

**General Description:**

- **Location:**  
Battle Creek, Michigan
- **Profile:**  
Multi-sloped Roofs  
Elementary School
- **Project:**  
Roof Replacement

**Services Provided:**

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

**Challenge:**

- Adjoining steep and low slope environments
- Numerous transitions between steep and low slope environments
- Extremely deteriorated parapet wall

**Solution:**

- Designed two different roof systems for the different slopes
- Designed detailed requirements for steep slope/low slope transitions
- Incorporated restoration of the wall into the roofing project

## Battle Creek Public Schools

### *Ann J. Kellogg Elementary School*

Battle Creek Public Schools, a school district in South-west Michigan consisting of more than twenty-five buildings,

criteria posed a unique challenge. An additional challenge arose from the fact that the parapet wall was extremely deteriorated and



*Overview of completed low slope and steep slope roofing.*

was experiencing extensive leakage conditions at Ann J. Kellogg Elementary School. Numerous repair attempts had been made but all were unsuccessful. The project was extensive, involving both steep and low slope environments, numerous transitions and flashings, as well as multiple adjoining roof areas. StructureTec was contacted, and, after evaluating the roof, concluded that complete removal and replacement were necessary in order to solve the problem. The dissimilar slopes and systems as well as the flashing and expansion joint

structurally unsound, prohibiting proper perimeter flashing termination. During the design phase, two roof systems were proposed to solve the differing slope problem. A built-up, asphalt-based, four-ply roof was determined to be



*Cracked or fractured masonry units were replaced as a part of the restoration process.*



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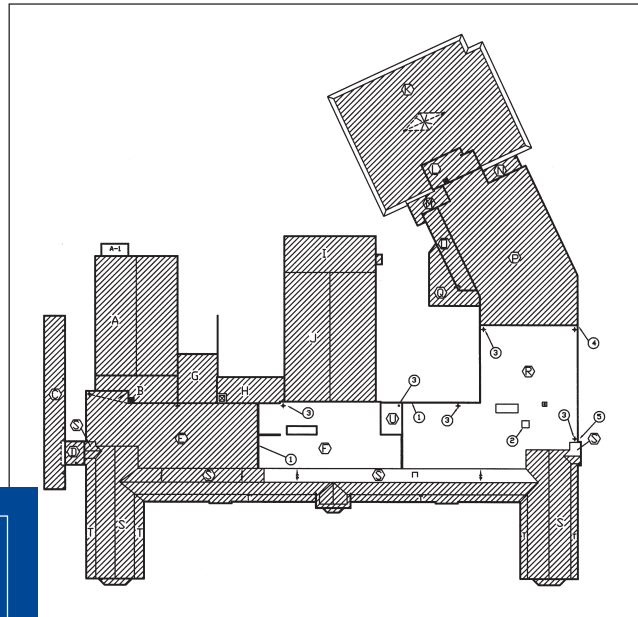


Work in progress on the expansion joint.



Overview of completed roof replacement.

the best fit for the low slope area. The steep slope area was then considered and a shingled roof system was designed. Tuckpointing and replacing spalled or fractured masonry units, replacing backer rods, and caulking vertical control joints were implemented to correct the parapet wall problem. Construction documents were written and the project was bid. Field Quality Assurance was extensive during the construction phase due to the extreme attention to detail required to incorporate all the aspects of the



Roof Schematic of Ann J. Kellogg Elementary

project. In conclusion, Battle Creek Public Schools was able to solve their leak problems within the facility and had an end product which would yield many years of service life, maximizing their return on investment. ■

### FEATURES

Designed detailed requirements for steep slope/low slope transition

Designed built-up system

Replaced existing defective masonry units

Scientific approach to problem-solving

Provided Field Quality Assurance

### BENEFITS

Provided watertight integrity to ensure complete integration between dissimilar roof system

Durable for low slope areas

Provided structurally sound exterior wall

Eliminated the cause of the problem, not just the effect

Ensured higher quality end product