232253 STEAM VAULTS

Part 1 – GENERAL

1.1 Description

A. This section details the guidelines and expectations for the design and installation of steam vaults on Johns Hopkins University Homewood Campus. Project conditions and requirements vary, thus precluding the absolute adherence to the items identified herein in all cases. However, unless there is adequate written justification and approval from the JHFRE Engineering and Energy Department, it is expected that these guidelines will govern the design and specifications.

1.2 Submittals

N/A

1.3 Quality Assurance

N/A

Part 2 – PRODUCTS

2.1 Steam vault lids shall be gray cast iron. Diameter shall be no less than 32”. All lids shall have the word “STEAM” cast into them, several vent holes, and include drop handles. Each vault shall have two lids.

2.2 All steam vaults shall have two integral ladders made of rust-proof aluminum or galvanized steel. The rungs shall be of a non-slip design. Each ladder shall lead to a different lid.

2.3 All pulling eyes shall be designed and reinforced to withstand an ultimate tension of 21,000 pounds and be reinforced to permit lifting and setting of the vault.

2.4 Vaults shall have a minimum interior height of 7’.

2.5 Vault and lid shall be AASHTO HS20 rated.

Part 3 – EXECUTION

3.1 Use as few steam vaults as possible.

3.2 Electricity shall not be present inside steam vaults. No steam vault component shall require electricity. Utilize steam-powered pumps for sump where gravity drains are not suitable.

3.3 No plastic products shall be used in vault.

3.4 Each steam vault shall set on 12” of leveled limestone gravel which extends past the vault perimeter. Further, in damp areas, the vault shall be surrounded vertically by 6” of limestone gravel.

3.5 A bituminous mastic “rope” shall be used to form a gasket between each riser section. If possible, use more than one rope.

3.6 All pipe penetrations shall be sealed with Link-Seal type mechanical seals rated for high temperature, corrosive environments.

3.7 Pipes shall not be mounted tight to the wall. No pipes shall impede ladder access.

3.8 All vaults shall be externally coated on the sides and base with a waterproof bituminous material. All vaults shall have an internal gravity drain consisting of all cast iron components. Water must be drained from the lowest point of the vault floor. All vaults must also be constructed with a properly installed French Drain to manage ground water.

3.9 All vaults shall incorporate a dual pipe, passive ventilation system. This system shall include two 4” minimum diameter, carbon steel vent pipes mounted on opposite sides of the vault. One pipe shall enter the vault no higher than 12” above the vault floor. The other pipe shall enter the vault no lower than 12” below the vault ceiling. Both pipes shall extend above finished grade at a height deemed aesthetically pleasing to JHU, for the given location and visibility. Below grade, each pipe shall be coated with a waterproof bituminous material. Above grade, each pipe shall be coated with an anti-corrosion paint system consisting of a zinc primer and compatible top coat. Top coat color must be approved by JHFRE. End treatments for each pipe, above grade, shall consist of downward facing “J” sections to prevent rain water from entering the pipe, and stainless-steel screens to prevent animal and insect access.

3.10 Prior to backfill, the entire exterior of the vault shall be coated with a bitumastic material for waterproofing purposes.