



## **Customized Weatherization Case Study Forensic Testing and Retrofit Design Services provided by MFC**

MFC was contacted in March 2005 by a Deputy Commissioner of a local Municipality, who sought expert guidance in fixing an existing Municipal Building that had chronic water intrusion and mold problems.

Our first step was to make an accurate diagnosis of the conditions that were contributing to the long-standing and difficult to remediate water intrusion. We made a preliminary inspection the day after the first job call. This allowed us to set up water testing in a format tailored to this building's specific needs as well as further investigation of the facility. What we saw led us to believe that this was not a simple "leaky window" situation.

By early April, water tests and visual inspections had confirmed problems with a multitude of existing building assemblies. We recommended to the Deputy Commissioner that the Municipality consider making repairs to the following:

- Operable Window: Sills/Pans, Blocked Weeps
- Stationary Window: Sills/Pans, Short Glazing Beads, Missing and Blocked Weeps, Expansion Joints
- Door and Window Sealants to Concrete and Mullions
- General Sealants at Metal Siding to Concrete Vertical Walls (Perpendicular)
- Concrete Slopes/Drainage and Finish Grade Heights
- Awning Connections and Slopes
- Leaks at C-Beams - Reseal with Small Joint and Seam Sealer
- Unsealed Awning Struts to Beams at Concrete
- Electrical and Plumbing Penetrations
- Metal Siding Attachment Screws/Gaskets
- Sealants at Metal Caps of Parapet /Facade Walls
- Facade Walls to Metal Siding Sealants
- Seal All Concrete Block Walls
- Replace Damaged Ceiling Tiles
- Replace Damaged Carpet
- Repair Damaged Baseboard
- Evaluate Damaged Steel Studs and Plates
- Replace Removed Drywall
- Reset Insulation in Ceiling with Ceiling Tile Repair
- Replace Insulation Where Removed at Exterior Walls
- Re-seal Roof Where Recent Coating Applied
- Drainage at Current Field Drain Southwest of Building II

In May and June, MFC teamed up with local builders approved by the Municipality to conduct destructive testing and to install sample repairs. MFC wrote the scopes of testing and repairs, and documented the process, while others fabricated and installed the materials.

Budget considerations and additional information about the subject Facility led to a Repair Scope Revision, published in August. Our detailed Repair Scope, published in pdf format for easy communication as well as in WordPerfect, included site photographs, a location plan color- and number- coded by types of repair, material specifications, and step-by-step instructions for the repair installers (to be determined by the Municipality). This scope document was suitable for putting it out to competitive bid.

We provided in-depth repair scopes for six different types of windows and doors; improperly sloped concrete flatwork; improperly graded and poorly drained landscaping areas; sealants on roof parapet walls and where metal siding met concrete; sealants at mechanical penetrations through metal siding; waterproofing vertical masonry block and concrete; tightening fasteners and replacing gaskets and closure tapes on all of the metal siding; and, overdue maintenance on a series of canvas window and door awnings. The repairs were written with the assumption that the facility would be occupied by municipality employees and accessed by the public throughout the repairs.

At the beginning of the project we were asked to provide an estimate of our consulting fees. We estimated our fees would be \$55,000.00 to investigate, diagnose, and write repairs for this public building. MFC's work placed the Deputy Commissioner, who first contacted us in March not knowing what to do, in a position of power: the Municipality knew what was wrong, how to fix it, and had the documentation it needed to put the project out for bid. MFC provided this testing, analysis and documentation in only six months, costing less than \$47,000.00 in consulting fees.

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