PART 1 - GENERAL

1.01 OVERVIEW

A. This section addresses domestic cold, hot and hot water return distribution systems within and to five feet beyond parking garage building perimeter.

PART 2 - DESIGN CRITERIA

2.01 GENERAL

A. Domestic water shall be provided for all plumbing fixtures, hose bibbs, and all other systems, equipment, and devices that require domestic water supply.

B. Garage building domestic water distribution systems shall be metered and isolated from the municipal water supply in accordance with City of Houston requirements.

C. Design of domestic water systems shall avoid all cross connections and eliminate the possibility of water contamination. On each water supply line serving a plumbing fixture, item of equipment, or other device which has a water supply discharge outlet below the overflow rim, or where cross contamination may occur, provide an approved vacuum breaker or backflow preventer. Installation of vacuum breakers shall prevent any possible backflow through them.

D. The design of garage building supply and distribution systems shall provide a volume of water at the required flows, pressures and temperatures to ensure safe, efficient and code compliant operation during periods of peak demand. Piping shall be sized at a velocity not exceeding six feet per second (fps).

E. The domestic water system may utilize municipal water system to a height allowed by verified available minimum pressure.

F. Distribution piping shall be located to minimize space requirements and shall not interfere with the flow of pedestrian traffic, vehicular traffic or parking. All unburied piping shall be protected from damage by utilizing chases, steel bollards, be located adjacent to columns or by other means approved by the Owner.

G. Do not locate water piping within stairways, electrical or telecommunications rooms.
H. All domestic water piping that may be subjected to temperatures of 32 degrees F or below shall be protected from freezing with thermostatically controlled electric heat tracing and insulation. All exposed insulated piping shall be covered with aluminum or stainless steel jacket.

I. Provide freeze-proof wall hydrants on exterior walls a maximum of 150 feet apart at building grade level. Hydrants should be located at approximately 18 inches above finished grade. Coordinate the location of all wall hydrants with the architectural features of the building and obtain approval of locations from the Project Architect.

J. Provide at least one hose bibb with backflow preventer on each garage level up to a height allowed by verified available municipal water system pressure. Coordinate with Owner for preferred locations and quantity of hose bibbs.

K. Air chambers, dead-legs, or any other piping arrangement that may allow water to stagnate shall not be allowed within domestic water systems.

L. Provide manufactured water hammer arrestors in water supply lines in accordance with Standard PDI-WH201.

M. Provide line shut-off valves at locations required for proper operation, servicing and troubleshooting of the domestic water distribution system and connected components. Locations shall include but not be limited to the following; at each fixture and piece of equipment, at each branch take-off from mains, at the base of each riser, at each branch connection to risers, at each battery of fixtures, where recommended by equipment manufacturers and at strategic locations to allow sectional isolation while limiting disruption of services to large portions of the system.

N. Accessible capped valves shall be provided where required for future connections. To prevent water stagnation within dead-legs, future valves shall not extend more than 24 inches from an active main.

O. All valves shall be accessible for operation and servicing. Provide access panels for all concealed valves. Coordinate the location of access panels with the architectural features of the building and obtain approval of locations from the Project Architect.

P. Domestic hot water systems shall be designed to reasonably assure an expeditious flow of hot water at all outlets within 10 seconds.

Q. Hot water shall be generated by electric point-of-use heaters. Lavatory faucet within unisex employee toilet shall be provided with an instantaneous type wall unit. Janitor’s sink faucet shall be provided with a 15 gallon storage type unit or an instantaneous type wall unit. Hot water temperature at hand washlavatory shall be 105 degrees F. Hot water temperature at Janitor’s sink shall be at least 120 degrees F.
R. Cold water piping shall be insulated as required to prevent condensation. Hot water piping shall be insulated as required by code and per latest ASHRAE standard A90.1 Table 7.2.3.

PART 3 - SPECIAL CONTRACT DOCUMENT REQUIREMENTS

3.01 GENERAL

A. All piping and valves shall be located and sized on the Drawings.

B. Indicate location and size of all valve access panels on floor plans.

C. Include a domestic water system distribution schematic indicating information required to clearly illustrate the intent of system design including, but not limited to, supply source, hot water heaters, piping mains, risers, line and riser shut-off valves. Calculated flow rates used for system design shall be noted at supply entrance and base of risers. Branch piping to fixtures and equipment is not required to be shown on domestic water system distribution schematic provided that it is included within sanitary waste and vent system riser diagrams or individual equipment details.

D. Include details on the Contract Drawings to clearly identify installation requirements for all domestic water system components included within the Project, including but not limited to; water heaters, building water service riser, backflow preventers, trap primer units, roof penetrations, floor and wall penetrations.

E. Include schedules on the Contract Drawings to clearly identify capacity, size, model, options and other requirements for all domestic water system equipment included within the Project, including but not limited to; water heaters, and water hammer arrestors.

PART 4 - PRODUCTS

4.01 GENERAL

A. Refer to Master Construction Specifications.

PART 5 - DOCUMENT REVISION HISTORY
<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Revision Description</th>
<th>Reviser</th>
</tr>
</thead>
<tbody>
<tr>
<td>20190301</td>
<td>Original Issuance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

END OF ELEMENT D201001