



PROPERTY INSPECTION PROFESSIONALS

August 6, 2010

Client  
Client Address

Re: Inspection Address

Dear Client,

On Tuesday August 5, 2010, Tomacor completed a preliminary inspection of the above referenced remodeling work at Inspection Address in Chicago, Illinois. Present during the inspection were Tom Corbett of Tomacor Incorporated and Mr. Client of ABC Development. The preliminary meeting with the members of the team specified Tomacor's responsibility as being limited to locating, as possible, the source of leaks at the buildings south side end roof at the upper levels and south side walls. The lower levels were also examined and water leaks checked per the direction of the team from ABC.

### **Introduction**

The property is approximately 25 years old having been constructed in the mid to late 1980's when Exterior Insulation and Finish Systems (EIFS) was common in the market place. During this period of time the EIFS manufacturers were hit with a significant class action law suit (against their trade association EIMA) demanding repairs and supplemental training programs for EIFS installers across the country. The national problem was that the product was installed with out a drainage plane which allowed it to trap moisture due to its moisture impermeable finished surface. The lawsuit has been resolved within the last 10 years and small dividends were paid to those who confirmed that their EIFS product was installed improperly. In addition once water was able to get behind the EIFS product it became very difficult to remove it from behind the wall. These events lead to mold issues. Simple roof or siding leaks turned into large remodeling projects requiring exterior and sometimes interior walls to be fully stripped, removed and replaced. The problems with the installation nationally have also occurred at Inspection Address.

The existing rubber roof has been manufactured by Carlisle or Firestone. This product suffered significant bonding problems at lap joints during its hay day in the market place throughout the country (1975-1989). Contact adhesive was used to lap the joints and the adhesive proved sensitive to thermal expansion and contraction. As a consequence many of these roofs were compromised then torn out and replaced with polyvinylchloride (PVC) or TPO roofs. This rubber roof is the only "rubber roof" on the market (contractors regularly confuse this term) and has a good service life if it is installed properly. A second name applied to this product is an EPDM

roof. Tomacor will refer to it as a rubber roof within this report. It is Tomacor's opinion that the roof and siding have been leaking for several years.

### **The Inspection**

1. Tomacor noted several pieces of chipped or cracked stone at the buildings north elevation which should be repaired as soon as possible. The inspection proceeded from 123 East Street through 1234 Street.
2. The south side EIFS component is leaking into the building wall every time it rains or snows. Large gaps take water at the upper level. This conclusion was confirmed during the inspection of the south wall from the buildings exterior and interior points. Water infiltration is getting trapped behind the EIFS product causing mold and significant rust in the south wall which will eventually lead to a large and hazardous mold abatement project which will have to be addressed over the short term.

The EIFS component of the south wall terminates below the east side and south side vents at the top floor of the building. It is clear to see where the bottom of the sheet metal ventilators, at the east wall, extends beyond the EIFS clad wall and acts as a flashing per professional standard. Why this detail was omitted on the south side wall is not clear yet the south side EIFS cladding takes a turn along the sill of the ventilation screen and extends horizontally for approximately one foot before it abuts the ventilating screen (see photo section page 1, lower left). Installing the EIFS on a horizontal application will cause it to leak and does not meet manufacturer specifications. Installing the EIFS components to butt up against a ventilation component made of metal is inviting disaster. Tomacor's observation that the joint between the EIFS product and the ventilation screen was open is verified in the photographs which are attached to this report. (See photo section page 2, at the upper left) Tomacor sees this gap as the primary reason for the large amounts of water which are collecting along the south wall of the complex. Flash and repair the sill below the south side ventilators immediately. Review the Sheet Metal Contractors of North America handbook for details. This joint must be made waterproof. See photo section.

Tomacor examined the south side stairwell #3 which had also been clad with EIFS. A large or significant crack was noted in this wall over the access door. In addition there was a hole in the EIFS which is contributing significant amounts of water into the exterior wall of the building. The collecting water has created a mossy or moldy environment along the inside sill behind the exterior wall in question. This problem also needs to be corrected immediately. See photos on page 4.

While examining the EIFS clad wall along the foundation it was noted that weep holes were omitted at the bottom of the wall. This omission will send water into the building where it will cause more damage and mold over the short term. It is critical that weep holes be installed with the flashing members at the buildings south side, all elevations.

Tomacor also noted multiple attempts at repair along the east wall of the building. The EIFS siding has been recently caulked, in a repair attempt yet it appeared to be holding water in the wall below the louvered screen above. See photo section. Tomacor does not believe that this recent caulking will help prevent water infiltration or mold formation from developing in the building.

Some repair strategies may recommend a rain screen at the exterior wall to prevent water infiltration. Due to its relative weakness in compression Tomacor does not believe the south and east side exterior walls could be retrofitted with a "rain screen" siding attached and separated from the existing EIFS product. This rain screen installation could be a good solution short of removing all of the EIFS and replacing it with an approved material. It is Tomacor's opinion that removing and replacing the EIFS would be the most appropriate decision based upon the buildings condition.

Tomacor discussed an application in which Hardie Board or a similar product would be installed over the existing EIFS product. The concept is that the newly attached Hardie Board could prevent driven rain and snow from entering the building.

Tomacor cannot comment (has no opinion) whether the steel of the wall assemblies could in fact carry this weight. In addition we are extremely concerned about your ability to ventilate the wall. Without ventilation this wall will continue to trap water and encourage mold development. Confirm with your architect or engineer of record to determine the nature and kind of products that could be installed over the EIFS component if in fact cladding is possible. Initiate these repairs with an architect and engineers input as soon as possible and before the winter of 2010. See photo section.

3. Tomacor's analysis of the EPDM roof revealed that it had been replaced and re-roofed at least one time in its history. The photo on page 2 of the Photographic Section noted that the roof had been "glued down" to the plumbing stack rather than wrapped and glued or mechanically fastened per standard. (Compare photos of stack penetration on pages 2 and 3 of the section for photos) This shows that the building owner has been suffering from water infiltration problems for some time. Simply stated a new roof was installed over the original roof due to leaking and it too now appears to be leaking. See photo section.

As mentioned in the introduction, EPDM roofs were very problematic in the early days due to the failure of the adhesive used along lap points of the roofing material. Tomacor believes that one or more failures in these seams or lap joints will be discovered with the replacing of the roof. We believe the roof should be removed and replaced at the roof top level that includes the major mechanical equipment of the building.

Further understanding of this roof based upon its age, indicts its seams and lap joints also suggesting the need for a tear off and replacement. In addition and based upon its age, the roof is nearing its expected life and is expected to be replaced over the next 1-2 years.

In addition to the roofing problems noted by the team, it was also noted that the walking tiles or patio pavers provided by the original builder for foot traffic are broken and

damaged in multiple areas throughout the roofs surface. These pavers should have been replaced years ago once the stone began to break. See photo section.

Tomacor had an opportunity to evaluate the top floor roof which sits above stair tower #3. Gravel has been pushed away from the roof edge leaving the EPDM membrane exposed to the suns UVA and UVB rays. In addition the gravel stop used to hold the gravel back at the roofs edge is an unusual product which normally sits fully under the roofs surface. Here it extends in a narrow margin of 1-2 inches. Tomacor was unable to confirm whether this gravel stop was professionally and mechanically fastened or not. It may be leaking. It is unlikely that the large amount of water discovered below the roof is emanating from the EIFS product only.

Due to the large amount of money involved Tomacor recommends a third party confirmation regarding the roofs condition before the building owner chooses to remove and replace the roofing materials. This confirmation is better made using a resistance or radio transmission reading instead of a thermal image. The imaging standard reads metal roof pans as wet and could conceivably create a false positive as the inspector is looking for a wet roof.

Tomacor is available to come back to the roof site and use our Delmhorst roof probe in order to check for water below the roofs surface as long as there is someone there to professionally seal the holes made. Should the third party approach not be attractive, we recommend replacing the roof. Based on these conditions and the observed deficiencies on the roof Tomacor is recommending that the single-ply EPDM roof be removed and replaced to professional standards. Standards are available from the manufacturers and the National Roofing Contractors Association. See photo section.

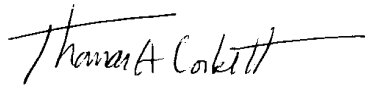
4. Tomacor recommends that the drain or condensate legs from the air conditioning equipment be professionally insulated at the exterior walls. Many computer assemblies require air conditioned rooms in which water will be removed from the environment in winter and summer months. It is therefore critical that the drain legs be insulated in order to prevent freezing of the condensate. See photo section.
5. The examination of the south elevation wall at Inspection Address revealed that there is a problem with water infiltration at the buildings southwest corner. The inspector noted a large amount of water at the buildings interior and when the exterior was examined the over flow scupper was not professionally caulked into place nor was it completed to the original architectural detail. In addition a lintel needs to be installed above the scupper to carry the weight of the concrete blocks above. Finally Tomacor recommends that the south elevation of this new extended wall be sealed at open mortar joints and covered with a second coat of masonry sealant such as Modak or equivalent. It is also anticipated that the sheet metal cap for this block wall be extended beyond the EIFS to its immediate west where it would be terminated and the EIFS siding extended down and over the sheet metal cap. See photo section.

## Conclusion

Other issues may develop or become exposed revealing additional sources of water infiltration. Tomacor believes that we have observed the major ones and we recommend repair immediately.

Timing is critical because exterior repairs are generally not undertaken after 12/1/10. If possible these repairs need to be undertaken before the winter of 2010.

Sincerely,



Thomas A. Corbett, President  
Tomacor Incorporated

SAMPLE