

LE CIEL VENETIAN TOWER
Enclosed Lanai Window Wall System
Design Guidelines
Naples, Florida



April 10, 2020

Prepared by:
WISS, JANNEY, ELSTNER ASSOCIATES, INC.
1900 NW Corporate Boulevard, Suite E102
Boca Raton, Florida 33431

WJE No. 2018.4192.4

ENCLOSED LANAI WINDOW WALL SYSTEM DESIGN GUIDELINES

The following are Enclosed Lanai Window Wall System Design Guidelines (Design Guidelines) to enclose individual condominium unit lanais with window wall systems at Le Ciel Venetian Tower. Throughout the life of the building, window wall systems have been installed at individual condominium unit lanais to create enclosed interior spaces. The window wall systems have had different designs based on individual unit owner requirements and contractor installations. The Design Guidelines are intended to serve as a common basis for future window wall installations for enclosing lanais at Le Ciel Venetian Tower (Project). The intent of the Design Guidelines is to provide minimal performance requirements for the Project; aesthetic requirements are subject to Association approval. The Design Guidelines may include performance requirements that exceed state and local codes; however, it is the Unit Owner's responsibility that the Project conforms to both the Design Guidelines and all applicable codes. Unit Owner shall identify any conflict between Design Guidelines and applicable codes to Association in writing prior to construction.

1.1 DEFINITIONS

- A. Association: The Association is the person or entity who represents Le Ciel Venetian Tower and is referred to throughout the Design Guidelines as if singular in number. The Association shall designate in writing a representative who shall have express authority to bind the Association with respect to all matters requiring the Association's approval or authorization. The term "Association" means the Association's authorized representative.
- B. Unit Owner: The Unit Owner is the person or entity who owns a condominium unit at Le Ciel Venetian Tower and is referred to throughout the Design Guidelines as if singular in number. The Unit Owner shall designate in writing a representative who shall have express authority to bind the Unit Owner with respect to all matters requiring the Unit Owner's approval or authorization. The term "Unit Owner" means the Unit Owner or the Unit Owner's authorized representative.
- Unit Owner shall retain Contractor.
 - Unit Owner has the option to retain Designer-of-Record directly, or require Contractor to retain Designer-of-Record.
- C. Designer-of-Record: Licensed professional Architect- or Engineer-of Record retained by Unit Owner or Unit Owner's Contractor responsible for ensuring the submitted design complies with the Design Guidelines and all applicable codes, laws, rules and regulations. The Designer-of-Record shall design the window wall and adjacent construction necessary to complete the Project and perform comprehensive structural analysis, using the performance requirements and Design Guideline criteria indicated.
- D. Contractor: The Contractor is the person or entity responsible for procuring and installing the Project materials, and is referred to throughout the Design Guidelines as if singular in number. The Contractor shall be lawfully licensed, if required, in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor. The term "Contractor" means the Contractor or the Contractor's authorized representative.
- Contractor is the person or entity responsible for procuring and installing the Project materials so that the completed installation complies with the Design Guidelines and all applicable codes, laws, rules and regulations.
 - Contractor may retain Designer-of-Record as required by Unit Owner.
- E. Association Peer Reviewer: The Association Peer Reviewer is the licensed professional architect or engineer retained by Association to peer review the design submitted by the Unit Owner (peer review).

- The peer review is limited to conformance of the submitted documents with the Design Guidelines, and does not include checking calculations or structural engineering analysis. The peer review also does not include review of the submitted documents for conformance with Florida Department of Business & Professional Regulation product approvals, fire protection attributes and/or requirements, or compliance with applicable building codes. Peer review will be based on the assumption that the design is in full compliance with applicable building code requirements.
- Peer review does not relieve the Designer-of-Record or the Contractor of their responsibilities.
- Peer review comments/markups are “conceptual” or “suggested” for Unit Owner and Association consideration and are not design documents or directives. Designer-of-Record shall be solely responsible for the reviewing, approving, and coordinating all suggested modifications arising from peer review services into the Project.

1.2 PERFORMANCE REQUIREMENTS

- A. Appearance: All coatings, finishes, sealants and other materials shall match the existing appearance including color and gloss of the existing materials. Aesthetics are subject to Association approval.
- B. Reference appended Sketches A1-A5.
- C. Comply with industry standards and all applicable codes. Notify the Association in the event of a conflict between referenced codes, standards and/or Design Guidelines.
- D. Window Wall Assembly
 - The window wall shall be capable of withstanding, without failure, the loads, pressures, movements, temperatures, tolerances, and other conditions specified and required by current code at time of Project.
 - All guidelines provided herein shall be analytically and mathematically proven, except for those guidelines called for by the current code or applicable regulations to be proven exclusively by physical testing methods. Calculations and related data and their application in engineering, fabrication, assembly and installation shall be the responsibility of the Unit Owner.
 - Design Loads:
 - a. Individual and aggregate components of window wall shall withstand the loads, or combinations of loads, acting normal to the surfaces described below. Load combinations and durations shall be as per the specific requirements of ASCE 7, current edition.
 - Deflection limits, when subjected to Design Loads:
 - a. Vertical members spanning floor to floor or sill to head: Deflection normal to the plane of construction shall not exceed 1/175 of the clear span between structural supports. Wherever infill members combine to form a continuous member spanning floor to floor, the deflection criteria shall be as that for a monolithic member.
 - b. Horizontal members: Deflection normal to the plane of construction shall not exceed 1/175 of the clear span; deflection in the plane of construction shall not exceed 1/360 of the span between supports, or 1/8 inch, whichever is less. Twist due to dead load of glass shall not exceed one degree.
 - Glass
 - a. Glass shall be of appropriate thickness and strength to withstand the greater of the above design loads or combinations thereof, acting normal to the surface, without

center point deflections in excess of those specified. Glass design shall be in accordance with ASTM E1300.

- 1) The thicknesses determined shall be based upon a probability of breakage not to exceed 8 lites per 1000 for vertical glazing (less than 15° from vertical).
 - b. Provide glass of the appropriate thickness and strength to withstand anticipated thermal stresses based on a probability of breakage not to exceed 8 lites per 1000 for vertical glazing.
 - c. Glass shall in no case be considered to provide lateral or dead load support to metal framing members.
- The window wall shall incorporate a continuous and uninterrupted exterior weatherseal, interior airseal, including all glazing cavities, perimeter conditions and connections to adjacent construction. The window wall shall incorporate a continuous vapor barrier system throughout, including all perimeter conditions and connections to adjacent construction.
 - Air Infiltration:
 - a. Air infiltration through the window wall shall not exceed the following when tested in accordance with ASTM E283 or ASTM E783:
 - 1) For fixed areas, 0.06 cfm/ft² of exterior surface area when subjected to a uniform static air pressure differential of 6.24 psf.
 - 2) For operable component areas, 0.10 cfm/sf of operable component area when subjected to a uniform static air pressure differential of 6.24 psf.
 - Water Penetration:
 - a. Water penetration through the window wall shall not occur when tested in accordance with AAMA 501.1, ASTM E331, or ASTM E1105 at the following inward pressures acting normal to any surface:
 - 1) Fixed areas and operable windows
 - a) Static Pressure: 10 psf or 20 percent of design wind load, whichever is more stringent
 - b) Dynamic Pressure: 10 psf
 - Energy Performance:
 - a. System U-factor of the window wall shall not exceed 0.57 BTU/sf x hr x °F for vision areas, 0.08 BTU/sf x hr x °F for spandrel areas, and 1.20 BTU/sf x hr x °F for operable windows and glazed doors, as determined according to NFRC 100.
 - b. Solar Heat Gain Coefficient of the window wall shall not exceed 0.351, as determined according to NFRC 200.
 - c. Ultraviolet light transmission: less than 1 percent
- E. Condensation Resistance:
- The window wall shall be designed to prevent condensation on its interior under the following conditions:
 - a. Outdoor ambient air temperature of 43°F, 19 mph wind.
 - b. Indoor ambient air temperature of 70°F, 60% relative humidity.
 - Condensation is defined as water, ice, or frost occurring inboard of the air barrier line of the window wall or water that is not collected and managed by drainage or evaporation in a gutter system. Gutter systems shall not compromise the air infiltration, water penetration, or thermal performance of the window wall.
 - Condensation resistance shall be demonstrated through computer simulation of critical conditions or temperature data from NFRC or AAMA 1503 testing.

1.3 SUBMITTALS:

- A. Incomplete submittals may delay review and result in additional costs.
- B. Submit design and shop drawings, samples, data, reports, and engineering calculations for review by Association.
- C. Samples:
 - Submit samples of all materials and finishes to Association, including:
 - a. Samples matching the appearance, color, texture, and other characteristics of each finish required;
 - Samples of production materials shall be the following sizes:
 - a. Glass: 12 inch x 12 inch, each type and edge finish.
 - 1) For insulating glass units provide assemblies representative of units to be used in the finished work, including scheduled glass, coatings, spacers, edge seals, and edge deletion.
 - b. Sealants: Cured sample, 12 inches long, each type.
 - c. Coatings: Cured sample: 6 by 12 inches
- D. Engineering Calculations
 - Submit engineering calculations as described herein.
 - Submit engineering calculations concurrently with corresponding shop drawings.
 - Calculations shall bear the seal of a Professional Engineer licensed in the State of Florida.
- E. Submittal Check List
 - Failure to provide all documents at the same time may lead to additional costs for review by Association.
 - a. Provide the following documents to Association
 - b. Contractor qualifications
 - c. Designer-of-Record Qualifications
 - d. Design Drawings
 - e. Shop Drawings
 - f. Product Data Sheets for all materials
 - g. Color samples (sealant, coatings, glass)

2.1 PRODUCTS

- A. Basis of Design
 - The following products conform to the intent of this guideline document, but may require updating due to product availability or to meet current codes and/or standards. Deviation from the listed products may lead to delays in review and increased peer review costs.

Material	Manufacturer
Concrete	▪ Sika Corporation Sikatop 211 Plus
Reinforcing Bar	▪ #3 epoxy coated steel reinforcing bar
Epoxy Adhesive for Reinforcing Bar	▪ Hilti HIT HY-200 Adhesive Anchoring System ▪ Power Fasteners AC100+ Gold Vinylester
New Window Wall System Coating	▪ PPG Duranar 3 coat system, AAMA 2605
Glass	▪ Impact-resistant laminated glazing, conforming to ASTM C1172

	<ul style="list-style-type: none"> ▪ Match the appearance and type of glass in adjacent windows, subject to Association approval. Submit samples. ▪ Safety glass at locations required by code; ANSI Z97.1 and CPSC 16-CFR, Part 1201, Category II ▪ Large Missile Impact (LMI), $\leq 30'$ elevation <ul style="list-style-type: none"> ¼" Evergreen tempered Surface 2: Solarban 70 ½" mill air spacer ¼" clear heat strengthened Interlayer dependent on pressures ¼" clear heat strengthened ▪ Small Missile Impact (SMI), $> 30'$ elevation <ul style="list-style-type: none"> ¼" Evergreen tempered Surface 2: Solarban 70 ½" mill air spacer ¼" clear heat strengthened Interlayer dependent on pressures
Window Hardware	<ul style="list-style-type: none"> ▪ Match the appearance and type of hardware at adjacent windows, subject to Unit Owner approval.
Window Wall System	<ul style="list-style-type: none"> ▪ Match existing adjacent windows, subject to Association approval. ▪ Conform to performance requirements
Aluminum Panels	<ul style="list-style-type: none"> ▪ Fabricate prior to finishing from flat sheet: AA 3003 H14, ASTM B209, stretcher-leveled and stress-relieved. ▪ Aluminum sheet thickness: 3/16 inch, minimum. Thickness as necessary to meet code requirements. ▪ Panels and extruded aluminum edge frames shall match existing profiles and include return legs to create minimum two-inch-deep sealant substrates on all sides. ▪ At formed panels, the perimeter arris to panels (i.e. the arris between the face plane and the edge plane) shall be consistent throughout the work. Panel sheet shall be scored and back-cut to achieve a sharp arris with a design radius not exceeding 1/16 inch. ▪ Ensure that the grain of all panels is oriented in the same direction upon installation. ▪ Reinforce aluminum panels with corrugated sheet, extruded stiffeners, etc. as required to meet load requirements ▪ Extruded aluminum stiffeners or any alternate panel stiffening devices shall be designed to prevent "telegraphing" or "read through" of the stiffening device on the exposed face of the panel. Stiffeners applied with structural silicone shall be installed parallel to the grain of the panel. ▪ Exposed flat exterior metal panels shall be designed, fabricated, and installed in such a manner that they are visually flat when viewed from any angle. Any short length distortions, ripples, waves, oil canning, or telegraphing of supports or fasteners shall not be permitted. Make provisions to allow for differential thermal expansion between framing members and the exposed metal of the window wall without noise and without distortion of the exposed face. ▪ Visual flatness shall be to the approval of the Association.

- The following products were used for the 2019 and 2020 exterior facade repairs, and apply to the Project. Deviation from the listed products may lead to delays in review and increased peer review costs.

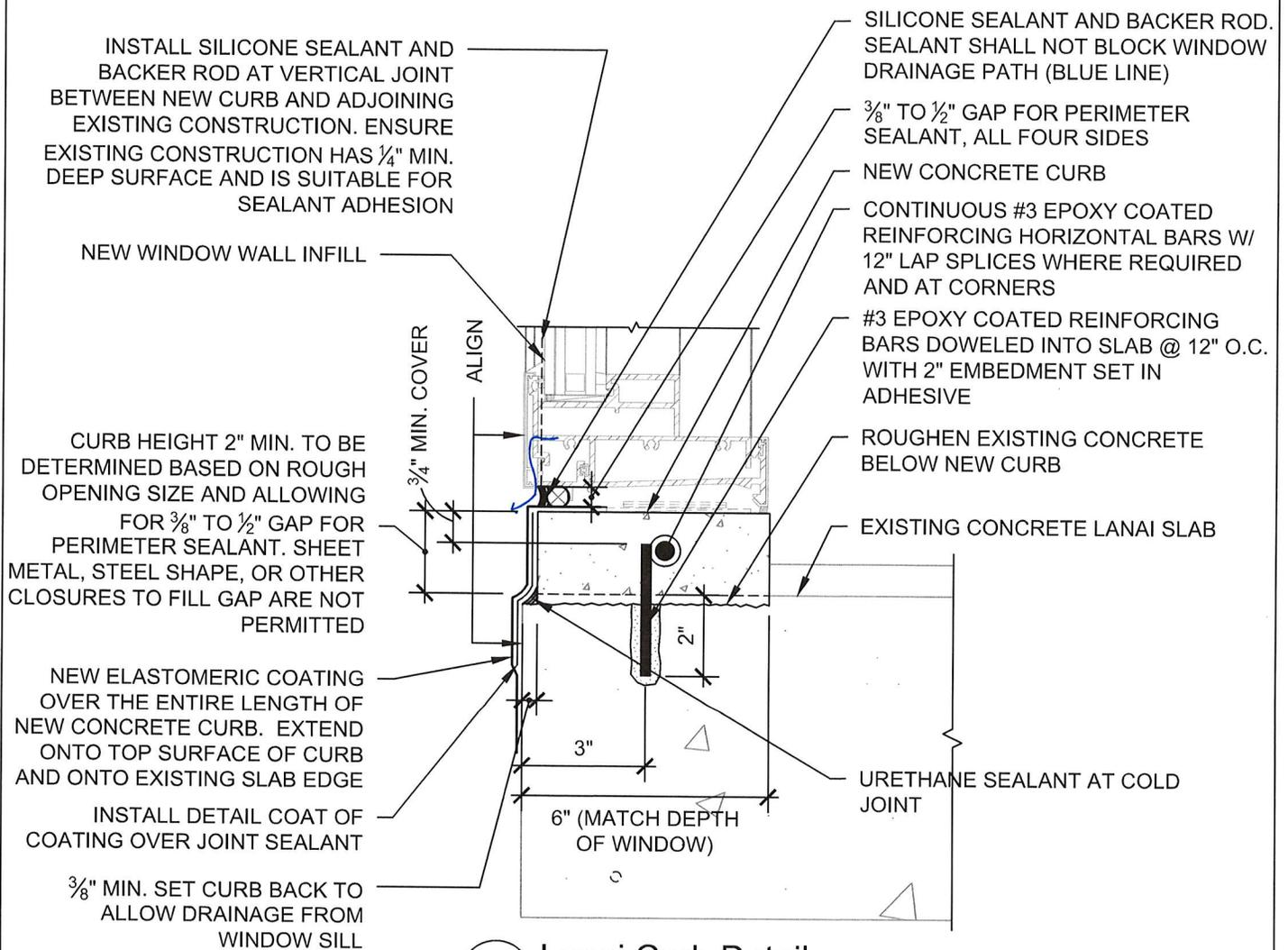
Material	Product and Fabrication Information
Silicone Sealant	<ul style="list-style-type: none"> ▪ White silicone sealant for enclosed lanais: Class 50, Use NT, Shore A hardness of 25 to 35 <ul style="list-style-type: none"> ○ 791 Silicone Building Sealant manufactured by Dow Corning Corporation for white metal-to-metal and metal-to-concrete joints; custom white color Dow Corning 791-28357-1. ▪ Black silicone sealant for glazing joints: Class 50, Use NT, Shore A hardness of 25 to 35 <ul style="list-style-type: none"> ○ 791 Silicone Building Sealant manufactured by Dow Corning Corporation for glass-to-metal joints. ▪ Green silicone sealant: Class 50, Use NT, Shore A hardness of 15 to 35 <ul style="list-style-type: none"> ○ 756 SMS Building Sealant manufactured by Dow Corning Corporation for green metal-to-metal and metal-to-concrete joints; custom green color 756 SMS-28356M-1. ▪ Closed-cell backer rod ▪ Bond-breaker tape
Preformed Silicone Seal	<ul style="list-style-type: none"> ▪ 123 Silicone Seal manufactured by Dow Corning Corporation, factory pre-scored for changes in plane.
Aluminum Closures	<ul style="list-style-type: none"> ▪ Aluminum Sheet: ASTM B209, Alloy 3003, 3004, 3105, or 5005; temper suitable for forming and structural performance required, but not less than H14; 0.032-inches thick ▪ Custom fabricate to comply with recommendations in SMACNA's Architectural Sheet Metal Manual, that apply to design, dimensions, metal, and other characteristics of item indicated. Conform to dimensions and profiles shown in SMACNA's Architectural Sheet Metal Manual. ▪ Obtain field measurements for accurate fit before fabrication. ▪ Shop fabricate without excessive oil canning, buckling, or tool marks that are visually objectionable in opinion of Association, and true to line and levels indicated, with exposed edges folded back to form hems. ▪ Design shall accommodate thermal expansion. Aluminum closure joints shall align with joints above and/or below. ▪ Polyester factory primed with dry film thickness of not less than 0.2 mil for primer and 0.8 mil for topcoat. ▪ Finish to be factory-applied to both sides of sheet metal. ▪ Field finish with PPG Coraflon ADS.
Field Coating for Aluminum Components, including existing window walls, aluminum panels and aluminum closures	<ul style="list-style-type: none"> ▪ PPG Architectural Coatings, www.ppg.com <ul style="list-style-type: none"> ○ Surface Profile: 1.5 to 2.0 mils ○ Primer: ADS 573 Series Epoxy Intermediate Primer, 3.0 to 5.0 mils DFT ○ Finish coat: Coraflon ADS, 1.5 to 2.0 mils DFT ○ Custom Color: Coraflon Venetian Green, AD3D1333N, satin sheen ○ Custom Color: Coraflon Curtain White, AD3W1416N, satin sheen
Stucco/Concrete Coating	<ul style="list-style-type: none"> ▪ Sto Corporation, Acryl Plus <ul style="list-style-type: none"> ○ Sto Color Acryl Plus 3, 80648-503, VT191274 tan color ▪ Conditioners and Primers

Material	Product and Fabrication Information
	<ul style="list-style-type: none"> ○ StoPrime Hot 80805 for areas with high pH, areas that require aesthetic build, and areas of substrate patching
Paintable Sealant for use below stucco/concrete coating	<ul style="list-style-type: none"> ▪ MasterSeal NP 150, BASF
Stucco Repair	<ul style="list-style-type: none"> ▪ Sto Corp., StoPowerwall Stucco Pre-Blended 80102
Hopper Window Gaskets	<ul style="list-style-type: none"> ▪ Interior gasket: Tremco TR-4279N (neoprene) ▪ Exterior gasket: Tremco TR-4281N (EPDM) ▪ Screen gasket: Tremco TR-4279N (neoprene)

END

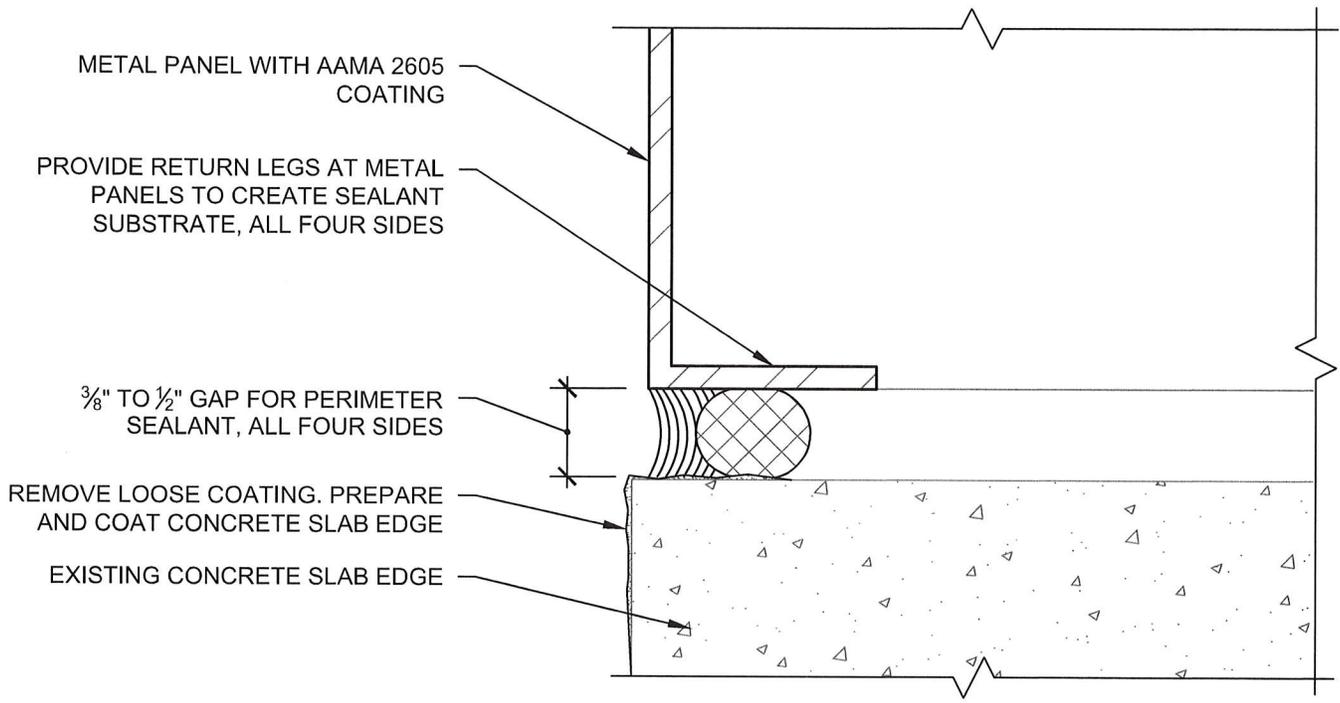
CONCRETE CURB INSTALLATION NOTES:

1. SCAN SLAB EDGE USING GROUND PENETRATING RADAR (GPR) TO LOCATE AND DOCUMENT REINFORCING BARS AND TENDONS AT THE SLAB EDGE.
2. NEW CONCRETE CURB TO BE CONTINUOUS ACROSS ROUGH OPENING, INCLUDING BELOW WINDOW WALL AND METAL PANELS.
3. ROUGHEN EXISTING CONCRETE BELOW NEW CURB TO AN MINIMUM AMPLITUDE OF 1/4".
4. CLEAN EXISTING CONCRETE BELOW NEW CURB USING NEEDLE SCALERS FOLLOWED BY AIR BLASTING WITH COMPRESSED AIR.
5. INSTALL VERTICAL DOWELS, ADJUST SPACING (12" MAX.) OF DOWELS TO AVOID DRILLING THROUGH TENDONS OR REINFORCING BARS.
6. INSTALL CONTINUOUS HORIZONTAL BARS.
7. INSTALL FORMWORK AND PLACE CONCRETE.
8. CURE CONCRETE BY COVERING THE TOP WITH PLASTIC WITH FORMWORK IN PLACE FOR 5 DAYS.
9. AFTER CONCRETE HAS CURED AND AGED FOR MIN. TIME PERIOD RECOMMENDED BY COATING MANUFACTURER, PREPARE SURFACES, AND INSTALL COATING.



1 Lanai Curb Detail
SCALE: 3" = 1'-0"

<p>WJE ENGINEERS ARCHITECTS MATERIAL SCIENTISTS</p> <p>Wiss, Janney, Elstner Associates, Inc. 1900 NW Corporate Boulevard, Suite E102 Boca Raton, Florida 33431 561.226.1220 tel 561.981.8007 fax www.wje.com</p>	Project	Enclosed Lanai Window Wall System Design Guidelines 3971 Gulf Shore Boulevard, Naples, Florida 34103	Proj. No.	2018.4192.4	A1
	Sheet Title	Window Wall Curb Detail	Date	04-10-20	
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			Checked	KZZ/JF	
			Scale	As Noted	Sheet No.



1 Metal Panel Sill
SCALE: 1' = 1'-0"

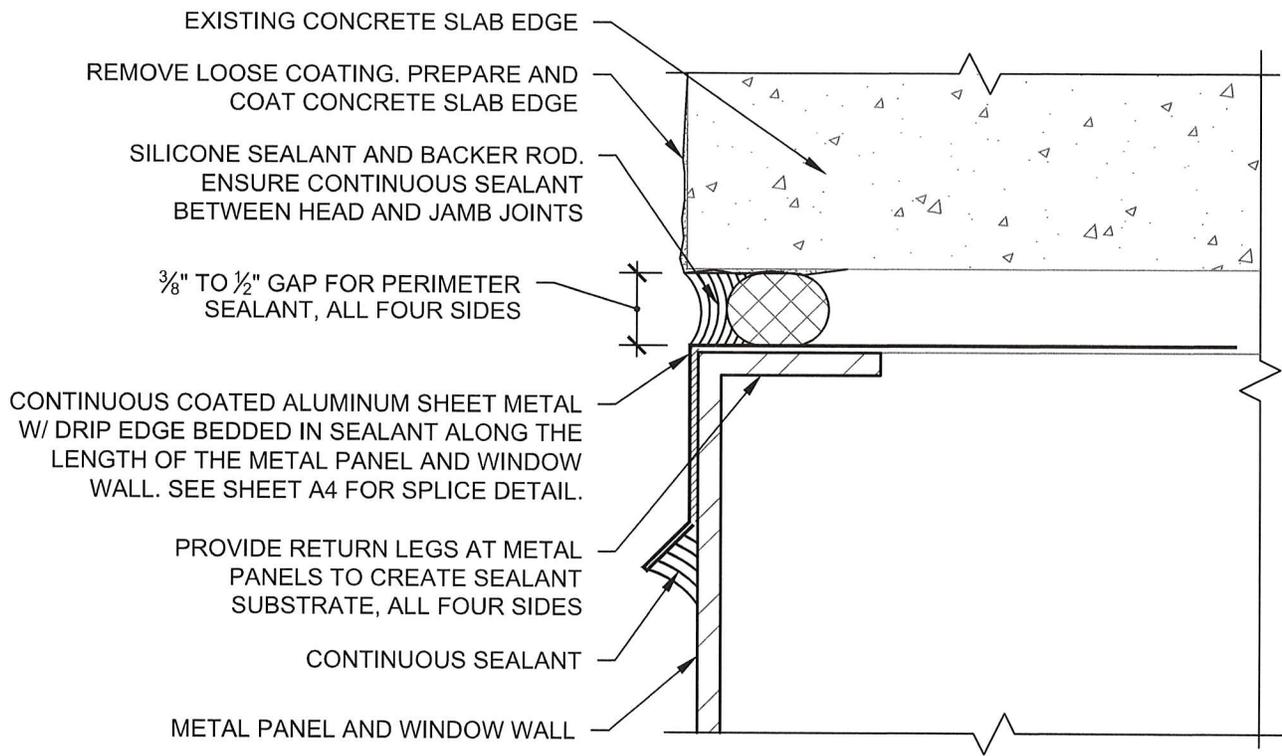
WJE ENGINEERS
ARCHITECTS
MATERIALS SCIENTISTS

Wiss, Janney, Elstner Associates, Inc.
1900 NW Corporate Boulevard, Suite E102
Boca Raton, Florida 33431
561.226.1220 tel | 561.981.8007 fax
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Project	Enclosed Lanai Window Wall System Design Guidelines 3971 Gulf Shore Boulevard, Naples, Florida 34103
Sheet Title	Metal Panel Sill

Proj. No.	2018.4192.4
Date	04-10-20
Drawn	KAL
Checked	KZZ/JF
Scale	As Noted

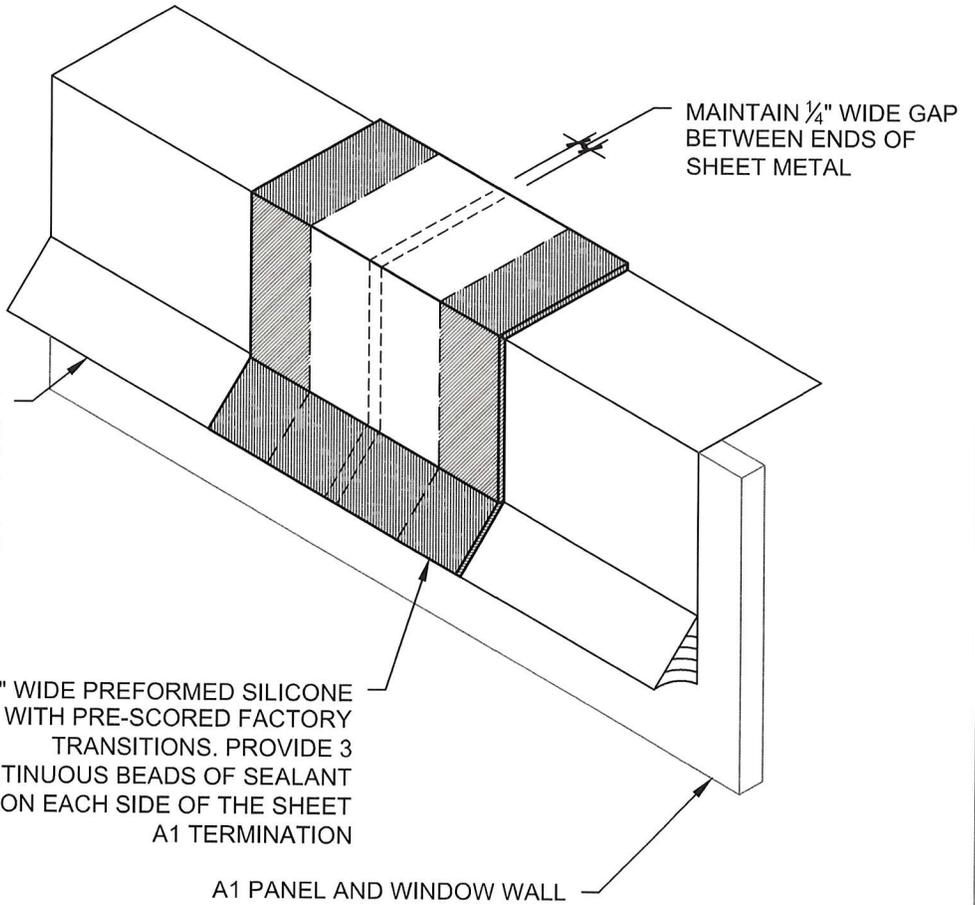
Sheet No. **A2**



Sheet Metal Closure at Metal Panel Head and Window Head

1
SCALE: 1" = 1'-0"

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	Sheet Title	Metal Panel Head	Date	04-10-20	
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			Checked	KZZ/JF	
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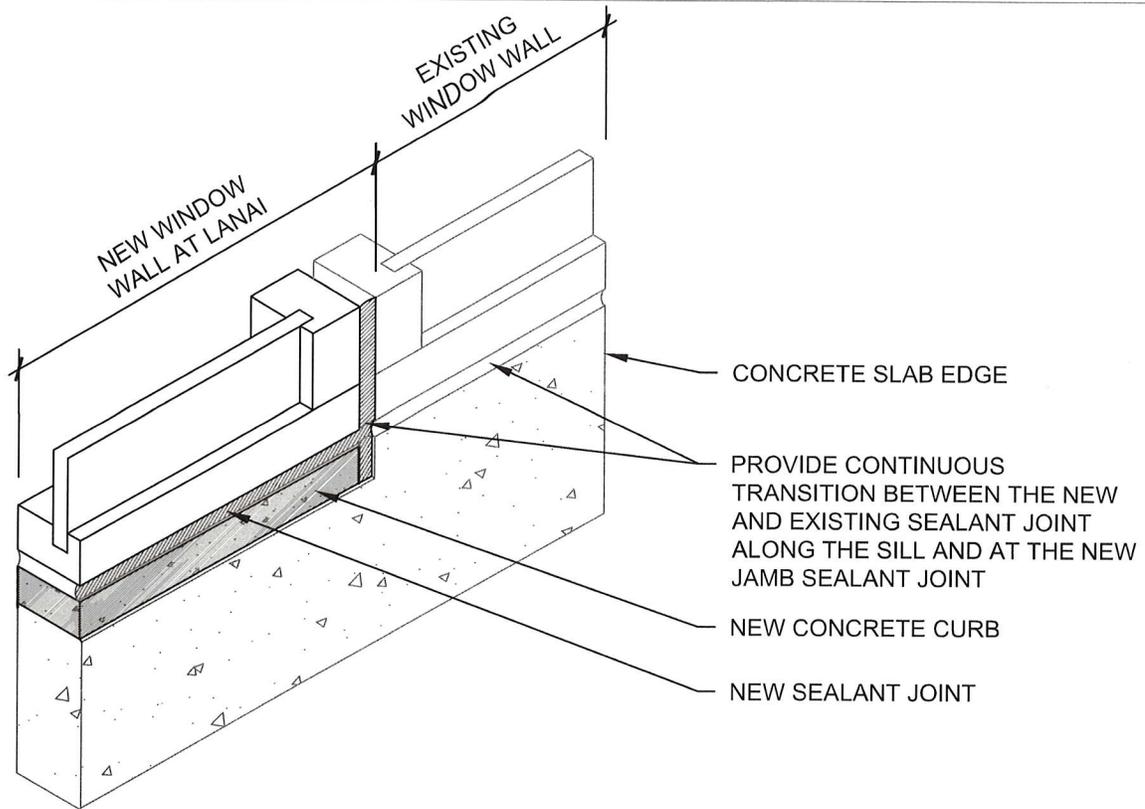
PRE PRIMED ALUMINUM SHEET METAL W/ DRIP EDGE BEDDED IN SEALANT ALONG THE LENGTH OF THE METAL PANEL AND WINDOW WALL. OVERCOAT SHEET METAL CLOSURE WITH HIGH-PERFORMANCE COATING TO MATCH METAL PANEL AND WINDOW WALLS

1 1/2" WIDE PREFORMED SILICONE TAPE WITH PRE-SCORED FACTORY TRANSITIONS. PROVIDE 3 CONTINUOUS BEADS OF SEALANT ON EACH SIDE OF THE SHEET A1 TERMINATION

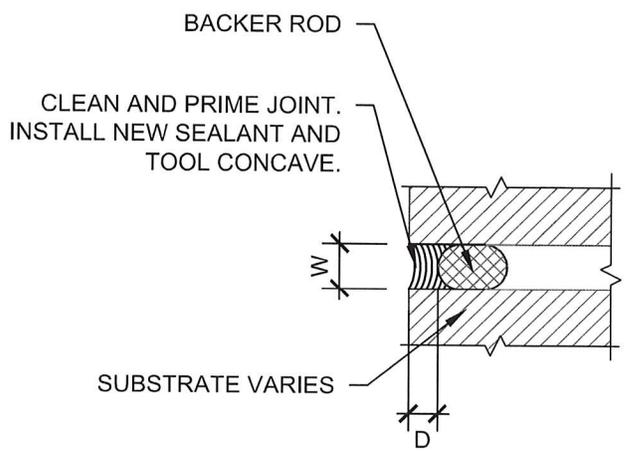
A1 PANEL AND WINDOW WALL

1 Sheet Metal Closure Splice Detail
SCALE: 1" = 1'-0"

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	Sheet Title	Metal Panel Detail	Date	04-10-20	
			Drawn	KAL	
			Checked	KZZ/JF	
			Scale	As Noted	
			Sheet No.		



1 Sealant Transition
SCALE: 1' = 1'-0"



SEALANT CHART	
W	D
1/4 TO 1/2 IN.	1/4
1/2 TO 1 IN.	W/2
GREATER THAN 1 IN.	1/2

2 Typical Sealant Detail
SCALE: 1' = 1'-0"

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Project
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 3971 Gulf Shore Boulevard, Naples, Florida 34103
 Sheet Title
 Sealant Transition Detail

Proj. No. 2018.4192.4
 Date 04-10-20
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 Scale As Noted

Sheet No. **A5**

Glass Specifications for Lanai replacement & Glass Replacement

LMI: \leq 30' elevation

1/4" Evergreen tempered

Surface 2: Solarban 70

1/2" Mill air spacer

1/4" Clear heat strengthened

"Interlayer dependent on pressures"

1/4" Clear heat strengthened

SMI: $>$ 30' elevation

1/4" Evergreen tempered

Surface 2: Solarban 70

1/2" Mill air spacer

1/4" Clear heat strengthened

"Interlayer dependent on pressures"

1/4" Clear heat strengthened

Paint Specifications for Future Horizontal & Vertical Slab painting in Lanai Areas

- Primer Color Tan, StoPrime Hot80805
- Elastomeric (Horizontal Surfaces if ground down)
Color Tan StoColor Lastic 80212
- Paint: Color Tan, StoColor Acryl Plus 80648
- Concrete/Stucco: StoPowerwall 80102

STO Products regional representative is Jason Rivera

STO Products local Naples Representative is Rhett Lakely

UV Film Naples Tint Company 239-571-9551