

**General Description:**

- **Location:**  
Benton Harbor, MI
- **Profile:**  
107,000 sq. ft.
- **Project:**  
Roof Evaluation, StructureScan, & Building Envelope Evaluation

**Services Provided:**

- Evaluation
- StructureScan
- Development of Long-Range Program

**Challenge:**

- Needed to determine the remaining value left in the original roof

**Solution:**

- Perform a state-of-the-art infrared survey and roof evaluation to determine how much of the roof is degraded and needs to be replaced or restored

## Whirlpool Corporation World Headquarters

Considerable roof leaks caused Whirlpool Corporation to begin budgeting for roof re-

commendations for each roof and building area. All roof areas were prioritized based on the conditions and



*Overview of Whirlpool Corporation's World Headquarters*

the integrity of each respective roof. A five year program with a concerted plan of action was developed. On the major capital portion of the project, Whirlpool was able to prioritize their expenditures for roof replacement, enabling

resources to be applied where required, and identifying areas which would yield a higher life-cycle cost through maintenance. For these areas, a Strategic Maintenance Program was developed to remove wet saturated roof insulation where the roof life could be extended and to implement repairs and corrective action. The Survey's scientific approach and accuracy in pinpointing areas of wet insulation determined that precise repairs placement. The roofs, however, were the original coal-tar pitch four-ply roofs, which normally exclude a 20-30 year life expectancy. The owner wanted to determine how much remaining value was left in the life of the roof. A StructureScan Survey was performed to determine how much wet insulation was present and how much previous degradation had occurred. The Survey included performing a "state-of-the-art" infrared scan of 100% of the roof area. Results were recorded on a VCR tape for review and verification. All deficient areas were marked on the roof surface. Schematics were developed for documentation and future contractor bidding. The Evaluation Phase consisted of a survey of the building envelope to assess conditions on masonry and precast panels. The roof evaluation consisted of flashing analysis, roof membrane analysis, with confirmations of construction, conditions, and recom-

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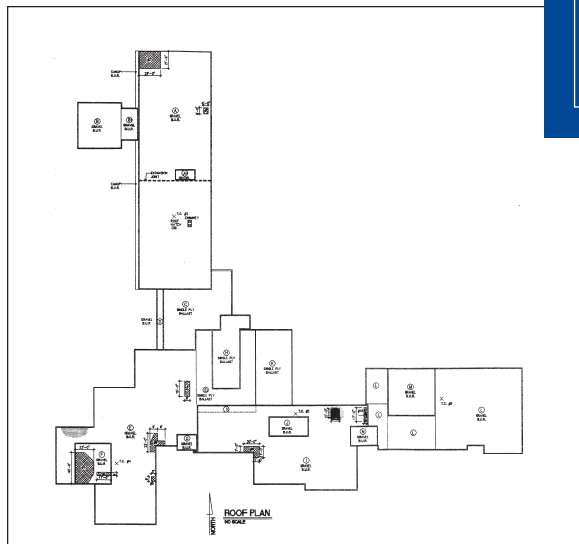
*In addition to the severe ponding water conditions, the insulation is wet and saturated.*



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could be performed to totally eliminate the leakage conditions that had evolved thus eliminating the guesswork and minimizing the risk. This program allowed Whirlpool to prioritize their budget dollars, thus maximizing their return on investment. ■



*Cross-section areas indicate wet insulation (StructureScan Survey).*



*Overview of World Headquarters  
Precast Concrete Panels*

FEATURES	BENEFITS
Determines the exact extent of wet, saturated insulation	Save dollars by eliminating unnecessary roof replacement
High level of accuracy, eliminates guesswork	Precise repairs to eliminate leakage conditions
Scientific approach to problem-solving	Addressed the cause of the problem, not just effect
Total building evaluation and review	Able to develop a long-range strategic plan



*Major degradation to the existing original "paper" felt flashing along the cant juncture.*



*"Raised felt edges" are prevalent due to inadequate protective surfacing at this location.*

**StructureTEC® Project Profile**

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

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