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Via: Fed Ex Standard Overnight

Mr. Stephen Loyd
Precision Wall Systems, Inc.
3131 Maple Avenue
Suite 14 B
Dallas, TX 75201

Re: MA4310 — Material Compatibility for the Components Used in the Precision Wall Systems
“Gridworx” Stone Hanging System

Dear Mr. Loyd:

Materials Analysis, Inc., was contacted on or about June 15, 2006, regarding a “Gridworx” stone hanging system and the material compatibility of its components. The main structural hanging components are 6005-T5 aluminum extrusions finished with a Type 1 sulphuric anodize coating. The remaining components of the Gridworx system include Dril-Flex fasteners made from low alloy steel and finished with Stalgard (a proprietary corrosion protective coating), galvanized steel hat channels, silicone sealer, and limestone panels. Our firm was asked to examine the potential for corrosion between the anodized aluminum extrusions and the limestone panels.

The aluminum extrusions are used for fixed support of the limestone panels on their lower edges and are attached to the building structure by Textron Dril-Flex hardened point fasteners. The upper attachments also use aluminum extrusions that are locked into place with the underside of the fixed support extrusions. The limestone panels are then secured into the slots of the supports. Silicone sealer is used around joints to prohibit moisture intrusion, and the aluminum supports include a drain port to inhibit the collection of water.

In general, the anodize coating of the extrusions should provide considerable corrosion protection compared to that of bare aluminum. In addition, the normal environment should be dry for the most part because of the sealing design used in the Precision Wall System; however, it was assumed for this analysis that moisture was present from either seal leakage or condensation. As such, several areas of potential corrosion attack were examined.

For example, the Dril-Flex hardened point fastener used to attach the extrusions to the building produces its own hole in the aluminum extrusion as part of the installation process. The finished

surface on the inside of the hole is, therefore, bare aluminum alloy devoid of protective anodized film. The fastener has, however, a Stalgard coating that—as claimed by the manufacturer—provides corrosion protection including that from galvanic corrosion. The protective Stalgard coating should, therefore, prevent any galvanic action between the aluminum and steel in the presence of moisture. The coating is proprietary, so this analysis assumes that the manufacturer's claims are valid.

Potential corrosion may also occur where the aluminum supports are in contact with galvanized steel hangers. However, the presence of the anodized coating on the aluminum supports and the galvanized coating on the steel hangers should provide adequate protection between the two materials against galvanic action.

The last area of concern is the interface between the aluminum supports and the limestone panels. Limestone is mainly calcium carbonate (CaCO_3), which, reportedly, causes a severe reaction when in contact with bare aluminum;¹ however, tests by Materials Analysis, Inc., with stone samples supplied by Precision Wall in contact with aluminum Gridworx samples in tap water and saline solution have shown no such reaction. No evidence exists of any severe reaction between the stone and the sulphuric anodized surfaces of the aluminum supports.

In conclusion, the various materials used in the Precision Wall Gridworx system appear to be compatible regarding corrosion and, therefore, are considered acceptable for extended service.

Respectfully submitted,

MATERIALS ANALYSIS, INC.



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¹Cole-Palmer Chemical Compatibility Database.

