WJE

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Valde Guerra
County Executive Officer
Hidalgo County Courthouse, Executive Office
100 North Closner Boulevard
Edinburg, Texas 78539

Hidalgo County Courthouse
Building Enclosure Assessment - Executive Summary
WJE No. 2023.0765

Mr. Guerra:

At the request of the Hidalgo County Courthouse (HCC) Executive Office, Wiss, Janney, Elstner Associates, Inc. (WJE) performed an initial building enclosure condition assessment of the currently under construction Hidalgo County Courthouse located at 100 North Closner Boulevard (Courthouse Square) in Edinburg, Texas. Please refer to our Building Enclosure Assessment report dated June 30, 2023 for additional information and our full report. This letter is serving as an Executive Summary regarding the building enclosure conditions assessed to date, which includes a summary of Project Information, Document Review, Field Assessments & Findings, and Discussions & Recommendations.

PROJECT INFORMATION

The Hidalgo County Courthouse is an approximately 330,000 square foot, 7-story courthouse building nearing construction completion. The primary facade elements consist of glazed aluminum curtain wall, aluminum windows, Portland cement plaster (stucco), porcelain (ceramic) wall panels, and metal wall and soffit panels. A single-ply, thermoplastic polyolefin (TPO) membrane is provided for the roof covering.

WJE performed an initial building enclosure assessment on April 12 and 13, 2023, as well as document reviews of available project information over the past several months, which was prompted by reported building enclosure issues as the building nears Substantial Completion.

DOCUMENT REVIEW

WJE reviewed documentation provided by various parties regarding the building enclosure systems including the roof, glazed curtain wall, stucco, punched windows, and ceramic panel assemblies. A number of contract documents were reviewed for each of these systems including the 100% Construction Documents (CD) Drawings and Specifications, record documents including submittals and shop drawings, consultant reports during construction, and various project correspondence.

FIELD ASSESSMENTS & FINDINGS

WJE performed an initial building enclosure assessment on April 12 and 13, 2023 consisting of a visual survey, roof moisture survey, limited facade and interior moisture surveys, and a differential building pressurization survey.

Visual Survey

The visual survey consisted of a cursory visual survey of the roof and facade areas throughout the building via roof access, vantage points, and small Unmanned Aerial Systems (sUAS/drones). These facade areas included the roof, glazed curtain wall, stucco, and punched window systems. WJE complied with all FAA safety requirements and follows the guidelines of ASTM F3178-16 *Standard Practice for Operational Risk Assessment of Small Unmanned Aircraft Systems (sUAS)*. Our visual survey also included a cursory review of accessible interior spaces.

Infrared Roof Moisture Surveys

The roof moisture survey was conducted using Infrared (IR) thermography, a non-invasive imaging instrument that can be used to locate thermal anomalies in the surface temperatures of a structure or building assembly. WJE conducted an IR survey on the evening of April 12, 2023 and verified any detected thermal anomalies the following day using non-destructive moisture meters in an attempt to identify locations of entrapped water or saturated insulation within the roofing assemblies. In general, thermal anomalies were observed within localized areas.

Limited Facade and Interior Moisture Surveys

The limited facade and interior moisture surveys conducted included the aid of infrared (IR) thermography and moisture meters. These surveys were performed in conjunction with the visual survey and included IR thermography via drone on the exterior facade as well as a visual survey with the aid of moisture meters at isolated locations.

In general, and at locations throughout the building surveyed, water staining and elevated moisture was not detected other than at locations around stucco and punched windows. Construction cleaning activities were in progress during the survey; therefore, any moisture-stained materials, if present, were not readily visible, and elevated moisture readings were not detected at the isolated locations surveyed.

Differential Pressure Survey

WJE performed a differential pressure survey between the interior and the exterior of the building. This survey provided positive, neutral, or negative differential air pressure measurements, which informed us of any possible conditions related to air leakage or humidity control issues related to general building pressures relative to the exterior. The building was determined to be generally under positive pressure between the interior and exterior of the building.

DISCUSSIONS & RECOMMENDATIONS

Roof

The majority of the roof covering and flashings appear to be in fair condition, with isolated areas in poor condition. Numerous areas of ponding water and sedimentation staining are apparent due to improper underlying tapered insulation and cricket installation, resulting in inadequate or interrupted roof slope to drains. In general, various roof system components are not installed in accordance with the Project Specifications or the roofing membrane manufacturer's installation instructions. As such, we recommend performing roof repairs and/or localized removal and replacement, as required, in accordance with the manufacturer's installation instructions for the roof to reach its serviceable condition and achieve the manufacturer's warranty.

Glazed Curtain Wall

In general, the curtain wall system materials and IGUs are in good condition and representative of new construction. The condition of rainscreen gasketing and issues regarding interfacing with various adjacent building enclosure components should be addressed prior to Final Completion. The general condition of the rainscreen gaskets is more of an aesthetic concern than a performance concern, though further investigation should be conducted regarding out of plane IGU conditions and the existence of joint sealant between IGU's in lieu of rainscreen gaskets. As such, we recommend that damaged or displaced vertical rainscreen gaskets be removed and replaced, and the specified roofing-to-curtain wall interfaces should be completed.

Stucco

The stucco assembly includes continuous exterior insulation installed between the air and weather barrier (AWB) and a second layer of gypsum sheathing. The second layer of gypsum sheathing installed outboard of the insulation and AWB is moisture resistant; however, is not intended to endure prolonged saturation. In general, installing moisture sensitive materials outboard of the AWB layer is not ideal in any climate. Additionally, restrained differential movement between the stucco and gypsum sheathing substrate can result in cracks and further stucco deterioration. Cracks wider than hairline (1/16") were observed at some locations, which suggests that the source(s) of the cracking is due to other factors than normal curing shrinkage. The horizontal cracks near the wall base, where the stucco assembly terminates directly onto the concrete flatwork, is likely due to restrained differential movement that can occur when normal thermal and moisture induced expansion causes the stucco panel to volumetrically expand towards the concrete flatwork.

As such, we recommend that the assembly be further investigated to determine if moisture has the ability to enter the system, as well as to determine the general construction of the assembly and integration with adjacent cladding and windows.

Punched Windows

Previously failed water testing is likely a result of improper cladding terminations at window perimeters; however, diagnostic testing and investigation of window perimeter cladding terminations is required to form a definitive opinion. The testing, as it currently stands, should be resumed and completed after further investigation is performed and once the punched window and adjacent enclosure component repairs are completed.

As such, we recommend that further diagnostic testing be conducted of punched windows and the transitions to adjacent cladding systems to determine the source(s) of water intrusion. Once diagnostic testing resumes and is concluded, the Construction and Design Team should come to a consensus for proper repair for the current field condition.

Ceramic Panels

In general, the ceramic panels appear to be in good condition, and the previously reported damage, displacement, and vertical offset conditions were not apparent during our limited visual survey. We recommend that damaged or displaced rainscreen gaskets be either re-engaged or removed and replaced.

CLOSING

WJE's findings and recommendations are based on the observations and representative conditions at the time of our assessment. Other conditions may exist, or develop over time, that may not have been reviewed during our initial assessment. WJE reserves the right to modify our findings should additional information become available or additional evaluation be performed.

We appreciate the opportunity to be of service to the Hidalgo County Courthouse Executive Office and Hidalgo County.

Sincerely,

WISS, JANNEY, ELSTNER ASSOCIATES, INC.

Steven Spencer, PE
Associate Principal & Project Manager