PLUMBING SPECIFICATIONS

DIVISION 21 FIRE PROTECTION

00 72 00 GENERAL CONDITIONS

A. SEE SHEET T2.0.

01 11 00 GENERAL REQUIREMENTS

A. SEE SHEET T2.0.
B. PROVIDE "AS-BUILT" DRAWINGS TO THE OWNER IN AUTOCAD FORMAT.

09 91 00 FINISH AND PAINTING

A. PREPARE EXPOSED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING IN ROOMS THAT WILL HAVE CEILING AND STRUCTURE PAINTED.
B. COORDINATE WORK WITH THE PAINTERS SO THAT ALL EQUIPMENT IS INSTALLED PRIOR TO PAINTING. F.P.C. SHALL PAINT ITEMS IF NOT IN PLACE PRIOR TO NORMAL ROUTINE PAINTING.
C. IF FINISH BECOMES RUSTED, CORRODED, SCRATCHED, OR FLAKED DURING STORAGE OR INSTALLATION, REFINISH THE EQUIPMENT TO THE SATISFACTION OF THE OWNER.

21 05 00 BASIC FIRE PROTECTION REQUIREMENTS

A. PROVIDE A COMPLETE DESIGN/BUILD FIRE PROTECTION SYSTEM FOR THE PROPOSED PROJECT.
B. FIRE PROTECTION CONTRACTOR SHALL BE LICENSED BY THE STATE IN WHICH THE PROJECT IS LOCATED TO FURNISH AND INSTALL FIRE PROTECTION SYSTEMS.
C. CONTRACTOR SHALL COMPLETE DESIGN AND SUBMIT FOR APPROVAL TO AUTHORITIES HAVING JURISDICTION WITHIN 60 DAYS OF CONTRACT AWARD. CONSTRUCTION REWORK COSTS INCURRED BY OTHER CONTRACTORS DUE TO FAILURE BY FPC TO OBTAIN APPROVAL IN A TIMELY MANNER SHALL BE BORNE BY THE FIRE PROTECTION CONTRACTOR.
D. CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING AND SIZING THE DISTRIBUTION SYSTEMS BY HYDRAULIC CALCULATION, AND SHALL PROVIDE THE NECESSARY ENGINEERING DRAWINGS AND CALCULATIONS TO OBTAIN ACCEPTANCE OF ALL AUTHORITIES HAVING JURISDICTION.
E. IF THE CONTRACTOR'S FIRE PROTECTION DESIGN REQUIRES ANY MODIFICATIONS OR ADDITIONS TO THE BUILDING IN ORDER TO MEET THE SPRINKLER SYSTEM REQUIREMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF MODIFICATIONS OR ADDITIONS OR SHALL SPECIFICALLY NOTE IN THE BID THE WORK REQUIRED.
F. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MUNINCIPAL AND/OR STATE SUBMITTAL AND PLAN REVIEW FEES.
G. DRAWINGS INDICATING NEW FIRE PROTECTION SYSTEMS TO BE INSTALLED WITH PIPE SIZES, ETC., AND COPY OF SYSTEMS HYDRAULIC CALCULATIONS SHALL BE SUBMITTED TO THE FOLLOWING FOR REVIEW:
   1. EXCEL ENGINEERING
   2. NUMBER OF PRINTS AS REQUIRED TO LOCAL FIRE DEPARTMENT AUTHORITY.
   3. NUMBER OF PRINTS AS REQUIRED TO OWNER'S INSURING AUTHORITY.
H. DETAILS AND SCHEDULES ARE SHOWN TO AID THE CONTRACTOR AND ARE NOT MEANT TO BE INCLUSIVE OF ALL DEVICES. PROVIDE REQUIRED EQUIPMENT AND ACCESSORIES FOR A COMPLETE INSTALLATION.
I. THE REQUIREMENTS OF MUNICIPAL AND STATE CODES, LAWS, ORDINANCES AND REGULATIONS, AND NFPA ARE MADE PART OF THESE SPECIFICATIONS AND SHALL BE COMPLIED WITH AS FAR AS THEY APPLY TO THE WORK.
J. COORDINATE WORK WITH OTHER CONTRACTORS AND MAKE ADJUSTMENTS TO THE FIRE PROTECTION SYSTEM INSTALLATION WHERE IT WILL BE INSTALLED IN CLOSE PROXIMITY TO THE WORK OF OTHER TRADES. IF THE FPC INSTALLS WORK BEFORE COORDINATING IT WITH OTHER TRADES SO AS TO CAUSE INTERFERENCE WITH WORK OF OTHER TRADES, THE FPC SHALL MAKE NECESSARY CHANGES IN THE WORK TO CORRECT THE CONDITION WITHOUT EXTRA CHARGES.
K. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR FIRE PROTECTION WORK INSTALLATION UNLESS THIS WORK IS IDENTIFIED TO BE THE WORK OF OTHER CONTRACTORS. PATCHING SHALL MATCH ADJACENT SURFACES. CORE DRILL OR SAW-CUT OPENINGS THROUGH EXISTING CONCRETE.
L. LEAVE SYSTEM IN PROPER WORKING CONDITION AT THE TIME OF FINAL CLEAN-UP.
   1. PROVIDE OPERATING INSTRUCTIONS FOR A TOTAL OF TWO (2) HOURS. MAINTAIN A RECORD OF OPERATING INSTRUCTION PERIODS.
M. AVAILABLE WATER FLOW DATA
   1. FPC IS RESPONSIBLE FOR VERIFYING AND OBTAINING WATER FLOW TEST DATA FOR DESIGN. TESTS TO BE REPRESENTATIVE OF HIGH WATER USE PERIODS.
N. TESTS AND INSPECTIONS
   1. CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING AND CERTIFICATION OF SYSTEMS AND ORDERING INSPECTIONS AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
   2. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF AND TO THE SATISFACTION OF THE OWNER OR AN AUTHORIZED REPRESENTATIVE.
   3. INSPECTIONS SHALL BE MADE BY THE OWNER'S AUTHORIZED REPRESENTATIVE AND INSPECTORS HAVING JURISDICTION.

21 05 29 SUPPORTS AND HANGERS

A. PROVIDE PIPE HANGERS AND SUPPORTS IN COMPLIANCE WITH NFPA 13.
B. HANGERS SHALL NOT BE ATTACHED TO JOIST BRIDGING.
C. ATTACHMENT TO METAL DECK: HANGERS MAY BE ANCHORED TO METAL FLOOR/ROOF DECK IF ALL THE FOLLOWING CONDITIONS ARE MET:
   1. MAXIMUM HANGER LOAD OF 50 LBS.
   2. ANCHORED TO BOTTOM OF DECK FLUTES, NOT UPPER FLUTE.
   3. ANCHOR LENGTH SHALL EXCEED DECK DEPTH.
D. FIRE RATED INTERIOR WALL AND FLOOR PIPE PENETRATIONS
   1. SLEEVE REQUIRED FOR PENETRATION OF CONCRETE AND MASONRY WALLS AND FLOORS.
   2. SEAL OPENING AROUND PIPE WITH A UL APPROVED FIRE-STOP SYSTEM HAVING AN F-RATING NOT LESS THAN THE HOURLY RATING OF THE ASSEMBLY BEING PENETRATED.
   3. WHERE UL FIRE-STOP SYSTEM REQUIRES A SLEEVE, FURNISH AND INSTALL SLEEVES FOR NEW DRYWALL WALLS, AND CONCRETE WALLS AND FLOORS. FURNISH SLEEVES TO THE MASON CONTRACTOR FOR INSTALLATION IN NEW MASONRY WALLS. PROVIDE SLEEVE AND GROUT SLEEVE IN EXISTING MASONRY WALLS.
E. SEALANTS
   1. FIRE PROTECTION CONTRACTOR SHALL PROVIDE ALL SEALANTS WHERE JOINT IS HIDDEN AND WHERE JOINT IS EXPOSED IN MECHANICAL ROOM.
   2. SEALANT CONTRACTOR SHALL PROVIDE SEALANTS AT ALL EXPOSED LOCATIONS IN FINISHED ROOMS.
F. ESCUTCHEONS
   1. INSTALL ONE-PIECE (TWO PIECE FOR EXISTING PIPING) POLISHED CHROME PLATED STEEL ESCUTCHEONS AT PENETRATIONS EXPOSED IN FINISHED ROOMS (ROOMS WHICH DON'T HAVE UNFINISHED CONCRETE FLOORS).
   2. ESCUTCHEONS WITH SPRINGS FOR WALL AND CEILING LOCATIONS.
   3. ID TO CLOSELY FIT AROUND PIPE, OD THAT COMPLETELY COVERS THE OPENING.

21 05 53 IDENTIFICATION

A. PROVIDE IDENTIFICATION PER NFPA 13.

21 13 13 PIPING

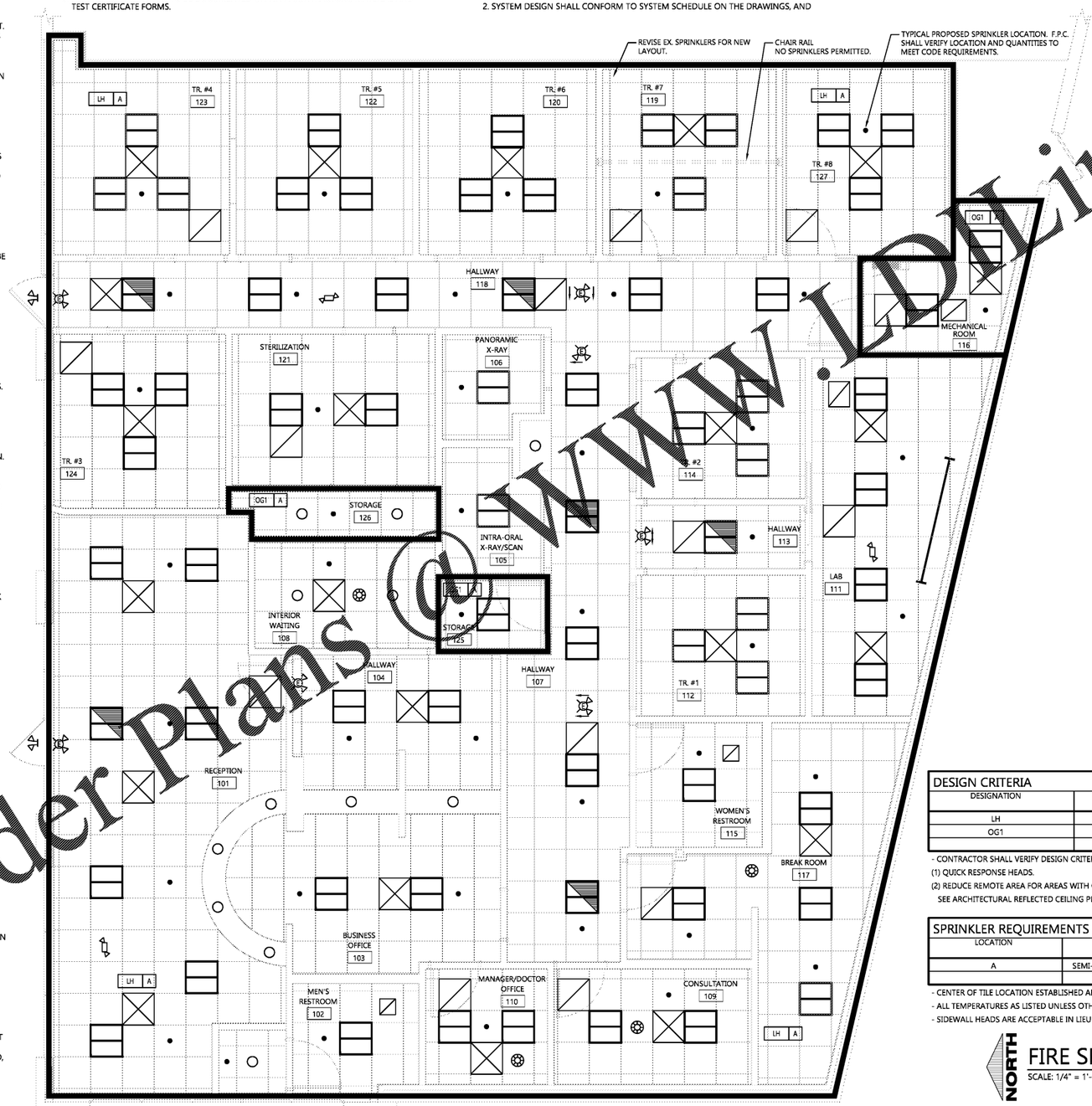
A. DESIGN REQUIREMENTS: ALL SYSTEM COMPONENTS SHALL BE RATED FOR THE MAXIMUM WORKING PRESSURE TO WHICH THEY ARE EXPOSED BUT NOT LESS THAN 175 PSIG.
B. PIPE AND FITTINGS: PROVIDE PER NFPA 13.
C. INSTALL PIPE AND FITTINGS IN ACCORDANCE WITH NFPA 13, MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOGNIZED INDUSTRY PRACTICES.
D. INSTALL PIPING LEVEL, TAKING INTO ACCOUNT DRAINAGE REQUIREMENTS. PIPING SHALL NOT FOLLOW ROOF PITCH WHERE PITCH CHANGES.
E. INSTALL PIPING PARALLEL TO WALLS AND CEILINGS AND AT HEIGHTS WHICH DO NOT OBSTRUCT WINDOWS, DOORWAYS, STAIRWAYS, OR PASSAGEWAYS. OFFSET OR REROUTE PIPING TO CLEAR INTERFERENCES WHICH DEVELOP IN THE FIELD.
F. INSTALL PIPING TO CONSERVE BUILDING SPACE AND NOT INTERFERE WITH USE OF SPACE. CONCEAL PIPING WITHIN WALLS AND CHASES OR ABOVE CEILINGS.
G. COORDINATION
   1. COORDINATE LOCATIONS OF PIPING WITH PIPING, DUCTWORK, CONDUIT AND EQUIPMENT OF OTHER CONTRACTORS.
   2. REVIEW DRAWINGS FOR EXACT LOCATION OF PIPE SPACES, CEILING HEIGHTS, CEILING GRID, LIGHT FIXTURES AND GRILLES BEFORE INSTALLING PIPING.
   3. INSTALL WITH SUFFICIENT CLEARANCES FOR INSTALLATION OF OTHER CONTRACTOR'S WORK.
   4. PIPING SHALL NOT OBSTRUCT SERVICE CLEARANCES REQUIRED FOR EQUIPMENT.
   5. PIPING SHALL NOT BE INSTALLED BELOW OR WITHIN 45 DEG OF LIGHT EDGE.
   6. DO NOT ROUTE PIPING ABOVE TRANSFORMERS, PANELBOARDS, MOTOR CONTROL CENTERS, SWITCHBOARDS OR OTHER ELECTRICAL DISTRIBUTION EQUIPMENT.
   7. ROUTE MAINS AROUND ELECTRICAL AND COMPUTER ROOMS. ONLY PIPING SERVING THESE ROOMS ALLOWED IN THE ROOMS.
H. PROVIDE PROTECTIVE SLEEVE COVERING WHERE COPPER OR STEEL PIPING IS EMBEDDED IN MASONRY OR CONCRETE.
I. PROVIDE CLEARANCE FOR ACCESS TO VALVES AND PIPING SPECIALTIES.
J. PREPARE EXPOSED PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES NOT PREFINISHED, READY FOR FINISH PAINTING.
K. PIPING SYSTEM LEAK TESTS
   1. CONDUCT PRESSURE TEST WITH WATER. IF LEAKS ARE FOUND, REPAIR THE AREA WITH NEW MATERIALS AND REPEAT THE TEST.
   2. TEST PIPING IN SECTIONS OR ENTIRE SYSTEM AS REQUIRED BY SEQUENCE OF CONSTRUCTION. DO NOT CONCEAL PIPE UNTIL IT HAS BEEN SUCCESSFULLY TESTED. PROVIDE TEMPORARY RESTRAINTS AT FITTINGS OR EXPANSION JOINTS IF REQUIRED FOR THE ADDITIONAL PRESSURE LOAD UNDER TEST. ENTIRE TEST MUST BE WITNESSED BY THE DIVISION'S REPRESENTATIVE.
   3. USE CLEAN WATER AND REMOVE AIR FROM THE PIPING BEING TESTED WHERE POSSIBLE. MEASURE AND RECORD TEST PRESSURE AT THE HIGH POINT IN THE SYSTEM.
   4. TEST SYSTEM AT 175 PSI FOR 2 HOURS SHOWING NO LEAKAGE.
   5. ALL PRESSURE TESTS ARE TO BE DOCUMENTED ON NFPA CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FORMS.

21 13 15 SPECIALTIES

A. DRAIN (BALL) VALVES
   1. MANUFACTURERS: NIBCO, APOLLO, CRANE, HAMMOND, WATTS.
   2. NIBCO 585-70HC OR EQUIVALENT BRONZE TWO PIECE BODY, STAINLESS STEEL BALL AND TRIM, FULL PORT, LEVER HANDLE, THREADED ENDS.
   3. PROVIDE DRAIN VALVES AT ALL LOW AND TRAPPED AREAS OF SYSTEM AND WHERE REQUIRED TO DRAIN RISERS. PROVIDE 3/4" HOSE CONNECTION WITH CAP AT EACH DRAIN CONNECTION.
B. INSPECTOR'S TEST CONNECTION
   1. NFPA 13 COMPLETE WITH TEST AND DRAIN VALVES, SIGHT GLASS, 3/4" HOSE CONNECTION, AND SMOOTH BORE CORROSION RESISTANT ORIFICE GIVING A FLOW EQUIVALENT TO ONE SPRINKLER.
   2. PROVIDE INSPECTOR'S TEST CONNECTION FROM MOST REMOTE END OF SYSTEM.

21 13 17 AUTOMATIC SPRINKLER SYSTEMS

A. SYSTEM DESCRIPTION
   1. PROVIDE AUTOMATIC SPRINKLER SYSTEM TO PROTECT BUILDING AREA INDICATED.
   2. SYSTEM DESIGN SHALL CONFORM TO SYSTEM SCHEDULE ON THE DRAWINGS, AND COMPLY WITH NFPA 13 AND REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
   3. UL LISTED AND LABELED SYSTEM COMPONENTS RATED FOR 175 PSIG MINIMUM OPERATING PRESSURE.
   4. INCLUDE INSIDE AND OUTSIDE HOSE STREAMS IN THE DESIGN OF THE HYDRAULICALLY CALCULATED SPRINKLER SYSTEMS.
   5. SIMILAR COMPONENT ITEMS SHALL BE BY THE SAME MANUFACTURER.
B. SPRINKLERS
   1. MANUFACTURERS: VIKING, CENTRAL, TYCO.
   2. SEE SCHEDULE ON PLANS.
C. INSTALLATION
   1. INSTALL SPRINKLER HEADS TO MISS ALL LIGHTS, GRILLES AND ANY OTHER CEILING OBSTRUCTIONS.
   2. APPLY PAPER COVER OVER SPRINKLER HEADS WHERE CEILING IS TO BE PAINTED OR SPRAYED. REMOVE PROTECTIVE PAPER COVER AFTER PAINTING OR SPRAYING IS COMPLETED.
   3. PROVIDE MOUNTABLE METAL BOX OF SPARE HEADS WITH PROPER WRENCH FOR HEAD REPLACEMENT.



ALL PIPING IS TO BE CONCEALED. IF BUILDING CONSTRUCTION DOES NOT PERMIT CONCEALING PIPING, LOCATIONS AND ROUTING ARE TO BE APPROVED BY ARCHITECT/ OWNER PRIOR TO INSTALLATION.

INDICATES DESIGN CRITERIA DESIGNATION (SEE SCHEDULE)

INDICATES SPRINKLER DESIGNATION (SEE SCHEDULE)

X | X

DESIGN CRITERIA

DESIGNATION	SYSTEM TYPE	HAZARD	MINIMUM DENSITY	REMOTE AREA	HOSE ALLOWANCE
LH	WET	LIGHT HAZARD (1)	0.10 GPM/S.F.	1,500 S.F. (2)	100 GPM
OG1	WET	ORDINARY GROUP 1 (1)	0.15 GPM/S.F.	1,500 S.F. (2)	250 GPM

- CONTRACTOR SHALL VERIFY DESIGN CRITERIA.
(1) QUICK RESPONSE HEADS.
(2) REDUCE REMOTE AREA FOR AREAS WITH QUICK RESPONSE SPRINKLERS AS PERMITTED BY NFPA 13 VERSION ADOPTED BY AHJ.
SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING HEIGHTS.

SPRINKLER REQUIREMENTS

LOCATION	STYLE	TEMPERATURE CLASSIFICATION	FINISH	CENTER OF TILE (FOR LAY-IN CEILINGS)
A	SEMI-RECESSED W/ ESCUTCHEON	ORDINARY	WHITE	YES

- CENTER OF TILE LOCATION ESTABLISHED AFTER CEILING GRID IS INSTALLED.
- ALL TEMPERATURES AS LISTED UNLESS OTHERWISE REQUIRED BY NFPA.
- SIDEWALL HEADS ARE ACCEPTABLE IN LIEU OF PENDENT WHERE APPLICABLE.

NORTH

FIRE SPRINKLER PLAN

SCALE: 1/4" = 1'-0"

SEE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION.

SPRINKLER PLAN, SCHEDULES AND SPECS

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COLLABORATION

AspenDental

PROJECT INFORMATION

TENANT BUILD-OUT FOR:
ASPEN DENTAL
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PROFESSIONAL SEAL

SHEET DATES

ISSUE DATE MAY 29, 2019

REVISIONS

JOB NUMBER

1931400

SHEET NUMBER

FP1.1