SECTION 23 80 00 – DECENTRALIZED HVAC EQUIPMENT

PART 1 – GENERAL

1.1 RELATED SECTIONS

A. Section 01 73 29 – Cutting and Patching

B. Section 06 10 00 – Rough Carpentry

C. Section 09 29 16 – Gypsum Board Assemblies

1.2 REFERENCES

A. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE):

1. Applicable standards and accepted engineering practices for hydronic heating systems.

B. Air-Conditioning, Heating, and Refrigeration Institute (AHRI):

1. Applicable rating and performance standards where product ratings are available.

C. National Fire Protection Association (NFPA):

1. NFPA 70 – National Electrical Code, where electrical components or controls are provided.

D. Comply with applicable Maryland and local mechanical, plumbing, energy, and building code requirements.

1.3 SUMMARY

A. Work includes replacement of existing hydronic baseboard heating units within renovated residential apartments and adjacent areas as indicated on the Drawings.

B. Provide complete hydronic perimeter heating assemblies including heating element, enclosure, back plate, starter strip, end caps, accessories, supports, valves, fittings, and connections required for a complete installation.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's published product data, dimensional information, heating capacities, water temperature and flow requirements, pressure drop data, finishes, accessories, and installation instructions.

B. Shop Drawings: Indicate unit lengths, locations, piping connections, clearances, end conditions, and coordination with walls, cabinetry, doors, plumbing fixtures, and other adjacent work.

C. Submit heating output data demonstrating that each replacement unit meets or exceeds the required room heating load at the available system water temperature and flow.

D. Closeout Submittals: Provide operation and maintenance information, cleaning instructions, and manufacturer warranty documentation.

1.5 QUALITY ASSURANCE

A. Provide equipment from a manufacturer regularly engaged in production of hydronic perimeter heating equipment.

B. Installer shall be experienced in hydronic heating system installation and adjustment.

C. Coordinate replacement equipment with existing hydronic system operating temperatures, pressures, flow conditions, pipe sizes, and control sequence before ordering equipment.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver equipment in manufacturer's original packaging with identification intact.

B. Store indoors, dry, protected from physical damage, moisture, dirt, and construction debris.

C. Protect painted and finished surfaces from scratches, dents, staining, and other damage.

1.7 EXISTING CONDITIONS

A. Field verify existing unit lengths, piping locations, pipe size, supply and return orientation, wall construction, and clearances before fabrication or ordering.

B. Existing hydronic system is to remain in operation except for approved temporary shutdowns required to complete replacement work.

C. Notify Architect and Owner of concealed conditions or system conditions that differ materially from the Contract Documents before proceeding.

PART 2 – PRODUCTS

2.1 HYDRONIC BASEBOARD HEATING UNITS

A. Manufacturer: Smith's Environmental Products or Approved Equal.

B. Model: HE2 Heating Edge high-capacity hydronic baseboard.

C. Type: High-capacity perimeter heating assembly utilizing a two-pipe hydronic heating element designed to provide increased heating output in reduced wall length compared with conventional baseboard to replace existing units.

D. Heating Element: high-capacity coil-block element with copper waterway and enhanced fin configuration designed for high airflow and low-water-temperature performance.

E. Piping Connection: 3/4-inch copper core unless otherwise required to match existing hydronic system conditions.

F. Enclosure: Complete factory-produced assembly including cover, back plate, and starter strip.

G. Cover: Perforated metal cover designed for free convection airflow, durability, ease of cleaning, and residential appearance.

H. Mounting System: Manufacturer's two-piece mounting system designed to eliminate conventional brackets and hangers.

I. Corrosion Resistance: Components exposed to room environment shall be rust resistant and suitable for residential bathroom-adjacent conditions.

J. Lengths: Provide 2-foot through 8-foot nominal lengths as required for replacement and General Contractor to verify field conditions. Manufacturer's complete assembly model numbers include HE2-2075W, HE2-3075W, HE2-4075W, HE2-5075W, HE2-6075W, HE2-7075W, and HE2-8075W selected as applicable to existing conditions.

K. Performance: Select unit length and capacity to satisfy calculated or existing design heating requirements at available hydronic supply-water temperature and flow rate. Do not size equipment solely by matching existing enclosure length.

L. Low-Temperature Performance: Equipment shall be suitable for effective operation at reduced hydronic water temperatures and shall be selected using manufacturer's published capacity data for actual system conditions.

M. Noise: Equipment shall operate without objectionable rattling, vibration, ticking, or other abnormal noise when properly installed and under normal system operation.

2.2 ACCESSORIES

A. Provide manufacturer's standard accessories required for complete installation, including end caps, inside and outside corners, splice plates, enclosures, trim pieces, and pipe-cover accessories as conditions require.

B. Provide valves, balancing devices, air vents, unions, fittings, and isolation components as required for connection to existing hydronic piping.

C. Provide escutcheons and trim at exposed pipe penetrations where required for a finished installation.

D. Existing controls to be evaluated for re-use and proper function. Existing controls anticipated to be utilized for the replacement heater units unless found not functioning or compatible. If this is the case, then controls to be replaced accordingly.

2.3 FINISHES

A. Factory finish: manufacturer's standard durable factory-applied finish unless otherwise indicated.

B. Color: White.

C. Touch-up damaged factory finish with manufacturer-approved coating matched to adjacent finish.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify wall surfaces, framing, piping, valves, and adjacent construction are ready to receive new hydronic baseboard equipment.

B. Verify existing system pipe size, supply and return location, operating temperature, and available flow before connecting new equipment.

C. Do not proceed until unsatisfactory conditions have been corrected.

3.2 REMOVAL OF EXISTING EQUIPMENT

A. Isolate and drain affected portion of hydronic system as required.

B. Remove existing baseboard heater, enclosure, element, supports, and accessories where indicated.

C. Protect existing piping intended to remain and cap or plug open piping during construction.

D. Remove abandoned fasteners and patch wall surfaces in accordance with Section 01 73 29 Cutting and Patching.

3.3 INSTALLATION

A. Install equipment in strict accordance with manufacturer's written instructions and approved submittals.

B. Install units level, straight, rigid, and securely attached to wall construction.

C. Maintain manufacturer-required clearances for convection airflow and service access.

D. Coordinate unit length and location with doors, pocket-door construction, cabinetry, plumbing fixtures, electrical devices, grab bars, and accessible clearances.

E. Connect to existing hydronic system using compatible piping and fittings. Avoid imposing stress on heating element connections.

F. Provide isolation and balancing provisions as required by existing system configuration and good hydronic practice.

G. Provide air venting at high points and at units where required to permit complete purging of air.

H. Do not conceal leaks or defective connections.

3.4 FIELD QUALITY CONTROL

A. After installation, refill, purge, and test affected hydronic system.

B. Inspect joints and connections for leakage under normal operating pressure.

C. Verify each unit heats uniformly and operates quietly.

D. Balance system as required so replacement units receive adequate flow without adversely affecting existing units that remain.

E. Correct rattling, vibration, leakage, inadequate output, or other deficiencies before Substantial Completion.

3.5 CLEANING AND PROTECTION

A. Clean exterior surfaces and remove construction dust, labels, fingerprints, and debris.

B. Protect installed equipment from damage during remaining construction activities.

C. Replace dented, scratched, stained, or otherwise damaged visible components that cannot be satisfactorily repaired.

3.6 OWNER INSTRUCTION

A. Demonstrate removal and replacement of accessible covers where required for cleaning.

B. Provide Owner with manufacturer's cleaning, maintenance, and warranty information.

END OF SECTION