1. Legal Ad

   Documents:

   9-19-18 LEGAL AD.PDF

2. Agenda

   Documents:

   9-19-18 AGENDA.PDF

3. 59 Chadwick Street

   Documents:

   HP MEMO - 59 CHADWICK STREET.PDF

4. 84 Commercial Street

   Documents:

   HP MEMO - 84 COMMERCIAL STREET.PDF

5. 66 State Street

   Documents:

   HP MEMO - 66 STATE STREET.PDF

LEGAL ADVERTISEMENT
HISTORIC PRESERVATION BOARD
CITY OF PORTLAND

Public comments are taken at all meetings.

On **Wednesday, September 19, 2018**, the Portland Historic Preservation Board will meet at 5:00 p.m., Room 209, Portland City Hall to review the following items. (Public comments are taken at all meetings):

1. PUBLIC HEARING

    i. Certificate of Appropriateness for Window Replacement; 59 CHADWICK STREET; Patty and Ed Howells, Applicant.

2. WORKSHOP

    i. Preliminary Review of Proposed Building Additions and Site Alterations; 84 COMMERCIAL STREET; 84 Commercial Street LLC., Applicant.

Dinner Break; Meeting Resumes at 7:30

WORKSHOP (continued)

ii. Preliminary Review of Proposed New Construction; 66 STATE STREET (project fronts on Danforth Street); Developers Collaborative, Applicant.

3. CONSENT AGENDA

CITY OF PORTLAND, MAINE
HISTORIC PRESERVATION BOARD

HISTORIC PRESERVATION BOARD AGENDA
September 19, 2018 at 5:00 p.m.
Room 209, City Hall, 389 Congress Street

Public comment is taken at all meetings

1. ROLL CALL AND DECLARATION OF QUORUM
2. COMMUNICATIONS AND REPORTS
3. REPORT OF DECISIONS AT THE MEETING HELD ON 9-5-18:
There were no public hearing items on the 9/5/18 agenda.

4. PUBLIC HEARING

   i. Certificate of Appropriateness for Window Replacement; 59 CHADWICK STREET; Patty and Ed Howells, Applicant.

5. WORKSHOP

   i. Preliminary Review of Proposed Building Additions and Site Alterations; 84 COMMERCIAL STREET; 84 Commercial Street LLC., Applicant.

Dinner Break; Meeting Resumes at 7:30 p.m.

6. WORKSHOP (continued)

   ii. Preliminary Review of Proposed New Construction; 66 STATE STREET (project fronts on Danforth Street); Developers Collaborative, Applicant.

7. CONSENT AGENDA

HISTORIC PRESERVATION BOARD
CITY OF PORTLAND, MAINE

PUBLIC HEARING
59 CHADWICK STREET

TO: Chair Sheridan and Members of the Historic Preservation Board
FROM: Rob Wiener, Preservation Compliance Coordinator
DATE: September 14, 2018
RE: September 19, 2018 **PUBLIC HEARING**

Application for: Certificate of Appropriateness for Window Replacement
Address: 59 Chadwick Street
Applicant: Patty and Ed Howells
Project Architect: Joe Delaney, Whipple Callender Architects

Introduction

Property owners Patty and Ed Howells and architect Joe Delaney are requesting approval for a program of window replacements at 59 Chadwick Street. The Howells residence is a French Provincial design constructed in 1957, during a revival of the style that first became popular after the First World War. Though examples of the style are not common in the West End, the house has design integrity and a relationship to the street and neighborhood that justify its listing as a contributing property in the historic district.

The existing 60 year-old steel, multi-light casement windows are an original feature of the design, but the owners find many of them to be in poor condition (some are inoperable) and without storm windows they are the cause of significant heat loss. With two upstairs bathroom remodeling projects planned, the Howells and their builder Ray Keith decided it was time deal with the original windows. In several conversations between HP staff and the owners, the architect, and the builder, alternatives for new windows were discussed. Staff made it clear that preserving or recreating as closely as possible the appearance of the narrow-framed steel casements would be an important consideration in a review of any proposal, and asked the team to thoroughly research alternatives, including repair.

Mr. Delaney will be presenting window proposals from several different companies, and a comparison of their frame sizes. He also will likely have additional information to distribute at the hearing on September 19. Two window brands that most closely resemble the original, character defining windows are very expensive and require a long lead time. The Board will be asked to evaluate whether some compromises are appropriate in the appearance of possible

replacement windows. The architect included with the submission a project summary, drawings showing details of existing and proposed windows and detail sheets showing the profiles and dimensions of several possible windows. Staff has added additional photos of existing conditions.

Staff is also including the National Park Service's Preservation Brief #13, on The Repair and Thermal Upgrading of Historic Steel Windows. Note that the brief provides excellent background information on steel windows and their repair and maintenance, but it focuses primarily on significant industrial and commercial buildings that may be quite a bit older than the 60 year old, single family subject property.

Subject Property

Built as the J. Guy LaRochelle house, 59 Chadwick Street fits in the West End much better than a number of infill houses built in the 1950's through the 1980's that are smaller and more suburban in character. In the style of a provincial manor house, the design is formal and symmetrical, with a central entrance, steeply pitched roofs with the ridges parallel to the street, and multi-light casement windows. The brick first floor and the wide, lapped siding on the upper walls are painted the same light color. On the right (south) end of the house an ell that originally contained a garage was converted to living space at some point in the past, with a large picture window facing the street in place of the garage door - now mostly hidden by vegetation.

Staff notes that the relationship of the windows to the walls differs on different floors, because the first floor windows are set back in the masonry openings, while the second floor windows are closer to the face of the wood framed walls. Also, the casing on the second floor windows gives them a different appearance. In some rooms windows that appear to be double casements are not - only one side opens, while the other is a fixed unit.

Three gabled dormers also with steep roofs punctuate the main roof facing Chadwick Street, while in the rear a large shed dormer faces the alley that provides vehicular access. A greenhouse addition (date unknown) faces the backyard, but an existing stockade fence all but obscures the rear facade of the first floor.

The architectural description in the Portland Historic Resource Inventory concludes:

> *Despite its late date, the Larochelle House contributes to the Western Promenade Historic District because of its high quality of design, similar massing and use of materials, and the same scale as its earlier neighbors. It maintains the predominant streetscape in set-back, as well.*

Proposed Alterations

Mr. Delaney provided a project description summarizing window alternatives that have been researched, including a table comparing frame widths. The applicants looked at two manufacturers of steel casement windows - Arcadia and Hope's, as well as aluminum windows by Universal and aluminum clad wood windows by Marvin. (Integrity windows by Marvin were also considered but dropped from consideration.)

The architect also indicates in his summary that repair of the existing windows was researched and discussed with the owners and the contractor. Staff is uncertain how many windows were found to have serious structural damage to frames or sash, or whether specific repair assessment and estimates were carried out.

The homeowners have been issued a building permit to renovate two upstairs bathrooms, with windows facing the rear alley. The first two windows to be replaced would be these bathroom windows, which might offer the opportunity to use these rear-facing openings as prototypes to work out installation details and evaluate whether to continue the replacement program throughout the house.

Staff Comments

The Secretary of the Interior's Standards for Review of Alterations to Historic Buildings, particularly Standards 2, 5, and 6 (see Applicable Review Standards, below,) clearly favor repair over replacement of historic windows, when possible. The threshold question of whether replacement is warranted must be judged on a case-by-case basis, in consideration of circumstances such as existing conditions, the potential for repairs, the significance of the property, the importance of the character defining features in question, and the authenticity and visual accuracy of any proposed replacement materials. Some questions associated with repair include:

- How serious is the damage? Can windows be repaired in place, or must they be removed to properly repair? Could all windows be fully refurbished?
- If repair off-site is called for, how difficult or potentially damaging would removal and replacement be to the windows and the house?
- To what extent is it appropriate to weigh the cost and end results of a repair program against a program of replacement?
- Are any of the windows considered unrepairable without significant reconstruction?
- Any repair program would undoubtedly be accompanied by the addition of interior storm windows and screens.

Should the Board agree with the applicants that repairing the existing windows is not a practical and reasonable option, members will likely address questions such as:

- How much change in appearance would the various window options present?
- How much impact would the proposed window changes have on the overall appearance of the house?
- What is reasonable to expect from owners in terms of expense and the time required to address problems?

From conversations with the architect and examination of the submitted materials, staff notes:

- The two brands of steel windows - Arcadia and Hope's - researched by the applicants would come closest to the appearance of the existing windows.
- These are also by far the most expensive options, with the longest lead times.
- Steel windows can be lighter in appearance because it is a stronger material than either aluminum or wood.
- Wood or aluminum windows would have wider frame dimensions, meaning more material and slightly less glass around the outside of the units.
- Mr. Delaney suggested that it might be possible to cover and hide some of the frame (or jamb) around the outside by applying a slightly wider casing - but it could not be widened much before it became quite a noticeable change.
- Marvin Clad Ultimate casements and Universal 700 Series would be comparable in terms of the frame width.
- While frames, stiles, rails, and mullions would be more substantial in new windows than in the existing windows, muntin profiles and dimensions in both the Universal product and the Marvin Clad Ultimate product would be close to the exterior appearance of the original windows.
- Both products would offer a black metal exterior.
- Mr. Delaney believes that compared to the Marvin alternative, the construction of the Universal windows may make the installation more closely resemble the existing relationship between windows and the wall surfaces, because of a flatter frame profile.
- Removal of the existing windows for either repair or replacement would offer the opportunity to improve the flashing, which presently is a weakness in the water-tightness of the home.
- Replacement of the windows would offer the opportunity to improve egress from bedrooms.
- In consideration of egress, the architect has found that Marvin offers a French Casement without a center post, while Universal does not.

In conclusion, staff is sympathetic to the dilemma posed to the owners and architect by the condition of the original windows and the options available for repair or replacement. As Board members know, staff deals routinely with applications to replace windows, both original and more recent, non-original existing units. In this case staff elected to make this a Board review because the proposal is to replace original windows that are arguably a character defining feature of a well preserved contributing property. That said, the Board may be moved to consider whether the proposed change in windows would do serious harm to the overall character and appearance of the 60 year old house.

If the Board should find that the rear-facing bathroom windows present an opportunity to test the results of window replacement, it would be possible for staff to work out installation details with the contractor and architect. Then it would also be possible to re-evaluate the advisability of carrying out similar replacements in the rest of the house. That decision could either be made by staff at the appropriate time, or brought back to the Board.

Applicable Review Standards

1. Every reasonable effort shall be made to provide a compatible use for the property which requires minimal alteration to the character-defining features of the structure, object or site and its environment or to use a property for its originally intended purpose.

2. The distinguishing original qualities or character of a structure, object or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.

5. Distinctive features, finishes, and construction techniques or examples of skilled craftsmanship which characterize a structure, object or site shall be treated with sensitivity.

6. Deteriorated historic features shall be repaired rather than replaced wherever feasible. Where the severity of deterioration requires replacement of a distinctive feature, the new feature should match the feature being replaced in composition, design, texture and other visual qualities and, where possible, materials. Repair or replacement of missing historic features should be based on accurate duplications of features, substantiated by documentary, physical or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other structures or objects.

Motion for Consideration

On the basis of plans and specifications submitted by the applicant for the September 19, 2018 public hearing and information included in the accompanying staff report, the Board finds that the proposed alterations at 59 Chadwick Street meet (fail to meet) the historic preservation ordinance review standards for review of alterations (subject to the following conditions.....)

Attachments:

1. Architect's project description
2. Architect's sketch of existing windows
3. Architect's sketch of proposed window details
4. Architect's summary of replacement options
5. Universal 700 Series cut sheet - details
6. Marvin sample unit, extracted from quote
7. Staff photos of existing conditions
8. National Park Service Preservation Brief #13, Repair and Thermal Upgrading of Historic Steel Windows

ATTACHMENT 1

WHIPPLE-CALLENDER ARCHITECTS

9.5.2018

City of Portland Inspections Office
c/o Historic District Review Committee
389 Congress Street
Portland, Maine 04101

RE: 59 Chadwick, Portland Me.

59 Chadwick Street is owned by Patty and Eddie Howells. The structure was built in a French Provincial style in 1958. The home features very steep roofs, brick base and oversized clapboard upper walls, and outward opening steel sash windows. The windows are mounted in the plane of the building sheathing and trimmed in a narrow 1 ½" staff bead type of profile.

The owner has applied for a permit focused upon bathroom renovation and this presents the opportunity to replace 2 windows at the rear of the property. They are a 2 x 3 and 2 x 4 paired casement window. The existing windows are limited to ½ of the opening as operable.

The house has been maintained but the windows have been a challenge for some time. The owners have made repairs over time in an effort to keep the windows minimally operational. The existing windows are 60 year old single glazed steel sash with a hand latch operator. They seal poorly and condensation leads to damage at surrounding trim and walls. Review of the existing windows shows corrosion and general wear detrimental to the operation of the unit. Some windows have broken mechanisms that prevent opening and closing. Continuing to repair them has been discussed but we are concerned that the removal, repair, replacement and reinstallation of the steel sash windows is very uncertain and will net out as a repaired window that is still a poor thermal performer needing specialty storm sash and screens to provide the features of a new window without the convenience.

The owners have reviewed options for the windows. They have looked at Hopes and Arcadia steel sash as an option as well as Universal aluminum windows and Marvin clad windows. We realize the relative width of frames and mullions is a concern, as the steel sash have minimal frame widths. The outline below lists the casement frame widths of various windows-

1. Existing steel-	**1 1/2- 1 3/4" steel frame exposed outside**
2. Arcadia steel-	**2" steel frame**
3. Hopes steel sash-	**2 3/16" steel frame**
4. Universal	**2 15/16" alum. frame**
5. Marvin Ultrex-	**2 27/32" Ultrex**
6. Marvin clad -	**2 29/32" aluminum clad**
7. Andersen-	**4 1/8" clad**

The Hopes meeting post is 4 3/8" and the Marvin clad French casement meeting is 4 6/32". The Universal 700 Series window has a 3 15/16" meeting rail.

We have budgeted the 3 x 4 casement with Marvin, Arcadia and Hopes. The Marvin Casement is $1,800 and has a 6 week lead time. Hopes has advised us to carry a budget of $5,000- $8,000 with a lead time of

6. Marvin clad - 2 29/32" aluminum clad

7. Andersen- 4 1/8" clad

The Hopes meeting post is 4 3/8" and the Marvin clad French casement meeting is 4 6/32". The Universal 700 Series window has a 3 15/16" meeting rail.

We have budgeted the 3 x 4 casement with Marvin, Arcadia and Hopes. The Marvin Casement is $1,800 and has a 6 week lead time. Hopes has advised us to carry a budget of $5,000- $8,000 with a lead time of 30 weeks. It appears the Hopes window will be a 200 % to 450 % premium with a 500 % longer lead time. Arcadia has responded similarly.

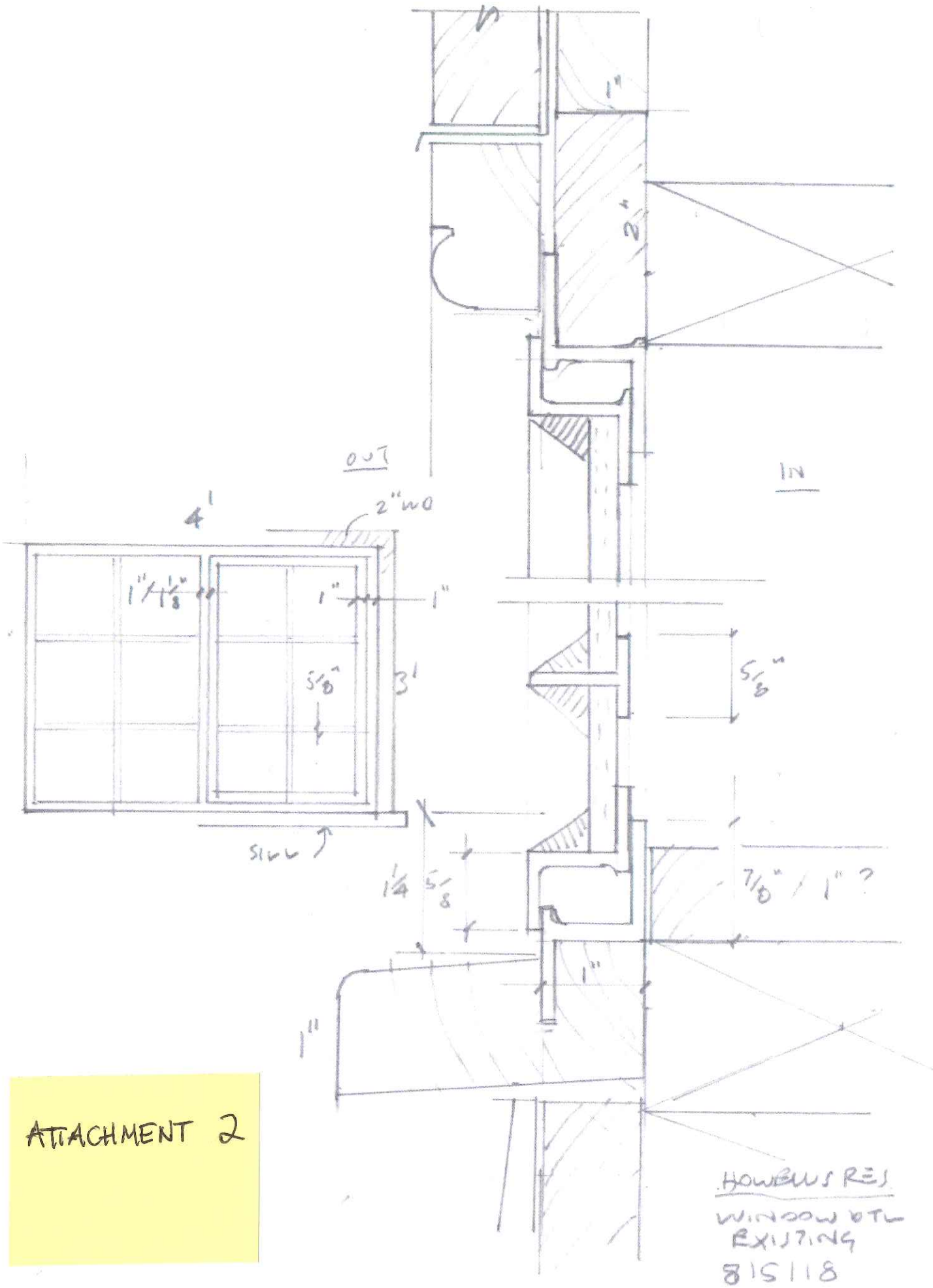
A $ 27,000 window budget could increase to a range of $54,000 to $121,500 with either Arcadian or Hopes. We are expecting more info from Universal for comparison and expect to have it prior to our workshop.

Attached info includes; Existing window detail, proposed window profiles, window product cuts, photographs, Arcadia budget and Marvin Budget.

Sincerely,

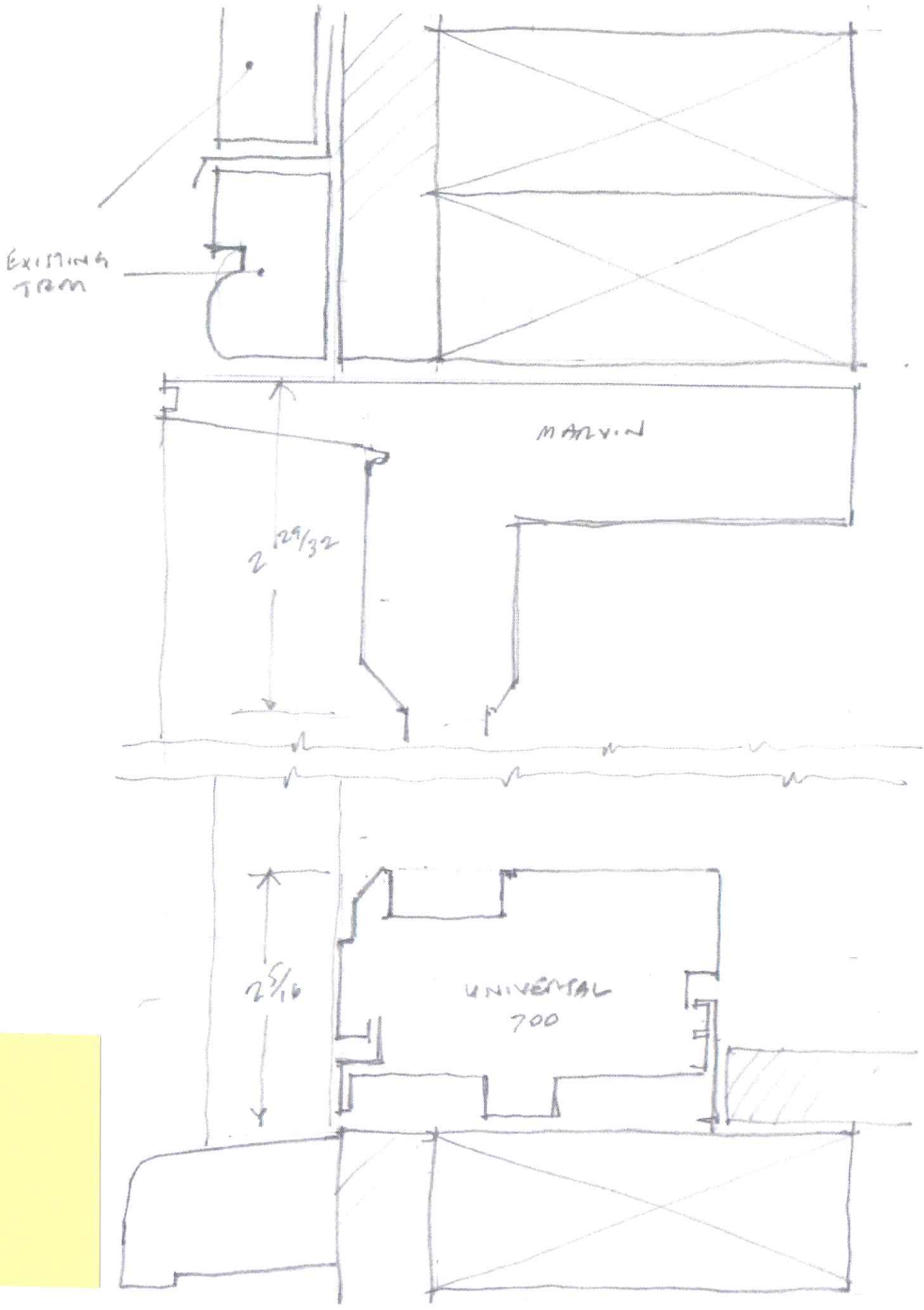
Joseph A. Delaney, Registered Maine Architect

P.O. BOX 1726 , PORTLAND, MAINE 04101 PH: 207-775-2696 FAX: 207-775-3631 joe@whipplecallender.com

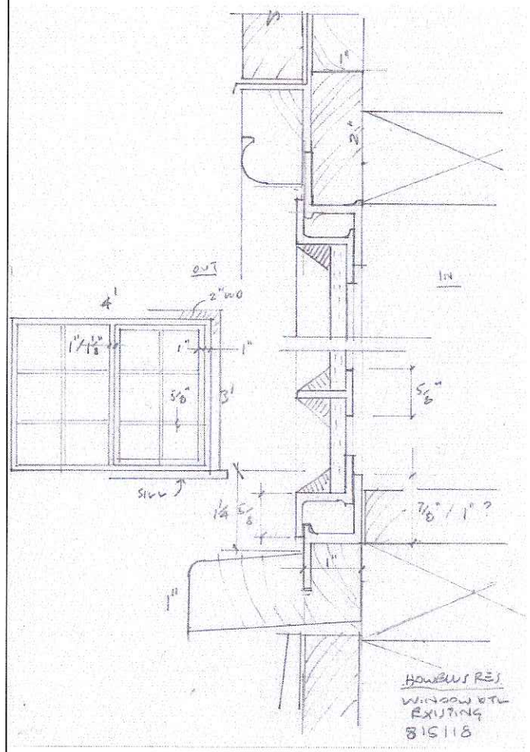


ATTACHMENT 2

HOWELLS RES
WINDOW DTL
EXISTING
8/5/18



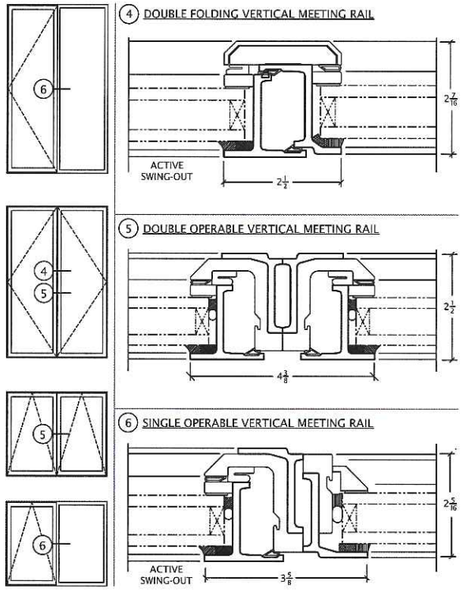
ATTACHMENT 3



1 A1.2 **EXISTING WINDOW DETAIL**

HOPE'S®

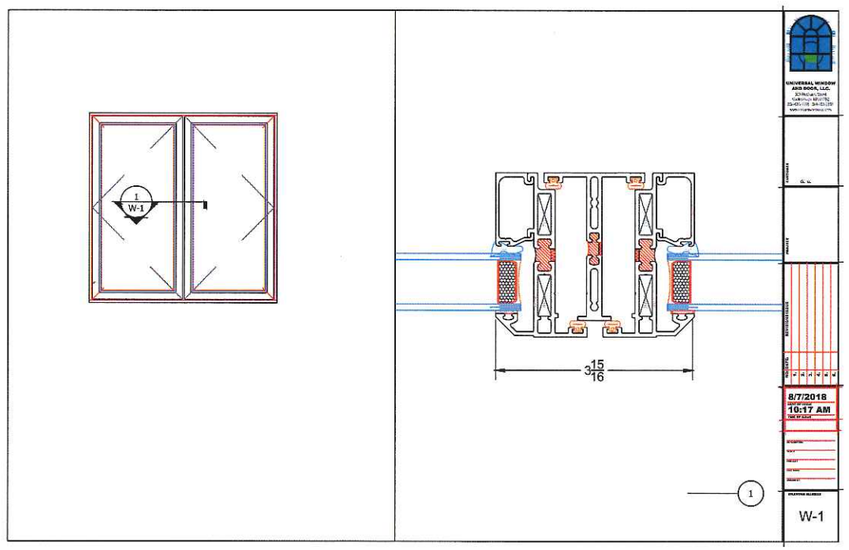
LANDMARK175™ SERIES
Thermal Steel Window
Details



Details are 2/3 scale.
All Hope's products are custom manufactured to your specific project requirements.

THERMAL EVOLUTION™ TECHNOLOGY 5

2 A1.2 **HOPES WINDOWS**



3 A1.2 **UNIVERSAL WINDOW AND DOOR**

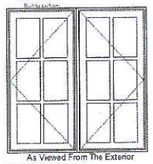
OMS Ver. 0002.20.00 (Current)
Product availability and pricing subject to change.

HOWELLS
CASEMENTS
Quote Number: LM35QVIK
Architectural Project Number:

7/8" SDL - With Spacer Bar 117.11
Rectangular - Special Cut 2W3H
Ebony Ext - White Int
White Folding Handle
Interior Aluminum Screen 21.51
Charcoal Fiberglass Mesh
White Surround
4 9/16" Jambs
Nailing Fin
***Note: Divided lite cut alignment may not be accurately represented in the OMS drawing. Please consult your local representative for exact specifications.

Line #2	Mark Unit: MASTER BR, AMELIA	Net Price:		1,136.05
Qty: 4		Ext. Net Price:	USD	4,544.20

Integrity



As Viewed From The Exterior
Egress Information A1, A2
Width: 10 15/64" Height: 34 23/32"
Net Clear Opening: 2.47 SqFt

Ebony Exterior
White Interior 95.60
2W1H - Rectangle Assembly
Assembly Rough Opening
39" x 39 5/8"

Unit: A1 ..... 381.80
Integrity Casement - Left Hand
Wood-Ultrex
Basic Frame 19" X 39 1/8"
Standard CN Height 39
Rough Opening 20" X 39 5/8"
IG
Low E2 w/Argon
7/8" SDL - With Spacer Bar 117.11
Rectangular - Special Cut 2W3H
Ebony Ext - White Int
White Folding Handle
Interior Aluminum Screen 21.51
Charcoal Fiberglass Mesh
White Surround

Unit: A2 ..... 381.60
Integrity Casement - Right Hand
Wood-Ultrex
Basic Frame 19" X 39 1/8"
Standard CN Height 39
Rough Opening 20" X 39 5/8"
IG
Low E2 w/Argon
7/8" SDL - With Spacer Bar 117.11
Rectangular - Special Cut 2W3H
Ebony Ext - White Int
White Folding Handle
Interior Aluminum Screen 21.51
Charcoal Fiberglass Mesh
White Surround
4 9/16" Jambs
Nailing Fin
***Note: Divided lite cut alignment may not be accurately represented in the OMS drawing. Please consult your local representative for exact specifications.

Line #3	Mark Unit: OFFICE, AND GUEST BTH	Net Price:		587.14
Qty: 2		Ext. Net Price:	USD	1,174.28

Integrity

Ebony Exterior
White Interior 47.80
Integrity Awning - Roto Operating 365.67
Wood-Ultrex
CN 3727
Rough Opening 37" X 27 5/8"

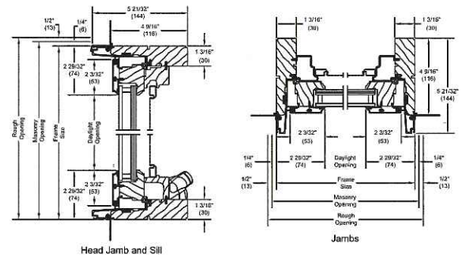
OMS Ver. 0002.20.00 (Current) Processed on: 5/25/2018 8:37:25 AM Page 4 of 11

Clad Ultimate Casement, Awning and Picture
MARVIN
Built around you.

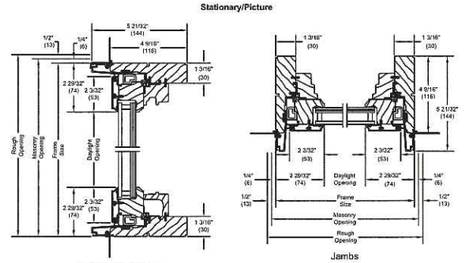
Section Details: IZ3/IZ4 Operating and Stationary/Picture - 1" (25) IG

Scale: 3" = 1' 0"

Operating



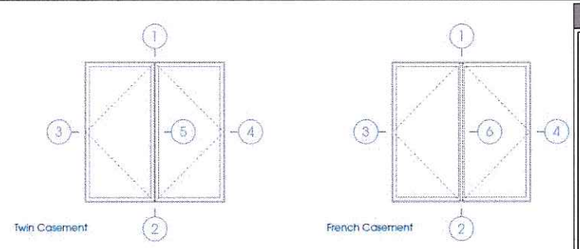
Stationary/Picture

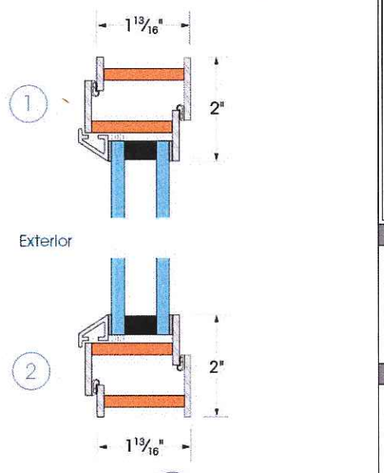


NOTE: CE mark is not available on Impact units

Ver 2014.2 2014-07-21 CUCA CURCA-37 19972255
Marvin Architectural Detail Manual

4 A1.2 **MARVIN WINDOWS**





5 A1.2 **ARCADIA WINDOWS**

HOWELLS RESIDENCE RENOVATIONS
59 CHADWICK ST. PORTLAND, MAINE

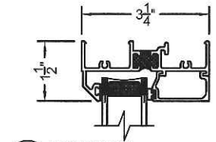
WHIPPLE CALLENDER ARCHITECTS
136 PLEASANT AVE.
PORTLAND, ME 04103
P 207.775.2696
F 207.775.3631
www.whipplecallender.com

MARK	DESCRIPTION	DATE

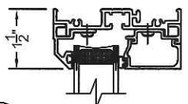
DATE: 9/10/18
CHECKED BY: JAD
DRAWN BY: CLBC
JOB: 2018- HOWELLS
SHEET TITLE: WINDOW OPTIONS

A1.2

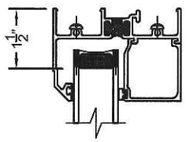
ATTACHMENT 4



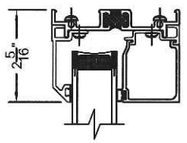
1 700 HSRW
Fixed Frame



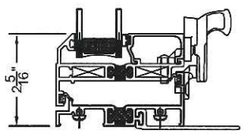
1a 700 HSRW
Assembled Fixed Frame



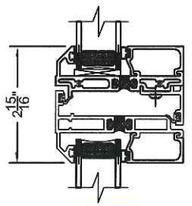
1b 700 HSRW
LG. FIXED FRAME



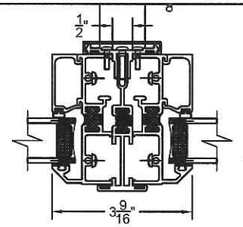
1c 700 HSRW
Assembled
lg. Fixed Frame



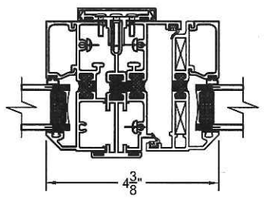
2 700 HSRW
Vent @ Sill
Cam Lock Shown



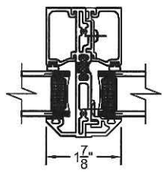
3 700 HSRW
Vent @ Horizontal Mullion



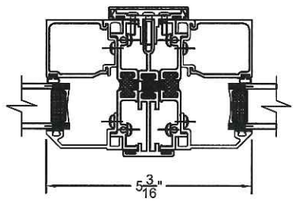
4 700 HSRW
Fxd / Fxd @ 3 Pc. Mullion



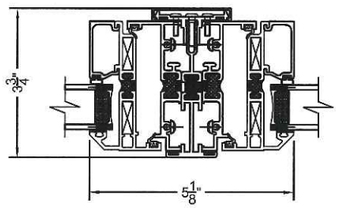
5 700 HSRW
Vent / Fxd @ 3Pc.Mullion



6 700 HSRW
Center Vent @ Vertical Mullion



7 700 HSRW
Lg.Fxd / Lg.Fxd@ 3Pc. Mullion



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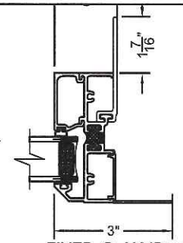

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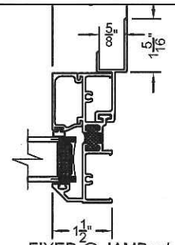

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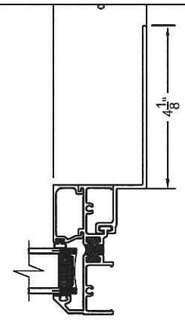

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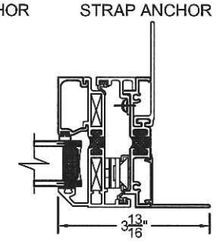

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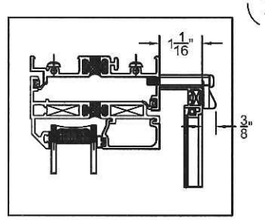
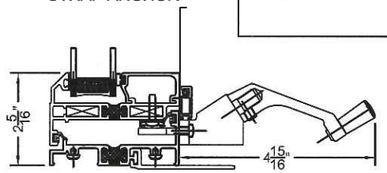
FLANGE &
STRAP ANCHOR





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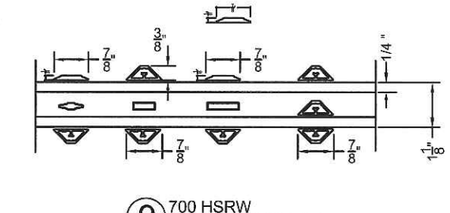
STRAP ANCHOR



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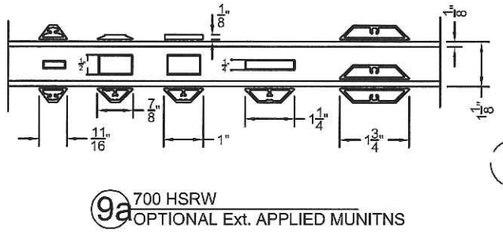
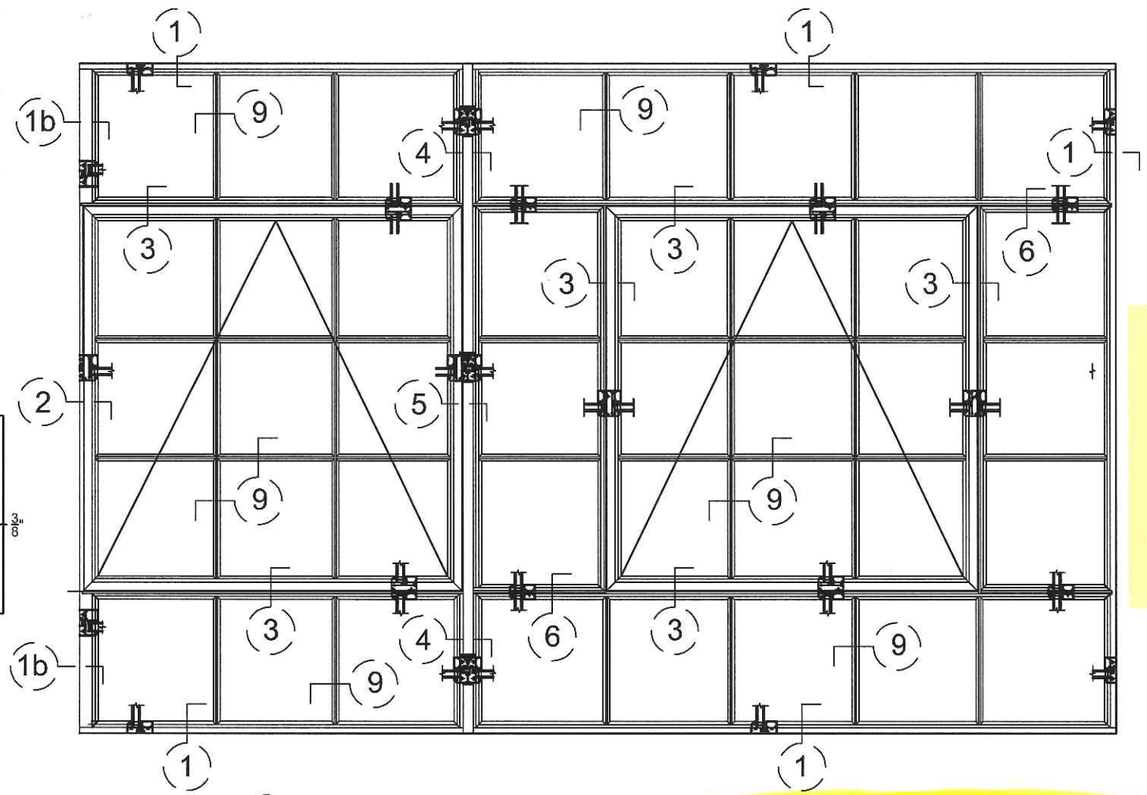
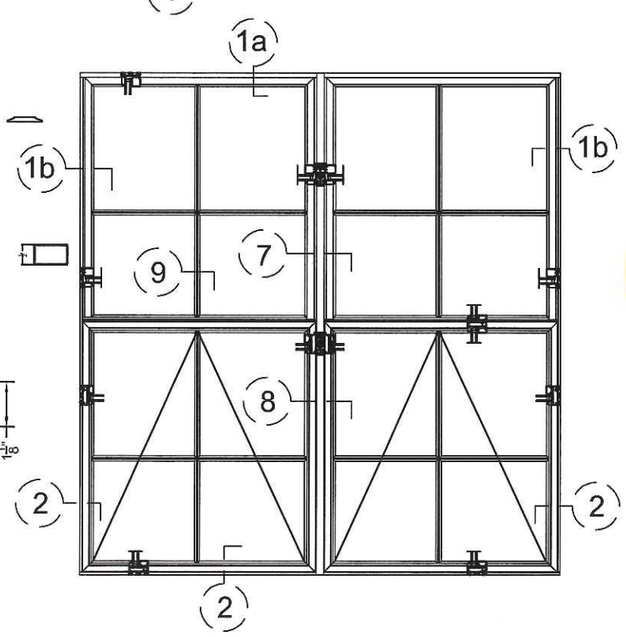
Ext. Applied / GBG



9a 700 HSRW
OPTIONAL Ext. APPLIED MUNITNS





ATTACHMENT 5

UNIVERSAL

UNIVERSAL WINDOW AND DOOR, LLC.
303 Mechanic Street
Marlborough, MA 01752
800-633-0106 508-481-2850
www.universalwindow.com

PROJECT NAME
700 STEEL WINDOW DETIALS

REVISIONS

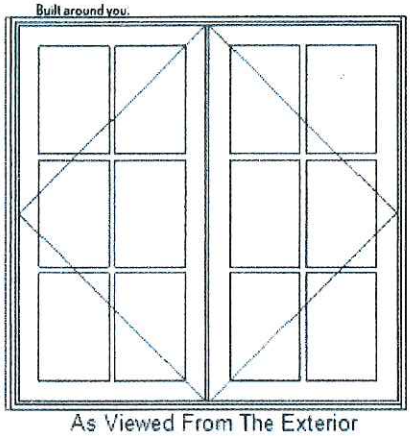
#	SUBJECT	DATE
1		
2		
3		
4		
5		
6		
7		
8		

DRAWING INFORMATION
FEB. 29, 2012
DATE OF ISSUE
DESCRIPTION
SCALE
FLM
PROJECT # DRAWN BY
FILE NAME

DRAWING NUMBER
W-1

Line #9 Qty: 2	Mark Unit: ABIGAIL AND AMELIA EGRESS	Net Price: Ext. Net Price:	 USD	1,882.87 3,765.74

MARVIN Windows and Doors
Built around you.



As Viewed From The Exterior

Egress Information
Width: 24 7/8" Height: 34 1/64"
Net Clear Opening: 5.88 SqFt

Ebony Clad Exterior
Painted Interior Finish - White - Pine Interior 104.92
Clad Ultimate French Casement - Left Hand/Right Hand 1,468.88
CN 4040
Rough Opening 41" X 39 5/8"
Frame Size 40" X 39 1/8"
Left Sash
Ebony Clad Sash Exterior
Painted Interior Finish - White - Pine Sash Interior
IG - 3/4"
Low E2 w/Argon
Stainless Perimeter and Spacer Bar
5/8" SDL - With Spacer Bar - Stainless 154.53
Rectangular - Standard Cut 2W3H
Ebony Clad Ext - Painted Interior Finish - White - Pine Int
Ogee Interior Glazing Profile
Standard Bottom Rail
Black Weather Strip
Right Sash
Ebony Clad Sash Exterior
Painted Interior Finish - White - Pine Sash Interior
IG - 3/4"
Low E2 w/Argon
Stainless Perimeter and Spacer Bar
5/8" SDL - With Spacer Bar - Stainless 154.53
Rectangular - Standard Cut 2W3H
Ebony Clad Ext - Painted Interior Finish - White - Pine Int
Ogee Interior Glazing Profile
Standard Bottom Rail
Black Weather Strip
White Folding Handle
White Multi - Point Lock
Aluminum Screen
White Surround
Charcoal Fiberglass Mesh
4 9/16" Jambs
Nailing Fin
***Note: Rotating wash mode hardware not available on UFCA units.

Project Subtotal Net Price: USD	25,294.58
5.500% Sales Tax: USD	1,391.20
Project Total Net Price: USD	26,685.78

ATTACHMENT 6


ATTACHMENT 7

Some of the web versions of the Preservation Briefs differ somewhat from the printed versions. Many illustrations are new and in color; Captions are simplified and some complex charts are omitted. To order hard copies of the Briefs, see Printed Publications.

PRESERVATION BRIEFS

13

The Repair and Thermal Upgrading of Historic Steel Windows

Sharon C. Park, AIA

Historical Development

Evaluation

1890–Present: Typical Rolled Steel Windows

Routine Maintenance

Repair

Weatherization

Window Replacement

Summary and References

Reading List

Download the PDF

Metal casement window from "Hope's Metal Windows and Casements, 1818-1926." Photo: Courtesy, Hope's Windows, Inc.

The Secretary of the Interior's "Standards for Rehabilitation" require that where historic windows are individually significant features, or where they contribute to the character of significant facades, their distinguishing visual qualities must not be destroyed. Further, the rehabilitation guidelines recommend against changing the historic appearance of windows through the use of inappropriate designs, materials, finishes, or colors which radically change the sash, depth of reveal, and muntin configuration; the reflectivity and color of the glazing; or the appearance of the frame.

Windows are among the most vulnerable features of historic buildings undergoing rehabilitation. This is especially the case with rolled steel windows, which are often mistakenly not deemed worthy of preservation in the conversion of old buildings to new uses. The ease with which they can be replaced and the mistaken assumption that they cannot be made energy efficient except at great expense are factors that typically lead to the decision to remove them.

In many cases, however, repair and retrofit of the historic windows are more economical than wholesale replacement, and all too often, replacement units are unlike the originals in design and appearance. If the windows are important in establishing the historic character of the building, insensitively designed replacement windows may diminish—or destroy—the building's historic character.

This Brief identifies various types of historic steel windows that dominated the metal window market from 1890-1950. It then gives criteria for evaluating deterioration and for determining appropriate treatment, ranging from routine maintenance and weatherization to extensive repairs, so that replacement may be avoided where possible.[1] This

Maintaining historic steel windows for continued use is always recommended. Photo: NPS files.

information applies to do-it-yourself jobs and to large rehabilitations where the volume of work warrants the removal of all window units for complete overhaul by professional contractors.

This Brief is not intended to promote the repair of ferrous metal windows in every case, but rather to insure that preservation is always the first consideration in a rehabilitation project. Some windows are not important elements in defining a building's historic character; others are highly significant, but so deteriorated that repair is infeasible. In such cases, the Brief offers guidance in evaluating appropriate replacement windows.

Historical Development

Although metal windows were available as early as 1860 from catalogues published by architectural supply firms, they did not become popular until after 1890. Two factors combined to account for the shift from wooden to metal windows about that time. Technology borrowed from the rolling industry permitted the mass production of rolled steel windows. This technology made metal windows cost competitive with conventional wooden windows. In addition, a series of devastating urban fires in Boston, Baltimore, Philadelphia, and San Francisco led to the enactment of strict fire codes for industrial and multi-story commercial and office buildings.

As in the process of making rails for railroads, rolled steel windows were made by passing hot bars of steel through progressively smaller, shaped rollers until the appropriate angled configuration was achieved. The rolled steel sections, generally 1/8" thick and 1" - 1-1/2" wide, were used for all the components of the windows: sash, frame, and subframe. With the addition of wire glass, a fire-resistant window resulted. These rolled steel windows are almost exclusively found in masonry or concrete buildings.

A by-product of the fire-resistant window was the strong metal frame that permitted the installation of larger windows and windows in series. The ability to have expansive amounts of glass and increased ventilation dramatically changed the designs of late 19th and early 20th century industrial and commercial buildings.

The newly available, reasonably priced steel windows soon became popular for more than just their fire-resistant qualities. They were standardized, extremely durable, and easily transported. These qualities led to the use of steel windows in every type of construction, from simple industrial and institutional buildings to luxury commercial and apartment buildings. Casement, double-hung, pivot, projecting, austral, and continuous windows differed in operating and ventilating capacities. In addition, the thin profiles of metal windows contributed to the streamlined appearance of the Art Deco, Art Moderne, and International Styles, among others.

The extensive use of rolled steel metal windows continued until after World War II when cheaper, noncorroding aluminum windows became increasingly popular. While aluminum windows dominate the market today, steel windows are still fabricated. Should replacement of original windows become necessary, replacement windows may be available from the manufacturers of some of the earliest steel windows. Before an informed decision can be made whether to repair or replace metal windows, however, the significance of the windows must be determined and their physical condition assessed.

Historic metal windows provide abundant natural light in this rehabilitated industrial space. Photo: NPS files.

Evaluation

Historic and Architectural Considerations

An assessment of the significance of the windows should begin with a consideration of their function in relation to the building's historic use and its historic character. Windows that help define the building's historic character should be preserved even if the building is being converted to a new use. For example, projecting steel windows used to introduce light and an effect of spaciousness to a warehouse or industrial plant can be retained in the conversion of such a building to offices or residences.

Other elements in assessing the relative importance of the historic windows include the design of the windows and their relationship to the scale, proportion, detailing and architectural style of the building. While it may be easy to determine the aesthetic value of highly ornamented windows, or to recognize the importance of streamlined windows as an element of a style, less elaborate windows can also provide strong visual interest by their small panes or projecting planes when open, particularly in simple, unadorned industrial buildings.

One test of the importance of windows to a building is to ask if the overall appearance of the building would be changed noticeably if the windows were to be removed or radically altered. If so, the windows are important in defining the building's historic character, and should be repaired if their physical condition permits.

Physical Evaluation

Steel window repair should begin with a careful evaluation of the physical condition of each unit. Either drawings or photographs, liberally annotated, may be used to record the location of each window, the type of operability, the condition of all three parts—sash, frame and subframe—and the repairs essential to its continued use.

A severely deteriorated frame, such as this, can be replaced in kind. Photo: Henry Chambers, AIA

Specifically, the evaluation should include: presence and degree of corrosion; condition of paint; deterioration of the metal sections, including bowing, misalignment of the sash, or bent sections; condition of the glass and glazing compound; presence and condition of all hardware, screws, bolts, and hinges; and condition of the masonry or concrete surrounds, including need for caulking or resetting of improperly sloped sills.

Corrosion, principally rusting in the case of steel windows, is the controlling factor in window repair; therefore, the evaluator should first test for its presence. Corrosion can be light, medium, or heavy, depending on how much the rust has penetrated the metal sections. If the rusting is merely a surface accumulation or flaking, then the corrosion is light. If the rusting has penetrated the metal (indicated by a bubbling texture), but has not caused any structural damage, then the corrosion is medium. If the rust has penetrated deep into the metal, the corrosion is heavy. Heavy corrosion generally results in some form of structural damage, through delamination, to the metal section, which must then be patched or spliced.

A sharp probe or tool, such as an ice pick, can be used to determine the extent of corrosion in the metal. If the probe can penetrate the surface of the metal and brittle strands can be dug out, then a high degree of corrosive deterioration is present.

In addition to corrosion, the condition of the paint, the presence of bowing or misalignment of metal sections, the amount of glass needing replacement, and the condition of the masonry or concrete surrounds must be assessed in the evaluation process. These are key factors in determining whether or not the windows can be repaired in place. The more complete the inventory of existing conditions, the easier it will be to determine whether repair is feasible or whether replacement is warranted.

Rehabilitation Work Plan

Following inspection and analysis, a plan for the rehabilitation can be formulated. The actions necessary to return windows to an efficient and effective working condition will fall into one or more of the following categories: routine maintenance, repair, and weatherization. The routine maintenance and weatherization measures described here are generally within the range of do-it-yourselfers. Other repairs, both moderate and major, require a professional contractor. Major repairs normally require the removal of the window units to a workshop, but even in the case of moderate repairs, the number of windows involved might warrant the removal of all the deteriorated units to a workshop in order to realize a more economical repair price. Replacement of windows should be considered only as a last resort.

Since moisture is the primary cause of corrosion in steel windows, it is essential that excess moisture be eliminated and that the building be made as weathertight as possible before any other work is undertaken. Moisture can accumulate from cracks in the masonry, from spalling mortar, from leaking gutters, from air conditioning condensation runoff, and from poorly ventilated interior spaces.

Finally, before beginning any work, it is important to be aware of health and safety risks involved. Steel windows have historically been coated with lead paint. The removal of such paint by abrasive methods will produce toxic dust. Therefore, safety goggles, a toxic dust respirator, and protective clothing should be worn. Similar protective measures should be taken when acid compounds are used. Local codes may govern the methods of removing lead paints and proper disposal of toxic residue.

Typical Rolled Steel Windows Available from 1890 to the Present

DOUBLE-HUNG industrial windows duplicated the look of traditional wooden windows. Metal double-hung windows were early examples of a building product adapted to meet stringent new fire code requirements for manufacturing and high-rise buildings in urban areas. Soon supplanted in industrial buildings by less expensive pivot windows, double-hung metal windows regained popularity in the 1940s for use in speculative suburban housing.

PIVOT windows were an early type of industrial window that combined inexpensive first cost and low maintenance. Pivot windows became standard for warehouses and power plants where the lack of screens was not a problem. The window shown here is a horizontal pivot. Windows that turned about a vertical axis were also manufactured (often of iron). Such vertical pivots are rare today.

PROJECTING windows, sometimes called awning or hopper windows, were perfected in the 1920s for industrial and institutional buildings. They were often used in "combination" windows, in which upper panels opened out and lower panels opened in. Since each movable panel projected to one side of the frame only, unlike pivot windows, for example, screens could be introduced.

AUSTRAL windows were also a product of the 1920s. They combined the appearance of the double-hung window with the increased ventilation and ease of operation of the projected window. (When fully opened, they provided 70% ventilation as compared to 50% ventilation for double-hung windows.) Austral windows were often used in schools, libraries and other public buildings.

CASEMENT windows adapted the English tradition of using wrought iron casements with leaded cames for residential use. Rolled steel casements (either single, as shown, or paired) were popular in the 1920s for cottage style residences and Gothic style campus architecture. More streamlined casements were popular in the 1930s for institutional and small industrial buildings.

CONTINUOUS windows were almost exclusively used for industrial buildings requiring high overhead lighting. Long runs of clerestory windows operated by mechanical tension rod gears were typical. Long banks of continuous windows were possible because the frames for such windows were often structural elements of the building.

Routine Maintenance

A preliminary step in the routine maintenance of steel windows is to remove surface dirt and grease in order to ascertain the degree of deterioration, if any. Such minor cleaning can be accomplished using a brush or vacuum followed by wiping with a cloth dampened with mineral spirits or denatured alcohol.

If it is determined that the windows are in basically sound condition, the following steps can be taken:

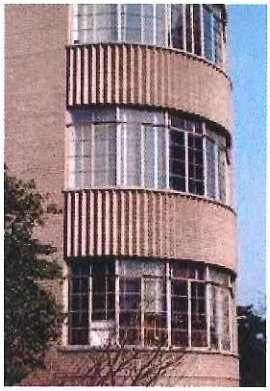
1. removal of light rust, flaking and excessive paint;
2. priming of exposed metal with a rust-inhibiting primer;
3. replacement of cracked or broken glass and glazing compound;
4. replacement of missing screws or fasteners;
5. cleaning and lubrication of hinges;
6. repainting of all steel sections with two coats of finish paint compatible with the primer; and
7. caulking the masonry surrounds with a high quality elastomeric caulk.

Recommended methods for removing light rust include manual and mechanical abrasion or the application of chemicals. Burning off rust with an oxyacetylene or propane torch, or an inert gas welding gun, should never be attempted because the heat can distort the metal. In addition, such intense heat (often as high as 3800 deg. F) vaporizes the lead in old paint, resulting in highly toxic fumes. Furthermore, such heat will likely result in broken glass. Rust can best be removed using a wire brush, an aluminum oxide sandpaper, or a variety of power tools adapted for abrasive cleaning such as an electric drill with a wire brush or a rotary whip attachment. Adjacent sills and window jambs may need protective shielding.

Rust can also be removed from ferrous metals by using a number of commercially prepared anticorrosive acid compounds. Effective on light and medium corrosion, these compounds can be purchased either as liquids or gels. Several bases are available, including phosphoric acid, ammonium citrate, oxalic acid and hydrochloric acid. Hydrochloric acid is generally not recommended; it can leave chloride deposits, which cause future corrosion. Phosphoric acid-based compounds do not leave such deposits, and are therefore safer for steel windows. However, any chemical residue should be wiped off with damp cloths, then dried immediately. Industrial blow-dryers work well for thorough drying. The use of running water to remove chemical residue is never recommended because the water may spread the chemicals to adjacent surfaces, and drying of these surfaces may be more difficult. Acid cleaning compounds will stain masonry; therefore plastic sheets should be taped to the edge of the metal sections to protect the masonry surrounds. The same measure should be followed to protect the glazing from etching because of acid contact.

Measures that remove rust will ordinarily remove flaking paint as well. Remaining loose or flaking paint can be removed with a chemical paint remover or with a pneumatic needle scaler or gun, which comes with a series of chisel blades and has

proven effective in removing flaking paint from metal windows. Well-bonded paint may serve to protect the metal further from corrosion, and need not be removed unless paint buildup prevents the window from closing tightly. The edges should be feathered by sanding to give a good surface for repainting.



The historic steel sash is shown in place, prior to its removal and replacement with inappropriate aluminum sash (see below). Photo: NPS files.

Next, any ***bare metal*** should be wiped with a cleaning solvent such as denatured alcohol, and dried immediately in preparation for the application of an anticorrosive primer. Since corrosion can recur very soon after metal has been exposed to the air, the metal should be primed immediately after cleaning. Spot priming may be required periodically as other repairs are undertaken. Anticorrosive primers generally consist of oil-alkyd based paints rich in zinc or zinc chromate.[2] Red lead is no longer available because of its toxicity. All metal primers, however, are toxic to some degree and should be handled carefully. Two coats of primer are recommended. Manufacturer's recommendations should be followed concerning application of primers.

Repair

Repair in Place

The maintenance procedures described above will be insufficient when corrosion is extensive, or when metal window sections are misaligned. Medium to heavy corrosion that has not done any structural damage to the metal sections can be removed either by using the chemical cleaning process described under "Routine Maintenance" or by sandblasting. Since sandblasting can damage the masonry surrounds and crack or cloud the glass, metal or plywood shields should be used to protect these materials. The sandblasting pressure should be low, 80-100 pounds per square inch, and the grit size should be in the range of #10–#45. Glass peening beads (glass pellets) have also been successfully used in cleaning steel sections. While sandblasting equipment comes with various nozzle sizes, pencil-point blasters are most useful because they give the operator more effective control over the direction of the spray. The small aperture of the pencil-point blaster is also useful in removing dried putty from the metal sections that hold the glass. As with any cleaning technique, once the bare metal is exposed to air, it should be primed as soon as possible. This includes the inside rabbeted section of sash where glazing putty has been removed. To reduce the dust, some local codes allow only wet blasting. In this case, the metal must be dried immediately, generally with a blowdrier (a step that the owner should consider when calculating the time and expense involved). Either form of sandblasting metal covered with lead paints produces toxic dust. Proper precautionary measures should be taken against toxic dust and silica particles.

Bent or bowed metal sections may be the result of damage to the window through an impact or corrosive expansion. If the distortion is not too great, it is possible to re-align the metal sections without removing the window to a metal fabricator's shop. The glazing is generally removed and pressure is applied to the bent or bowed section. In the case of a muntin, a protective 2 x 4 wooden bracing can be placed behind the bent portion and a wire cable with a winch can apply progressively more pressure over several days until the section is realigned. The 2 x 4 bracing is necessary to distribute the pressure evenly over the damaged section. Sometimes a section, such as the bottom of the frame, will bow out as a result of pressure exerted by corrosion and it is often necessary to cut the metal section to relieve this pressure prior to pressing the section back into shape and making a welded repair.

The historic steel sash (see photo above) was removed and replaced with modern aluminum sash, resulting in a negative visual impact on the building's historic character. Photo: NPS files.

Once the metal sections have been cleaned of all corrosion and straightened, small holes and uneven areas resulting from rusting should be filled with a patching material and sanded smooth to eliminate pockets where water can accumulate. A patching material of steel fibers and an epoxy binder may be the easiest to apply. This steel-based epoxy is available for industrial steel repair; it can also be found in auto body patching compounds or in plumber's epoxy. As with any product, it is important to follow the manufacturer's instructions for proper use and best results. The traditional patching technique—melting steel welding rods to fill holes in the metal sections—may be difficult to apply in some situations; moreover, the window glass must be removed during the repair process, or it will crack from the expansion of the heated metal sections. After these repairs, glass replacement, hinge lubrication, painting, and other cosmetic repairs can be undertaken as necessary.

To complete the checklist for routine maintenance, cracked glass, deteriorated glazing compound, missing screws, and broken fasteners will have to be replaced; hinges cleaned and lubricated; the metal windows painted, and the masonry surrounds caulked. If the glazing must be replaced, all clips, glazing beads, and other fasteners that hold the glass to the sash should be retained, if possible, although replacements for these parts are still being fabricated. When bedding glass,

use only glazing compound formulated for metal windows. To clean the hinges (generally brass or bronze), a cleaning solvent and fine bronze wool should be used. The hinges should then be lubricated with a non-greasy lubricant specially formulated for metals and with an anticorrosive agent. These lubricants are available in a spray form and should be used periodically on frequently opened windows.

Final painting of the windows with a paint compatible with the anticorrosive primer should proceed on a dry day. (Paint and primer from the same manufacturer should be used.) Two coats of finish paint are recommended if the sections have been cleaned to bare metal. The paint should overlap the glass slightly to insure weathertightness at that connection. Once the paint dries thoroughly, a flexible exterior caulk can be applied to eliminate air and moisture infiltration where the window and the surrounding masonry meet.

Caulking is generally undertaken after the windows have received at least one coat of finish paint. The perimeter of the masonry surround should be caulked with a flexible elastomeric compound that will adhere well to both metal and masonry. The caulking used should be a type intended for exterior application, have a high tolerance for material movement, be resistant to ultraviolet light, and have a minimum durability of 10 years. Three effective compounds (taking price and other factors into consideration) are polyurethane, vinyl acrylic, and butyl rubber. In selecting a caulking material for a window retrofit, it is important to remember that the caulking compound may be covering other materials in a substrate. In this case, some compounds, such as silicone, may not adhere well. Almost all modern caulking compounds can be painted after curing completely. Many come in a range of colors, which eliminates the need to paint. If colored caulking is used, the windows should have been given two coats of finish paint prior to caulking.

Repair in Workshop

Damage to windows may be so severe that the window sash and sometimes the frame must be removed for cleaning and extensive rust removal, straightening of bent sections, welding or splicing in of new sections, and reglazing. These major and expensive repairs are reserved for highly significant windows that cannot be replaced; the procedures involved should be carried out only by skilled workmen.

As part of the orderly removal of windows, each window should be numbered and the parts labeled. The operable metal sash should be dismantled by removing the hinges; the fixed sash and, if necessary, the frame can then be unbolted or unscrewed. (The subframe is usually left in place. Built into the masonry surrounds, it can only be cut out with a torch.) Hardware and hinges should be labeled and stored together.

The two major choices for removing flaking paint and corrosion from severely deteriorated windows are dipping in a chemical bath or sandblasting. Both treatments require removal of the glass. If the windows are to be dipped, a phosphoric acid solution is preferred, as mentioned earlier. While the dip tank method is good for fairly evenly distributed rust, deep set rust may remain after dipping. For that reason, sandblasting is more effective for heavy and uneven corrosion. Both methods leave the metal sections clean of residual paint. As already noted, after cleaning has exposed the metal to the air, it should be primed immediately after drying with an anticorrosive primer to prevent rust from recurring.

Sections that are seriously bent or bowed must be straightened with heat and applied pressure in a workshop. Structurally weakened sections must be cut out, generally with an oxyacetylene torch, and replaced with sections welded in place and the welds ground smooth. Finding replacement metal sections, however, may be difficult. While most rolling mills are producing modern sections suitable for total replacement, it may be difficult to find an exact profile match for a splicing repair. The best source of rolled metal sections is from salvaged windows, preferably from the same building. If no salvaged windows are available, two options remain. Either an ornamental metal fabricator can weld flat plates into a built-up section, or a steel plant can mill bar steel into the desired profile.

While the sash and frame are removed for repair, the subframe and masonry surrounds should be inspected. This is also the time to reset sills or to remove corrosion from the subframe, taking care to protect the masonry surrounds from damage.

Missing or broken hardware and hinges should be replaced on all windows that will be operable. Salvaged windows, again, are the best source of replacement parts. If matching parts cannot be found, it may be possible to adapt ready-made items. Such a substitution may require filling existing holes with steel epoxy or with plug welds and tapping in new screw holes. However, if the hardware is a highly significant element of the historic window, it may be worth having reproductions made.

Weatherization

Historic metal windows are generally not energy efficient; this has often led to their wholesale replacement. Metal windows can, however, be made more energy efficient in several ways, varying in complexity and cost. Caulking around the masonry openings and adding weatherstripping, for example, can be do-it-yourself projects and are important first steps in reducing air infiltration around the windows. They usually have a rapid payback period. Other treatments include applying fixed layers of glazing over the historic windows, adding operable storm windows, or installing thermal glass in place of the

existing glass. In combination with caulking and weatherstripping, these treatments can produce energy ratings rivaling those achieved by new units.[3]

Weatherstripping

The first step in any weatherization program, caulking, has been discussed above under "Routine Maintenance." The second step is the installation of weatherstripping where the operable portion of the sash, often called the ventilator, and the fixed frame come together to reduce perimeter air infiltration. Four types of weatherstripping appropriate for metal windows are spring-metal, vinyl strips, compressible foam tapes, and sealant beads. The spring-metal, with an integral friction fit mounting clip, is recommended for steel windows in good condition. The clip eliminates the need for an applied glue; the thinness of the material insures a tight closure. The weatherstripping is clipped to the inside channel of the rolled metal section of the fixed frame. To insure against galvanic corrosion between the weatherstripping (often bronze or brass), and the steel window, the window must be painted prior to the installation of the weatherstripping. This weatherstripping is usually applied to the entire perimeter of the window opening, but in some cases, such as casement windows, it may be best to avoid weatherstripping the hinge side. The natural wedging action of the weatherstripping on the three sides of the window often creates an adequate seal.

Vinyl weatherstripping can also be applied to metal windows. Folded into a "V" configuration, the material forms a barrier against the wind. Vinyl weatherstripping is usually glued to the frame, although some brands have an adhesive backing. As the vinyl material and the applied glue are relatively thick, this form of weatherstripping may not be appropriate for all situations.

Compressible foam tape weatherstripping is often best for large windows where there is a slight bending or distortion of the sash. In some very tall windows having closure hardware at the sash midpoint, the thin sections of the metal window will bow away from the frame near the top. If the gap is not more than 1/4", foam weatherstripping can normally fill the space. If the gap exceeds this, the window may need to be realigned to close more tightly. The foam weatherstripping comes either with an adhesive or plain back; the latter variety requires application with glue. Compressible foam requires more frequent replacement than either spring-metal or vinyl weatherstripping.

A fourth type of successful weatherstripping involves the use of a caulking or sealant bead and a polyethylene bond breaker tape. After the window frame has been thoroughly cleaned with solvent, permitted to dry, and primed, a neat bead of low modulus (firm setting) caulk, such as silicone, is applied. A bond breaker tape is then applied to the operable sash covering the metal section where contact will occur. The window is then closed until the sealant has set (27 days, depending on temperature and humidity). When the window is opened, the bead will have taken the shape of the air infiltration gap and the bond breaker tape can be removed. This weatherstripping method appears to be successful for all types of metal windows with varying degrees of air infiltration.

Since the several types of weatherstripping are appropriate for different circumstances, it may be necessary to use more than one type on any given building. Successful weatherstripping depends upon using the thinnest material adequate to fill the space through which air enters. Weatherstripping that is too thick can spring the hinges, thereby resulting in more gaps.

Appropriate Types of Weatherstripping for Metal Windows

SPRING-METAL comes in bronze, brass or stainless steel with an integral friction fit clip. The weatherstripping is applied after the repaired windows are painted to avoid galvanic corrosion. This type of thin weatherstripping is intended for windows in good condition.

VINYL STRIPS are scored and fold into a "V" configuration. Applied adhesive is necessary which will increase the thickness of the weatherstripping, making it inappropriate for some situations. The weatherstripping is generally applied to the window after painting.

Closed cell **FOAM TAPE** comes either with or without an adhesive backing. It is effective for windows with a gap of approximately 1/4" and is easy to install. However, this type of weatherstripping will need frequent replacement on windows in regular use. The metal section should be cleaned of all dirt and grease prior to its application.

SEALANT BEAD. This very effective type of weatherstripping involves the application of a clean bead of firm setting caulk on the primed frame with a polyethelene bond breaker tape on the operable sash. The window is then closed until the bead has set and takes the form of the gap. The sash is then opened and the tape is removed leaving the set caulk as the weatherstripping.

Thermal Glazing

Another weatherization treatment is to install an additional layer of glazing to improve the thermal efficiency of the existing window. The decision to pursue this treatment should proceed from careful analysis. Each of the most common techniques

for adding a layer of glazing will effect approximately the same energy savings (approximately double the original insulating value of the windows); therefore, cost and aesthetic considerations usually determine the choice of method. Methods of adding a layer of glazing to improve thermal efficiency include adding a new layer of transparent material to the window; adding a separate storm window; and replacing the single layer of glass in the window with thermal glass.

Historic steel sash can be fitted with dual glazing to improve thermal efficiency. Photo: NPS files.

The least expensive of these options is to install a clear material (usually rigid sheets of acrylic or glass) over the original window. The choice between acrylic and glass is generally based on cost, ability of the window to support the material, and long-term maintenance outlook. If the material is placed over the entire window and secured to the frame, the sash will be inoperable. If the continued use of the window is important (for ventilation or for fire exits), separate panels should be affixed to the sash without obstructing operability. Glass or acrylic panels set in frames can be attached using magnetized gaskets, interlocking material strips, screws or adhesives. Acrylic panels can be screwed directly to the metal windows, but the holes in the acrylic panels should allow for the expansion and contraction of this material. A compressible gasket between the prime sash and the storm panel can be very effective in establishing a thermal cavity between glazing layers. To avoid condensation, 1/8" cuts in a top corner and diagonally opposite bottom corner of the gasket will provide a vapor bleed, through which moisture can evaporate. (Such cuts, however, reduce thermal performance slightly.) If condensation does occur, however, the panels should be easily removable in order to wipe away moisture before it causes corrosion.

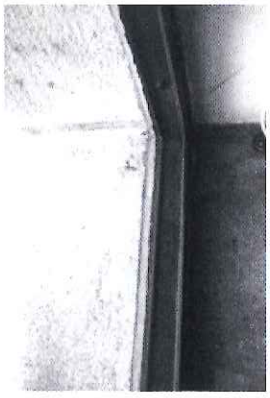
The second method of adding a layer of glazing is to have independent storm windows fabricated. (Pivot and austral windows, however, which project on either side of the window frame when open, cannot easily be fitted with storm windows and remain operational.) The storm window should be compatible with the original sash configuration. For example, in paired casement windows, either specially fabricated storm casement windows or sliding units in which the vertical meeting rail of the slider reflects the configuration of the original window should be installed. The decision to place storm windows on the inside or outside of the window depends on whether the historic window opens in or out, and on the visual impact the addition of storm windows will have on the building. Exterior storm windows, however, can serve another purpose besides saving energy: they add a layer of protection against air pollutants and vandals, although they will partially obscure the prime window. For highly ornamental windows this protection can determine the choice of exterior rather then interior storm windows.

The third method of installing an added layer of glazing is to replace the original single glazing with thermal glass. Except in rare instances in which the original glass is of special interest (as with stained or figured glass), the glass can be replaced if the hinges can tolerate the weight of the additional glass. The rolled metal sections for steel windows are generally from 1" 1-1/2" thick. Sash of this thickness can normally tolerate thermal glass, which ranges from 3/8" 5/8". (Metal glazing beads, readily available, are used to reinforce the muntins, which hold the glass.) This treatment leaves the window fully operational while preserving the historic appearance. It is, however, the most expensive of the treatments discussed here.

Window Replacement

Repair of historic windows is always preferred within a rehabilitation project. Replacement should be considered only as a last resort. However, when the extent of deterioration or the unavailability of replacement sections renders repair impossible, replacement of the entire window may be justified.

In the case of significant windows, replacement in kind is essential in order to maintain the historic character of the building. However, for less significant windows, replacement with compatible new windows may be acceptable. In selecting compatible replacement windows, the material, configuration, color, operability, number and size of panes, profile and proportion of metal sections, and reflective quality of the original glass should be duplicated as closely as possible.



This is a successful replacement in kind of the

A number of metal window manufacturing companies produce rolled steel windows. While stock modern window designs do not share the multi-pane configuration of historic windows, most of these manufacturers can reproduce the historic configuration if requested, and the cost is not excessive for large orders. Some manufacturers still carry the standard pre-World War II multi-light windows using the traditional 12" x 18" or 14" x 20" glass sizes in industrial, commercial, security, and residential configurations. In addition, many of the modern steel windows have integral weatherstripping, thermal break construction, durable vinyl coatings, insulating glass, and other desirable features.

deteriorated frame shown above. Photo: Henry Chambers, AIA.

Windows manufactured from other materials generally cannot match the thin profiles of the rolled steel sections. Aluminum, for example, is three times weaker than steel and must be extruded into a boxlike configuration that does not reflect the thin historic profiles of most steel windows. Wooden and vinyl replacement windows generally are not fabricated in the industrial style, nor can they reproduce the thin profiles of the rolled steel sections, and consequently are generally not acceptable replacements.

For product information on replacement windows, the owner, architect, or contractor should consult manufacturers' catalogues, building trade journals, or the Steel Window Institute, 1230 Keith Building, Cleveland, Ohio 44115.

Summary and References

The National Park Service recommends the retention of significant historic metal windows whenever possible. Such windows, which can be a character-defining feature of a historic building, are too often replaced with inappropriate units that impair rather than complement the overall historic appearance. The repair and thermal upgrading of historic steel windows is more practicable than most people realize. Repaired and properly maintained metal windows have greatly extended service lives. They can be made energy efficient while maintaining their contribution to the historic character of the building.

Notes

1. The technical information given in this brief is intended for most ferrous (or magnetic) metals, particularly rolled steel. While stainless steel is a ferrous metal, the cleaning and repair techniques outlined here must not be used on it as the finish will be damaged. For information on cleaning stainless steel and nonferrous metals, such as bronze, Monel, or aluminum, refer to Metals in America's Historic Buildings (see bibliography).
2. Refer to Table IV. Types of Paint Used for Painting Metal in *Metals in America's Historic Buildings*, p. 139. (See bibliography).
3. One measure of energy efficiency is the U-value (the number of BTUs per hour transferred through a square foot of material). The lower the U-value, the better the performance. According to *ASHRAE HANDBOOK 1977 Fundamentals*, the U-value of historic rolled steel sash with single glazing is 1.3. Adding storm windows to the existing units or reglazing with 5/8" insulating glass produces a U-value of .69. These methods of weatherizing historic steel windows compare favorably with rolled steel replacement alternatives: with factory installed 1" insulating glass (.67 U-value); with added thermal break construction and factory finish coatings (.62 U-value).

Acknowledgments

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This publication has been prepared pursuant to the National Historic Preservation Act of 1966, as amended, which directs the Secretary of the Interior to develop and make available information concerning historic properties. Technical Preservation Services (TPS), National Park Service prepares standards, guidelines, and other educational materials on responsible historic preservation treatments for a broad public.

September 1984

Reading List

ASHRAE Handbook 1977 Fundamentals. New York: American Society of Heating, Refrigerating and Air-conditioning Engineers, 1978.

Crittal, W. F. *A Metal Window Dictionary*. London: Curwen Press, 1926. Reprinted by B.T. Batsford. Ltd., 1953.

Gayle, Margot; David W. Look, AIA; John G. Waite. *Metals in America's Historic Buildings: Uses and Preservation Treatments.* Technical Preservation Services, U.S. Department of the Interior. Washington,D.C.: U.S. Government Printing Office, 1980.

Gillet, William. "Steel Windows." *Windows and Glass in the Exterior of Buildings.* National Academy of Sciences Publication 478. Washington, D.C.: 1957,7578.

Sarton, R. H. "Selecting and Specifying an Appropriate Type of Steel Window." *Metalcraft*. Vol. 6, No. 1 (January, 1931): 4348, 6465.

Sweet's Architectural Catalogue. 13th Edition, New York, Sweets Catalogue Service, Inc., 1918.

HISTORIC PRESERVATION BOARD
CITY OF PORTLAND, MAINE

2nd WORKSHOP
84 COMMERCIAL STREET

TO:	Chair Sheridan and Members of the Historic Preservation Board
FROM:	Deb Andrews, Historic Preservation Program Manager
DATE:	September 11, 2018
RE:	September 19, 2018 2nd WORKSHOP – **Preliminary Review of Proposed Exterior Alterations, Building Additions and Site Alterations**

Address:	84 Commercial Street
Applicant:	Dry Dock
Property Owner:	84 Commercial Street LLC
Project Architects:	Bill Hopkins and Katherine Detmer, Archetype

Introduction

Following an introductory workshop on July 11th, project architect Bill Hopkins is returning to the Board for a second workshop on a proposal for exterior alterations, two building additions and site alterations to the Dry Dock restaurant property at 84 Commercial Street. The design revisions were prompted, in part, by Board feedback at the 7/11 workshop.

As Board members will recall, the project calls for the following scope of work:

- Construction of a two-story addition on the east side of the Dry Dock building to house a new kitchen on the first floor and office space and storage on the second floor. The addition also includes a basement for coolers and storage. The proposed addition is set behind the building's existing one-story ell that extends beyond the main block.

- Construction of another one-story addition to the east of the addition described above. While physically connected to the Dry Dock's kitchen addition, this addition would house one or more retail tenants.

- Replacement of much of the rear, south-facing brick wall of the Dry Dock building with floor-to-ceiling glazing and expansion of existing rear decks at the first and second floor levels.

The recent submission includes an itemized list of design modifications made since the initial workshop, in addition to updated perspective views, elevations, floor plans. Also provided are photos of the type of retractable owning proposed above the second-floor deck and of the screening material proposed for the "utility pen".

For reference purposes, staff has provided renderings and elevations presented at the first workshop—see ATTACHMENT 3.

Subject Structure

The two-story brick commercial building at 84 Commercial was built circa 1900. In scale, form and architectural style, the building departs from the typical mid-19th century warehouses that predominate on Commercial Street., making it somewhat unusual. Its physical separation from other historic structures also distinguishes the building.

The building's front façade is rather curious in that the first floor extends one bay beyond the main block (toward the east). The one-story side ell has an oval fixed window with decorative tracery with a brick surround and granite keystones. The side (east) elevation of the ell features a single door and large picture window with transom above a rusticated granite sill. To the west of this ground floor extension, within the main block, are two more large picture windows with transoms on granite sills. The westernmost bay on the ground floor features a recessed entry within an arched opening. The arch above the door is brick surrounded by decorative granite with a granite keystone and imposts. Marking the transition between the ground floor and the upper façade is an intermediate cornice that continues around the northeast corner and spanning the northeast elevation of the side ell.

The second floor of the Commercial Street façade features five tall double-hung windows below segmental arched transoms. Prominent arched brick lintels with granite keystones and imposts highlight each window. A projecting denticulated cornice caps the façade.

The decorative window treatment and cornice that dominates the front façade returns for a limited distance onto the two side elevations of the building. Beyond this point, the building becomes more utilitarian with simpler window trim. etc.

Several years ago, the Historic Preservation Board reviewed and approved the construction of a ramp along the western elevation and two levels of decks at the rear of the building. The elements are unified by a consistent metal balustrade system serves as a ramp railing and surrounds the decks. Note that the rear decks extend beyond the face of the building's two side elevations.

Other alterations, some of which were completed prior to historic district designation, include window replacement (primarily on the side elevations), installation of ductwork and exhaust fan

off the east elevation and the installation of an ATM machine within an original side door opening (also on the east elevation.

The balance of the lot—east and south of the Dry Dock building--is currently occupied by surface parking.

Summary of Board Comments at 7/11 Workshop

While the Historic Preservation Board appeared to be generally receptive to the scope of alterations and additions being proposed, much of the discussion focused on the scale, alignment and visual relationship of the proposed additions, both in relation to the existing historic structure and to each other. Following is a summary of the key questions and concerns raised by the Board:

- Kitchen addition. Board members asked for clarification about the proposed height of the kitchen addition, as it appeared different in the various images provided. They recommended that the addition be lowered to the extent possible to reduce its visual prominence and mass and improve its relationship with the existing historic structure. At least one Board member recommended that the top of the addition align with the spring point of the existing structure's arched-top windows. Other recommendations included pulling the front wall of the addition forward and eliminating its projecting cornice.

- Retail addition. Board members asked for clarification about the position of the front façade in relation to that of the existing building. Again, the renderings were inconsistent in this regard. Board members also asked about the height of the retail addition in relation to that of the single-story bay of the Dry Dock building. They suggested that the heights and front walls align, strengthening the relationship between the two building elements.

- Exterior materials and finishes. Questions were raised about the materials under consideration for the two additions. If a panelized exterior material was being proposed, what size panels were being considered? The project architects indicated that exterior materials had not yet been finalized and that they were seeking input on this question. While various materials were discussed, no specific material recommendations were made. From staff notes, there appeared to be some discussion as to the advisability of using the same material/color palette for both new additions.

- Courtyard between existing single-story bay and retail addition. Questions were raised about the proposed function and treatment of this area. What was the purpose of the raised planter? Would the ATM be retained? Would the existing door opening (where the ATM had been installed) be used for egress?

- Restaurant entrance. Board members expressed concern about the ramifications of moving the main entrance of the restaurant to a doorway on the west elevation which is accessed by an existing ramp. In conjunction with this change, the submitted plans suggested that the existing recessed main entrance would be infilled. Board members did not support infilling the existing entrance and encouraged consideration of an interior program that did not render the original entrance obsolete. (see ordinance Standard #1). Board members also indicated that if the main entrance were moved, visual cues would need to be provided to direct patrons to the intended entrance.

- Rear elevation, removal of section of brick wall. Responding to the plans that showed most of the rear brick wall--particularly at the second-floor level--being removed, Board members suggested that the westernmost bay of the rear wall be retained as is to provide a more solid corner for this elevation.

- Rear decks. One Board member noted that the rendering of the rear decks and canopies was likely misleading, as it depicted the decks and canopies as has having a very light visual appearance. In reality, the decks and canopy will likely need to be heavier to provide the necessary structural support, etc. The project architects were encouraged to provide more accurate renderings with the second submission. The consultants were also asked to consider what exterior lighting would be proposed for the rear decks.

- Dumpster area. Questions were raised about the visibility of this area and what screening would be provided.

- Additional information requested. Board members recommended that the roof heights of the existing structure and additions be modeled so that the relationships could be better understood. A rendering of the rear of the complex as viewed from Maine Wharf would also be helpful.

Revised Proposal

The project architects have provided a brief summary of the design revisions made since the July 11th workshop—ATTACHMENT 1. Note that part of the new submission the architect has provided photographs of the type of canopy proposed for the rear decks and the screening material proposed for the dumpster enclosure. For reference purposes, staff has provided excerpts from the July 11 proposal—see ATTACHMENT 3.

Staff Comments re: Revised Proposal

- In reviewing the proposal, Board members are encouraged to assess the cumulative visual impact of the various additions and alterations as viewed from different vantage points and consider the question of whether the architectural integrity of the existing historic structure has been preserved. Does the original architectural intent still "read

through" and dominate the aggregated complex? Do the additions as currently rendered compete with one's appreciation of the original structure? If so, are there elements that should be scaled back, simplified or eliminated to quiet the overall complex?

- It appears that the tops of the windows on the kitchen addition align with the tops of the double-hungs in the original building (not including the segmental arched transoms). This alignment should be confirmed. The Board will also want to confirm whether the lowered height of the addition is sufficient to address previous concerns.

- At the close of the first workshop, there appeared to be no clear directive as regards the exterior material/color palette for the two additions. The project architects have returned with a scheme that features a "bone white" metal panel exterior for the kitchen addition and the same metal panel system, in charcoal grey, for the retail addition. The retail building also features grey Nichiha architectural block at the base and a corrugated silver metallic frieze for the signage band.

  A question for consideration is whether the use of three distinct color palettes is desirable in this tightly spaced complex. Recognizing that the bone white chosen for the kitchen addition will likely relate to the existing building's trim color, is the high level of tonal contrast with the existing structure desirable?

- The courtyard between the existing structure and the retail building has been modified considerably since the first design proposal. The front façade of the kitchen addition has now been moved forward, eliminating the space that separated the rear of the existing building's projecting bay and the new addition. The planter has been removed and a gate and short retaining wall have been introduced at the sidewalk edge. From the applicant's narrative, it appears that the side door on the existing building's projecting bay will provide egress for the restaurant.

  While there may be security reasons for introducing a gate in this location, staff finds that introducing a gate and low retaining wall into the mix has the effect of muddling the complex and diminishing the architectural clarity of the original building. It would seem that light coming from the large windows of the retail addition (if they were kept on at night) would discourage unwanted behavior in this courtyard and eliminate the need for a gate and wall.

- The revised proposal includes a "pergola-like" feature with signage to mark the new entrance off the west elevation. Additionally, bars have been added to the steps of the original entrance to prevent passage.

  Following up on concerns expressed by the Board at the first workshop, staff questions the decision to abandon the original front entrance, which is a key architectural feature

and focal point of the façade. Not only does relocating the entry disregard the original architectural intent of the building, it requires the introduction of additional elements to flag its new location and prevent access at the original entry. In staff's view, these types of added elements in an already complicated, multi-component building complex begin to tip the balance as to how much reworking of an original structure is acceptable within the ordinance standards.

- On the rear elevation, staff questions the desirability of extending the second-floor canopy out to the western edge of the deck. (The deck itself extends beyond the edge of the building.) In staff's view, the edge of the canopy should be held back from the corner, allowing the corner to be kept clear of additional projecting elements.

- Staff questions the rationale for using both glass railings and cable railings for the deck.

- A perspective view from Maine Wharf looking toward the rear of the building complex would be helpful.

Applicable Review Standards

Given the nature of the project, the Board will be reviewing the proposed additions under the Standards for Review of Alterations and the Standards for Review of New Construction

Standards for Review of Alterations

(1) *Every reasonable effort shall be made to provide a compatible use for the property which requires minimal alteration to the character-defining features of the structure, object or site and its environment or to use a property for its originally intended purpose.*

(2) *The distinguishing original qualities or character of a structure, object or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.*

(9) *Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and additions do not destroy significant cultural, historical, architectural or archeological materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the size, scale, color, material and character of the property, neighborhood or environment.*

Standards for Review of Construction

In considering a certificate of appropriateness involving new construction *[including additions]*, the historic preservation board shall consider the following compatibility factors as may be applicable to the context of the proposed construction.

Scale and Form

Height
Width
Proportions of principal facades
Roof Shapes
Scale of the structure

Compositions of Principal Facades

Proportion of Openings
Rhythm of solids to voids in facades
Rhythm of entrance porch and other projections
Relationship of materials, texture and color
Presence of signs, canopies and awnings

Relationship to the Street

Walls of continuity
Rhythm of spacing and structures on streets
Directional expression of principal elevations

Attachments:

1. Applicant's description of design modifications
2. Revised plans, elevations, renderings and specifications
3. Excerpts from July 11 submission

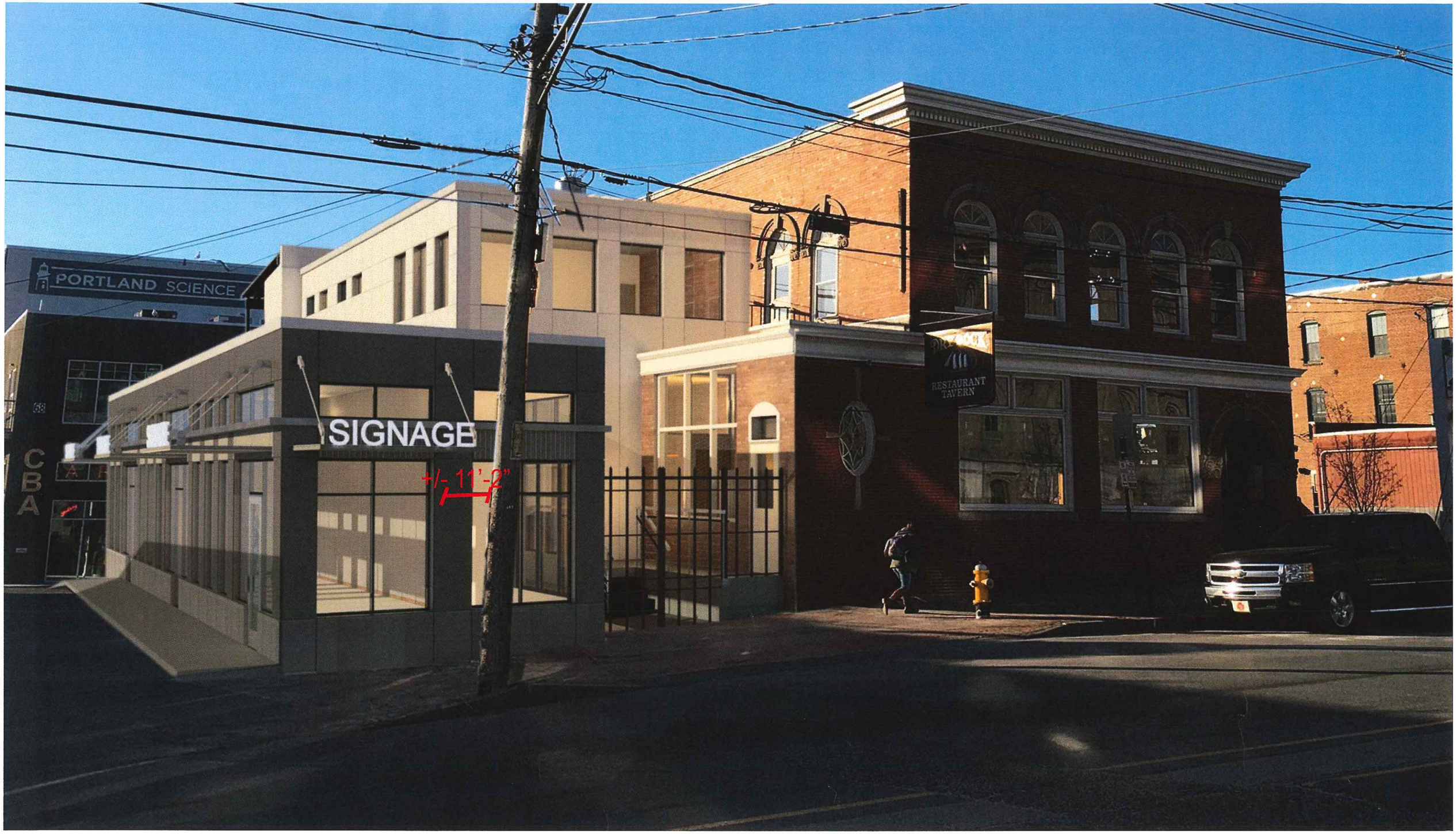
Att. 1

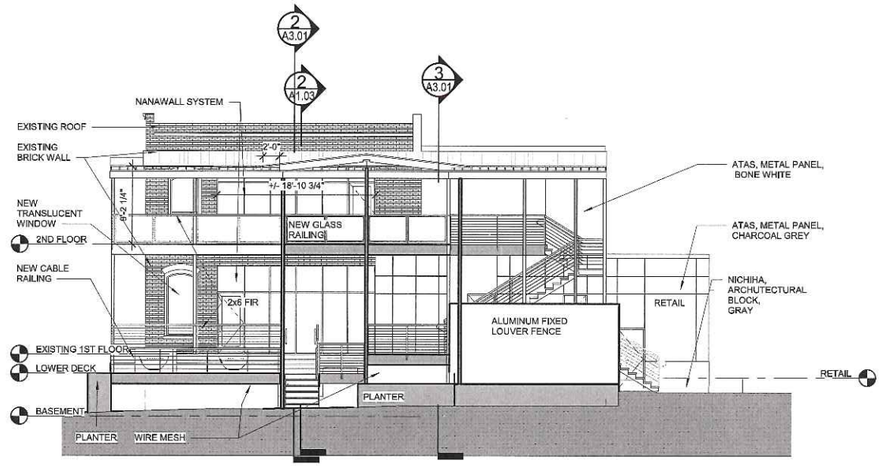
Modifications to Drydock plans and elevations based on discussions with the Historic Review Board and the Owner of the Restaurant

Archetype Architects August 17, 2018

1. The courtyard has been pulled closer to Commercial Street. Planter removed. Gate added. Exit from restaurant moved towards street in a restored opening.
2. 2 Story addition has been lowered to align with existing 2nd story windows on east side of Drydock. Modification of window placement.
3. The retail addition has been further developed.
4. The utility pen has been further developed. See attached louver photo
5. The rear wall facing Casco Bay has been modified with the existing window openings retained at the western end.
6. The roof above the exterior 2nd floor decks has been detailed. See attached photo of plastic
7. The main entrance on the west wall has been further detailed.
8. The former entrance on Commercial Street has been further detail

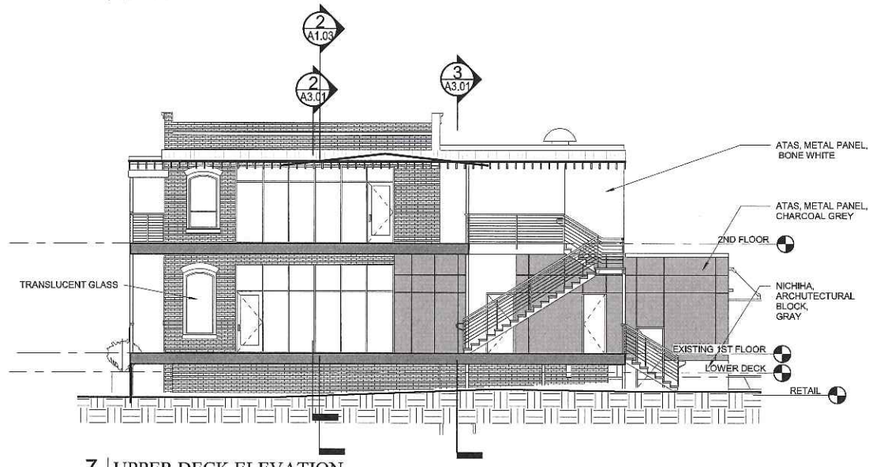
ATT. 2



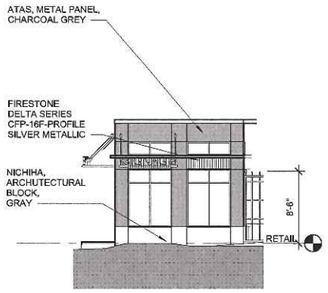


1 | SOUTH ELEVATION
1/8" = 1'-0"

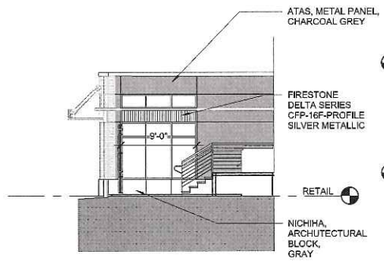
2 | NORTH ELEVATION
1/8" = 1'-0"



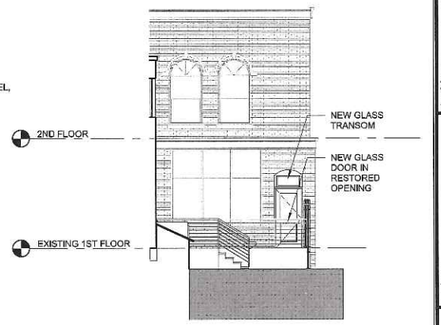
7 | UPPER DECK ELEVATION
1/8" = 1'-0"



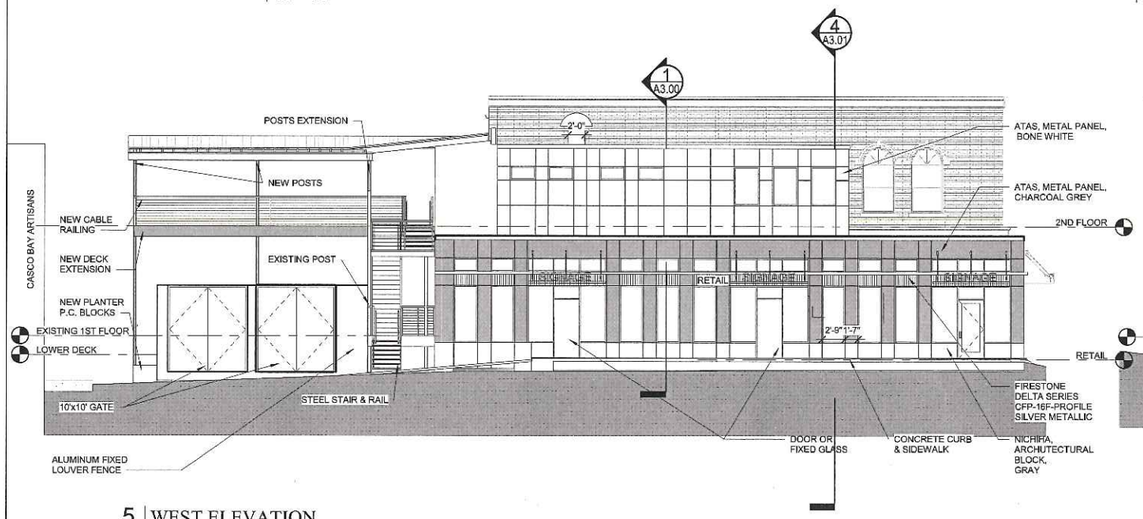
3 | RETAIL FRONT ELEVATION
1/8" = 1'-0"



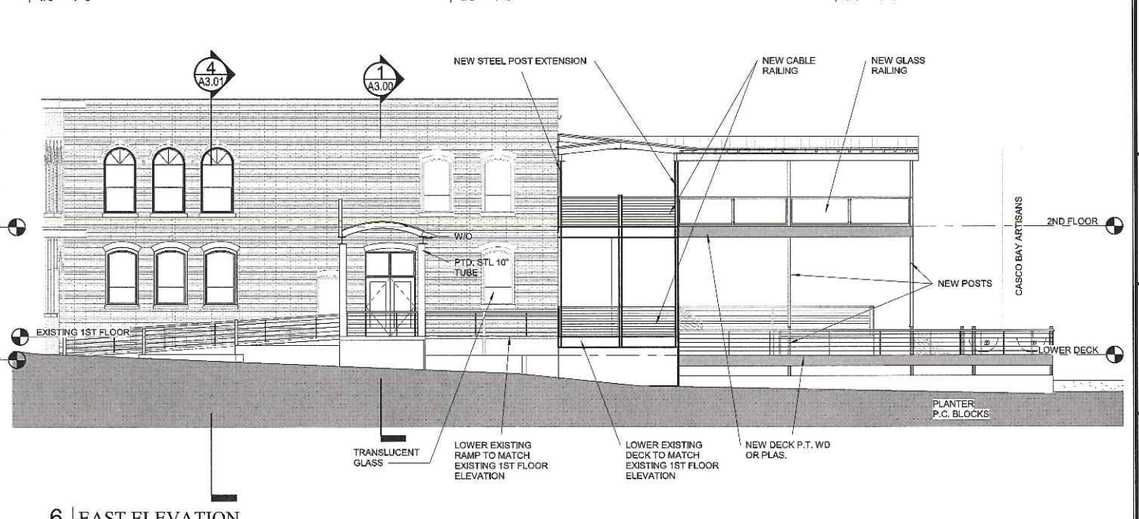
8 | EAST RETAIL SIDE ELEVATION
1/8" = 1'-0"



4 | SOUTHWEST ELEVATION
1/8" = 1'-0"



5 | WEST ELEVATION
1/8" = 1'-0"



6 | EAST ELEVATION
1/8" = 1'-0"

84 COMMERCIAL STREET

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-4022 ARCHETYPE@ARCHETYPEPA.COM

Project: DRY DOCK
Portland, ME

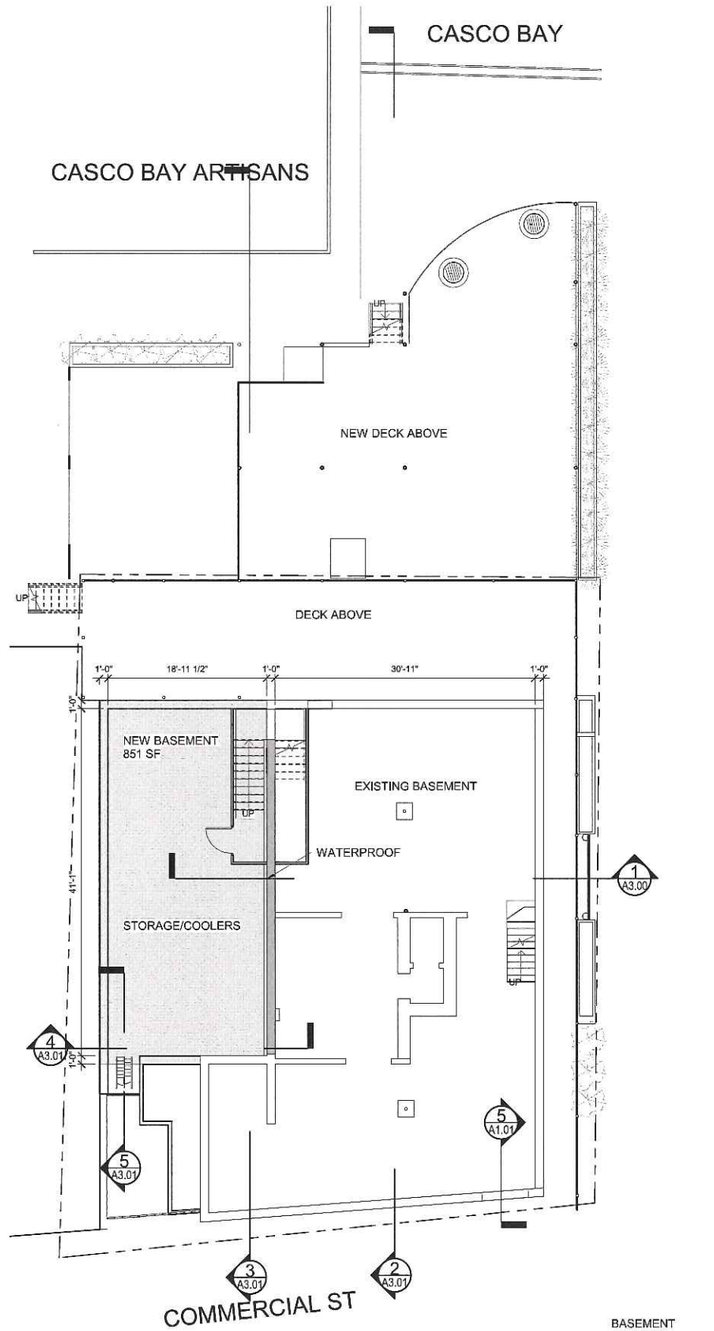
Submission: TO CITY OF PORTLAND

Scale: 1/8" = 1'-0"

Date: 8/17/2018

BUILDING ELEVATIONS

A2.00



1 BASEMENT
1/8" = 1'-0"

84 COMMERCIAL STREET

Architect:
ARCHETYPE
architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project: DRY DOCK
Portland, ME

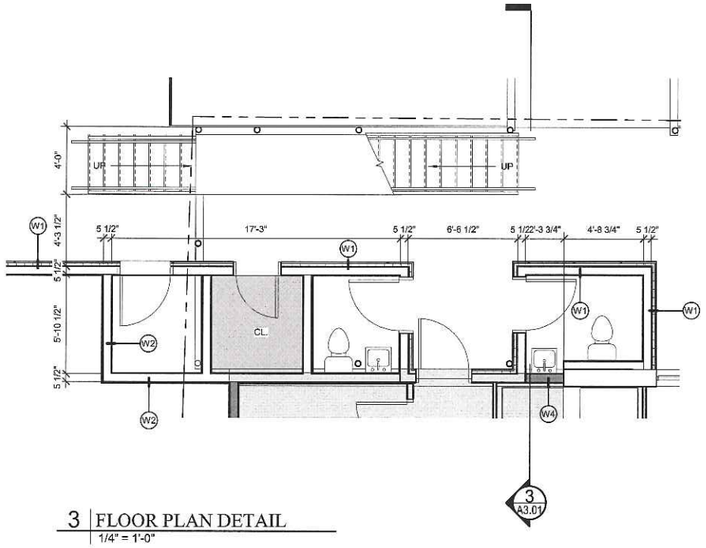
Submission: TO CITY OF PORTLAND

Scale: 1/8" = 1'-0"

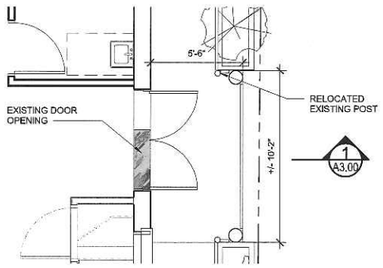
Date: 8/17/2018

BASEMENT PLAN

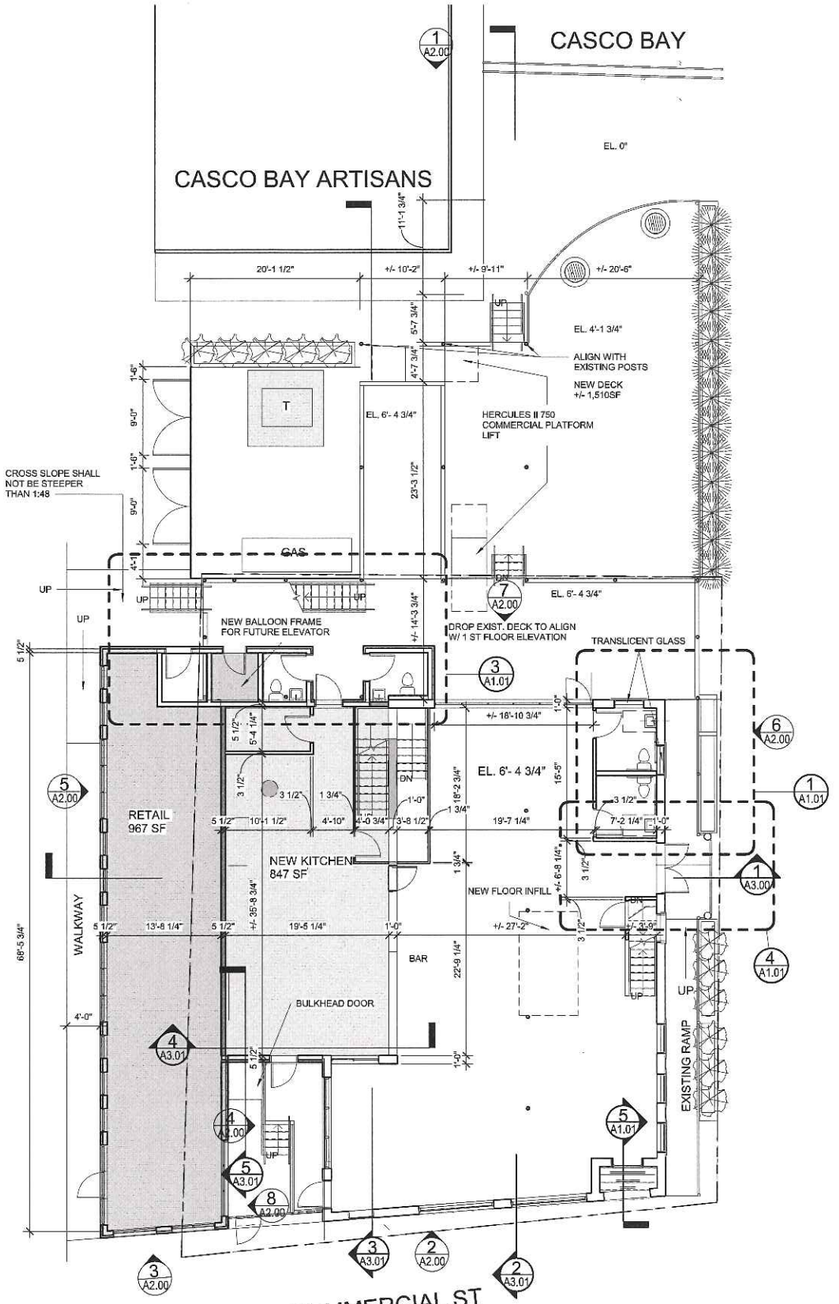
A1.00



3 | FLOOR PLAN DETAIL
1/4" = 1'-0"



4 | FLOOR PLAN DETAIL
1/4" = 1'-0"



2 | FIRST FLOOR
1/8" = 1'-0"

FIRST FLOOR
ADDITION:
1,814 S.F. INTERIOR
1,510 S.F. EXTERIOR

1 | FLOOR PLAN DETAIL
1/4" = 1'-0"

5 | Section 9
1/8" = 1'-0"

84 COMMERCIAL STREET

Architect:
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48 Union Wharf Portland, Maine 04101
(207) 772-6022ARCHETYPE@ARCHETYPEPA.COM

Project:
DRY DOCK
Portland, ME

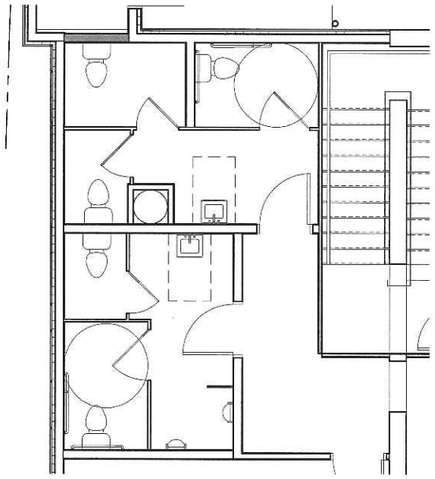
Submission:
TO CITY OF PORTLAND

Scale: As indicated

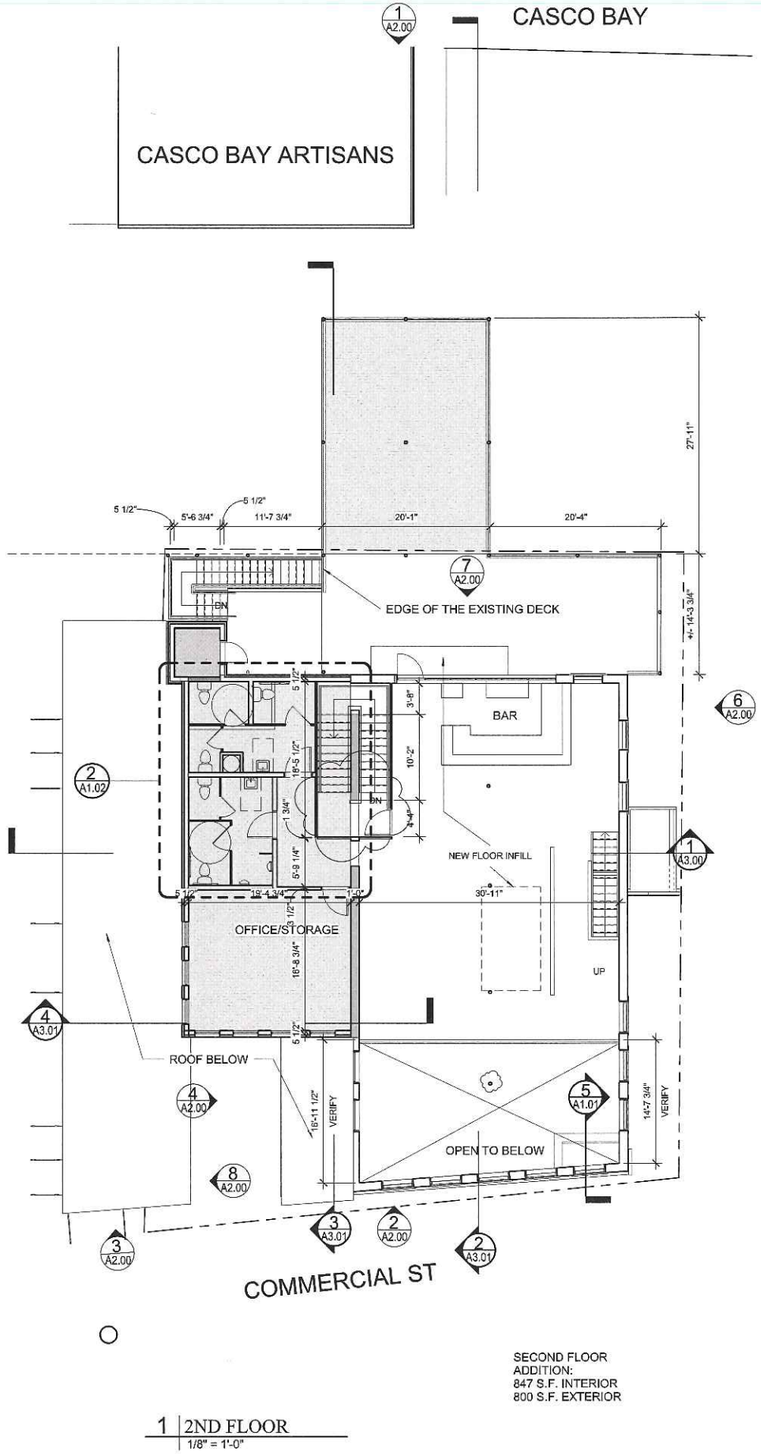
Date: 8/17/2018

1ST FLOOR PLAN

A1.01



2 | 2ND FLOOR BATHROOMS
1/4" = 1'-0"



SECOND FLOOR
ADDITION:
847 S.F. INTERIOR
800 S.F. EXTERIOR

1 | 2ND FLOOR
1/8" = 1'-0"

84 COMMERCIAL STREET

Architect:
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48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project: DRY DOCK
Portland, ME

Submission:
1 | Date 1 | Revision 1

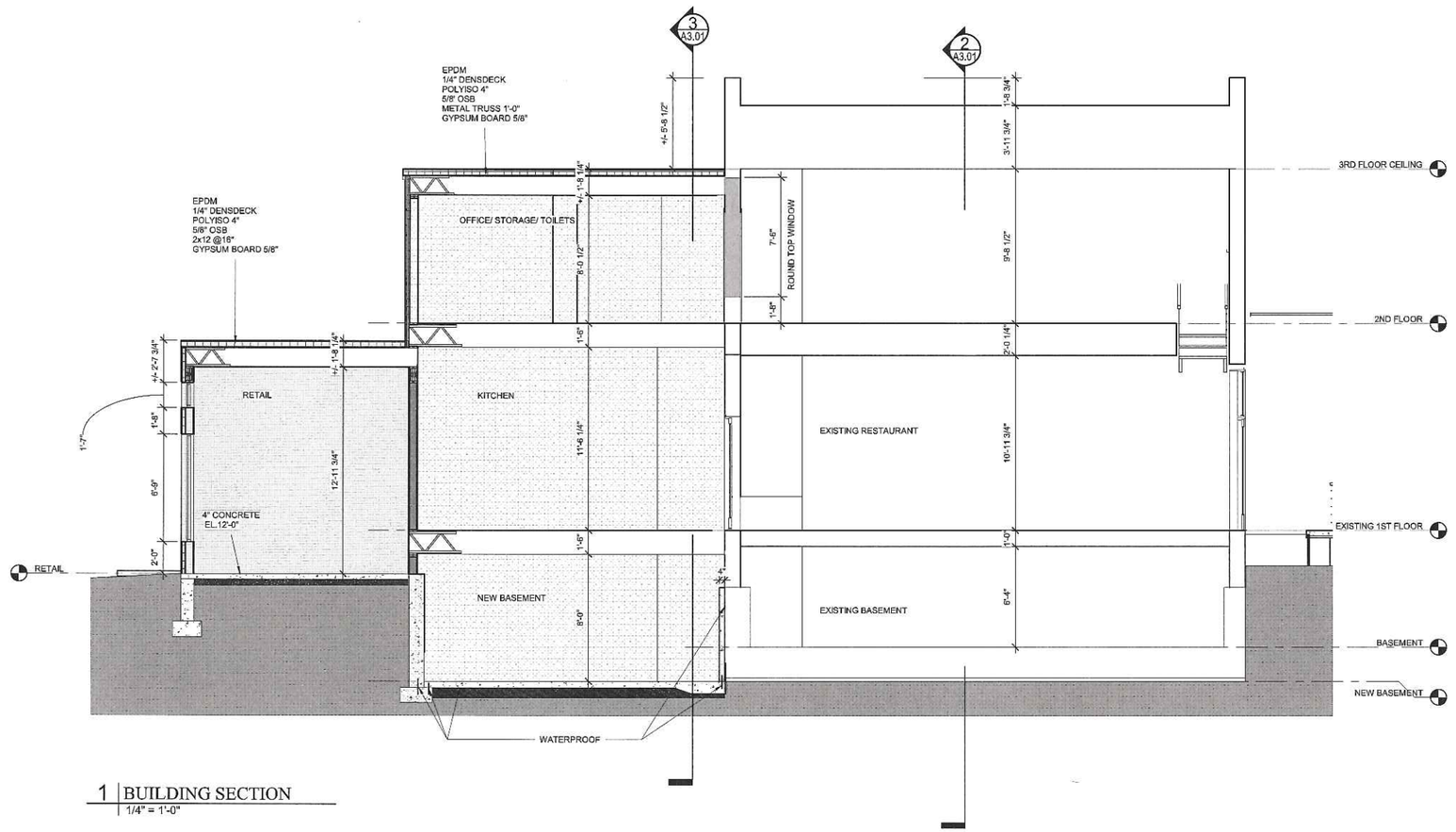
TO CITY OF PORTLAND

Scale: As indicated

Date: 8/17/2018

2ND FLOOR PLAN

A1.02



1 BUILDING SECTION
1/4" = 1'-0"

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022ARCHETYPE@ARCHETYPEPA.COM

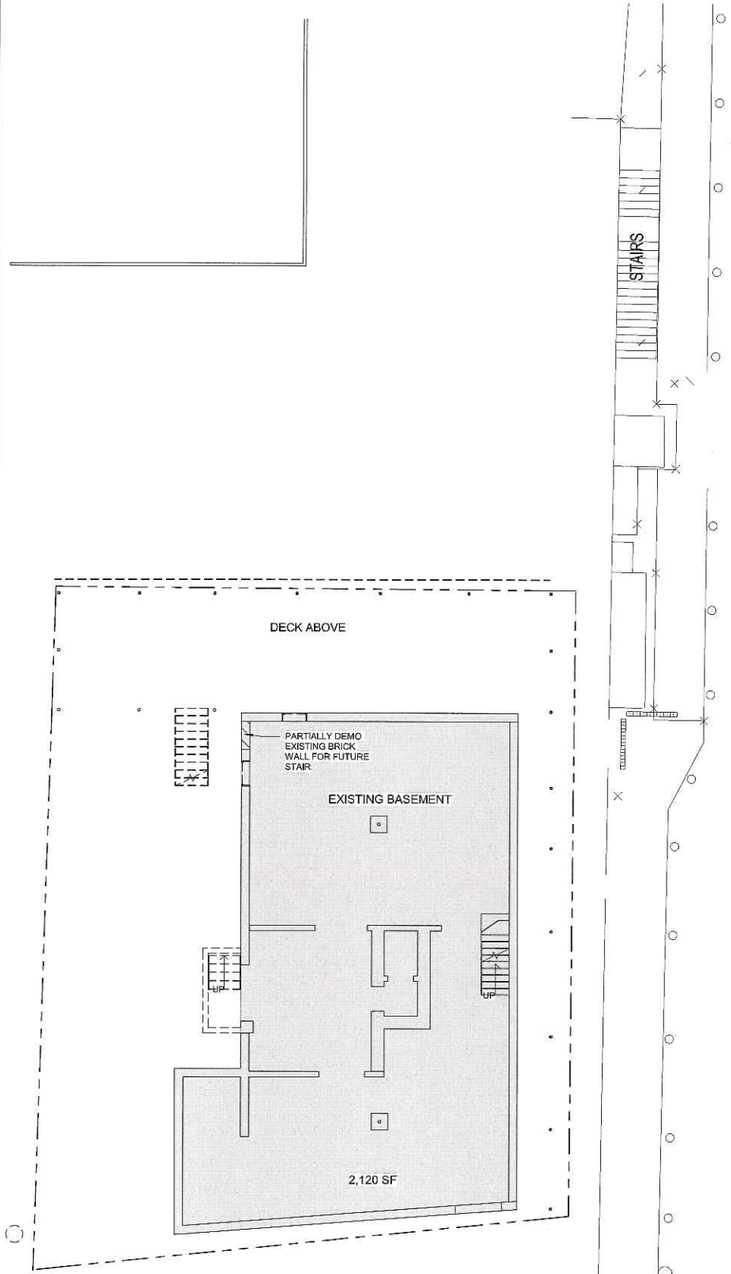
Project:
84 COMMERCIAL STREET
DRY DOCK
Portland, ME

Submission:
TO CITY OF PORTLAND

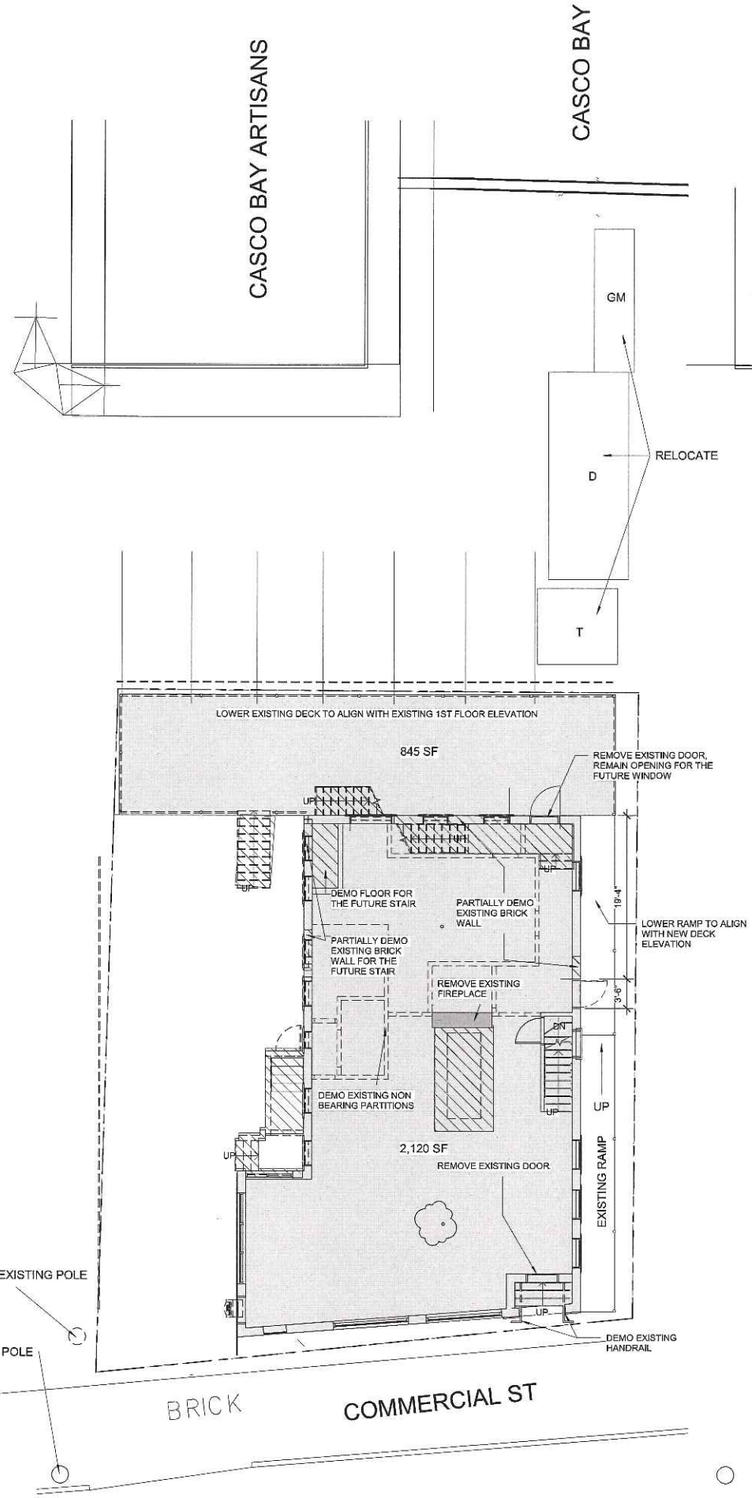
Date: 8/17/2018
Scale: 1/4" = 1'-0"

BUILDING SECTION

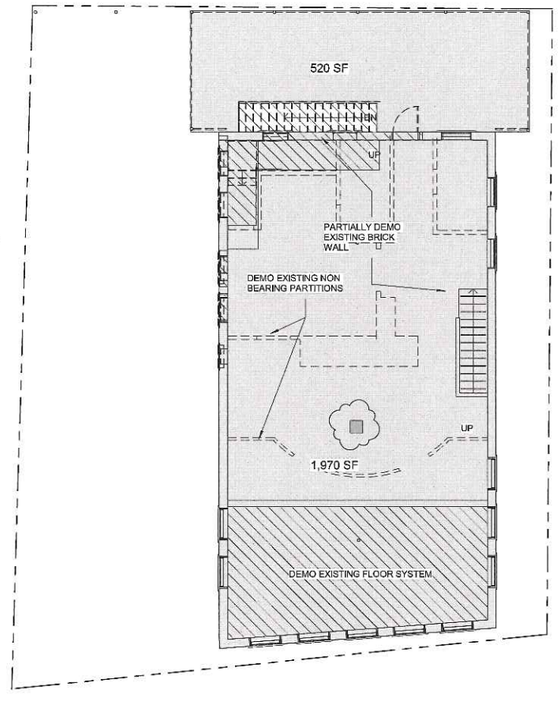
A3.00



1 BASEMENT EXISTING & DEMO
1/8" = 1'-0"



2 FIRST FLOOR EXISTING & DEMO
1/8" = 1'-0"



3 2ND FLOOR EXISTING & DEMO
1/8" = 1'-0"

84 COMMERCIAL STREET

Architect:
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48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project: DRY DOCK
Portland, ME

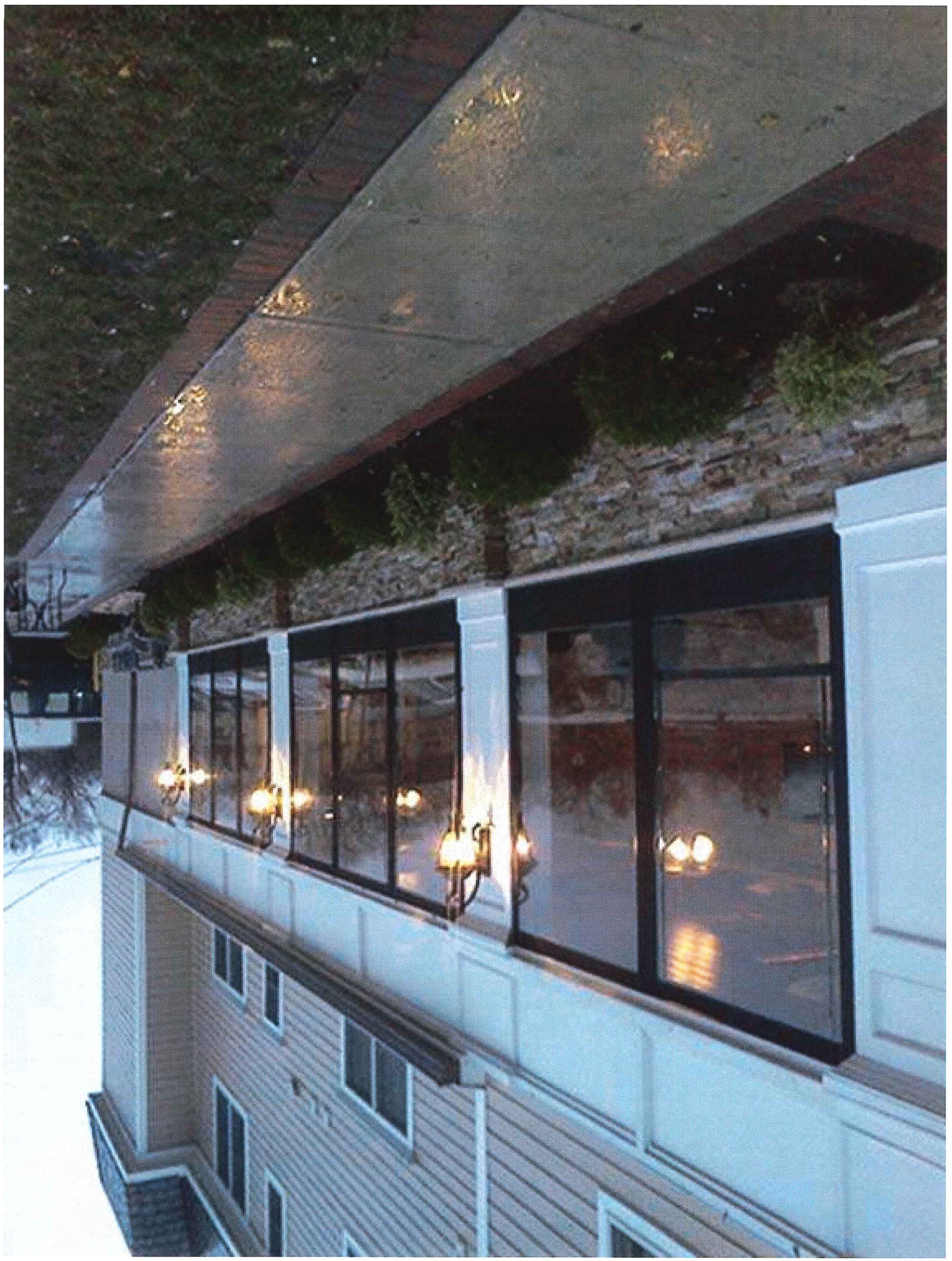
Submission: TO CITY OF PORTLAND
1 | Date 1 | Revision 1

Scale: 1/8" = 1'-0"

Date: 8/17/2018

EXISTING & DEMO

D1.00



ATT. 3

ORIGINAL SUBMISSION


NEW
KITCHEN
ATM
PAY
HERE
NOTICE
Paid
Public Parking
24 Hours a Day
Pay to Park
ZONE 1174

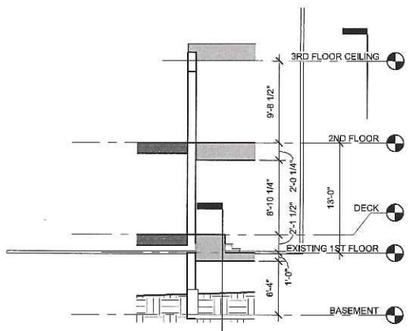

PORTLAND SCIENCE CENTER
SIGNAGE
RESTAURANT
TAVERN


PORTLAND
SIGNAGE

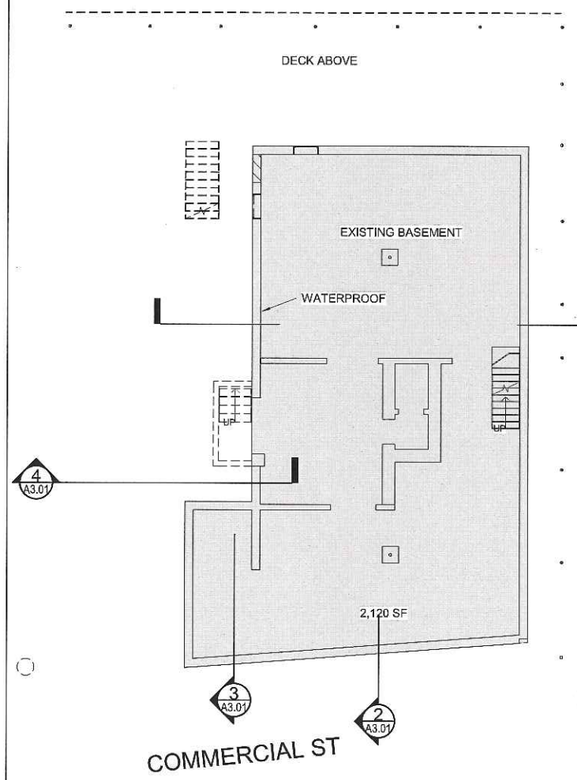

NEW DECK


Garden Inn
PORTS OF CALL
WINE • LIQUOR

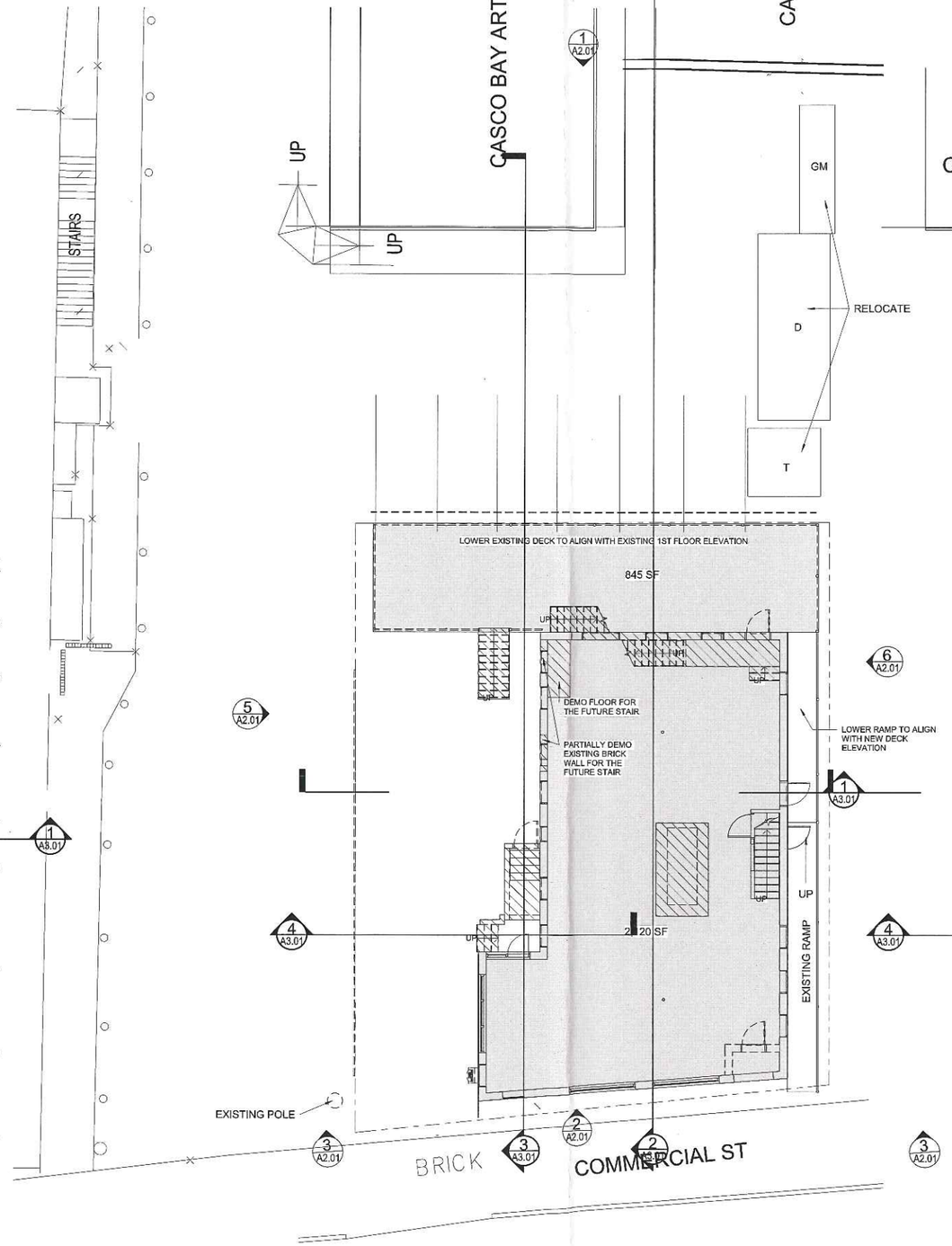
Att. 3



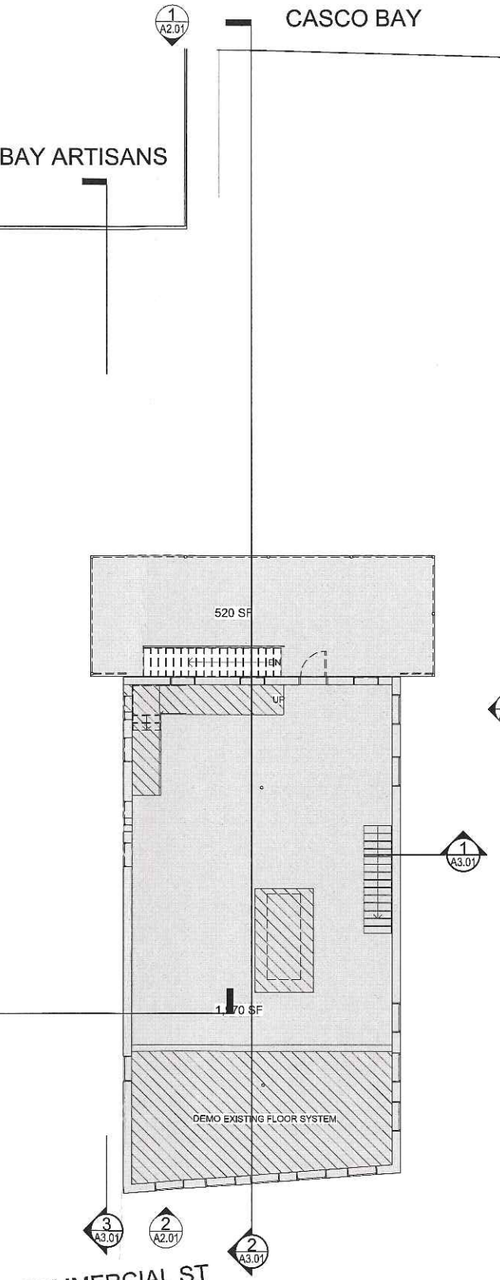
4 | EXISTING SECTION DIAGRAM
1/8" = 1'-0"



1 | BASEMENT EXISTING & DEMO
1/8" = 1'-0"



2 | FIRST FLOOR EXISTING & DEMO
1/8" = 1'-0"



3 | 2ND FLOOR EXISTING & DEMO
1/8" = 1'-0"

Architect:
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(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project: DRY DOCK
Portland, ME

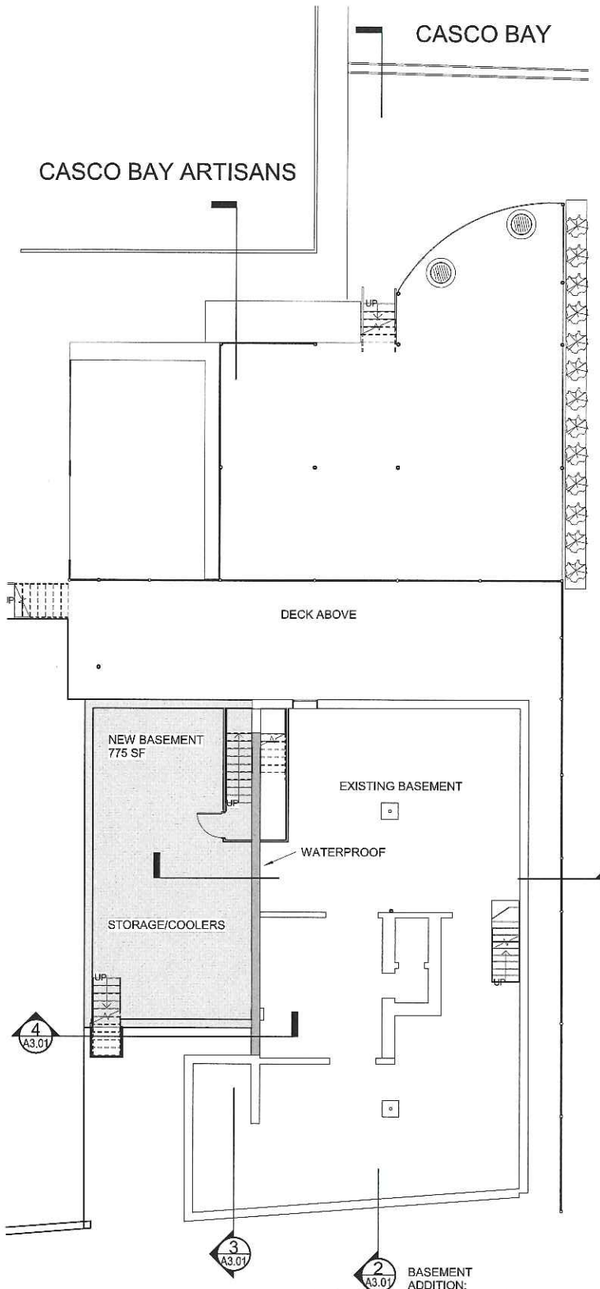
Submission: TO CITY OF PORTLAND

Scale: 1/8" = 1'-0"

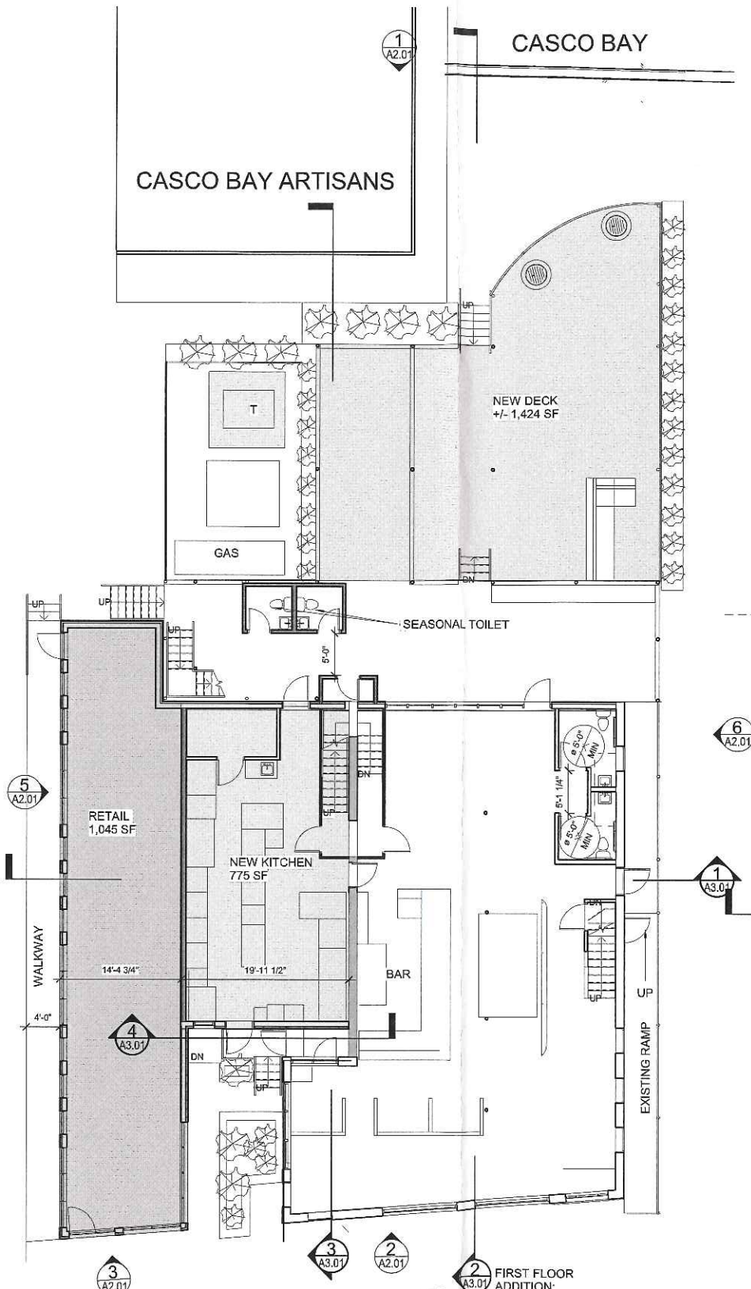
Date: 6/27/2018

EXISTING & DEMO

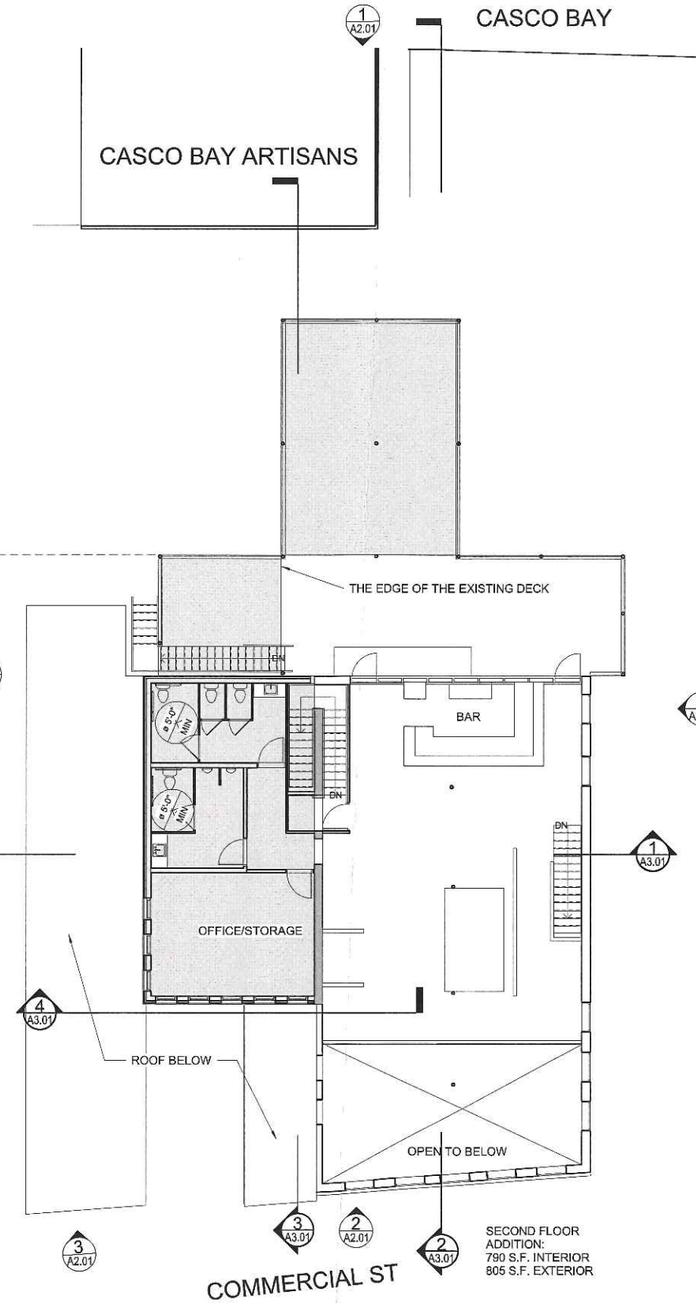
A1.00



1 | BASEMENT
1/8" = 1'-0"



2 | FIRST FLOOR
1/8" = 1'-0"



3 | 2ND FLOOR
1/8" = 1'-0"

Prepared For:

Address
City, State

Consultant:

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
DRY DOCK
Portland, ME

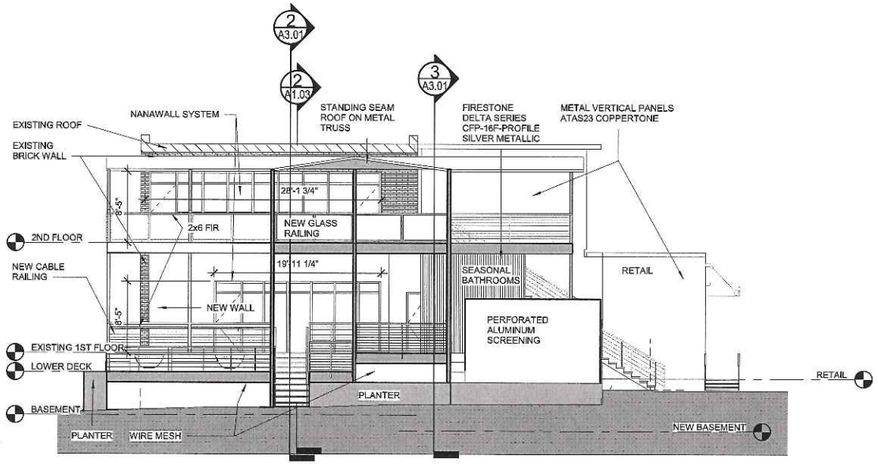
Submission:
TO CITY OF PORTLAND

Scale:
1/8" = 1'-0"

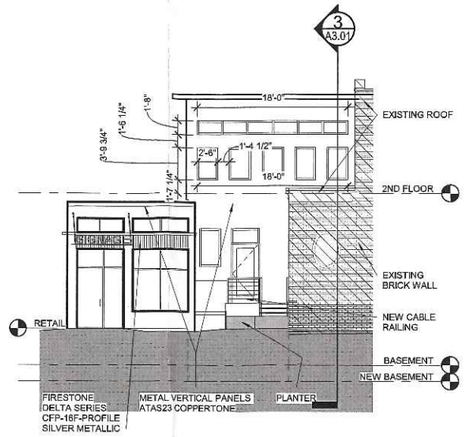
Date:
6/27/2018

FLOOR PLANS

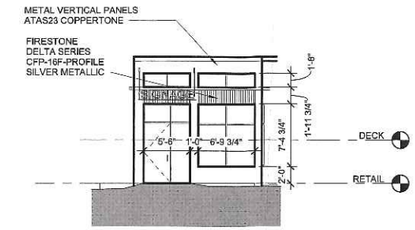
A1.01



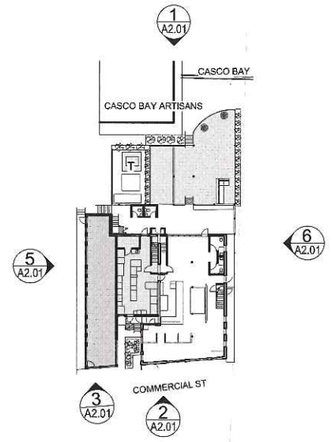
1 | BACK ELEVATION
1/8" = 1'-0"



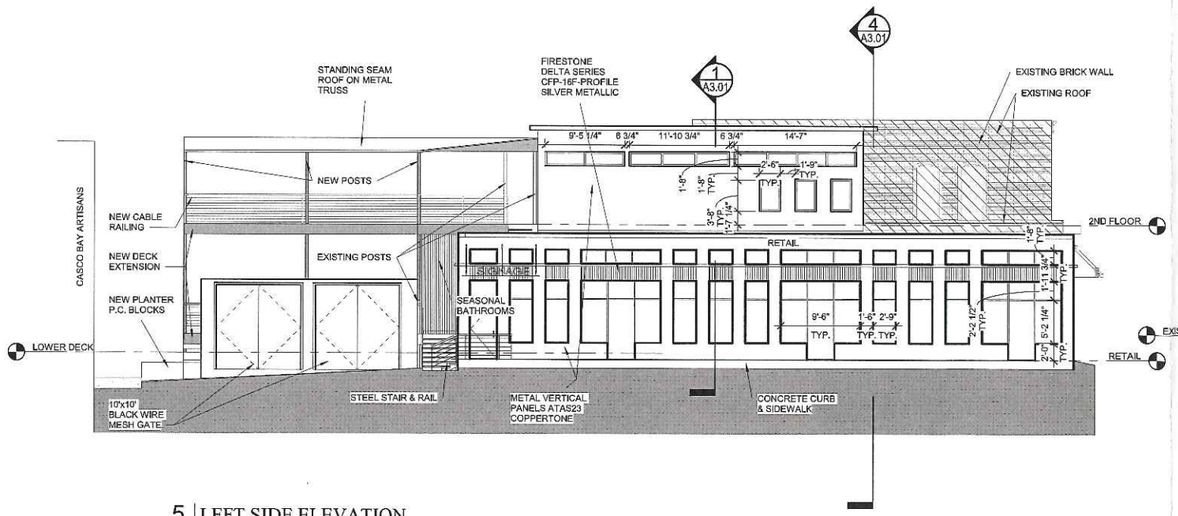
2 | FRONT ELEVATION
1/8" = 1'-0"



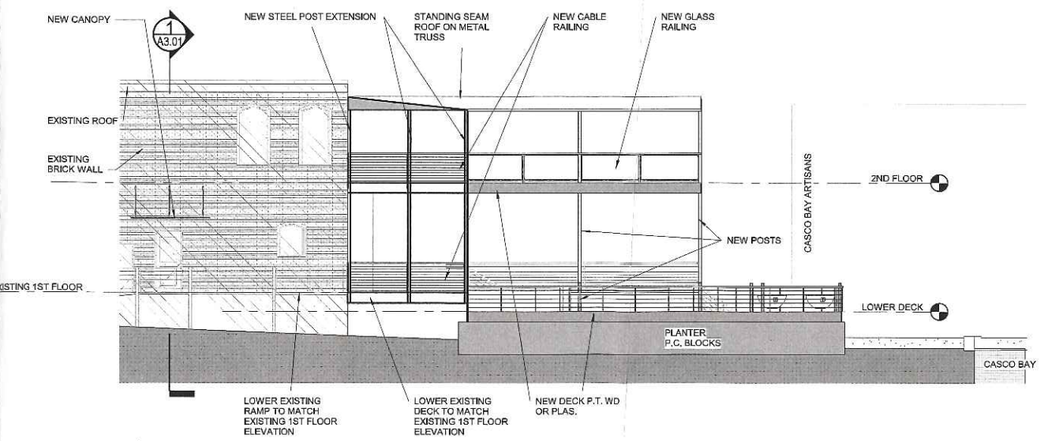
3 | RETAIL FRONT ELEVATION
1/8" = 1'-0"



4 | KEY PLAN
1/32" = 1'-0"



5 | LEFT SIDE ELEVATION
1/8" = 1'-0"



6 | RIGHT SIDE ELEVATION
1/8" = 1'-0"

Att. 4

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
DRY DOCK
Portland, ME

Submission:
TO CITY OF PORTLAND

Scale: As indicated

Date: 6/27/2018

BUILDING ELEVATIONS

A2.01

HISTORIC PRESERVATION BOARD
CITY OF PORTLAND, MAINE

WORKSHOP
66 STATE STREET

TO: Chair Sheridan and Members of the Historic Preservation Board
FROM: Deb Andrews, Historic Preservation Program Manager
DATE: September 13, 2018
RE: September 19, 2018 **WORKSHOP – Preliminary Review of Proposed New Multi-Unit Residential Construction**

Address: 66 State Street (northwest corner of State & Danforth)
(project fronts on Danforth Street)

Applicant: Developers Collaborative

Project Architect: David Lloyd, Archetype

Introduction

Architect David Lloyd has requested a preliminary workshop to review a conceptual plan for new construction on the rear portion of the lot at 66 State Street. The subject property is located at the northwest corner of State and Danforth and is occupied by an existing 2 ½ story historic brick structure that fronts onto State Street. The building currently serves as the headquarters of Amistad. The balance of the property, fronting onto Danforth Street, is a surface parking lot. The new owner of the property, Developers Collaborative, proposes to construct a new multi-unit residential structure on the parking lot, with access from Danforth and parking at the first floor level of the building.

As you will note from the enclosed submission, the proposal is still at a conceptual stage as numerous site plan issues—vehicular and emergency access, etc.—remain to be resolved. Mr. Lloyd has provided a sketch elevation of the Danforth Street façade and a simple site plan to introduce the general proposal and is seeking early feedback from the Board about the design approach before proceeding the more detailed design development.

Given the limited amount of drawings and information provided, feedback from the Board will necessarily be limited as well. The goal of Wednesday's workshop is to assess the general compatibility of the proposed structure—from what information has been provided--with its surrounding context.

Project Context

The property at 66 State Street is located at the northwest corner of State and Danforth and is occupied by a historic brick school building (St. Dominic's Parochial School for Boys, built in 1923) that faces State and a large surface parking lot behind the school that is accessed from Danforth. The school was part of the larger St. Dominic's complex of buildings that dominates the east end of the block bordered by Gray, State and Danforth Streets. (A second school building is located immediately west of the church on Gray Street.)

The proposed infill structure is to be built on what is now the surface parking lot and will face Danforth Street. (A portion of the existing parking lot will remain at the interior of the block.) As the school building's facade is oriented towards State Street, its long side elevation faces Danforth. It is the building's side elevation that is most relevant in this review. This elevation is dominated by a steady march of closely-spaced, tall, multi-light windows at the basement, first and second story levels. The basement level of the building is separated from the upper floors by a stone beltcourse and a projecting metal cornice separates the upper floors from the roof parapet. These strong horizontal elements provide an organizing element to the façade and add visual interest. The brick exterior is enlivened by patterning between the first and second floor windows and stone sills beneath the windows. At the western end of this elevation, the building steps back slightly and is slightly lower. This westernmost bay features a side entrance with projecting hood and a single second floor window.

On the west side of the project site is the Danforth Inn, known historically as the Joseph Holt Ingraham House. The building is one of several early residential structures that remain along this section of Danforth Street. Built in 1823, the building is an exceptional example of Federal Style architecture with some later, high-quality additions. A 3-story structure with simple boxy massing, the building's top floor is shorter than the lower floors, as are its windows. The building exhibits a symmetrical façade and multi-light windows with keystone granite lintels. Its center bay dominates the façade and is emphasized by a formal entry set behind a colonnaded portico and balustrade. Above the entrance is a tri-partite window on the second floor and an elliptical fanlight above.

An Italianate cupola was added to the building's original hipped roof some years after the building's original construction and John Calvin Stevens designed several compatible Colonial Revival additions and alterations in 1902, including the sunporch on the east side and the rear porch. Although the product of several renovations, the building is outstanding in terms of its formal presence on the street, its symmetry and proportions, and its quality of architectural detail, materials and craftmanship.

In terms of relationship to the street, the St. Dominic's School building is set close to the sidewalk and is level with the street, whereas the Ingraham House is perched above the street on a knoll, with tall granite curbing separating the property from the sidewalk. A long flight of granite steps and iron railing emphasize the formality of the residence.

Many of the basic development characteristics of the Ingraham House are repeated in buildings to the west of the Danforth Inn. Just across Gray Street on the same side of Danforth is another a brick double house with the same boxy massing, hipped roof and symmetrical façade composition. It is also set back from the street with a tall curb defining the sidewalk edge of the property. While built some years later than the Ingraham house (1848) and featuring Greek Revival/Italianate details, it shares a strong visual relationship to the Ingraham house. Its neighbor to the west, while rendered in clapboard, also follows this basic development pattern.

Immediately across from the project site on Danforth Street are two more brick residential structures, one Greek Revival/Italianate and the other Second Empire style. These buildings, like those described above, are 2 ½ - 3 stories, exhibit a simple boxy form, symmetrical façade composition and tall windows. The main entries are centered on the front façade. As with the other buildings along this section of Danforth Street, the buildings are stately and high style expressions of their respective development periods.

At the corner of State and Danforth on the south side of the street is a large brick structure that, like the St. Dominic's School building, is oriented toward State. This building was constructed in 1835 as a Federal Style residence. In 1870, it became a female orphan asylum and a large ell was added on the south side of the building, facing State. Like the St. Dominic's school building property, this property features a large surface parking lot that fronts onto Danforth. The side elevation of the building shares many of the same architectural characteristics as the other buildings described above.

Unifying characteristics of the immediate context include the general scale of development, the exterior material palette, the simple massing, the symmetrical façade composition and the overall quality and formality of architectural expression and detail. While the two buildings at the corner of State and Danforth have their side elevations facing Danforth, all of the buildings beyond the corner have their main entries facing Danforth. In all cases, the entries are dominating elements and focal points on the front façade.

Project Description

The proposed structure is a 4-story, 45' tall apartment building occupying a 64' x 108' footprint extends a considerable distance into the lot. A surface parking area will remain at the back of the proposed building. Vehicular entry into the building is from a garage door centered at the ground floor level of the front façade. Residential units are located on either side of the garage entry; these two units have their entries at the sidewalk. The pedestrian entrance to the building is located on the side elevation; from the site plan, this entrance appears to be about 45-50 feet back from the sidewalk. As Mr. Lloyd notes, a number of exterior materials are under consideration, including brick, tile, or Nichiha. Metal panels are proposed for the fourth floor, which is proposed to be set back 8 feet from the front façade. The fenestration includes a number of window types, including

short windows at the ground floor residential units, tall windows that may or may not extend the height of the second and third floor levels, standard double-hungs in the center bay of the upper façade and large windows with canopies at the fourth floor level.

Recommended Review Approach

In assessing the question of compatibility, the Board should first study the project's context and identify the visual qualities of the context. In most settings, there will be some strong, unifying visual characteristics and some that are more subtle and less obvious. Some settings are decidedly eclectic. Usually, however, there will be one or more definite and easily discernable traits that should serve as a basis for a design solution. These may include the general scale/form of structures in the surrounding context, specific architectural characteristics or proportions, unifying development patterns such as orientation to the street or rhythm of spacing between buildings or all of the above. Building characteristics which can be used to gauge visual compatibility of infill construction with an existing context include the following:

Scale and Form
- *Height*
- *Width*
- *Proportions of principal facades*
- *Roof Shapes*
- *Scale of the structure*

Compositions of Principal Facades
- *Proportion of Openings*
- *Rhythm of solids to voids in facades*
- *Rhythm of entrance porch and other projections*
- *Relationship of materials, texture and color*
- *Presence of signs, canopies and awnings*

Relationship to the Street
- *Walls of continuity*
- *Rhythm of spacing and structures on streets*
- *Directional expression of principal elevations*

Using these basic compatibility factors as a guide, the Board should consider what visual characteristics dominate or define the proposed project's context, such that they should be honored in any new design solution. Does the proposed design incorporate, reinforce and/or reinterpret some or all of these characteristics? Are there important characteristics of the context that are ignored in this design solution? Are there aspects of the proposal that are inconsistent with established development patterns or will negatively impact the overall character and quality of the setting? As you will note in the project context section of this report, staff has offered thoughts about some of the surrounding area's unifying visual characteristics.

Preliminary Staff Comments

The proposed design responds to a number of building characteristics exhibited in the surrounding context (symmetrical façade composition, vertically-proportioned upper floor windows, etc.) and aligns with some key datum lines of its immediate abuttors. A threshold question for consideration, however, is whether it is appropriate that the main entrance of the new building be located on a side elevation well away from the street and the center of the ground floor façade be dominated by a garage door. In an area distinguished by high style buildings with formal facades, most of the building entries are the most dominant architectural feature of the façade. The proposal to replace the entry with a garage door seems unfortunate in this context. The Board may wish to explore with Mr. Lloyd and the applicant whether the garage entrance could be positioned on the east side elevation, accessed from a wider driveway separating the school building and the new structure. This might necessitate a narrower structure as viewed from Danforth, but perhaps the rhythm of spacing between structures would be improved. Regarding access, the applicant should be asked to address all of the potential options for access to the site, including access from State Street.

Other design issues identified by staff at this time include the proposed exterior treatment of the two ground-floor residential units facing Danforth, the size of the window openings at the fourth-floor level and the overall treatment of the fourth floor. Finally, in an area distinguished by such architecturally notable buildings, any new infill structure should be commensurate in overall quality of design, material palette and execution of architectural details.

Attachments:

1. Letter from project architect
2. Photos of project site and context
3. Proposed site plan and front elevation
4. Analysis of Philadelphia project with garage facing street (provided by applicant)

A R C H E T Y P E

July 10, 2018

Deb Andrews
Historic Preservations Program Manager
Portland City Hall
389 Congress Street
Portland, ME 04101

RE: 66 State Street

Dear Ms. Andrews,

On behalf of the Developers Collaborative we would like to submit some very preliminary sketches for a proposed apartment block on Danforth Street.

Please review the attached and note the following:

1. The site is uniquely located between the Danforth Inn and the former St Dominic's Boys School.
2. The building is a 4-story apartment building with a footprint of approximately 64 feet by 108 feet and 45 feet tall.
3. There is parking on the grade level, but we have mitigated its negative effects by adding two units on the street on either side of the garage entry.
4. The impact of the height has been mitigated by pulling back the fourth floor eight feet.
5. We have pulled the lobby back off the street and one can enter it thru a courtyard between the former school and the new building. I think this is an opportunity that can be built upon.
6. On the Danforth elevation we have incorporated canopies over the entries similar to the existing ones on the former school.
7. The large two-story windows are a variation on the large windows in the school building.
8. The facade material we are considering is brick, tile, or Nichiha the fourth floor would be a metal panel.
9. I have attached a page from the historic guidelines in Philadelphia which provides an interesting discussion in regards to having a garage door on the street.
10. Our intention is to design a contemporary building which will be in context with its historic neighbors. I have included some photos of an apartment complex in the Bronx which has been carefully detailed in a way that I believe could be applicable to this setting.

This is not our typical submission to the board with numerous perspective views and more highly developed drawings, but I would like to get some direction from the board and start the conversation.

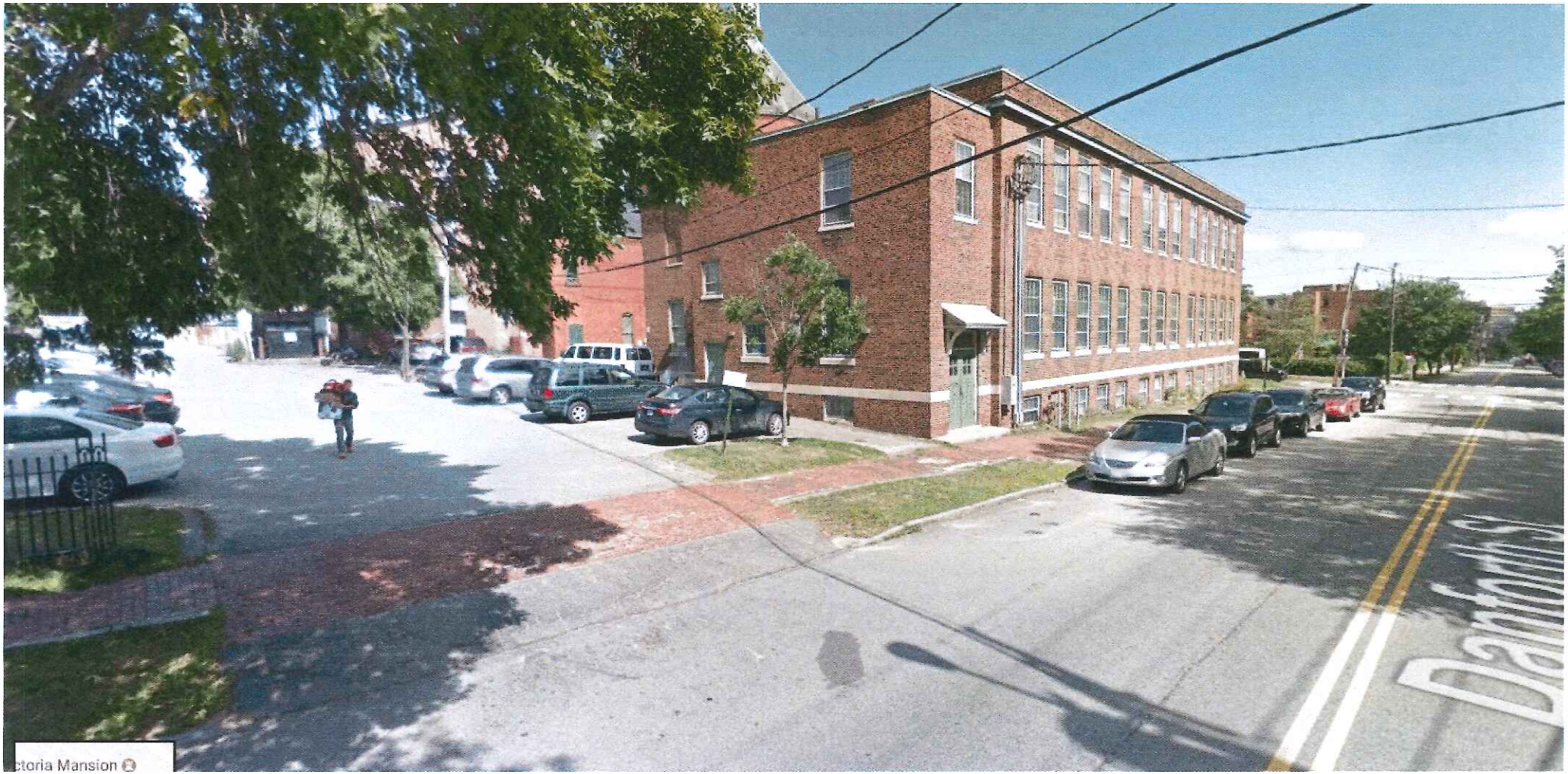
Respectfully Submitted,

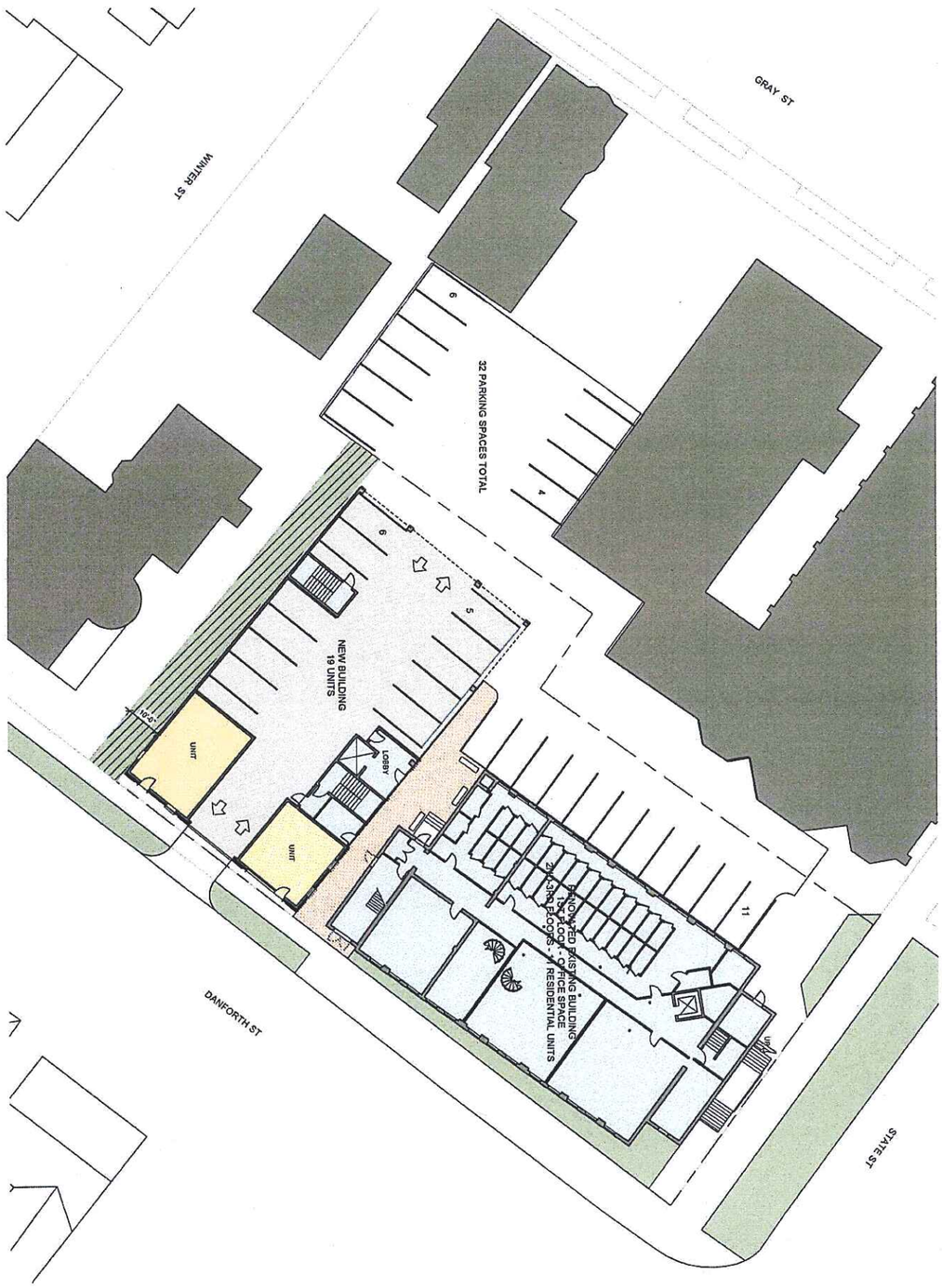
David Lloyd
Maine Licensed Architect

48 Union Wharf, Portland, Maine 04101 (207) 772-6022· Fax (207) 772-4056


Maine Irish
Heritage Center
Gray St
77
Danforth St
66 State Street
Gray St
Danforth St
The Danforth
Winter St

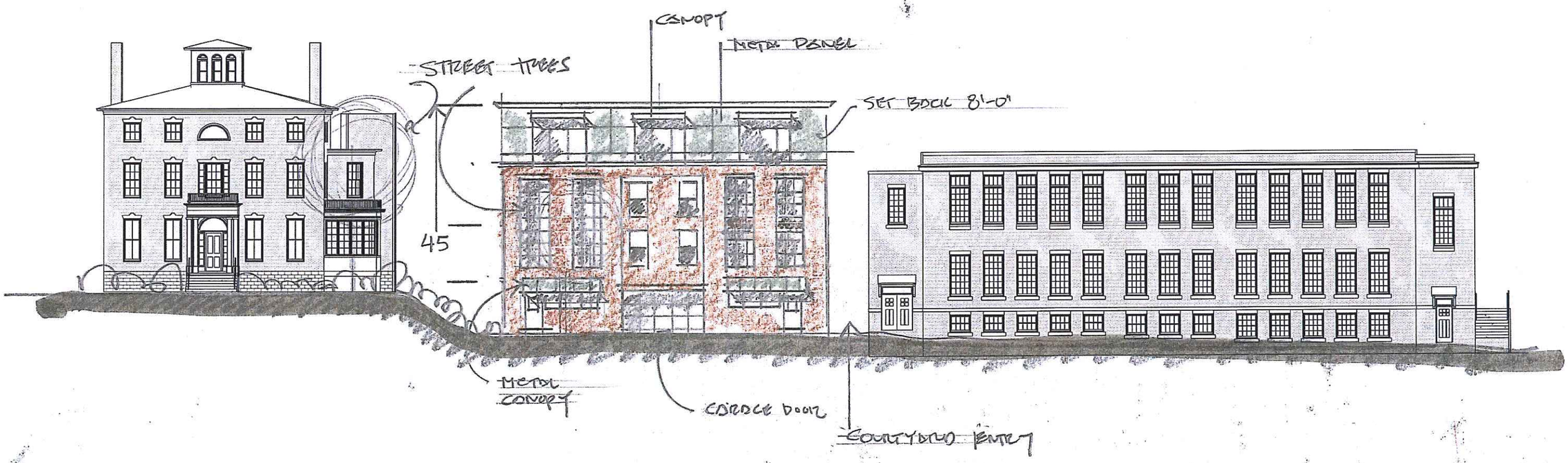

toria Mansion
66 State Str
Gray St
Tyng St
Google


ctoria Mansion



1 SITE PLAN
1/16" = 1'-0"

A1.00	Date: 27 APR 2018	Scale: 1/16" = 1'-0"	Revisions:	Project: 66 STATE ST EXISTING BUILDING	Architect: ARCHETYPE architects	Consultant:	Prepared For: Owner
	SITE PLAN			PORTLAND, ME 04102	48 Union Wharf Portland, Maine 04101 (207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM		Address City, State


CANOPY
METAL PANEL
STREET TREES
SET BACK 8'-0"
45
METAL CANOPY
GARAGE DOOR
COURTYARD ENTRY

9. ROW HOUSES IN THE SPRING GARDEN HISTORIC DISTRICT

These row houses are among a group of row houses on several different blocks all designed in the same manner.

Evaluation by Guidelines

Height: *Yes.* The three-story height is consistent with the Spring Garden district and the immediate area.

Relationship to Street: *Yes.* These rows houses are built to the property line and form a continuous building wall along the street. The relationship to the street, as in other examples, is also influenced by the inclusion of garages. However, here the disruption seems less than in other examples due to the architectural treatment and size of the garage openings.

Continuity of wall surface: *Yes.* Since the houses were built in continuous rows or groups there is continuity of the wall surface.

Facade Composition: *Yes, with qualifications.* These row houses have a small base, just visible between garages and front steps. They also have a modestly expressed cornice line. The facade of each house has a vertical emphasis; windows and doors are recessed openings in the wall surface. However, most windows are actually sliding glass doors opening protected by metal railings. These elements give the facades the character of commercial buildings converted to housing rather than the residential character typical of the district.

Materials and details: *Yes.* The Spring Garden district contains many blocks of brick row houses with white stone trim around doors and windows. These houses are consistent in the use of brick and the incorporation of the type of window and door surrounds found in the district.

Rhythm/ Pedestrian experience: *Yes.* The pedestrian experience is compromised by the garages. However, the inset garage doors and entrances, the contrasting trim, and front sairs typical of the area give provide detail and rhythm. The fact that parking spaces where the entry doors are paired also adds to the feeling of activity on the street.

Approach: This is an example of abstract reference with specific inclusion of details from the area.

Assessment: In spite of the inclusion of garages, these row houses are relatively compatible with the district. The design includes enough features to relate to context. The smaller size of the garage doors and pairing of entrance doors helps to relieve the impact of the garages on the block found in other row house examples.