#### 1.1 GENERAL

- A. Architect's General Conditions are a part of this Division. All work shall be done in strict accordance with current accepted edition of NFPA #13 and #24, State Building Code, the Insurance Underwriter - IRI or FM, the local Fire Marshal and utility company requirements. The Fire Protection Contractor shall bear the cost of all fees, permits, licenses, taxes and any utility company charges in connection with his work.
- B. AIA Document A201-2007 "General Conditions of the Contract for Construction" is hereby made part of these specifications.
- 1.2 SCOPE
- A. Demolition:
- 1. The existing sprinkler system is a wet pipe system. Disconnect and remove all sprinklers, branch connections, hangers and accessories as required for the renovation areas, as indicated on plans.
- 2. Existing sprinklers, shall NOT be reused unless so indicated on the Drawings. The Contractor shall properly dispose of removed materials.
- - 1. Install piped sprinkler return bends for center of tile locations. Install new sprinklers in new locations. Flexible connections may be used if approved by owner and ceiling construction complies with ASTM C635 and ASTM C636 requirements.
- 2. Extend existing sprinkler branch connections to new sprinklers in renovation area. Install new branch piping as needed due to new HVAC, Electrical and Architectural work.
- 3. Provide a complete light hazard sprinkler system throughout the renovation. System shall be hydraulically designed to provide minimum 0.10 GPM/1500 square feet. The Contractor shall verify Insurance Underwriter requirements which may be more stringent.
- C. Sprinklers shall be Quick Response ordinary temperature class, except where NFPA or the Insurance Underwriter recommends higher temperature ratings.
- D. Work by Others:
- 1. The General Contractor shall provide all chases, openings, cutting, patching, painting and finish work.
- 2. The General Contractor shall install all access doors where required; doors provided by the Fire Protection Contractor.

#### 1.3 FIELD MEASUREMENTS

A. The Contractor shall visit the site and become familiarized with the project and local conditions before submitting Bid. The Contractor shall be held responsible for any assumptions made thereof. Drawings are diagrammatic and indicate the general arrangement of systems and work included in the Contract.

# 1.4 SUBMITTALS

A. Six (6) copies of shop drawings shall be submitted to the Insurance Underwriter for approval before beginning installation. The Contractor shall prepare own drawings giving the following information: location of all pertinent mechanical and electrical equipment; full-height cross sections as required; make and type of sprinklers and temperature ratings; all fittings and sizes; type of hangers, inserts and sleeves; all drawings and test pipes: cutting lengths and sizes of pipe lines.

#### 1.5 RECORD DRAWINGS

A. Neatly and accurately record all changes from Contract Documents on record set of prints furnished by the Engineer. These record "as-built" drawings shall include locations of specific items as listed in the various Specification Divisions. Upon project completion, furnish drawings to the Engineer.

1.6 DEFINITION A. As used on Contract Documents, the term "to provide" shall mean "to furnish, install and connect completely in the specified or

#### 1.7 GUARANTEE

A. Materials, equipment and workmanship shall have standard warranty against defects in material and workmanship. Any failure due to defective or improper material, equipment, workmanship or design shall be made good, forthwith, by and at the expense of the Contractor, including any damage done to areas, materials and other systems resulting from this failure. Guarantee period shall extend for one year from the Date of Acceptance.

### 1.8 COORDINATION

A. The Fire Protection Contractor shall examine the Architectural Drawings and the drawings and specifications of other trades. If so directed by the Architect or the Engineer, the Contractor shall, without extra charge, make reasonable modifications in the lavout to prevent conflict with those of other trades and for proper installation of work. The Contractor shall coordinate locations of equipment with all trades before starting construction. Any modifications to the equipment layout required for

### 1.9 INSURANCE

A. Furnish insurance certificates required by the Owner.

approved manner the item or material described.

#### 1.10 PERMITS, LAWS, ORDINANCES, CODES AND STANDARDS

A. Obtain and pay for permits, inspections, licenses and certificates required. Pay utility company backcharges. Equipment, materials and components listed in UL Product Directories, shall bear UL labels.

### 1.11 OPERATING AND MAINTENANCE INSTRUCTIONS

A. The Contractor shall provide the Owner with three (3) sets of complete maintenance and operating instructions and technical data, in booklet form, of all equipment and devices furnished in the Contract.

# 1.12 ARRANGEMENT OF WORK

A. Work shall be coordinated between trades to prevent unnecessary interference. Work shall present a neat coordinated appearance. Install work as necessary to provide maximum possible headroom, adequate clearance and ready access for inspection, operation, safe maintenance and repair and Code conformance. Where space appears inadequate, consult the Owner before proceeding with installation.

# 1.13 WORKMANSHIP

A. Equipment and materials shall be new, of first-class quality, selected and arranged to fit properly into spaces indicated. Install equipment and materials in accordance with manufacturer's recommendations.

# 1.14 COORDINATION WITH OWNER

A. All work shall be scheduled with the Owner. Interruptions in the Owner's access to the site shall be subject to Owner limitations of date and duration.

# 1.15 OPERATION OF SERVICES AND UTILITIES

A. Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Owner as to date, time of day, and duration before any service is interrupted. Notify the Owner of estimated duration of shutdown period at least ten days in advance of proposed shutdown.

# 1.16 PROTECTION

A. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material or damaging water. Protect existing property, equipment and finishes from damage. Repair, to original condition, existing property that has been damaged during execution of the work.

#### B. Provide temporary sprinkler protection in all renovation areas while existing sprinkler system is removed. Fire watch or other method of protection may be utilized with approval from local and State Fire Marshal.

- C. At the end of each work day, place sprinkler system back into full service. Recheck all fire alarm apparatus (i.e. flow switches) to assure normal working order.
- 1.17 CLEANING

A. Work site must be kept clean. Rubbish, debris and leftover or excess materials shall be removed daily.

# 1.18 LUBRICATION

1.19 PAINTING A. Mechanical and electrical equipment and materials shall have prime coat and standard manufacturer's finish. Painting of finished surfaces (excluding ceilings) shall be one coat primer and two coats vinyl base semi-gloss paint. Painting of ceilings

A. No equipment shall be operated for temporary service or testing without proper lubrication. Items requiring lubrication shall be

left freshly and fully lubricated at time of substantial completion. Furnish Owner with one complete new set of any special

# shall be one coat primer and two coats flat white paint. Primer shall be omitted on repainting of existing surfaces.

1.20 CUTTING AND PATCHING A. Areas disturbed by new construction or demolition shall be patched and repaired to match existing conditions. Patch painting of ceilings shall include painting of the entire ceiling of room involved. Patch painting of other surfaces shall be to nearest cut-off point.

# 1.21 WATERPROOFING

A. Provide necessary sleeves, caulking and flashing required to make openings waterproof.

lubrication devices required for servicing, e.g., grease guns, fittings and adaptors.

# 1.22 FIREPROOFING

A. At closing of each working day, provide temporary firestopping in every opening cut between floors and through fire-rated partitions. Permanent firestops shall be provided around sleeves and at other permanent openings through fire-rated partitions and floors, as required. Materials used for firestopping shall be Class A "Noncombustible" with firestopping capabilities equal to that of adjacent construction.

# 1.23 BASES AND SUPPORTS

A. Provide necessary supports, pads, bases and piers required. Equipment shall be securely attached to building structure in acceptable manner. Attachments shall be of strong and durable nature, as determined by the Owner.

1.24 TESTS A. Perform tests required by the Owner, legal authorities and agencies. Each piece of equipment, including motors and controls, shall be operated continuously for minimum one-hour test. Correct all defects appearing during tests, and repeat tests until no defects are disclosed. Final tests shall be made in the Owner's presence.

#### 1.25 SEISMIC REQUIREMENTS

A. Submit six (6) copies of a final inspection report which includes: Sealed certification by a Structural Engineer with P.E. registration in the state in which the project is located.

#### Engineer has reviewed the project

2. Engineer has approved the use of the devices for the particular applications. 3. The devices satisfy Specification - and Code - mandated seismic criteria.

B. Application of Seismic Restraint Requirements is governed by the 2005 State of Connecticut Building Code with reference to A.S.C.E. 7-05, Section 9.6. Refer to Architects code sheet for the seismic design category for this project. C. Seismic restraint for all trades shall be provided as required, based on the building seismic design category and material

### PART 2 - PRODUCTS

importance factors.

### 2.1 PIPING

A. Above-grade piping 2-1/2" and larger shall be black steel Schedule #10 pipe with malleable iron grooved pipe joints and fittings rated for 175 psi working pressure. Piping 2" and smaller shall be Schedule 40 black steel pipe with 125 lbs. cast iron threaded fittings and joints. All piping shall be adequately supported by using adjustable swivel ring and round iron rod type hangers. Maximum distance between hangers shall be 12'-0" on center.

#### 2.2 SPRINKLERS

Sprinklers in finished ceiling areas shall be Reliable Model #G4A Quick response concealed type with white cover plates or Grinnell model F1FR Quick response brass upright type as indicated on plans, or acceptable equivalent mfrd by Grinnell or Viking.

### PART 3 - EXECUTION

3.1 INSTALLATION

A. Piping is to run concealed in all finished areas where possible and so arranged that all portions can be drained.

### 3.2 TESTS

A. Test all new sprinkler system piping at 200 psi with water for two hours. B. Test all alarm aparatus for proper operation when work is completed

#### **END OF SECTION**

#### PLUMBING SPECIFICATION

PART 1 - GENERAL

#### 1.1 GENERAL

A. Architect's General Conditions are a part of this Division. All work shall be done in strict accordance with all applicable Codes and Regulations of local and State Agencies and utility companies. This Contractor shall bear the cost of all fees, permits, licenses and taxes and any utility company charges in connection with the work.

B. AIA Document A201-2007 "General Conditions of the Contract for Construction" is hereby made part of these Specifications.

1.2 SCOPE

A. Demolition:

piping concealed. Remove back to mains, do not leave dead ends. 2. Existing fixtures, piping, etc. shall NOT be reused unless so indicated on these Drawings.

# 1. Disconnect and remove all plumbing fixtures, piping, equipment, hangers and accessories which will no longer be used. Cap

Contractor shall properly dispose of removed material. B. New Work: 1. Furnish and install a complete plumbing system for the building including, but not limited to: hot and cold water, sanitary, waste and vent piping; insulation and all other equipment as indicated on the plans, as herein specified and as necessary to provide complete and operational systems. Systems shall be complete in all respects, tested, approved and ready to

operate. The Plumbing Contractor shall arrange his work so that any shutdown does not interfere with the Owner's

#### operation of the existing facility. C. Work by Others:

1. The Plumbing Contractor shall install all motors provided under the Plumbing Contract ready for wiring by the Electrical Contractor and shall furnish and deliver to the Electrical Contractor wiring diagrams for all motor starters for installation and wiring. The Plumbing Contractor shall furnish motor starters, relays and all control equipment to the Electrical Contractor for

2. The General Contractor shall perform all excavation, backfill, chases, openings, cutting, patching, painting and finish work.

# 1.3 FIELD MEASUREMENTS

A. The Plumbing Contractor shall verify in the field all measurements necessary for his work and shall assume responsibility for

# 1.4 SUBMITTALS

A. Submit six (6) copies of manufacturer's drawings of the following to the Architect/Engineer for review: plumbing fixtures, drains, pipe, valves, insulation and special equipment. Submit information on any other equipment to be used when requested by the Architect or the Engineer.

# A. Neatly and accurately record all changes from Contract Documents on record set of prints furnished by the Engineer. These

1.5 RECORD DRAWINGS

record "as-built" drawings shall include locations of specific items as listed in the various Specification Divisions. Upon project completion, furnish drawings to the Engineer.

A. As used on Contract Documents, the term "to provide" shall mean "to furnish, install and connect completely in the specified or approved manner the item or material described."

# 1.7 GUARANTEE

A. Materials, equipment and workmanship shall have standard warranty against defects in material and workmanship. Any failure due to defective or improper material, equipment, workmanship or design shall be made good, forthwith, by and at the expense of the Contractor, including any damage done to areas, materials and other systems resulting from this failure. Guarantee period shall extend for one year from Date of Acceptance.

# 1.8 COORDINATION

A. The Plumbing Contractor shall examine the Architectural Drawings and the drawings and specifications of other trades to determine the extent of work. The Contractor shall visit the site and become familiar with the project and local conditions before submitting a Bid. Drawings are diagrammatic and indicate the general arrangement of systems and work included in the Contract. If so directed by the Architect or the Engineer, the Plumbing Contractor shall, without extra charge, make reasonable modifications in the layout to prevent conflict with those of other trades and for proper installation of work. The Contractor shall coordinate locations of equipment with all trades before starting construction. Any modifications to the equipment layout required for installation shall be performed at no additional cost to the Owner.

# 1.9 INSURANCE

A. Furnish insurance certificates required by the Owner

# 1.10 PERMITS, LAWS, ORDINANCES, CODES AND STANDARDS

A. Obtain and pay for permits, inspections, licenses and certificates required. International Plumbing Code and local utility company requirements. Pay utility company backcharges. Equipment, materials and components listed in UL Product Directories, shall bear UL labels.

# 1.11 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Instruct Owner's personnel in the proper operating and maintenance of systems.

# 1.12 ARRANGEMENT OF WORK

A. Work shall be coordinated between trades to prevent unnecessary interference. Work shall present a neat coordinated appearance. Install work as necessary to provide maximum possible headroom, adequate clearance and ready access for inspection, operation, safe maintenance and repair, and code conformance. Where space appears inadequate, consult the Owner before proceeding with the installation.

# 1.13 WORKMANSHIP

A. Equipment and materials shall be new, of first-class quality, selected and arranged to fit properly into spaces indicated. Install equipment and materials in accordance with the manufacturer's recommendations.

A. All work shall be scheduled with the Owner. Interruptions in the Owner's access to the site shall be subject to Owner limitations

# 1.14 COORDINATION WITH OWNER

of date and duration. 1.15 OPERATION OF SERVICES AND UTILITIES A. Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Owner as

#### to date, time of day, and duration before any service is interrupted. Notify the Owner of estimated duration of shutdown period at least ten days in advance of proposed shutdown.

1.16 PROTECTION A. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material or damaging water. Protect existing property, equipment and finishes from damage. Repair, to original condition, existing property that has been damaged during execution of the work.

#### 1.17 CLEANING

A. Work site must be kept clean. Rubbish, debris and leftover or excess materials shall be removed daily.

### 1.18 LUBRICATION

A. No equipment shall be operated for temporary service or testing without proper lubrication. Items requiring lubrication shall be left freshly and fully lubricated at time of substantial completion. Furnish the Owner with one complete new set of any special lubrication devices required for servicing; e.g., grease guns, fittings and adapters.

### 1.19 PAINTING

A. Mechanical and electrical equipment and materials shall have prime coat and standard manufacturer's finish. Painting of finished surfaces (excluding ceilings) shall be one coat primer and two coats vinyl base semi-glass paint. Painting of ceilings shall be one coat primer and two coats vinyl base semi-gloss paint. Painting of ceilings shall be one coat primer and two coats flat white paint. Primer shall be omitted on repainting of existing surfaces.

#### 1.20 CUTTING AND PATCHING

A. Areas disturbed by new construction or demolition shall be patched and repaired to match existing conditions. Patch painting of ceilings shall include painting of entire ceiling of room involved. Patch painting of other surfaces shall be to the nearest cut-off

## 1.21 WATERPROOFING

A. Provide necessary sleeves, caulking and flashing required to make openings waterproof.

## 1.22 FIRE PROOFING

A. At closing of each work day, provide temporary firestopping in every opening cut between floors and through fire-rated partitions. Permanent firestops shall be provided around sleeves and at other permanent openings through fire-rated partitions and floors, as required. Materials used for firestopping shall be Class A "Incombustible" with firestopping capabilities equal to that of adjacent construction.

### 1.23 BASES AND SUPPORTS

A. Provide necessary supports required. Equipment shall be securely attached to building structure in acceptable manner. Attachments shall be of strong and durable nature, as determined by the Owner.

Doors shall have fire ratings equal to construction in which they are located. 1.25 TESTS

A. Perform tests required by the Owner, legal authorities and agencies. Each piece of equipment, including motors and controls,

A. Provide adequately sized access doors, for access to concealed equipment and components requiring servicing or inspection.

#### shall be operated continuously for minimum one-hour test. Correct all defects appearing during tests, and repeat tests until no defects are disclosed. Final tests shall be made in the Owner's presence.

1.26 SEISMIC REQUIREMENTS A. Submit six (6) copies of a final inspection report which includes: Sealed certification by a Structural Engineer with P.E.

#### registration in the state in which the project is located.

 Engineer has reviewed the project. 2. Engineer has approved the use of the devices for the particular applications.

3. The devices satisfy Specification - and Code - mandated seismic criteria.

B. Application of Seismic Restraint Requirements is governed by the 2005 State of Connecticut Building Code with reference to A.S.C.E. 7-05, Section 9.6. Refer to Architects code sheet for the seismic design category for this project.

C. Seismic restraint for all trades shall be provided as required, based on the building seismic design category and material importance factors.

# PART 2 - PRODUCTS

2.1 MATERIALS AND METHODS

#### A. Piping, Valves, Insulation, etc.

1. Waste and vent piping above grade and all branch waste and vent piping above grade shall be no-hub cast iron with no-hub couplings meeting ASTM Standard #C564.

2. Water pipe above grade shall be Type "L" copper with wrought copper sweat fittings using lead-free solder. Valves shall be full port ball type with screwed ends: Apollo #77-100 or equivalent.

3. Condensate piping shall be Type "L" copper with lead free soldered joints. Fittings shall be drainage pattern type.

4. Domestic hot water piping shall be insulated with minimum 1" thick and domestic cold water piping with minimum ½" thick Owens Corning fiberglass insulation with preformed insulated fittings and vapor barrier. Insulation shall be installed per manufacturer's recommended instructions.

## 5. Piping or fittings exposed and not insulated in finished areas shall be standard-weight brass pipe, chrome-plated.

Provide chrome-plated escutcheons where exposed pipe passes through walls, floor or ceiling.

### PART 3 - EXECUTION 3.1 INSTALLATION

A. Water piping shall be run concealed in all finished areas and so arranged that it can be drained at low points. Provide hose bibb drains at these low points. Support piping with clevis hangers in such a manner that there is no sagging or noise due to

B. Sanitary, waste and vent piping above grade shall be supported with clevis hangers at 5'-0" for 5'-0" pipe lengths, 10'- 0" for C. Minimum pitch for sanitary piping shall be 1/8 inch per foot for piping 4 inches and larger and 1/4 inch per foot for 3 inches and

smaller. Provide cleanouts at end of all lines, changes in direction, base of all stacks and all traps whether or not shown on the Drawings. Provide flush access panels to the General Contractor for wall or floor mounting as required at each cleanout. D. Unions shall be used at connections to fixtures and other apparatus to allow easy removal. Provide water hammer arresting air chambers equal to "PPP, Inc." or acceptable equivalent on hot and cold water piping at all fixtures where quick-closing valves

are used or as indicated on Plans. E. Provide standard-weight steel pipe sleeves for pipes passing through walls and sheet metal sleeves for pipes passing through

#### F. All penetrations through fire rated walls, ceilings or floor sin which pipes pass shall be sealed with a UL approved fire-stop fitting classified for an hourly rate equal to the rating of the wall, ceiling, or floor.

3.2 CLEANING AND FLUSHING SANITARY, WASTE, VENT, HOT AND COLD WATER A. All piping systems shall be thoroughly cleaned before placing in operation to rid the system of dirt, piping compound, mill scale, oil and any and all other material foreign to the water being circulated. This applies equally and especially to systems where

B. Disinfect all potable water systems prior to building occupancy per Codes and local officials' requirements. Flush systems

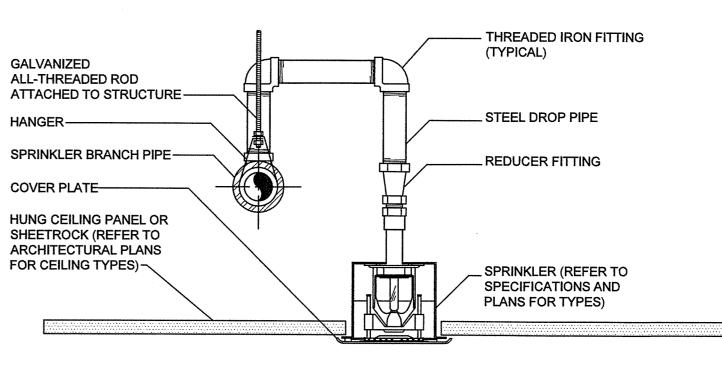
- thoroughly with potable water after disinfection.
- A. Disinfect all potable water systems prior to building occupancy per Codes and local officials requirements. Flush systems thoroughly with potable water after disinfection.

phases or portions of the systems are operated during construction.

B. Hydrostatically test all domestic water piping at 150 psi for three (3) hours without leaks.

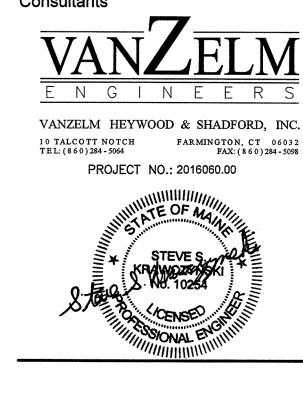
C. Test all gravity sanitary, waste and vent piping with a 10-foot head of water for a minimum of 15 minutes without leaks. D. Test all concealed piping before closing in.

**END OF SECTION** 



SPRINKLER PIPED RETURN BEND DETAIL

Fax 860-651-7316 chk@chkarch.com Consultants



GREYSTONE COURT WEST

573 H2PMEAD2W STREET

SIMSBURY, CT 06070-0095

860-651-3777

HARRIS &



ORD

1 \ Owner's Review Comments/ Issue for Bid 5/26/16

Project Number

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NO SCALE

PLUMBING FIXTURE SCHEDULE FIXTURE MOUNT CW HW W V ELKAY LRADQ25215S 18 GA TYPE 304 STAINLESS STEEL, 25" x 21-1/4" x 5-1/2" DEEP, CENTER REAR DRAIN OUTLET, #LK99 DRAIN FITTING, KOHLER SIMPLICE #K-647 SINGLE LEVER GOOSENECK FAUCET (IMPORTANT NOTE: ADJUST WEIGHT ON FLEX HOSE SO SPRAY CAN NOT BE PULLED OUT OF FAUCET BODY), MCGUIRE 1/2" #LF175 CHROME PLATED SWEAT SCREWDRIVER STOPS WITH LOOSE KEY AND RISERS, KEENEY 17 GA. HANDICAPPED BRASS TRAP WITH CLEANOUT. LIBERTY MODEL 404 PACKAGED PUMP/BASIN, 1/3 HP, 1 PH, 120V, 60HZ PUMP, 5.5 GALLON POLYETHYLENE WASTE WATER BASIN, 20 GPM @13 FT TDH, BASIN DIMENSIONS: 13.5" DIA. BASE x 11.5" HIGH x 14.75" DIAM. TOP CHRONOMITE MODEL #M-20L, 4160 WATTS, 1 PH 208V, 57°F TEMP RISE AT 0.5 GPM FLOW RATE, PROVIDE INSTANTANEOUS HWH-1 GRISWOLD MODEL #3K02 AUTOMATIC FLOW CONTROL WITH SHUTOFF VALVE IN COLD WATER INLET PIPE TO HEATER AND SET AT 0.5 GPM. PROVIDE CHECKS ON H&CW PIPES