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GENERAL REQUIREMENTS

MECHANICAL AND ELECTRICAL WORK

1. INTENT

It is the intent of these Specifications and Drawings to provide finished Mechanical and Electrical Systems, completed in all respects, tested and ready for operation.

Any apparatus, appliances, material or work not shown on Drawings but mentioned in Specifications, or vice versa, or any incidental accessories necessary to make the work complete and perfect in all respects, and ready for operation, even if not particularly specified, shall be furnished and installed by respective Contractors at no additional cost to the City.

Minor details or fittings, not usually shown or specified but necessary for proper installation and operation of the various systems shall be included in the work, and in Contractor's estimate the same as if herein specified or shown.

With submission of bid, Contractor shall give written notice to Engineer of any materials or apparatus believed inadequate, unsuitable, or in violation of laws, ordinances, rules or regulations of Authorities having jurisdiction, and any necessary items of work omitted. In the absence of such written notice it is mutually agreed that Contractor has included the cost of all required items in his proposal, and that he will be responsible for approved satisfactory functioning of systems without further compensation.

In all cases where apparatus is herein referred to in singular number, it is intended that such reference includes as many such items as are required to complete work as shown on Drawings.

If not otherwise specified or shown on plans, apparatus and materials shall be installed in accordance with Manufacturer's published recommendations and instructions, and to complete satisfaction of Engineer.

2. DEFINITIONS

Wherever work "Contractor" is used in any one of the following Mechanical and Electrical Divisions it shall mean Contractor and any Sub-Contractor, providing work.

Word "Provide" shall mean "Furnish, install and connect up complete".

3. CODES: REGULATIONS: PERMITS: FEES:

Contractor shall give all necessary notices, obtain all permits and pay all fees, and other costs in connection with his work, file all necessary plans, prepare all documents, and obtain all necessary approvals of all governmental departments having jurisdiction; obtain all required Certificates of Inspection for his work and deliver same to Engineer before request for acceptance and final payment for work.

All materials furnished and all work installed shall comply with the rules and regulations of the latest edition of the National Electrical Code, of the National Board of Fire Underwriters, with all requirements of local utilities, with the recommendations of the fire insurance rating organization having jurisdiction, and with the requirements of Department of Licenses and Inspections of the City of Hartford, and all other local and State Codes.

Wherever discrepancies occur between above regulations and agencies and Contract Drawings and Specifications, requirements of above shall take precedence, except that Contract Drawings and Specifications shall be minimum requirements, and that Contractor shall advise Engineer of any required

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changes before proceeding with work.

4. CONTRACT DRAWINGS & SPECIFICATIONS

The complete set of Mechanical drawings are a part of Contract. Contractor shall follow Drawings in laying out work, and check drawings of other trades to verify spaces in which work will be installed.

Drawings are diagrammatic and indicate general arrangement of systems and work included in contract. In general, maximum headroom and access for maintenance shall be maintained throughout. If any space conditions appear inadequate, Engineer shall be notified before proceeding with installation.

If directed by Engineer, Contractor shall without extra charge make reasonable modifications in the layout to prevent conflict with work of other trades, and for proper installation of work.

Where conflicts occur between Drawings and Specifications or within either, item or arrangements of better quality, greater quantity, or highest cost shall be included in Contract price. Engineer shall determine the manner or item with which work shall be installed.

5. MEASUREMENTS

Dimensions given in figures shall always be taken in preference to scaled dimensions. Measurements taken from Drawings shall be verified in field and shall take precedence over scaled dimensions. Installation of all work covered in these contracts shall fit to actual building conditions, and any changes or alterations, necessary for proper installation of work shall be brought to the attention of Engineer, and Contractor shall not proceed with such work until decision or instructions are obtained from Engineer.

Contractor shall furnish to City Public Works Department all necessary information and measurements regarding access openings for moving in equipment, recesses, and chases which are to be furnished by the City in ample time to allow the City to lay out their work accordingly.

6. MATERIAL & WORKMANSHIP

Equipment Construction standards shall be as follows:

Pressure vessels shall be constructed in accordance with latest applicable ASME Code; all electrical equipment shall be U.L. listed and approved, and conform to latest edition of N.E.C.; piping materials, fittings, valves, and accessories shall be constructed in accordance with latest A.S.T.M. standards for class of work involved. All equipment and materials shall be new.

All welding shall be done by certified welders, in accordance with latest requirements of American Welding Society. Certificates shall be filed with General Contractor before any welding is done, and shall be available at job office at all times.

If equipment of materials are installed before proper approvals have been obtained, Contractor shall be liable for their removal and replacement including work of other trades affected by such work at no additional cost to the City, if such items do not meet intent of the Drawings and Specifications.

7. COOPERATION WITH OTHER TRADES

Contractor shall carry out his work in conjunction with other trades and shall give full cooperation to other trades. Contractor shall furnish all information necessary to permit work of all trades to be installed in a satisfactory manner.

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Where space is so limited that Contractor's work will be installed in close proximity to the work of other trades; or where it is evident that Contractor's work will interfere with other trades, he shall assist in working out space conditions to make satisfactory adjustments. If required or directed by Engineer the Contractor shall prepare composite working drawings and sections of not less than 1/4"=1'-0" scale clearly showing how his work is to be installed in conjunction with other trades. If Contractor installs any work before coordinating with other trades and such work interferes with other trades, he shall make corrections necessary to satisfactorily complete installation at no additional cost to the City.

Each Contractor shall be responsible for setting and maintaining his sleeves, inserts, bolts, anchors, plates, outlets, etc., in their final position once definite locations have been determined.

Locations for chase, openings, etc., to be built by the City shall be checked by Contractor, and errors or omissions due to failure of Contractor to so check after receiving notice from the City, shall be responsibility of Contractor, who shall make all corrections necessary for proper installation of his work, at no additional cost to the City.

8. CUTTING AND PATCHING

Cutting and patching incident to the installation of all mechanical and electrical work shall be done by the City-Public Works Department.

9. PROTECTION OF EQUIPMENT & WORK

Open ends of all pipes, ducts and conduits shall be tightly capped until final connections are made.

Contractor shall properly protect work and material of his and other trades from damage by his work or workmen and shall make good any damage resulting from same.

10. GUARANTEES

Contractor guarantees by his acceptance of contract that all work installed will be free from any defects in workmanship of materials, and that all apparatus will develop capacities specified, and that if during period of one year from date of certificate of completion and acceptance of work by the City, any such defects appear, he will remedy such defects without additional cost to the City, including damage or repairs to other work or building resulting from such defects and repairs. Expiration of guarantee period shall not relieve Contractor of his obligation to make good defects occurring before expiration of guarantee period.

Contractor shall provide to the City for inclusion in Owner's Manual a written guarantee covering fully the one year guarantee period and contingencies as outlined in above paragraph.

11. SHOP DRAWINGS

Prior to delivery of any material to job site, and sufficiently in advance of required delivery date to allow Engineer time for checking, Contractor shall submit for approval (6) copies of detailed dimensioned drawings or cuts of all equipment showing construction, size, arrangement, performance characteristics, operating clearances, capacity of equipment, electrical characteristics, and accessories as specified or shown on Drawings. All equipment unless otherwise specified shall be a standard catalogued product of an established manufacturer, or equal quality, durability and finish to that

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specified. Engineer may also request drawings for approval of any items to be constructed or fabricated by Contractor.

For following items which do not require drawings for approval, Contractor shall submit a list showing Manufacturer, type, catalog number, or model number for approval: valves, gauges, thermometers, insulation, tags, name-plates, toggle switches, receptacles, wire, fittings, and pipe. Whenever deemed necessary, Engineer may request samples of above be submitted for approval.

Drawings, catalogs, samples, specifications, etc. submitted for approval shall be clearly labeled indicating equipment number specific service or use, job name, Contractor's name, manufacturer's name and address. Items for which approval is being requested shall be specific and identification in catalog, pamphlet or drawing shall be clearly made in ink. Data of a general nature, or incomplete in any respect will not be accepted.

Approval of shop drawings is final and no further changes will be considered without written application from Contractor, and will not be allowed without written consent of Engineer. Approval of shop drawings does not apply to quantities, nor relieve Contractor of his responsibility or necessity of furnishing materials, or performing work required by Contract Drawings and Specifications. Approval of shop drawings shall not be considered a guarantee of measurements or of building conditions.

12. TAGS: CHARTS: AND IDENTIFICATION:

Every valve, damper, control, switch, motor starter, lighting and power panel, pull box or junction box (except lighting and power junction boxes 6" x 6" x 4" or smaller) and piece of apparatus installed under this contract shall at end of job be tagged, labeled or stenciled as follows: Tags and labels shall be securely fastened by brass chains, screws, or mastic as applicable. Equipment, controls, panels, etc., shall be numbered according to equipment schedules on plans.

Electric panels, control switches, motor starters, etc., shall be labeled with etched aluminum or engraved bakelite not less than 3/4" x 2-1/4" size, with numbers, legends, etc., shown on plans, in equipment schedules, or as approved by Engineer. Toggle switches for small motor equipment, or wherever used in conjunction with any Heating controls shall be provided with 1-5/32" x 3" etched aluminum name plates with centered hole and mounting holes for attaching directly to standard switch plate.

13. OPERATING INSTRUCTIONS

Contractor to obtain three (3) copies each of Manufacturers operating and maintenance instructions of all equipment used on this project. A condensed maintenance schedule shall be typed and included in this manual and will be bound in three notebooks and delivered to Engineer.

14. TESTS: ADJUSTMENTS AND CHECKOUTS:

Contractors shall allow sufficient time to perform all tests, adjustments, etc., necessary to place the various systems in final operating conditions, verify performance requirements, and check all safety devices. Labor, instruments, etc., required for various tests shall be furnished by Contractor. Engineer will make final check of all systems only after Contractor is completed, and return to Engineer (continued)

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a letter stating that his work is to best of his knowledge, 100% complete.

Unless otherwise specified, equipment shall be installed and adjusted in accordance with manufacturers recommendations to function properly, with capacities required or specified.

As part of final check out, Contractors shall operate systems in presence of Engineer to demonstrate that all systems, equipment and controls are adjusted properly and operate as intended.

15. ACCESS DOORS AND PANELS

Contractors shall furnish to General Contractor for installation, flush type access door or panel for all heating and ventilating dampers, valves, cleanouts, air vents, electrical equipment and junction boxes, or apparatus located in chases or walls. Finish shall be prime coat. Panels shall be equal to L. M. Walsh Company #3 for masonry work: #17 for ceramic tile work and #20 for acoustic tile work.

All panels occurring in ceilings which are of special finish shall be furnished with 7/8" to 1" depth panel filled in material to match ceiling. Furnish anchor plates, frame and trim with flush screw driver catch for each panel. Where lay-in ceiling panels are installed, separate access panels are not required.

CITY OF HARTFORD, CONNECTICUT DEPARTMENT OF PUBLIC WORKS FACILITIES SERVICES BUREAU		
SPECIFICATIONS-GENERAL REQUIREMENTS SUPPLEMENTARY HTG. & COOLING - 2ND FLOOR VISITING NURSES ASSOCIATION - HOME HEALTH AID AREA BURROFF HEALTH CENTER, 80 CANTLEY ST., HARTFORD, CT.		
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