERIALS, WORKMANSHIP OR EQUIPMENT. ALL SETTLEMENTS OF SURFACES THAT OCCUR WITHIN THAT PERIOD SHALL ALSO BE PROMPTLY REPAIRED.

210523 GENERAL-DUTY VALVES FOR FIRE PROTECTION PIPING

A. SOURCE LIMITATIONS: OBTAIN EACH TYPE OF VALVE FROM SINGLE

B. VALVES SHALL BE UL LISTED, "ONLINE CERTIFICATIONS DIRECTORY", AND

SHALL BEAR UL MARK. C. VALVES SHALL BE FM GLOBAL APPROVED. "APPROVAL GUIDE". D. ASME COMPLIANCE: ASME B16.1 FOR FLANGES ON IRON VALVES; ASME B1.20.1 FOR THREADS FOR THREADED-END VALVES; ASME B31.9 FOR

BUILDING SERVICES PIPING VALVES. E. AWWA COMPLIANCE: COMPLY WITH AWWA C606 FOR GROOVED-END CONNECTIONS.

F. NFPA COMPLIANCE: COMPLY WITH NFPA 24 FOR VALVES. G. PROVIDE TAMPER SWITCH AND FLOW SWITCH INTERFACED WITH THE BUILDING FIRE ALARM SYSTEM AT ALL VALVES WHICH CONTROL THE WATER

SUPPLY TO THE SYSTEM. PRODUCTS A. GATE VALVES: BRONZE OR IRON BODY, BRONZE TRIM, HAND WHEEL, SOLID

BRONZE WEDGE, THREADED, FLANGED OR GROOVED ENDS B. BALL VALVES: BRONZE OR CAST STEEL BODY, BRONZE OR STAINLESS STEEL STEM, FULL-PORT, CHROME-PLATED BRASS OR STAINLESS STEEL BALL, WORM-GEAR OR HANDLEVER ACTUATOR, SUPERVISORY SWITCH,

THREADED OR GROOVED ENDS. C. BUTTERFLY VALVES: BRONZE OR DUCTILE IRON BODY, BRONZE OR STAINLESS STEEL STEM, STAINLESS STEEL DISC, WORM-GEAR ACTUATOR WITH INTEGRAL INDICATING DEVICE, SUPERVISORY SWITCH, THREADED OR

D. GLOBE VALVE: BRONZE OR IRON BODY, BRONZE TRIM, RISING STEM, HANDWHEEL. INSIDE SCREW OR OS&Y AS INDICATED. PLUG-TYPE DISC. THREADED OR FLANGED ENDS, RENEWABLE SEAT AND DISC.

E. CHECK VALVE: BRONZE OR IRON BODY, BRONZE TRIM, SWING TYPE RUBBER DISC OR BRONZE DISC WITH STAINLESS STEEL SPRING, THREADED, GROOVED OR FLANGED ENDS, RENEWABLE DISC.

EXECUTION

A. VALVE APPLICATIONS: a. FOR SHUTOFF DUTY, USE GATE, BALL AND BUTTERFLY VALVES. B. GATE VALVES:

a. 2"AND UNDER: BRONZE GATE VALVE, NRS. b. OVER 2": IRON GATE VALVE, OS&Y.

C. GLOBE OR ANGLE VALVES: a. 2"AND UNDER: BRONZE GLOBE VALVE, INSIDE SCREW.

b. OVER 2": IRON GLOBE VALVE, OS&Y. D. BALL VALVES: a. 2" AND UNDER: BRONZE BALL VALVE.

b. OVER 2": CAST STEEL BALL VALVE. E. CHECK VALVES: a. 2" AND UNDER: BRONZE CHECK VALVE WITH RUBBER DISC, THREADED

b. OVER 2": IRON CHECK VALVE WITH RUBBER DISC, GROOVED OR

c. OVER 2": IRON CHECK VALVE BRONZE DISC AND STAINLESS STEEL SPRING, GROOVED OR FLANGED ENDS.

F. BUTTERFLY VALVES: a. 3" AND UNDER: BRONZE BUTTERFLY VALVE.

b. OVER 3": IRON BUTTERFLY VALVE. G. INSTALL PERMANENT IDENTIFICATION SIGNS INDICATING PORTION OF SYSTEM SERVED BY EACH VALVE.

H. INSTALL CHECK VALVE IN EACH WATER SUPPLY CONNECTION. USE BACKFLOW PREVENTER IN POTABLE-WATER-SUPPLY SOURCES. I. INSTALL VALVES IN HORIZONTAL PIPING WITH STEM AT OR ABOVE PIPE

J. INSTALL VALVES TO ALLOW FOR FULL STEM MOVEMENT

210553 IDENTIFICATION FOR FIRE PROTECTION PIPING AND EQUIPMENT

A. COORDINATE INSTALLATION OF IDENTIFYING DEVICES WITH LOCATIONS OF ACCESS PANELS AND DOORS.

B. INSTALL IDENTIFYING DEVICES BEFORE INSTALLING ACOUSTICAL CEILING AND SIMILAR CONCEALMENT.

A. EQUIPMENT LABELS: LAMINATED THREE LAYER PLASTIC WITH ENGRAVED BLACK LETTERS ON LIGHT CONTRASTING BACKGROUNDS

B. SIGNS: 0.020" COLORED ALUMINUM SCREEN PRINTED WITH FADE-RESISTANT INK, WHITE LETTERS ON RED BACKGROUND OR RED LETTERS ON WHITE BACKGROUND, ATTACHED WITH CORROSION-RESISTANT CHAINS OR

C. VALVE TAGS: VALVES, CONTROL DEVICES AND SPECIALTIES: MINIMUM 1-1/2" DIAMETER BRASS WITH STAMPED LETTERS WITH CORROSION-RESISTANT CHAIN. D. PIPING LABELS: ADHESIVE BACKED PLASTIC TAPE MARKERS.

A. PROVIDE EQUIPMENT LABELS FOR ALL FIRE PROTECTION EQUIPMENT. AFFIX

WITH SUFFICIENT ADHESIVE TO PROVIDE PERMANENT ADHESION. B. PROVIDE ALL REQUIRED SIGNS AT RISERS, FIRE DEPARTMENT CONNECTIONS, TEST AND DRAIN ASSEMBLIES, FLOOR CONTROL ASSEMBLIES, ETC. SIGNS SHALL INDICATE PORTION OF SYSTEM CONTROLLED BY EACH VALVE.

C. PROVIDE TAGS FOR ALL VALVES, CONTROL DEVICES AND SPECIALTIES.

NUMBER TAGS CONSECUTIVELY BY LOCATION. D. PIPING LABELS SHALL IDENTIFY SERVICE AND FLOW DIRECTION. LOCATE LABELS 20 FEET ON CENTER AND NOT GREATER THAN 2 FEET FROM CHANGES IN DIRECTION OR PENETRATIONS OF STRUCTURE OR ENCLOSURE. LOCATE NEAR EACH VALVE AND CONTROL DEVICE, NEAR EACH BRANCH

CONNECTION, NEAR EQUIPMENT AND ORIGINATION/TERMINATION POINTS. E. LETTERING FOR ALL FIRE PROTECTION IDENTIFICATION SHALL BE AS LARGE

AS PRACTICAL, WITH MINIMUM 1/4" HIGH CHARACTERS. F. SUBMIT TO OWNER A VALVE TAG CHART IN ANODIZED ALUMINUM FRAME WITH PLEXIGLAS COVER. VALVE TAG CHART SHALL INDICATE THE EXACT LOCATION OF ALL ITEMS REFERENCED TO A KEY PLAN PROVIDED BY THE CONTRACTOR, AND THE SERVICE/PURPOSE OF EACH VALVE, CONTROL DEVICE AND SPECIALTY. PROVIDE TO THE OWNER ONE HARD COPY OF A LAMINATED KEY PLAN AT A SCALE SUFFICIENT TO CLEARLY CONVEY ITEM LOCATIONS, AND A DIGITAL COPY IN ADOBE .PDF FORMAT (OR IN A DIGITAL FORMAT AS DIRECTED BY THE OWNER) OF THE VALVE TAG CHART AND KEY PLAN AT PROJECT CLOSEOUT.

210593 INSPECTION AND TESTING

A. AT THE COMPLETION OF THE FIRE PROTECTION WORK, COMPLETELY TEST THE ENTIRE FIRE PROTECTION INSTALLATION FOR PROPER OPERATION.

CORRECT ALL DEFICIENCIES FOUND. B. NOTIFY THE AHJ AND THE OWNER OF THE TIME AND DATE TESTING WILL

C. ALL FLUSHING, INSPECTION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE NFPA 13, CHAPTER 25 - "SYSTEM ACCEPTANCE". D. NEW, ALTERED, EXTENDED OR REPLACED FIRE PROTECTION SHALL BE LEFT UNCOVERED AND UNCONCEALED UNTIL IT HAS BEEN INSPECTED, TESTED

AND APPROVED. E. TESTING OF THE INSTALLED SYSTEMS SHALL BE CONDUCTED IN THE PRESENCE OF A REPRESENTATIVE FOR THE OWNER. F. COMPLETE AND SIGN THE APPROPRIATE CONTRACTOR'S MATERIAL AND

TEST CERTIFICATES, AND SUBMIT TO OWNER AND AHJ. G. ENGAGE THE ASSISTANCE OF A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE WHEN TESTING EQUIPMENT.

EXECUTION

A. PERFORM THE FOLLOWING TESTS AND INSPECTIONS: a. LEAK TEST: AFTER INSTALLATION, CHARGE SYSTEMS AND TEST FOR

LEAKS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST. b. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGE OR MALFUNCTIONING CONTROLS AND EQUIPMENT. c. FLUSH, TEST AND INSPECT SPRINKLER SYSTEMS ACCORDING TO

APPLICABLE SECTIONS OF NFPA 13, CHAPTER 25 "SYSTEMS ACCEPTANCE" d. ENERGIZE CIRCUITS TO ELECTRICAL EQUIPMENT AND DEVICES.

e. COORDINATE FIRE-ALARM TESTS. OPERATE AS REQUIRED. f. COORDINATE FIRE-PUMP TESTS. OPERATE AS REQUIRED. g. VERIFY THAT EQUIPMENT HOSE THREADS ARE THE SAME AS THE

B. PREPARE AND SUBMIT ALL REQUIRED TEST AND INSPECTION REPORTS.

LOCAL FIRE DEPARTMENT.

211313 WET-PIPE AND DRY-PIPE SPRINKLER SYSTEMS

A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS

B. SPRINKLER SYSTEM PIPING SHALL NOT BE INSTALLED IN UNHEATED SPACES WHENEVER FEASIBLE. WHERE SPRINKLER SYSTEM PIPING MUST BE INSTALLED IN UNHEATED SPACES, THE SYSTEM OR PORTIONS THEREOF

C. WELDED PIPE SHALL BE IN ACCORDANCE WITH ASTM A135 — "STANDARD SPECIFICATION FOR ELECTRIC-RESISTANCE WELDED STEEL PIPE", AWS A5.8 "SPECIFICATION FOR FILLER METALS FOR BRAZING AND BRAZE WELDING" AND AWS D1.1 "STRUCTURAL WELDING CODE - STEEL.

D. HANGING, BRACING, AND RESTRAINT OF SYSTEM PIPING SHALL BE IN

EXPOSED TO FREEZING CONDITIONS SHALL BE A DRY-PIPE SYSTEM.

ACCORDANCE WITH NFPA 13, CHAPTER 9. PRODUCTS

C. SPRINKLERS:

A. PIPE AND FITTINGS: a. STEEL PIPE: ASTM A 53, SCHEDULE 40 AND SCHEDULE 10 BLACK AND GALVANIZED STEEL PIPE WITH ENDS TO MATCH JOINING

b. THREADED FITTINGS: ASME B16.3, MALLEABLE IRON THREADED FITTINGS, CLASS 150, STANDARD PATTERN. c. MECHANICAL GROOVED COUPLINGS: AWWA C606 AND UL 213, RIGID PATTERN, MALLEABLE IRON HOUSING CLAMPS WITH EPDM-RUBBER GASKET, STEEL BOLTS, NUTS AND WASHERS. GALVANIZED WHEN

USED WITH GALVANIZED PIPING. B. PIPE HANGERS AND SUPPORTS: a. HANGERS FOR PIPE SIZES ½" TO 1½": MALLEABLE IRON OR CARBON STEEL ADJUSTABLE SWIVEL, SPLIT RING.

b. HANGERS FOR PIPE SIZES 2" AND LARGER: CARBON STEEL, ADJUSTABLE CLEVIS HANGER.

c. VERTICAL SUPPORT: STEEL RISER CLAMP. d. FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE AND CONCRETE PIER OR STEEL SUPPORT. e. HANGERS AND THEIR COMPONENTS SHALL BE FERROUS.

a. LISTED IN UL'S "FIRE PROTECTION EQUIPMENT DIRECTORY" OR FM GLOBAL'S "APPROVAL GUIDE."

b. PRESSURE RATING FOR AUTOMATIC SPRINKLERS: 175 PSIG MINIMUM.

c. CHARACTERISTICS: NOMINAL 1/2 INCH ORIFICE WITH DISCHARGE COEFFICIENT K OF 5.6. AND 'ORDINARY' TEMPERATURE CLASSIFICATION RATING UNLESS OTHERWISE INDICATED OR REQUIRED BY THE APPLICATION.

d. SPRINKLER FINISHES: d.1. CONCEALED TYPE: ROUGH BRASS/BRONZE WITH

d.3. UNFINISHED SPACES: ROUGH BRONZE.

FACTORY—PAINTED COVER PLATE. d.2. FINISHED SPACES: CHROME-PLATED W/ CHROME-PLATED ESCUTCHEON.

e. USE DRY SPRINKLERS THROUGHOUT DRY-PIPE SYSTEM AND AT ALL LOCATIONS IN WET-PIPE SYSTEM WHERE SPRINKLER HEADS ARE SUBJECT TO FREEZING.

D. FIRE DEPARTMENT CONNECTION: a. FLUSH-MOUNTED WALL TYPE WITH CHROME-PLATED FINISH WITH TWO

b. THREADS/CONNECTIONS TO MATCH LOCAL FIRE DEPARTMENT. PROVIDE WITH DUST CAP AND CHAIN OF MATCHING MATERIAL. c. LABEL FIRE DEPARTMENT CONNECTION TO READ: "SPRINKLER - FIRE

DEPARTMENT CONNECTION", OR AS DIRECTED BY THE AHJ.

A. HANGER ROD SIZES SHALL BE IN ACCORDANCE WITH NFPA 13, TABLE 9.1.2.1. MAXIMUM HANGER SPACING SHALL BE IN ACCORDANCE WITH NFPA 13, TABLE 9.2.2.1(A).

B. INSTALL SHUT-OFF VALVE, BACKFLOW PREVENTION ASSEMBLY PRESSURE GAGE AND DRAIN AT CONNECTION TO THE MAIN WATER SUPPLY. C. INSTALL AUTOMATIC BALL-DRIP DRAIN VALVE AT EACH CHECK VALVE FOR

FIRE DEPARTMENT CONNECTION. SPILL DRAIN PIPING TO FLOOR DRAIN OR TO GRADE OUTSIDE BUILDING. D. INSTALL DRAIN VALVES AT ALL LOCATIONS THROUGHOUT THE SYSTEM AS

REQUIRED TO FACILITATE COMPLETE SYSTEM DRAINAGE. E. INSTALL INSPECTOR'S TEST CONNECTIONS AT REMOTE ENDS OF SYSTEM. F. TEST AND DRAIN CONNECTIONS SHALL SPILL TO APPROVED LOCATIONS. G. WHEN SPRINKLER PIPING DERIVES FROM STANDPIPES INSTALL SPRINKLER

CONTROL/FLOOR CONTROL ASSEMBLIES, TEST AND DRAIN ASSEMBLIES AND DRAIN RISERS ADJACENT TO STANDPIPES. H. INSTALL FLANGES OR GROOVED-END COUPLINGS WHEN JOINING PIPE 2-1/2" AND LARGER.

I. INSTALL ALL REQUIRED FIRE ALARM DEVICES IN THE SYSTEM. COORDINATE WITH CONTRACTOR FOR FIRE ALARM WORK. J. THREAD PIPE WITH TAPERED THREADS ACCORDING TO ASME B1.20.1. CUT THREADS FULL AND CLEAN USING SHARP DIES. DO NOT USE PIPE OR FITTINGS WITH DAMAGED THREADS. APPLY APPROPRIATE THREAD

COMPOUND TO EXTERNAL PIPE THREADS. K. ROLL ROUNDED-EDGE GROOVE IN END OF PIPE AND JOIN PIPE ACCORDING TO AWWA C606. ASSEMBLE COUPLING WITH HOUSING, GASKET, LUBRICANT AND BOLTS IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.

L. WHEN INSTALLING FLEXIBLE SPRINKLER HOSE FITTINGS ATTACH BRACKETS

M. INSTALL DRY-TYPE SPRINKLERS WITH WATER SUPPLY FROM HEATED SPACE WHERE SPRINKLER HEADS ARE SUBJECT TO FREEZING. N. INSTALL SHUT-OFF VALVES AND UNIONS UPSTREAM AND DOWNSTREAM OF

ALL PIPING SPECIALTIES. O. PROVIDE SLEEVES FOR PIPING PENETRATIONS THROUGH FLOORS, WALLS AND CEILINGS. PROVIDE FIRESTOPPING WHEN PENETRATING ASSEMBLIES WITH FIRE-RESISTANCE RATING.

FLOORS, WALLS AND CEILINGS. Q. CONNECT COMPRESSED AIR SUPPLY TO DRY-PIPE SPRINKLER PIPING. R. PROVIDE SCHEDULE 40 STEEL PIPE WITH THREADED OR GROOVED JOINTS

P. PROVIDE CHROME-PLATED ESCUTCHEONS AT ALL PIPING PENETRATIONS OF

FOR ALL SIZES 2-1/2" AND SMALLER. PROVIDE SCHEDULE 10 STEEL PIPE WITH GROOVED JOINTS FOR ALL SIZES 3" AND LARGER. S. USE SPRINKLERS INDICATED BELOW FOR THE FOLLOWING APPLICATIONS: a. ROOMS WITHOUT CEILINGS: UPRIGHT TYPE.

DRY SPRINKLERS AS INDICATED.

WATER-SAMPLE APPROVALS WHERE REQUIRED.

b. ROOMS WITH SUSPENDED CEILINGS: PENDENT AND CONCEALED TYPE AS INDICATED. c. WALL MOUNTING: SIDEWALL SPRINKLERS. d. SPACES SUBJECT TO FREEZING: UPRIGHT, PENDENT AND SIDEWALL

e. PROVIDE WIRE CAGE SPRINKLER GUARDS FOR ALL SPRINKLERS INSTALLED BELOW 8'-0" ABOVE FINISHED FLOOR. T. INSTALL PIPING TO ALLOW FOR THE OPERATION OF VALVES AND FOR SERVICE AND MAINTENANCE OF EQUIPMENT

HAZARD. V. PROVIDE CHECK VALVES TO MAINTAIN CORRECT DIRECTION OF FLOW TO AND FROM EQUIPMENT. W. INSTALL Y-PATTERN STRAINER ON SUPPLY SIDE OF EACH WATER

PRESSURE-REDUCING VALVE AND BACKFLOW PREVENTER AND PUMP.

U. PROVIDE BACKFLOW PREVENTERS APPROPRIATE FOR THE ASSOCIATED

FOR WATER PRESSURE-REDUCING VALVES, BALANCING VALVES AND WATER MIXING VALVES, AS APPLICABLE. Y. USE CLEANING, PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION. PREPARE AND SUBMIT REPORTS OF PURGING AND DISINFECTING ACTIVITIES, INCLUDING COPIES OF

X. SET FIELD-ADJUSTABLE PRESSURE, FLOW AND TEMPERATURE SET POINTS

MARY ELAINE DASTI, PE

PRACTICE LEADER

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