

**General Description:**

- **Location:**  
Chelsea, Michigan
- **Profile:**  
Replaced approximately 35,000 square feet
- **Project:**  
Roof Replacement  
Built-up Roof

**Services Provided:**

- Evaluation
- Design Development
- Construction Documents
- Bidding
- Field Quality Assurance

**Challenge:**

- Water leakage occurring from both roofs and walls
- Roof replacement occurring over a sterile manufacturing process

**Solution:**

- Total building envelope approach allowed both problems to be solved during the same project
- Created a temporary internal envelope during tear-off and replacement

## Chelsea Milling Company

**"JIFFY" mixes**  
*Main Plant*

Chelsea Milling Company (CMC), the manufacturer of Jiffy Mix™, was experiencing leakage conditions throughout the plant. Leakage problems were occurring over process assembly lines and creating disruption to the manufacturing process. A sterile environment is vital to the food industry. A previous evaluation and an infrared *StructureScan*™ survey had been performed by StructureTec to establish a five-year prioritized program which included a plan for replacing these roofs based on the percentage of

membrane. Ponding water was evident in the field of the roof. Expansion joints between adjacent roofs were leaking. There were



*Overview of Chelsea Milling Company, Jiffy Mix™*



*Saddles were designed as a part of the new roof system in order to help eliminate ponding water.*

membrane splits at the metal edge. The adjacent masonry wall was in disrepair and required major reconstruction. A built-up roof system was determined to be the best long-term solution. During the design phase, tapered insulation saddles and crickets were proposed to help aid in water dispersion and prevent standing water. An additional challenge was addressed during this phase in that the roof replacement had to occur without disruption to the internal operations, which needed an absolutely sterile environment. Internal temporary protection was designed to prevent dirt and debris from entering the manufacturing process. This would allow the removal and replacement of the roof system without shutting down

wet, saturated insulation. The original single-ply system was exhibiting major distress resulting in splits and punctures in the EPDM



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*Rooftop projection is properly flashed with a stainless steel sleeve and a rain collar.*



*Attention to detail is evident in the expansion joint flashing and sheet metal coping.*

the manufacturing process below. Construction Documents were then developed and the project was put out for bid. During the construction phase, the internal temporary protection and tapered insulation saddles and crickets were successfully incorporated. Proper drain installations were also undertaken to ensure that ponding water would no longer be a problem. A four-ply asphalt membrane was installed with a heavy asphalt flood coat and aggregate surfacing. New sheet metal covers with a standing seam configuration were installed after the expansion joints had been properly flashed. Architectural metal cladding was installed on the exterior walls in conjunction with the roofing project. In conclusion, CMC has a long-term, durable, watertight roof system which will protect their facility for many years. They were able to accomplish this without having to disrupt their processes or violate their sterile environment. This enabled CMC to experience the greatest return on investment for their project. ■

#### FEATURES

Life cycle cost (high rating for longevity)

Provided Field Quality Assurance

Designed insulation saddles and crickets

Designed new fascia system

Designed built-up roof system

Designed new sumped drains

Provided field of the roof metal flashing details

Expansion joint detailing with metal cap/standing seam joints

#### BENEFITS

Maximized the return on investment

Ensured higher quality end product

Prevented standing water by aiding in dispersion

Prevented splits and fractures along edge detail

Durable for high-traffic areas

Prevented standing water by aiding in water dispersion

Ensured watertight integrity of rooftop projections

Long-term details requiring minimal maintenance over the service life

Total Building Envelope Management Solution<sup>SM</sup>

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