K5.6 UPRIGHT SPRINKLER K5.6 FACTOR PENDENT SPRINKLER.

REMOVE SPRINKLER. EXTEND PIPING TO NEW SPRINKLER H CAP BRANCHLINE WHERE OUTLET WILL NOT BE REUSED.

ETR SPRINKLER HEAD

-X-X- - REMOVE SPRINKLER PIPING

— — — ETR SPRINKLER PIPING ----- - NEW SPRINKLER PIPING

CONNECT TO EXISTING.

EXISTING TO REMAIN.

CAP PIPING AT THE LIMIT OF REMOVAL

WORK NOT IN CONTRACT

ETR SPRINKLERED SPACE

# HYDRAULIC DESIGN CRITERIA

NOTE: PIPE SIZING SHOWN IS BASED ON ASSUMED FLOWS AND PRESSURES. THE SPRINKLER CONTRACTOR SHALL PERFORM AND WITNESS A HYDRANT FLOW TEST WHICH SHALL BE USED FOR CONTRACTOR'S HYDRAULIC CALCULATIONS. PRESSURE AND FLOW READINGS SHALL BE TAKEN FROM WATER MAIN WHICH FEEDS THE BUILDING.

# PIPE HANGERS AND SUPPORTS

- ACCEPTABLE PRODUCTS: ALL SUPPORT SYSTEMS ARE TO BE UL LISTED AND FM APPROVED AND INSTALLED IN ACCORDANCE WITH NFPA-13.
- 2. PROVIDE COMBINATION CLEVIS TYPE HANGERS UNLESS NOTED OTHERWISE.
- PIPE HANGERS: HEIGHT ADJUSTABLE STANDARD DUTY CLEVIS TYPE, WITH CROSS BOLT AND NUT.
- 4. SWIVEL RING TYPE HANGERS WILL BE ALLOWED FOR SPRINKLER PIPING UP
- TO A MAXIMUM OF 2 INCHES IN SIZE. HANGER RODS: MILD, LOW CARBON STEEL, FULLY THREADED OR THREADED AT EACH END, WITH TWO NUTS AT EACH END FOR POSITIONING ROD AND
- 5.1. PROVIDE HANGER ROD SIZED ACCORDING TO THE FOLLOWING SCHEDULE:

MINIMUM ROD DIAMETER: 4" AND SMALLER 6" OR 8"

6. RISER CLAMPS: MALLEABLE IRON OR STEEL.

HANGER, AND LOCKING EACH IN PLACE.

PIPE HANGERS OR OTHER SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, CONDUITS, PIPES OR OTHER CONSTRUCTURAL ELEMENTS OF THE

- AFTER COMPLETING THE BRANCH PIPING SYSTEM, THE CONTRACTOR SHALL HYDROSTATICALLY TEST THE FIRE SPRINKLER PIPING FOR A PERIOD OF TWO HOURS AT NOT LESS THAN 200 PSI, OR AT 50 PSI IN EXCESS OF THE MAXIMUM OPERATING STATIC PRESSURE WHEN THE STATIC PRESSURE IS IN EXCESS OF 150 PSI. THE CONTRACTOR SHALL CHECK THE SYSTEM FOR LEAKS AND MEASURE THE HYDROSTATIC PRESSURE AT THE LOW POINT OF EACH SYSTEM OR ZONE BEING TESTED.
- 2. THE CONTRACTOR SHALL REPAIR OR REPLACE PIPING AND FITTINGS AS REQUIRED TO ELIMINATE LEAKS IN ACCORDANCE WITH ANSI/NFPA STANDARDS FOR "LITTLE OR NO LEAKS" AND RETEST AS SPECIFIED TO DEMONSTRATE COMPLIANCE.
- 3. UPON SATISFACTORY COMPLETION AND TESTING OF THE BRANCH PIPING SYSTEM, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A LETTER CERTIFYING THAT THE BRANCH PIPING SYSTEM HAS BEEN COMPLETED IN ACCORDANCE WITH ANSI/NFPA 13 STANDARDS AND IS OPERATIONAL, COMPLETE AND WITHOUT DEFECTS.

## SCOPE OF WORK

- PROVIDE SPRINKLERS AND SPRINKLER PIPING AS INDICATED ON DRAWINGS F1.01 AND F1.02. 1.1. REMOVE EXISTING SPRINKLERS IN CLASSROOM #27 AND CLOSET IN CLASSROOM #28 ON THE THIRD FLOOR TO ACCOMODATE THE NEW CORRIDOR AND SOFFIT. PROVIDE NEW SPRINKLER HEAD LOCATIONS AND COVERAGE AREA PER NFPA-13 REQUIREMENTS. REFER TO DRAWING A1.04 FOR DETAILS.
- PROVIDE PRODUCT SUBMITTALS, SHOP DRAWINGS AND HYDRAULIC CALCULATIONS FOR REVIEW AND APPROVAL IN ACCORDANCE WITH NFPA-13. REFER TO THE HYDRAULIC CALCULATIONS NOTES FOR ADDITIONAL INFORMATION. CONTRACTOR'S SHOP DRAWINGS SHALL SHOW FULLY COORDINATED REFLECTIVE CEILING PLAN.
- 3. PROVIDE HANGING AND BRACING IN ACCORDANCE WITH NFPA-13.
- PROVIDE SPARE SPRINKLER CABINET, SPARE SPRINKLERS, SPRINKLER WRENCH(S) AND A LIST OF INSTALLED SPRINKLERS IN ACCORDANCE WITH NFPA-13.
- 5. CONTRACTOR SHALL CONDUCT A THOROUGH EXAMINATION OF THE PREMISES PRIOR TO PREPARING A PROPOSAL. ANY CHANGES TO THE DESIGN MADE NECESSARY BY FIELD CONDITIONS SHALL BE CONVEYED TO THE ENGINEER PRIOR TO PREPARING A PROPOSAL. NO ADDITIONAL COSTS BEYOND THE PROPOSAL PRICE WILL BE ACCEPTED FOR FIELD CONDITIONS THAT COULD HAVE BEEN DETERMINED BY AN INSPECTION OF THE PREMISES.
- 6. UPON REQUEST, CONTRACTOR SHALL PROVIDE RED-LINE DRAWINGS AND/OR AS-BUILT DRAWINGS. DRAWINGS SHALL BE AVAILABLE IN PDF AND AUTOCAD FORMATS. CONTRACTOR SHALL PROVIDE FINAL AS-BUILT DRAWINGS AND AS-BUILT HYDRAULIC CALCULATIONS IN THE O+M MANUAL.
- 7. UPON REQUEST OF LOCAL CODE ENFORCEMENT OFFICIALS OR PERMITTING AGENCY, CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND HYDRAULIC CALCULATIONS WHICH HAVE BEEN REVIEWED BY, AND SIGNED AND SEALED BY A THIRD PARTY LICENSED PROFESSIONAL ENGINEER. CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH THE THIRD PARTY PROFESSIONAL ENGINEER REVIEW AND SIGNING/SEALING OF SHOP DRAWINGS/HYDRAULIC CALCULATIONS.

### HYDRAULIC CALCULATIONS

SUBMITTAL, REVIEW AND INSTALLATION PROCESS.

- 1. CONTRACTOR SHALL SUBMIT HYDRAULIC CALCULATIONS FOR REVIEW AND APPROVAL AS DESCRIBED IN THIS SECTION.
- 2. CONTRACTOR SHALL PERFORM AND WITNESS A HYDRANT FLOW TEST WHICH WILL BE USED FOR CONTRACTOR'S HYDRAULIC CALCULATIONS.
- 3. SPRINKLER CLASSIFICATION FOR WORK AREA SHALL BE "LIGHT HAZARD". SPRINKLER CLASSIFICATION FOR ALL STORAGE AND MECHANICAL ROOMS, AND KITCHENS SHALL BE "ORDINARY HAZARD GROUP 1". SPRINKLER CLASSIFICATION FOR BOILER ROOM SHALL BE "ORDINARY HAZARD GROUP 2".
- 4. PERFORM HYDRAULIC CALCULATIONS IN ACCORDANCE WITH NFPA-13 REQUIREMENTS FOR HYDRAULICALLY DESIGNED (DENSITY/AREA METHOD) SPRINKLER SYSTEMS.

DESIGN DENSITY [GPM/SF] DESIGN AREA [SF] HOSE ALLOWANCE [GPM] LIGHT HAZARD 1,500 1,500 ORDINARY HAZARD 0.15 250 1,500 ORDINARY HAZARD

- CONSTRUCTION OF THE SPRINKLER SYSTEM SHALL NOT COMMENCE UNTIL CONTRACTOR'S SHOP DRAWINGS AND HYDRAULIC CALCULATIONS HAVE BEEN APPROVED BY THE ENGINEER IN ACCORDANCE WITH NFPA-13.
- CONTRACTOR IS RESPONSIBLE TO PROVIDE ADDITIONAL HYDRAULIC CALCULATIONS, AS REQUESTED, DURING THE
- 7. THE "SOURCE" NODE POINT IN CONTRACTOR'S HYDRAULIC CALCULATIONS SHALL BE LOCATED AT THE LOCATION OF THE PRESSURE GAUGE HYDRANT FROM THE CONTRACTOR'S HYDRANT FLOW TEST. ALL PIPING AND FITTINGS BETWEEN THE BUILDING AND THE PRESSURE GAUGE HYDRANT SHALL BE INCLUDED IN THE CONTRACTOR'S HYDRAULIC
- 8. OUTDOOR HOSE ALLOWANCES SHALL BE INCLUDED IN HYDRAULIC CALCULATIONS AT THE POINT OF CONNECTION OF THE BUILDING SPRINKLER WATER SERVICE ENTRANCE MAIN TO THE CITY WATER SUPPLY, OR AT THE LOCATION OF THE NEAREST HYDRANT, WHICHEVER IS CLOSER TO THE SPRINKLER SYSTEM RISER.

# **SPRINKLER NOTES**

- INSTALLATION WORK SHALL NOT PROCEED UNTIL SUBMITTALS HAVE BEEN RECIEVED, PROCESSED AND APPROVED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DRAWINGS AND THE PROJECTS SPECIFICATIONS.
- ALL NEW VALVES ON THE FIRE PROTECTION SYSTEM TO BE ELECTRICALLY SUPERVISED. TYPE AND EXACT LOCATION OF FLOW, PRESSURE AND SUPERVISORY SWITCHES SHALL BE ACCOMPLISHED BETWEEN THE DIFFERENT RESPONSIBLE TRADES.
- ALL NEW SPRINKLERS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE: K-FACTOR:

ORIFICE DIAMETER: TEMPERATURE RATING: ORDINARY (FOR CONDITIONED AREAS)

- 4. COVER PLATES AND/OR ESCUTCHEON PLATES FOR PENDENT SPRINKLERS SHALL BE FACTORY PAINTED TO MATCH THE CEILING COLOR IN WHICH THEY ARE INSTALLED. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR CEILING COLORS AND COORDINATE WITH THE ARCHITECT TO DETERMINE THE NUMBER OF COLORS REQUIRED PRIOR TO PREPARING A
- 5. LOCATION OF SPRINKLERS IN CEILING TILES (UNLESS SHOWN OTHERWISE ON PLANS):
- 5.1. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS AND ROOM FINISH SCHEDULES FOR CEILING TILE TYPES.
- 5.2. IN STANDARD 2 BY 4 CEILING TILES, LOCATE SPRINKLERS IN THE CENTER OF TILES.
- 5.3. IN STANDARD 2 BY 4 CEILING TILES WHICH SIMULATE 2 BY 2 CEILING TILES, LOCATE SPRINKLERS IN THE CENTER OF THE 2 BY 2 AREA.

#### 6. MATERIALS:

- 6.1. ALL PIPING 1"- 2" SHALL BE SCHEDULE 40 BLACK STEEL PIPING WITH THREADED CAST IRON FITTINGS. (SCHEDULE 10
- 6.2. ALL PIPING 2-1/2" OR LARGER SHALL BE SCHEDULE 10 BLACK STEEL PIPING WITH GROOVED TYPE FITTINGS AND MECHANICAL COUPLINGS.
- 7. ALL SPRINKLER WORK SHALL BE IN STRICT CONFORMANCE WITH NFPA-13 "STANDARD FOR INSTALLATION OF SPRINKLER SYSTEMS", STATE BUILDING CODE, AND THE OWNER'S INSURANCE COMPANY.
- 8. CONTRACTOR SHALL COORDINATE DRAINING OF EXISTING SYSTEM WITH BUILDING MANAGEMENT.
- THE BASE BUILDING "CONTRACT DRAWINGS" AND "SPECIFICATIONS" INCLUDING ALL RESPECTIVE ADDENDA AND BULLETINS SHALL FORM A PART OF THIS WORK AND ALL WORK SHALL BE SUBJECT TO RESPECTIVE PROVISIONS THEREOF.
- 10. REFER TO ARCHITECTURAL DRAWINGS FOR HUNG CEILING HEIGHTS AND CONSTRUCTION. WHERE WORK BETWEEN THIS DRAWING AND ARCHITECTURAL PLANS ARE IN CONFLICT, ADVISE PRIOR TO INSTALLATION OF PIPING.
- 11. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES, NOTIFY ENGINEER TO AVOID CONFLICTS.
- 12. SPRINKLER CONTRACTOR SHALL ADJUST AND/OR ADD SPRINKLERS AS REQUIRED UTILIZING ARCHITECT'S REFLECTED CEILING PLAN FOR LOCATION OF LIGHTS, DIFFUSERS, CABLE TRAYS, ETC...
- 13. ALL EQUIPMENT SHALL BE APPROVED BY OWNER'S INSURANCE COMPANY.

WILL BE USED FOR CONTRACTOR'S HYDRAULIC CALCULATIONS.

- 14. LAYOUT OF SPRINKLERS AND HYDRAULICS CALCULATIONS ARE FOR AUTHORITY HAVING JURISDICTION USE ONLY. SPRINKLER CONTRACTOR SHALL PREPARE FINAL SPRINKLER HEAD LAYOUT AND SHOP DRAWINGS INCLUDING HYDRAULIC CALCULATIONS AND OBTAIN ALL APPROVALS AS REQUIRED. CONTRACTOR SHALL PERFORM AND WITNESS A HYDRANT FLOW TEST WHICH
- 15. CONTRACTOR SHALL NOT INSTALL ANY SPRINKLER PIPING THAT WILL INTERFERE WITH THE MAINTENANCE/REMOVAL OF HVAC EQUIPMENT.
- 16. SPRINKLER CONTRACTOR MUST FILE APPLICATION FOR AND SUBMIT EVIDENCE OF A VALID SPRINKLER SYSTEM IMPAIRMENT PERMIT TO BUILDING MANAGEMENT WHEN SCHEDULING ALL SPRINKLER SYSTEM MODIFICATIONS. ALL SHUTDOWNS WILL BE PERFORMED BY BUILDING ENGINEERING PERSONNEL EXCLUSIVELY, UNLESS OTHERWISE PERMITTED BY BUILDING MANAGEMENT.
- 17. CONTRACTOR SHALL DETERMINE BEST LOCATION FOR ROUTING/RE-ROUTING ALL ASSOCIATED SPRINKLER LINES. PIPE ROUTING SHOWN SHALL BE USED AND ANY ADDITIONAL OFFSETS OR FITTINGS REQUIRED FOR PROPER INSTALLATION, COORDINATION WITH OTHER TRADES, AND/OR TO MAINTAIN PROPER CLEARANCES SHALL BE PROVIDED. VERIFY EXISTING STRUCTURAL, MECHANICAL, ELECTRICAL INSTALLATIONS AND AVOID ANY/ALL OBSTRUCTIONS OR INTERFERENCES WITH FIRE
- 18. ALL SPRINKLERS MOUNTED IN CEILING SHALL BE LOCATED A MINIMUM OF 4" AWAY FROM ANY WALLS, CEILING HEIGHT CHANGES OR ANY OTHER VERTICAL INTERSECTING SURFACE.
- 19. PROVIDE SPRINKLERS ABOVE AND BELOW EXPOSED DUCTWORK 4 FEET OR WIDER. FOR DUCTWORK LOCATED AGAINST WALLS, PROVIDE ADDITIONAL SPRINKLERS AS NEEDED IN ACCORDANCE WITH NFPA-13 REQUIREMENTS FOR OBSTRUCTIONS AGAINST WALLS. PROVIDE HEAD GUARDS WITH WATER SHIELDS FOR ALL SPRINKLERS INSTALLED BELOW EXPOSED DUCTWORK.
- 20. PROVIDE HEAD GUARDS ON SPRINKLERS IN ELECTRIC, TELEPHONE AND STORAGE ROOMS.
- 21. CUTTING OF STRUCTURAL AND/OR ARCHITECTURAL MEMBERS TO BE DONE ONLY WITH THE WRITTEN APPROVAL OF THE
- 22. FIRE STOP ALL PENETRATIONS OF SMOKE/FIRE WALLS, CEILINGS, FLOORS, ROOFS, ETC.
- 23. PROVIDE ACCESS PANELS TO ALL VALVES ABOVE NON-ACCESSIBLE CEILINGS AND CHASES.
- 24. METHODS OF HANGING PIPES, HEADERS AND BRANCHES SHALL BE IN ACCORDANCE WITH NFPA-13.
- 25. ALL VALVES FOR FIRE SERVICE SHALL BE LISTED BY THE UNDERWRITER'S LABORATORIES, INC. AND THE FACTORY MUTUAL
- LABORATORIES. VALVES SHALL BE FACTORY MARKED "UL" AND "FM", 175 PSI WORKING PRESSURE. 26. ALL POWER WIRING SHALL BE ACCOMPLISHED UNDER THE ELECTRICAL DIVISION. ALL CONTROL AND INTERLOCK WIRING SHALL
- BE ACCOMPLISHED UNDER THIS SECTION OF THE SPECIFICATIONS IN ACCORDANCE WITH THE REQUIREMENTS IN THE ELECTRICAL DIVISION. COORDINATE ALL ELECTRICAL ITEMS WITH ELECTRICAL CONTRACTOR. 27. SPRINKLERS SHALL COVER THE ENTIRE AREA OF THE ROOM INCLUDING ALCOVES. SPRAY SHALL NOT BE BLOCKED BY WALLS
- 29. CONTRACTOR SHALL CONDUCT A THOROUGH EXAMINATION OF THE PREMISES PRIOR TO PREPARING A PROPOSAL. ANY
- CHANGES TO THE DESIGN MADE NECESSARY BY FIELD CONDITIONS SHALL BE CONVEYED TO THE ENGINEER PRIOR TO PREPARATION OF A PROPOSAL. NO ADDITIONAL COSTS BEYOND THE PROPOSAL PRICE WILL BE ACCEPTED FOR FIELD CONDITIONS THAT COULD HAVE BEEN DETERMINED BY AN INSPECTION OF THE PREMISES.

28. MAINTAIN A MINIMUM OF 18 INCHES FROM THE BOTTOM OF THE SPRINKLER DEFLECTOR TO THE TOP OF STORAGE/FILE

- 30. ALL FIRE PROTECTION SYSTEMS ARE SHOWN SCHEMATICALLY. IT IS NOT THE INTENT OF THESE PLANS TO SHOW ALL LISTED COMPONENTS, SUCH AS PIPING, FITTINGS, VALVES, ETC. CONTRACTOR IS RESPONSIBLE FOR INSTALLING SYSTEM PER APPLICABLE CODES.
- 31. PROVIDE A PERMANENTLY ATTACHED HYDRAULIC DESIGN INFORMATION SIGN STATING THE REQUIRED DESIGN CRITERIA FOR EACH HYDRAULICALLY DESIGNED SYSTEM.
- 32. INSPECTOR'S TEST VALVE SHALL NOT EXCEED 7 FEET ABOVE THE FINISHED FLOOR.
- 33. CONTRACTOR SHALL PROVIDE SPRINKLER COVERAGE IN ALL COMBUSTIBLE CONCEALED SPACES.
- 34. THE SPRINKLER PIPING LAYOUT AND PIPE SIZES SHOWN ON THE CONTRACT DOCUMENTS ARE TO DEFINE THE DESIGN INTENT FOR COMPETITIVE BIDDING AND FOR PRELIMINARY SUBMISSION TO THE AUTHORITIES HAVING JURISDICTION. THE WORK OF THE CONTRACT INCLUDES HYDRAULIC CALCULATIONS AND FABRICATION SHOP DRAWINGS FOR THE ACTUAL INSTALLATION

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Revisions

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Job No. 4.1092.72.03

CHATSWORTH FOREST PARK CHATSWORTH SECOND FLOOR PLAN PROJEC NORTH

CHATSWORTH AVE. SCHOOL

CHATSWORTH FOREST PARK

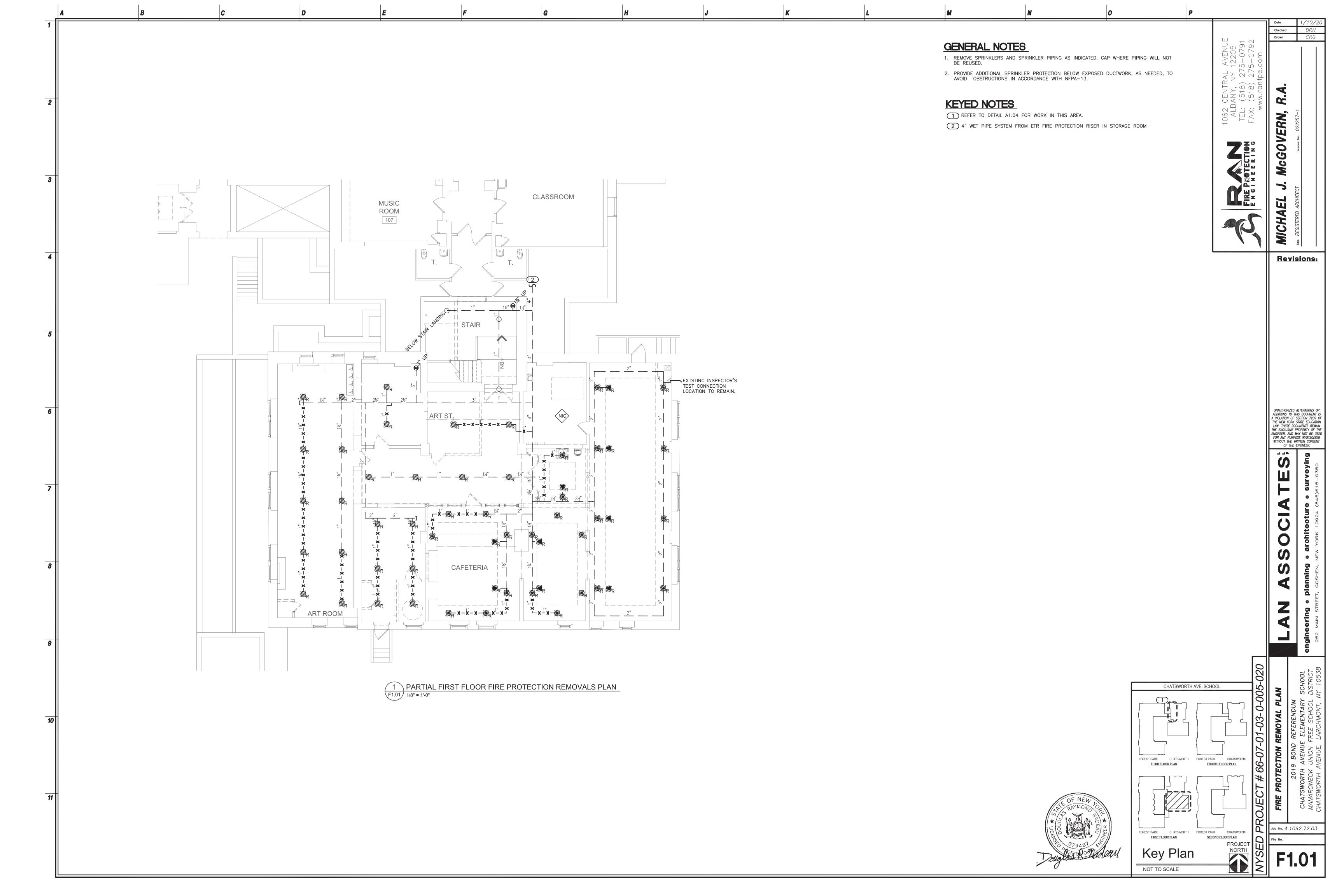
FOURTH FLOOR PLAN

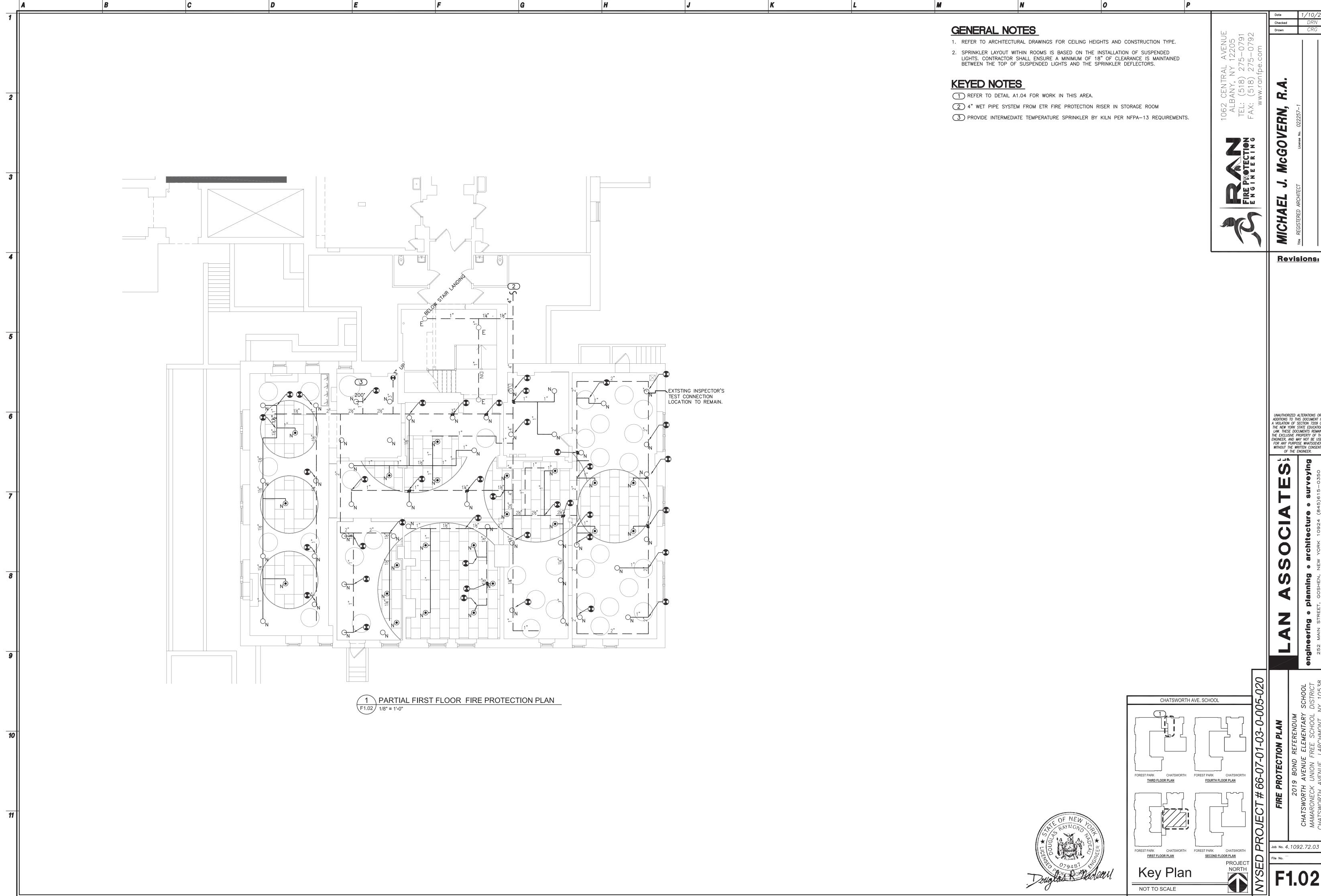
FOREST PARK

THIRD FLOOR PLAN

FIRST FLOOR PLAN

FOREST PARK NOT TO SCALE





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