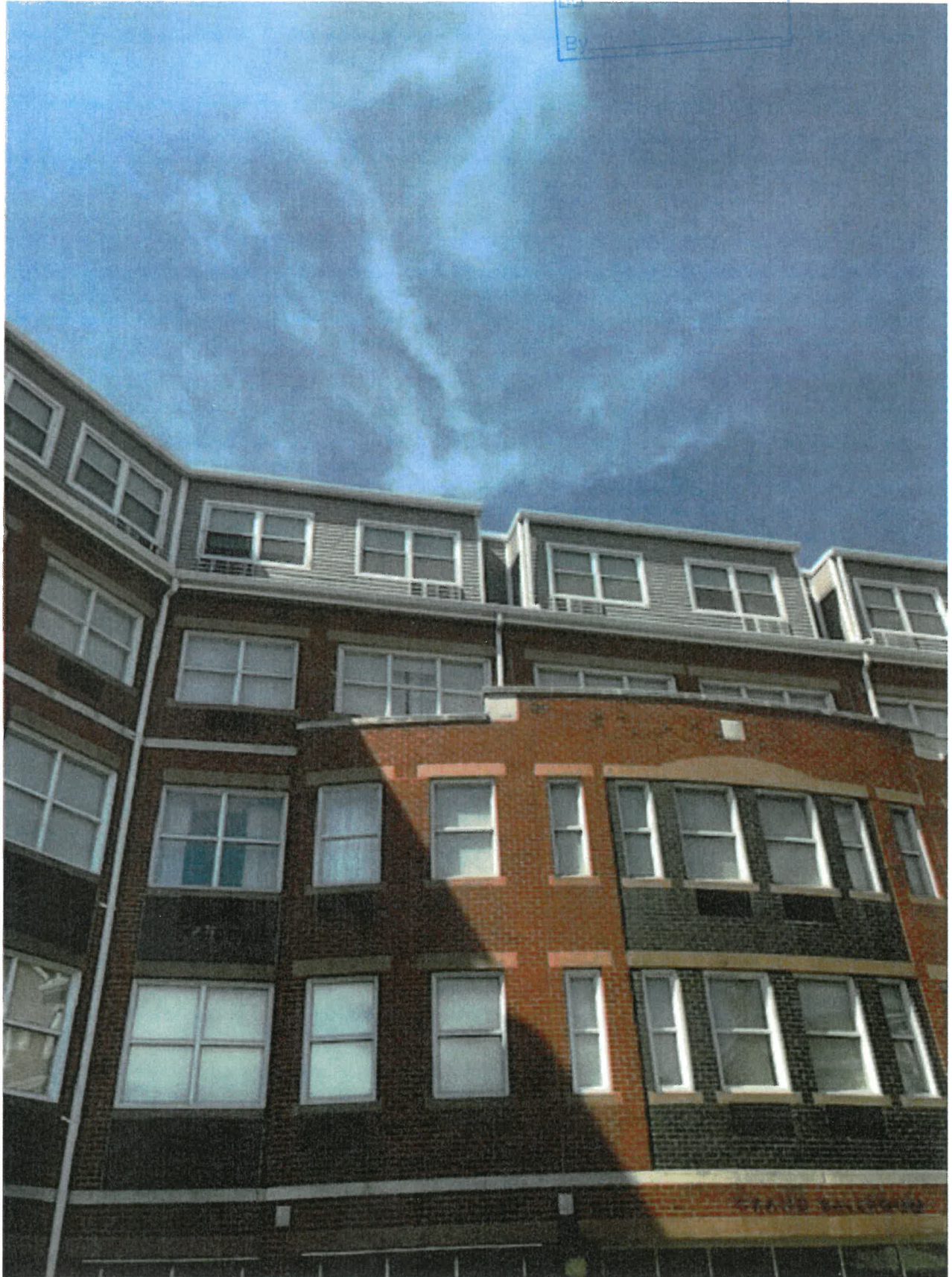
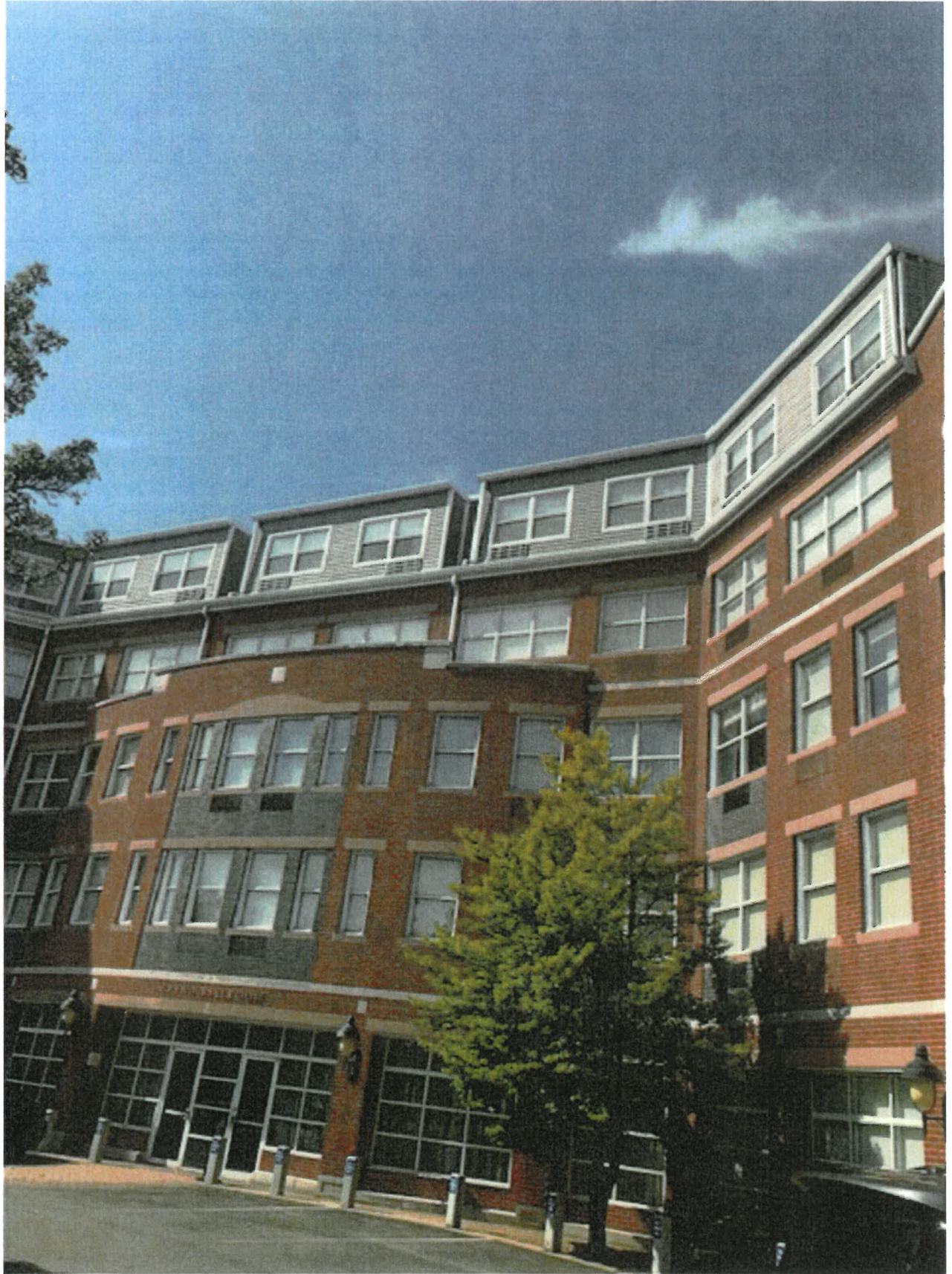
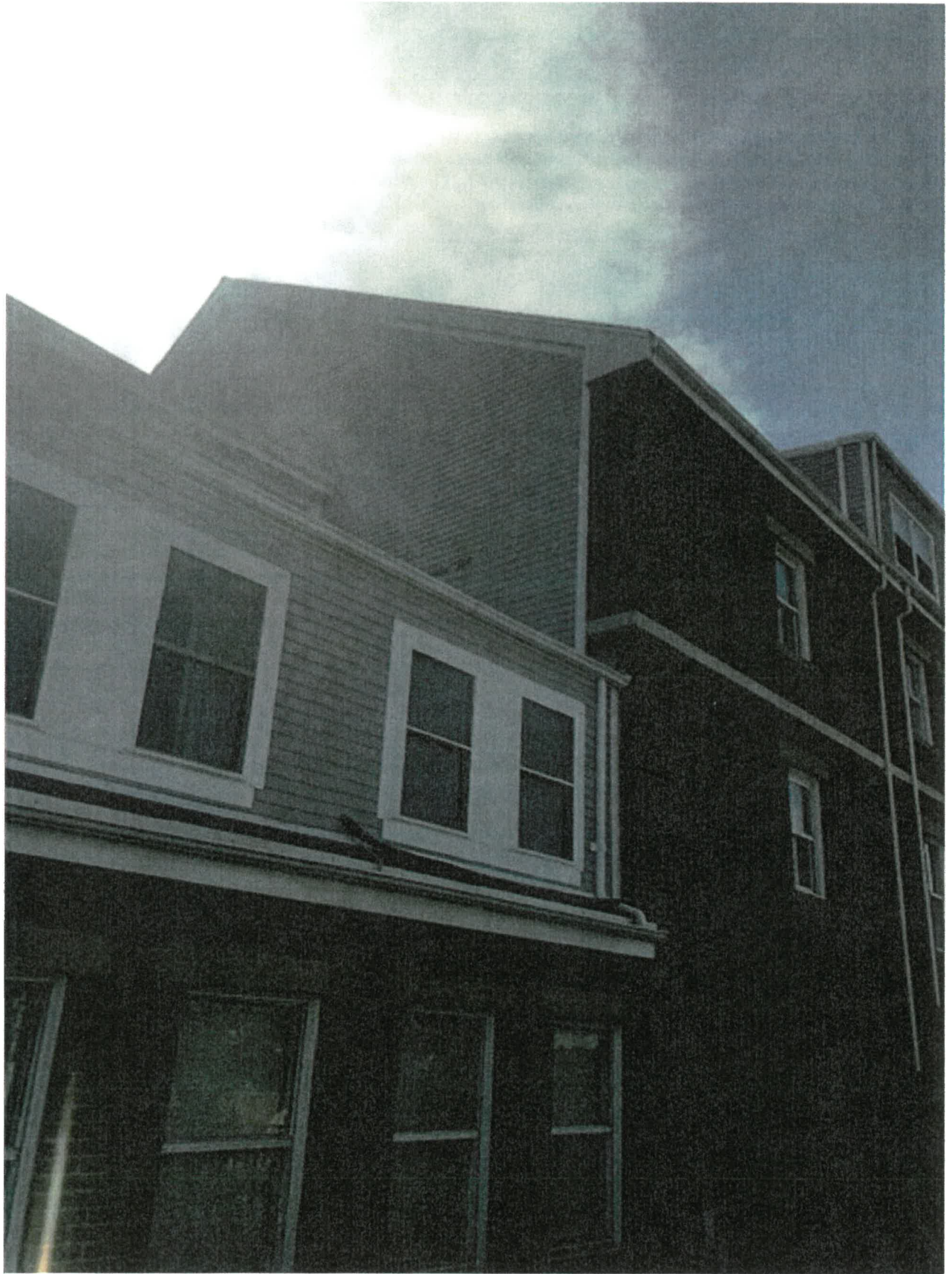


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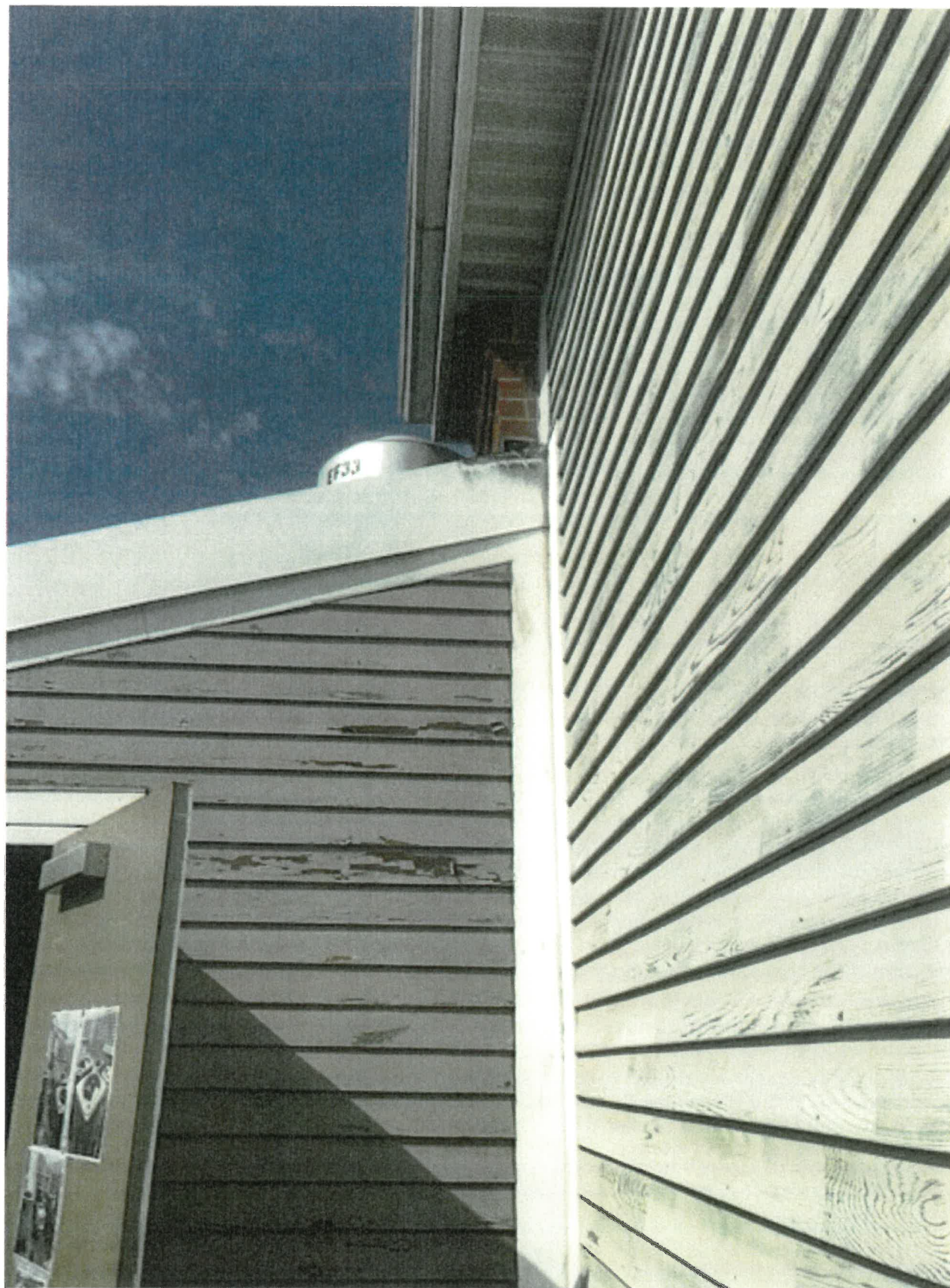




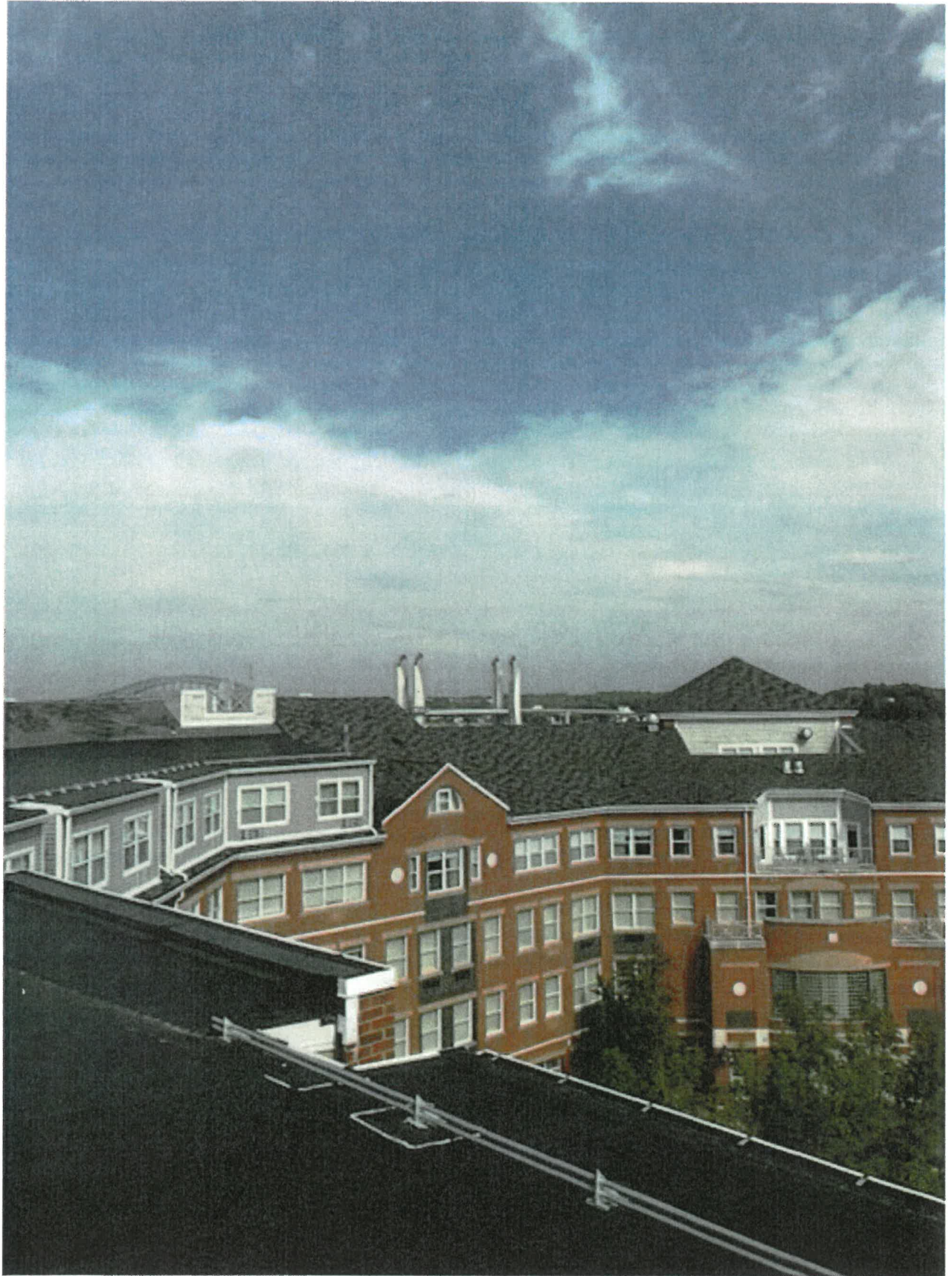
















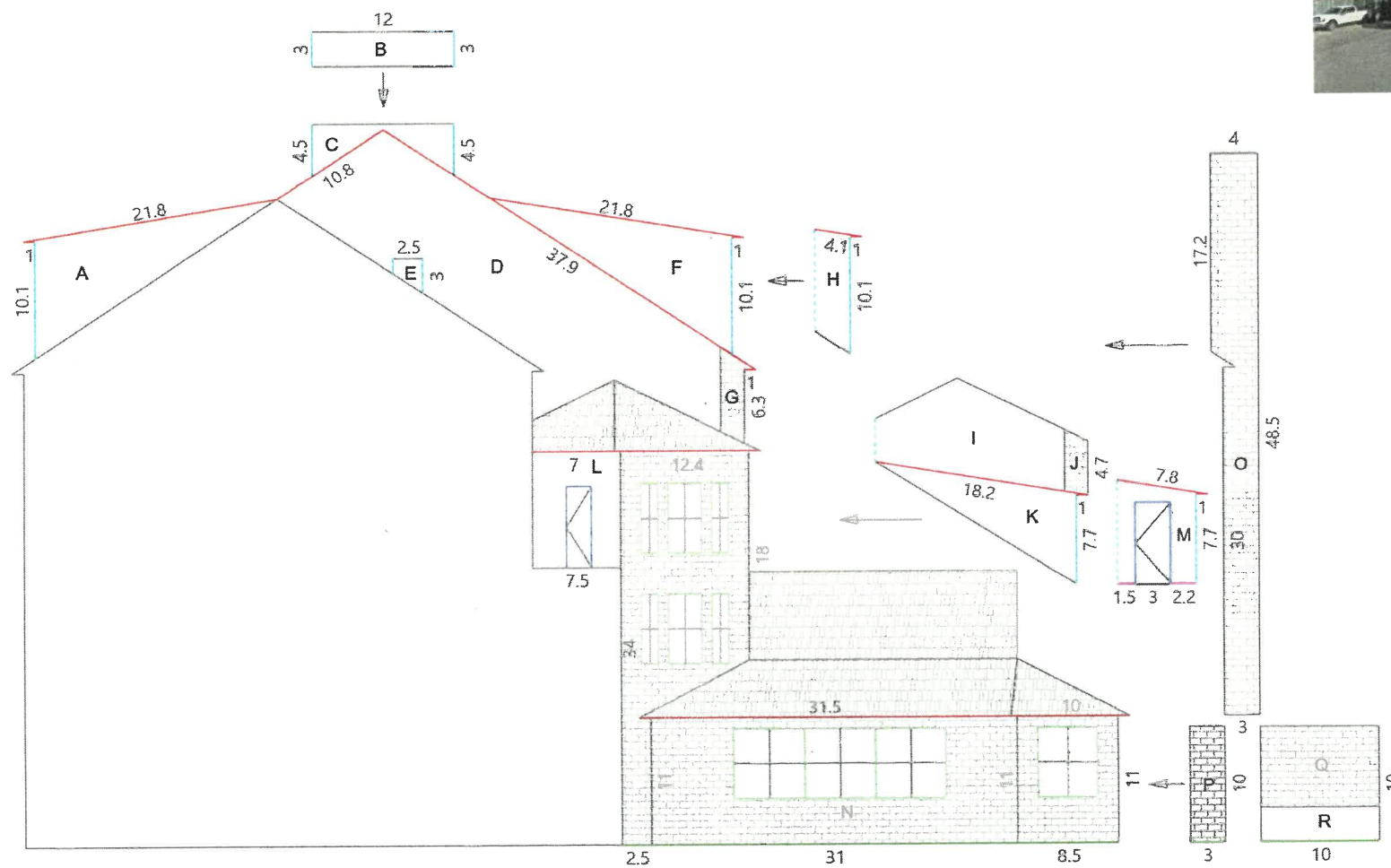
250 Market St, Portsmouth, NH 03801, USA 2

Project Totals

Total Siding Area	-	
Horizontal Lap	-	
Brick	-	
Stucco	-	
Outdoor Ceiling	-	
	-	
Starter Strip	-	
Fascia/Soffit	-	
Frieze Board	-	
Door Wrap	-	
Window Wrap	-	
Inside Corner	-	
Outside Corner	-	
	-	
	-	



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Plane	Area(sf)	Type
A	100	HORZ
B		HORZ
C		HORZ
D	100	HORZ
E	100	HORZ
F	100	HORZ
G	100	BRCK
H		HORZ
I		HORZ
J		BRCK
K		HORZ
L	100	HORZ
M		HORZ
N		BRCK
O	100	BRCK
P		BRCK
Q	100	BRCK
R		STCO

Totals (sf)

Brick	• • • •
Horizontal Lap	• • • •
Stucco	• • • •

 Fascia/Soffit
 Outside Corner
 Garage
 Window
 Horizontal Lap
 Shingles
 Brick

 Starter Strip
 Inside Corner
 Door
 Misc Trim
 Vertical Lap
 Stucco
 Stone

East Elevation Analysis - Structure 1
250 Market St, Portsmouth, NH 03801, USA 2



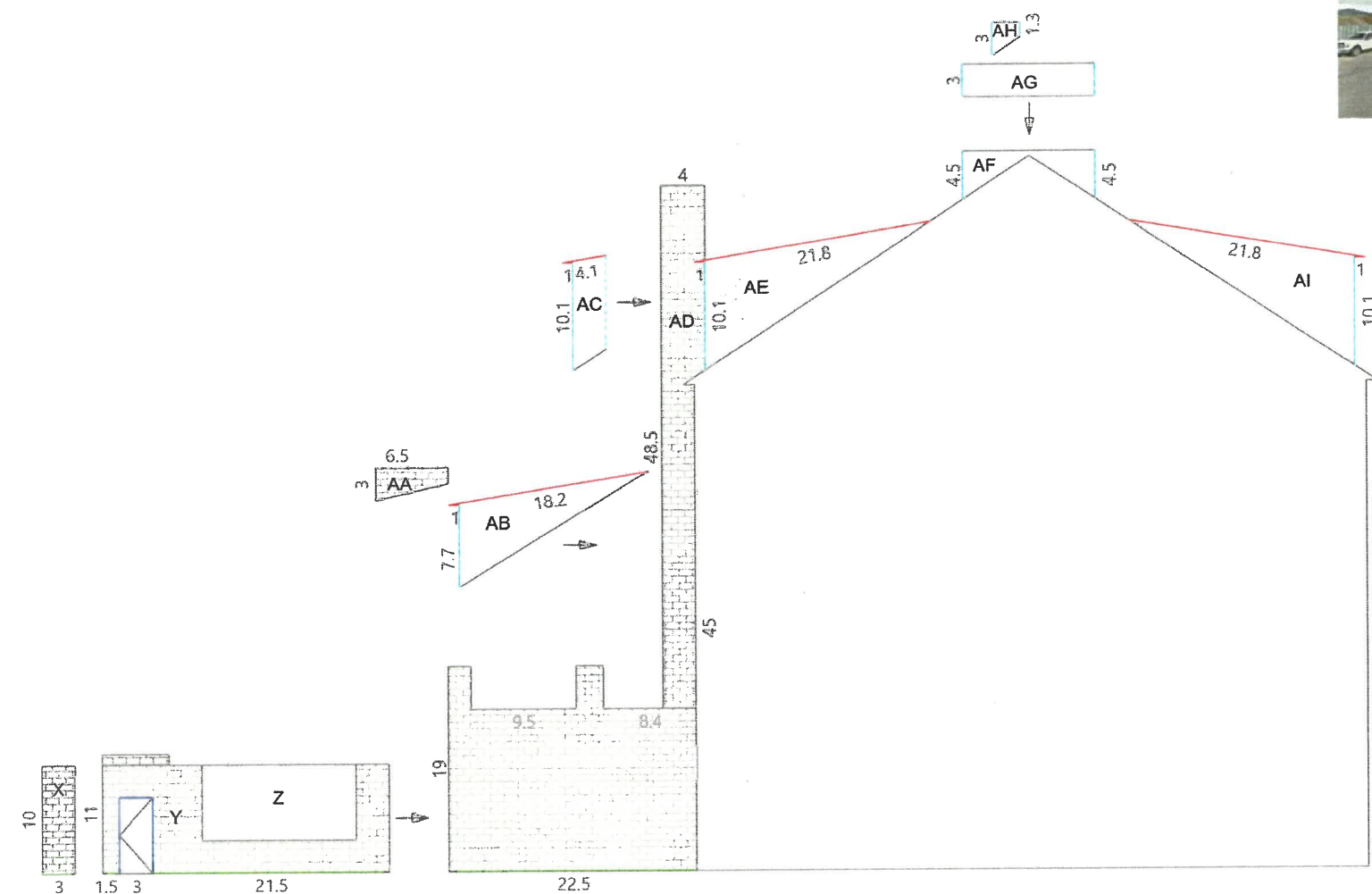
Plane	Area(sf)	Type
S		BRCK
T		HORZ
U		HORZ
V		BRCK
W		HORZ

Totals (sf)
Brick
Horizontal Lap



Fascia/Soffit	Outside Corner	Garage	Window	Horizontal Lap	Shingles	Brick
Starter Strip	Inside Corner	Door	Misc Trim	Vertical Lap	Stucco	Stone

South Elevation Analysis - Structure 1
250 Market St, Portsmouth, NH 03801, USA 2

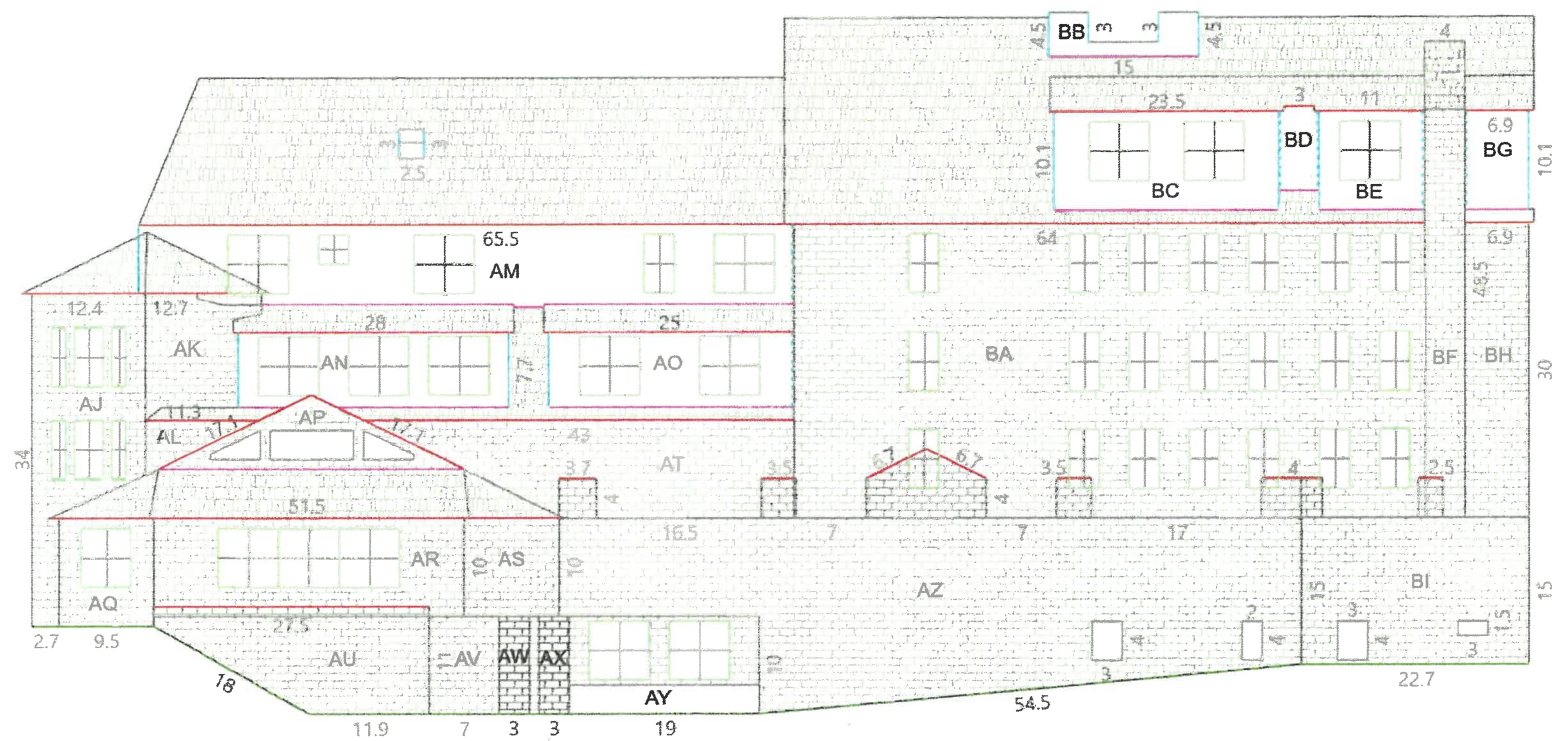


Plane	Area(sf)	Type
X	1	BRCK
Y	1	BRCK
Z	1	STCO
AA	1	BRCK
AB	1	HORZ
AC	1	HORZ
AD	1	BRCK
AE	1	HORZ
AF	1	HORZ
AG	1	HORZ
AH	1	HORZ
AI	1	HORZ

Totals (sf)
Brick
Horizontal Lap
Stucco

Fascia/Soffit	Outside Corner	Garage	Window	Horizontal Lap	Shingles	Brick
Starter Strip	Inside Corner	Door	Misc Trim	Vertical Lap	Stucco	Stone

A large, multi-story brick building, likely a school or institutional structure, with a prominent entrance and a sign that reads "SCHOOL". The building is situated on a street corner, and a white car is visible in the foreground. The image is a street view from Google Maps, with a copyright notice "©2019 Google" at the bottom.



Plane	Area(sf)	Type
AJ		BRCK
AK		BRCK
AL		BRCK
AM		HORZ
AN		HORZ
AO		HORZ
AP		BRCK
AQ		BRCK
AR		BRCK
AS		BRCK
AT		BRCK
AU		BRCK
AV		BRCK
AW		BRCK
AX		BRCK
AY		STCO
AZ		BRCK
BA		BRCK
BB		HORZ
BC		HORZ
BD		HORZ
BE		HORZ
BF		BRCK
BG		HORZ
BH		BRCK
BI		BRCK
Totals (sf)		

 Fascia/Soffit
 Outside Corner
 Garage
 Window
 Horizontal Lap
 Shingles
 Brick

 Starter Strip
 Inside Corner
 Door
 Misc Trim
 Vertical Lap
 Stucco
 Stone



250 Market St, Portsmouth, NH 03801

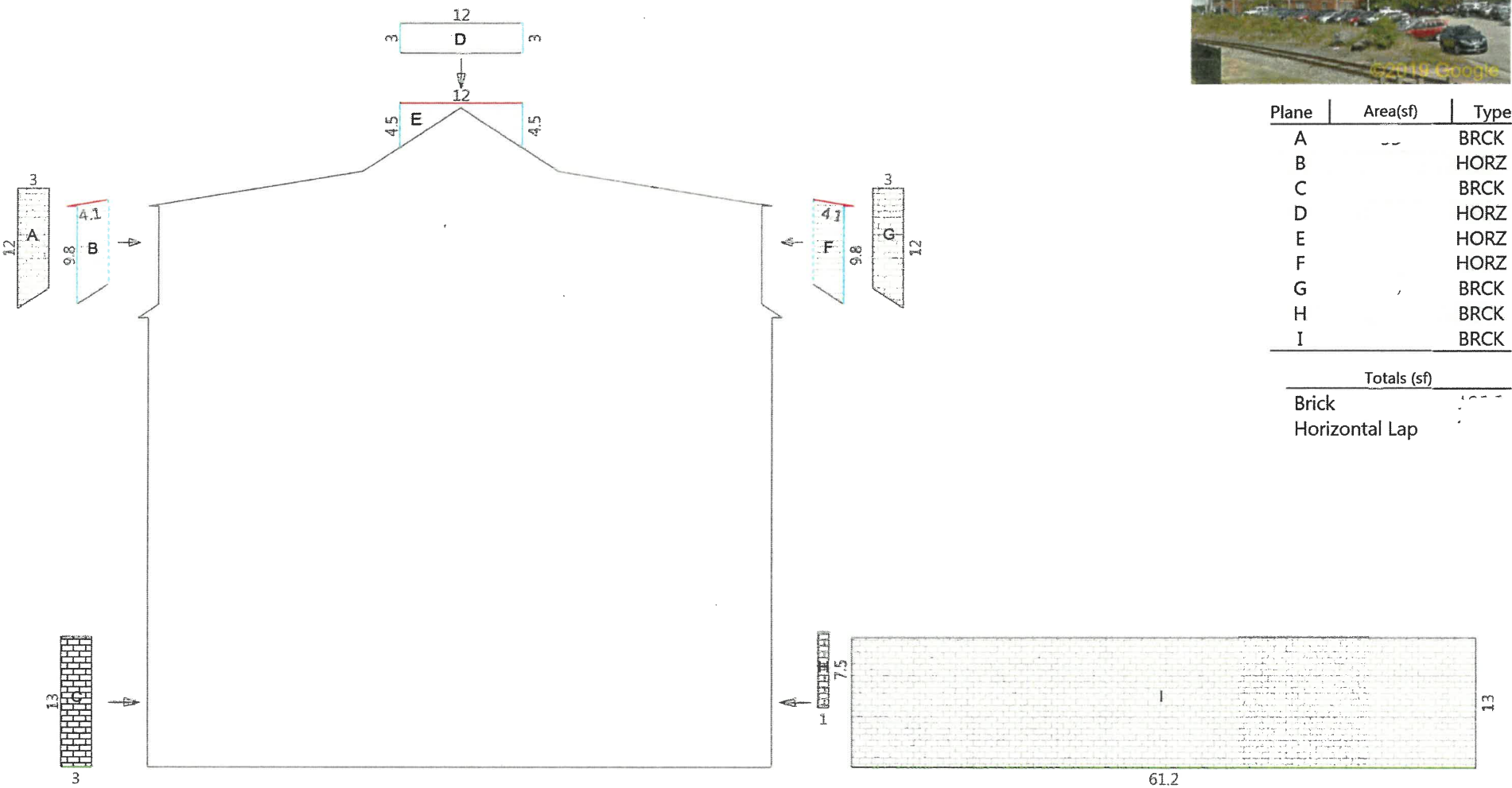
Project Totals

Total Siding Area	-
Horizontal Lap	-
Brick	-
Outdoor Ceiling	-
Starter Strip	-
Fascia/Soffit	-
Frieze Board	-
Door Wrap	-
Window Wrap	-
Inside Corner	-
Outside Corner	-
# of Windows	-
# of Doors	-



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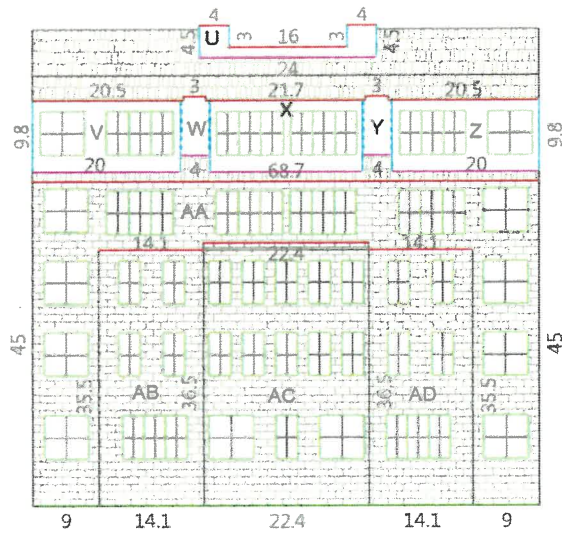
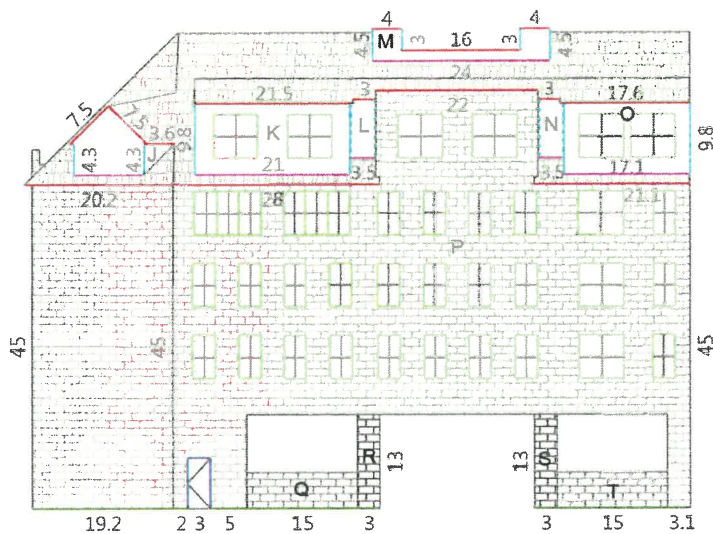
North Elevation Analysis - Structure 1
250 Market St, Portsmouth, NH 03801



Drawing Key

Fascia/Soffit	Outside Corner	Garage	Window	Horizontal Lap	Shingles	Brick
Starter Strip	Inside Corner	Door	Misc Trim	Vertical Lap	Stucco	Stone

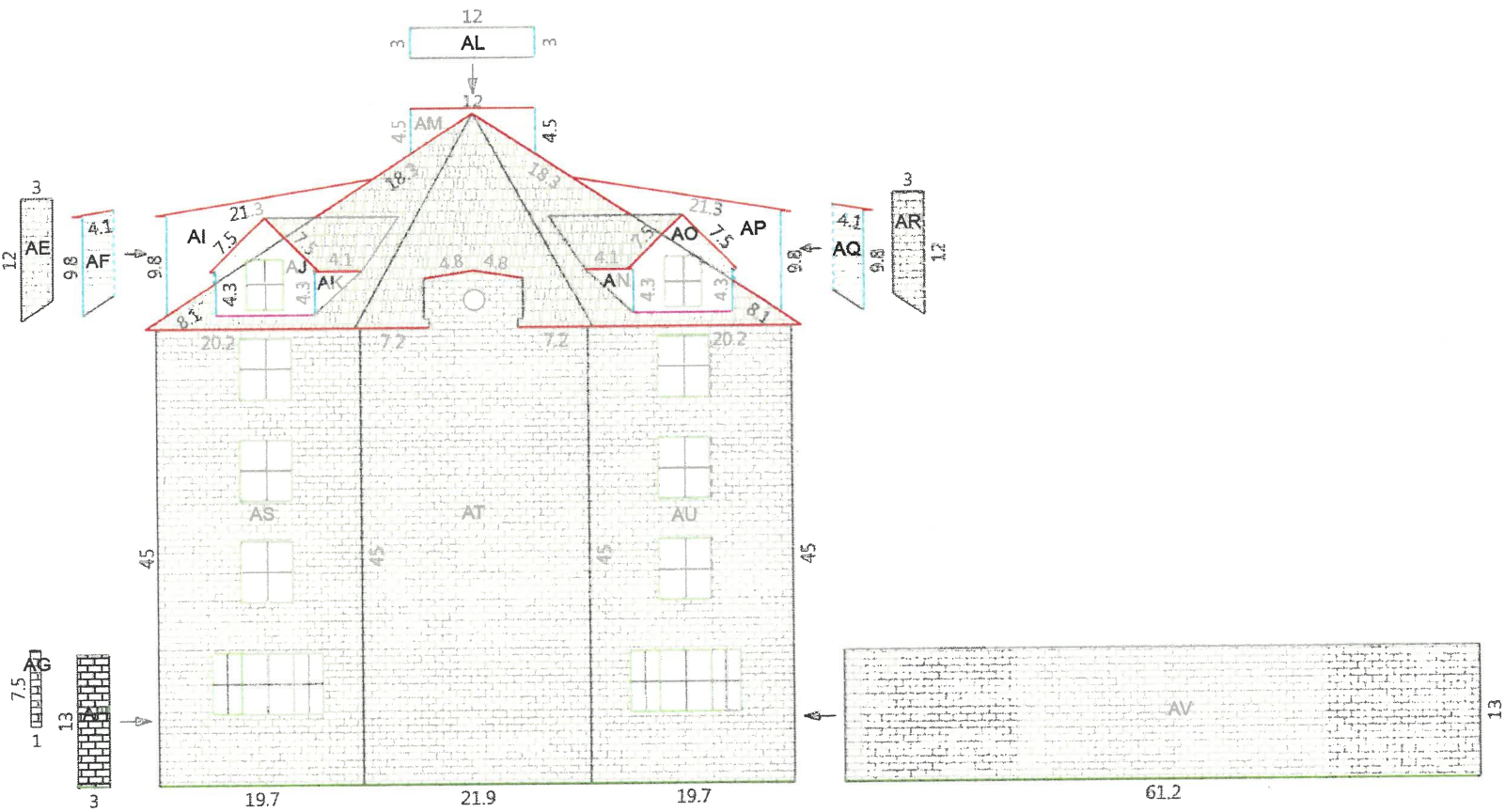
East Elevation Analysis - Structure 1
250 Market St, Portsmouth, NH 03801



Plane	Area(sf)	Type
J		HORZ
K		HORZ
L		HORZ
M		HORZ
N		HORZ
O		HORZ
P		BRCK
Q		BRCK
R		BRCK
S		BRCK
T		BRCK
U		HORZ
V		HORZ
W		HORZ
X		HORZ
Y		HORZ
Z		HORZ
AA		BRCK
AB		BRCK
AC		BRCK
AD		BRCK
Totals (sf)		
Brick		5,000
Horizontal Lap		5,000

Fascia/Soffit	Outside Corner	Garage	Window	Horizontal Lap	Shingles	Brick
Starter Strip	Inside Corner	Door	Misc Trim	Vertical Lap	Stucco	Stone

South Elevation Analysis - Structure 1
250 Market St, Portsmouth, NH 03801



Plane	Area(sf)	Type
AE		BRCK
AF		HORZ
AG		BRCK
AH		BRCK
AI		HORZ
AJ		HORZ
AK		HORZ
AL		HORZ
AM		HORZ
AN		HORZ
AO		HORZ
AP		HORZ
AQ		HORZ
AR		BRCK
AS		BRCK
AT		BRCK
AU		BRCK
AV		BRCK

Totals (sf)	
Brick	
Horizontal Lap	

Drawing Key							
Fascia/Soffit	Outside Corner	Garage	Window	Horizontal Lap	Shingles	Brick	
Starter Strip	Inside Corner	Door	Misc Trim	Vertical Lap	Stucco	Stone	

West Elevation Analysis - Structure 1
250 Market St, Portsmouth, NH 03801



Plane	Area(sf)	Type
AW	..	HORZ
AX	..	HORZ
AY	..	HORZ
AZ	..	HORZ
BA	..	HORZ
BB	..	HORZ
BC	..	BRCK
BD	..	BRCK
BE	..	BRCK
BF	..	BRCK
BG	..	HORZ
BH	..	HORZ
BI	..	HORZ
BJ	..	HORZ
BK	..	HORZ
BL	..	HORZ
BM	..	HORZ
BN	..	HORZ
BO	..	BRCK
BP	..	BRCK
BQ	..	BRCK
BR	..	BRCK
BS	..	BRCK

Totals (sf)	
Brick	----
Horizontal Lap	----

Drawing Key							
Fascia/Soffit	Outside Corner	Garage	Window	Horizontal Lap	Shingles	Brick	
Starter Strip	Inside Corner	Door	Misc Trim	Vertical Lap	Stucco	Stone	



250 Market St, Portsmouth, NH 03801, USA 3

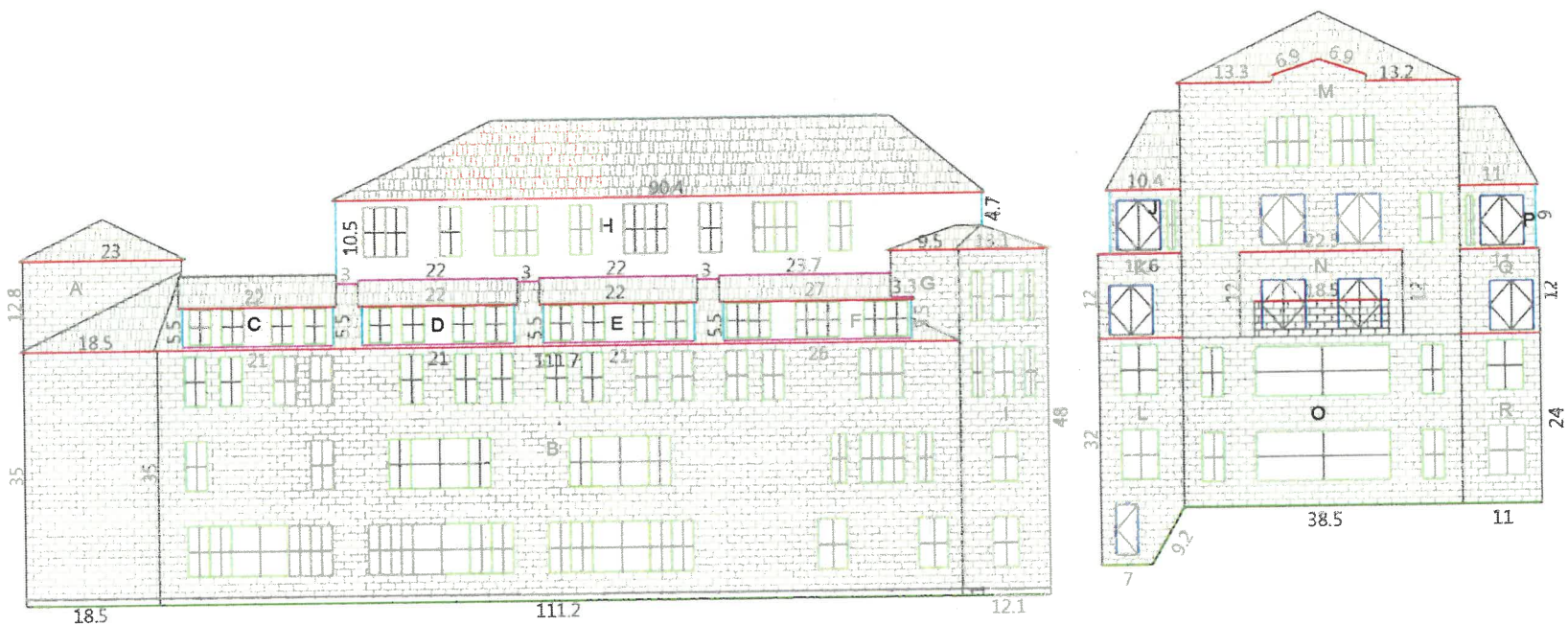
Project Totals

Total Siding Area	-	
Horizontal Lap	-	
Brick	-	
Starter Strip	-	
Fascia/Soffit	-	
Frieze Board	-	
Door Wrap	-	
Window Wrap	-	
Inside Corner	-	
Outside Corner	-	
# of Windows	-	
# of Doors	-	



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North Elevation Analysis - Structure 1
250 Market St, Portsmouth, NH 03801, USA 3

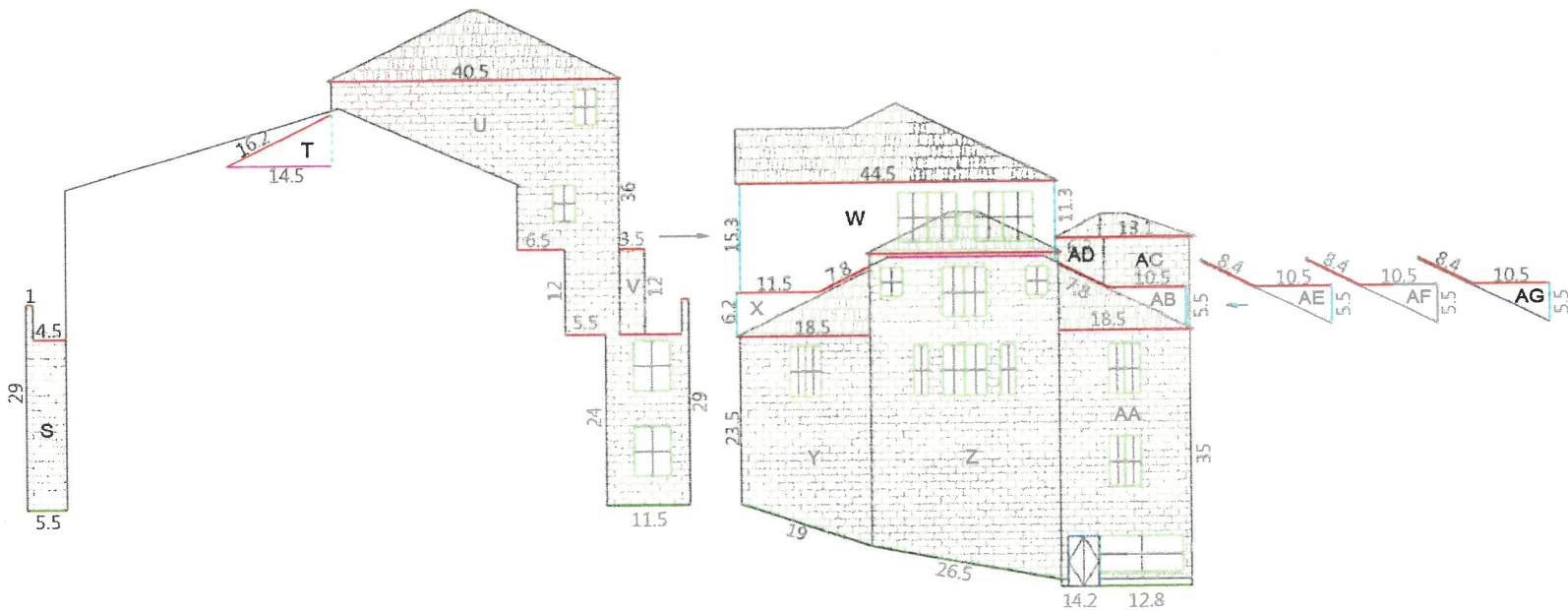


Plane	Area(sf)	Type
A	12.8	BRCK
B	18.5	BRCK
C	10.5	HORZ
D	22	HORZ
E	22	HORZ
F	22	HORZ
G	22	BRCK
H	22	HORZ
I	22	BRCK
J	22	BRCK
K	22	BRCK
L	22	BRCK
M	22	BRCK
N	22	BRCK
O	22	BRCK
P	22	BRCK
Q	22	BRCK
R	22	BRCK

Totals (sf)
Brick
Horizontal Lap

Drawing Key							
Fascia/Soffit	Outside Corner	Garage	Window	Horizontal Lap	Shingles	Brick	
Starter Strip	Inside Corner	Door	Misc Trim	Vertical Lap	Stucco	Stone	

East Elevation Analysis - Structure 1
250 Market St, Portsmouth, NH 03801, USA 3

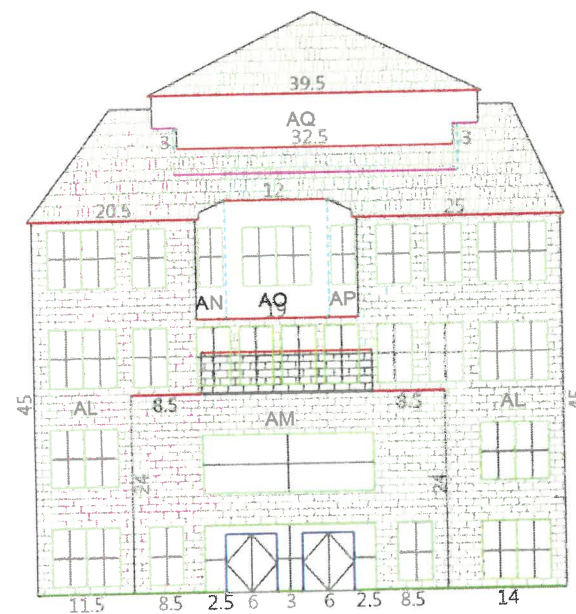


Plane	Area(sf)	Type
S		BRCK
T		HORZ
U		BRCK
V		BRCK
W		HORZ
X		HORZ
Y		BRCK
Z		BRCK
AA		BRCK
AB		HORZ
AC		BRCK
AD		BRCK
AE		HORZ
AF		HORZ
AG		HORZ

Totals (sf)	
Brick	
Horizontal Lap	

Fascia/Soffit	Outside Corner	Garage	Window	Horizontal Lap	Shingles	Brick
Starter Strip	Inside Corner	Door	Misc Trim	Vertical Lap	Stucco	Stone

Totals (sf)	
Brick	4.8
Horizontal Lap	



Drawing Key

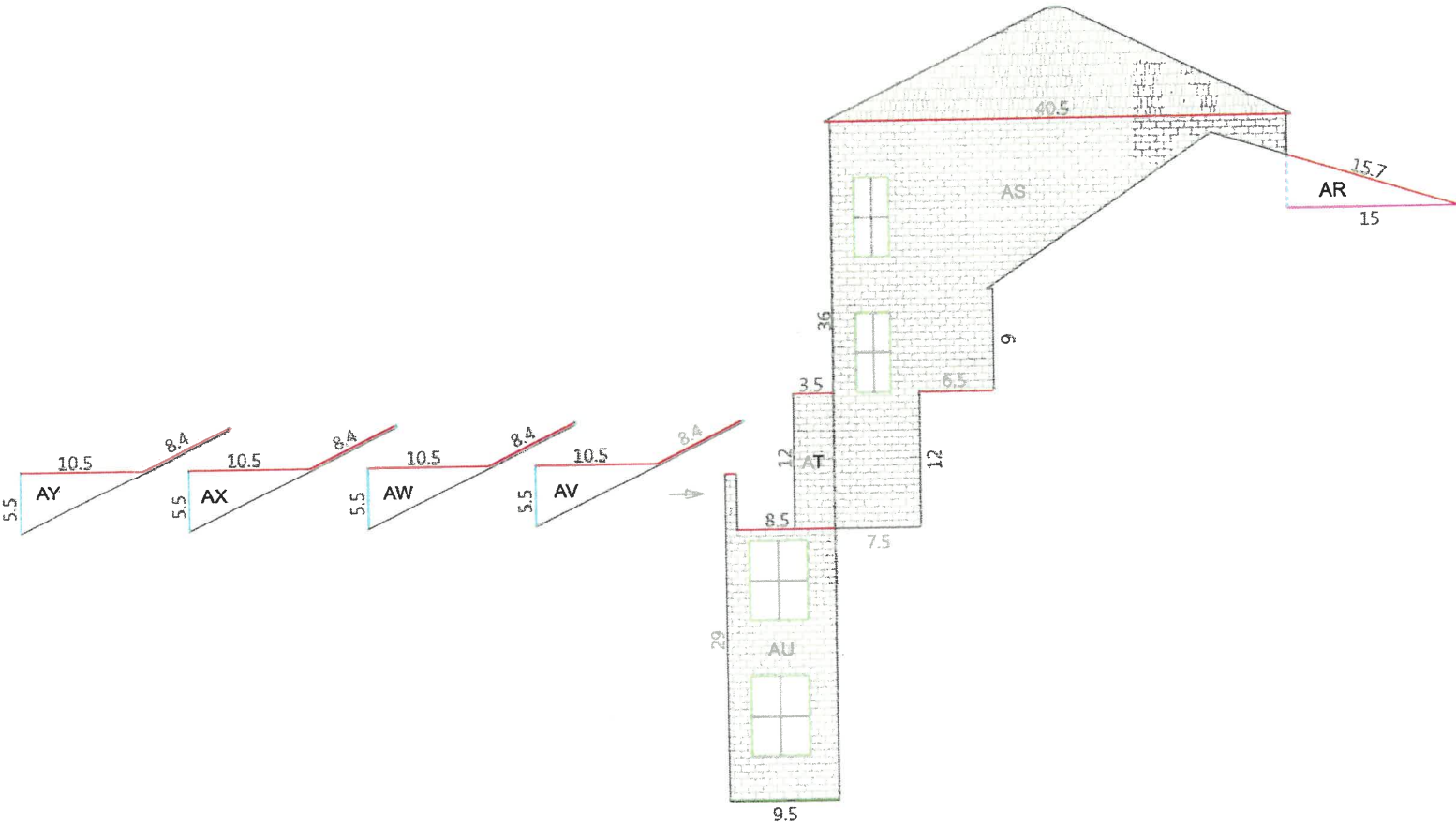
 Fascia/Soffit	 Outside Corner	 Garage	 Window	 Horizontal Lap	 Shingles	 Brick
Starter Strip	Inside Corner	Door	Misc Trim	Vertical Lap	Stucco	Stone

West Elevation Analysis - Structure 1
250 Market St, Portsmouth, NH 03801, USA 3



Plane	Area(sf)	Type
AR		HORZ
AS		BRCK
AT		BRCK
AU	1	BRCK
AV		HORZ
AW		HORZ
AX		HORZ
AY		HORZ

Totals (sf)
Brick
Horizontal Lap



Drawing Key									
Fascia/Soffit	Outside Corner	Garage	Window	Horizontal Lap	Shingles	Brick			
Starter Strip	Inside Corner	Door	Misc Trim	Vertical Lap	Stucco	Stone			

HardiePlank® Lap Siding

Submittal Form

01

Submitted to:

Project Name:

Submitted by:

Date:

☐ **HZ5® Product Zone** ☐ **HZ10® Product Zone**

 Product Width: ☐ 5-1/4in ☐ 6-1/4in ☐ 7-1/4in ☐ 8in ☐ 8-1/4in ☐ 9-1/4in ☐ 12in

 Product Finish: ☐ **Primed** ☐ **ColorPlus® Technology**

 Product Texture: ☐ **Smooth** ☐ **Select Cedarmill®** ☐ **Colonial Roughsawn®**
☐ **Colonial Smooth®** ☐ **Rustic Cedar**

HardiePlank® Lap Siding

Specification Sheet

01

DIVISION: 07 00 00 THERMAL AND MOISTURE PROTECTION

SECTION: 07 46 46 FIBRE CEMENT SIDING

HARDIEPLANK® LAP SIDING

Manufacturer

James Hardie Building Products, Inc

The products are manufactured at the following locations, with quality control inspections by ICC-ES:

- Cleburne, Texas
- Plant City, Florida
- Reno, Nevada
- Waxahachie, Texas
- Peru, Illinois
- Pulaski, Virginia
- Tacoma, Washington
- Fontana, California

Compliance with the following codes

- 2012, 2009 and 2006 International Building Code® (IBC)
- 2012, 2009 and 2006 International Residential Code® (IRC)

Features

- Noncombustible
- Dimensionally Stable
- Resists damage from pests
- Weather Resistant-Engineered for Climate®
- Impact resistant
- Sustainable

Use

James Hardie fiber-cement lap siding is used as exterior wall covering. The product complies with IBC Section 1404.10 and IRC Section R703.10. The product may be used on exterior walls of buildings of Type I, II, III and IV construction (IBC)

Description

HardiePlank lap siding is a single-faced, cellulose fiber-reinforced cement (fiber-cement) product. HardiePlank lap siding complies with ASTM C1186, as Grade II, Type A; has a flame-spread index of 0 and a smoke-developed index of 5 when tested in accordance with ASTM E84; and is classified as noncombustible when tested in accordance with ASTM E136.

Available Sizes

Product	Width (in)	Length	Thickness (in)
HardiePlank lap siding*	5-1/4, 6-1/4, 7-1/4, 8, 8-1/4, 9-1/4, 12	12 feet	5/16

* HZ5: 9-1/4, 12 only available primed HZ10: 5-1/4, 9-1/4, 12 only available primed.

Texture & Finish

HardiePlank lap siding comes in a variety of textures and finishes. The product is available in smooth or wood grain texture. Additional textures are available on a regional basis. Finish options are primed for field paint, or factory finished with ColorPlus® Technology. Color availability varies by region.

Engineered for Climate®

HardiePlank lap siding is engineered for performance to specific weather conditions by climate zones as identified by the following map.



Performance Properties

	General Property	Test Method	Unit or Characteristic	Requirement	Result
PHYSICAL ATTRIBUTES	Dimensional Tolerances	ASTM C1185	Length	± 0.5% or ± 1/4 in	Pass
			Width	± 0.5% or ± 1/4 in	
			Thickness	± 0.04 in	
			Squareness	<1/32 in/ft of length	
			Edge Straightness	<1/32 in/ft of length	
PHYSICAL ATTRIBUTES	Density, lb/ft³	ASTM C1185		As reported	83
	Water Absorption, % by mass	ASTM C1185		As reported	36
	Water Tightness	ASTM C1185	Physical Observations	No drop formation	Pass
	Flexural Strength	ASTM C1185	Wet conditioned, psi	>1015 psi	Pass
			Equilibrium conditioned, psi	>1450 psi	
THERMAL	Thermal Conductivity	ASTM C177	(BTU/(hr·ft²·F))/inch		2.07
	Actual Thermal Conductivity		(K _{eff})	As reported	6.62
	Thermal Resistance		R=1 / K _{eff}		0.48
	Actual Thermal Resistance		(R)		0.15
DURABILITY	Warm Water Resistance	ASTM C1185	Physical Observations	No visible cracks or structural alteration	Pass
	Heat/Rain Resistance	ASTM C1185	Physical Observations	No visible cracks or structural alteration	Pass
	Freeze/Thaw Resistance	ASTM C1185	Physical Observations	No visible cracks or structural alteration	Pass
			Mass Loss, %	≤ 3.0%	
			Freeze/Thaw, % strength retention	≥ 80%	
FIRE CHARACTERISTICS	UV Accelerated Weathering Test	ASTM G23	Physical Observations	No cracking, checking, or crazing	Pass
	Surface Burning Characteristics	ASTM E84	Flame Spread Index (FSI)		0
			Smoke Developed Index (SDI)		≤ 5
			Fuel Contributed		0
			NFPA Class		A
			Uniform Building Code Class	As reported	1
			International Building Code® class		A
	Noncombustibility	ASTM E136	Noncombustible	Pass/fail	Pass
	Fire Resistance Rated Construction	ASTM E119	Fire Resistance Rating	1-hour	Note 1

Note 1: listed on Warnock Hersey and ESR 2290

Installation

Install HardiePlank lap siding in accordance with:

- HardiePlank lap siding installation instructions
- ICC-ES ESR 2290
- Requirements of authorities having jurisdiction

Warranty

HardiePlank lap siding: 30-year, Non-Prorated, Limited Warranty
ColorPlus Technology: 15-year Limited Finish Warranty

Sustainable Design Contribution

- Regionally sourced content- varies by project location
- Avoidance of certain chemicals or Red List Compliance

Detailed product information for LEED projects, or other state or regional sustainability programs is available through James Hardie Technical Services.

Storage and Handling

Store flat and keep dry and covered prior to installation.

Technical Services

Contact James Hardie Technical Services online at JamesHardie.com, or by phone at (800)426-4051

P2



JamesHardie

Additional Installation Information, Warranties, and Warning are available at JamesHardie.com

1 866 442 7343 | www.jameshardie.com

IMPORTANT: Failure to install and finish this product in accordance with applicable building codes and James Hardie written application instructions may affect system performance, violate local building codes, void the product-only warranty and lead to personal injury.

DESIGN ADVICE: Any information or assistance provided by James Hardie in relation to specific projects must be approved by the relevant specialists engaged for the project eg. builder, architect or engineer. James Hardie will not be responsible in connection with any such information or assistance.

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ICC-ES Report

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ESR-3023

Reissued 01/2017

This report is subject to renewal 01/2018.

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES

SECTION: 06 50 00—STRUCTURAL PLASTICS

REPORT HOLDER:

ROYAL MOULDINGS LIMITED

POST OFFICE BOX 610
MARION, VIRGINIA 24354

EVALUATION SUBJECT:

ROYAL TRIM BOARD®



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ICC-ES Evaluation Report

ESR-3023

Reissued January 2017

This report is subject to renewal January 2018.

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DIVISION: 06 00 00—WOOD, PLASTICS, AND COMPOSITES

Section: 06 50 00—Structural Plastics

REPORT HOLDER:

ROYAL MOULDINGS LIMITED
POST OFFICE BOX 610
MARION, VIRGINIA 24354
(276) 783-8161
www.royalmouldings.com

EVALUATION SUBJECT:

ROYAL TRIM BOARD®

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2009 *International Building Code*® (IBC)
- 2009 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)[†]

[†]The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Weather resistance
- Termite resistance
- Surface burning characteristics
- Structural – negative transverse wind load

1.2 Evaluation to the following green code(s) and/or standards:

- 2016 and 2013 California Green Building Standards Code (CALGreen), Title 24, Part 11
- 2015, 2012 and 2008 ICC 700 *National Green Building Standard*™ (ICC 700-2015, ICC 700-2012 and ICC 700-2008).

Attributes verified:

- See Section 3.1

2.0 USES

Royal Trim Board® is used for nonload-bearing exterior trim.

3.0 DESCRIPTION

3.1 General:

Royal Trim Board® is a rigid cellular PVC (polyvinyl

chloride) solid cross section installed as corner boards, soffits, fascias, column wraps, door pilasters, frieze boards, nonload-bearing rake boards, architectural millwork, door trim and window trim.

The material is expanded rigid PVC with a small-cell micro-structure. Royal Trim-Board® is supplied in woodgrain and smooth surface. Royal Trim Board® is available in nominal widths of 3 inches (76.2 mm) to 12 inches (305 mm) and thicknesses of ³/₈, ¹/₂, ⁵/₈, ³/₄ and 1 inch (9.5, 12.7, 15.9, 19.1 and 25.4 mm).

The attributes of the trim boards have been verified as conforming to the requirements of (i) 2016 and 2013 CALGreen Section A4.405.1.1 for prefinished building materials and Section A5.406.1.2 for reduced maintenance; (ii) ICC 700-2015 and ICC 700-2012 Sections 602.1.6 and 11.602.1.6 for termite-resistant materials and Sections 601.7, 11.601.7, and 12.1(A).601.7 for site-applied finishing materials; and (iii) ICC 700-2008 Section 602.8 for termite-resistant materials and Section 601.7 for site-applied finishing materials. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.2 Surface-burning Characteristics:

Royal Trim Board®, at a maximum nominal thickness of 1 inch (25.4 mm), has a flame-spread index of not more than 200 when tested in accordance with ASTM E84.

3.3 Termite Resistance:

Royal Trim Board® has demonstrated equivalent termite resistance to that of an approved preservative-treated wood or naturally durable wood in accordance with the code.

4.0 INSTALLATION

4.1 General:

Royal Trim Board® exterior trim must be installed in accordance with the manufacturer's published installation instructions and this report. A copy of the instructions must be available on the jobsite at all times during installation. In the event of any conflicts, this report governs.

4.2 Fasteners:

Nails must be stainless steel or hot-dipped galvanized. Nails must be approved 8d by minimum 2¹/₂-inch-long (63.5 mm) finish nails designed for wood trim and wood siding. The nails must be long enough to penetrate the

solid wood substrate a minimum of 1¹/₂ inches (38.1 mm). The nails must be located ³/₄ inch (19.1 mm) from board edges or ends.

4.3 Wind Load Assembly:

Royal Trim Board® exterior trim, with a minimum thickness of 1 inch (25.4 mm) and maximum width of 11¹/₄ inches (286 mm), must be installed with the length perpendicular to solid wood framing (G = 0.55 minimum) spaced a maximum of 16 inches (406 mm) on center and fastened to each framing member with two 8d by 2¹/₂-inch-long (63.5 mm) finish nails located ³/₄ inch (19.1 mm) from either edge of the trim board. The Royal Trim Board® exterior trim installed as described has a maximum allowable design load of 87 psf (4.2 kN/m²) negative transverse wind load (suction).

5.0 CONDITIONS OF USE

The Royal Trim Board® described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 This evaluation report and the manufacturer's published installation instructions, when required by the code official, must be submitted at the time of permit application.
- 5.2 The product is limited to the following construction types:
 - a. Nonload-bearing exterior trim on buildings of combustible nonfire-resistance-rated construction (Type V-B) under the IBC.

- b. Architectural trim on buildings of Type I, II, III and IV construction under the IBC, that do not exceed 40 feet (12.2 m) in height above grade. The trim must be backed by noncombustible construction. The trim is limited to ten percent of the exterior wall surface area where the fire separation distance is 5 feet (1.52 m) or less.

- c. All buildings permitted under the IRC.

- 5.3 The product must be installed over solid wood backing material, such as approved exterior sheathing, which is covered with an approved water-resistant barrier or approved exterior wall covering, or as otherwise noted in Section 4.0 of this report.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Rigid Cellular PVC Nonload-bearing Exterior Trim (AC227), dated December 2004 (editorially revised January 2011).

7.0 IDENTIFICATION

Each package of Royal Trim Board® exterior trim must be labeled with the Royal Mouldings, Ltd., name, the product trade name and the evaluation report number (ESR-3023).



SECTION 06 65 00 - Plastic Trim [06 65 00]
SIMULATED WOOD TRIM

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. PVC Trimboard.
- B. PVC Sheetboard.
- C. PVC Moulding.

1.2 RELATED SECTIONS

- A. Section 06 10 00 - Rough Carpentry [06 10 00] - Rough Carpentry: Framing and sheathing
- B. Section 07 27 19 - Plastic Sheet Air Barriers [07 26 23] - Below Grade Vapor Retarders
- C. Section 07 90 00 - Joint Protection [07 90 00] - Joint Protection.

1.3 REFERENCES

- A. ASTM D 570 - Water Absorption of Plastics.
- B. ASTM D 635 - Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position. ASTM E 84 - Surface Burning Characteristics of Building Materials.
- C. ASTM D 648 - Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.
- D. ASTM D 696 - Coefficient of Linear Thermal Expansion of Plastics Between minus degrees C and plus 30 degrees C with a Vitreous Silica Dilatometer.
- E. ASTM D 790 - Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- F. ASTM D 792 - Density and Specific Gravity of Plastics by Displacement.
- G. ASTM D 1761 - Mechanical Fasteners in Wood.
- H. ASTM D 3679 - Standard Specification for Rigid Poly Vinyl Chloride (PVC) Siding.
- I. ASTM D 4226 - Standard Test Methods for Impact Resistance of Rigid Poly(Vinyl Chloride) (PVC) Building Products.
- J. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements Administrative Requirements.

- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
 - 1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
 - 2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
- D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- F. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic checking and maintenance.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with a minimum of 5 years producing PVC trim products.
- B. Installer Qualifications: Installer with a minimum of 3 years experience with the installation of PVC trim products.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store products on a flat and level surface on a full shipping pallet. Handle materials to prevent damage to product edges and corners.
- C. Store materials under a protective covering to prevent jobsite dirt and residue from collecting on the boards.

1.7 SEQUENCING

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

- A. Provide manufacturer's 25 year warranty against defects in manufacturing that causes the

products to rot, corrode, delaminate, or excessively swell from moisture.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Royal Building Products - Siding & Trim Board, which is located at: 91 Royal Group Crescent; Woodbridge, ON, Canada L4H 1X9; Toll Free Tel: 800-387-2789; Tel: 905-850-9700; Fax: 905-850-9184; Email:[request info \(RBPCustomerCare@royalbuildingproducts.com\)](mailto:requestinfo@RBPCustomerCare@royalbuildingproducts.com); Web:<http://www.royalbuildingproducts.com/siding/?LangType=1033>
- B. Acceptable Manufacturer; Trimboard & Sheet Board; 328 Industrial Drive, Bristol, TN 37620 USA. Toll Free: 800-368-3117. Phone: 276-783-8161. Fax: 276-782-3292. Web Site:www.royalbuildingproducts.com. Email: RBPCustomerCare@royalbuildingproducts.com.
- C. Substitutions: Not permitted.
- D. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements Product Requirements.

2.2 MATERIALS

- A. Cellular PVC material with a small-cell microstructure.
 - 1. Physical:
 - a. Density: 0.55 g/cm³ when tested in accordance with ASTM D 792.
 - b. Water Absorption: Less than 0.15 percent when tested in accordance with ASTM D 570
 - 2. Mechanical:
 - a. Tensile Strength: 2090 psi when tested in accordance with ASTM D 638
 - b. Tensile Modulus: > 144,000 when tested in accordance with ASTM D 638
 - c. Flexural Strength: 5790 psi when tested in accordance with ASTM D 790.
 - d. Flexural Modulus: 211,000 psi when tested in accordance with ASTM D 790.
 - e. Nail Hold: >=400 lbf when tested in accordance with ASTM D 1761.
 - f. Screw Hold: >=680 lbf when tested in accordance with ASTM D 1761.
 - g. Staple Hold: >=180 lbf when tested in accordance with ASTM D 1761.
 - h. Gardner Impact: >=120 in-lbs. when tested in accordance with ASTM D 4226.
 - i. Shore D Hardness: >=60 when tested in accordance with ASTM D 696
 - 3. Thermal:
 - a. Coefficient of Linear Expansion: 3.2 x 10⁻⁵ in/in/degrees F when tested in accordance with ASTM D 696.
 - b. Burning Rate: Failed to Ignite when tested in accordance with ASTM D 635.
 - c. Flame Spread Index: 10 when tested in accordance with ASTM E 84.
 - d. Heat Deflection Temp (66 psi): 155 degrees F when tested in accordance with ASTM D 648.
 - 4. Manufacturing Tolerances
 - a. Variation in component length: Minus 0.00 / plus 1.00.
 - b. Variation in component width: plus or minus 1/32 inch.
 - c. Variation in component thickness: plus or minus 1/32 inch.
 - d. Variation in component edge cut: plus or minus 2 degrees.
 - e. Variation in Density plus or minus 0.02 grams per cubic centimeter
 - 5. Workmanship, Finish, and Appearance:
 - a. Free Foam Cellular PVC that is homogeneous and free of voids, holes, cracks, foreign inclusions and/or other defects. Square edges and top and bottom surfaces shall be flat with no unacceptable convex or concave deviation.
 - b. Uniform surface free from cupping, warping, and twisting.

2.3 SIMULATED WOOD TRIM

A. PVC Trimboard: Royal Trimboard S4S, designed with a natural appearance to compliment fiber cement and natural cedar.

1. Size: 5/8 inch thick Trimboard.
 - a. Width:
 - 1) 4 inches nominal (3-1/2 Inches actual).
 - 2) 6 inches nominal (5-1/2 Inches actual).
 - 3) 8 Inches nominal (7-1/4 Inches actual).
 - 4) 10 Inches nominal (9-1/4 Inches actual).
 - 5) 12 Inches nominal (11-1/4 Inches actual).
 - b. Length:
 - 1) 18 feet.
 - 2) Custom lengths.
2. Size: 1 inch nominal (3/4 inch actual) thick Trimboard.
 - a. Width:
 - 1) 2 inches nominal (1-1/2 Inches actual).
 - 2) 3 inches nominal (2-1/2 Inches actual).
 - 3) 4 Inches nominal (3-1/2 Inches actual).
 - 4) 5 Inches nominal (4-1/2 Inches actual).
 - 5) 6 Inches nominal (5-1/2 Inches actual).
 - 6) 8 Inches nominal (7-1/4 Inches actual).
 - 7) 10 Inches nominal (9-1/4 Inches actual).
 - 8) 12 Inches nominal (11-1/4 Inches actual).
 - b. Length:
 - 1) 18 feet.
 - 2) Custom lengths.
3. Size: 5/4 inch nominal (1 inch actual) thick Trimboard.
 - a. Width:
 - 1) 3 inches nominal (2-1/2 Inches actual).
 - 2) 4 Inches nominal (3-1/2 Inches actual).
 - 3) 5 Inches nominal (4-1/2 Inches actual).
 - 4) 6 Inches nominal (5-1/2 Inches actual).
 - 5) 8 Inches nominal (7-1/4 Inches actual).
 - 6) 10 Inches nominal (9-1/4 Inches actual).
 - 7) 12 Inches nominal (11-1/4 Inches actual).
 - b. Length:
 - 1) 18 feet.
 - 2) 20 feet.
 - 3) Custom lengths.
4. Finish:
 - a. Smooth/Smooth finish.
 - b. Reversible with Smooth/Timber Ridge finish.

B. Sheet Board: Royal Sheet board for use as sheet materials or to create columns and gingerbread millwork.

1. Size:
 - a. Actual Width/Length:
 - 1) 4 foot by 8 foot.
 - 2) 4 foot by 10 foot.
 - 3) 4 foot by 12 foot.
 - 4) 4 foot by 18 foot.
 - 5) 4 foot by 20 foot.
 - b. Actual Thickness:
 - 1) 3/8 inch.
 - 2) 1/2 inch.

- 3) 5/8 inch.
 - 4) 3/4 inch.
 - 5) 1 inch.
 - 2. Finish:
 - a. Smooth/Smooth finish.
- C. Royal Mouldings: Moulding materials for use as interior or exterior decorative moulding.
 - 1. General Shapes:
 - a. Door Frame & Transom Sill
 - b. Brickmold & J-Channel
 - c. Sill & Nose
 - d. Drip Caps, Back Bands, & Panel Mould
 - e. Rail & Baluster Cladding
 - f. Casing & Base
 - g. Crown & Chair Rail
 - h. Quarter Round, Cove and Lattice
 - i. Stops & Shoes
 - j. Column Wraps & Other Fabricated/Milled Parts

2.4 ACCESSORIES

- A. Fasteners: Stainless steel fasteners designed for wood trim and siding
- B. Adhesives: Finishing System: Adhere simulated wood trim to itself with PVC cement or cellular PVC adhesives to prevent joint separation. Acceptable adhesives are:
 - 1. PVC Trim Welder.
 - 2. IPS Weld-On 705 (white).
 - 3. Zevo PVC Trim adhesive.
- C. Nail Hole Filler: Cortex plug system by Fasten Master.
- D. Sealants: Urethane, polyurethane, polymer blends or acrylic based sealants that do not contain silicone as specified in Section 07 91 16 - Joint Gaskets.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions and as follows.
 - 1. Cutting:
 - a. Cut using standard woodworking saws. Conventional carbide-tipped blades designed for cutting wood are preferred. Avoid using fine-tooth metal-cutting blades.
 - b. Rough-cut edges are typically caused by excessive friction, poor board support,

- or worn or improper tooling.
 - 2. Drilling:
 - a. Drill using standard woodworking drill bits. Do not use drill bits made for rigid PVC.
 - b. Avoid frictional heat build-up.
 - c. Remove shavings periodically from a drill hole as necessary.
 - 3. Milling and Moulding:
 - a. Milled or mould using standard milling or moulding machines found in millwork shops.
 - b. Rake angle 20 to 30 degrees. 25 degrees is recommended.
 - c. Cutting speed to be optimized with the number of knives and feed rate.
 - 4. Routing:
 - a. Route with virtually any piece of equipment used to rout wood.
- B. Expansion and Contraction: Allow for expansion and contraction with changes in temperature. Proper fastening along the entire length is required to minimize expansion and contraction/
- 1. Allow 3/16 inch space per 18-foot run of trim for expansion and contraction.
 - 2. Bond joints between pieces of simulated wood trim to eliminate separation.
 - 3. Allow expansion and contraction space at the ends of long runs.
- C. Mechanical Fastening:
- 1. Use 12 gauge stainless steel fasteners designed for wood trim and siding. Fastener should have sufficient flexural and tensile strength to resist bending.
 - 2. Use fasteners with thin shanks, blunt points, and full round heads that are long enough to penetrate the substrate a minimum of 1-1/2 inches.
 - 3. Do not use staples, small brads and wire nails. Avoid using fine threaded wood screws and ring-shank fasteners.
 - 4. Use standard nail guns with a pressure setting between 70 psi and 100 psi. The recommended pressure depends on the type of gun, type of nail, ambient temperature, and the substrate. Care should be taken not to overdrive the nail into the material.
 - 5. Pre-drilling is not typically required unless large fasteners are used or the product is installed during temperatures below 40 degrees F.
 - 6. Use two fasteners for every framing member for trimboard applications. Sheet and trimboards 8 inches and wider require additional fasteners.
 - 7. Install fasteners no more than 2 inches from the end of each board.
 - 8. Avoid fastening trim over hollow or uneven areas. Fasten onto flat, solid substrates.
 - 9. Sheet and Beadboard 3/8 inch and 1/2 inch thick is not designed to be ripped and used for trim applications. These products must be glued and mechanically fastened to the substrate.
- D. Adhesives: Finishing System:
- 1. All bonded surfaces must be smooth, clean, and in complete contact with each other for best results.
 - 2. Adhere simulated wood trim to itself with PVC cement or cellular PVC adhesives to prevent joint separation.
 - 3. Scarf cut joints are recommended where applicable.
 - 4. Bonded joints should be secured with fasteners and fastened with two rows on each side of the joint.
 - 5. When bonding simulated wood trim to other substrates, consult the adhesive manufacturer to determine suitability.
- E. Cleaning:
- 1. Be sure surface to be painted is clean, dry, and free of dirt, loose or peeling paint, mildew, chalk, grease and any other surface contaminants before paint application.

2. Finish nail holes with nail hole filler or a UV resistant acrylic caulk.
 3. Use 100 percent acrylic latex or 100 percent acrylic latex with urethane additive paint with a light reflective value (LRV) equal to or greater than 55 units.
 4. Follow the paint manufacturer's application recommendations.
- F. Painting: Paint as specified in Section 09 90 00 - Painting and Coating [09 90 00] - Painting and Coating
1. Be sure surface to be painted is clean, dry, and free of dirt, loose or peeling paint, mildew, chalk, grease and any other surface contaminants before paint application.
 2. Finish nail holes with nail hole filler or a UV resistant acrylic caulk.
 3. Use 100 percent acrylic latex or 100 percent acrylic latex with urethane additive paint with a light reflective value (LRV) equal to or greater than 55 units.
 4. Follow the paint manufacturer's application recommendations.
- 3.4 PROTECTION
- A. Protect installed products until completion of project.
 - B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION