REQUEST FOR ARCHITECTURAL/ENGINEERING SERVICES

Wisconsin Veterans Home at King
Central Services Kitchen Floor Replacement

King, Wisconsin
Project #19K1K

November 2019
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I. Request Statement

The Wisconsin Department of Veterans Affairs is requesting the selection of an Architect/Engineer to design the kitchen floor replacement in the Central Services building at the Wisconsin Veterans Home at King.

II. Project Scope

A. Project Description

This project, the Central Services Kitchen Floor Replacement will demo the existing kitchen floor, approximately 14,417 square feet, to a solid base and reconstruct the floor with new drains, safing and quarry tile. The kitchen will be occupied during construction.

B. Project Location

King, Wisconsin (Waupaca County)
Wisconsin Veterans Home at King

C. Project Background and Existing Conditions

The kitchen is located on the second floor of the Central Services building. The existing quarry tile kitchen floor dates back to the building’s origin in 1963. In an effort to stop leaks to the floor below, some of the quarry tile has been covered with first a hydraulic cementitious floor leveling product, and then either a poured polymer/epoxy product or a resilient board safety floor product with welded seams. See attached study.

The floor has developed leaks in many areas due to failure of the flooring and/or the improper installation of the floor drains when flooring was added over the quarry tile.

III. Project Design Details and Considerations

The project will demo the existing floor and base. The floor will be built back up and have a quarry tile top surface. New drains, safing and sanitary lines will be installed. The kitchen will be occupied during construction.

IV. Proposed Timetable

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<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>A/E Selection</td>
<td>November 2019</td>
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<tr>
<td>SBC Approval</td>
<td>September 2020</td>
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<tr>
<td>Bid Opening</td>
<td>December 2020</td>
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<tr>
<td>Construction Start</td>
<td>March 2021</td>
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<td>Substantial Completion</td>
<td>September 2021</td>
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V. Proposed Budget

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<tr>
<td>Total Construction</td>
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<tr>
<td>Contingency</td>
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<td>A/E Design Fees</td>
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<td>Other A/E Fees</td>
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<td>DFD Fees</td>
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<td>Equipment</td>
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Total Project Budget  975,000

VI. Agency Contact
Susan Mattix
608-264-6093
susan.mattix@dva.wisconsin.gov

VII. AE Scope of Services
The AE will provide design as defined in the DFD “Policy and Procedure Manual for Architects/Engineers and Consultants” and the DFD “Contract for Professional Services” as directed by DFD at the Design Kickoff meeting.

VIII. Attachment
Kitchen Floor Study by Berners-Schober 2018
Central Services  
Wisconsin Veterans Home at King  
King, WI  
Commission number: 5984.02  
October 18, 2018  

Purpose of Study  

It is our understanding that the Veterans Home at King intends to do a complete kitchen floor replacement project approximately 2 years from the time of this writing, that is, starting in 2020. Due to persistent water leakage issues, and continual maintenance needs of the current floor, the staff desires a short-term improvement to the current flooring until the full project can be undertaken. This study looks at options for that short-term solution, and begins the investigation into products for consideration of the long-term floor replacement project.

The Central Services (CS) building on the King Veterans campus houses the food preparation facilities for the entire King campus, and also serves the Union Grove campus. The kitchen is on the uppermost floor of the building, which is set into a hillside, providing at-grade access to both ground and 1st floors. A basement, connecting to campus tunnel system, is below the ground floor.

The building has been experiencing leaking of water from the kitchen areas to ground floor areas for years. Maintenance staff performs continual patching of the multiple flooring surfaces to contain the water.

Berners-Schober has been commissioned to study the existing floor configuration, and recommend a solution that will:

- Prevent water leakage
- Stand up to heavy kitchen moisture/water
- Be slip-resistant
- Be easily cleanable
- Minimize maintenance and repair time by King staff

Existing Conditions  

The original drawings of the facility show a poured concrete system consisting of 6" slab with minimum 2' deeper beam. The original kitchen floor material was quarry tile set in a 2" mud set, which is shown on the original drawings. It was used both in the kitchen work areas and in the coolers and freezers. Original walls at the kitchen area are 8" structural glazed tile. The area of kitchen and food prep related flooring (including interiors of freezers and coolers) is 14,417 square feet.

Previous discussions about the floor system had referenced a copper pan below the 2" mud set. We have reviewed the original drawings and found no evidence that such a pan was installed.

Photo documentation and information from Michael Kosobucki, Food Service Administrator, shows large areas of the quarry tile covered by first a hydraulic cementitious floor leveling product, and then either a poured polymer/epoxy flooring or a resilient board safety flooring product with welded seams. Kitchen staff report that in some cases un-bonded quarry tile was removed and the area patched with hydraulic cementitious floor leveler. See attached for noted photo documentation of floor surfaces, provided by Michael Kosobucki.
Considerations

If an hydraulic cement product was used over all the re-surfaced floor area, it would likely be very difficult to remove, since the cementitious product would have bonded to the porous tile grout. This is supported by the photo of the Bakery (Room 232), where a combination of quarry tile and cementitious coating has been exposed as the safety resilient sheet product either wears away, or is cut away as it detaches from the substrate.

However, a few areas of the floor have had later toppings removed, exposing the original quarry tile. This leads us to deduce that either the cementitious leveler was not used in all areas, or that some versions of the leveling compound were not cement-based.

Assuming the hydraulic cement is bonded to the old, porous grout, it may be necessary to remove the quarry tile and its 2” wet mud set completely. It is our understanding that this strategy will be used for the floor re-surfacing project to be slated for 2020, thus that option will not be addressed in this study.

Proposed solutions

Any proposed cleaning of topping products from the existing quarry tile will need to be tested in the field. Since the current topping products are failing in various ways, removal of those products will be the first proposed course of action for the short-term solution.

After exposing the quarry tile, assessment will need to be made as to the condition of the surface of the tile. The following are potential results and recommended courses of action.

**Condition 1:** Surface of tile is acceptable for use

- **Recommendation 1:** Evaluate condition of grout. If intact, a water-resistant sealant may be able to be applied to reduce water penetration. If significantly chipped from the previous surface removal, existing grout could be ground out and the tile re-grouted with epoxy grout.

**Condition 2:** Surface of tile is either unacceptable for use, or is significantly covered in cementitious material.

- **Recommendation 2:** If the surface exposed after removal of current topping is unacceptable, the quarry tile will need to be re-covered with a new product to maintain serviceability until the complete floor resurfacing project is started.

Two potential solutions are defined below, along with an approximate square/foot cost. The selection of product and cost should be reviewed once the area to be covered has been established.

A. **Urethane Slurry System**

Urethane slurry systems are self-leveling, water-based, urethane resins that are applied at ¼” thickness, and broadcast with aggregates to yield a ¼” to 3/8” finished system. These systems are designed to resist thermal shock (such as hot cooking oil), impact, corrosion, mild chemical attack, and abrasion. The system is tolerant of substrate moisture, so that it can be installed over “green” concrete if patching of subfloor is required.

- **Approximate costs:**
  - Product and installation: $12.00/SF
  - Approximate budget for entire floor coverage: $186,000
    - Includes a factor to address base, drains and perimeter trims
B. Polyvinyl boards with welded seams

A proprietary system, Eco-Grip, was used as a basis for this description. It is a ¼” thick recycled polyvinyl chloride material designed for slip resistance, shock absorbency, and ability to withstand high impact. It is designed to not shrink or harden when exposed to animal fats or caustic chemicals, as found in commercial kitchen environments. A leveling compound is recommended under this product for surface preparation over uneven surfaces such as tile and grout. This increases the cost. Evaluate if necessary.

Approximate costs:
- Product and installation: $17.00/SF
- Approximate budget for entire floor coverage: $251,000
  - Includes a factor for base, drains and perimeter trims
- Leveling compound, if needed: $5.00/SF
Veg Prep (Rm 218). ElastoCrete over quarry tile covered with Arizona Polymer Flooring Epoxy 400. There may be Ardex or Merkrete fracture guard or combination of both over the quarry tile.

Dish Room (Rm 221) and Pot Washing (Rm 222). Protect All sheet vinyl over cementitious substrate with Ardex leveler on top.

Bakery (Rm 232). Altro safety flooring sheet vinyl over quarry tile covered with Ardex. There may be spots where disbonded quarry tile was removed and the area patched with Ardex.
Tray line Assembly (Rm 234). Majority is Altro Safety Flooring sheet vinyl over quarry tile covered with Ardex floor leveler. The other side of the area has Protect All sheet vinyl over the quarry tile. There may be some spots in this area where disbonded quarry tile was removed and the area patched in with Ardex.

Production (Rm 235). ElastoCrete covered with Arizona Polymer Flooring Epoxy 400 installed over quarry tile. This section of quarry tile had Merkrete fracture guard spread over the existing quarry tile. The area where the steam kettles are installed is not quarry tile. It is a cementitious substrate.