FIRE PROTECTION SPECIFICATIONS:

1. GENERAL:

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.

C. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM BUILDING OWNER AND TENANT AT WHAT TIMES OF DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.

D. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. PIPE ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF PIPE TO AVOID OBSTRUCTIONS. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.

E. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

F. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN MAKING UP THE WORK PROPOSAL.

G. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION.

H. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

I. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

J. THE LOCATIONS OF THE EXISTING SERVICES ARE BELIEVED TO BE AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION OF THESE SERVICES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING ANY WORK.

K. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH A U.L.-LISTED FIRESTOPPING ASSEMBLY MATCHED TO THE RATING OF THE PENETRATED ELEMENT.

L. PROVIDE ALL NECESSARY FLASHING AND COUNTERFLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPING AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AS REQUIRED.

M. ALL PRESENT MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR, OR AS DIRECTED BY THE OWNER.

N. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

O. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.

P. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

Q. UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

R. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

1) ALL MATERIAL AND EQUIPMENT ON SITE SHALL BE PROPERLY STORED SUCH THAT IT IS PROTECTED FROM DAMAGE AND EXPOSURE TO OUTSIDE ELEMENTS.

S. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE TO INDICATE ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO SUBMITTAL OF BID. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING PIPE SIZES, CLEARANCES, ETC. AND CONDITIONS.

T. INSURANCE: PROVIDE IN ACCORDANCE WITH BUILDING REQUIREMENTS AND POLICY SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

U. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

2. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH THE MASSACHUSETTS STATE BUILDING CODE AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

B. THE BASE BUILDING DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLEMENTED OR SPECIFIED HEREIN.

C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR BENEFICIAL OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY AND REQUIRED SIGN-OFFS AND APPROVALS FOR THE WORK INSTALLED.

3. SUBMITTALS:

A. THE CONTRACTOR SHALL PREPARE FULL COORDINATED COMPOSITE DRAWINGS FOR THE MECHANICAL, ELECTRICAL AND FIRE PROTECTION TRADES. THE CONTRACTOR SHALL OVERLAY EACH TRADE'S WORK (IN SEPARATE COLORS) ON A REPRODUCIBLE SET OF SHEETMETAL DRAWINGS. ALL CONFLICTS AND POTENTIAL CONFLICTS SHALL BE CLEARLY IDENTIFIED ON THE SHEETMETAL DRAWINGS. THIS SHALL INCLUDE BUT NOT BE LIMITED TO CONFLICTS WITH LIGHTS, EQUIPMENT, PIPING, DUCTWORK AND SUPPORTS OF OTHER TRADES, AS WELL AS CONFLICTS WITH ARCHITECTURAL AND STRUCTURAL WALLS, COLUMNS, CEILINGS AND STRUCTURAL BEAMS.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION.
2) NAME OF ARCHITECT AND ENGINEER.
3) ITEM IDENTIFICATION.
4) APPROVAL STAMP OF PRIME CONTRACTOR.

C. SUBMISSIONS:

1) SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

2) SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.

D. SHOP DRAWINGS:

1) PREPARE AND SUBMIT DETAILED SHOP DRAWINGS FOR PIPING WORK AND OTHER DISTRIBUTION SERVICES, INCLUDING LOCATIONS AND SIZES OF ALL OPENINGS IN FLOOR WALLS AND ROOFS.

2) THE WORK DESCRIBED IN ANY SHOP DRAWING SUBMISSION SHALL BE CAREFULLY CHECKED FOR ALL CLEARANCES (INCLUDING THOSE REQUIRED FOR MAINTENANCE AND SERVICING), FIELD CONDITIONS, MAINTENANCE OF ARCHITECTURAL CONDITIONS AND PROPER COORDINATION WITH ALL TRADES ON THE JOB.

3) EACH SUBMITTED SHOP DRAWING TO INCLUDE A CERTIFICATION THAT ALL RELATED JOB CONDITIONS HAVE BEEN CHECKED AND THAT NO CONFLICT EXISTS.

4) ALL DRAWINGS TO BE SUBMITTED SUFFICIENTLY IN ADVANCE OF FIELD REQUIREMENTS TO ALLOW AMPLE TIME FOR CHECKING. ALL SUBMITTALS TO BE COMPLETE AND CONTAIN ALL REQUIRED AND DETAILED INFORMATION. SHOP DRAWINGS WITH MULTIPLE PARTS SHALL BE SUBMITTED AS A PACKAGE.

5) IF SUBMITTALS DIFFER FROM THE CONTRACT DOCUMENT REQUIREMENTS, MAKE SPECIFIC MENTION OF SUCH DIFFERENCE IN A LETTER OF TRANSMITTAL, WITH REQUEST FOR SUBSTITUTION, TOGETHER WITH REASONS FOR SAME.

6) REVIEW OF ANY SUBMITTED DATA OR SHOP DRAWINGS FOR MATERIAL, EQUIPMENT APPARATUS, DEVICES, ARRANGEMENT AND LAYOUT SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY OF FURNISHING SAME OF PROPER DIMENSIONS AND WEIGHT, CAPACITIES, SIZES, QUANTITY, QUALITY AND INSTALLATION DETAILS TO EFFICIENTLY PERFORM THE REQUIREMENTS AND INTENT OF THE WORK. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS OR INADEQUACIES OF ANY SORT ON SUBMITTED DATA OR SHOP DRAWINGS.

7) EACH SHOP DRAWING TO CONTAIN JOB TITLE CONTRACTOR AND SUBCONTRACTOR NAMES AND PHONE NUMBERS, REFERENCE TO THE APPLICABLE DESIGN DRAWING OR SPECIFICATION ARTICLE, DATE AND SCALE.

8) UPON AWARD OF CONTRACT, CONTRACTOR SHALL SUBMIT LIST OF DRAWINGS THAT THEY WILL REQUIRE. AKF WILL PROVIDE DRAWINGS IN (.PDF) FORMAT ONLY. SHOULD CONTRACTORS REQUIRE (.DWG) FORMAT, THERE WILL BE A CHARGE OF $175 FOR THE 1ST DRAWING, $150 FOR EACH ADDITIONAL DRAWING SUPPLIED PLUS SHIPPING AND HANDLING AT THAT TIME. DRAWINGS WILL NOT BE EMAILED, ONLY FORWARDED BY CD AND ONLY UPON RECEIPT OF SIGNED ACCEPTANCE OF TERMS FORM. PERMISSION FROM THE ARCHITECT MUST FIRST BE OBTAINED FOR AKF TO INCLUDE THE ARCHITECTURAL BACKGROUND AS REFERENCE. THESE FILES ARE BEING ISSUED FOR THE CONVENIENCE OF THE CONTRACTOR AND THE CONTRACTOR REMAINS RESPONSIBLE FOR ALL CONTRACT REQUIREMENTS RELATED TO THE NORMAL SHOP DRAWING PREPARATION PROCESS.

9) WITHIN 15 DAYS AFTER AWARD OF CONTRACT, SUBMIT FOR REVIEW, A LIST OF ALL MATERIAL AND EQUIPMENT MANUFACTURERS WHOSE PRODUCTS ARE PROPOSED, AS WELL AS NAMES OF ALL SUBCONTRACTORS WHOM THIS TRADE PROPOSES TO EMPLOY.

E. RECORD DRAWINGS:

1) THE CONTRACTOR SHALL MAINTAIN ON A DAILY BASIS AT THE PROJECT SITE A COMPLETE SET OF RECORD DRAWINGS, REFLECTING AN ACCURATE DIMENSIONAL RECORD OF ALL WORK. THE RECORD DRAWINGS SHALL ALSO CONSIST OF A SET OF PRINTS OF THE FINAL SIGNED OFF CONTRACTORS COORDINATION DRAWINGS PREPARED BY THE SUBCONTRACTORS. IN ADDITION, THE RECORD DRAWINGS SHALL BE MARKED TO SHOW THE PRECISE LOCATION OF CONCEALED WORK AND EQUIPMENT, INCLUDING CONCEALED OR EMBEDDED PIPING AND VALVES AND ALL CHANGES AND DEVIATIONS IN THE FIRE PROTECTION WORK FROM THAT SHOWN ON THE CONTRACT DOCUMENTS. THIS REQUIREMENT SHALL NOT BE CONSTRUED AS AUTHORIZATION FOR THE CONTRACTOR TO MAKE CHANGES IN THE LAYOUT OR WORK WITHOUT WRITTEN DEFINITE INSTRUCTIONS FROM THE ARCHITECT OR ENGINEER. THE DAILY RECORD DRAWINGS SHALL CONSIST OF A SET OF PRINTS OF THE CONTRACT DRAWINGS FOR THIS DIVISION. WITH THE ENGINEERS SEAL AND ENGINEER'S FIRM NAME REMOVED OR BLACKED OUT. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL PURCHASE FROM THE ARCHITECT OR ENGINEER A SET OF PRINTS TO BE USED FOR THE DAILY RECORD DRAWINGS.

2) RECORD DIMENSIONS SHALL CLEARLY AND ACCURATELY DELINEATE THE WORK AS INSTALLED; LOCATIONS SHALL BE SUITABLY IDENTIFIED BY AT LEAST TWO DIMENSIONS TO PERMANENT STRUCTURES.

3) PRIOR TO FINAL ACCEPTANCE OF THE WORK OF THIS DIVISION, THE CONTRACTOR SHALL SUBMIT PROPERLY CERTIFIED RECORD DRAWINGS TO THE ARCHITECT AND ENGINEER FOR REVIEW AND SHALL MAKE CHANGES, CORRECTIONS, OR ADDITIONS AS THE ARCHITECT MAY REQUIRE TO THE RECORD DRAWINGS. AFTER THE ARCHITECT AND ENGINEER REVIEW, THE RECORD DRAWINGS SHALL BE DELIVERED TO THE OWNER.

4) DELIVERABLES BY THE CONTRACTOR TO THE OWNER SHALL INCLUDE ONE SET OF VELLUMS, THREE SETS OF BLACK LINE COPIES, ONE COPY OF THE FIELD DRAWINGS, AND ONE SET OF CD'S COMPLETE WITH ALL DRAWINGS FILES (*.DWG) IN AUTO CAD 2000 FORMAT.

F. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1) PIPE AND FITTINGS.
2) SPRINKLER HEADS AND ACCESSORIES.
3) PIPING LAYOUTS.
4) SUPPORTS, HANGERS AND GUIDES.
5) HYDRAULIC CALCULATIONS.

4. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS:

A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

5. GENERAL PROVISIONS FOR FIRE PROTECTION WORK:

A. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

B. DEFINITIONS:

1) "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

3) "FURNISH" OR "SUPPLY: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

4) "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

5) "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

6) "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

7) "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

C. QUALITY ASSURANCE:

1) QUALITY AND GAUGE OF MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND IF APPLICABLE LISTED BY UNDERWRITERS LABORATORIES, INC., AND FACTORY MUTUAL INC. OR BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2) GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF WORK.

D. PRODUCT DELIVERY, STORAGE AND HANDLING:

1) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2) ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED. CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW.

E. BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK THAT IS SOILED OR DAMAGED. CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

F. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL VISIBLE FIRE PROTECTION EQUIPMENT BE VERIFIED BY ARCHITECT.

G. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

H. SPRINKLER SYSTEM DESIGN CRITERIA:

1) LIGHT HAZARD OCCUPANCIES: 225 SQ FT/HEAD MAXIMUM COVERAGE; 0.10 GPM/SQ FT DENSITY OVER THE MOST REMOTE 1,500 SQ FT OF THE SYSTEM, 100 GPM HOSE ALLOWANCE. (FOR OFFICES, GENERAL CORRIDORS AND OTHER LIGHT HAZARD OCCUPANCIES).

2) ORDINARY HAZARD OCCUPANCIES: 130 SQ FT/HEAD MAXIMUM COVERAGE; 0.15/SQ FT DENSITY OVER THE MOST REMOTE 1,500 SQ FT OF THE SYSTEM, 250 GPM HOSE ALLOWANCE. (FOR STORAGE SPACES, MECHANICAL ROOM SPACES AND OTHER ORDINARY HAZARD OCCUPANCIES).

6. PRODUCTS:

A. ESCUTCHEONS:

1) ALL EXPOSED PIPING PASSING THROUGH WALLS, FLOORS, PARTITIONS AND CEILINGS SHALL BE PROVIDED WITH CHROME PLATED CAST BRASS ESCUTCHEONS HELD IN PLACE WITH SET SCREWS.

7. PIPE AND FITTINGS:

A. PIPE:

1) ALL SPRINKLER PIPING ABOVE GRADE: STANDARD WEIGHT BLACK STEEL PIPE, SCHEDULE 40, WELDED OR SEAMLESS, WITH MANUFACTURER'S NAME ROLLED INTO EACH LENGTH.

2) ALL SPRINKLER MAIN PIPING ABOVE GRADE WITH MAXIMUM WORKING PRESSURE OF 175 PSI:

B. FITTINGS:

1) THREADED: STANDARD CAST IRON COUPLINGS WITH FLAT BAND.

2) ROLLED OR CUT GROOVE:

a. "T"S, ELBOWS, NIPPLES, CAPS AND CROSSES OF DUCTILE OR MALLEABLE IRON; VICTAULIC PRODUCTS OR APPROVED EQUALS.
b. BRANCH OUTLETS OF HOLE CUT TYPE WITH 2-PIECE BOLTED DUCTILE IRON HOUSINGS: VICTAULIC STYLE 920 AND STYLE 920N.
c. ALL FITTINGS IN SCHEDULE 80 PIPING SYSTEMS SHALL BE VICAULIC STYLE 77, OR APPROVED EQUAL.

C. JOINTS:

1) THREADED (SCHEDULE 40 ONLY) WITH APPROVED COMPOUND.

2) CUT GROOVE (SCHEDULE 40 ONLY) WITH RIGID MALLEABLE IRON BOLTED COUPLINGS WITH EPDM GASKETS, VICTAULIC STYLE 07, OR APPROVED EQUAL.

a. FOR SCHEDULE 80 PIPE SYSTEMS, VICTAULIC STYLE 77 OR APPROVED EQUAL.

3) ROLL GROOVE (SCHEDULE 40 OR SCHEDULE 10) WITH RIGID MALLEABLE IRON BOLTED COUPLINGS WITH EPDM GASKETS, VICTAULIC STYLE 07 OR APPROVED EQUAL.

a. FOR ROLL GROOVE SCHEDULE 10 SPRINKLER MAINS WITH A MAXIMUM WORKING PRESSURE OF 175 PSI, FIRE SERVICE RIGID MALLEABLE IRON BOLTED COUPLINGS WITH EPDM GASKETS, VICTAULIC STYLE 005, OR APPROVED EQUAL.

D. APPLICATIONS:

1) THREADED: ALL SPRINKLER AND FIRE STANDPIPE SYSTEMS.

2) GROOVED (ROLL OR CUT): ALL SPRINKLER RISERS/MAINS AND FIRE STANDPIPE SYSTEMS.

E. ACCEPTABLE MANUFACTURERS: VICTAULIC CO., INTERFIT, SPRINK.

8. SPRINKLER HEADS:

A. ALL SPRINKLER HEADS SHALL BE AS SCHEDULED ON THE PLANS.

B. INSTALLATION:

1) COORDINATE SPRINKLER HEAD LOCATIONS WITH THE CEILING GRID, LIGHT FIXTURES, DIFFUSERS, AUDIO EQUIPMENT AND ALL OTHER COMPONENTS OF THE REFLECTED CEILING PLAN.

C. INSTALL SPRINKLER HEADS IN THE CENTER OF CEILING TILES AND IN A TRUE AXIS LINE IN BOTH DIRECTIONS WITH A MAXIMUM DEVIATION OF 1/2 IN. PLUS OR MINUS FROM THE AXIS LINE AS ESTABLISHED BY THE ARCHITECT FOR USE OF ALL TRADES. AT THE COMPLETION OF THE INSTALLATION, REMOVE AND REINSTALL ANY HEADS FOUND TO EXCEED THE ABOVE-MENTIONED TOLERANCE. INSTALL FLUSH PLATE SPRINKLER HEADS WITHIN MANUFACTURER'S TOLERANCES. PROVIDE SPRINKLER HEAD COVER PLATES AND ESCUTCHEONS MATCHING THE COLOR AND FINISH OF THE CEILING SPACE. COORDINATE COLORS & FINISHES OF COVER PLATES AND ESCUTCHEONS WITH THE MANUFACTURER AND ARCHITECT. PRIOR TO INSTALLATION FLUSH PLATES, NOTIFY ARCHITECT AND CONSULTING ENGINEER FOR VERIFICATION OF INSTALLATION. ANY HEADS FOUND OUT OF TOLERANCE SHALL BE REMOVED AND REINSTALLED.

1) ALL SPRINKLER HEADS SHALL BE "UL" AND "FM" APPROVED.

9. PIPING SUPPORTS:

C. SUPPORT ALL PIPING FROM BUILDING CONSTRUCTION BY PROVIDING INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), AND ACCEPTABLE BRACKETS. SUBMIT ALL METHODS FOR REVIEW.

D. PROVIDE ADDITIONAL FRAMING WHERE BUILDING CONSTRUCTION IS INADEQUATE. SUBMIT FOR REVIEW.

E. SUSPENDED HORIZONTAL PIPING:

1) SUPPORT ALL PIPING INDEPENDENTLY FROM STRUCTURE USING HEAVY IRON-HINGED TYPE HANGERS, SIMILAR TO GRINNELL CLEVIS NO. 260.

2) PROVIDE ELECTROPLATED SOLID BAND HANGERS SIMILAR TO AUTO-GRIP, FOR TWO-INCH AND SMALLER PIPE.

3) PROVIDE WALL BRACKETS FOR WALL SUPPORTED PIPING, AND PROVIDE PIPE SADDLES FOR FLOOR MOUNTED PIPING.

4) SUSPEND PIPING FROM INSERTS, USING BEAM CLAMPS WITH RETAINING CLAMP OR LOCKNUT, STEEL FISH PLATES, CANTILEVER BRACKETS OR OTHER ACCEPTED MEANS. BEAM CLAMPS SHALL BE SIMILAR TO GRINNELL FIGURES 61, 87, 131, OR 225.

5) SUSPEND PIPING BY RODS WITH DOUBLE NUTS.

6) PROVIDE ADDITIONAL STEEL FRAMING AS REQUIRED AND ACCEPTED WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING HANGER RODS IN REQUIRED LOCATIONS.

7) MAXIMUM HANGER SPACING AS INDICATED.

a. PIPE 1 INCH AND SMALLER SHALL BE EVERY 8 FEET.
b. PIPE 1-1/4 INCH AND LARGER SHALL BE EVERY 10 FEET.

8) VERTICAL PIPING:

a. PROVIDE EXTENSION PIPE CLAMPS BOLTED TO BARE PIPE ON EACH SIDE AND BEARING EQUALLY ON STRUCTURE OR WELDED TO BEAM.
b. PROVIDE SPACING AS INDICATED.
(1) THREADED AND PIPING GROOVED PIPING SHALL BE EVERY OTHER FLOOR LEVEL, AT A MAXIMUM OF 25 FEET ON CENTERS.

D. EXPANSION ANCHORS:

1) PROVIDE SMOOTH WALL, NON-SELF-DRILLING INTERNAL PLUG EXPANSION TYPE ANCHORS CONSTRUCTED OF AISC 12L14 STEEL AND ZINC PLATED IN ACCORDANCE WITH FED. SPEC. 11-A-325 TYPE 1, CLASS 3.

2) DO NOT EXCEED 1/4 OF AVERAGE VALVES FOR A SPECIFIC ANCHOR SIZE USING 2000 PSIG (13,800 KPA) CONCRETE ONLY, FOR MAXIMUM WORKING LOADS.

3) PROVIDE SPACING AND INSTALL ANCHORS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

4) EXPANSION ANCHORS SHALL BE UL LISTED AND SIMILAR TO HILTI HDI.

10. INSTALLATION:

A. DURING CONSTRUCTION, PROPERLY CAP ALL LINES AND EQUIPMENT NOZZLES SO AS TO PREVENT THE ENTRANCE OF DIRT, DEBRIS, ETC.

B. EACH SYSTEM OF PIPING SHALL BE FLUSHED (FOR THE PURPOSE OF MOVING DIRT, DEBRIS, ETC. FROM THE PIPING) FOR AS LONG A TIME AS IS REQUIRED TO THOROUGHLY CLEAN THE SYSTEM.

11. TESTS:

A. FIRE PROTECTION SYSTEM PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF 200 PSI FOR A DURATION OF TWO HOURS WITHOUT A LOSS IN PRESSURE.

B. DEFECTS DISCLOSED BY THE TESTS SHALL BE REPAIRED OR REPLACED. TESTS SHALL BE REPEATED AS DIRECTED UNTIL ALL WORK IS PROVEN SATISFACTORY.

C. TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO THE BUILDING AND ITS CONTENTS AS A RESULT OF SUCH TESTS. REPAIR ANY DAMAGE CAUSED.

D. ARRANGE AND COORDINATE TESTS WITH OWNER 48 HOURS IN ADVANCE. NOTIFY ENGINEER AND ARCHITECT OF TEST DATE AND TIME.

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FIRE PROTECTION SPECIFICATIONS

Sheet

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