

**General Description:**

- **Location:**  
Adrian, Michigan
- **Profile:**  
150,000 sq. ft. of masonry
- **Project:**  
Restoration and Cleaning of Exterior Masonry Walls

**Services Provided:**

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

**Challenge:**

- Leakage conditions since completion of original construction
- Accessibility to the high bay walls from the existing roof levels without damaging existing roof systems

**Solution:**

- Removed and replaced existing through-wall counterflashing and applied a breathable masonry preservative to exterior brick
- Used a swing-stage set-up to perform work to protect existing roof systems

## Christian Family Foundation Lenawee Christian School/ Christian Family Centre

Christian Family Foundation had experienced rainwater leakage through exterior ma-

vealed that the accessibility to the high bay walls would be a challenge because of the required



*Overview of Lenawee Christian School*

scope of work. This work had to be completed without damaging the existing roof systems. It was decided that a swing-stage set-up would be required for the construction phase to protect the roofs. Restoration involved correcting areas of existing masonry distress,

tuckpointing deficient mortar joints, reconditioning rusted steel lintels and installing a new through-wall flashing system for exterior brick veneer at upper wall levels. The flashings were a com-

sorry walls at their facilities over the ten year period following completion of the original construction. Christian Family Foundation had been unable to determine the cause of the leakage conditions. A comprehensive evaluation was performed consisting of exploratory removal of masonry units to review existing through-wall flashing details. This evaluation revealed that none of the existing through-wall counterflashing provided water-tight integrity to the building. In addition, porosity testing of the exterior brick veneer was conducted and this test revealed that the masonry was extremely porous and absorbing moisture. The evaluation phase also re-

tuckpointing deficient mortar joints, reconditioning rusted steel lintels and installing a new through-wall flashing system for exterior brick veneer at upper wall levels. The flashings were a com-



*New through-wall flashings consisting of stainless steel and a flexible waterproofing membrane were installed at upper wall levels.*



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posite system consisting of a stainless steel pan and a flexible waterproofing membrane. All existing elastomeric sealant materials at exterior joints, wall penetrations, and window perimeters were removed and replaced with new silicone sealants. Exterior walls were cleaned to remove existing stains and a clear water repellent sealer was applied to all stone and brick masonry surfaces. Additionally, exterior concrete surfaces at mechanical wells were cleaned and weatherproofed with a new elastomeric breathable masonry coating. At ground-level, similar weatherproofing and restoration procedures were performed on

### FEATURES

Designed new stainless steel through-wall counterflashing

Research included exploratory openings in the wall

Boroscope technology behind the exterior wythe allowed actual observation of hidden conditions

Rilem tube test for masonry absorption to determine the porosity

### BENEFITS

Cost effective corrective action with long-term watertight integrity

Enabled the owner to address the specific areas requiring attention

Allowed owner to pinpoint the true integrity of the through-wall conditions and address the root cause of the problem

Able to determine proper corrective action for exterior facade



*Limestone units being cleaned and prepared for sealant/sealer applications.*

masonry screen, sign, and patio walls around the facility to address conditions of masonry distress and water related efflorescent stains. Upon completion of the work, water testing was performed. Results from this testing showed that the specified exterior restoration and weatherproofing procedures were successful for Christian Family Foundation in correcting previous water leakage concerns associated with exterior walls at both the Lenawee Christian School and Family Centre buildings. ■

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