



COMMISSION OF ARCHITECTURAL REVIEW APPLICATION / CERTIFICATE OF APPROPRIATENESS

PROPERTY (Location of Work)

Address 1902-1906 Princess Anne Ave.

Historic District Union Hill

PROPOSED ACTION

- Alteration (including paint colors)
- Addition
- Rehabilitation
- New Construction (Conceptual Review required)
- Conceptual Review
- Final Review
- Demolition

OWNER

Name Richard M. Cross

Company Hollyport Ventures LLC

Mailing Address 306 Hollyport Rd

Phone 804-306-4791

Email Richard@Hollyportventures.com

Signature Richard M Cross

Date 12/22/16

APPLICANT (if other than owner)

Name Richard M. Cross

Company Hollyport Ventures LLC

Mailing Address _____

Phone _____

Email _____

Signature _____

Date _____

ACKNOWLEDGEMENT OF RESPONSIBILITY

Requirements: A complete application includes all applicable information requested on checklists to provide a complete and accurate description of existing and proposed conditions. Preliminary review meeting or site visit with staff may be necessary to process the application. Owner contact information and signature is required. Late or incomplete applications will not be considered.

Zoning Requirements: Prior to CAR review, it is the responsibility of the applicant to determine if zoning approval is required and application materials should be prepared in compliance with zoning.

Compliance: If granted, you agree to comply with all conditions of the COA. Revisions to approved work require staff review and may require a new application and CAR approval. Failure to comply with the COA may result in project delays or legal action. The COA is valid for one (1) year and may be extended for an additional year, upon written request.

(Space below for staff use only) _____

Application received:

Date/Time _____

By _____

Complete Yes No

Jefferson Green

1902-1906 Princess Anne Ave.

Window Analysis

Jefferson Green is a project attempting to be rated as a LEED for Homes v.4 – Gold project. As each house is being rated separately, each house needs to meet all of the prerequisites and score at least 60 points out of a 110 point scale. High performance windows are a key element to achieving this goal. Not only is there an individual Energy and Atmosphere (EA) credit under the prescriptive path worth up to 3 points, Windows are a key component of the performance path as they contribute to the overall HERS rating for the house. To maximize the points in the EA area, I am attempting to score as many points as possible in the prescriptive path to potentially raise my overall points from those following the performance path.

As my submission to use all vinyl windows on this project was deferred, I have worked on a method to achieve the goals of the CAR and my needs for LEED credits. I propose to use one over one wooden windows with aluminum cladding on the houses visible from the historic district (except the windows in the Penthouse) and higher performing custom solid vinyl windows and sliding glass doors on the northern and western elevations not visible from the historic district.

In support, I have generated an analysis of the effect of window U-Factor and SHGC for each window and sliding glass door in each of the three houses. This is done, as they may score differently, to get the highest rating possible for each house.

Although my original presentation to the CAR, for design approval, specified Anderson 400 Series windows, after getting the specifications for these windows it was clear I couldn't reach the U-factors I needed based on total window area. I have now worked with the local Jeld-Wen window rep and propose to use their

wooden and aluminum clad windows. For the vinyl windows, I have chosen a Virginia Company, Custom Vinyl Products, LLC, that was willing to work with me to customize their standard solid vinyl windows by using 1" thick triple pane insulated Low E glass with 6 9/16" jams. These windows are rated at a U-Factor of .20 and a SHGC of .27 (we will limit our discussion to just the window U-factors as all of them meet the SHGC test of .40).

As the LEED EA credit has a base rating for our climate zone of a .26 U-factor for a house with a window to floor area (WFA) of 15% or less, it was necessary to calculate the WFA for each house as it varies significantly from house to house.

We will use the following to denote each house:

House A – The house facing Princess Anne Ave.

House B – The middle house of the three unit condominium

House C – The house next to the alley

House A has the most window area as it faces the Historic District and we are using the windows, porch and indented notch to break up the massing of the house as seen from the street. As you can see from the attached schedule, its WFA is 19.5% which fails the WFA base test of 15%.

House B has the least window area as it has no windows on its two sides where it adjoins the end houses. Its WFA is 10.8% so it passes and no adjustment in U-factor is needed.

House C has less window area than A but more than B but still fails the test with a WFA of 15.6%.

The credit stipulates that, when a house is higher than 15% WFA, the U-factor requirement is adjusted by a factor determined by dividing the actual WFA by the .15 standard and then multiplying the factor times the base U-Factor requirement of .26. From the schedule, you can see that the required U-factors per house are:

House A - .20 House B - .26 and House C - .25

As sliding glass doors are considered fenestration under this credit, the U-factors of the doors must also be taken into consideration. The schedule lists each size of window and how many of each type either wood with aluminum cladding or solid vinyl is proposed to be used in each house. As the wood with aluminum cladding windows (Jeld-Wen) have a U-Factor of .25 and the vinyls .20, each house's factor is weighted by the area of each type in each house and then the areas of the vinyl sliding glass doors at a U-factor of .24 are added in and then the total is divided by the total glass area in each house.

The results are that, by using a combination of Wood with Aluminum cladding on the southern and eastern elevations except the windows in the penthouse (See Historic Elevations A201, attached) and the vinyl windows and doors on the northern and western elevations (not visible from the historic district, See Non Historic Elevations A202, attached), Houses B and C pass the prescriptive test. House A doesn't pass but due to the low .20 U-factor required by its WFA that would be very difficult to achieve even with all vinyl windows. However, the lower U-factor obtained by this method will improve its HERS score.

"Jefferson Green Project"
Window Schedule

Base LEED Requirements for Climate Zone 4: U-Factor 0.26 SHGC 0.40

Type Mark	Type	U-Factor	Count	Width	Height	Area (Sq. Ft.)	House A	House B	House C	Window Area House A	Window Area House B	Window Area House C
1	Wood/Alum.	0.25	12	3' - 0"	6' - 0"	18	8	2	2	144	36	36
1	Vinyl	0.20	16	3' - 0"	6' - 0"	18	3	4	9	54	72	162
2	Vinyl	0.20	5	5' - 0"	1' - 6"	7.5	1	0	4	7.5	0	30
4	Wood/Alum.	0.25	12	3' - 0"	6' - 8"	20	8	2	2	160	40	40
5	Wood/Alum.	0.25	6	3' - 0"	1' - 0"	3	2	2	2	6	6	6
6	Vinyl	0.20	2	3' - 0"	5' - 0"	15	0	1	1	0	15	15
Sub Total										371.5	169	289

53

Ext Glass Doors

Type Mark	Type	U-Factor	Count	Width	Height	Area (Sq. Ft.)	House A	House B	House C	Area House A	Area House B	Area House C
8	Vinyl	0.24	3	71.25	82.5	40.8	1	1	1	40.8	40.8	40.8
14	Vinyl	0.24	7	38.125	82.5	21.8	2	2	3	43.7	43.7	65.5
15	Vinyl	0.24	3	71.25	82.5	40.8	1	1	1	40.8	40.8	40.8
Sub Total										125.3	125.3	147.2
Total										496.8	294.3	436.2
Req Sq Ft										3312.2	1962.2	2907.8
Actual Sq Ft										2545.4	2727.7	2799.5
										Fail	Pass	Fail

LEED Requirement by house

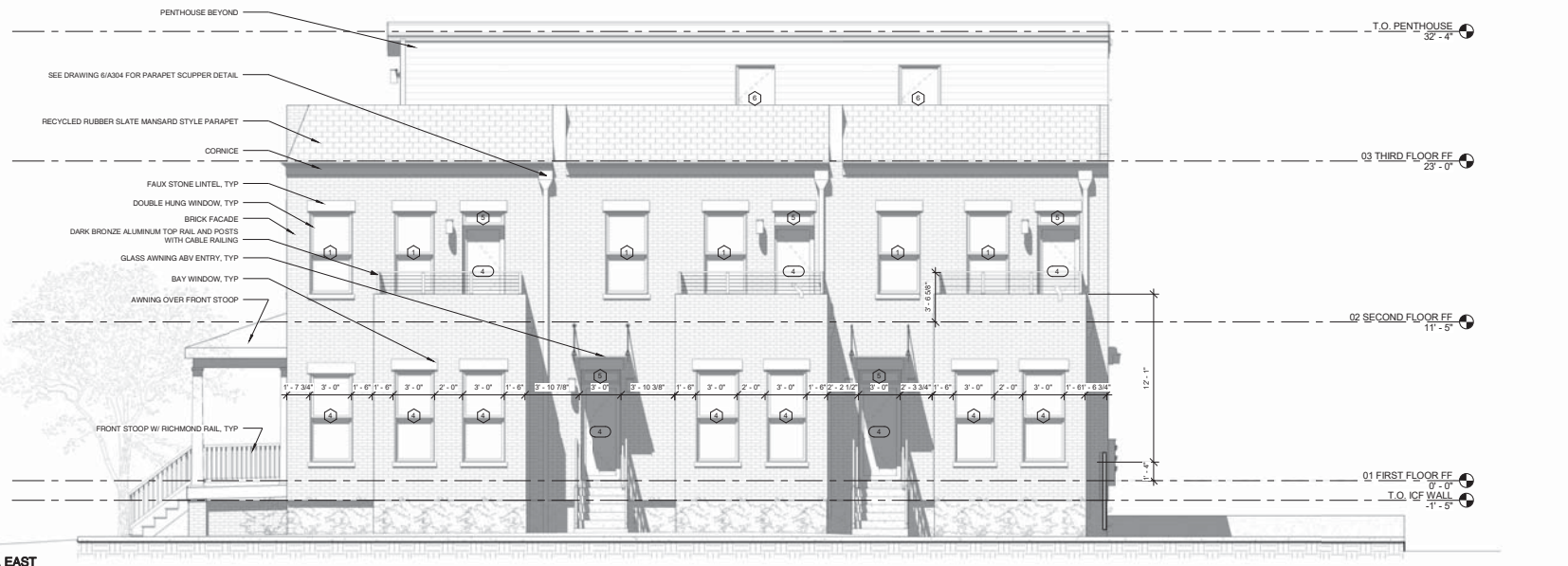
House	Limit	WFA	Limit/WFA	Base	Factor	Required U-adjusted U-Factor:
House A	0.15	0.195	0.768	0.260	0.200	0.241 Fail
House B	N/A	0.108		0.260	0.260	0.231 Pass
House C	0.15	0.156	0.963	0.260	0.250	0.223 Pass

Window and door area adjusted U-Factor:
Window area
Required U-adjusted U-Factor:

0.241 0.231 0.223

House A Factor	House B Factor	House C Factor
36.00	9.00	9.00
10.80	14.40	32.40
1.50	0.00	6.00
40.00	10.00	10.00
1.50	1.50	1.50
0.00	3.00	3.00
89.80	37.90	61.90

9.80	9.80	9.80
10.48	10.48	15.73
9.80	9.80	9.80
30.08	30.08	35.32



EAST
1/4" = 1'-0"



SOUTH
1/4" = 1'-0"



Hollyport Ventures, LLC
 1906 PRINCESS ANNE AVENUE
R. MICHAEL CROSS
DESIGN GROUP

PERMIT SET



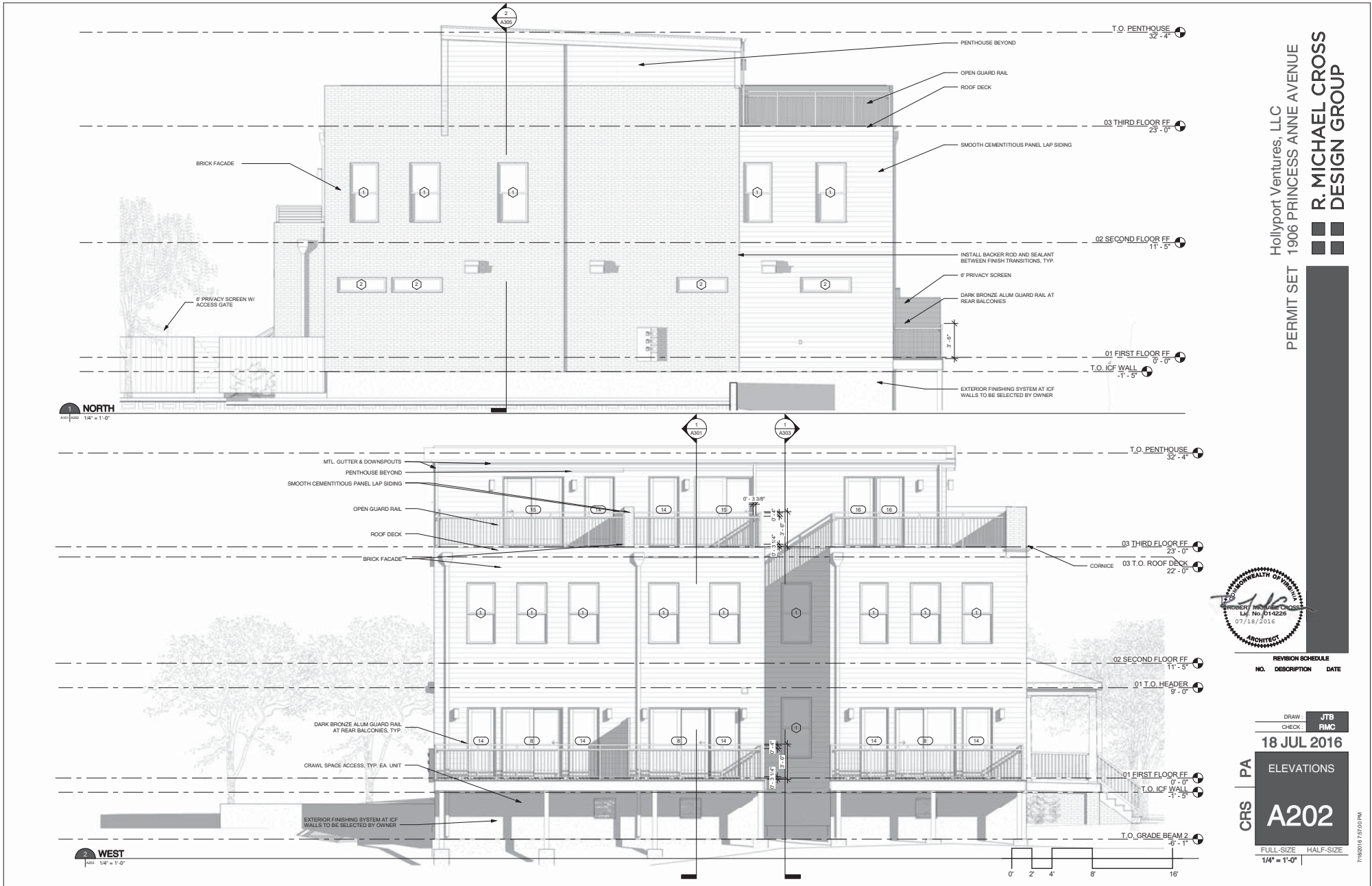
REVISION SCHEDULE
 NO. DESCRIPTION DATE

DRAWN: JTB
 CHECKED: RMC
18 JUL 2016

PA
 ELEVATIONS
A201

FULL-SIZE HALF-SIZE
 1/4" = 1'-0"

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Hollyport Ventures, LLC
 1906 PRINCESS ANNE AVENUE
 PERMIT SET

**R. MICHAEL CROSS
 DESIGN GROUP**



REVISION SCHEDULE

NO.	DESCRIPTION	DATE

DRAWN BY: JTB
 CHECKED BY: RMC
18 JUL 2016

ELEVATIONS
A202

FULL-SIZE HALF-SIZE
 1/4" = 1'-0"

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