

ISSUE: Certificate of Appropriateness for alterations

APPLICANT: IDI Strand, L.C.

LOCATION: Old and Historic Alexandria District
211 Strand Street

ZONE: W-1/Waterfront zone

STAFF RECOMMENDATION

Staff recommends approval of the Certificate of Appropriateness, as submitted.

GENERAL NOTES TO THE APPLICANT

1. **ISSUANCE OF CERTIFICATES OF APPROPRIATENESS AND PERMITS TO DEMOLISH:** Applicants must obtain a copy of the Certificate of Appropriateness or Permit to Demolish PRIOR to applying for a building permit. Contact BAR Staff, Room 2100, City Hall, 703-746-3833, or preservation@alexandriava.gov for further information.
2. **APPEAL OF DECISION:** In accordance with the Zoning Ordinance, if the Board of Architectural Review denies or approves an application in whole or in part, the applicant or opponent may appeal the Board's decision to City Council on or before 14 days after the decision of the Board.
3. **COMPLIANCE WITH BAR POLICIES:** All materials must comply with the BAR's adopted policies unless otherwise specifically approved.
4. **BUILDING PERMITS:** Most projects approved by the Board of Architectural Review require the issuance of one or more construction permits by Department of Code Administration (including signs). The applicant is responsible for obtaining all necessary construction permits after receiving Board of Architectural Review approval. Contact Code Administration, Room 4200, City Hall, 703-746-4200 for further information.
5. **EXPIRATION OF APPROVALS NOTE:** In accordance with Sections 10-106(B) and 10-206(B) of the Zoning Ordinance, any official Board of Architectural Review approval will expire 12 months from the date of issuance if the work is not commenced and diligently and substantially pursued by the end of that 12-month period.
6. **HISTORIC PROPERTY TAX CREDITS:** Applicants performing extensive, certified rehabilitations of historic properties may separately be eligible for state and/or federal tax credits. Consult with the Virginia Department of Historic Resources (VDHR) prior to initiating any work to determine whether the proposed project may qualify for such credits.



N

0 25 50 100 Feet

I. APPLICANT'S PROPOSAL

The applicant is requesting a Certificate of Appropriateness for storefront window glazing on the fifth floor of the multi-story building at 211 Strand Street that does not comply with portions of the BAR's window policy regarding transparency and reflectivity. The multi-use, four-and-five story building was approved by the BAR in July 2018 and will have ground floor retail with residential units above. The applicant's original intent was to use glass throughout the building that complied with the BAR window policy but, as they were preparing construction drawings they learned that to meet the Energy Code requirements and assure their compliance with Earthcraft Certification, the wall of windows on the fifth floor and rooftop elevator enclosure would need to have a lower VLT (visible light transmittance) and a higher exterior reflectance. All other glazing on the project will meet the Board's window policy. There are areas where the glass will be fully opaque in order to screen ductwork behind the glass.

From the applicant's narrative:

"We propose using Solarban 70XL glass in two limited areas; the storefronts at the northeast and northwest corners of the 5th floor, and the south and north facing storefronts at the roof terrace. Since the 5th floor is a more modern style and at the top, we feel that having a different glass in the storefront system would read as deliberate element and therefore be unobtrusive. The storefront areas at the roof are small and set back approximately 30' from the building edge.

In order to meet energy code requirements and Earth Craft, we propose using Solarban 70XL glass at these areas. The visible light transmittance (VLT) and exterior reflectance of Solarban 70XL vary from the Alexandria BAR Window Policy. Per the policy, the VLT must be 72% or greater, and the exterior reflectance less than 10%. The proposed glass has a VLT of 64% and an exterior reflectance of 12%. The slightly greenish tint of the Solarban 70XL is similar to the "lanterns" at Hotel Indigo next door.

The glass in all other windows and doors will be Solarban 60 which meets the requirements of the BAR Window Policy.

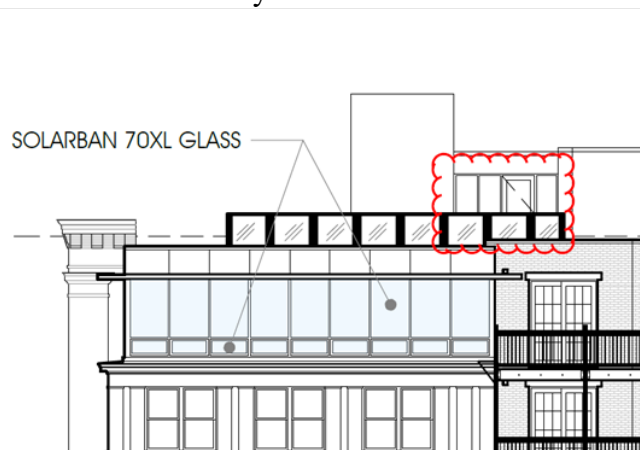


Figure 1: Locations of the proposed Solarban glass on the north elevation

II. HISTORY

The Old & Historic Alexandria BAR approved the new building at 211 Strand Street on July 11, 2018 (BAR 2018-0274). The site is being redeveloped in compliance with Development Special Use (DSUP 2016-00003).

III. ANALYSIS

The *Design Guidelines* state that windows are principal character defining features of a building and serve both functional and aesthetic purposes. Staff supports the applicant's request to install slightly more opaque and reflective glass on the fifth floor for several reasons. First, Alexandria is an EcoCity and staff supports the applicant's intent to meet the City's Green Building Policy for energy efficiency. Second, the location of the glass, at the fifth floor, will be significantly less visible than the glass at pedestrian level and the glass at the lower levels will meet the BAR's policy. Third, while the glass in the windows will be less opaque and more reflective, the style of the windows on the fifth floor are significantly different so a direct comparison between two would not call attention to the different glass.

The photo provided by the applicant below (Figure 2) shows the exterior surface of two pieces of glass – one meeting the Board's policy (on the left) and the other of the proposed glass with less opacity and more reflectivity (on the right). It should be noted that the photo shows glass laid flat on a white piece of paper to call attention to the differences and this is not how the glass will appear in the field once constructed. In the opinion of staff, the difference between the two glass examples is minimal, especially considering its location 40 to 50 from ground level.



Figure 2: photograph showing glass comparison

For comparison, the applicant's architect, who also designed the Indigo Hotel next door, has provided a photographic comparison (Figure 3) of the very similar glass used in the storefront

windows and the “lanterns” of the east elevation of the hotel. The punched windows of the hotel used glass that complied with the BAR’s policy.



Figure 3: photograph showing glass comparison between the glass proposed at 211 Strand on the left and the glass used in the lanterns and storefront windows of the Indigo Hotel on the right.

The installation of glazing in newer construction is particularly challenging because storefront systems allow for larger panes of glass and in some cases walls of glazing that make it difficult for clear glass to meet evolving and more restrictive efficiency requirements in the state building code. The Board’s window policy was largely created in response to the numerous requests for residential window replacements in the districts and the desire for replacement windows to replicate the transparency of historic window glass. In addition, the King Street Retail Policy requires storefront windows at grade to be clear to maximize visibility of retail merchandise and provide an interesting and active pedestrian experience. However, the BAR commented in the recent case at 1 Prince Street that replacement of the tinted window glass in this 1980s building with matching tinted glass is historically appropriate to its late 20th century period of construction. The BAR may want to consider a slightly broader range of glass opacity and reflectivity for windows in modern buildings and/or for commercial buildings that have storefront window systems.

If the Board is interested in seeing a mockup of the proposed glass, the map below identifies the location of the mock up panel for the project, which is not on the subject property but across the street (Figure 2). The larger, vertical glass window on the mock up panel contains the proposed fifth floor glass.

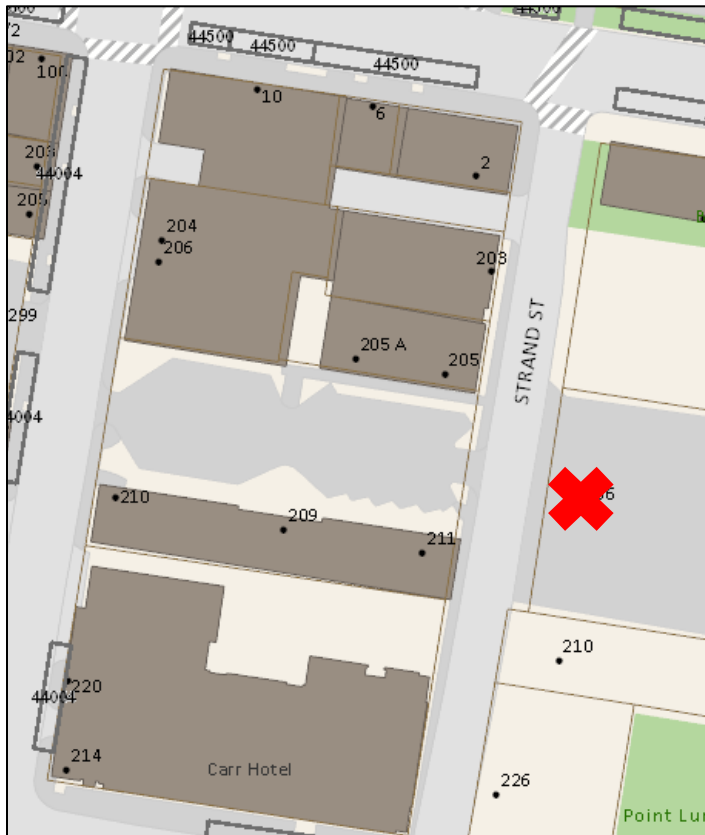


Figure 1: Location of mock up panel (red)

Staff recommends approval of the application, as submitted.

STAFF

Stephanie Sample, Acting Principal Planner, Planning & Zoning
Al Cox, FAIA, Historic Preservation Manager, Planning & Zoning

IV. CITY DEPARTMENT COMMENTS

Legend: C- code requirement R- recommendation S- suggestion F- finding

Zoning

C-1 The proposed windows comply with zoning. Proposed windows must comply with DSUP2016-0003, SUP2017-0125 and SUP2018-0003.

Code Administration

C-1 A building permit, plan review and inspections are required prior to the start of construction.

Transportation and Environmental Services

No comments received.

V. ATTACHMENTS

1 – Supplemental Materials

2 – Application for BAR 2019-00164: 211 Strand Street

ADDRESS OF PROJECT: 211 Strand Street

TAX MAP AND PARCEL: 075.03-03-07 ZONING: W-1

APPLICATION FOR: *(Please check all that apply)*

☒ CERTIFICATE OF APPROPRIATENESS

☐ PERMIT TO MOVE, REMOVE, ENCAPSULATE OR DEMOLISH
(Required if more than 25 square feet of a structure is to be demolished/impacted)

☐ WAIVER OF VISION CLEARANCE REQUIREMENT and/or YARD REQUIREMENTS IN A VISION
CLEARANCE AREA (Section 7-802, Alexandria 1992 Zoning Ordinance)

☐ WAIVER OF ROOFTOP HVAC SCREENING REQUIREMENT
(Section 6-403(B)(3), Alexandria 1992 Zoning Ordinance)

Applicant: ☒ Property Owner ☐ Business *(Please provide business name & contact person)*

Name: IDI Strand, L.C.

Address: 1700 North Moore Street, Suite 2020

City: Arlington State: VA Zip: 22209

Phone: 703.558.7300 E-mail: ccecchi@idigroup.com

Authorized Agent *(if applicable)*: ☐ Attorney ☒ Architect ☐ _____

Name: John W. Rust, Rust | Orling Architecture Phone: 703.836.3205

E-mail: jrust@rustorling.com

Legal Property Owner:

Name: IDI Strand, L.C.

Address: 1700 North Moore Street, Suite 2020

City: Arlington State: VA Zip: 22209

Phone: 703.558.7300 E-mail: ccecchi@idigroup.com

- ☐ Yes ☒ No Is there an historic preservation easement on this property?
☐ Yes ☐ No If yes, has the easement holder agreed to the proposed alterations?
☐ Yes ☒ No Is there a homeowner's association for this property?
☐ Yes ☐ No If yes, has the homeowner's association approved the proposed alterations?

If you answered yes to any of the above, please attach a copy of the letter approving the project.

NATURE OF PROPOSED WORK: *Please check all that apply*

- ☒ **NEW CONSTRUCTION**
☐ **EXTERIOR ALTERATION:** *Please check all that apply.*
 ☐ awning ☐ fence, gate or garden wall ☐ HVAC equipment ☐ shutters
 ☐ doors ☐ windows ☐ siding ☐ shed
 ☐ lighting ☐ pergola/trellis ☐ painting unpainted masonry
 ☐ other _____
☐ **ADDITION**
☐ **DEMOLITION/ENCAPSULATION**
☐ **SIGNAGE**

DESCRIPTION OF PROPOSED WORK: *Please describe the proposed work in detail (Additional pages may be attached).*

This application is for revisions to approved plans.

The northeast and northwest corners of the 5th floor consist of continuous floor to floor storefront system glass and metal panels. In order to meet energy code requirements due to the large amount of glass, we propose using Solarban 70XL glass at these areas. The visible light transmittance (VLT) and exterior reflectance of Solarban 70XL vary from the Alexandria BAR Window Policy. Per the policy, the VLT must be 72% or greater, and the exterior reflectance less than 10%. The proposed glass has a VLT of 64% and an exterior reflectance of 12%. Since it would be limited to an area of the building that is a more modern style and at the top floor, we feel that having a different glass in the storefront system would read as deliberate element and therefore be unobtrusive. The glass in all other windows and doors will be Solarban 60 which meets the requirements of the BAR Window Policy. Product data for Solarban 60 and Solarban 70XL with VLT and exterior reflectance numbers highlighted is attached. The two types of glass will be installed in the mock-up panel which will be available for review starting April 26, 2019.

SUBMITTAL REQUIREMENTS:

Items listed below comprise the **minimum supporting materials** for BAR applications. Staff may request additional information during application review. Please refer to the relevant section of the *Design Guidelines* for further information on appropriate treatments.

Applicants must use the checklist below to ensure the application is complete. Include all information and material that are necessary to thoroughly describe the project. Incomplete applications will delay the docketing of the application for review. Pre-application meetings are required for all proposed additions. All applicants are encouraged to meet with staff prior to submission of a completed application.

Electronic copies of submission materials should be submitted whenever possible.

Demolition/Encapsulation : *All applicants requesting 25 square feet or more of demolition/encapsulation must complete this section. Check N/A if an item in this section does not apply to your project.*

- N/A
- ☐ ☒ Survey plat showing the extent of the proposed demolition/encapsulation.
☐ ☒ Existing elevation drawings clearly showing all elements proposed for demolition/encapsulation.
☐ ☒ Clear and labeled photographs of all elevations of the building if the entire structure is proposed to be demolished.
☐ ☒ Description of the reason for demolition/encapsulation.
☐ ☒ Description of the alternatives to demolition/encapsulation and why such alternatives are not considered feasible.

Additions & New Construction: *Drawings must be to scale and should not exceed 11" x 17" unless approved by staff. All plans must be folded and collated into 3 complete 8 1/2" x 11" sets. Additional copies may be requested by staff for large-scale development projects or projects fronting Washington Street. Check N/A if an item in this section does not apply to your project.*

- N/A
- ☐ ☒ Scaled survey plat showing dimensions of lot and location of existing building and other structures on the lot, location of proposed structure or addition, dimensions of existing structure(s), proposed addition or new construction, and all exterior, ground and roof mounted equipment.
 - ☐ ☒ FAR & Open Space calculation form.
 - ☐ ☒ Clear and labeled photographs of the site, surrounding properties and existing structures, if applicable.
 - ☐ ☒ Existing elevations must be scaled and include dimensions.
 - ☐ ☒ Proposed elevations must be scaled and include dimensions. Include the relationship to adjacent structures in plan and elevations.
 - ☒ ☐ Materials and colors to be used must be specified and delineated on the drawings. Actual samples may be provided or required.
 - ☒ ☐ Manufacturer's specifications for materials to include, but not limited to: roofing, siding, windows, doors, lighting, fencing, HVAC equipment and walls.
 - ☐ ☒ For development site plan projects, a model showing mass relationships to adjacent properties and structures.

Signs & Awnings: *One sign per building under one square foot does not require BAR approval unless illuminated. All other signs including window signs require BAR approval. Check N/A if an item in this section does not apply to your project.*

- N/A
- ☐ ☒ Linear feet of building: Front: _____ Secondary front (if corner lot): _____
 - ☐ ☒ Square feet of existing signs to remain: _____.
 - ☐ ☒ Photograph of building showing existing conditions.
 - ☐ ☒ Dimensioned drawings of proposed sign identifying materials, color, lettering style and text.
 - ☐ ☒ Location of sign (show exact location on building including the height above sidewalk).
 - ☐ ☒ Means of attachment (drawing or manufacturer's cut sheet of bracket if applicable).
 - ☐ ☒ Description of lighting (if applicable). Include manufacturer's cut sheet for any new lighting fixtures and information detailing how it will be attached to the building's facade.

Alterations: *Check N/A if an item in this section does not apply to your project.*

- N/A
- ☐ ☐ Clear and labeled photographs of the site, especially the area being impacted by the alterations, all sides of the building and any pertinent details.
 - ☐ ☐ Manufacturer's specifications for materials to include, but not limited to: roofing, siding, windows, doors, lighting, fencing, HVAC equipment and walls.
 - ☐ ☐ Drawings accurately representing the changes to the proposed structure, including materials and overall dimensions. Drawings must be to scale.
 - ☐ ☐ An official survey plat showing the proposed locations of HVAC units, fences, and sheds.
 - ☐ ☐ Historic elevations or photographs should accompany any request to return a structure to an earlier appearance.

ALL APPLICATIONS: *Please read and check that you have read and understand the following items:*

- I have submitted a filing fee with this application. (Checks should be made payable to the City of Alexandria. Please contact staff for assistance in determining the appropriate fee.)
- I understand the notice requirements and will return a copy of the three respective notice forms to BAR staff at least five days prior to the hearing. If I am unsure to whom I should send notice I will contact Planning and Zoning staff for assistance in identifying adjacent parcels.
- I, the applicant, or an authorized representative will be present at the public hearing.
- I understand that any revisions to this initial application submission (including applications deferred for restudy) must be accompanied by the BAR Supplemental form and 3 sets of revised materials.

The undersigned hereby attests that all of the information herein provided including the site plan, building elevations, prospective drawings of the project, and written descriptive information are true, correct and accurate. The undersigned further understands that, should such information be found incorrect, any action taken by the Board based on such information may be invalidated. The undersigned also hereby grants the City of Alexandria permission to post placard notice as required by Article XI, Division A, Section 11-301(B) of the 1992 Alexandria City Zoning Ordinance, on the property which is the subject of this application. The undersigned also hereby authorizes the City staff and members of the BAR to inspect this site as necessary in the course of research and evaluating the application. The applicant, if other than the property owner, also attests that he/she has obtained permission from the property owner to make this application.

APPLICANT OR AUTHORIZED AGENT:

Signature: _____

Printed Name: John W. Rust

Date: April 15, 2019

OWNERSHIP AND DISCLOSURE STATEMENT

Use additional sheets if necessary

1. Applicant. State the name, address and percent of ownership of any person or entity owning an interest in the applicant, unless the entity is a corporation or partnership, in which case identify each owner of more than ten percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. IDI Virginia Holdings, L.C.	1700 North Moore Street, Suite 2020 Arlington, VA 22209	100%
2.		
3.		

2. Property. State the name, address and percent of ownership of any person or entity owning an interest in the property located at 203/205/211 Strand Street (address), unless the entity is a corporation or partnership, in which case identify each owner of more than ten percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. IDI Strand, L.C.	1700 North Moore Street, Suite 2020 Arlington, VA 22209	100%
2.		
3.		

3. Business or Financial Relationships. Each person or entity listed above (1 and 2), with an ownership interest in the applicant or in the subject property is required to disclose any business or financial relationship, as defined by Section 11-350 of the Zoning Ordinance, existing at the time of this application, or within the 12-month period prior to the submission of this application with any member of the Alexandria City Council, Planning Commission, Board of Zoning Appeals or either Boards of Architectural Review.

Name of person or entity	Relationship as defined by Section 11-350 of the Zoning Ordinance	Member of the Approving Body (i.e. City Council, Planning Commission, etc.)
1. None	None	None
2.		
3.		

NOTE: Business or financial relationships of the type described in Sec. 11-350 that arise after the filing of this application and before each public hearing must be disclosed prior to the public hearings.

As the applicant or the applicant's authorized agent, I hereby attest to the best of my ability that the information provided above is true and correct.

May 29, 2018

Date

Carlos Cecchi

Printed Name



Signature



MAY 15, 2019

PROPOSED NORTH ELEVATION

SCALE: 1/16" = 1'-0"

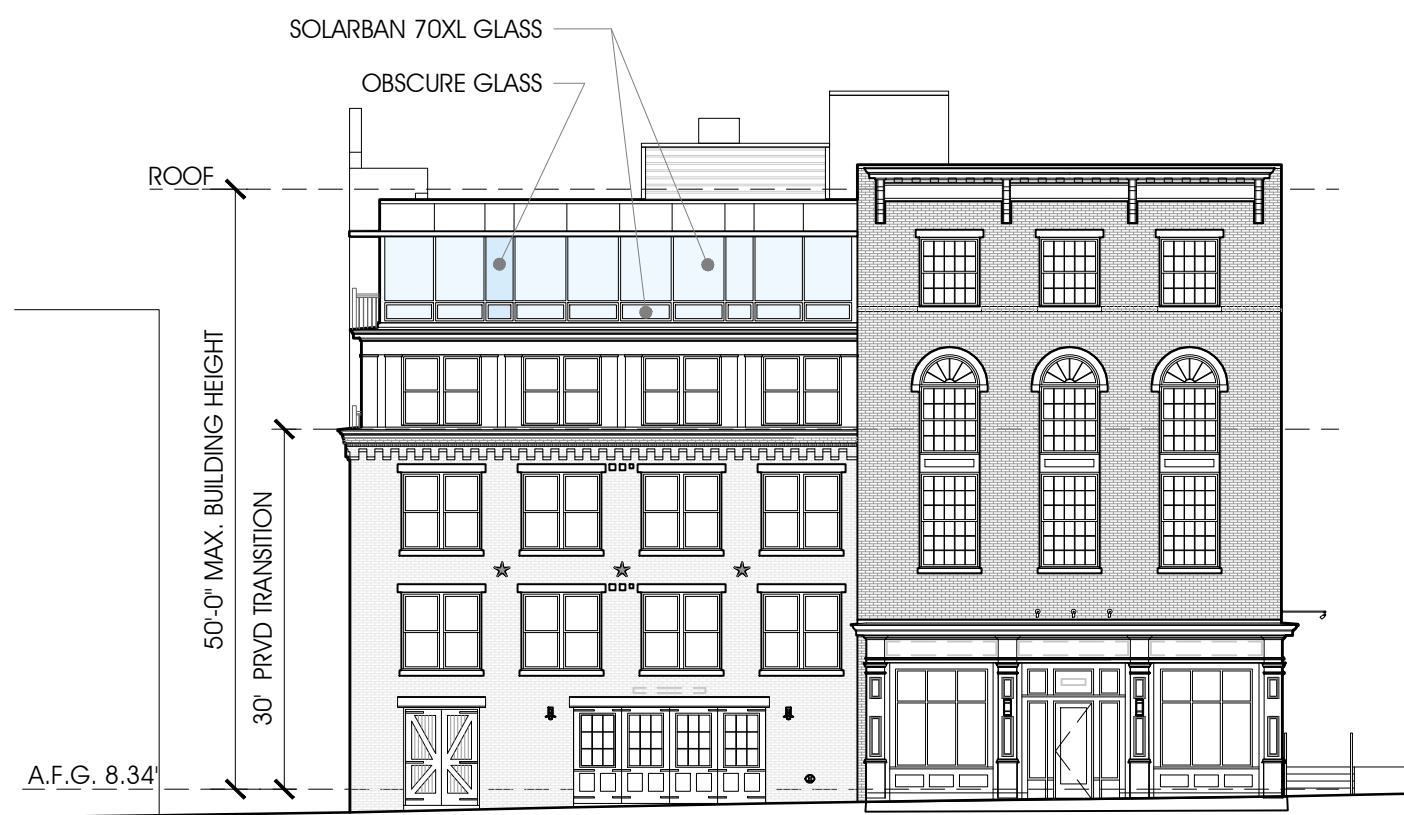


211 Strand Street

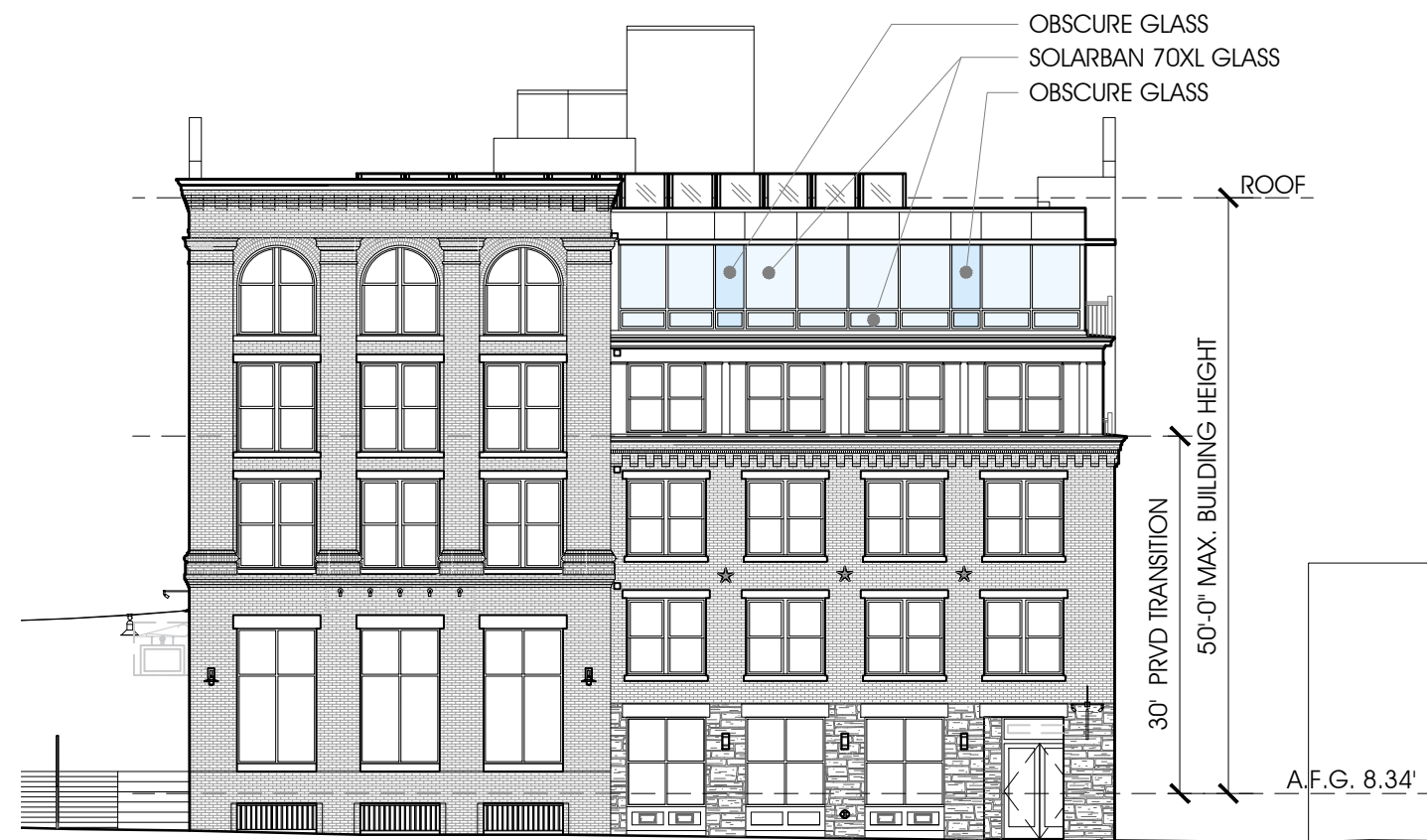
16002

PAGE 1

RUST | ORLING
ARCHITECTURE



EAST (STRAND STREET) ELEVATION



WEST (S. UNION STREET) ELEVATION

MAY 15, 2019

PROPOSED EAST & WEST ELEVATIONS

SCALE: 1/16" = 1'-0"



211 Strand Street

16002

PAGE 2

Aesthetic Description

Solarban® 70XL glass is a solar control, low-e glass that brilliantly combines the clear appearance of transparent, color-neutral glass with an exceptional combination of solar control and visible light transmittance (VLT).

The world's first triple-silver, magnetic sputter vacuum deposition (MSVD) coating, **Solarban 70XL** glass expands the design possibilities for buildings in two important ways. First, **Solarban 70XL** glass enables architects to incorporate vast areas of vision glass into their designs without a corresponding increase in cooling equipment capacity.

Second, architects can specify a clear aesthetic while achieving solar control performance that was once attainable only through the use of tinted glass and a solar control, low-e coating in an insulating glass unit (IGU).

Performance Options

When coupled with conventional clear glass in a 1-inch IGU, **Solarban 70XL** glass achieves VLT of 64 percent and a solar heat gain coefficient (SHGC) of 0.27 to produce a light to solar gain (LSG) ratio of 2.37, making it one of the industry's highest-performing glasses.

The clear aesthetic of **Solarban 70XL** glass also makes the product exceptionally versatile, offering architects an extensive array of performance and appearance options. For instance, for projects that require advanced solar control performance, **Solarban 70XL** glass can be coated on the second (#2) surface of nearly all PPG's wide range of tinted glasses to produce SHGCs of as low as 0.19 and LSG ratios ranging from 1.68 to 2.15.

For more color and reflectivity choices, **Solarban 70XL** glass may be specified on the third (#3) surface of an IGU behind a tinted lite or in combination with **Solarcool®** reflective or **Vistacool®** subtly reflective color-enhanced glasses.

LEED and Sustainable Building

The center-of-glass insulating performance of **Solarban 70XL** glass enables most glazing designs to meet the most stringent regional and local energy standards when used as



Photo courtesy of Wes Thompson

The Cirque

Location: Dallas, TX

Product: Solarban 70XL Glass

Architect of Record: PageSoutherlandPage

Design Architect: Gromatzky Dupree & Associates

Glass Fabricator: Trulite Glass and Aluminum Solutions

Glazing Contractor: Haley-Greer

part of a well-designed and constructed glazing system. In addition, **Solarban 70XL** glass can contribute to achieving credit under LEED v4 (and earlier versions) in the categories of Energy and Atmosphere (EA), Materials and Resources (MR), Indoor Environmental Quality (IEQ) and Innovation in Design (IN) as detailed below.

Category	Feature	Benefit
Energy & Atmosphere (EA)	SHGC: 0.19 to 0.27 U-Value: 0.26 (Summer) 0.28 (Winter)	Helps projects achieve Minimum Energy Performance and ASHRAE 50% Advanced Energy Design Guide (AEDG) energy efficiency targets in LEED v4. Exceptional solar control performance enables buildings to use less energy and control long-term energy costs.
Materials & Resources (MR)	Regional Sourcing Cradle to Cradle Certified® (Silver Level) Published Corporate Sustainability Statement	Can be sourced regionally throughout North America through PPG Certified Fabricator Network . Material ingredient optimization. Manufacturer has published a stated commitment to sustainable practices.
Indoor Environmental Quality (IEQ)	VLT: 32% to 64%	Provides ample visible light, connecting occupants to undistorted natural outdoor views.
Innovation in Design (IN)		Helps projects earn Innovation in Design credits by contributing to exemplary performance strategies through the selection of environmentally focused products.

Fabrication and Availability

Solarban 70XL glass is available exclusively through the **PPG Certified Fabricator® Network**. PPG Certified Fabricators can meet tight construction deadlines and accelerate the delivery of replacement glass before, during and after construction. **Solarban 70XL** glass is manufactured using the sputter-coating process and is available for annealed, heat-strengthened and tempered applications.



Additional Resources

Solarban 70XL glass is just one of many **Ecological Solutions from PPG™**. For more information or to obtain samples of any PPG glass product, call **1-888-PPG-IDEA** or visit www.ppgideascales.com.



PPG is the first U.S. float glass manufacturer to have its products recognized by the **Cradle to Cradle Certified™** program, and it offers more C2C-certified architectural glasses than any other float glass manufacturer.

PPG IdeaScapes® Integrated products, people and services to inspire your design and color vision.

Solarban® 70XL Glass Performance — Commercial Insulating Glass Unit

Insulating Vision Unit Performance Comparisons 1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites; interior lite clear unless otherwise noted											
Glass Type	Transmittance			Exterior Reflectance		U-Value (Imperial)		European U-Value	Shading Coefficient	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)
	Ultra-violet %	Visible %	Total Solar Energy %	Visible Light %	Total Solar Energy %	Winter Night-time	Summer Day-time				
Coated											
SOLARBAN® 70XL Solar Control Low-E Glass*											
SOLARBAN 70XL (2)* + Clear	6	64	25	12	52	0.28	0.26	1.5	0.32	0.27	2.37
SOLARBAN 70XL (2) ATLANTICA + Clear	2	51	17	9	8	0.28	0.26	1.5	0.28	0.24	2.13
SOLARBAN 70XL (2) AZURIA + Clear	5	52	18	9	7	0.28	0.26	1.5	0.29	0.25	2.08
SOLARBAN 70XL (2) OPTIGRAY + Clear	4	47	18	8	18	0.28	0.26	1.5	0.28	0.24	1.96
SOLARBAN 70XL (2) PACIFICA + Clear	2	32	12	6	7	0.28	0.26	1.5	0.22	0.19	1.68
SOLARBAN 70XL (2) SOLARBLUE + Clear	4	42	17	8	15	0.28	0.26	1.5	0.26	0.23	1.83
SOLARBAN 70XL (2) SOLARBRONZE + Clear	3	40	15	7	19	0.28	0.26	1.5	0.25	0.21	1.90
SOLARBAN 70XL (2) SOLARGRAY + Clear	3	34	13	6	15	0.28	0.26	1.5	0.23	0.20	1.70
SOLARBAN 70XL (2) SOLEXIA + Clear	4	58	21	10	13	0.28	0.26	1.5	0.31	0.27	2.15
ATLANTICA + SOLARBAN 70XL (3)	2	49	17	10	8	0.28	0.26	1.5	0.32	0.28	1.75
AZURIA + SOLARBAN 70XL (3)	4	49	17	9	8	0.28	0.26	1.5	0.33	0.29	1.69
GRAYLITE II + SOLARBAN 70XL (3)	0	6	3	4	5	0.28	0.26	1.5	0.13	0.11	0.55
OPTIGRAY + SOLARBAN 70XL (3) STARPHIRE	3	45	17	9	18	0.28	0.26	1.5	0.33	0.29	1.55
PACIFICA + SOLARBAN 70XL (3)	2	31	12	6	7	0.28	0.26	1.5	0.26	0.22	1.41
SOLARBLUE + SOLARBAN 70XL (3)	3	40	16	8	16	0.28	0.26	1.5	0.32	0.27	1.48
SOLARBRONZE + SOLARBAN 70XL (3)	3	38	15	8	20	0.28	0.26	1.5	0.30	0.26	1.46
SOLARGRAY + SOLARBAN 70XL (3)	2	32	13	7	15	0.28	0.26	1.5	0.27	0.24	1.33
SOLEXIA + SOLARBAN 70XL (3)	3	56	20	11	13	0.28	0.26	1.5	0.37	0.32	1.75
VISTACOOL® and SOLARCOOL® with SOLARBAN® 70XL Solar Control Low-E (3)*											
VISTACOOL (2) AZURIA + Low-E	4	38	14	21	12	0.28	0.26	1.5	0.27	0.24	1.58
VISTACOOL (2) PACIFICA + Low-E	1	24	9	11	9	0.28	0.26	1.5	0.22	0.19	1.26
SOLARCOOL (2) AZURIA + Low-E	1	19	6	19	10	0.28	0.26	1.5	0.18	0.15	1.27
SOLARCOOL (2) PACIFICA + Low-E	1	12	4	10	8	0.28	0.26	1.5	0.15	0.13	0.92
SOLARCOOL (2) SOLARBLUE + Low-E	1	16	6	14	16	0.28	0.26	1.5	0.18	0.15	1.07
SOLARCOOL (2) SOLARBRONZE + Low-E	1	15	6	14	19	0.28	0.26	1.5	0.17	0.15	1.00
SOLARCOOL (2) SOLARGRAY + Low-E	1	13	5	11	15	0.28	0.26	1.5	0.16	0.14	0.93
SOLARCOOL (2) SOLEXIA + Low-E	1	22	8	24	15	0.28	0.26	1.5	0.20	0.17	1.29




*Solarban 70XL glass for annealed applications is applied to **Starphire** glass, heat treated applications will require either clear or **Starphire** glass depending on manufacturing process.

All performance data calculated using LBNL Window 6.3 software, except European U-value, which is calculated using WinDat version 3.0.1 software. For detailed information on the methodologies used to calculate the aesthetic and performance values in this table, please visit www.ppgideascales.com or request our Architectural Glass Catalog.

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Thickness (inches)	Transmittance UV %	Transmittance Visible %	Transmittance Total Solar %	Exterior Solar Reflectance %	Exterior Visible Reflectance %	Interior Visible Reflectance %	U-Value (Winter Nighttime) (Btu/hr* ² *°F)	U-Value(Summer Daytime) (Btu/hr* ² *°F)	Shading Coefficient (SC)	Solar Heat Gain Coefficient (SHGC)	Light To Solar Gain (LSG)	Thermal Stress Risk
Solarban® 60 on Clear 6mm (2) Air 1/2" (12.7mm) Clear 6mm												
1 "	18	70	34	28	11	12	0.29	0.27	0.45	0.39	1.79	
Solarban® 60 on Starphire® 6mm (2) Air 1/2" (12.7mm) Clear 6mm												
1 "	21	72	36	41	11	12	0.29	0.27	0.47	0.41	1.76	
Clear 6mm Air 1/2" (12.7mm) Clear 6mm												
1 "	50	79	61	12	15	15	0.47	0.50	0.81	0.70	1.13	

Specifications

Insulating Unit Construction

Solarban® 60 on Clear 6mm (2) | Air 1/2" (12.7mm) | Clear 6mm

Indoor Lite: Clear 6mm

Outdoor Lite: Clear with a second surface Solarban® 60

Vitro Approved Manufacturers/Where to Buy Vitro Products: Vitro Certified™ Network

Certification: Vitro lite(s) are Cradle to Cradle certified by McDonough Braungart Design Chemistry, LLC (MBDC www.mbdc.com)

Insulating Unit Construction

Solarban® 60 on Starphire® 6mm (2) | Air 1/2" (12.7mm) | Clear 6mm

Indoor Lite: Clear 6mm

Outdoor Lite: Starphire® with a second surface Solarban® 60

Vitro Approved Manufacturers/Where to Buy Vitro Products: Vitro Certified™ Network

Certification: Vitro lite(s) are Cradle to Cradle certified by McDonough Braungart Design Chemistry, LLC (MBDC www.mbdc.com)

Insulating Unit Construction

Clear 6mm | Air 1/2" (12.7mm) | Clear 6mm

Indoor Lite: Clear 6mm

Outdoor Lite: Clear 6mm

Vitro Approved Manufacturers/Where to Buy Vitro Products: Vitro Glass Fabricator

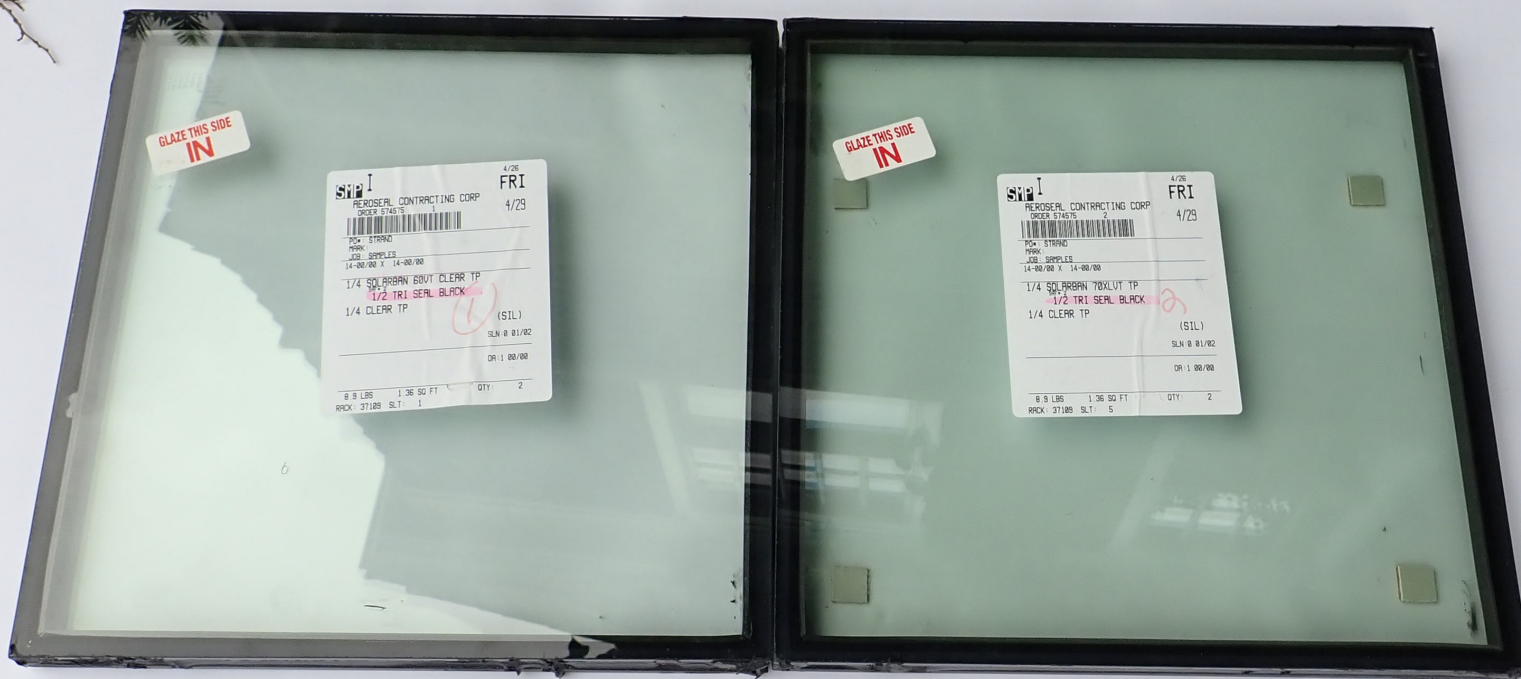
Certification: Vitro lite(s) are Cradle to Cradle certified by McDonough Braungart Design Chemistry, LLC (MBDC www.mbdc.com)

Solarban® 60: Solarban® 60 glass is a mid-range MSVD solar control low-e glass. Though the coating is transparent (on clear or Starphire® Ultra-Clear glass), it can also be paired with, or applied directly on most Vitro tinted glasses in an insulating glass unit.

Starphire®: Starphire® Ultra-Clear glass is a unique low-iron glass, the clearest float glass available, delivering high light transmittance and true-color fidelity.

The results represent Center-of-Glass performance data based on NFRC 100 Environmental Design Conditions utilizing the LBNL Window 7.3 software program. Performance data is based on representative samples of factory production. Actual values may vary slightly due to variations in the production process. This data is to be used for comparison purposes and should not be considered a contract. It is the recipient's responsibility to ensure the manufacturability of the above glazing configurations as well as evaluating appropriate design considerations such as wind and snow load analysis, thermal stress analysis, and local building code compliance. Vitro recommends that a full size mock-up be reviewed under the specific job-site conditions and retain the mock-up as a basis of acceptable product.





GLAZE THIS SIDE
IN

Star I 4/26 **FRI**
PEROSEAL CONTRACTING CORP
ORDER #161616 4/29
PCK: STORNO
PWRK:
JOB: SAMPLES
14-00/00 X 14-00/00
1/4 SOLARBAN ABOUT CLEAR TP
1/2 TRI SEAL BLACK
1/4 CLEAR TP (SIL)
SLN 0 01/02
ON 1 00/00
8.8 LBS 1.36 SQ FT DTY: 2
RCK: 37100 SLT: 1

GLAZE THIS SIDE
IN

Star I 4/26 **FRI**
PEROSEAL CONTRACTING CORP
ORDER #161616 4/29
PCK: STORNO
PWRK:
JOB: SAMPLES
14-00/00 X 14-00/00
1/4 SOLARBAN ABOUT CLEAR TP
1/2 TRI SEAL BLACK
1/4 CLEAR TP (SIL)
SLN 0 01/02
ON 1 00/00
8.8 LBS 1.36 SQ FT DTY: 2
RCK: 37100 SLT: 5