

DANNENBAUM ENGINEERING COMPANY — McAllen, LLC
1109 NOLANA AVENUE, SUITE 208 MCALLEN, TEXAS 78504 (956) 682-3677

July 8, 2014

Hidalgo County Purchasing Office
2802 South Business Highway 281
Edinburg, Texas 78539

ATTN: *Mr. Oscar Garza*

REF: *Hidalgo County – Purchasing Department
Courthouse Annex Additions and Site Modifications*

SUBJ: *Issues with Rain Water at Courthouse Portables*

Dear Mr. Garza,

As you are aware, we visited the Courthouse Portables site on the morning of Monday, July 7, 2014. The purpose of the visit was to review several issues related to rain water at the portables. Daniel Flores and Seferino Garza with the Facilities Department were also present. We reviewed the issues and possibilities for resolution for each. The common effect of all of the issues is buckling deck boards and standing water following rain events. The items we are investigating include:

1. The deck planks are installed closer together than specified by the manufacturer both along their length and at ends.
2. Deck planks are not fastened at every joist.
3. The scuppers on the portables are spilling water onto the deck.
4. The downspouts on the portables are leaking water onto the deck.
5. Driven rain is entering the covered deck area between the parapet walls of the portables and the roof of the canopy.
6. The deck is not draining in areas during and after rain events.
7. Moisture under the deck is not being released.

The following are determinations from our investigation on site as well as statements from others who have observed the conditions described:

1. The deck planks were installed touching or within a blade thickness of touching on both long edges of planks and at the ends. With heat, moisture and humidity the planks have swollen causing warping and prevention of water drainage.
2. As stated in an earlier letter, upon examination of the Trex brand decking planks we found that in a number of locations the planks were bowing upward. The planks are attached to the structure below with two decking screws at every other structural joist location. The bulging was occurring primarily at the location of joists that were not

fastened. The bowing that was observed was also occurring near the end of planks where an abutting member would not allow any expansion of the material. The bowing appeared to possibly be related to swelling of the planks which were installed touching, or near touching each other. The contractor removed two of the warping planks and it was found that the underside of the planks and the structure supporting the planks were dripping with water. All of the area viewed below the opening was also very damp.

3. The manufacturer of the portables states that the scuppers and downspouts are designed for the quantity of water that would naturally fall on half of each roof. They state that the water from the canopy roof which falls onto the portable roof is causing the additional quantity of water through the scupper, causing the scuppers to splash and overflow.
4. The downspouts at the portables have gaps where each section fits to the next. During rain events water sprays from each joint.
5. Although there is a substantial horizontal overhang of the canopy eaves over the portables roofs and the vertical clearance between the top of the parapet walls of the portables and the beams of the canopy are not excessive, strong wind driven rain is able to spray onto the deck below.
6. Due to the swelling of the deck planks and the excessive rain water entering the deck area, primarily from scuppers and downspouts and secondarily from wind driven rain, a number of deck areas are retaining water until removed by maintenance personnel.
7. Skirting was installed around the deck area to attempt to prevent animals from getting under the deck, as well as for safety to prevent children and others from accessing under the deck area. Vents were installed in this area to allow ventilation below the decks. Water is retaining below the deck areas and is not drying out in a sufficient time period. This may also contribute the swelling of the deck planks.

After consideration of the factors and determinations detailed above, we make the following recommendations:

1. We recommend that a test section of decking, in an area detailed on the diagram attached herewith, be removed and reinstalled with a gap from plank to plank at the long edge and ends measuring between 1/8" and 3/16". This provides a gap which is still slightly less than the manufacturer's recommendation, however this gap would be significantly more than the current spacing and is less than the width of the narrowest stiletto heal size from the sources we researched. We further recommend that after a period of rain events determined satisfactory by the Facilities Department and the Architect, if no water issues have occurred at the test area, that the remainder of the decking be removed and regapped to match the test area.
2. We recommend that the decking be fastened by two approved deck screws at every joist. We further recommend that any bowed deck areas be removed and replaced with proper spacing at the plank ends.
3. We recommend that gutters be installed at the canopy. We further recommend that downspouts on the new canopy gutters be extended through the deck below, or beyond the roof ridge of each adjacent portable.
4. We recommend that the manufacturer of the portables reinstall the scuppers and downspouts or properly seal the joints in the existing scuppers and downspouts.
5. We recommend that should rain water continue to be an issue due to wind driven rain following the implementation of all other items mentioned here, that a skirt be placed from the parapet walls of the south portables to the underside of the canopy.
6. Item number one above resolves the issue stated in number 6 above.

7. We recommend that the skirting at the face of the decks in the locations detailed on the diagram attached herewith be removed and be replaced with a layer of cattle fence covered by a layer of screening material to match the size and gauged installed by the Facilities department at the canopy trusses.

Should you have questions or wish to meet regarding this subject, please contact me at (956) 682-3677.

Respectfully,



Steven L. McGarraugh, AIA
Project Manager

Attachment: Deck Ventilation Diagram

cc: File: 4710-01
Richard D. Seitz, P.E. - Dannenbaum Engineering