HDC

ADMINISTRATIVE APPROVALS

July 02, 2025

1.	**238 Marcy Street**	**-Recommended Approval**
2.	**101 Chapel Street**	**-Recommended Approval**
3.	**64 Mt. Vernon Street**	**-Recommended Approval**
4.	**46 Mark Street**	**-Recommended Approval**
5.	**53 Green Street**	**-Recommended Approval**
6.	**235 Marcy Street**	**-Recommended Approval**
7.	**198 Islington Street**	**-Recommended Approval**
8.	**96 State Street**	**-Recommended Approval**
9.	**279 Marcy Street, Unit #3**	**-Recommended Approval**
10.	**139 South Street**	**-Recommended Approval**
11.	**53 Pray Street**	**-Recommended Approval**
12.	**245 Marcy Street**	**-Recommended Approval**

1. 238 Marcy Street -Recommended Approval

<u>Background</u>: The applicant is seeking approval for final details on entry door trim and a change to a previously approved rear door.

<u>Staff Comment</u>: Recommended Approval

Stipulations:

1. _____
2. _____
3. _____

Portsmouth Historic District Commission
Application Submission — 238 Marcy Street
June 27, 2025

Subject: Door Pediment Change Proposal – Front and Side Facades

Dear Members of the Historic District Commission,

We respectfully submit this amended application to request approval for changes to the door pediments on both the street-side and north-side facades of our property at 238 Marcy Street. This submission is a continuation of our previously approved application (approved on June 4, 2025) to replace our exterior siding with cedar clapboards.

The following actions are requested:

1. Request approval for the removal of existing gable style door pediments on the street-side and north-side facades and replacement 1 of 3 preferred options.

Historical Context

According to the Portsmouth city insurance maps (Atheneum), our home was constructed circa 1910 in a vernacular architectural style. A historical photograph from the 1955 South End Urban Renewal Project (see below) provides documentation of the original door surrounds on the street-side façade.

1955 Photo from Marcy Street



Marcy Street Facing Door Pediment
Existing Conditions w/ Metal Cladding Removed



Action Request Context

During the June 4 2025 HDC meeting, the HDC considered a request to replace the existing pediment with a rams-profile solid cedar crown molding. This action was not approved due to concerns related to door and window alignments and overall sizing of the proposed door header.

Following this meeting, I closely examined door and window alignment patterns across the South End neighborhood, including neighboring structures within Strawbery Banke. It is very common to see facades where the doors are slightly misaligned with adjacent windows. Such occurrences were observed among 30-50% of homes depending on block and subsection of the neighborhood. In many cases, a pediment or header element has been used to visually "bridge" the difference, creating a more balanced and proportionate appearance.

Our intent is to maintain historical appropriateness while improving the proportional relationship between doors and windows. We propose that the street-side and north-side entrance door pediments match in design and scale, proportionate to the approved door trim dimensions.

Proposed Options

We are presenting three options (2 modifications & 1 no change) for the Commission's consideration:

Entrance Door Trim Dimensions (Approved)
Side Casing: W: 5/4 x 5” (4 1/4 - 4 ½) H: 80”
Top Casing: H: 5/4 x 5” (4 1/4 - 4 ½); W: 41”

Option 1 – Peaked Cap Pediment (Preferred Option):

- Door trim as previously approved.
- Peaked cap pediment proportioned to the door frame, extending above the height of the adjacent left window.
- Pediment depth not to exceed the original pediment’s depth.
- Constructed entirely from western red cedar.



Peaked Cap Pediment Dimensions:
Bottom:
Approximate Width: 40-41”
Top:
Approximate Width: 42-43” (1” overhang)
Pitch: 6/12
Approximate Projection: Not to Exceed 6”

Approximate Height
Pediment Alone 10-11”
w/ Top Casing: 17-18”
Height above Window Trim: 4-5”

Outline of Proposed Peaked Cap Pediment with Top Casing



Home Outline Scale: 1” = 14’

Option 2 – Crosshead Header (Alternative Option):

- Flat crosshead header proportioned to the door frame, also extending above the height of the adjacent window.
- Depth not to exceed the original pediment's depth.
- Constructed from red cedar.



Crosshead Header Dimensions:

Bottom:
Approximate Width: 40-41"
Approximate Projection: 1.0" (5/4")

Top:
Approximate Width: 45-46"
Approximate Projection: Not to Exceed 6"

Approximate Height: 13-14"
Height above Window Trim: 0-1"

Outline of Proposed Cross Header



Home Outline Scale: 1" = 14'

Option 3 – Restoration of Original "Mustache" Pediment:

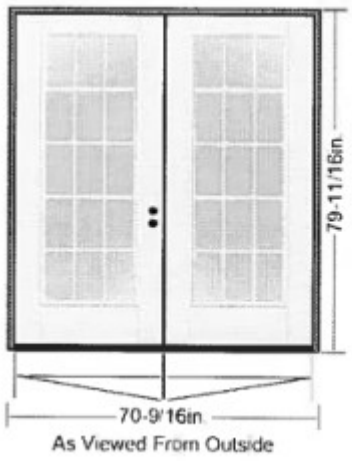
- Restoration of the original pediment design based on existing remnants and the attached 1955 historical photograph.
- Constructed from cedar.
- As this option reflects original existing conditions, we understand it may not require a Certificate of Approval, but would appreciate the Commission's review and guidance.

After careful consideration, we favor **Option 1**, which provides architectural balance while maintaining historic sensitivity. However, we remain open to the Commission's feedback, including consideration of **Option 2**, which reflects our originally submitted design.

Additional Item: Patio Door Lite Design Change

We kindly request a change to the previously approved Therma-Tru patio door from a 6-lite design to a 1-lite or 15-lite design.

Proposed Door Specifications
(Same specs as Previously Approved but as 15-lite)



- ENTRY DOOR
- 5/8X6/8
- CUTDOWN DOOR BY 1 1/2 IN.
- DOUBLE
- RH OUTSWING ACTIVE
- SMOOTH-STAR
- FULL 15LT W/STILE LINES (S108-FXG) FIXED GRILLE
- CLEAR GLASS
- COMPOSITE EDGE
- DBL BORE RAD PREP 2-3/8
- NO BORE ON SECONDARY DOOR
- 4-5/8" FINAL FRAME COMP ROTPROOF BTM JAMB
- BRONZE WEATHERSTRIP
- OUTSWING COMPOSITE SILL MILL/LIGHT CAP FINISH
- O/S KERFED BRZ
- ROT PRF BTM 5/4X4 CASING
- 2 RESIDENTIAL/4 NRP BRUSH NICKEL 1C HINGES
- WHITE ALUM. W/FBOLTS ASTRAGAL
- APPLIED CASING

We appreciate your time and consideration and respectfully request your approval of one of these proposed solutions. Attached to this application are current photographs, the 1955 historical photo, and drawings illustrating each option for your review.

Thank you for your continued guidance and support of our efforts to preserve and restore this historic property.

Sincerely,

Peter Furst
Owner, 238 Marcy Street
Portsmouth, NH

2. 101 Chapel Street -Recommended Approval

<u>Background</u>: The applicant is seeking approval for the final layout of solar panels on the Bow Street facing roof. There are (2) layout options.

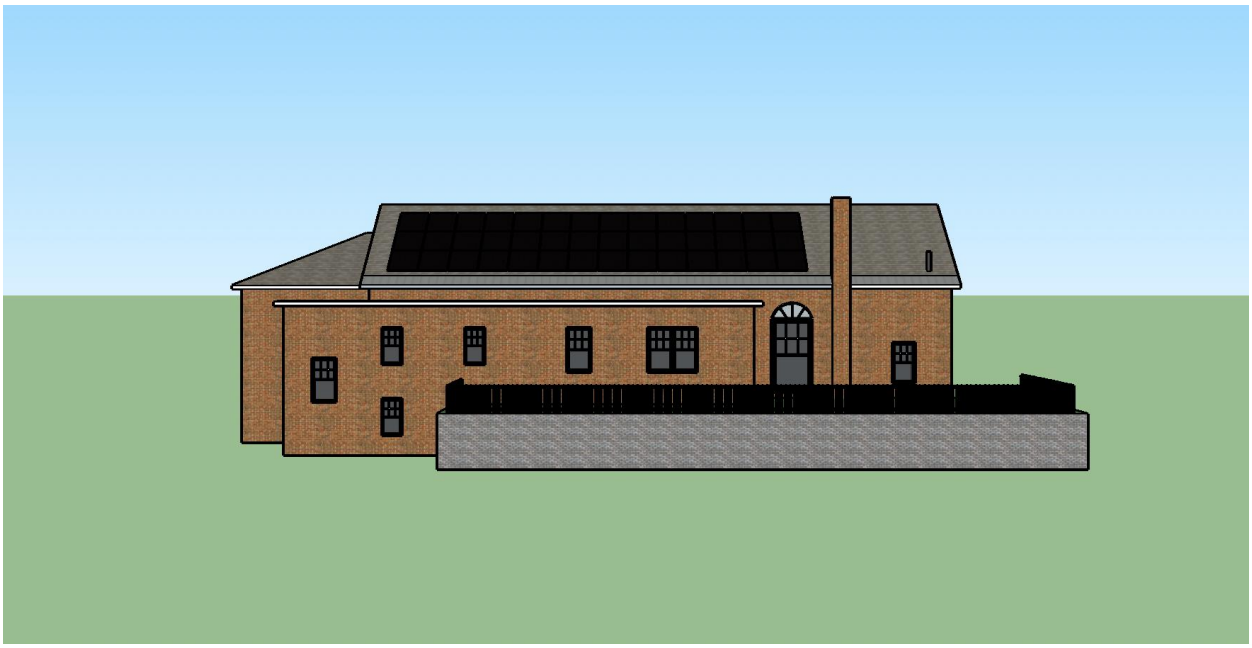
<u>Staff Comment</u>: Recommended Approval

Stipulations:

1. _____
2. _____
3. _____



Version with 54 Panels



Version with 42 Panels

SCOPE OF WORK

SYSTEM SIZE: 23.49kW DC, 17.82kW AC
MODULES: (54) HD HUNDAYI HIN-T435NF(BK) 435W
INVERTERS: (54) ENPHASE: IQ8M-72-2-US MICROINVERTERS
RACKING: IRONRIDGE AIRE RAIL A1
ATTACHMENT: IRONRIDGE AIRE DOCK, WITH L-FOOT

EXISTING SYSTEM:
SYSTEM SIZE: 22.95kW DC, 17.55kW AC
MODULES: (54) HANWHA QCELLS Q.TRON BLK M-G2+ 425W
INVERTERS: (54) ENPHASE: IQ8M-72-2-US MICROINVERTERS

ARRAY TILT:
#1 - 27°

ARRAY AZIMUTH:
#1 - 59°

ELECTRICAL INFORMATION
UTILITY COMPANY: EVERSOURCE
MAIN SERVICE AMPERAGE: 400A

BUILDING INFORMATION: TWO STORY HOUSE
APN #: PRSM106553
ROOF TYPE: COMP. SHINGLE
NUMBER OF LAYERS: 01
ROOF TRUSSES: 2"X8" @ 24" O.C.

CODE SUMMARY

THIS PROJECT SHALL COMPLY WITH THE FOLLOWING CODE
2021 NFPA 1 AS AMENDED BY SAF-FMO 300
2021 INTERNATIONAL BUILDING CODE (IBC)
2021 INTERNATIONAL RESIDENTIAL CODE (IRC)
2018 INTERNATIONAL ENERGY CONSERVATION CODE (IEC)
2021 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
2021 INTERNATIONAL MECHANICAL CODE (IMC)
2021 INTERNATIONAL PLUMBING CODE (IPC)
2020 NATIONAL ELECTRICAL CODE (NEC)
STATE FIRE CODE SAF-C 6000

SHEET INDEX

PV-0	COVER SHEET
PV-1	SITE PLAN
PV-2	ARRAY DETAIL
PV-2A	STRING LAYOUT
PV-3	ATTACHMENT DETAILS
PV-4	ELECTRICAL LINE DIAGRAM
PV-5	ELECTRICAL CALCULATION
PV-6	PLACARDS
PV-7+	MANUFACTURER SPEC SHEET

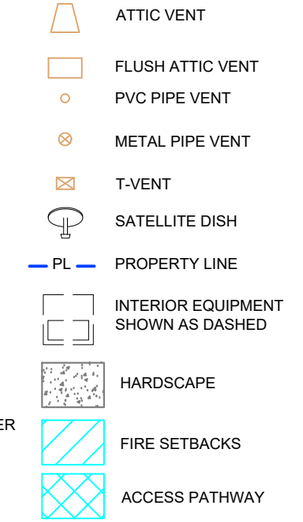
GENERAL NOTES:

- PV INSTALLATION COMPLIES WITH THE NEC 2020 ARTICLE 690.12(B)(2).
- PHOTOVOLTAIC SYSTEM IS UNGROUNDED. NO CONDUCTORS ARE SOLIDLY GROUNDED IN THE INVERTER. SYSTEM COMPLIES WITH 690.35.
- MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.
- INVERTER CONFORMS TO AND IS LISTED UNDER UL 1741.
- RACKING CONFORMS TO AND IS LISTED UNDER UL 2703.
- RAPID SHUTDOWN REQUIREMENTS MET WHEN INVERTERS AND ALL CONDUCTORS ARE WITHIN ARRAY BOUNDARIES PER NEC 690.12(1).
- CONSTRUCTION FOREMAN TO PLACE CONDUIT RUN PER 690.31(G).
- ARRAY DC CONDUCTORS ARE SIZED FOR DERATED CURRENT.
- 14.32 AMPS MODULE SHORT CIRCUIT CURRENT.
- 22.34 AMPS DERATED SHORT CIRCUIT CURRENT [690.8 (a) & 690.8 (b)].

LEGEND AND ABBREVIATIONS

UM — UTILITY METER
MP — MAIN PANEL
SP — SUB-PANEL
LC — PV LOAD CENTER
PM — DEDICATED PV METER
INV — INVERTER(S) WITH INTEGRATED DC DISCONNECT AND AFCI
AC — AC DISCONNECT(S)
DC — DC DISCONNECT(S)
AC — FUSED AC DISCONNECT
CB — COMBINER BOX
ATS — AUTOMATIC TRANSFER SWITCH
ENPHASE MICROINVERTER

SCALE: NTS



CHIMNEY
ATTIC VENT
FLUSH ATTIC VENT
PVC PIPE VENT
METAL PIPE VENT
T-VENT
SATELLITE DISH
PL — PROPERTY LINE
INTERIOR EQUIPMENT SHOWN AS DASHED
HARDSCAPE
FIRE SETBACKS
ACCESS PATHWAY

A	AMPERE
AC	ALTERNATING CURRENT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AZIM	AZIMUTH
COMP	COMPOSITION
DC	DIRECT CURRENT
(E)	EXISTING
EXT	EXTERIOR
FRM	FRAMING
INT	INTERIOR
LBW	LOAD BEARING WALL
MAG	MAGNETIC
MSP	MAIN SERVICE PANEL
(N)	NEW
NTS	NOT TO SCALE
OC	ON CENTER
PRE-FAB	PRE-FABRICATED
PSF	POUNDS PER SQUARE FOOT
PV	PHOTOVOLTAIC
TL	TRANSFORMERLESS
TYP	TYPICAL
V	VOLTS
W	WATTS

ADDITIONAL NOTE:

- EXPANSION SYSTEM. PROJECT INCLUDES SKIRT ON THE LEFT, RIGHT, AND BOTTOM OF THE ARRAY.
- THE SREC ACCOUNT IS UNDER GERALD SIMPKINS, cunstlue1214@gmail.com
- 400AMP SINGLE PHASE SERVICE.
- LOWER EDGE OF EACH ROOF HAS A METAL SECTION, STANDING SEAM.



1 AERIAL VIEW
PV-0
SCALE: NTS



2 VICINITY MAP
PV-0
SCALE: NTS

603 SOLAR
24 CHARTER ST.
EXETER, NH 03833
(603) 570-2607

REVISIONS

DESCRIPTION	DATE	REV

PROJECT NAME & ADDRESS

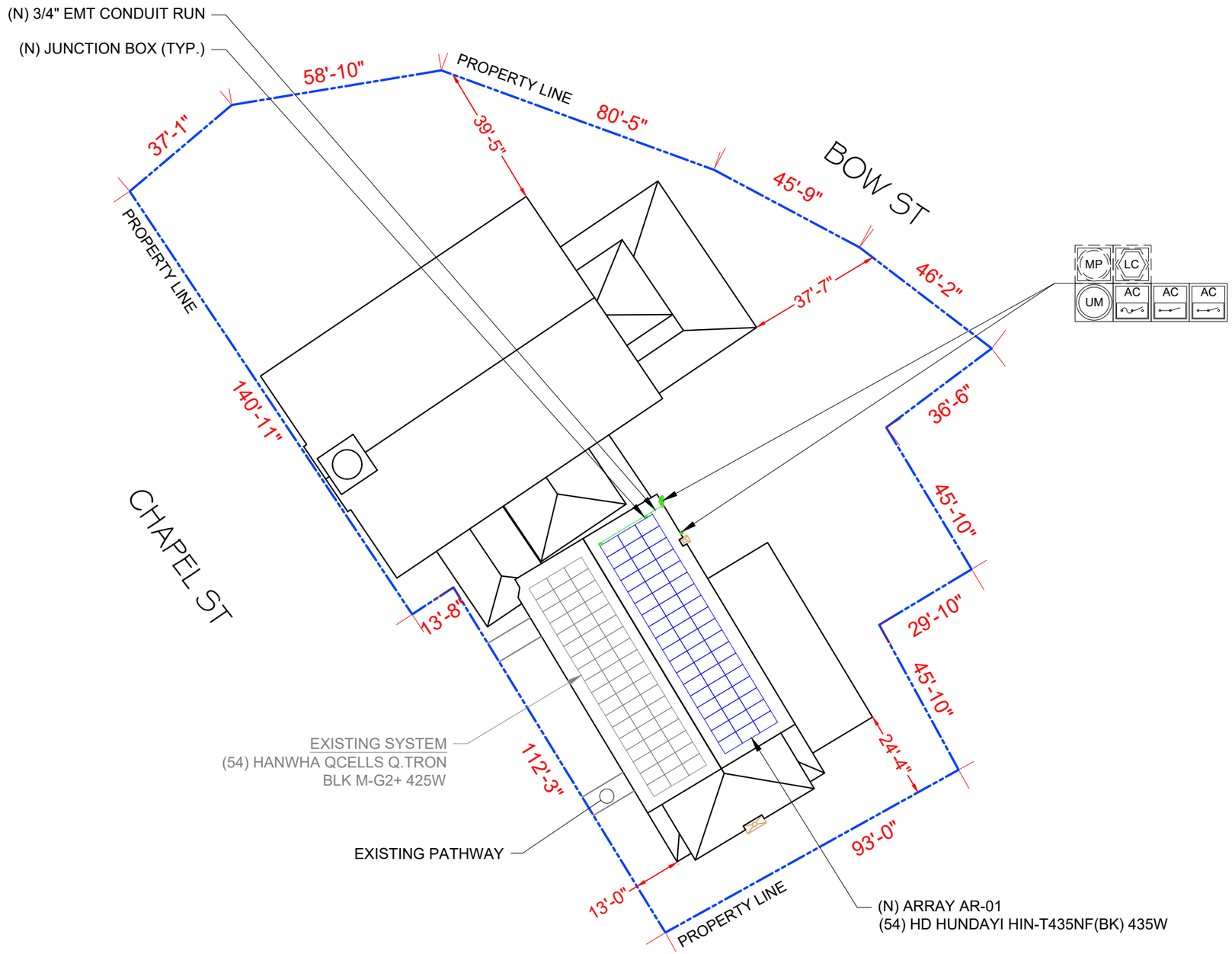
ST. JOHN'S EPISCOPAL CHURCH
100 CHAPEL ST,
PORTSMOUTH, NH 03801
PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
23.49kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
COVER SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-0



1 SITE PLAN

PV-1 SCALE: 1/32" = 1'-0"

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SALES PERSON

STEVE

SHEET NAME

SITE PLAN

SHEET SIZE

ANSI B
11" X 17"

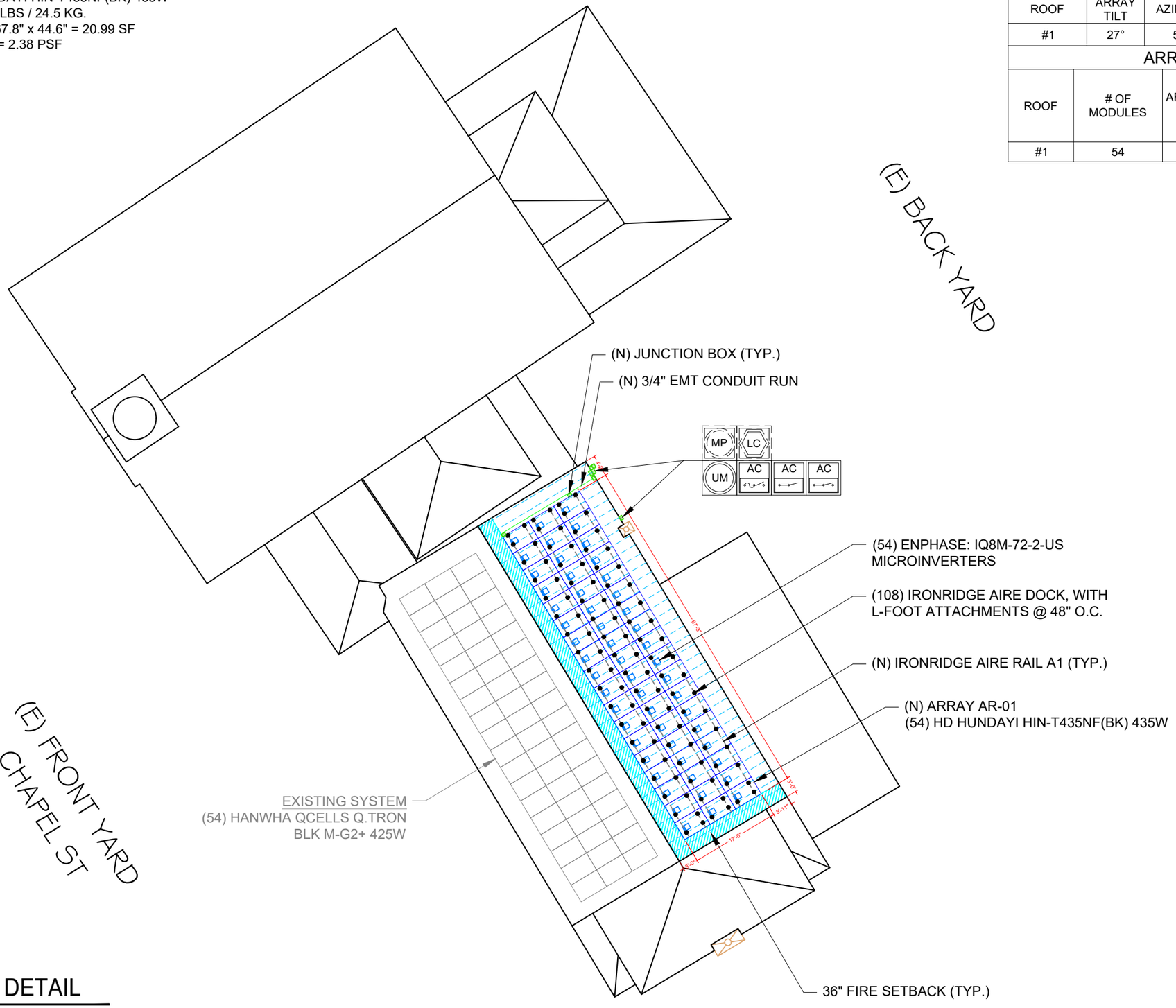
SHEET NUMBER

PV-1

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 54 MODULES
MODULE TYPE = HD HUNDAYI HIN-T435NF(BK) 435W
MODULE WEIGHT = 50.01 LBS / 24.5 KG.
MODULE DIMENSIONS = 67.8" x 44.6" = 20.99 SF
UNIT WEIGHT OF ARRAY = 2.38 PSF

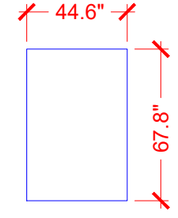




1 ARRAY DETAIL
PV-2 SCALE: 1"=20'-0"

ROOF DESCRIPTION				
ROOF TYPE			COMP. SHINGLE	
ROOF	ARRAY TILT	AZIMUTH	TRUSSES SIZE	TRUSSES SPACING
#1	27°	59°	2"X8"	24" O.C.

ARRAY AREA				
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	54	2266.92	6677.88	33.95



HD HUNDAYI
HIN-T435NF(BK)
435W

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24 CHARTER ST.
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EMAIL: reginnhny@outlook.com
23.49kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

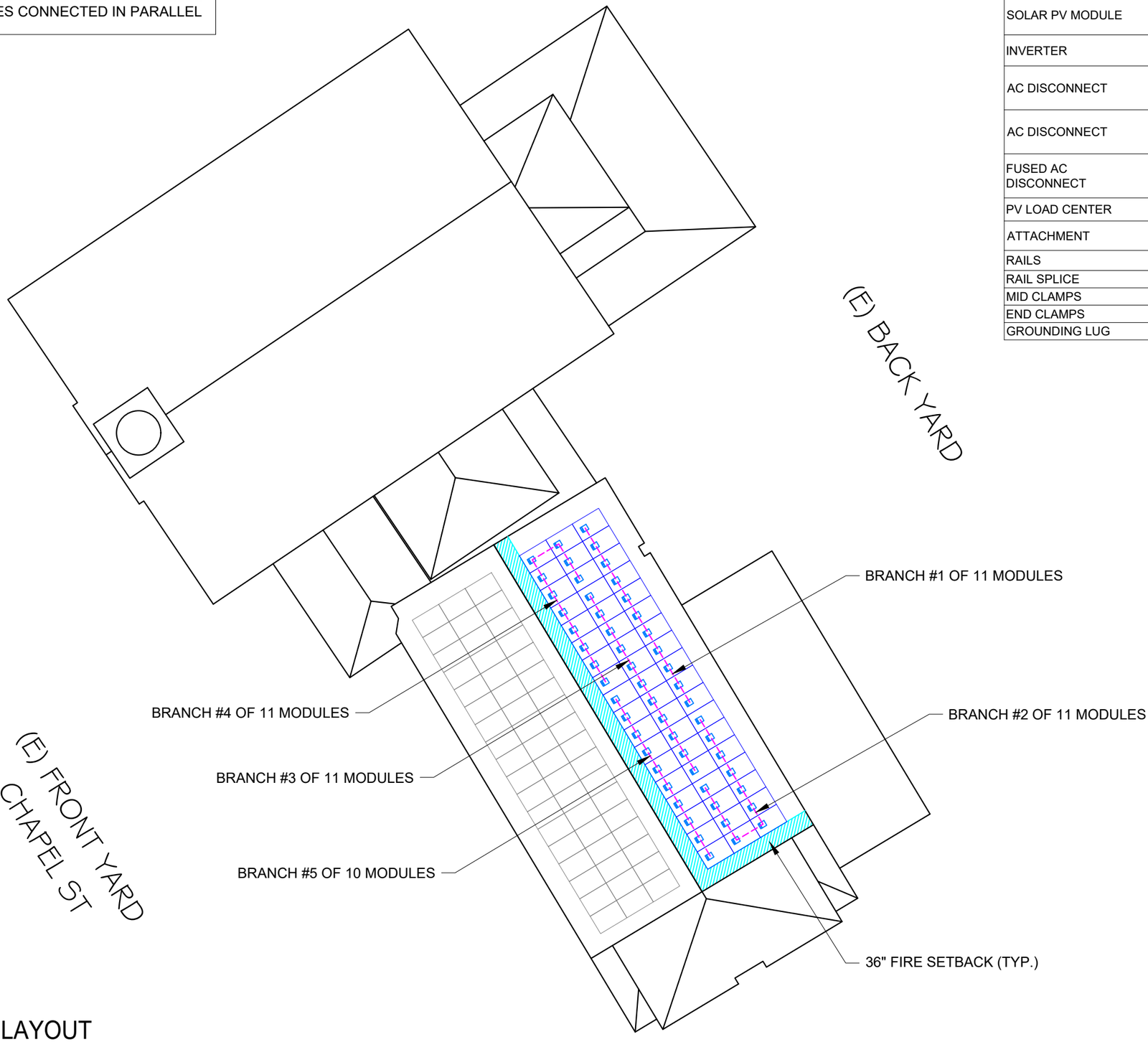
SHEET NAME
ARRAY DETAIL

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-2

(54) HD HUNDAYI HIN-T435NF(BK) 435W MODULE

(4) BRANCH OF 11 MODULES CONNECTED IN PARALLEL
(1) BRANCH OF 10 MODULES CONNECTED IN PARALLEL



1 STRING LAYOUT
PV-2A SCALE: 1"=20'-0"

BILL OF MATERIALS

EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	54	HD HUNDAYI HIN-T435NF(BK) 435W MODULES
INVERTER	54	ENPHASE: IQ8M-72-2-US MICROINVERTERS
AC DISCONNECT	1	AC DISCONNECT: 240V, 200AMP, NEMA 3R, UL LISTED LOCKABLE AND NON-FUSIBLE
AC DISCONNECT	1	AC DISCONNECT: 240V, 200AMP, LOCKABLE KNIFE HANDLE DISCONNECT
FUSED AC DISCONNECT	1	AC DISCONNECT: 240V, 200AMP, FUSED NEMA 3R, UL LISTED WITH 200A FUSES
PV LOAD CENTER	1	200A PV LOAD CENTER, 240V
ATTACHMENT	108	IRONRIDGE AIRE DOCK, WITH L-FOOT ATTACHMENTS
RAILS	30	IRONRIDGE AIRE RAIL A1 170"
RAIL SPLICE	24	SPLICE KIT
MID CLAMPS	102	MID CLAMP
END CLAMPS	12	END CLAMP
GROUNDING LUG	3	IRONRIDGE LUG

603 SOLAR

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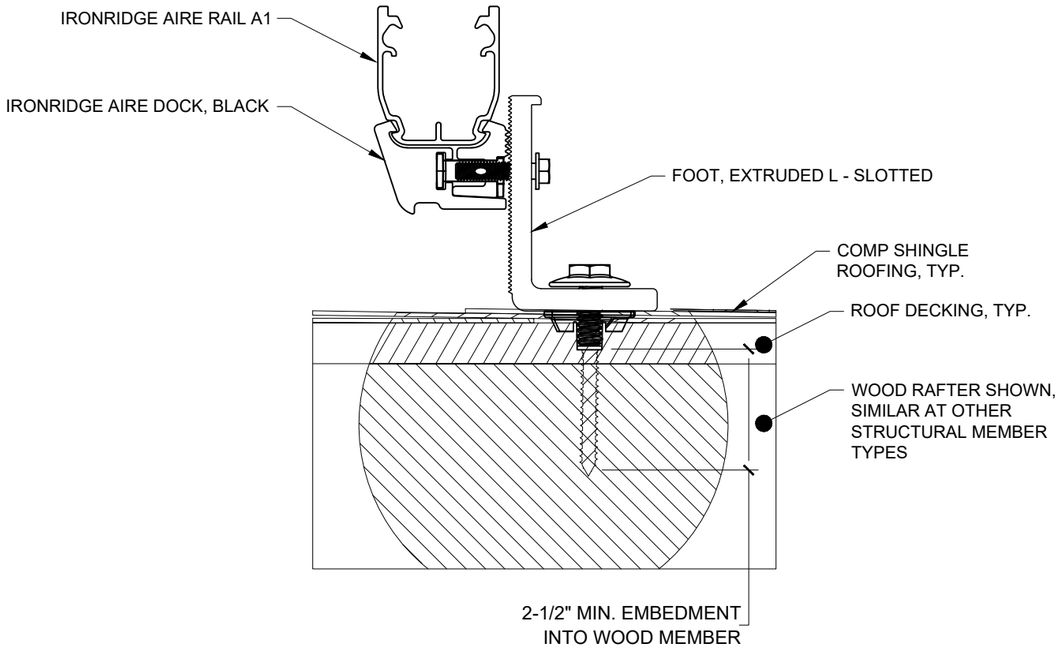
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PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
23.49kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
STRING LAYOUT

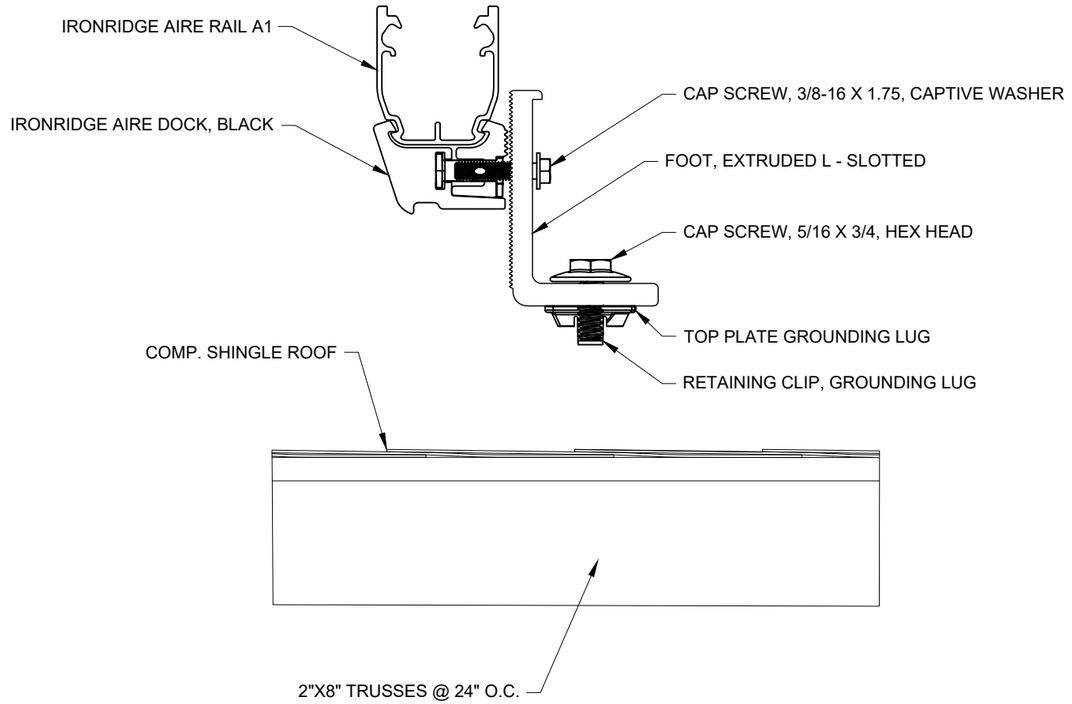
SHEET SIZE
ANSI B
11" X 17"

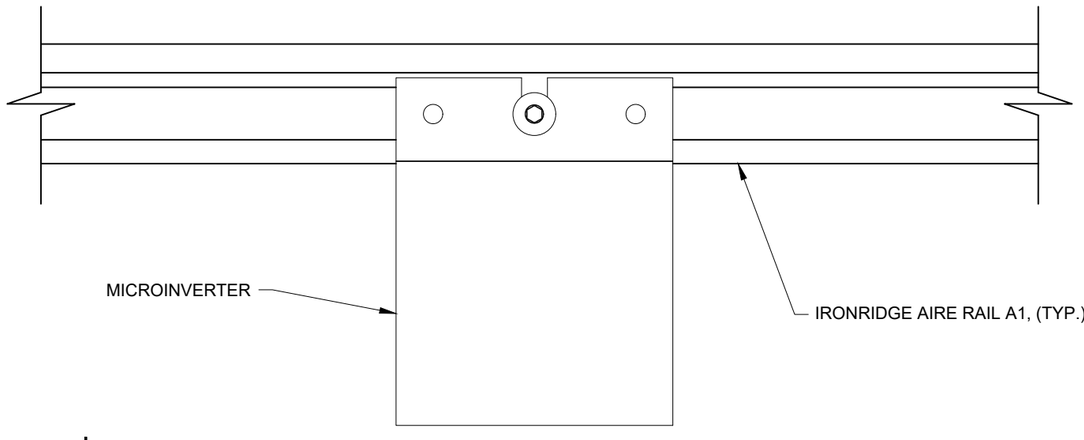
SHEET NUMBER
PV-2A



1 ATTACHMENT DETAIL

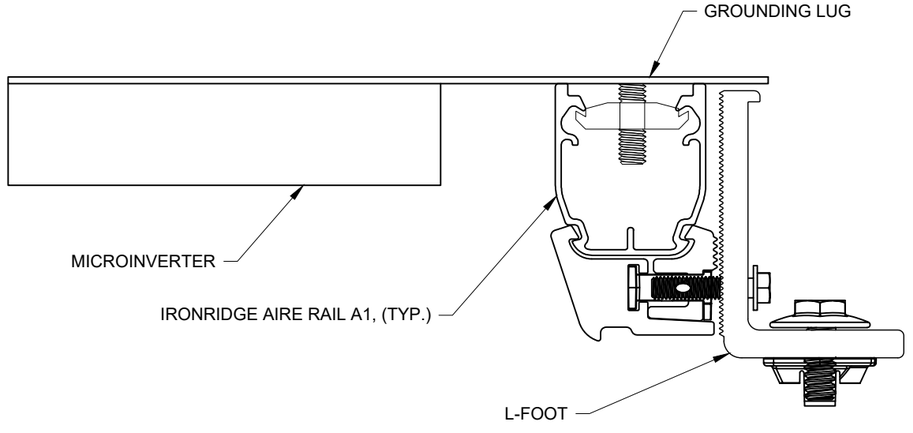
PV-3 SCALE: NTS





2 MICROINVERTER DETAIL

PV-3 SCALE: NTS



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24 CHARTER ST.
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SALES PERSON
STEVE

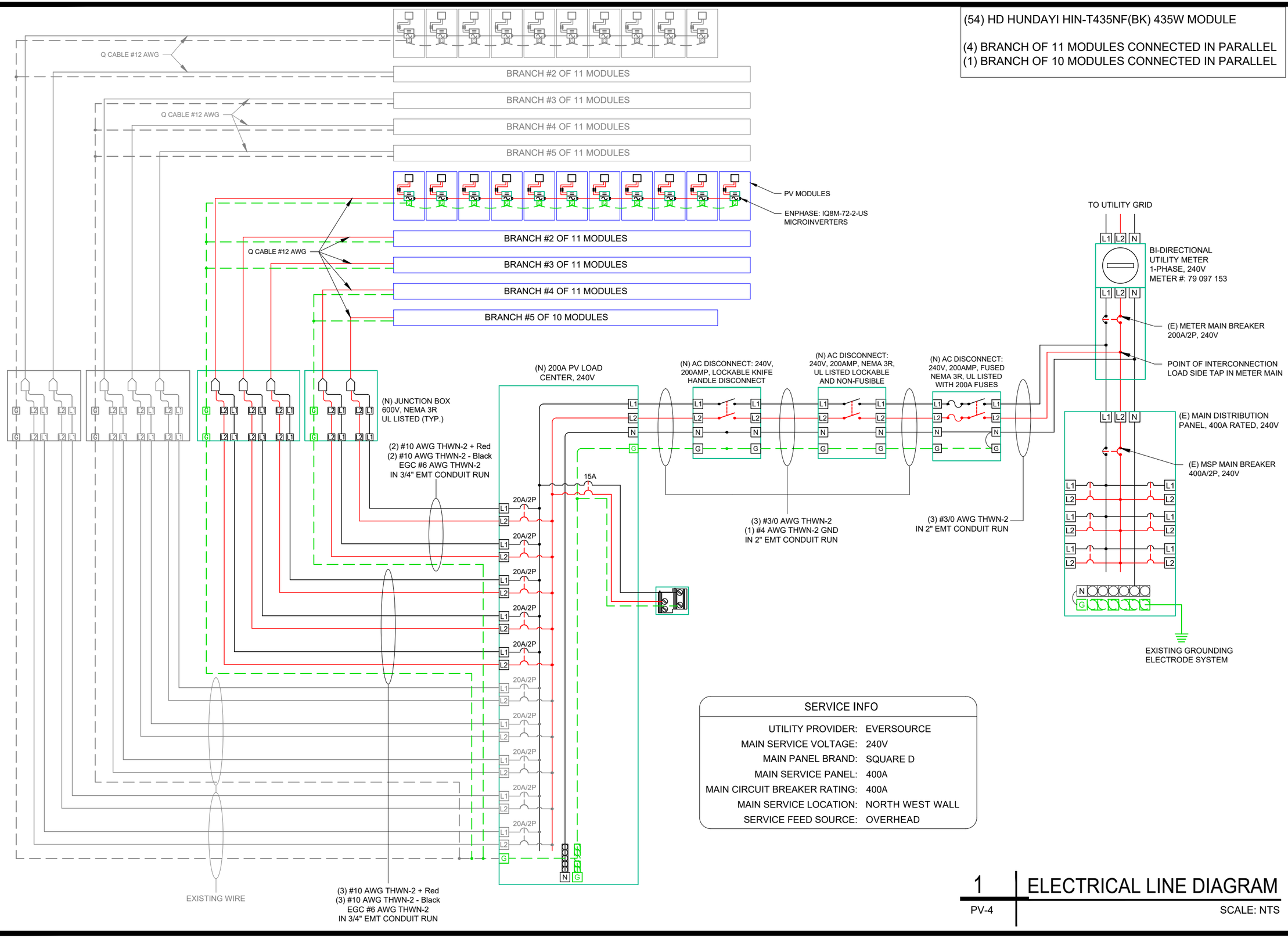
SHEET NAME
ATTACHMENT DETAILS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-3

(54) HD HUNDAYI HIN-T435NF(BK) 435W MODULE

(4) BRANCH OF 11 MODULES CONNECTED IN PARALLEL
(1) BRANCH OF 10 MODULES CONNECTED IN PARALLEL



SERVICE INFO	
UTILITY PROVIDER:	EVERSOURCE
MAIN SERVICE VOLTAGE:	240V
MAIN PANEL BRAND:	SQUARE D
MAIN SERVICE PANEL:	400A
MAIN CIRCUIT BREAKER RATING:	400A
MAIN SERVICE LOCATION:	NORTH WEST WALL
SERVICE FEED SOURCE:	OVERHEAD

1 | ELECTRICAL LINE DIAGRAM
PV-4 | SCALE: NTS

603 SOLAR

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PORTSMOUTH, NH 03801
PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
23.49kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
ELECTRICAL LINE DIAGRAM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4

AC CONDUCTOR AMPACITY CALCULATIONS:
FROM ROOF TOP JUNCTION BOX TO PV LOAD CENTER

AMBIENT TEMPERATURE ADJUSTMENT FOR EXPOSED CONDUIT
PER NEC 310.15(B)(2)(c): + 22°
EXPECTED WIRE TEMP (°C): 33° + 22°
TEMP CORRECTION PER TABLE 310.15: 0.76
#OF CURRENT CARRYING CONDUCTORS: 6
CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a): 0.80
CIRCUIT CONDUCTOR SIZE: 10 AWG
CIRCUIT CONDUCTOR AMPACITY: 40A

REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(A&B):
1.25 X MAX AC OUTPUT CURRENT X # OF INVERTERS PER STRING
BRANCH #1 TO #4 : 1.25 X 1.35 X 11 = 18.56A
BRANCH #5 : 1.25 X 1.35 X 10 = 16.84A

DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.15
TEMP CORR. PER NEC TABLE 310.15 X
CONDUIT FILL CORR. PER NEC 310.15(B)(2)(a) X
CIRCUIT CONDUCTOR AMPACITY = 0.76 X 0.80 X 40 = 24.32A

AC CONDUCTOR AMPACITY CALCULATIONS:
FROM PV LOAD CENTER TO FUSED AC DISCONNECT

EXPECTED WIRE TEMP (°C): 33°
TEMP CORRECTION PER NEC TABLE 310.15: 0.96
CIRCUIT CONDUCTOR SIZE: 3/0 AWG
CIRCUIT CONDUCTOR AMPACITY: 225A
#OF CURRENT CARRYING CONDUCTORS: 3
CONDUIT FILL PER NEC 310.15(B)(2)(a): 1
REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(B):
1.25 X OUTPUT CURRENT OF LOAD CENTER
1.25 X 1.35 X 54 = 91.13A + (E) 91.13A = 182.25A

DERATED AMPACITY OF CIRCUIT CONDUCTORS PER NEC TABLE 310.15:
TEMP CORR. PER NEC 310.15 X
CONDUIT FILL CORR. PER NEC 310.15(B)(2)(a) X
CIRCUIT CONDUCTOR AMPACITY =
0.96 X 1.00 X 225 = 216.0A

ENPHASE: IQ8M-72-2-US MICROINVERTERS		
Input Data (DC)		
	Recommended Input Power (STC)	260-460W +
	Maximum Input DC Voltage	60V
	Peak Power Tracking Voltage	16V-58V
	Operating Range	22V-58V
	Min. / Max. Start Voltage	60V
	Max DC Short Circuit Current	25A
Output Data (AC)		
	Peak Output Power	330W
	Nominal Output Current	1.35A
	Nominal Voltage / Range	240V/211-264V
	Nominal Frequency / Range	60 Hz
	Extended Frequency / Range	47-68 Hz
	Power Factor at rated power	1.0
	Maximum unit per 20A Branch Circuit	11 (240 VAC)

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
.80	4-6
.70	7-9
.50	10-20

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-21°
AMBIENT TEMP (HIGH TEMP 2%)	33°
CONDUIT HEIGHT	0.5"
ROOF TOP TEMP	55°
CONDUCTOR TEMPERATURE RATE	90°

ELECTRICAL NOTES

1. NO DC CONDUCTORS PRESENT.
2. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
3. ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.
4. WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
5. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6. WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7. ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8. MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION AND WHERE REQUIRED.
9. MODULE SUPPORT RAIL TO BE BONDED TO COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
10. THE POLARITY OF THE GROUNDED CONDUCTORS IS NEGATIVE.

603 SOLAR
SOLAR
603 SOLAR
24 CHARTER ST.
EXETER, NH 03833
(603) 570-2607

REVISIONS

DESCRIPTION	DATE	REV

PROJECT NAME & ADDRESS

ST. JOHN'S EPISCOPAL CHURCH
100 CHAPEL ST,
PORTSMOUTH, NH 03801
PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
23.49kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
ELECTRICAL CALCULATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-5

⚠ WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:
INVERTER(S), AC DISCONNECT(S), AC COMBINER PANEL (IF APPLICABLE).

⚠ WARNING

DUAL POWER SUPPLY

SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

LABEL LOCATION:
UTILITY SERVICE METER AND MAIN SERVICE PANEL.

⚠ WARNING

INVERTER OUTPUT CONNECTION

DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
ADJACENT TO PV BREAKER (IF APPLICABLE).

⚠ WARNING

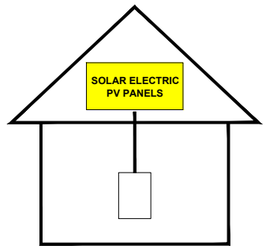
PHOTOVOLTAIC SYSTEM COMBINER PANEL

DO NOT ADD LOADS

LABEL LOCATION:
PHOTOVOLTAIC AC COMBINER (IF APPLICABLE).

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY.



LABEL LOCATION:
ON OR NO MORE THAT 1 M (3 FT) FROM THE SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED.

PHOTOVOLTAIC AC DISCONNECT
MAXIMUM AC OPERATING CURRENT: 182.25 AMPS
NOMINAL OPERATING AC VOLTAGE: 240 VAC

LABEL LOCATION:
AC DISCONNECT(S), PHOTOVOLTAIC SYSTEM POINT OF INTERCONNECTION.

DATA PER PANEL

NOMINAL OPERATING AC VOLTAGE -	240	V
NOMINAL OPERATING AC FREQUENCY-	60	Hz
MAXIMUM AC POWER-	325	VA
MAXIMUM AC CURRENT-	1.35	A
MAXIMUM OVERCURRENT DEVICE RATING FOR AC MODULE PROTECTION PER CIRCUIT-	20	A

LABEL LOCATION:
COMBINER BOX

NOTES AND SPECIFICATIONS:

- SIGNS AND LABELS SHALL MEET THE REQUIREMENTS OF THE 2020 ARTICLE 110.21(B), UNLESS SPECIFIC INSTRUCTIONS ARE REQUIRED BY SECTION 690, OR IF REQUESTED BY THE LOCAL AHJ.
- SIGNS AND LABELS SHALL ADEQUATELY WARN OF HAZARDS USING EFFECTIVE WORDS, COLORS AND SYMBOLS.
- LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HAND WRITTEN.
- LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
- SIGNS AND LABELS SHALL COMPLY WITH ANSI Z535.4-2011, PRODUCT SAFETY SIGNS AND LABELS, UNLESS OTHERWISE SPECIFIED.
- DO NOT COVER EXISTING MANUFACTURER LABELS.

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23.49kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
PLACARDS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-6

HD HYUNDAI ENERGY SOLUTIONS

HD HYUNDAI SOLAR MODULE

NF(BK) Series

Premium N-Type TOPCon Module

HiN-T430NF(BK) I HiN-T435NF(BK) I HiN-T440NF(BK)



22.53% High Efficiency

High-End TOPCon Technology

Higher Bifaciality

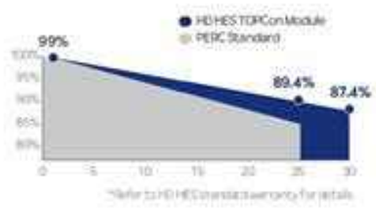
Long-Term Reliability

Compatible with Carport Applications

For Residential (Full Black Design)

HD Hyundai's Warranty Provisions

- 25 YEARS: • 25-Year Product Warranty — Materials and workmanship
- 30 YEARS: • 30-Year Performance Warranty — First year degradation: 1%. Linear warranty after initial year with 0.4%p annual degradation. 87.4% is guaranteed up to 30years



*Refer to HD HES's product warranty for details.

Certification

ISO SQ kiwa PVEL

Electrical Characteristics

HiN-TxxxNF(BK)		HiN-T430NF(BK)		HiN-T435NF(BK)		HiN-T440NF(BK)	
Item	Unit		BNPI		BNPI		BNPI
Nominal output (Pmax)	W	430	476	435	482	440	488
Open circuit voltage (Voc)	V	38.4	38.4	38.6	38.6	38.8	38.8
Short circuit current (Isc)	A	14.25	15.79	14.32	15.87	14.39	15.94
Voltage at Pmax (Vmpp)	V	31.9	31.9	32.1	32.1	32.3	32.3
Current at Pmax (Impp)	A	13.48	14.94	13.56	15.02	13.63	15.10
Module efficiency	%	22.02		22.28		22.53	
Power Class Sorting	W	0 ~ +5					
Temperature coefficient of Pmax	%/K	-0.30					
Temperature coefficient of Voc	%/K	-0.25					
Temperature coefficient of Isc	%/K	0.046					
Bifaciality	%	80%±10%					

*STC : Irradiance 1,000 W/m², cell temperature 25℃, AM=1.5 / Test uncertainty for Pmax ±3%; Voc ±3%; Isc ±3%
**The electrical properties of BNPI are measured under the irradiance corresponding to 1000 W/m² on the module front and 135 W/m² on the module rear.

Additional Power Gain from rear side					
Pmpp gain	Pmpp[W]	Vmpp[V]	Impp[A]	Voc[V]	Isc[A]
5%	458	32.30	14.18	38.80	14.97
15%	493	32.30	15.27	38.80	16.12
25%	528	32.40	16.36	38.90	17.27

*Electrical characteristics with different rear power gain (reference to 440W)

Mechanical Characteristics

Dimensions	1,722mm (L) x 1,134mm (W) x 30mm (H) (67.8in x 44.6in x 1.2in)
Weight	24.5 kg (50.01lbs)
Solar Cells	N-Type TOPCon, 108 (6x18) monocrystalline 16BB half-cut bifacial cells
Output Cables	Cable : (+)1,200mm(47.2in), (-)1,200mm(47.2in) / Customized length available Connector : Stäubli MC4 genuine Connector / Compatible, IP68
Junction Box	3-part, 3 bypass diodes, IP68 rated
Construction	Front : 2.0mm(0.08in) semi-tempered solar glass with high transmittance and anti-reflective coating Rear : 2.0mm(0.08in) semi-tempered solar glass
Frame	Anodized aluminum alloy

Installation Safety Guide

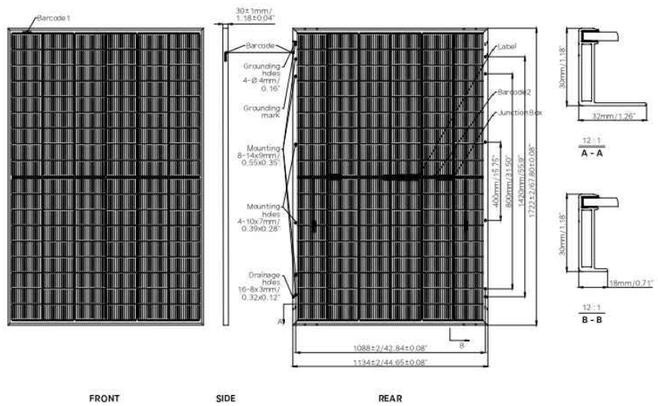
- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not handle or install modules when they are wet.

Nominal Module Operation Temperature	44℃ ± 2℃
Operating Temperature	-40℃~+85℃
Maximum System Voltage	DC 1,500 V
Maximum Reverse Current	30A
Maximum Test Load *See Installation Manual	Front 5,400Pa *Rear 5,400Pa
Fire Performance	Type 29

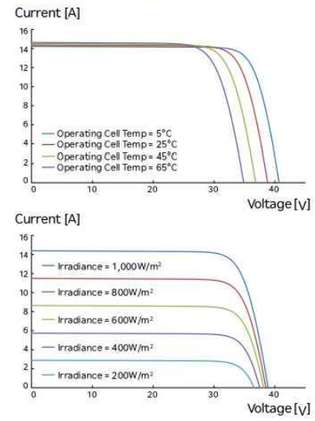
Shipping Configurations

Packing Direction	Vertical	Packing pallet weight (kg)	912
Container Size (HC)	40'	Modules Per Pallet (pcs)	36
Pallets Per Container	22	Modules Per Container (pcs)	792

Module Diagram (unit : mm)



I-V Curves (HiN-T440NF(BK))



Sales & Marketing
hes.sales@hd.com

HD Hyundai Energy Solutions reserves the right to update or modify the specifications and features listed in this datasheet without prior notice. Always check the latest version of the datasheet for accurate information. Before using the product, please refer to the Installation and Operation Manual and Warranty. We retain the right of final interpretation.

HD HYUNDAI ENERGY SOLUTIONS

603 SOLAR

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SALES PERSON
STEVE

SHEET NAME
DATA SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-7

ENPHASE

DATA SHEET



IQ8M and IQ8A Microinverters

Our newest IQ8 Microinverters are the industry's first microgrid-forming, software defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the IQ Battery, IQ Gateway, and the Enphase App monitoring and analysis software.

Enphase 25 year limited warranty

IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.

UL CERTIFIED SAFETY

IQ8 Series Microinverters are UL listed as PV Rapid Shutdown Equipment and conform with various regulations, when installed according to manufacturer's instructions.

*Only when installed with IQ System Controller 2, meets UL 1741.
**IQ8M and IQ8A support split-phase, 240V installations only.

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Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down*
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support**
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) and IEEE 1547:2018 (UL 1741-SB 3rd Ed.)

Note:

IQ8 Microinverters cannot be mixed together with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, etc) in the same system.

IQ8M and IQ8A Microinverters

INPUT DATA (DC)		IQ8M-72-2-US	IQ8A-72-2-US
Commonly used module pairings[1]	W	260 – 460	295 – 500
Module compatibility		54-cell / 108 half-cell, 60-cell / 120 half-cell, 66-cell / 132 half-cell and 72-cell / 144 half-cell	
MPPT voltage range	V	30 – 45	32 – 45
Operating range	V	16 – 58	
Min. / Max. start voltage	V	22 / 58	
Max. input DC voltage	V	60	
Max. continuous input DC current	A	12	
Max. input DC short-circuit current	A	25	
Max. module I_{sc}	A	20	
Overvoltage class DC port		II	
DC port backfeed current	mA	0	
PV array configuration		1 x 1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	
OUTPUT DATA (AC)		**IQ8M-72-2-US**	**IQ8A-72-2-US**
Peak output power	VA	330	366
Max. continuous output power	VA	325	349
Nominal (L-L) voltage / range[2]	V	240 / 211 – 264	
Max. continuous output current	A	1.35	1.45
Nominal frequency	Hz	60	
Extended frequency range	Hz	47 – 68	
AC short circuit fault current over 3 cycles	Arms	2	
Max. units per 20 A (L-L) branch circuit[3]		11	
Total harmonic distortion		<5%	
Overvoltage class AC port		III	
AC port backfeed current	mA	30	
Power factor setting		1.0	
Grid-tied power factor (adjustable)		0.85 leading – 0.85 lagging	
Peak efficiency	%	97.8	97.7
CEC weighted efficiency	%	97.5	97
Night-time power consumption	mW	60	
MECHANICAL DATA			
Ambient temperature range		-40°C to +60°C (-40°F to +140°F)	
Relative humidity range		4% to 100% (condensing)	
DC Connector type		MC4	
Dimensions (H x W x D)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")	
Weight		1.08 kg (2.38 lbs)	
Cooling		Natural convection – no fans	
Approved for wet locations		Yes	
Pollution degree		PD3	
Enclosure		Class II double-insulated, corrosion resistant polymeric enclosure	
Environ. category / UV exposure rating		NEMA Type 6 / outdoor	
COMPLIANCE			
Certifications		CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB 3rd Ed.), FCC Part 15 Class B, ICES-0003 Class B, CAN / CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shutdown Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.	

(1) Pairing PV modules with wattage above the limit may result in additional clipping losses. See the compatibility calculator at https://link.enphase.com/module-compatibility. (2) Nominal voltage range can be extended beyond nominal if required by the utility.
(3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8MA-12A-DS-0069-03-EN-US-2022-12-27

603 SOLAR
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REVISIONS

DESCRIPTION	DATE	REV

PROJECT NAME & ADDRESS

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100 CHAPEL ST,
PORTSMOUTH, NH 03801
PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
23.49kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
DATA SHEET

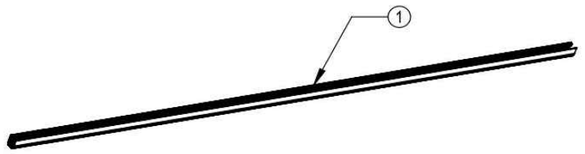
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-8

Cut Sheet

IRONRIDGE

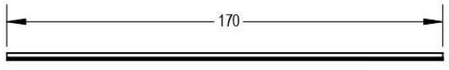
AIRE RAIL A1

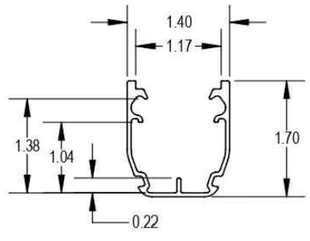


ITEM NO	DESCRIPTION	QTY IN KIT
1	Aire Rail, A1, Black(or Clear), 170	1

Part Number	Description
AE-A1-170B	AIRE RAIL, A1, BLACK, 170
AE-A1-170M	AIRE RAIL, A1, MILL, 170

1) Aire A1





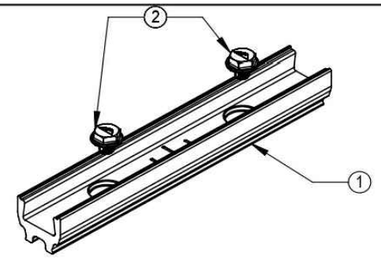
Part Number	Material	Value
AE-A1-170B	6000-Series Aluminum	Black
AE-A1-170M	6000-Series Aluminum	Clear

v1.0

Cut Sheet

IRONRIDGE

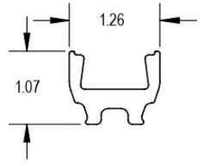
AIRE TIE, A1

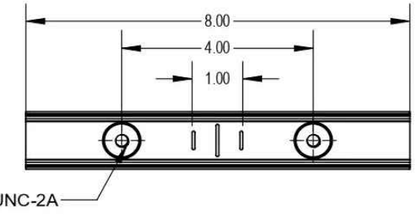


ITEM NO	DESCRIPTION	QTY IN KIT
1	Aire Tie, A1	1
2	Aire Splc Bolt, Hex	2

Part Number	Description
AE-A1TIE-01-M1	AIRE TIE, A1 (BONDED SPLICE)

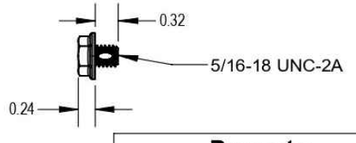
1) Aire Tie, A1

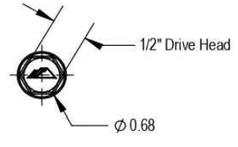




Property	Value
Material	6000 Series Aluminum
Finish	Mill

2) Aire Splc Bolt, Hex





Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.0

603 SOLAR

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SALES PERSON

STEVE

SHEET NAME

DATA SHEET

SHEET SIZE

ANSI B
11" X 17"

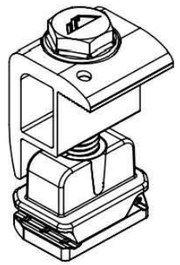
SHEET NUMBER

PV-9

Cut Sheet

IRONRIDGE

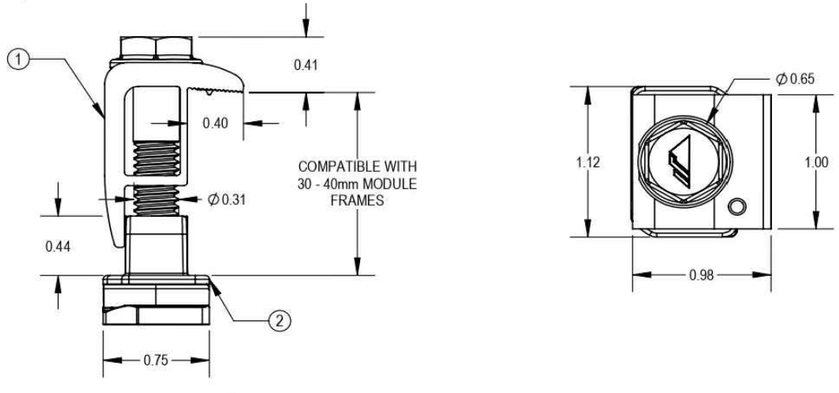
AIRE LOCK END



ITEM NO	DESCRIPTION	QTY IN KIT
1	Aire Lock End, Black	1

Part Number	Description
AE-END-01-B1	AIRE LOCK END, BLACK

1) Aire Lock End



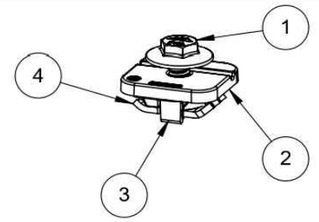
Item No	Material	Value
1	300 Series Stainless Steel	Clear and Black
2	Polypropelene	Black

v1.0

Cut Sheet

IRONRIDGE

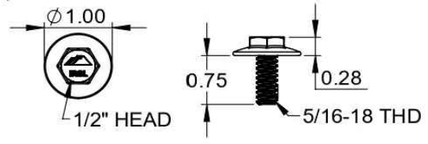
AIRE LUG



ITEM NO.	DESCRIPTION	QTY IN KIT
1	CAP SCREW, 5/16 X 3/4, HEX HEAD	1
2	TOP PLATE GROUNDING LUG	1
3	RETAINING CLIP, GROUNDING LUG	1
4	T-NUT, SHEET METAL	1

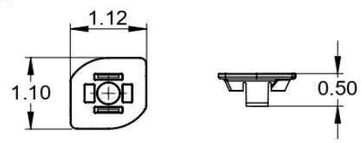
PART NUMBER	DESCRIPTION	WIRE SIZE RANGE (AWG)
AE-LUG-01-M1	AIRE LUG	6-10

1) CAP SCREW, 5/16 X 3/4



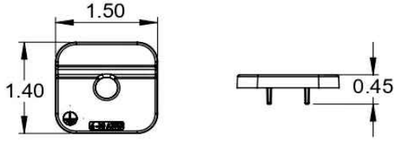
Property	Value
Material	300 Series Stainless Steel
Finish	Clear

3) RETAINING CLIP



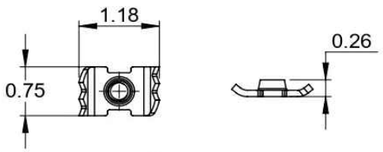
Property	Value
Material	Polypropylene
Finish	Black

2) TOP PLATE



Property	Value
Material	Tin Plated Aluminum
Finish	Clear Matte

4) T-NUT, SHEET METAL



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.0

603 SOLAR

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ANSI B
11" X 17"

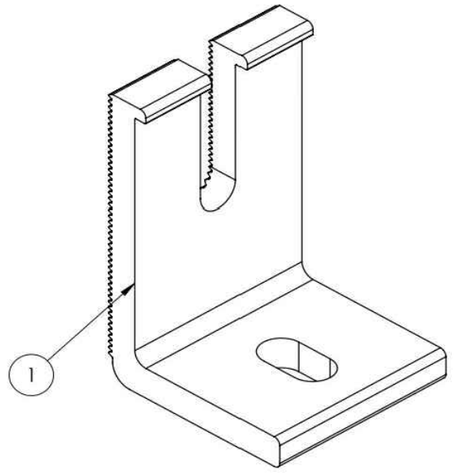
SHEET NUMBER

PV-10

Cut Sheet

IRONRIDGE

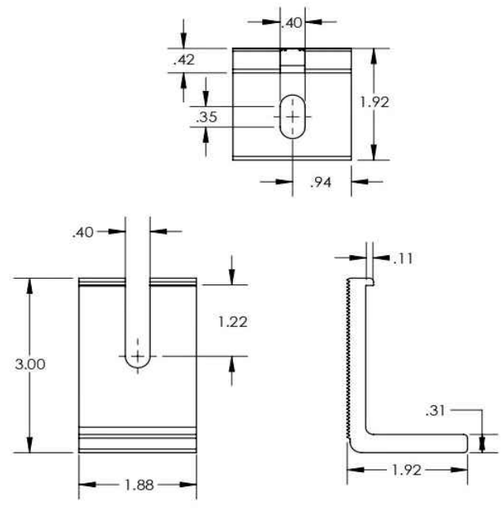
L-Foot



ITEM NO	DESCRIPTION	QTY IN KIT
1	FOOT, EXTRUDED L - SLOTTED	4

PART NUMBER	DESCRIPTION
FM-LFT-003	Kit, 4Pcs, Slotted L-Foot, Mill
FM-LFT-003-B	Kit, 4Pcs, Slotted L-Foot, Black

1) Foot, Extruded L - Slotted



v1.11

603 SOLAR

603 SOLAR

24 CHARTER ST.
EXETER, NH 03833
(603) 570-2607

REVISIONS

DESCRIPTION	DATE	REV

PROJECT NAME & ADDRESS

ST. JOHN'S EPISCOPAL CHURCH
100 CHAPEL ST,
PORTSMOUTH, NH 03801
PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
23.49kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON

STEVE

SHEET NAME

DATA SHEET

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-11

SCOPE OF WORK

SYSTEM SIZE: 18.27kW DC, 13.86kW AC
MODULES: (42) HD HUNDAYI HIN-T435NF(BK) 435W
INVERTERS: (42) ENPHASE: IQ8M-72-2-US MICROINVERTERS
RACKING: IRONRIDGE AIRE RAIL A1
ATTACHMENT: IRONRIDGE AIRE DOCK, WITH L-FOOT

EXISTING SYSTEM:
SYSTEM SIZE: 22.95kW DC, 17.55kW AC
MODULES: (54) HANWHA QCELLS Q.TRON BLK M-G2+ 425W
INVERTERS: (54) ENPHASE: IQ8M-72-2-US MICROINVERTERS

ARRAY TILT:
#1 - 27°

ARRAY AZIMUTH:
#1 - 59°

ELECTRICAL INFORMATION
UTILITY COMPANY: EVERSOURCE
MAIN SERVICE AMPERAGE: 400A

BUILDING INFORMATION: TWO STORY HOUSE
APN #: PRSM106553
ROOF TYPE: COMP. SHINGLE
NUMBER OF LAYERS: 01
ROOF TRUSSES: 2"X8" @ 24" O.C.

CODE SUMMARY

THIS PROJECT SHALL COMPLY WITH THE FOLLOWING CODE
2021 NFPA 1 AS AMENDED BY SAF-FMO 300
2021 INTERNATIONAL BUILDING CODE (IBC)
2021 INTERNATIONAL RESIDENTIAL CODE (IRC)
2018 INTERNATIONAL ENERGY CONSERVATION CODE (IEC)
2021 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
2021 INTERNATIONAL MECHANICAL CODE (IMC)
2021 INTERNATIONAL PLUMBING CODE (IPC)
2020 NATIONAL ELECTRICAL CODE (NEC)
STATE FIRE CODE SAF-C 6000

SHEET INDEX

PV-0	COVER SHEET
PV-1	SITE PLAN
PV-2	ARRAY DETAIL
PV-2A	STRING LAYOUT
PV-3	ATTACHMENT DETAILS
PV-4	ELECTRICAL LINE DIAGRAM
PV-5	ELECTRICAL CALCULATION
PV-6	PLACARDS
PV-7+	MANUFACTURER SPEC SHEET

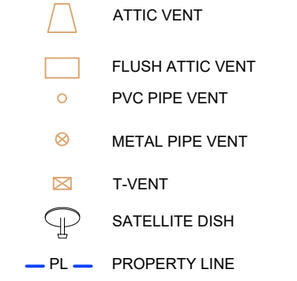
GENERAL NOTES:

- PV INSTALLATION COMPLIES WITH THE NEC 2020 ARTICLE 690.12(B)(2).
- PHOTOVOLTAIC SYSTEM IS UNGROUNDED. NO CONDUCTORS ARE SOLIDLY GROUNDED IN THE INVERTER. SYSTEM COMPLIES WITH 690.35.
- MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.
- INVERTER CONFORMS TO AND IS LISTED UNDER UL 1741.
- RACKING CONFORMS TO AND IS LISTED UNDER UL 2703.
- RAPID SHUTDOWN REQUIREMENTS MET WHEN INVERTERS AND ALL CONDUCTORS ARE WITHIN ARRAY BOUNDARIES PER NEC 690.12(1).
- CONSTRUCTION FOREMAN TO PLACE CONDUIT RUN PER 690.31(G).
- ARRAY DC CONDUCTORS ARE SIZED FOR DERATED CURRENT.
- 14.32 AMPS MODULE SHORT CIRCUIT CURRENT.
- 22.34 AMPS DERATED SHORT CIRCUIT CURRENT [690.8 (a) & 690.8 (b)].

LEGEND AND ABBREVIATIONS

UM — UTILITY METER
MP — MAIN PANEL
SP — SUB-PANEL
LC — PV LOAD CENTER
PM — DEDICATED PV METER
INV — INVERTER(S) WITH INTEGRATED DC DISCONNECT AND AFCI
AC — AC DISCONNECT(S)
DC — DC DISCONNECT(S)
AC — FUSED AC DISCONNECT
CB — COMBINER BOX
ATS — AUTOMATIC TRANSFER SWITCH
ENPHASE MICROINVERTER

SCALE: NTS



CHIMNEY
ATTIC VENT
FLUSH ATTIC VENT
PVC PIPE VENT
METAL PIPE VENT
T-VENT
SATELLITE DISH
PL — PROPERTY LINE
INTERIOR EQUIPMENT SHOWN AS DASHED
HARDSCAPE
FIRE SETBACKS
ACCESS PATHWAY

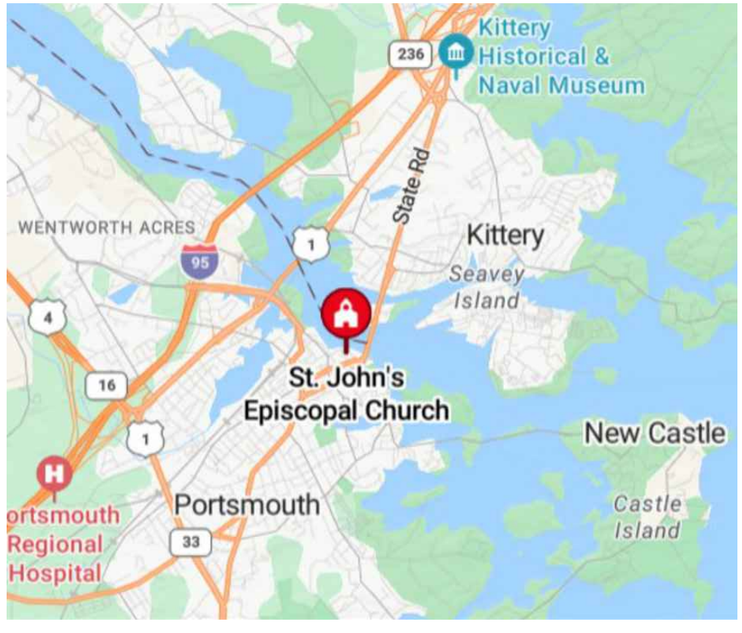
A	AMPERE
AC	ALTERNATING CURRENT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AZIM	AZIMUTH
COMP	COMPOSITION
DC	DIRECT CURRENT
(E)	EXISTING
EXT	EXTERIOR
FRM	FRAMING
INT	INTERIOR
LBW	LOAD BEARING WALL
MAG	MAGNETIC
MSP	MAIN SERVICE PANEL
(N)	NEW
NTS	NOT TO SCALE
OC	ON CENTER
PRE-FAB	PRE-FABRICATED
PSF	POUNDS PER SQUARE FOOT
PV	PHOTOVOLTAIC
TL	TRANSFORMERLESS
TYP	TYPICAL
V	VOLTS
W	WATTS

ADDITIONAL NOTE:

- EXPANSION SYSTEM. PROJECT INCLUDES SKIRT ON THE LEFT, RIGHT, AND BOTTOM OF THE ARRAY.
- THE SREC ACCOUNT IS UNDER GERALD SIMPKINS, cunstlue1214@gmail.com
- 400AMP SINGLE PHASE SERVICE.
- LOWER EDGE OF EACH ROOF HAS A METAL SECTION, STANDING SEAM.



1 AERIAL VIEW
PV-0
SCALE: NTS



2 VICINITY MAP
PV-0
SCALE: NTS

603 SOLAR
24 CHARTER ST.
EXETER, NH 03833
(603) 570-2607

REVISIONS

DESCRIPTION	DATE	REV

PROJECT NAME & ADDRESS

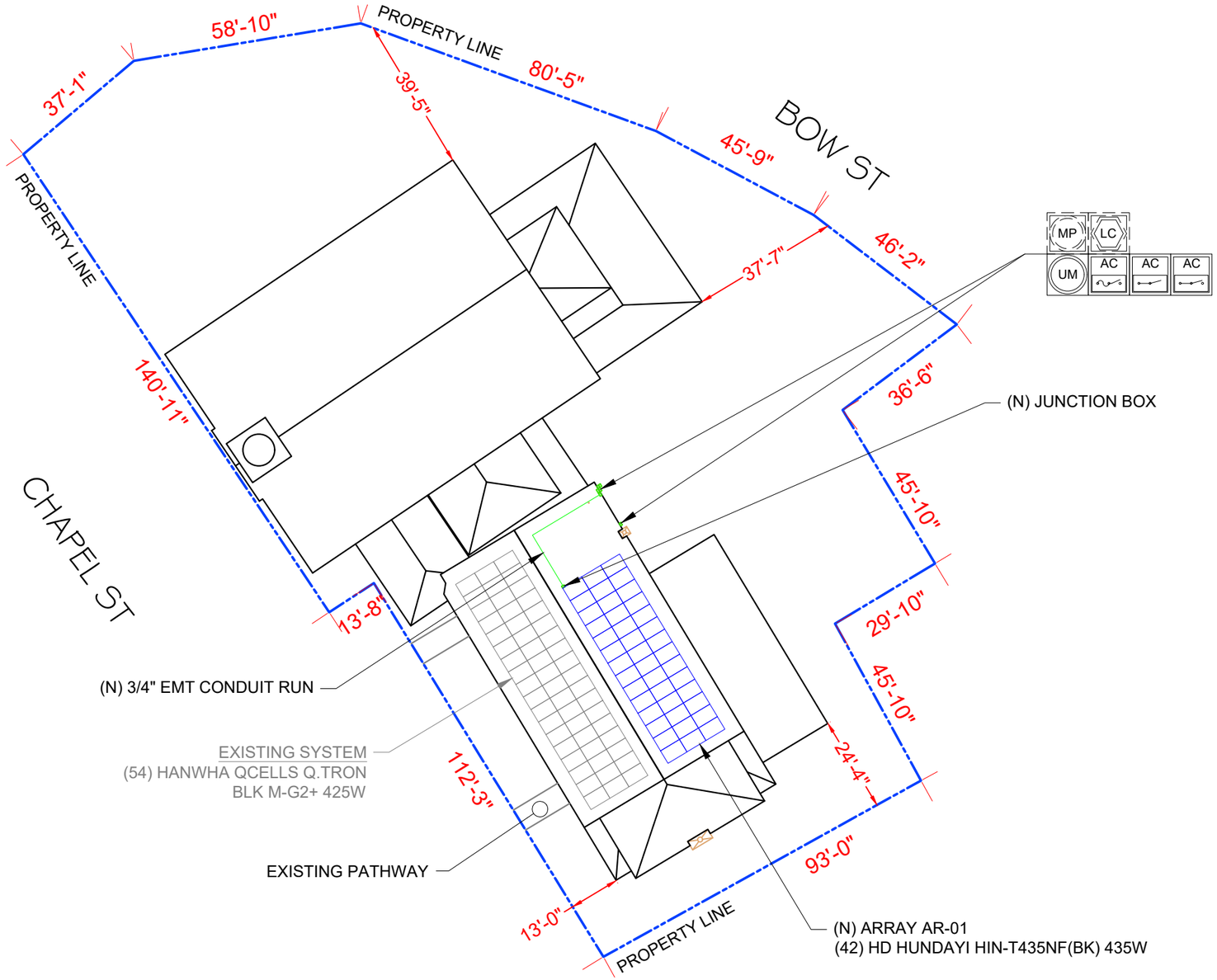
ST. JOHN'S EPISCOPAL CHURCH
100 CHAPEL ST,
PORTSMOUTH, NH 03801
PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
18.27kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
COVER SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-0



1 SITE PLAN

PV-1 SCALE: 1/32" = 1'-0"

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SALES PERSON

STEVE

SHEET NAME

SITE PLAN

SHEET SIZE

ANSI B
11" X 17"

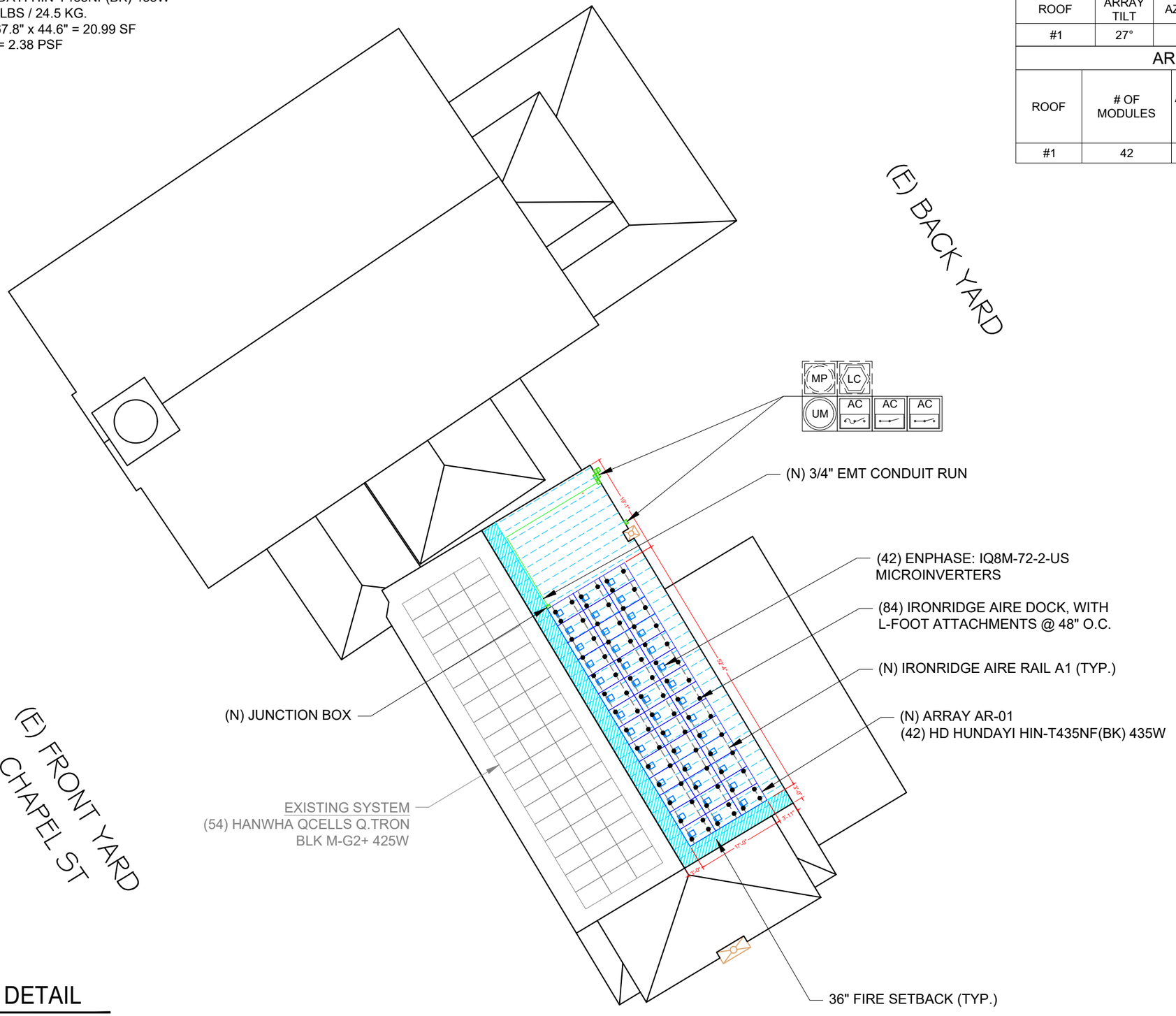
SHEET NUMBER

PV-1

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 42 MODULES
MODULE TYPE = HD HUNDAYI HIN-T435NF(BK) 435W
MODULE WEIGHT = 50.01 LBS / 24.5 KG.
MODULE DIMENSIONS = 67.8" x 44.6" = 20.99 SF
UNIT WEIGHT OF ARRAY = 2.38 PSF





1 ARRAY DETAIL

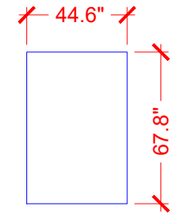
PV-2 SCALE: 1"=20'-0"

ROOF DESCRIPTION

ROOF TYPE			COMP. SHINGLE	
ROOF	ARRAY TILT	AZIMUTH	TRUSSES SIZE	TRUSSES SPACING
#1	27°	59°	2"X8"	24" O.C.

ARRAY AREA

ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	42	2015.04	6677.88	30.17



HD HUNDAYI
HIN-T435NF(BK)
435W

603 SOLAR

603 SOLAR
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EXETER, NH 03833
(603) 570-2607

REVISIONS

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PORTSMOUTH, NH 03801
PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
18.27kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

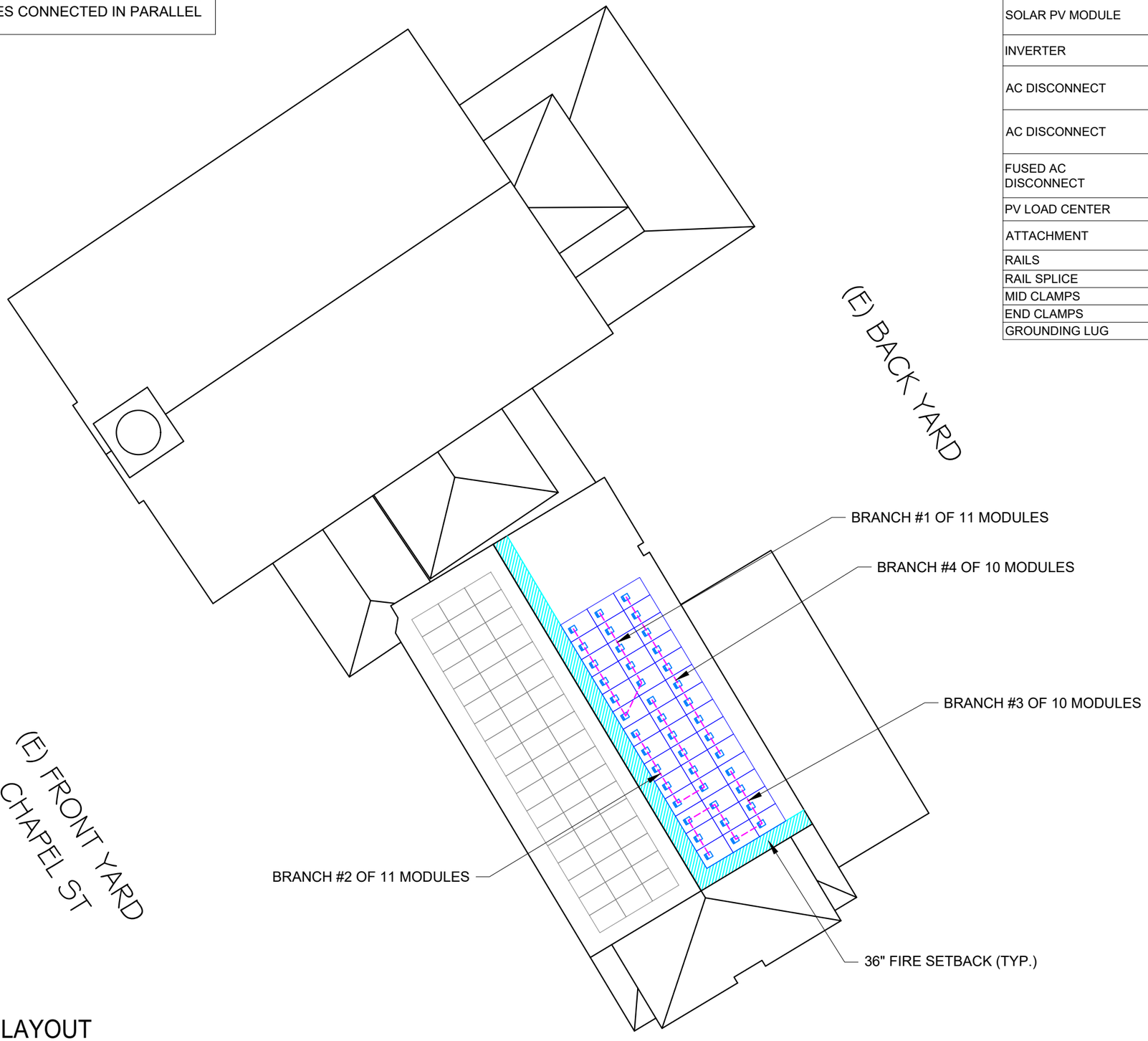
SHEET NAME
ARRAY DETAIL

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-2

(42) HD HUNDAYI HIN-T435NF(BK) 435W MODULE

(2) BRANCH OF 11 MODULES CONNECTED IN PARALLEL
(2) BRANCH OF 10 MODULES CONNECTED IN PARALLEL



1 STRING LAYOUT
PV-2A SCALE: 1"=20'-0"

BILL OF MATERIALS

EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	42	HD HUNDAYI HIN-T435NF(BK) 435W MODULES
INVERTER	42	ENPHASE: IQ8M-72-2-US MICROINVERTERS
AC DISCONNECT	1	AC DISCONNECT: 240V, 200AMP, NEMA 3R, UL LISTED LOCKABLE AND NON-FUSIBLE
AC DISCONNECT	1	AC DISCONNECT: 240V, 200AMP, LOCKABLE KNIFE HANDLE DISCONNECT
FUSED AC DISCONNECT	1	AC DISCONNECT: 240V, 200AMP, FUSED NEMA 3R, UL LISTED WITH 175A FUSES
PV LOAD CENTER	1	200A PV LOAD CENTER, 240V
ATTACHMENT	84	IRONRIDGE AIRE DOCK, WITH L-FOOT ATTACHMENTS
RAILS	24	IRONRIDGE AIRE RAIL A1 170"
RAIL SPLICE	18	SPLICE KIT
MID CLAMPS	78	MID CLAMP
END CLAMPS	12	END CLAMP
GROUNDING LUG	3	IRONRIDGE LUG

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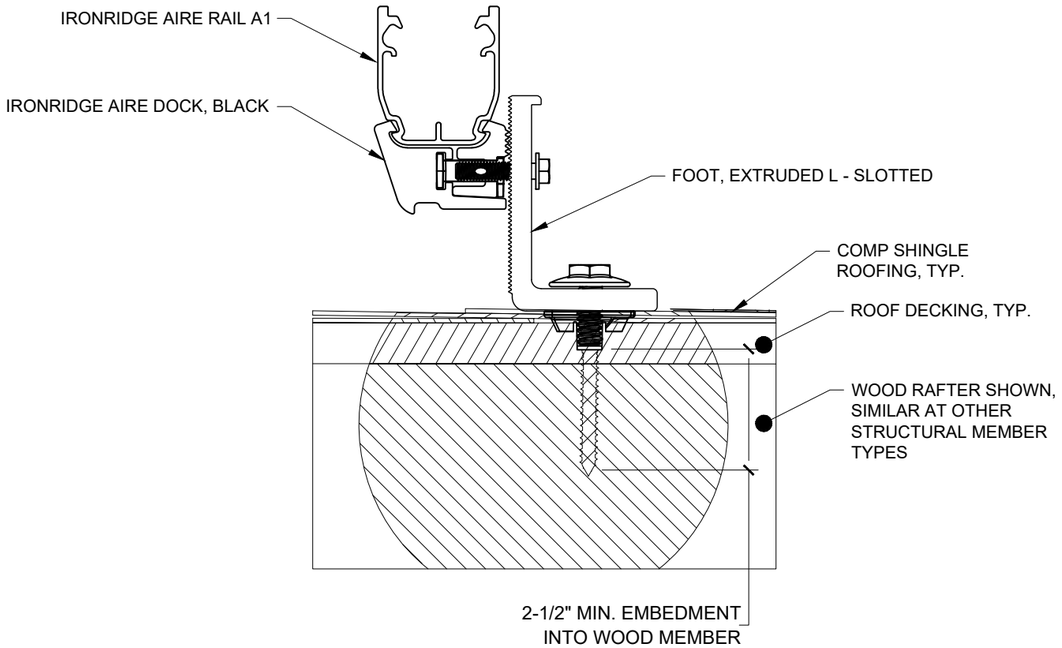
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18.27kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
STRING LAYOUT

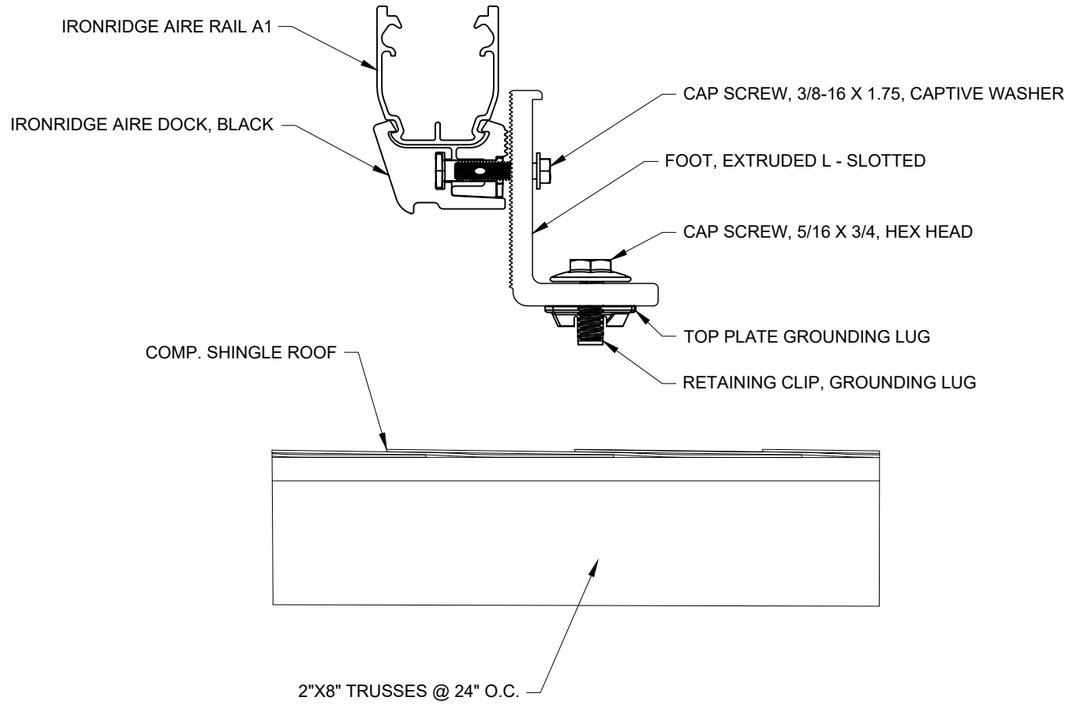
SHEET SIZE
ANSI B
11" X 17"

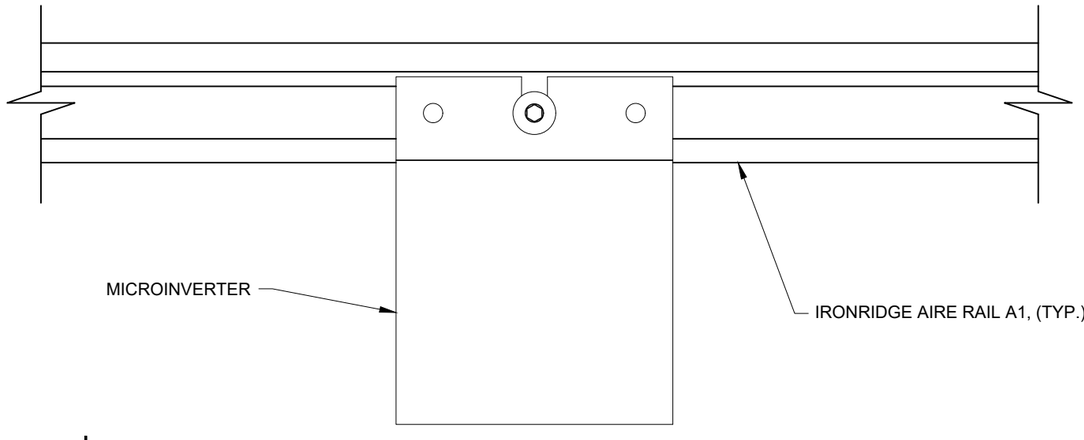
SHEET NUMBER
PV-2A



1 ATTACHMENT DETAIL

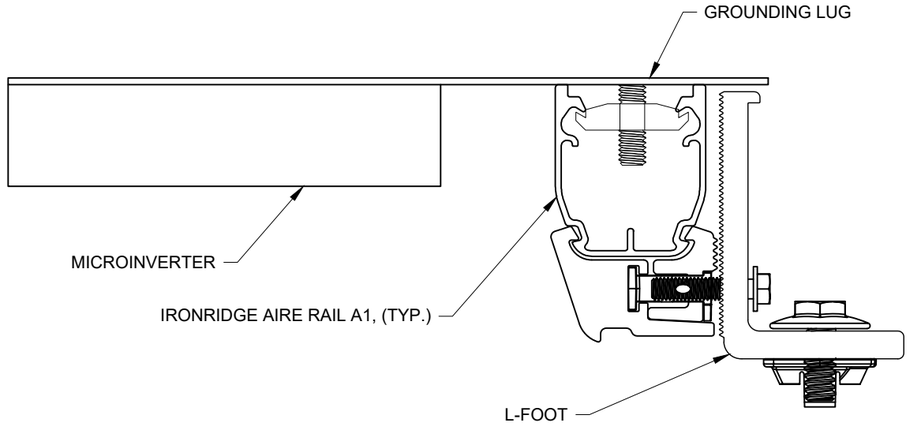
PV-3 SCALE: NTS





2 MICROINVERTER DETAIL

PV-3 SCALE: NTS



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EXETER, NH 03833
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100 CHAPEL ST,
PORTSMOUTH, NH 03801
PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
18.27kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
ATTACHMENT DETAILS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-3

(42) HD HUNDAYI HIN-T435NF(BK) 435W MODULE

(2) BRANCH OF 11 MODULES CONNECTED IN PARALLEL
(2) BRANCH OF 10 MODULES CONNECTED IN PARALLEL

Q CABLE #12 AWG

BRANCH #2 OF 11 MODULES

BRANCH #3 OF 11 MODULES

Q CABLE #12 AWG

BRANCH #4 OF 11 MODULES

BRANCH #5 OF 11 MODULES

PV MODULES

ENPHASE: IQ8M-72-2-US
MICROINVERTERS

Q CABLE #12 AWG

BRANCH #2 OF 11 MODULES

BRANCH #3 OF 10 MODULES

BRANCH #4 OF 10 MODULES

(N) JUNCTION BOX
600V, NEMA 3R
UL LISTED

(4) #10 AWG THWN-2 + Red
(4) #10 AWG THWN-2 - Black
EGC #6 AWG THWN-2
IN 3/4" EMT CONDUIT RUN

EXISTING WIRE

(N) 200A PV LOAD
CENTER, 240V

15A

20A/2P

(N) AC DISCONNECT: 240V,
200AMP, LOCKABLE KNIFE
HANDLE DISCONNECT

(N) AC DISCONNECT:
240V, 200AMP, NEMA 3R,
UL LISTED LOCKABLE
AND NON-FUSIBLE

(N) AC DISCONNECT:
240V, 200AMP, FUSED
NEMA 3R, UL LISTED
WITH 175A FUSES

(3) #2/0 AWG THWN-2
(1) #4 AWG THWN-2 GND
IN 2" EMT CONDUIT RUN

(3) #2/0 AWG THWN-2
IN 2" EMT CONDUIT RUN

TO UTILITY GRID

BI-DIRECTIONAL
UTILITY METER
1-PHASE, 240V
METER #: 79 097 153

(E) METER MAIN BREAKER
200A/2P, 240V

POINT OF INTERCONNECTION
LOAD SIDE TAP IN METER MAIN

(E) MAIN DISTRIBUTION
PANEL, 400A RATED, 240V

(E) MSP MAIN BREAKER
400A/2P, 240V

EXISTING GROUNDING
ELECTRODE SYSTEM

SERVICE INFO	
UTILITY PROVIDER:	EVERSOURCE
MAIN SERVICE VOLTAGE:	240V
MAIN PANEL BRAND:	SQUARE D
MAIN SERVICE PANEL:	400A
MAIN CIRCUIT BREAKER RATING:	400A
MAIN SERVICE LOCATION:	NORTH WEST WALL
SERVICE FEED SOURCE:	OVERHEAD

1 | ELECTRICAL LINE DIAGRAM
PV-4 | SCALE: NTS

603 SOLAR

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REVISIONS

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100 CHAPEL ST,
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PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
18.27kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
ELECTRICAL
LINE DIAGRAM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4

AC CONDUCTOR AMPACITY CALCULATIONS:
FROM ROOF TOP JUNCTION BOX TO PV LOAD CENTER

AMBIENT TEMPERATURE ADJUSTMENT FOR EXPOSED CONDUIT
PER NEC 310.15(B)(2)(c): + 22°
EXPECTED WIRE TEMP (°C): 33° + 22°
TEMP CORRECTION PER TABLE 310.15: 0.76
#OF CURRENT CARRYING CONDUCTORS: 8
CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a): 0.70
CIRCUIT CONDUCTOR SIZE: 10 AWG
CIRCUIT CONDUCTOR AMPACITY: 40A

REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(A&B):
1.25 X MAX AC OUTPUT CURRENT X # OF INVERTERS PER STRING
BRANCH #1 & #2 : 1.25 X 1.35 X 11 = 18.56A
BRANCH #3 & #4 : 1.25 X 1.35 X 10 = 16.88A

DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.15
TEMP CORR. PER NEC TABLE 310.15 X
CONDUIT FILL CORR. PER NEC 310.15(B)(2)(a) X
CIRCUIT CONDUCTOR AMPACITY = 0.76 X 0.70 X 40 = 21.28A

AC CONDUCTOR AMPACITY CALCULATIONS:
FROM PV LOAD CENTER TO FUSED AC DISCONNECT

EXPECTED WIRE TEMP (°C): 33°
TEMP CORRECTION PER NEC TABLE 310.15: 0.96
CIRCUIT CONDUCTOR SIZE: 2/0 AWG
CIRCUIT CONDUCTOR AMPACITY: 195A
#OF CURRENT CARRYING CONDUCTORS: 3
CONDUIT FILL PER NEC 310.15(B)(2)(a): 1
REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(B):
1.25 X OUTPUT CURRENT OF LOAD CENTER
1.25 X 1.35 X 42 = 70.88A + (E) 91.13A = 162.00A

DERATED AMPACITY OF CIRCUIT CONDUCTORS PER NEC TABLE 310.15:
TEMP CORR. PER NEC 310.15 X
CONDUIT FILL CORR. PER NEC 310.15(B)(2)(a) X
CIRCUIT CONDUCTOR AMPACITY =
0.96 X 1.00 X 195 = 187.2A

ENPHASE: IQ8M-72-2-US MICROINVERTERS		
Input Data (DC)		
	Recommended Input Power (STC)	260-460W +
	Maximum Input DC Voltage	60V
	Peak Power Tracking Voltage	16V-58V
	Operating Range	22V-58V
	Min. / Max. Start Voltage	60V
	Max DC Short Circuit Current	25A
Output Data (AC)		
	Peak Output Power	330W
	Nominal Output Current	1.35A
	Nominal Voltage / Range	240V/211-264V
	Nominal Frequency / Range	60 Hz
	Extended Frequency / Range	47-68 Hz
	Power Factor at rated power	1.0
	Maximum unit per 20A Branch Circuit	11 (240 VAC)

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
.80	4-6
.70	7-9
.50	10-20

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-21°
AMBIENT TEMP (HIGH TEMP 2%)	33°
CONDUIT HEIGHT	0.5"
ROOF TOP TEMP	55°
CONDUCTOR TEMPERATURE RATE	90°

ELECTRICAL NOTES

1. NO DC CONDUCTORS PRESENT.
2. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
3. ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.
4. WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
5. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6. WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7. ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8. MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION AND WHERE REQUIRED.
9. MODULE SUPPORT RAIL TO BE BONDED TO COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
10. THE POLARITY OF THE GROUNDED CONDUCTORS IS NEGATIVE.

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18.27kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
ELECTRICAL CALCULATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-5

⚠ WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:
INVERTER(S), AC DISCONNECT(S), AC COMBINER PANEL (IF APPLICABLE).

⚠ WARNING

DUAL POWER SUPPLY

SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

LABEL LOCATION:
UTILITY SERVICE METER AND MAIN SERVICE PANEL.

⚠ WARNING

INVERTER OUTPUT CONNECTION

DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
ADJACENT TO PV BREAKER (IF APPLICABLE).

⚠ WARNING

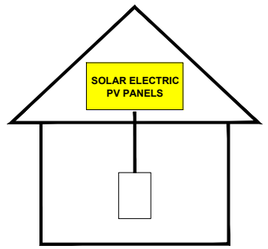
PHOTOVOLTAIC SYSTEM COMBINER PANEL

DO NOT ADD LOADS

LABEL LOCATION:
PHOTOVOLTAIC AC COMBINER (IF APPLICABLE).

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY.



LABEL LOCATION:
ON OR NO MORE THAT 1 M (3 FT) FROM THE SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED.

PHOTOVOLTAIC AC DISCONNECT
MAXIMUM AC OPERATING CURRENT: 162.00 AMPS
NOMINAL OPERATING AC VOLTAGE: 240 VAC

LABEL LOCATION:
AC DISCONNECT(S), PHOTOVOLTAIC SYSTEM POINT OF INTERCONNECTION.

DATA PER PANEL

NOMINAL OPERATING AC VOLTAGE -	240	V
NOMINAL OPERATING AC FREQUENCY-	60	Hz
MAXIMUM AC POWER-	325	VA
MAXIMUM AC CURRENT-	1.35	A
MAXIMUM OVERCURRENT DEVICE RATING FOR AC MODULE PROTECTION PER CIRCUIT-	20	A

LABEL LOCATION:
COMBINER BOX

NOTES AND SPECIFICATIONS:

- SIGNS AND LABELS SHALL MEET THE REQUIREMENTS OF THE 2020 ARTICLE 110.21(B), UNLESS SPECIFIC INSTRUCTIONS ARE REQUIRED BY SECTION 690, OR IF REQUESTED BY THE LOCAL AHJ.
- SIGNS AND LABELS SHALL ADEQUATELY WARN OF HAZARDS USING EFFECTIVE WORDS, COLORS AND SYMBOLS.
- LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HAND WRITTEN.
- LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
- SIGNS AND LABELS SHALL COMPLY WITH ANSI Z535.4-2011, PRODUCT SAFETY SIGNS AND LABELS, UNLESS OTHERWISE SPECIFIED.
- DO NOT COVER EXISTING MANUFACTURER LABELS.

603 SOLAR
24 CHARTER ST.
EXETER, NH 03833
(603) 570-2607

REVISIONS

DESCRIPTION	DATE	REV

PROJECT NAME & ADDRESS

ST. JOHN'S EPISCOPAL CHURCH
100 CHAPEL ST,
PORTSMOUTH, NH 03801
PHONE #: (603) 988-8347
EMAIL: reginnhny@outlook.com
18.27kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
PLACARDS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-6

HD HYUNDAI ENERGY SOLUTIONS

HD HYUNDAI SOLAR MODULE

NF(BK) Series

Premium N-Type TOPCon Module

HiN-T430NF(BK) I HiN-T435NF(BK) I HiN-T440NF(BK)



22.53% High Efficiency

High-End TOPCon Technology

Higher Bifaciality

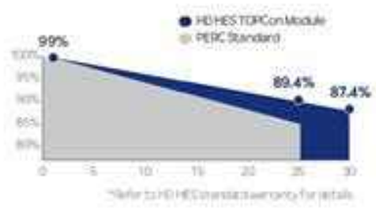
Long-Term Reliability

Compatible with Carport Applications

For Residential (Full Black Design)

HD Hyundai's Warranty Provisions

- 25 YEARS: • 25-Year Product Warranty — Materials and workmanship
- 30 YEARS: • 30-Year Performance Warranty — First year degradation: 1%. Linear warranty after initial year with 0.4%p annual degradation. 87.4% is guaranteed up to 30years



*Refer to HD HES's product warranty for details

Certification

ISO SQ kiwa PVEL

Electrical Characteristics

HiN-TxxxNF(BK)		HiN-T430NF(BK)		HiN-T435NF(BK)		HiN-T440NF(BK)	
Item	Unit		BNPI		BNPI		BNPI
Nominal output (Pmax)	W	430	476	435	482	440	488
Open circuit voltage (Voc)	V	38.4	38.4	38.6	38.6	38.8	38.8
Short circuit current (Isc)	A	14.25	15.79	14.32	15.87	14.39	15.94
Voltage at Pmax (Vmpp)	V	31.9	31.9	32.1	32.1	32.3	32.3
Current at Pmax (Impp)	A	13.48	14.94	13.56	15.02	13.63	15.10
Module efficiency	%	22.02		22.28		22.53	
Power Class Sorting	W	0 ~ +5					
Temperature coefficient of Pmax	%/K	-0.30					
Temperature coefficient of Voc	%/K	-0.25					
Temperature coefficient of Isc	%/K	0.046					
Bifaciality	%	80%±10%					

*STC : Irradiance 1,000 W/m², cell temperature 25℃, AM=1.5 / Test uncertainty for Pmax ±3%; Voc ±3%; Isc ±3%
**The electrical properties of BNPI are measured under the irradiance corresponding to 1000 W/m² on the module front and 135 W/m² on the module rear.

Additional Power Gain from rear side					
Pmpp gain	Pmpp[W]	Vmpp[V]	Impp[A]	Voc[V]	Isc[A]
5%	458	32.30	14.18	38.80	14.97
15%	493	32.30	15.27	38.80	16.12
25%	528	32.40	16.36	38.90	17.27

*Electrical characteristics with different rear power gain (reference to 440W)

Mechanical Characteristics

Dimensions	1,722mm (L) x 1,134mm (W) x 30mm (H) (67.8in x 44.6in x 1.2in)
Weight	24.5 kg (50.01lbs)
Solar Cells	N-Type TOPCon, 108 (6x18) monocrystalline 16BB half-cut bifacial cells
Output Cables	Cable : (+)1,200mm(47.2in), (-)1,200mm(47.2in) / Customized length available Connector : Stäubli MC4 genuine Connector / Compatible, IP68
Junction Box	3-part, 3 bypass diodes, IP68 rated
Construction	Front : 2.0mm(0.08in) semi-tempered solar glass with high transmittance and anti-reflective coating Rear : 2.0mm(0.08in) semi-tempered solar glass
Frame	Anodized aluminum alloy

Installation Safety Guide

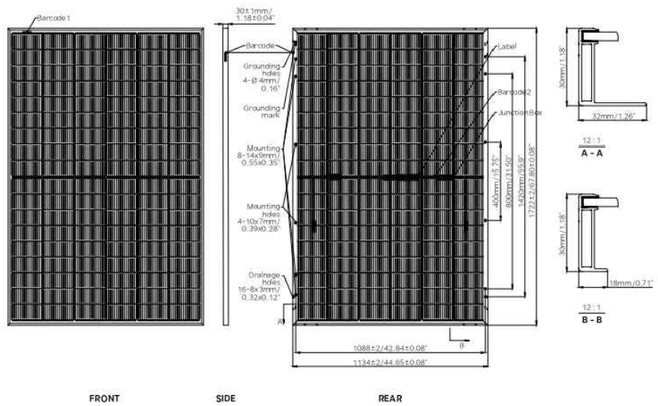
- Only qualified personnel should install or perform maintenance.
- Be aware of dangerous high DC voltage.
- Do not handle or install modules when they are wet.

Nominal Module Operation Temperature	44℃ ± 2℃
Operating Temperature	-40℃~+85℃
Maximum System Voltage	DC 1,500 V
Maximum Reverse Current	30A
Maximum Test Load *See Installation Manual	Front 5,400Pa *Rear 5,400Pa
Fire Performance	Type 29

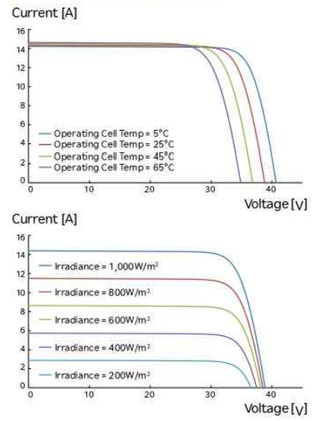
Shipping Configurations

Packing Direction	Vertical	Packing pallet weight (kg)	912
Container Size (HC)	40'	Modules Per Pallet (pcs)	36
Pallets Per Container	22	Modules Per Container (pcs)	792

Module Diagram (unit : mm)



I-V Curves (HiN-T440NF(BK))



Sales & Marketing
hes.sales@hd.com

HD Hyundai Energy Solutions reserves the right to update or modify the specifications and features listed in this datasheet without prior notice. Always check the latest version of the datasheet for accurate information. Before using the product, please refer to the Installation and Operation Manual and Warranty. We retain the right of final interpretation.

HD HYUNDAI ENERGY SOLUTIONS

603 SOLAR

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SALES PERSON
STEVE

SHEET NAME
DATA SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-7

ENPHASE

DATA SHEET



IQ8M and IQ8A Microinverters

Our newest IQ8 Microinverters are the industry's first microgrid-forming, software defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the IQ Battery, IQ Gateway, and the Enphase App monitoring and analysis software.

Enphase 25 year limited warranty

IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.

CERTIFIED SAFETY

IQ8 Series Microinverters are UL listed as PV Rapid Shutdown Equipment and conform with various regulations, when installed according to manufacturer's instructions.

*Only when installed with IQ System Controller 2, meets UL 1741.
**IQ8M and IQ8A support split-phase, 240V installations only.

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Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down*
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support**
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) and IEEE 1547:2018 (UL 1741-SB 3rd Ed.)

Note:

IQ8 Microinverters cannot be mixed together with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, etc) in the same system.

IQ8M and IQ8A Microinverters

INPUT DATA (DC)		IQ8M-72-2-US	IQ8A-72-2-US
Commonly used module pairings[1]	W	260 – 460	295 – 500
Module compatibility		54-cell / 108 half-cell, 60-cell / 120 half-cell, 66-cell / 132 half-cell and 72-cell / 144 half-cell	
MPPT voltage range	V	30 – 45	32 – 45
Operating range	V	16 – 58	
Min. / Max. start voltage	V	22 / 58	
Max. input DC voltage	V	60	
Max. continuous input DC current	A	12	
Max. input DC short-circuit current	A	25	
Max. module I_{sc}	A	20	
Overvoltage class DC port		II	
DC port backfeed current	mA	0	
PV array configuration		1 x 1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	
OUTPUT DATA (AC)		**IQ8M-72-2-US**	**IQ8A-72-2-US**
Peak output power	VA	330	366
Max. continuous output power	VA	325	349
Nominal (L-L) voltage / range[2]	V	240 / 211 – 264	
Max. continuous output current	A	1.35	1.45
Nominal frequency	Hz	60	
Extended frequency range	Hz	47 – 68	
AC short circuit fault current over 3 cycles	Arms	2	
Max. units per 20 A (L-L) branch circuit[3]		11	
Total harmonic distortion		<5%	
Overvoltage class AC port		III	
AC port backfeed current	mA	30	
Power factor setting		1.0	
Grid-tied power factor (adjustable)		0.85 leading – 0.85 lagging	
Peak efficiency	%	97.8	97.7
CEC weighted efficiency	%	97.5	97
Night-time power consumption	mW	60	
MECHANICAL DATA			
Ambient temperature range		-40°C to +60°C (-40°F to +140°F)	
Relative humidity range		4% to 100% (condensing)	
DC Connector type		MC4	
Dimensions (H x W x D)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")	
Weight		1.08 kg (2.38 lbs)	
Cooling		Natural convection – no fans	
Approved for wet locations		Yes	
Pollution degree		PD3	
Enclosure		Class II double-insulated, corrosion resistant polymeric enclosure	
Environ. category / UV exposure rating		NEMA Type 6 / outdoor	
COMPLIANCE			
Certifications		CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB 3rd Ed.), FCC Part 15 Class B, ICES-0003 Class B, CAN / CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shutdown Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.	

(1) Pairing PV modules with wattage above the limit may result in additional clipping losses. See the compatibility calculator at https://link.enphase.com/module-compatibility. (2) Nominal voltage range can be extended beyond nominal if required by the utility.
(3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8MA-12A-DS-0069-03-EN-US-2022-12-27

603 SOLAR
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24 CHARTER ST.
EXETER, NH 03833
(603) 570-2607

REVISIONS

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100 CHAPEL ST,
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EMAIL: reginnhny@outlook.com
18.27kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON
STEVE

SHEET NAME
DATA SHEET

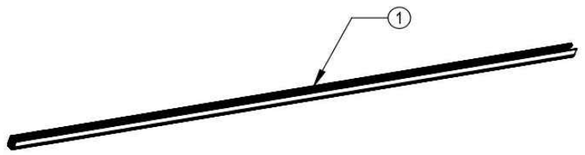
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-8

Cut Sheet

IRONRIDGE

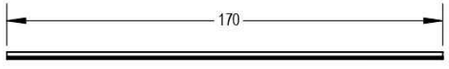
AIRE RAIL A1

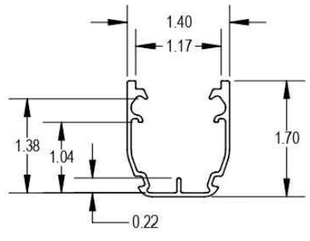


ITEM NO	DESCRIPTION	QTY IN KIT
1	Aire Rail, A1, Black(or Clear), 170	1

Part Number	Description
AE-A1-170B	AIRE RAIL, A1, BLACK, 170
AE-A1-170M	AIRE RAIL, A1, MILL, 170

1) Aire A1





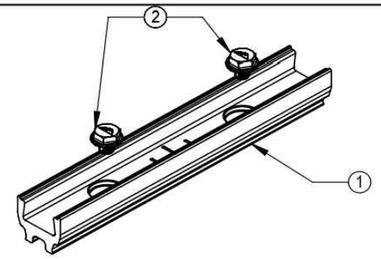
Part Number	Material	Value
AE-A1-170B	6000-Series Aluminum	Black
AE-A1-170M	6000-Series Aluminum	Clear

v1.0

Cut Sheet

IRONRIDGE

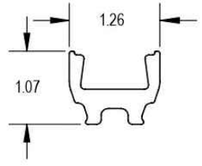
AIRE TIE, A1

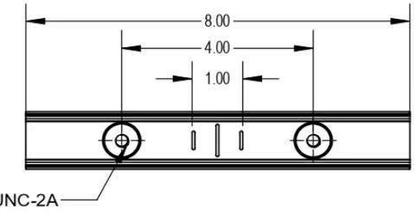


ITEM NO	DESCRIPTION	QTY IN KIT
1	Aire Tie, A1	1
2	Aire Splc Bolt, Hex	2

Part Number	Description
AE-A1TIE-01-M1	AIRE TIE, A1 (BONDED SPLICE)

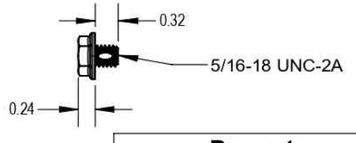
1) Aire Tie, A1

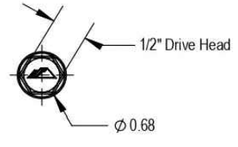




Property	Value
Material	6000 Series Aluminum
Finish	Mill

2) Aire Splc Bolt, Hex





Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.0

603 SOLAR

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24 CHARTER ST.
EXETER, NH 03833
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REVISIONS

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18.27kW DC PHOTOVOLTAIC SYSTEM

SALES PERSON

STEVE

SHEET NAME

DATA SHEET

SHEET SIZE

ANSI B
11" X 17"

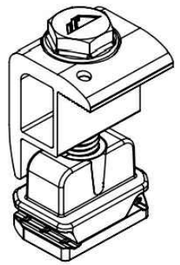
SHEET NUMBER

PV-9

Cut Sheet

IRONRIDGE

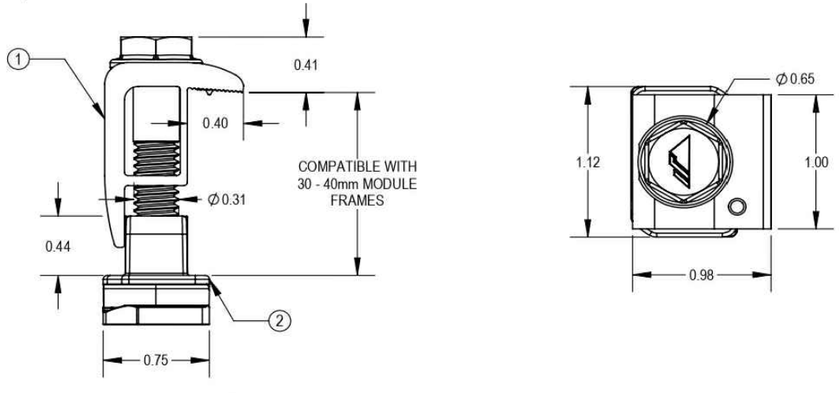
AIRE LOCK END



ITEM NO	DESCRIPTION	QTY IN KIT
1	Aire Lock End, Black	1

Part Number	Description
AE-END-01-B1	AIRE LOCK END, BLACK

1) Aire Lock End



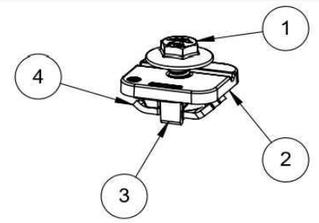
Item No	Material	Value
1	300 Series Stainless Steel	Clear and Black
2	Polypropelene	Black

v1.0

Cut Sheet

IRONRIDGE

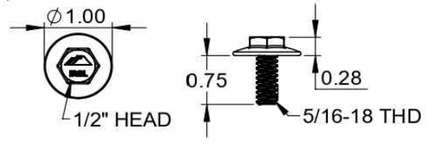
AIRE LUG



ITEM NO.	DESCRIPTION	QTY IN KIT
1	CAP SCREW, 5/16 X 3/4, HEX HEAD	1
2	TOP PLATE GROUNDING LUG	1
3	RETAINING CLIP, GROUNDING LUG	1
4	T-NUT, SHEET METAL	1

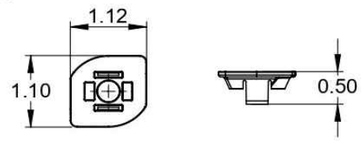
PART NUMBER	DESCRIPTION	WIRE SIZE RANGE (AWG)
AE-LUG-01-M1	AIRE LUG	6-10

1) CAP SCREW, 5/16 X 3/4



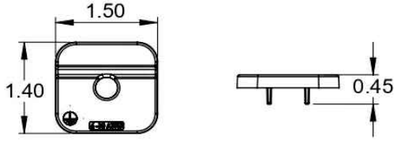
Property	Value
Material	300 Series Stainless Steel
Finish	Clear

3) RETAINING CLIP



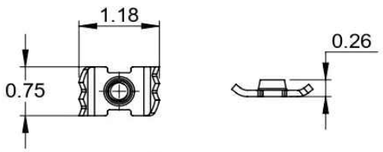
Property	Value
Material	Polypropylene
Finish	Black

2) TOP PLATE



Property	Value
Material	Tin Plated Aluminum
Finish	Clear Matte

4) T-NUT, SHEET METAL



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.0

603 SOLAR

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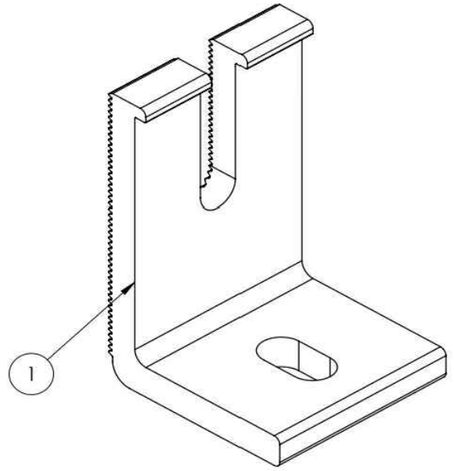
SHEET NUMBER

PV-10

Cut Sheet

IRONRIDGE

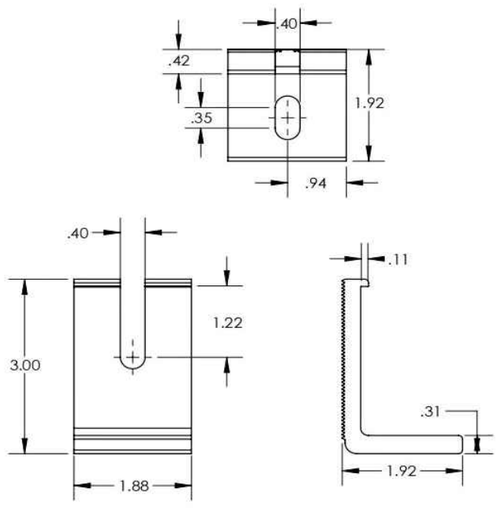
L-Foot



ITEM NO	DESCRIPTION	QTY IN KIT
1	FOOT, EXTRUDED L - SLOTTED	4

PART NUMBER	DESCRIPTION
FM-LFT-003	Kit, 4Pcs, Slotted L-Foot, Mill
FM-LFT-003-B	Kit, 4Pcs, Slotted L-Foot, Black

1) Foot, Extruded L - Slotted



v1.11

603 SOLAR

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PV-11

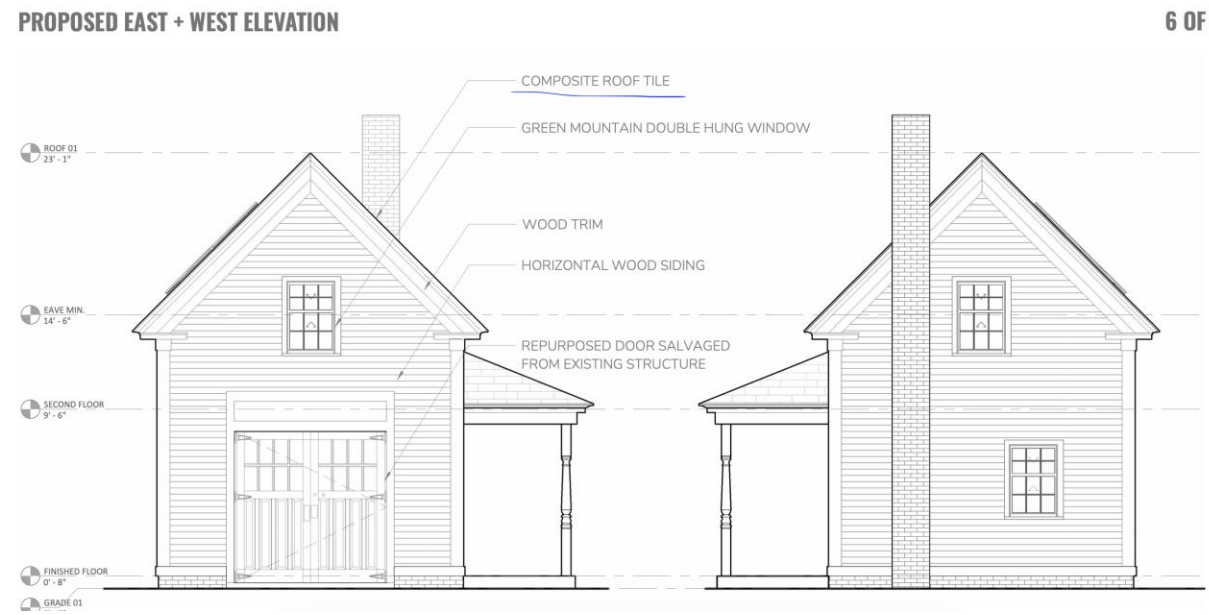
3. 64 Mt. Vernon Street -Recommended Approval

Background: The applicant is seeking approval for a change to a previously approved design (change from faux slate roofing to asphalt shingles to match the existing house).

Staff Comment: Recommend Approval

Stipulations:

1. _____
2. _____
3. _____



Original HDC approval with faux slate roofing material.



Request to change roofing material to asphalt shingles to match existing house.

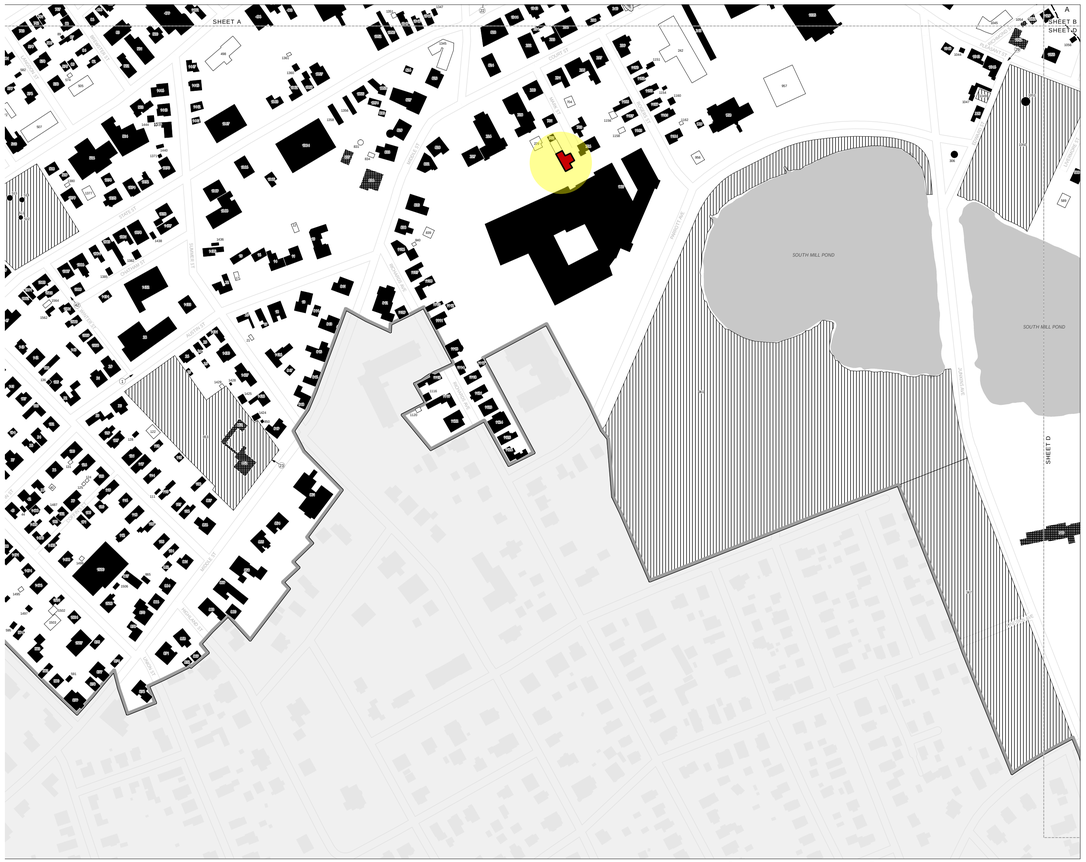
4. 46 Mark Street -Recommended Approval

Background: The applicant is seeking approval to relocate (2) windows and replace (1) existing window.

Staff Comment: Recommend Approval

Stipulations:

1. _____
2. _____
3. _____



Privileged Archeological Information – Not for Public Distribution



PROJECT LOCATED AT 46 MARK STREET, PORSMOUTH ,NH
SINGLE FAMILY RESIDENCE BUILT IN 2015
PROJECT LISTED ON HISTORICAL MAP AS NON-CONTRIBUTING RESOURCE

DISTINCTION
BY DESIGN
DOVER, NH
603-401-7294

REVISION & REISSUE NOTES

No.	Date	Notes
A	6/13/2025	SUBMITTED HDC APPROVAL

Chen Residence

46 MARK STREET, PORTSMOUTH, NH

Project Manager	Project #	Date
ST	2025-002	06-10-2025

Scale: AS NOTED

PROJECT LOCATION

A0.1



1 Existing West Elevation
Scale: 1/4" = 1'-0"



4 Proposed West Elevation
Scale: 1/4" = 1'-0"

CAD File Name
Chen - Sd1.vwx

BY DISTINCTION
BY DESIGN
DOVER, NH
603-401-7294

REVISION & REISSUE NOTES

No.	Date	Notes
A	6/13/2025	SUBMITTED HDC APPROVAL

Chen Residence

46 MARK STREET, PORTSMOUTH, NH

Project Manager	Project #	Date
ST	2025-002	06-10-2025

Scale: AS NOTED

EXTERIOR ELEVATIONS

A2.0



1 Existing South Elevation
Scale: 1/4" = 1'-0"



2 Proposed South Elevation
Scale: 1/4" = 1'-0"

WINDOW NOTES:

NEW EGRESS WINDOW TO MATCH EXISTING WINDOW:

ANDERSEN 400 SERIES CASEMENT E-SERIES 2'-8' X 4'-0" (CAX2840)
ALUMINUM EXTERIOR/WOOD INTERIOR
COLOR TO MATCH EXISTING COLOR : BLACK

EXTERIOR WINDOWS TO BE ALUMINUM CLAD (COLORS TO BE MATCH EXISTING) INSULATED LOW E4 GLAZING, 7/8" SDL (AS SHOWN ON ELEVATIONS) W/ SIMULATED DIVIDED LIGHTS, HARDWARE FINISH TO MATCH EXISTING, U-VALUE OF WINDOWS 0.29

ANDERSEN WINDOWS & DOORS

400 SERIES PRODUCT PERFORMAI

NFRC Certified Total Unit Performance for Products With Du

This information is for reference only. Performance values vary based on unit size, configu

Contact your Andersen supplier for specific unit data.

Andersen® Product		High-Performance Dual-Pane Glass Type	U-Factor[1]	SHGC[2]	VT[3]
400 Series Casement Windows AND-N-1	Low-E4®	Without Grilles	0.29	0.32	0.54
		Simulated Divided Light Grilles	0.29	0.29	0.49
		Fineslight™ Grilles	0.30	0.29	0.49
		Energy Spacer Divided Light Grilles	0.28	0.29	0.50
		Full Divided Light Grilles	0.29	0.29	0.49
	Low-E4 SmartSun™	Without Grilles	0.25	0.31	0.53
		Simulated Divided Light Grilles	0.25	0.28	0.48
		Fineslight Grilles	0.26	0.28	0.48
		Energy Spacer Divided Light Grilles	0.24	0.29	0.48
		Full Divided Light Grilles	0.26	0.28	0.48
	Low-E4 Sun™	Without Grilles	0.29	0.20	0.30
		Simulated Divided Light Grilles	0.29	0.18	0.27
		Fineslight Grilles	0.30	0.18	0.27
		Energy Spacer Divided Light Grilles	0.28	0.18	0.28
		Full Divided Light Grilles	0.30	0.18	0.27
	Low-E4 PassiveSun™	Without Grilles	0.28	0.21	0.49
		Simulated Divided Light Grilles	0.28	0.20	0.44
		Fineslight Grilles	0.29	0.20	0.44
		Energy Spacer Divided Light Grilles	0.27	0.19	0.45
		Full Divided Light Grilles	0.29	0.20	0.44
	Low-E4 SmartSun™ w/HeatLock™	Without Grilles	0.25	0.21	0.47
		Simulated Divided Light Grilles	0.25	0.19	0.43
		Fineslight Grilles	0.25	0.19	0.43
		Energy Spacer Divided Light Grilles	0.24	0.19	0.44
		Full Divided Light Grilles	0.26	0.19	0.43
	Low-E4 PassiveSun™ w/HeatLock™	Without Grilles	0.26	0.47	0.58
		Simulated Divided Light Grilles	0.25	0.44	0.53
		Fineslight Grilles	0.25	0.44	0.53
		Energy Spacer Divided Light Grilles	0.25	0.44	0.53
		Full Divided Light Grilles	0.27	0.44	0.53
400 Series Awning Windows AND-N-2	Low-E4®	Without Grilles	0.29	0.31	0.53
		Simulated Divided Light Grilles	0.29	0.29	0.48
		Fineslight™ Grilles	0.29	0.29	0.48
		Energy Spacer Divided Light Grilles	0.28	0.29	0.49
		Full Divided Light Grilles	0.29	0.29	0.48
	Low-E4 SmartSun™	Without Grilles	0.26	0.30	0.52
		Simulated Divided Light Grilles	0.26	0.28	0.47
		Fineslight Grilles	0.26	0.28	0.47
		Energy Spacer Divided Light Grilles	0.25	0.29	0.48
		Full Divided Light Grilles	0.27	0.28	0.47
	Low-E4 Sun™	Without Grilles	0.29	0.19	0.29
		Simulated Divided Light Grilles	0.29	0.18	0.27
		Fineslight Grilles	0.30	0.18	0.27
		Energy Spacer Divided Light Grilles	0.29	0.18	0.27
		Full Divided Light Grilles	0.30	0.18	0.27
	Low-E4 PassiveSun™	Without Grilles	0.28	0.21	0.48
		Simulated Divided Light Grilles	0.28	0.19	0.43
		Fineslight Grilles	0.29	0.19	0.43
		Energy Spacer Divided Light Grilles	0.28	0.19	0.45
		Full Divided Light Grilles	0.29	0.19	0.43
	Low-E4 SmartSun™ w/HeatLock™	Without Grilles	0.25	0.20	0.47
		Simulated Divided Light Grilles	0.25	0.19	0.42
		Fineslight Grilles	0.25	0.19	0.42
		Energy Spacer Divided Light Grilles	0.24	0.19	0.43
		Full Divided Light Grilles	0.26	0.19	0.42
	Low-E4 PassiveSun™ w/HeatLock™	Without Grilles	0.26	0.47	0.58
		Simulated Divided Light Grilles	0.26	0.43	0.53
		Fineslight Grilles	0.27	0.43	0.53
		Energy Spacer Divided Light Grilles	0.26	0.44	0.53
		Full Divided Light Grilles	0.28	0.43	0.53

SOLAR HEAT GAIN COEFFICIENT
SHGC
VISIBLE TRANSMITTANCE
VT

• "Low-E4®," "Low-E4® SmartSun™," "Low-E4® Sun," "Low-E4® PassiveSun™" and "HeatLock™" are Andersen trademarks for "Low-E" glass.
1) U-Factor defines the amount of heat loss through the total unit in BTU/hr-ft²-°F. The lower the value, the less heat is lost through the entire product. Window values represent non-tempered glass. Use of tempered glass can increase U-Factor ratings. See nfrc.org for specific performance values. Door values represent tempered glass. 2) Solar Heat Gain Coefficient (SHGC) defines the fraction of solar radiation admitted through the glass directly transmitted, as well as absorbed and subsequently released inward. The lower the value, the less heat is transmitted through the product. 3) Visible Transmittance (VT) measures how much light comes through a product (glass and frame). The higher the value, from 0 to 1, the more daylight the product lets in over the product's total unit area. Visible Light Transmittance is measured over the 380-760 nanometer portion of the solar spectrum.
• NFRC ratings are based on modeling by a third-party agency as validated by an independent test lab in compliance with NFRC program and procedural requirements.
• This data is accurate as of December 2024. Due to ongoing product changes, updated test results, or new industry standards or requirements, this data may change over time. Ratings are for sizes specified by NFRC for testing and certification. Ratings may vary depending on use of tempered glass, different grille options, glass with capillary breather tubes for high altitudes, etc.
• Values are for single units with given pane thickness, stainless steel glass spacers and ½" (13 mm) grilles for windows and patio door products.

DISTINCTION
BY DESIGN
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REVISION & REISSUE NOTES

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Chen Residence

46 MARK STREET, PORTSMOUTH, NH

Project Manager	Project #	Date
ST	2025-002	06-10-2025

Scale: AS NOTED

EXTERIOR ELEVATIONS

A2.1

CAD File Name
Chen - Sd1.vwx

5. 53 Green Street -Recommended Approval

Background: The applicant is seeking approval for changes to a previously approved design.

Staff Comment: Recommend Approval

Stipulations:

1. _____
2. _____
3. _____

Docusign Envelope ID: B8C41AAD-5EDF-445D-9F4E-6713FF18B5F7

June 13, 2025

Mr. Izak Gilbo
1 Junkins Ave, 3rd Floor
Portsmouth, NH 03801

Re: 53 Green Street Application for HDC Amended Approval

Dear Mr. Gilbo,

Pursuant to Section 10.633.30 – Administrative Approval of the City's Historic District regulations, we respectfully request administrative approval for a series of minor design modifications to the project for which a Certificate of Approval has previously been issued. These modifications are the result of continued design development and coordination efforts, and do not affect the overall quality, materiality, or historic character previously approved by the Historic District Commission. Attached are drawings which show the previously approved and the proposed.

Below is a summary of the proposed changes:

Sheet A201

- Depth of the commercial canopy increased due to load calculations for that structure.
- Additional changes to fenestration occurred to align with canopy change
- We had the incorrect tag on the original HDC approvals. A precast hatched material was called out as a metal panel. This has been fixed
- The 5th floor overhang had to increase to accommodate structural beam depth.

Sheet A201.1

- Canopy alignment on first floor

Sheet A201.2

- In reviewing the Cloplay garage door we learned of noise concerns with the unit and elected to replace with different manufacturer(Raynor) but keep same finish, materials and design.

Sheet A202

- Depth of the commercial canopy increased due to a load calculation for that structure.
- Additional changes to fenestration occurred to align with canopy change

Docusign Envelope ID: B8C41AAD-5EDF-445D-9F4E-6713FF18B5F7

- We had the incorrect tag on the original HDC approvals. A precast hatched material was called out as a metal panel. This has been fixed
- In the original HDC approved drawings from 2021 we had soldier course above the first-floor windows. This was not translated to the 2024 approvals. We added the soldier course back to the windows for design consistency
- We added a panel above the door to align with the transoms.

Sheet A203

- Depth of the commercial canopy increased due to a load calculation for that structure.
- Additional changes to fenestration occurred to align with canopy change
- The 5th floor overhang had to increase to accommodate structural beam depth.

Sheet A203.1

- Gas meters are exempt, but we have coordinated the location with Unitil and now have them now shown at the side of the building away from the ROW.
- 4th floor balcony door had to shift for interior layout purposes.
- Overhead door reduced in size to accommodate interior layout
- A door was added adjacent to the overhead door to accommodate egress requirements from the garage. Note that this door was in the 2021 approval but removed in the 2024 approval only to be added back again now.
- The building is required to have flood openings per zoning. The flood openings must have 60% openings. The previously approved Nukulalavu panels have 28% so in an effort to meet the 60% we changed the panel design. We're using the same material and color just a different design. Our intent is to keep the Nukulalavu design for the panels that do *not* serve as flood openings. The flood openings have to be 1' from ground so they will be adjacent to the ground screened by landscaping.
- The manufacturer of the panels shown in the HDC approval is Parasoleil. We'd like to use a local metal worker to produce the panels in the same material, color and quality.

Sheet A204

- Structural considerations and building designs have resulted in modifications to door, window & railing.

Sheet A204.1

- No changes

Sheet 205

Docusign Envelope ID: B8C41AAD-5EDF-445D-9F4E-6713FF18B5F7

- No changes

Sheet A206

- No changes

Sheet A207

- Structural considerations and building designs have resulted in modifications to door, window & railing.

Materials

- We upgraded windows from the Marvin Essential to the Marvin Ultimate to not only match the doors but to provide a more premium window.
- The manufacturer of the panels shown in the HDC approval is Parasoleil. We'd like to use a local metal fabricator(Macy) to produce the panels in the same material, color and quality.
- We changed the Cloplay garage door to the Raynor. During review of the product we learned of noise concerns with the unit and elected to replace with different manufacturer but keep same finish, materials and design.

These modifications are respectfully submitted as minor in nature and consistent with the Commission's original Certificate of Approval. We request your review and determination, and if deemed appropriate, that these changes be approved at the next Historic District Commission meeting.

Please let me know if any additional drawings, narratives, or clarifications are needed to support this request.

Sincerely,

DocuSigned by:
Rob Simmons
F303420CFE6043A...

Rob Simmons

53 Green Street, LLC

PREVIOUSLY APPROVED

SEPTEMBER 6, 2024 SUBMISSION:
"SIDEWALL PENETRATIONS - EXEMPT"



PROPOSED

1. DEPTH OF COMMERCIAL CANOPY NEEDED TO INCREASE DUE TO BEAM SIZING FROM ENGINEER REVIEW.
2. ADJUSTED HEIGHT OF FIRST FLOOR STOREFRONT TO ALIGN WITH CANOPY.
3. FIXED MATERIAL TAG TO MATCH MATERIAL HATCH. THIS WAS TAGGED INCORRECTLY BEFORE.
4. DEPTH OF FIFTH FLOOR OVERHANG NEEDED TO INCREASE DUE TO BEAM SIZING FROM ENGINEER REVIEW.



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SIDEWALL PENETRATIONS

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE:	SIDEWALL PENETRATIONS
DATE:	JUNE 13, 2025
PROJECT #:	20055
SCALE:	1/8" = 1'-0"

DRAWING TITLE
BUILDING ELEVATIONS

DRAWING NUMBER
A 201

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PREVIOUSLY APPROVED

SEPTEMBER 6, 2024 SUBMISSION:
"SIDEWALL PENETRATIONS - EXEMPT"



PROPOSED

1. ADJUSTED HEIGHT OF FIRST FLOOR STOREFRONTS TO ALIGN WITH STOREFRONTS ON ADJACENT FACADE.



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SIDEWALL PENETRATIONS

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SEPTEMBER 6, 2024 SUBMISSION:
"SIDEWALL PENETRATIONS - EXEMPT"



PROPOSED

1. CHANGED GARAGE DOOR MANUFACTURER FROM CLOPAY TO ALUMAVIEW FOR BETTER ACOUSTIC PERFORMANCE.



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SIDEWALL PENETRATIONS

REVISIONS

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DRAWING TITLE
BUILDING ELEVATIONS

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A 201.2

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SEPTEMBER 6, 2024 SUBMISSION:
"SIDEWALL PENETRATIONS - EXEMPT"



PROPOSED

1. DEPTH OF COMMERCIAL & RESIDENTIAL CANOPIES NEEDED TO INCREASE DUE TO BEAM SIZING FROM ENGINEER REVIEW.
2. ADJUSTED HEIGHT OF FIRST FLOOR STOREFRONT TO ALIGN WITH CANOPY.
3. FIXED MATERIAL TAG TO MATCH MATERIAL HATCH. THIS WAS TAGGED INCORRECTLY BEFORE.
4. DEPTH OF FIFTH FLOOR OVERHANG NEEDED TO INCREASE DUE TO BEAM SIZING FROM ENGINEER REVIEW.
5. ADDED BRICK SOLDIER COURSE ABOVE RESIDENTIAL ENTRY STOREFRONT (TO MATCH ORIGINAL HDC-APPROVED DRAWINGS)
6. ADDED BRICK SOLDIER COURSE AND FIBER CEMENT PANEL ABOVE FIRST FLOOR DOOR TO MATCH ADJACENT STOREFRONT HEAD HEIGHT



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SIDEWALL PENETRATIONS

REVISIONS

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DATE:	JUNE 13, 2025
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BUILDING ELEVATIONS

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SEPTEMBER 6, 2024 SUBMISSION:
"SIDEWALL PENETRATIONS - EXEMPT"



PROPOSED

1. DEPTH OF COMMERCIAL CANOPY NEEDED TO INCREASE DUE TO BEAM SIZING FROM ENGINEER REVIEW.
2. ADJUSTED HEIGHT OF FIRST FLOOR STOREFRONT TO ALIGN WITH CANOPY.
3. DEPTH OF FIFTH FLOOR OVERHANG NEEDED TO INCREASE DUE TO BEAM SIZING FROM ENGINEER REVIEW.



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SIDEWALL PENETRATIONS

REVISIONS

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SEPTEMBER 6, 2024 SUBMISSION:
"SIDEWALL PENETRATIONS - EXEMPT"



PROPOSED

1. MOVED FOURTH FLOOR DOOR LOCATION TO ACCOMMODATE INTERIOR LAYOUT.
2. LOCATED GAS METERS WHICH ARE EXEMPT.
3. REVISED DECORATIVE PERFORATED PANEL PATTERN AT BASEMENT LEVEL.
4. ADDED SWING DOOR TO PROVIDE REQUIRED EGRESS OUT OF GARAGE.
5. REDUCED WIDTH OF OVERHEAD DOOR TO ACCOMMODATE INTERIOR LAYOUT.



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SIDEWALL PENETRATIONS

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SEPTEMBER 6, 2024 SUBMISSION:
"SIDEWALL PENETRATIONS - EXEMPT"



PROPOSED

1. REVISED (5) FOURTH FLOOR WINDOWS AT ROOF DECKS TO REMOVE LOWER PANELS RESULTING IN A HIGHER SILL HEIGHT TO ACCOMMODATE ROOF/ DECK ASSEMBLY.
2. ADJUSTED FOURTH FLOOR DOOR AND WINDOW ARRANGEMENT TO ACCOMMODATE INTERIOR LAYOUT.
3. REDUCED FIFTH FLOOR RAILING WIDTHS TO ALIGN WITH LOCALIZED TERRACE DEPRESSIONS.
4. REVISED DECORATIVE PERFORATED PANEL PATTERN AT BASEMENT LEVEL.
5. REPLACED (2) THIRD FLOOR DOORS WITH WINDOWS TO ACCOMMODATE INTERIOR LAYOUT.



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SIDEWALL PENETRATIONS

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PROPOSED



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BOSTON, MA 02127
O: 617.766.8330
www.embarcstudio.com

ARCHITECT
CJ ARCHITECTS
233 VAUGHAN ST
PORTSMOUTH, NH 03801
O: 603.431.2808
www.cjarchitects.net

OWNER
CATHARTES
225 FRANKLIN STREET, 26TH FLOOR
BOSTON, MA 02110
617.742.6000

CONSULTANTS
CIVIL ENGINEER
TIGHE & BOND
177 CORPORATE DRIVE
PORTSMOUTH, NH 03801
603.433.8818

STRUCTURAL ENGINEER
H+O STRUCTURAL ENG.
100 SUMMER ST, SUITE 1600
BOSTON, MA 02110
617.938.3349

53 GREEN STREET
53 GREEN STREET PORTSMOUTH, NH

SIDEWALL PENETRATIONS

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE:	SIDEWALL PENETRATIONS
DATE:	JUNE 13, 2025
PROJECT #:	20055
SCALE:	1/8" = 1'-0"

DRAWING TITLE
BUILDING ELEVATIONS

DRAWING NUMBER
A 204.1

copyright: EMBARC STUDIO, LLC

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7/10/2024 3:02:44 PM

PREVIOUSLY APPROVED

SEPTEMBER 6, 2024 SUBMISSION:
"SIDEWALL PENETRATIONS - EXEMPT"





PROPOSED





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617.938.3349

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SIDEWALL PENETRATIONS

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE:	SIDEWALL PENETRATIONS
DATE:	JUNE 13, 2025
PROJECT #:	20055
SCALE:	1/8" = 1'-0"

DRAWING TITLE
BUILDING ELEVATIONS

DRAWING NUMBER
A 205

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PREVIOUSLY APPROVED

SEPTEMBER 6, 2024 SUBMISSION:
"SIDEWALL PENETRATIONS - EXEMPT"



PROPOSED



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53 GREEN STREET
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SIDEWALL PENETRATIONS

REVISIONS

MARK	ISSUE	DATE

DRAWING INFORMATION

ISSUE:	SIDEWALL PENETRATIONS
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SCALE:	1/8" = 1'-0"

DRAWING TITLE
BUILDING ELEVATIONS

DRAWING NUMBER
A 206

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PREVIOUSLY APPROVED

SEPTEMBER 6, 2024 SUBMISSION:
"SIDEWALL PENETRATIONS - EXEMPT"





PROPOSED

1. REVISED (4) FOURTH FLOOR WINDOWS AT ROOF DECKS TO REMOVE LOWER PANELS RESULTING IN A HIGHER SILL HEIGHT TO ACCOMMODATE ROOF/ DECK ASSEMBLY.
2. REDUCED FIFTH FLOOR RAILING WIDTHS TO ALIGN WITH LOCALIZED TERRACE DEPRESSIONS.
3. ADJUSTED FOURTH FLOOR DOOR AND WINDOW ARRANGEMENT TO ACCOMMODATE INTERIOR LAYOUT.
4. REVISED DECORATIVE PERFORATED PANEL PATTERN AT BASEMENT LEVEL.





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SIDEWALL PENETRATIONS

REVISIONS

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DRAWING INFORMATION

ISSUE:	SIDEWALL PENETRATIONS
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DRAWING TITLE
BUILDING ELEVATION

DRAWING NUMBER
A 207

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PREVIOUSLY APPROVED



GARAGE SCREEN - BASEMENT & LEVEL 1

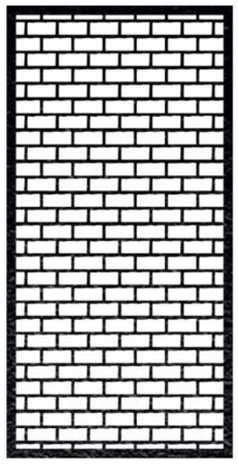
MANUFACTURER: PARASOLEIL
PATTERN/COLOR: NUKUBALAVU / BLACK LICORICE

PROPOSED



GARAGE SCREEN - LEVEL 1

MANUFACTURER: MACY INDUSTRIES
PATTERN/COLOR: NUKUBALAVU / BLACK LICORICE



GARAGE SCREEN - BASEMENT LEVEL

MANUFACTURER: MACY INDUSTRIES
PATTERN/COLOR: SHRINER / BLACK LICORICE

53 GREEN STREET

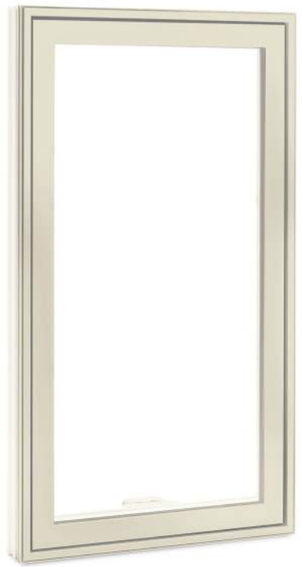
PORTSMOUTH, NEW HAMPSHIRE

MATERIALS - GARAGE SCREENS

HISTORIC DISTRICT COMMISSION APPLICATION FOR APPROVAL
REVISED JUNE 13, 2025

CATHARTES
EMBARC

PREVIOUSLY APPROVED



Stone White



Bronze

WINDOWS	
MANUFACTURER:	MARVIN
SERIES:	ESSENTIAL
SERIES:	BRONZE & STONE WHITE

PROPOSED



Stone White



Bronze

WINDOWS	
MANUFACTURER:	MARVIN
SERIES:	ULTIMATE
SERIES:	BRONZE & STONE WHITE

53 GREEN STREET

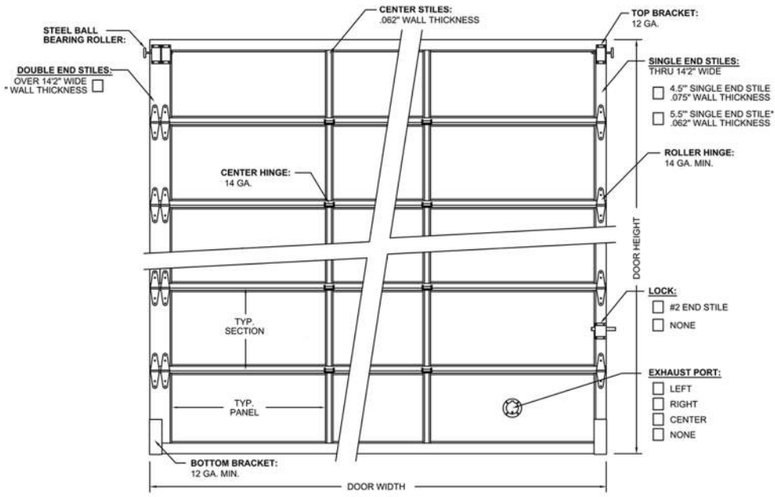
PORTSMOUTH, NEW HAMPSHIRE

MATERIALS - WINDOWS

HISTORIC DISTRICT COMMISSION APPLICATION FOR APPROVAL
REVISED JUNE 13, 2025

CATHARTES
EMBARC

PREVIOUSLY APPROVED

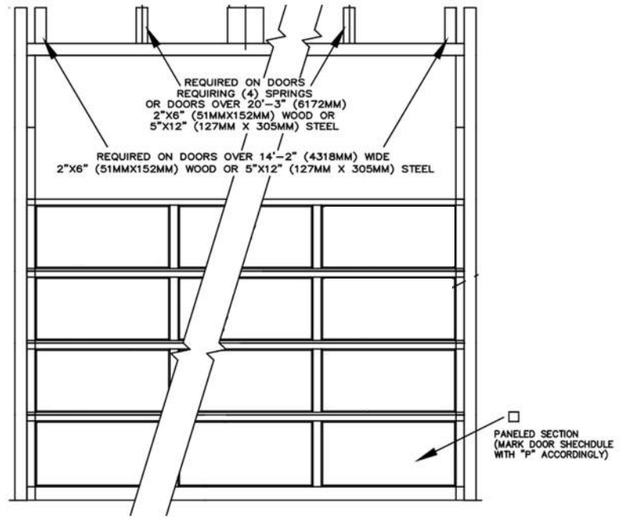


ALUMINUM PANEL
COLOR MATCH

DARK BRONZE
ANODIZED*

GARAGE DOOR	
MANUFACTURER:	CLOPAY
MODEL:	#904
PANEL COLOR:	ALUMINUM PANEL COLOR MATCH
FRAME COLOR:	DARK BRONZE

PROPOSED



ALUMINUM PANEL
COLOR MATCH

DARK BRONZE
ANODIZED*

GARAGE DOOR	
MANUFACTURER:	RAYNOR
MODEL:	AV300
PANEL COLOR:	ALUMINUM PANEL COLOR MATCH
FRAME COLOR:	DARK BRONZE

53 GREEN STREET

PORTSMOUTH, NEW HAMPSHIRE

MATERIALS - GARAGE DOOR

HISTORIC DISTRICT COMMISSION APPLICATION FOR APPROVAL
REVISED JUNE 13, 2025

CATHARTES
EMBARC

6. 235 Marcy Street -Recommended Approval

Background: The applicant is seeking approval for a change to a previously approved design (change siding material).

Staff Comment: Recommend Approval

Stipulations:

1. _____
2. _____
3. _____

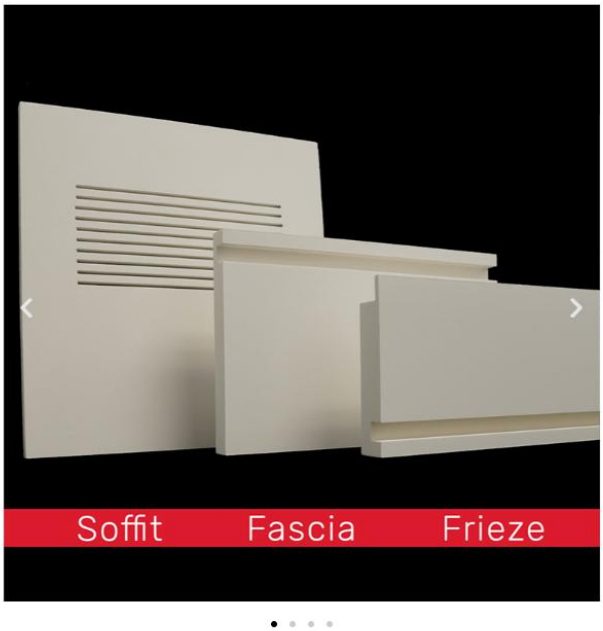


Example of siding

CertainTeed Cedar Impression triple 5” straight edge (color TBD) with 3 ½” corner posts
CertainTeed Monogram double 4” (color TBD) with 51/2” corner posts



Example of siding



Soffit System

VERSATEX Soffit System – *We help you breathe.* At VERSATEX, we continually look for new ways to help our builders reduce labor and improve aesthetics during installation. This led to the design and development of the first ever Vented PVC Soffit System.

Soffit System board profiles include:



Notched Fascia



Frieze Board

View additional options & dimensions

7. 198 Islington Street -Recommended Approval

Background: The applicant is seeking approval for the removal of the chimney due to water infiltration.

Staff Comment: Recommend Approval

Stipulations:

1. _____
2. _____
3. _____

Islington Place Condominium Association
198 Islington Street
Portsmouth, NH 03801
June 23, 2025

Historic District Commission
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

Subject: Chimney Removal Application, 198 Islington Street

Dear Commissioners:

The Islington Place Condominium Association respectfully seeks approval from the Historic District Commission to remove a nonfunctional brick chimney from our property at 198 Islington Street (opposite the Mobil station) due to repeated leaks and failed repair attempts. We request expedited administrative approval of this application because the leak is currently active and the affected homeowner must use buckets and towels to try to contain the water during rain events. The Association plans to reroof this section of the building in the immediate future. We need to remove the chimney first to eliminate this problematic roof penetration, prevent structural damage, and protect our significant investment and that of the homeowner.

Background

The chimney is located above Phase 1 of Islington Place, which consists of an original building that was renovated and converted to three condominium units in 2012. Phase 2 of the development followed with construction and connection of a new, larger building. (See attached elevations.) The chimney is on the rear of the Phase 1 roof and thus only partially visible from the street. It does not extend into the building interior, and serves no functional purpose. In fact, it is not original, as can readily be verified by comparison to a survey photograph of the building circa 1982-1992 (Portsmouth Athenaeum catalog number P40_0171), but is a purely aesthetic addition to the renovated building.



View from Islington St, front



View from Islington St, right



View from Islington St, left



Circa 1982-1992, Portsmouth Athenaeum catalog number P40_0171

Issues and Attempted Repairs

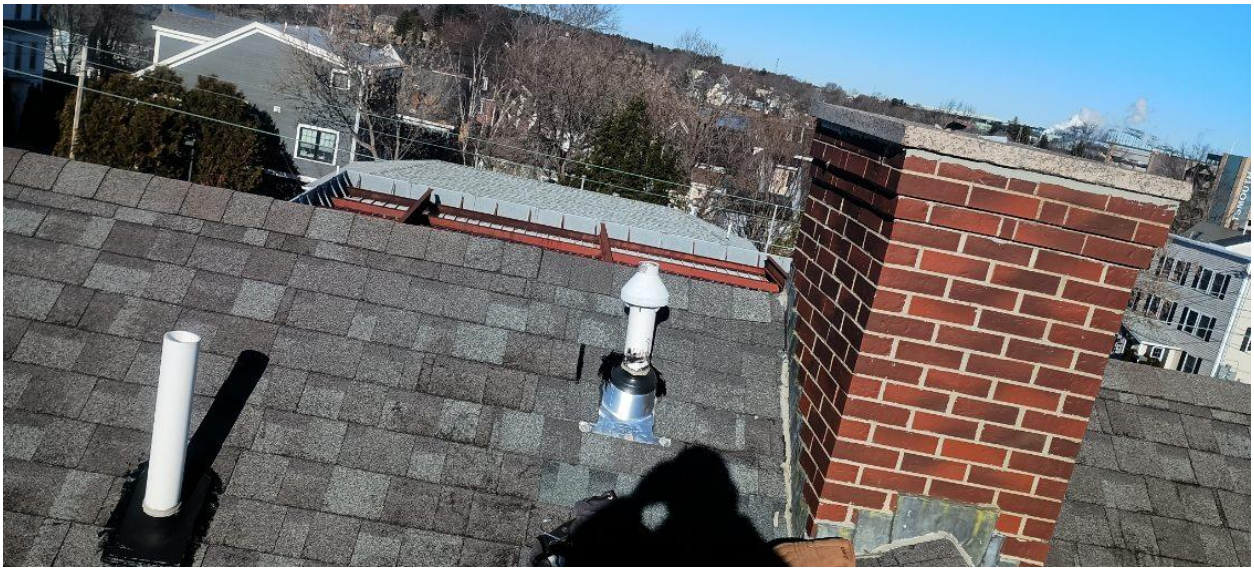
Leaks in the vicinity of the chimney began in 2023, resulting in water intrusion into the living space below. Qualified contractors have been employed on three separate occasions to correct the problem. Repairs have included reflashing the chimney, repointing and sealing the chimney cap, reflashing nearby vent penetrations, installing new ice and water shield in the valley below the chimney, and reshingling the entire area. Despite exterior and interior repair expenses exceeding $7200 to date (and still counting), no durable resolution has been achieved, and the homeowner continues to suffer water intrusion into their living space.



Chimney cap gap before repair



Chimney cap after repair



After repairs, from rear

Current water intrusion in living space:



Current water intrusion in living space:





Proposed Plan

The Islington Place board of directors wants to implement a comprehensive and lasting solution to this frustrating and expensive problem. We have obtained contractor proposals for a complete replacement of the Phase 1 roof. To insure that any and all leaks are resolved by this costly project, we seek to remove the chimney, which is an unnecessary penetration of the roof barrier with a history of issues. The goal, of course, is to reestablish the integrity of the building envelope and protect the underlying historic structure and its residents.

We recognize that the Historic Preservation Design Guidelines generally discourage removal of historic chimneys. However, we believe for the following reasons that retention of our chimney would constitute an undue burden on the Association and our homeowners, and that removal is the appropriate course of action.

- The chimney is not historic.
- It is not a character defining feature of the building.
- Visibility of the chimney from the street is limited.
- The chimney penetration compromises the integrity of the roof barrier for no functional purpose.
- Multiple repairs have failed to achieve lasting results.
- Continuing exterior and interior repair expenses will restrict the ability of the Association to maintain other important aspects of the property.

Summary

Since removal of the chimney would be a minor change to our property with limited visibility, and repairs are urgently needed to halt water intrusion, we respectfully request expedited administrative approval of this application so that we may begin our roof replacement project as soon as possible. Any questions may be directed to Janet Doyle, Secretary of the Association, at doyle.janet.m@mail.com. We thank you in advance for your timely consideration.

Sincerely,

The Islington Place Condominium Association Board of Directors

Kearn Knowles, President
Janet Doyle, Secretary

Kathy Ouellette, Treasurer

cc: Dennis Pelletier
Property Manager
PMI Advantage Property Management

Attachment:
Elevations



ENTRANCE ELEVATION

1/8" = 1'-0"



ISLINGTON STREET ELEVATION

1/8" = 1'-0"



AR&T ELEVATION

1/8" = 1'-0"



BACK ELEVATION

1/8" = 1'-0"

REVISIONS:
REV #1: 10/22/2012
REV #2: 01/04/2013

198 ISLINGTON PLACE

198 ISLINGTON STREET
PORTSMOUTH, NEW HAMPSHIRE

CJ ARCHITECTS
4 MARKET STREET PORTSMOUTH, NH 03801
T 603-431-2808 F 603-431-2809 cjarchitects.net

NEW ADDITION - KEY ELEVATIONS

DATE:	04/26/10
DRAWN BY:	RLD
APPROVED BY:	CJG
SCALE:	1/8" = 1'-0"
JOB NUMBER:	20812

A12

8. 96 State Street -Recommended Approval

Background: The applicant is seeking approval for window replacements.

Staff Comment: Recommend Approval

Stipulations:

1. _____
2. _____
3. _____

96 STATE STREET

PORTSMOUTH, NH
HISTORIC DISTRICT PUBLIC HEARING - 07/02/2025

OWNER

Huai Ying Zheng
34 SAWGRASS LANE,
ELIOT, ME 03903
PHONE: 617-775-9522

ARCHITECT

WINTER HOLBEN architecture + design
7 WALLINGFORD SQUARE, UNIT 2099
KITTERY, MAINE 03904
PHONE: 207-994-3104



DRAWING INDEX

No.	Sheet Name
General	
H-001	Cover Sheet
Existing	
HE-300	Existing - North & East Elevation
HE-301	Existing - South & West Elevation
Architectural	
H-300	Elevations
H-301	Elevations
H-510	Exterior Window Details
H-511	Exterior Window Details
H-512	Exterior Window Details
H-900	Product Data
H-900b	Product Data

SITE LOCATION MAP



96 STATE ST.
96 State St. Portsmouth, NH

Huai Ying Zheng

WINTER HOLBEN
architecture + design

7 WALLINGFORD SQ
UNIT 2099
KITTERY, MAINE 03904
207.994.3104

Drawn By:	PG
Drawing Checked By:	BMH
Drawing Scale:	12" = 1'-0"
Drawing Date:	06/18/2025
Project Number:	24051

drawing revisions:

Cover Sheet

H-001

6/18/2025 2:20:38 PM



1 Existing - North Elevation
1/8" = 1'-0"



2 Existing - East Elevation
1/8" = 1'-0"

96 STATE ST.

96 State St. Portsmouth, NH

Huai Ying Zheng

WINTER HOLBEN
architecture + design

7 WALLINGFORD SQ
UNIT 2099
KITTERY, MAINE 03904
207.994.3104

Drawn By:	PG
Drawing Checked By:	Checker
Drawing Scale:	1/8" = 1'-0"
Drawing Date:	06/18/2025
Project Number:	24051

drawing revisions:

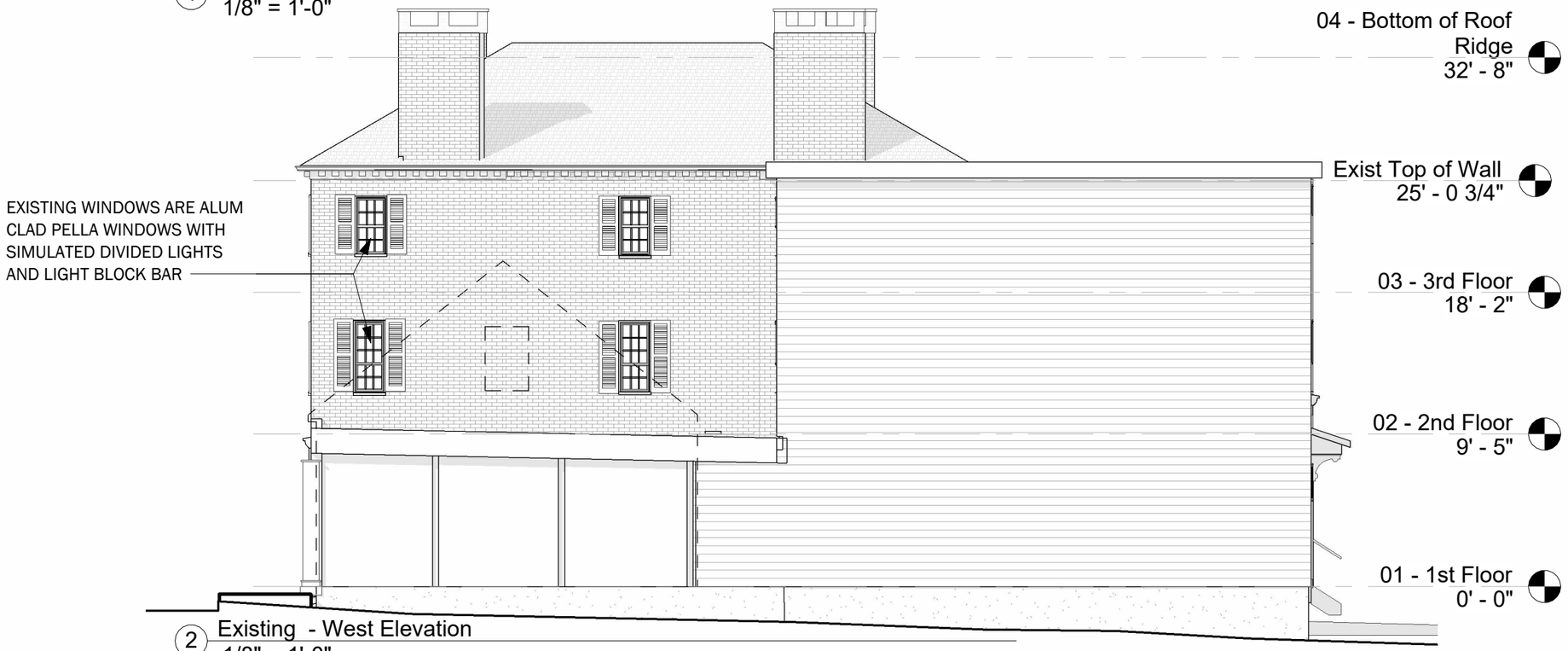
Existing - North & East Elevation

HE-300

6/18/2025 2:20:41 PM



1 Existing - South Elevation
1/8" = 1'-0"



2 Existing - West Elevation
1/8" = 1'-0"

96 STATE ST.

96 State St. Portsmouth, NH

Huai Ying Zheng

WINTER HOLBEN
architecture + design

7 WALLINGFORD SQ
UNIT 2099
KITTERY, MAINE 03904
207.994.3104

Drawn By:	PG
Drawing Checked By:	Checker
Drawing Scale:	1/8" = 1'-0"
Drawing Date:	06/18/2025
Project Number:	24051

drawing revisions:

Existing - South & West Elevation

HE-301

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WINDOW NOTE:
PROPOSED WINDOWS PELLA RESERVE WITH SIMULATED DIVIDED LIGHT AND LIGHT BLOCK BAR



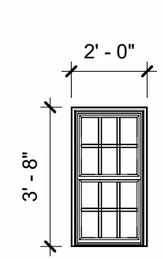
1 NORTH ELEVATION - PROPOSED
1/8" = 1'-0"



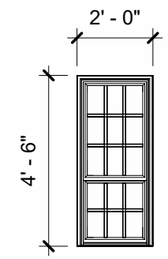
2 EAST ELEVATION - PROPOSED
1/8" = 1'-0"

LEGEND

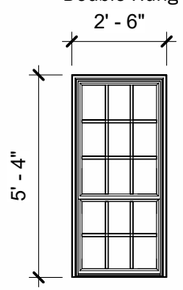
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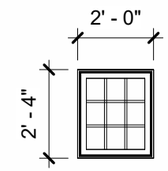
A
Double-Hung



B
Double-Hung



C
Double-Hung



D
FIXED

NOTE - FIELD VERIFY ALL EXISTING R.O.'S WINDOW SCHEDULE REPRESENTS INTENT OF DESIGN

WINDOW TYPES
1/4" = 1'-0"

96 STATE ST.

96 State St. Portsmouth, NH

Huai Ying Zheng

WINTER HOLBEN
architecture + design

7 WALLINGFORD SQ
UNIT 2099
KITTERY, MAINE 03904
207.994.3104

Drawn By:	PG
Drawing Checked By:	BMH
Drawing Scale:	As indicated
Drawing Date:	06/18/2025
Project Number:	24051

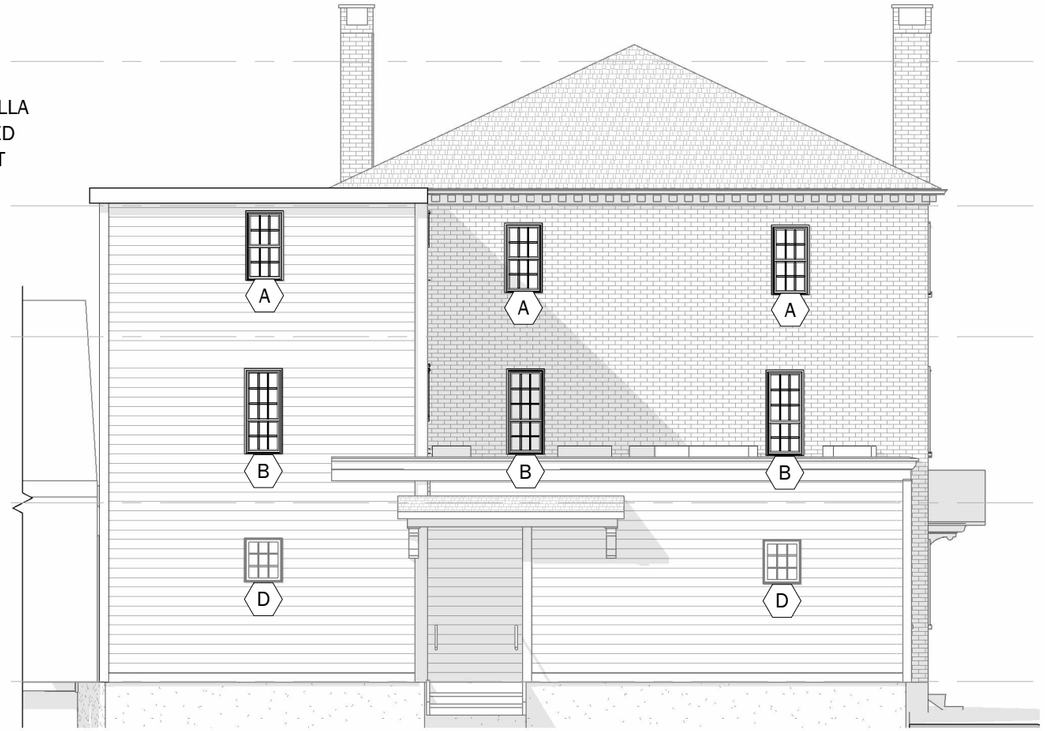
drawing revisions:

Elevations

H-300

6/18/2025 2:20:47 PM

WINDOW NOTE:
PROPOSED WINDOWS PELLA RESERVE WITH SIMULATED DIVIDED LIGHT AND LIGHT BLOCK BAR



04 - Bottom of Roof Ridge 32' - 8"
Exist Top of Wall 25' - 0 3/4"
03 - 3rd Floor 18' - 2"
02 - 2nd Floor 9' - 5"
01 - 1st Floor 0' - 0"

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

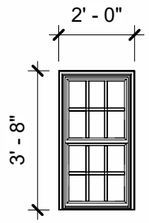


04 - Bottom of Roof Ridge 32' - 8"
Exist Top of Wall 25' - 0 3/4"
03 - 3rd Floor 18' - 2"
02 - 2nd Floor 9' - 5"
01 - 1st Floor 0' - 0"

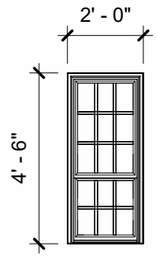
2 WEST ELEVATION - PROPOSED
1/8" = 1'-0"

LEGEND

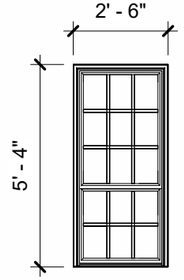
A WINDOW TAG



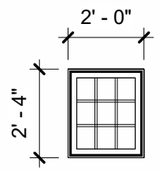
A
Double-Hung



B
Double-Hung



C
Double-Hung



D
FIXED

NOTE - FIELD VERIFY ALL EXISTING R.O.'S WINDOW SCHEDULE REPRESENTS INTENT OF DESIGN

WINDOW TYPES
1/4" = 1'-0"

96 STATE ST.
96 State St. Portsmouth, NH

Huai Ying Zheng

WINTER HOLBEN
architecture + design

7 WALLINGFORD SQ
UNIT 2099
KITTERY, MAINE 03904
207.994.3104

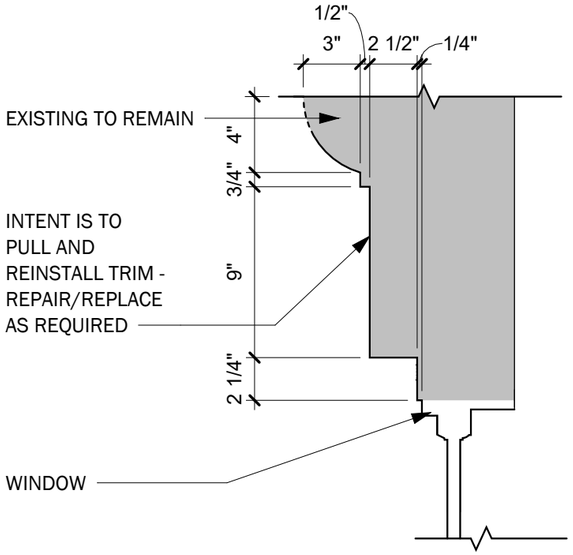
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Project Number:	24051

drawing revisions:

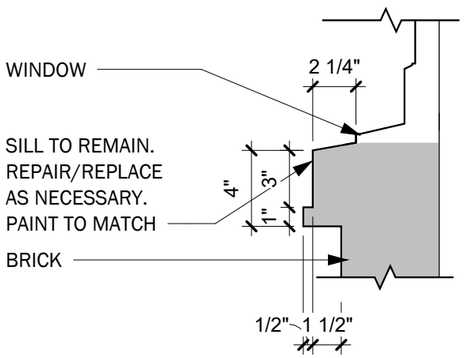
Elevations

H-301

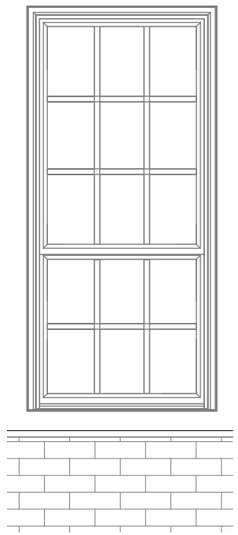
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1 WINDOW HEAD @ PANEL DETAIL
1 1/2" = 1'-0"



2 BRICK SILL @ PANEL DETAIL
1 1/2" = 1'-0"



3 BRICK SILL ELEVATION
1/2" = 1'-0"



EXISTING CONDITION

96 STATE ST.

96 State St. Portsmouth, NH

Huai Ying Zheng

WINTER
HOLBEN
architecture + design

7 WALLINGFORD SQ
UNIT 2099
KITTERY, MAINE 03904
207.994.3104

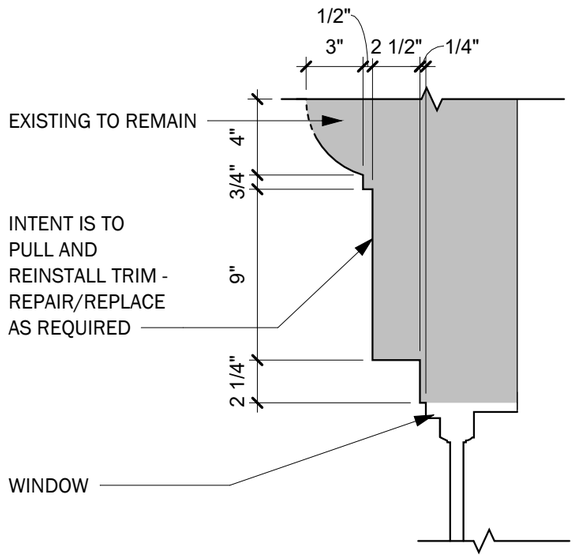
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Drawing Scale:	As indicated
Drawing Date:	06/18/2025
Project Number:	24051

drawing revisions:

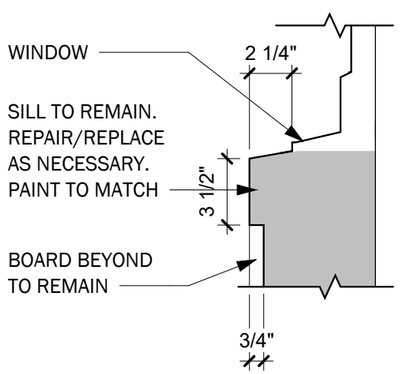
Exterior
Window
Details

H-510

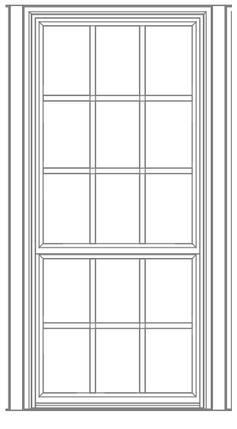
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3 WINDOW HEAD @ PANEL DETAIL TYP.
1 1/2" = 1'-0"



4 WINDOW SILL @ PANEL DETAIL
1 1/2" = 1'-0"



2 PANEL SILL ELEVATION
1/2" = 1'-0"



EXISTING CONDITION

96 STATE ST.

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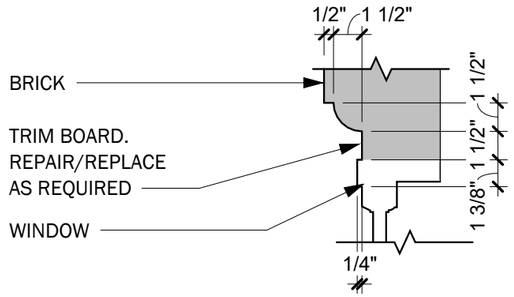
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Project Number:	24051

drawing revisions:

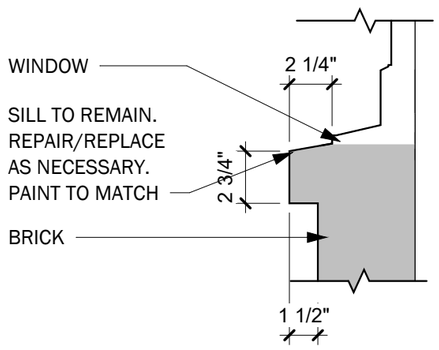
Exterior
Window
Details

H-511

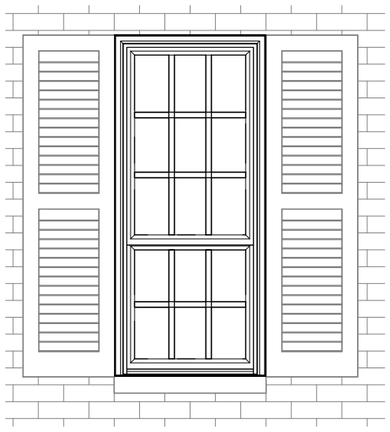
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1 WINDOW HEAD @ MASONRY OPENING DETIAL
1 1/2" = 1'-0"



2 WINDOW SILL @ MASONRY OPENING DETAIL
1 1/2" = 1'-0"



3 MASONRY OPENING ELEVATION
1/2" = 1'-0"



EXISTING CONDITION

96 STATE ST.

96 State St. Portsmouth, NH

Huai Ying Zheng

WINTER HOLBEN
architecture + design

7 WALLINGFORD SQ
UNIT 2099
KITTERY, MAINE 03904
207.994.3104

Drawn By:	PG
Drawing Checked By:	Checker
Drawing Scale:	As indicated
Drawing Date:	06/18/2025
Project Number:	24051

drawing revisions:

Exterior Window Details

H-512

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Pella® Reserve™ Traditional

Wood & Aluminum-Clad Wood

Unparalleled historical detailing

Featuring historic elements with uncompromised attention to detail, including Integral Light Technology® grilles and a historic putty profile.

Authentic hardware

With a historically authentic spoon-lock and our Antiek casement window hardware inspired by period furniture.

Integrated Rolscreen®

A retractable screen that appears when you open the window and disappears into the frame when the window is closed.

WH PROPOSED:

DOUBLE HUNG AND FIXED WINDOWS WITH A TRADITIONAL GRILLE PATTERN AND OGEE INTEGRAL LIGHT TECHNOLOGY GRILL TYPE. FLAT SCREEN OPTION TO BE INCLUDED. BLACK AND WHITE EXTERIOR FINISHES TO MATCH THE TO BE REPLACED WINDOWS, TYPICAL.



Historic elements

Putty profile. Further your aesthetic with the putty profile, recreated with historically accurate angles to provide meaningful depth and a realistic shadow. These products offer the industry's deepest sash dimension.

Through-stile construction. Essential to the tradition of window making, butt joinery and through-stile construction create authentic proportions and emulate historic window design.

Integral Light Technology. Pella's Integral Light Technology helps capture the look of true-divided-light without sacrificing energy performance.

Intentional innovations

Single- and double-hung Integrated Rolscreen. The Integrated Rolscreen is a screen on a single- and double-hung window that appears when you open the window, and rolls away, out of sight, when you close it.

Innovative sash lugs. Add sash lugs to the exterior of our double-hung windows to create an authentic look, while maintaining modern tilting functionality for easy cleaning.

Steady Set™ interior installation system. The industry's fastest wood window installation system with uncompromising quality.[2]

Exquisitely designed windows and doors with unparalleled historical detailing. Featuring through-stile construction, deliberate proportions and intricate profiles to achieve authentic traditional style. Durable interiors and extruded aluminum exteriors allow you to create the ideal look for your design. And with cutting-edge innovations that solve modern-day inconveniences without compromising the design, your clients can be proud to own Pella Reserve – Traditional windows and patio doors. We know your reputation matters, so we stand behind Pella Reserve products with the best limited lifetime warranty for wood windows and patio doors.[1]

Achieve your vision and impress your clients. From preliminary drawings to installation, Pella's expert team of architects, engineers, drafters and consultants can work to deliver custom window and door solutions for your project. Partner with Pella to achieve your unique vision without concessions. And with large multi-slide and bifold patio doors, you can create a space that blurs the lines between indoors and out.

96 STATE ST.

96 State St. Portsmouth, NH

Huai Ying Zheng

WINTER HOLBEN
architecture + design

7 WALLINGFORD SQ
UNIT 2099
KITTERY, MAINE 03904
207.994.3104

Drawn By:	PG
Drawing Checked By:	BH
Drawing Scale:	
Drawing Date:	06/18/2025
Project Number:	24051

drawing revisions:

Product Data

H-900

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9. 279 Marcy Street, Unit #3 -Recommended Approval

Background: The applicant is seeking approval to install full screens, where other units have full screens in the same building (first and third floors)

Staff Comment: Recommend Approval

Stipulations:

1. _____
2. _____
3. _____



First Floor Unit with Full Screens



Third Floor Unit with Full Screens

10. 139 South Street -Recommended Approval

Background: The applicant is seeking approval for:

-Restore 18 windows in the main(street fronting) structure by 'Window Women of New England'.

-Replace all remaining windows with new Marvin Ultimate Series w/ ½ screens.

-Replace octagon window with square unit to fit, See 4/Page 2.

-Replace back slider with a pair of Marvin Ultimate French Doors in the same size. See 4/Page 2.

-Remove 'faux' back door, trim, pediment and light. Infill with siding to match existing. See 1+2/Page 3.

-Remove skylight and replace roofing on main structure and 2-story structure to match existing. See 3/Page 3.

-Replace roof over 1-story rear addition with metal and rubber. See 4/Page 3.

-Replace all eaves in kind and existing gutters with copper.

-Add (1) new Rheem Heat Pump. See Page 4 and Specifications.

-Add (1) electric car charger to parking lot at landscape edge. See Specifications.

-As part of these efforts, we are anticipating any general repair and refurbishment of compromised or failing conditions will be handled, in-kind.

Staff Comment: Recommend Approval

Stipulations:

1. _____
2. _____
3. _____





Table of Contents

1. Cover Sheet and Locus Map (139A South is part of a HOA)
2. Photos of Existing Home
3. Conditions to be Refurbished and Replaced In-Kind
4. Conditions to be Refurbished and Replaced In-Kind

Proposed Scope: General Updates and Refurbishments

-Restore 18 windows in the main(street fronting) structure by 'Window Women of New England'.
-Replace all remaining windows with new Marvin Ultimate Series w/ $\frac{1}{2}$ screens.
-Replace octagon window with square unit to fit, See 4/Page 2.
-Replace back slider with a pair of Marvin Ultimate French Doors in the same size. See 4/Page 2.
-Remove 'faux' back door, trim, pediment and light. Infill with siding to match existing. See 1+2/Page 3.
-Remove skylight and replace roofing on main structure and 2-story structure to match existing. See 3/Page 3.
-Replace roof over 1-story rear addition with metal and rubber. See 4/Page 3.
-Replace all eaves in kind and existing gutters with copper.
-Add (1) new Rheem Heat Pump. See Page 4 and Specifications.
-Add (1) electric car charger to parking lot at landscape edge. See Specifications.
-As part of these efforts, we are anticipating any general repair and refurbishment of compromised or failing conditions will be handled, in-kind.



1. Close Up Along Left Side (from Street)



2. Front Elevation



3. Right Side Elevation



4. Back Elevation



5. Close Up of Back Corner



6. Close Up of Roofs at Back Corner



1. Right Side Elevation

Red circle shows location of back door to be removed.
This door does not function to access the interior and poses confusion.



2. Door to be Removed

-Doors does not operate.
-Door is not evident on the interior.
-Remove door, trim, pediment, sill and light fixture.
-Reside to match existing.



3. Back Elevation

-Main roof and 2-story addition roof to be replaced in kind.
-Skylight at ridge to be eliminated.
-1-story addition roof to be replaced with metal and rubber.
See below.
-Slider to be replaced with a
-French Door of same size.
-Octagon window to be replaced with a square.



4. 1-Story Roof

Close up of varied conditions as seen from side view.
Also see Photo 6/Page 2.



1. Left Side Back (Inside) Corner

Location of new heat pump will be
parallel to and as close to the building wall as
specifications allow.
-40" wide, parallel to building
-31" high, above grade
-19" deep, off building facade
See Specification Sheet.



2. Inside Corner (Looking toward South Street)

Photo demonstrates this area of the lot has many
other utilitarian attributes.
-Lines will run up parallel to the gutter and
cornerboard above.
-Lines will be painted to match siding.



3. Inside Corner (Looking from South Street)

Heat pump will be approximately 55'
back from South Street lot line.

Endeavor® Line *Prestige*® Series Side-Discharge Universal Heat Pump



This product meets a stringent set of our internally defined sustainability standards

EcoNet®

RD18AY

Cooling Efficiencies up to: 19 SEER2 / 13 EER2
Heating Efficiencies up to: 10 HSPF2
Nominal Sizes: 2 to 5 Tons [7.0 to 17.6 kW]
Cooling & Heating Capacities: 22.8 to 53.0 kBTU [6.7 to 16.1 kW]
Refrigerant Type: R-454B

ENERGY STAR[1] ISO 9001:2015 AHRI CERTIFIED Intertek Dual Fuel Sound and Space Constraint Solution Most Efficient 2025[1] ENERGY STAR www.energystar.gov

[1]*Proper sizing and installation of equipment is critical to achieve optimal performance. Split system air conditioners and heat pumps must be matched with appropriate coil components to meet ENERGY STAR®. Ask your Contractor for details or visit www.energystar.gov.*

Table of Contents

Features and Benefits 3
Model Number Identification 4
General Data/Electrical Data 5
Accessories 6
Unit Dimensions 7
Clearances 8
Refrigerant Line Size Information 9-10
Performance Data 11
Limited Warranty 12

Features and Benefits

- **Flexible and Universal Install Compatibility:**
  - — Works with nearly any R-454B HVAC System—including Rheem EcoNet® Enabled systems and non-communicating systems
  - — Install with any indoor system component via a Rheem algorithm (**IMPORTANT:** the indoor system component CFM must match the requirement of the outdoor system component)
  - — Install as a Universal Replacement with minimal alterations (**R-454B coil only**—with TXV)
- **Space Saver Solution:** The RD18AY—with footprint options as low as 36.6" tall and 19.8" wide—is ideal for when installation locations are constrained; but is also perfect for any system or replacement option where an efficient, streamlined look is desired
- **Quiet Operation as low as 50dBA[1]:** Offers sound dampening features such as a sound blanket, refrigerant tubing design, fan blade approach and innovative compressor and drive technologies—ensure that as efficiency goes up, sound levels stay low
- **EcoNet® Enabled[2]:** Automatic system configuration and optimization
- **PlusOne® Diagnostics & Bluetooth®[3, 4] Connectivity:** With the Rheem Contractor & EcoNet® Apps, built-in technology makes advanced set-up, monitoring, troubleshooting, and repairing the product easier than ever before
- **PlusOne® Variable Speed Twin Rotary Compressor & Inverter Drive:**
  - — Features variable speed operation from 45 to 100% capacity with the EcoNet® Smart Thermostat or with legacy and other thermostats when the utility 1 & 2 jumpers are installed or using the Rheem algorithm[5]
  - — Provides precise temperature control, advanced humidity control and greater efficiency
- **Brushless DC Condenser Motors (BLDC):** Enhances reliability and allows for easier serviceability
- **Swept Wing Fan Technology:** Features quieter operation and improved unit acoustics
- **7mm Condenser Copper Coil:** Requires less refrigerant allowing for a smaller and lighter footprint while enhancing reliability
- **Optional Base Pan Heater:** Utilizes a built-in thermostat to regulate the heating operation to prevent ice build-up on the base pan during extreme cold weather conditions
- **Traditional Refrigerant Piping:** Allows for use of existing refrigerant line sets for further ease of replacement installation flexibility
- **10-Year Conditional Parts Warranty (registration required):** Coverage when installed as a heat pump only or as part of a system—with no AHRI matched system requirement
- **Qualifies for Federal Incentives (conditions apply):**
  - — Federal Tax Credit compliant system combinations across all product tonnages (effective through 12/31/32)—up to $2000 for qualified heat pumps
  - — Visit Rheem.com/Federal-Incentives
- **PlusOne® Refrigerant Detection System™[6]:** An integrated one-box, patented design featuring the A2L sensor and mitigation board, offering easier commissioning with a single component and simplified wiring configuration, compatibility with the any 24V thermostat application and system protection by automatically pausing outdoor unit operation—if excess refrigerant is detected
- **Designing for Sustainability with Low GWP:** For 2025, the Environmental Protection Agency (EPA) has set a global warming potential (GWP) limit of 700 for refrigerant used in heating and cooling systems. This new requirement will result in a 78%[7] lower GWP than previous-generation refrigerants—with only minimal changes to system installation. For us, this is another step toward our continued sustainability goal of reducing greenhouse gas emissions, while still delivering an exceptional level of energy efficient, dependable comfort

[1]Based on Internal R&D Testing, 2023 Sound levels are also dependent on proper installation and location of outdoor product. [2]When installed as part of a complete AHRI-matched, Rheem EcoNet® Enabled system. [3]The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Rheem® is under license. Other trademarks and trade names are those of their respective owners. [4]When installed as part of a complete Rheem system where both the outdoor & indoor components feature Bluetooth® Technology. [5]Two-Stage (70% &100% capacity) operation when installed with legacy and other thermostats when the utility 1 & 2 jumpers are not installed. The 2-Ton model features a single rotary compressor. [6]Factory or field installed in the furnace coil or air handler and is applicable to the complete heating and cooling system featuring Low GWP Refrigerant (A2L). [7]When comparing the GWP of R-454B to R-410A refrigerant.

Heat Pumps

R	D	18	A	Y	24	A	J	V	C	A
Brand	**Product Category**	**SEER2**	**Region**	**Refrigerant**	**Capacity**	**Major Series**	**Voltage**	**Type**	**Controls**	**Minor Series**
R - Rheem	D - Side-Discharge Heat Pump	18 - 18 SEER2	A - All Regions	Y - R-454B	24 - 24,000 [7.03 kW] 36 - 36,000 [10.55 kW] 48 - 48,000 [14.07 kW] 60 - 60,000 [17.58 kW]	A - 1st Design	J - 208/230/1/60	V - Fully Variable	C - Communicating, EcoNet®, Bluetooth®	A - 1st Series

[ ] Designates Metric Conversions

AVAILABLE MODELS	DESCRIPTION
RD18AY24AJVCA	Endeavor® Line *Prestige*® Series 2 Ton R-454B Inverter Driven Variable Speed Universal Heat Pump
RD18AY36AJVCA	Endeavor® Line *Prestige*® Series 3 Ton R-454B Inverter Driven Variable Speed Universal Heat Pump
RD18AY48AJVCA	Endeavor® Line *Prestige*® Series 4 Ton R-454B Inverter Driven Variable Speed Universal Heat Pump
RD18AY60AJVCA	Endeavor® Line *Prestige*® Series 5 Ton R-454B Inverter Driven Variable Speed Universal Heat Pump

NOTE: RD18AY models are communicating when installed as part of a complete AHRI-matched, Rheem EcoNet® Enabled System

STANDARD EQUIPMENT
R-454B Refrigerant
Rotary Compressor
Field Installed Filter Drier
Low Ambient Control
Compressor Sound Cover
Low Pressure Control
Front Seating Service Valves
Internal Pressure Relief Valve
Built-In Low Ambient with EcoNet®
Easy Access to Internal Components
Optimized Venturi Airflow
Powder Coated Paint
Rust Resistant Screws
QR Code
External Gauge Ports
Base Pan Heating Element[1]

[1]Heating element commissioning requires purchase and field installment of base pan heater kit (item 45-110492-01).

General Data

MODEL NO.	RD18AY24AJVCA	RD18AY36AJVCA	RD18AY48AJVCA	RD18AY60AJVCA
Nominal Tonnage	2.0T	3.0T	4.0T	5.0T
Valve Connections				
Liquid Line O.D. – in.	3/8	3/8	3/8	3/8
Suction Line O.D. – in.	3/4	3/4	7/8	7/8
Refrigerant (R-454B) furnished oz.[1]	76	141	194	222
Compressor Type				
Outdoor Coil				
Net face area – Outer Coil (Sq. Ft.)	11	15.1	17.2	17.2
Net face area – Inner Coil (Sq. Ft.)	11	15.1	17.2	17.2
Tube diameter – in.	0.276	0.276	0.276	0.276
Number of rows	1	2	3	3
Fins per inch	18	18	16	16
Outdoor Fan				
Diameter – in.	26	28	24	24
Number of blades	3	3	3	3
Motor hp	1/2	1/2	1/3	1/3
Nos	1	1	2	2
CFM	3175	2820	4350	5400
RPM	550	450	550	675
Watts	115	106	191	327
Shipping weight – lbs.	204	272	347	354
Operating weight – lbs.	177	230	296	306

Electrical Data

Line Voltage Data (Volts-Phase-Hz)	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
Maximum overcurrent protection (amps)[2]	20.0	30.0	40.0	45.0
Minimum circuit ampacity[3]	19.0	26.0	38.0	43.0
Compressor				
Rated load amps	7.1	8.4	6.1	6.1
Locked rotor amps	18	52	61	61
Condenser Fan Motor				
Full load amps	3.0	3.0	2.5	2.5
Locked rotor amps	6.4	6.4	4.1	4.1

[1]Refrigerant charge sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the installation instructions for information about set length and additional refrigerant charge required.
[2]HACR type circuit breaker of fuse.
[3]Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements.

Accessories

MODEL NO.		RD18AY24AJVCA	RD18AY36AJVCA	RD18AY48AJVCA	RD18AY60AJVCA
Compressor crankcase heater		44-103663-15	44-103663-15	44-103663-15	44-103663-15
Base pan heater connector kit[1]		45-110492-01	45-110492-01	45-110492-01	45-110492-01
Low ambient control		Included Standard	Included Standard	Included Standard	Included Standard
Compressor sound cover		Included Standard	Included Standard	Included Standard	Included Standard
Compressor hard start kit		N/A	N/A	N/A	N/A
Low pressure control		Included Standard	Included Standard	Included Standard	Included Standard
High pressure control		Included Standard	Included Standard	Included Standard	Included Standard
Liquid Line Solenoid (24 VAC, 50/60 Hz)	Solenoid Valve	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC
	Solenoid Coil	61-AMG24V	61-AMG24V	61-AMG24V	61-AMG24V
Liquid Line Solenoid (120/240 VAC, 50/60 Hz)	Solenoid Valve	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC
	Solenoid Coil	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V

[1]Required for heating element commissioning.

Weighted Sound Power Level (dBA)

UNIT SIZE - VOLTAGE, SERIES	SOUND PRESSURE AS LOW AS	SOUND POWER AS LOW AS	TYPICAL OCTAVE BAND SPECTRUM (dBA WITHOUT TONE ADJUSTMENT)						
			125	250	500	1000	2000	4000	8000
RD18AY24AJVCA	53	61	45.0	54.7	57.5	58.2	53.9	46.7	38.1
RD18AY36AJVCA	50	58	44.7	60.8	62.3	57.2	53.9	54.5	44.8
RD18AY48AJVCA	54	61	54.0	58.6	63.8	64.9	60.4	54.8	44.9
RD18AY60AJVCA	55	63	53.5	59.0	62.6	63.3	57.9	50.4	44.8

NOTE: Tested in accordance with AHRI Standard 270-08 (not listed in AHRI)

Unit Dimensions

MODEL NO.	OPERATING						SHIPPING					
	H (Height)		L (Length)		W (Width)		H (Height)		L (Length)		W (Width)	
	INCHES	cm	INCHES	cm	INCHES	cm	INCHES	cm	INCHES	cm	INCHES	cm
RD18AY24AJVCA	36.6	93.0	40.4	102.6	19.8	50.3	43.31	110.0	48.43	123.0	22.05	56.0
RD18AY36AJVCA	46.4	117.8	42.3	107.4	22.8	57.8	53.94	137.0	50.00	127.0	25.00	63.5
RD18AY48AJVCA	58.0	147.3	40.4	102.6	19.8	50.3	65.16	165.5	48.43	123.0	22.05	56.0
RD18AY60AJVCA	58.0	147.3	40.4	102.6	19.8	50.3	65.16	165.5	48.43	123.0	22.05	56.0

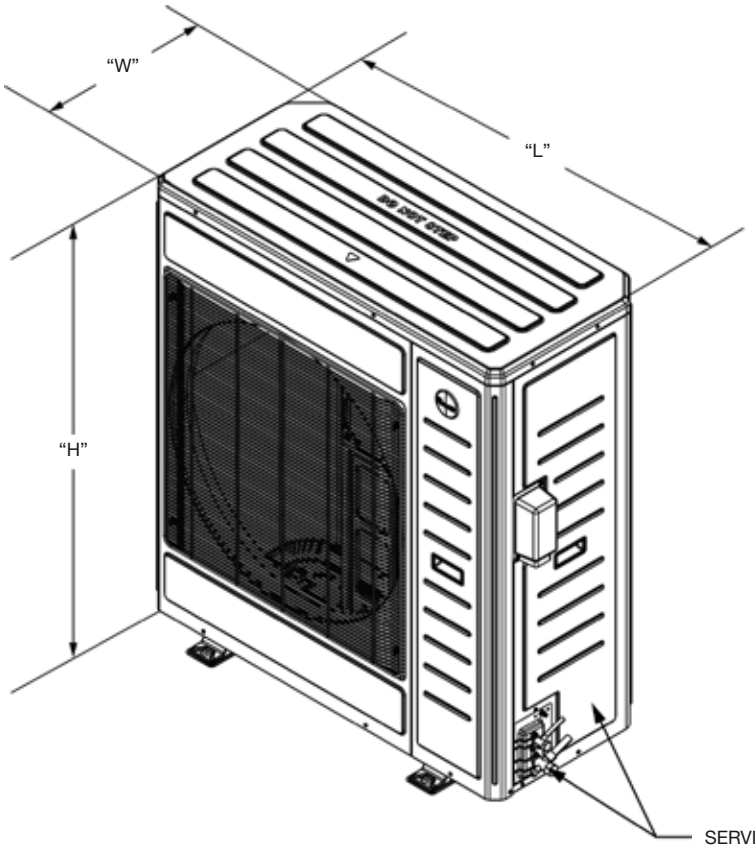


Illustration
A1345-02-00

[ ] Designates Metric Conversions

Allowable Clearances

Single Unit Installations

RD18AY24, RD18AY36				
	OBSTRUCTION MIN. CLEARANCE (IN.)			
	REAR	COIL SIDE	FRONT	SERVICE PANEL
Open Space Above	4	12	48	10
	12	4	48	10
	12	12	24	10
	4	12	24	10
Obstruction Above, Less Than 40"	12	12	48	10
	20	4	24	10

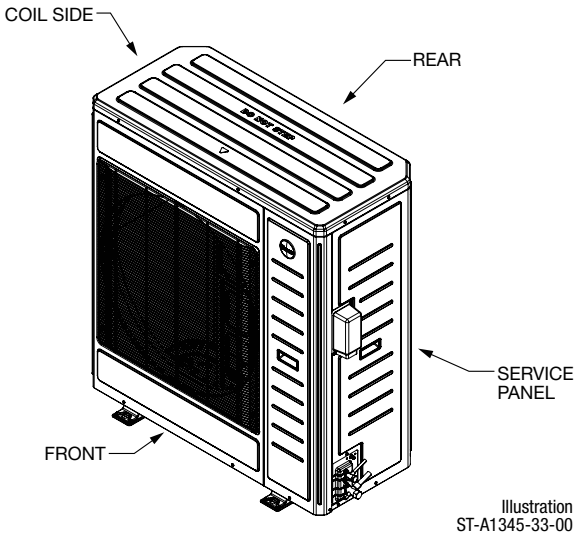


Illustration ST-A1345-33-00

RD18AY48, RD18AY60				
	OBSTRUCTION MIN. CLEARANCE (IN.)			
	REAR	COIL SIDE	FRONT	SERVICE PANEL
Open Space Above	6	8	60	10
	12	8	60	10
	12	12	40	10
	6	12	40	10
Obstruction Above, Less Than 40"	12	12	48	10
	20	4	60	10

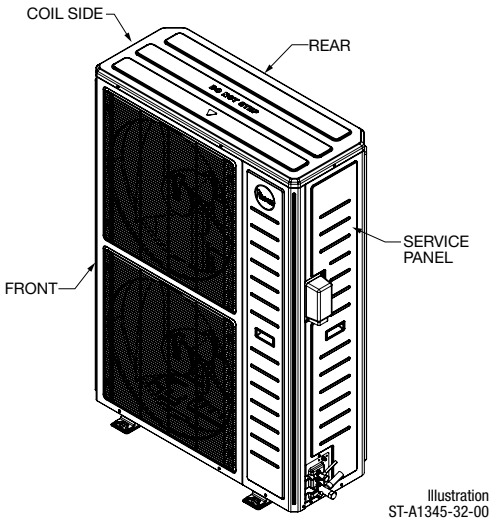


Illustration ST-A1345-32-00

Multiple Unit Installations

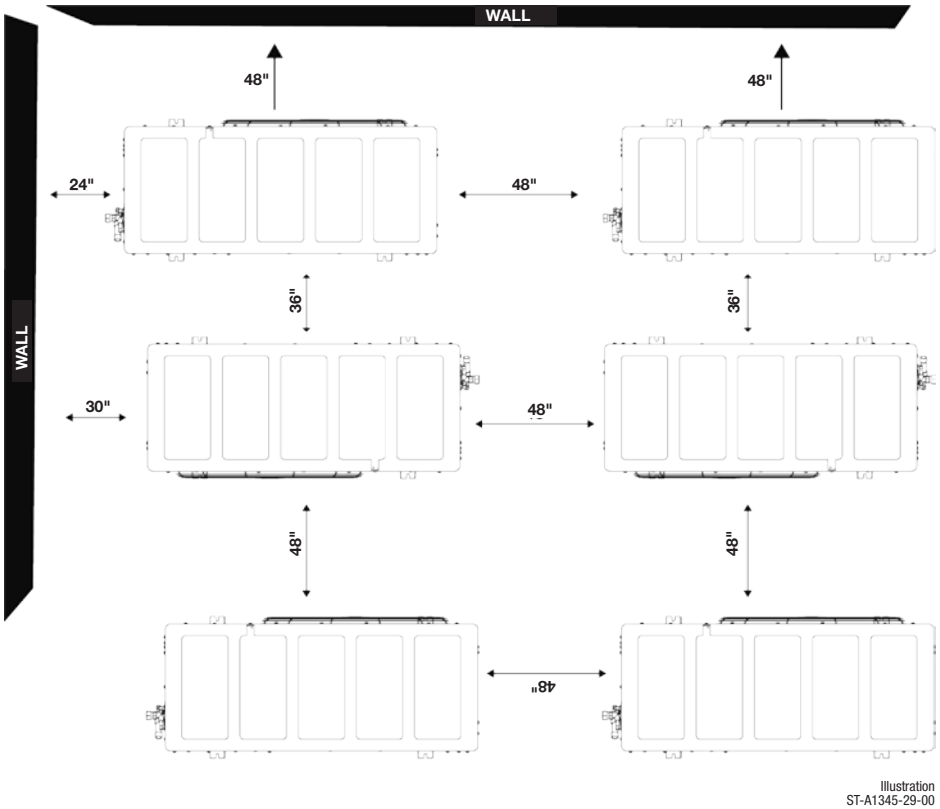


Illustration ST-A1345-29-00

IMPORTANT: Consult local and national building codes and ordinances for special installation requirements. Following location information will provide longer life and simplied servicing of the outdoor heat pump.

NOTICE: These units must be installed outdoors. No ductwork can be attached, or other modications made, to the discharge grille. Modications will affect performance or operation.

Refrigerant Line Size Information

18 SEER2 VARIABLE SPEED HEAT PUMPS								
UNIT SIZE	**ALLOWABLE LIQUID LINE SIZE**	**ALLOWABLE VAPOR LINE SIZE**	**OUTDOOR UNIT ABOVE OR BELOW INDOOR UNIT EQUIVALENT LENGTH (FEET)**					
			< 25	**26-50**	**51-75**	**76-100**	**101-125**	**126-150**
			MAXIMUM VERTICAL SEPARATION/CAPACITY MULTIPLIER					
2.0 TON ***SEE NOTE 3**	1/4"	5/8"	25/1.00	50/0.99	33/0.98	60/0.97	**NR**	**NR**
	5/16"	5/8"	25/1.00	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	3/8"	5/8"	25/1.00	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	1/4"	3/4"*	25/1.00	50/1.00	33/0.99	60/0.99	**NR**	**NR**
	5/16"	3/4"*	25/1.00	50/1.00	50/0.99	50/0.99	50/0.99	50/0.98
	3/8"	3/4"*	25/1.00	50/1.00	50/0.99	50/0.99	50/0.99	50/0.98
3 TON	5/16"	5/8"	25/0.99	50/0.97	50/0.95	50/0.93	36/0.91	**NR**
	3/8"	5/8"	25/0.99	50/0.97	50/0.95	50/0.93	50/0.91	**NR**
	5/16"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	36/0.97	20/0.96
	3/8"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.97	50/0.96
	1/2"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.97	50/0.96
4 TON	3/8"	3/4"	25/0.99	50/0.98	50/0.96	50/0.95	50/0.93	50/0.92
	1/2"	3/4"	25/0.99	50/0.98	50/0.96	50/0.95	50/0.93	50/0.92
	3/8"	7/8"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.98	50/0.97
	1/2"	7/8"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.98	50/0.97
5 TON	3/8"	3/4"	25/0.98	50/0.97	50/0.95	50/0.93	46/0.91	**NR**
	1/2"	3/4"	25/0.98	50/0.97	50/0.95	50/0.93	50/0.91	**NR**
	3/8"	7/8"	25/0.99	50/0.99	50/0.98	50/0.97	50/0.96	38/0.95
	1/2"	7/8"	25/0.99	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	3/8"	1-1/8"**	25/1.00	50/1.00	50/1.00	50/0.99	50/0.99	38/0.99
	1/2"	1-1/8"**	25/1.00	50/1.00	50/1.00	50/0.99	50/0.99	50/0.99

NOTES:
1) Do not exceed 150 ft. linear line length.
2) Do not exceed 50 ft. vertical separation between indoor and outdoor units.
3) *3/4" vapor line should only be used for 2 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
4) **1-1/8" vapor line should only be used for 5 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
5) Always use the smallest liquid line allowable to minimize refrigerant charge.
6) Applications shaded in light gray indicate capacity multipliers between 0.90 and 0.96 which are not recommended, but are allowed.
7) Applications shaded in dark gray are not recommended due to excessive liquid or suction pressure drop.

Refrigerant Line Size Information (Con't.)

18 SEER2 VARIABLE SPEED HEAT PUMPS								
UNIT SIZE	**ALLOWABLE LIQUID LINE SIZE**	**ALLOWABLE VAPOR LINE SIZE**	**OUTDOOR UNIT ABOVE OR BELOW INDOOR UNIT EQUIVALENT LENGTH (METERS)**					
			< 8	**9-15**	**16-23**	**24-30**	**31-38**	**39-46**
			MAXIMUM VERTICAL SEPARATION/CAPACITY MULTIPLIER					
7.0 kW [2.0 TON] ***SEE NOTE 3**	6.35 [1/4]	15.88 [5/8]	8/1.00	15/0.99	10/0.98	20/0.97	**NR**	**NR**
	7.94 [5/16]	15.88 [5/8]	8/1.00	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	9.53 [3/8]	15.88 [5/8]	8/1.00	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	6.35 [1/4]	19.05 [3/4]	8/1.00	15/0.99	10/0.99	20/0.99	**NR**	**NR**
	7.94 [5/16]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.99	15/0.99	15/0.98
	9.53 [3/8]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.99	15/0.99	15/0.98
10.6 kW [3 TON]	7.94 [5/16]	15.88 [5/8]	8/0.99	15/0.97	15/0.95	15/0.93	11/0.91	**NR**
	9.53 [3/8]	15.88 [5/8]	8/0.99	15/0.97	15/0.95	15/0.93	15/0.91	**NR**
	7.94 [5/16]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	11/0.97	6/0.96
	9.53 [3/8]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.97	15/0.96
	12.70 [1/2]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.97	15/0.96
14.1 kW [4 TON]	9.53 [3/8]	19.05 [3/4]	8/0.99	15/0.98	15/0.96	15/0.95	15/0.93	15/0.92
	12.70 [1/2]	19.05 [3/4]	8/0.99	15/0.98	15/0.96	15/0.95	15/0.93	15/0.92
	9.53 [3/8]	22.23 [7/8]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.98	15/0.97
	12.70 [1/2]	22.23 [7/8]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.98	15/0.97
17.6 kW [5 TON]	9.53 [3/8]	19.05 [3/4]	8/0.98	15/0.97	15/0.95	15/0.93	14/0.91	**NR**
	12.70 [1/2]	19.05 [3/4]	8/0.98	15/0.97	15/0.95	15/0.93	15/0.91	**NR**
	9.53 [3/8]	22.23 [7/8]	8/0.99	15/0.99	15/0.98	15/0.97	15/0.96	12/0.95
	12.70 [1/2]	22.23 [7/8]	8/0.99	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	9.53 [3/8]	28.58 [1-1/8]**	8/1.00	15/0.99	15/0.98	15/0.99	15/0.99	12/0.99
	12.70 [1/2]	28.58 [1-1/8]**	8/1.00	15/0.99	15/0.98	15/0.99	15/0.99	15/0.99

NOTES:
1) Do not exceed 46 meters linear line length.
2) Do not exceed 15 meters vertical separation between indoor and outdoor units.
3) *19.05 mm [3/4 in.] vapor line should only be used for 2 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
4) **28.58 mm [1-1/8 in.] vapor line should only be used for 5 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
5) Always use the smallest liquid line allowable to minimize refrigerant charge.
6) Applications shaded in light gray indicate capacity multipliers between 0.90 and 0.96 which are not recommended, but are allowed.
7) Applications shaded in dark gray are not recommended due to excessive liquid or suction pressure drop.

Performance Data @ AHRI Standard Conditions – Cooling

DESIGNATED TESTED COMBINATION (DTC)												
OUTDOOR UNIT	COIL	TOTAL CAPACITY BTU/H [KW]	NET SENSIBLE BTU/H [KW]	NET LATENT BTU/H [KW]	SEER2	EER2	INDOOR CFM [L/S]	47 DEGREE HEATING CAPACITY BTU/H [KW]	47 DEGREE COP	17 DEGREE HEATING CAPACITY BTU/H [KW]	17 DEGREE COP	REGION IV HSPF2
RD18AY24AJVCA	RH2VY3617STACNJ	21,200 [6.2]	16,400 [4.8]	4,800 [1.4]	18.0	11.7	760 [359.0]	21,200 [6.2]	3.6	18,200 [5.3]	2.4	9.5
RD18AY36AJVCA	RH2VY3621MTACNJ	33,000 [9.7]	24,400 [7.2]	8,600 [2.5]	19.0	13.0	1,050 [495.0]	33,000 [9.7]	3.9	30,200 [8.9]	2.6	10.0
RD18AY48AJVCA	RH2VY6024STACNJ	42,000 [12.3]	31,000 [9.1]	11,000 [3.2]	18.0	12.0	1,430 [675.0]	42,000 [12.3]	3.7	37,500 [11.0]	2.6	9.5
RD18AY60AJVCA	RH2VY6024STACNJ	51,500 [15.1]	37,000 [10.8]	14,500 [4.2]	18.0	11.7	1,650 [779.0]	51,500 [15.1]	3.6	45,000 [13.2]	2.4	10.0

NOTE: This data includes DTC (Designated Test Combination) ratings and is for reference purposes only. A full listing of official ratings and system match-ups, along with downloadable certificates, can be accessed from the AHRI website: www.ahridirectory.org.

[ ] Designates Metric Conversions

GENERAL TERMS OF LIMITED WARRANTY*

Rheem will furnish a replacement for any part of this product which fails in normal use and service within the applicable period stated, in accordance with the terms of the limited warranty.

***For complete details of the Limited and Conditional Warranties, including applicable terms and conditions, contact your local contractor or the Manufacturer for a copy of the product warranty certificate.**

Conditional Parts
(Registration Required).....Ten (10) Years

Applies to a heat pump only or system installation. Does not require the heat pump to be part of a properly matched system as specified by the Manufacturer and the Air Conditioning Heating & Refrigeration Institute (AHRI).

Before proceeding with installation, refer to installation instructions packaged with each model, as well as complying with all Federal, State, Provincial, and Local codes, regulations, and practices.

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In keeping with its policy of continuous progress and product improvement, Rheem reserves the right to make changes without notice.

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Fort Smith, Arkansas 72908 • www.rheem.com

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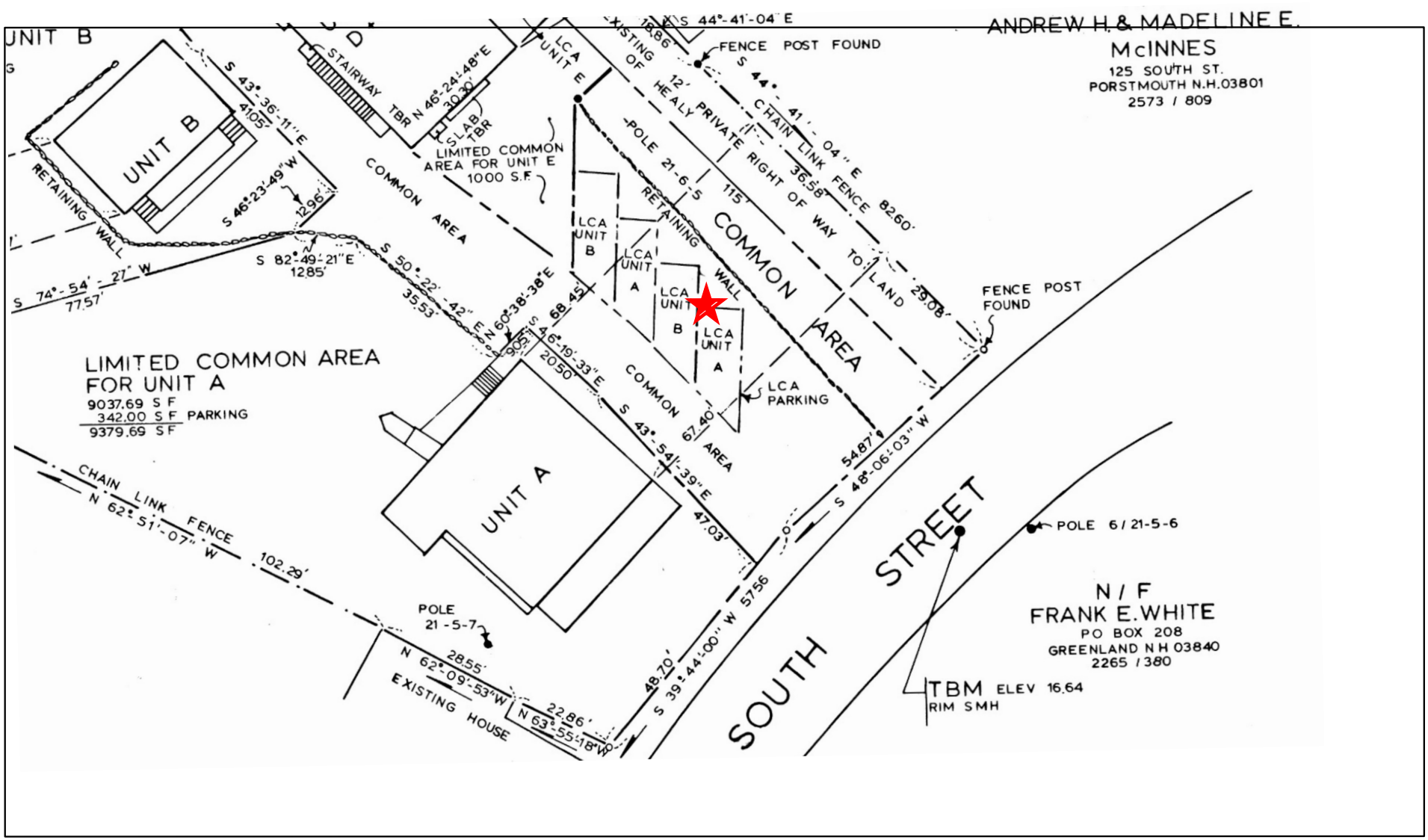
PRINTED IN U.S.A. 5/25 QG FORM NO. P11-843 REV. 1



Autel MaxiCharger in Dark Gray on Pedestal

(see below for pedestal with silver model)




UNIT B
UNIT B
S 43°-36'-11" E
41.05'
RETAINING WALL
S 46°-23'-49" W
12.96'
S 74°-54'-27" W
77.57'
S 82°-49'-21" E
12.85'
S 50°-22'-42" E
35.53'
STAIRWAY
TBR N 46°-24'-48" E
30.30'
SLAB TBR
LCA UNIT E
LIMITED COMMON AREA FOR UNIT E
1000 S.F.
COMMON AREA
EXISTING OF 12' HEALY PRIVATE RIGHT OF WAY TO LAND
S 44°-41'-04" E
18.86'
FENCE POST FOUND
S 44°-41'-04" E
CHAIN LINK FENCE
36.58'
8.60'
POLE 21-6-5
115'
RETAINING WALL
COMMON AREA
LCA UNIT B
LCA UNIT A
LCA UNIT B
LCA UNIT A
LCA PARKING
FENCE POST FOUND
29.08'
N 60°-38'-38" E
68.42'
S 46°-19'-33" E
20.50'
COMMON AREA
67.40'
S 43°-54'-39" E
47.03'
S 48°-06'-03" W
54.87'
LIMITED COMMON AREA FOR UNIT A
9037.69 S F
342.00 S F PARKING
9379.69 S F
CHAIN LINK FENCE
N 62°-51'-07" W
102.29'
POLE 21-5-7
N 62°-09'-53" W
28.55'
EXISTING HOUSE
N 63°-55'-18" W
22.86'
S 39°-44'-00" W
57.56'
48.70'
SOUTH STREET
POLE 6 / 21-5-6
ANDREW H. & MADELINE E. McINNES
125 SOUTH ST.
PORTSMOUTH N.H. 03801
2573 / 809
N / F
FRANK E. WHITE
PO BOX 208
GREENLAND N H 03840
2265 / 380
TBM ELEV 16.64
RIM SMH


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11. 53 Pray Street -Recommended Approval

Background: The applicant is seeking approval for:

Repair and Replace:

-Rebuild both chimneys to be more in scale with what was original, 28"wide x 24"deep.

-Replace back door with a previously approved style, LePage French Door, 3' wide x 6'-8" tall.

-Remove (1) existing Kitchen window on Back Elevation.

-Omit (1) previously approved skylight on Left Side Elevation.

-Reinstall windows, previously infilled, on Left Side Elevation.

-Replace previous approved light with a different style fixture in same location.

-Replace previously approved condenser with (2) smaller units in same location.

-Replace in-kind windows, doors and roofing at Boat House and Garage.

-Repair and refurbish in-kind any conditions identified as compromised or failing.

Staff Comment: Recommend Approval

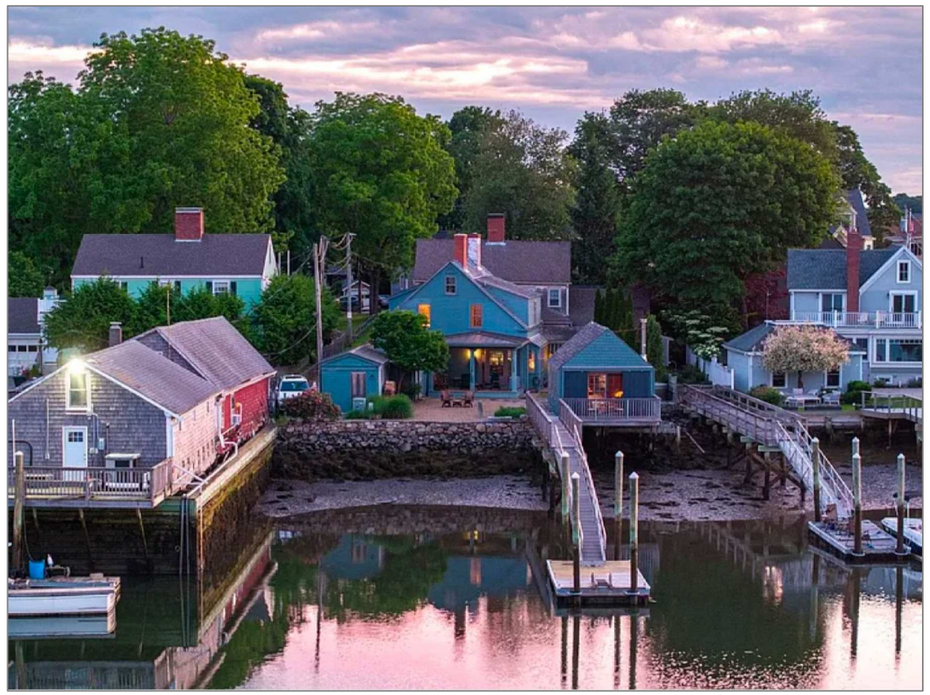
Stipulations:

1. _____
2. _____
3. _____



Pray Street View

Credit: Real Estate Listing



Waterside Aerial View

Credit: Real Estate Listing

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1. Locus Map and Overall Building Siting
2. Front and Right Side Elevations
3. Back Elevation
4. Left Side Elevation
5. Photos of Boat House
6. Photos of Garage
Specifications: Light Fixture, Heat Pump

Project Summary

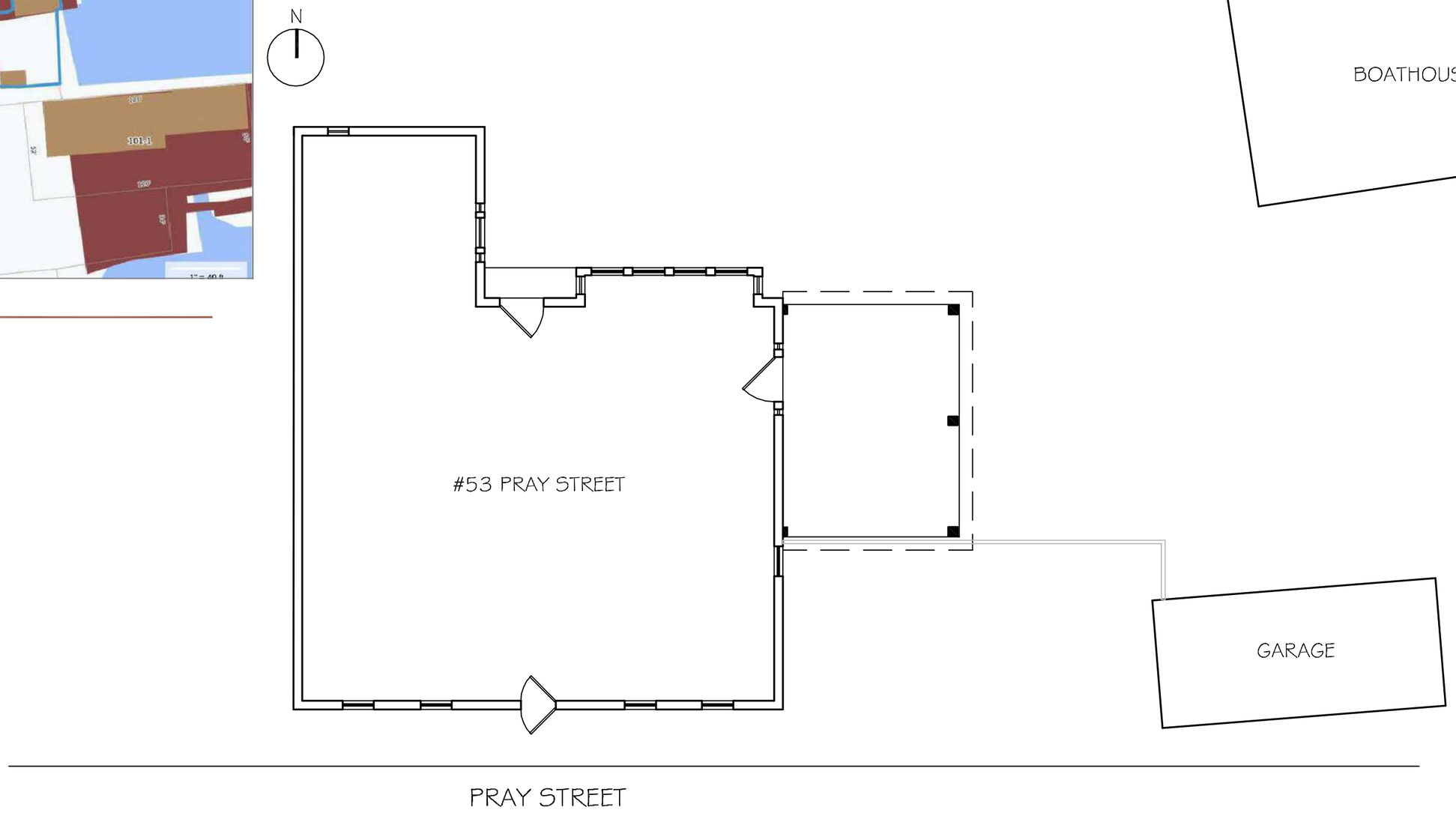
Repair and Replace:
-Rebuild both chimneys to be more in scale with what was original, 28"wide x 24"deep.
-Replace back door with a previously approved style, LePage French Door, 3' wide x 6'-8" tall.
-Remove (1) existing Kitchen window on Back Elevation.
-Omit (1) previously approved skylight on Left Side Elevation.
-Reinstall windows, previously infilled, on Left Side Elevation.
-Replace previous approved light with a different style fixture in same location.
-Replace previously approved condenser with (2) smaller units in same location.
-Replace in-kind windows, doors and roofing at Boat House and Garage.
-Repair and refurbish in-kind any conditions identified as compromised or failing.

Cover Sheet

53 Pray Street, Portsmouth, New Hampshire



Locus Map



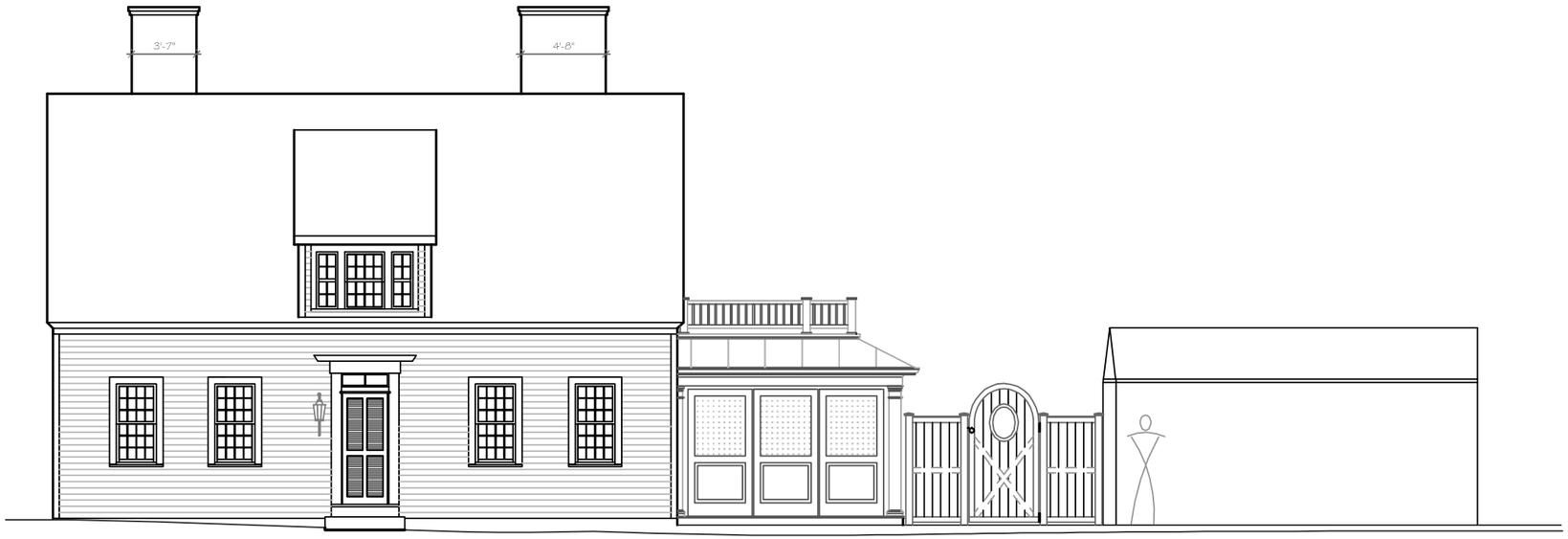
Site Plan

53 Pray Street, Portsmouth, New Hampshire

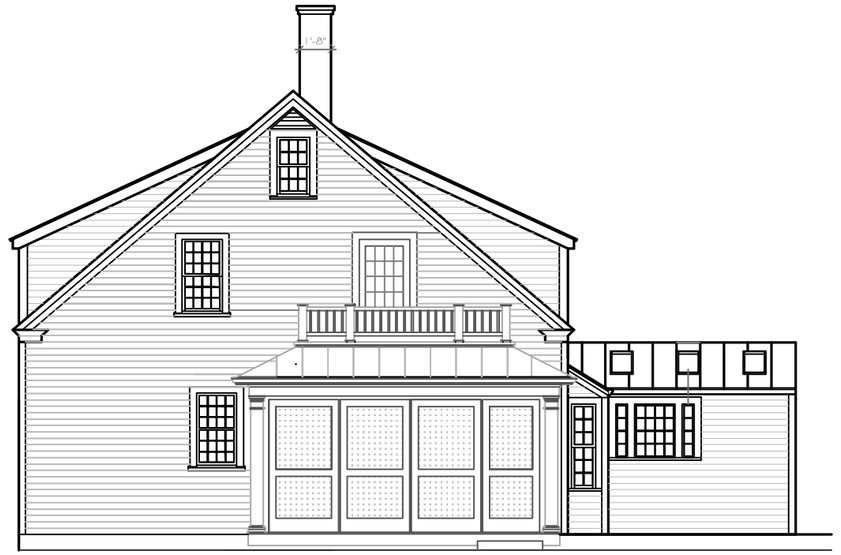
Auger Building Company

AA 7.2025

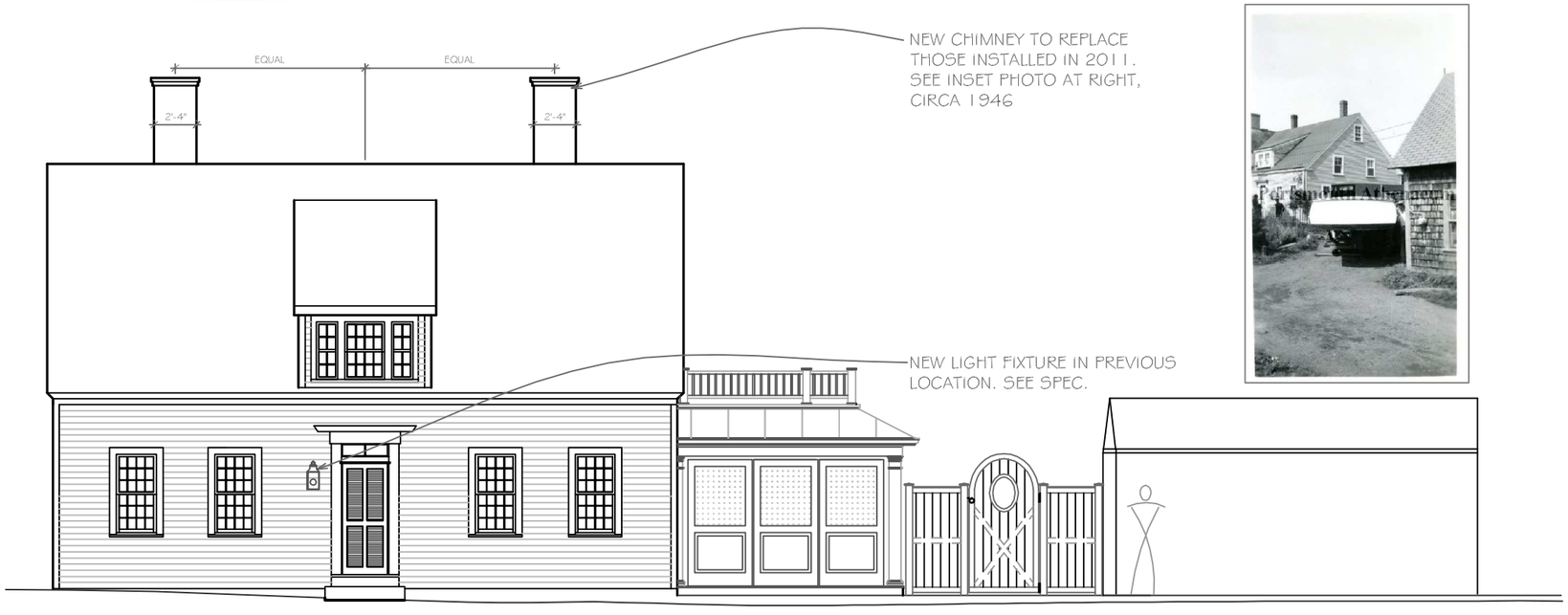
SHT. 1



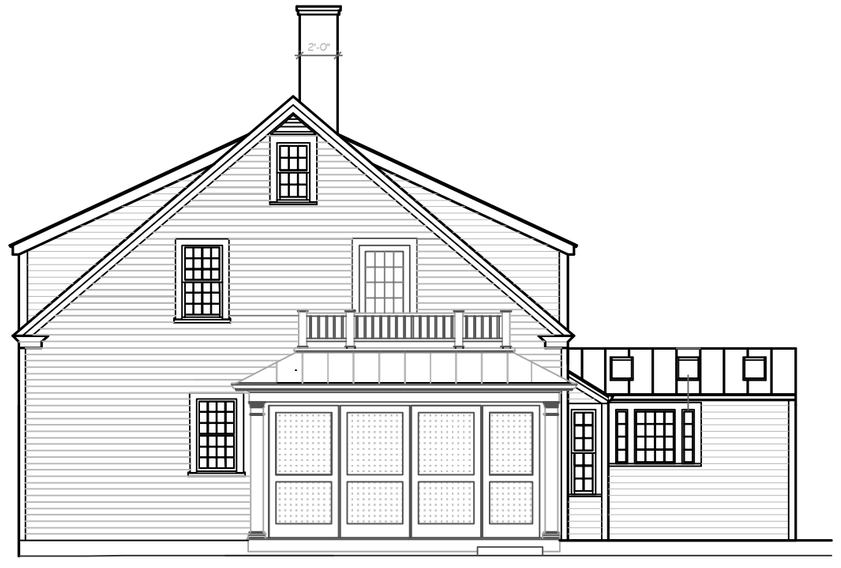
Previously Approved Front Elevation



Previously Approved Right Side Elevation



Proposed Front Elevation



Proposed Right Side Elevation

53 Pray Street, Portsmouth, New Hampshire

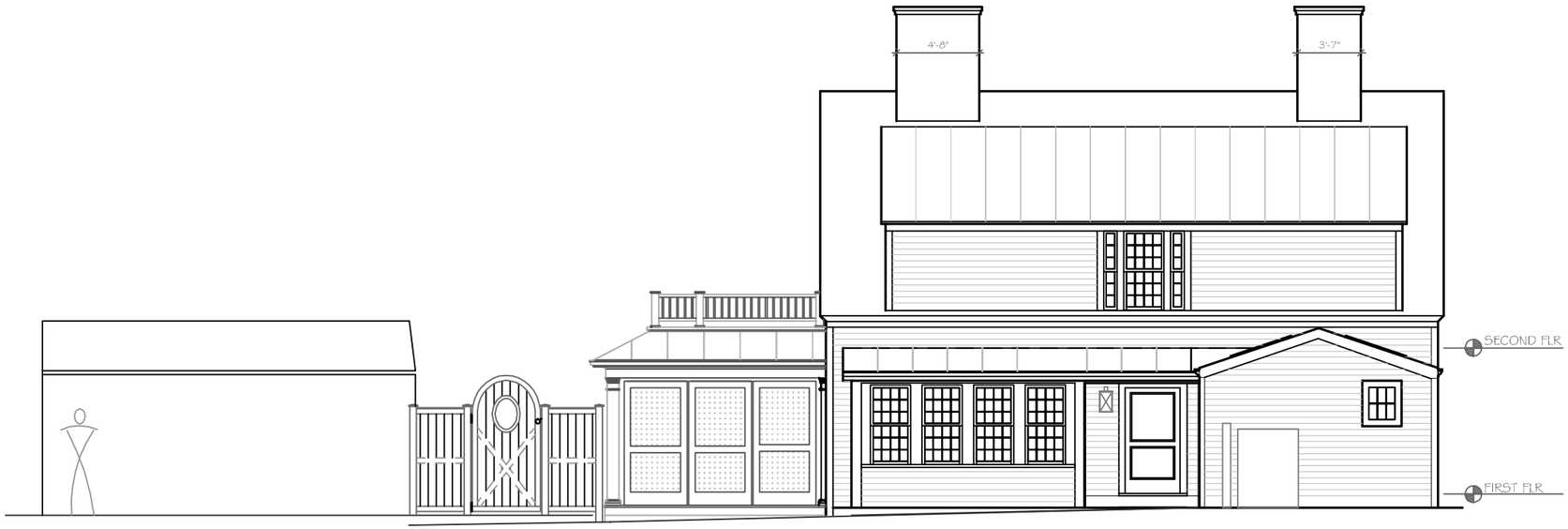
Auger Building Company

Front and Right Side Elevation

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

AA 7.2025

SHT. 2



Previously Approved Back Elevation



Proposed Back Elevation

53 Pray Street, Portsmouth, New Hampshire

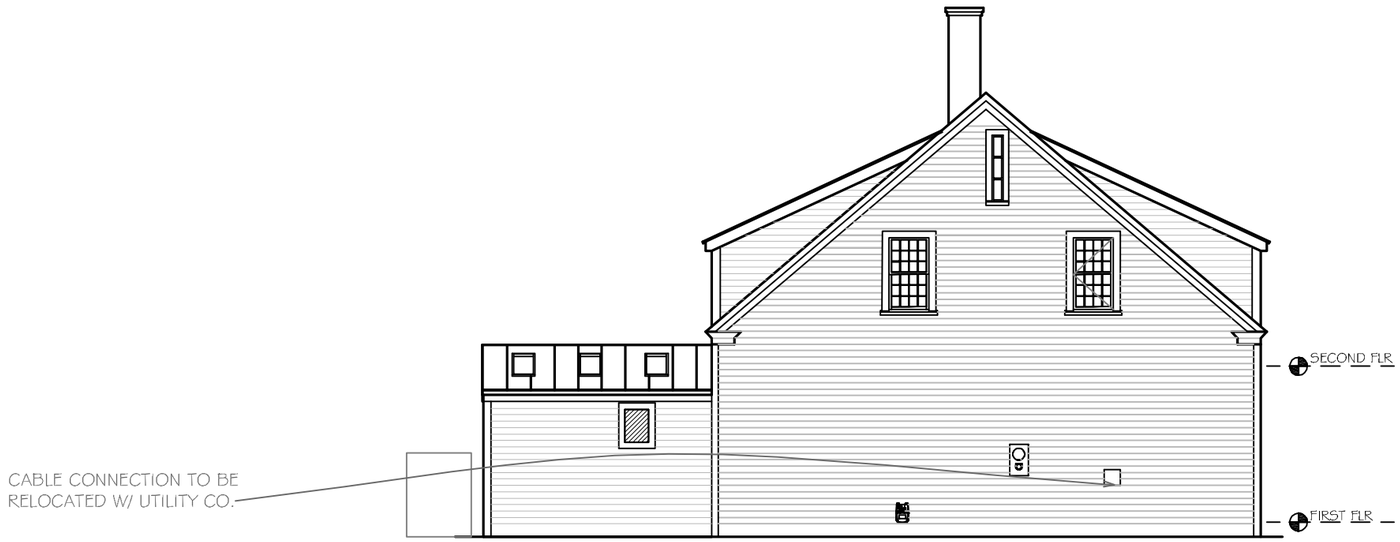
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Back Elevation

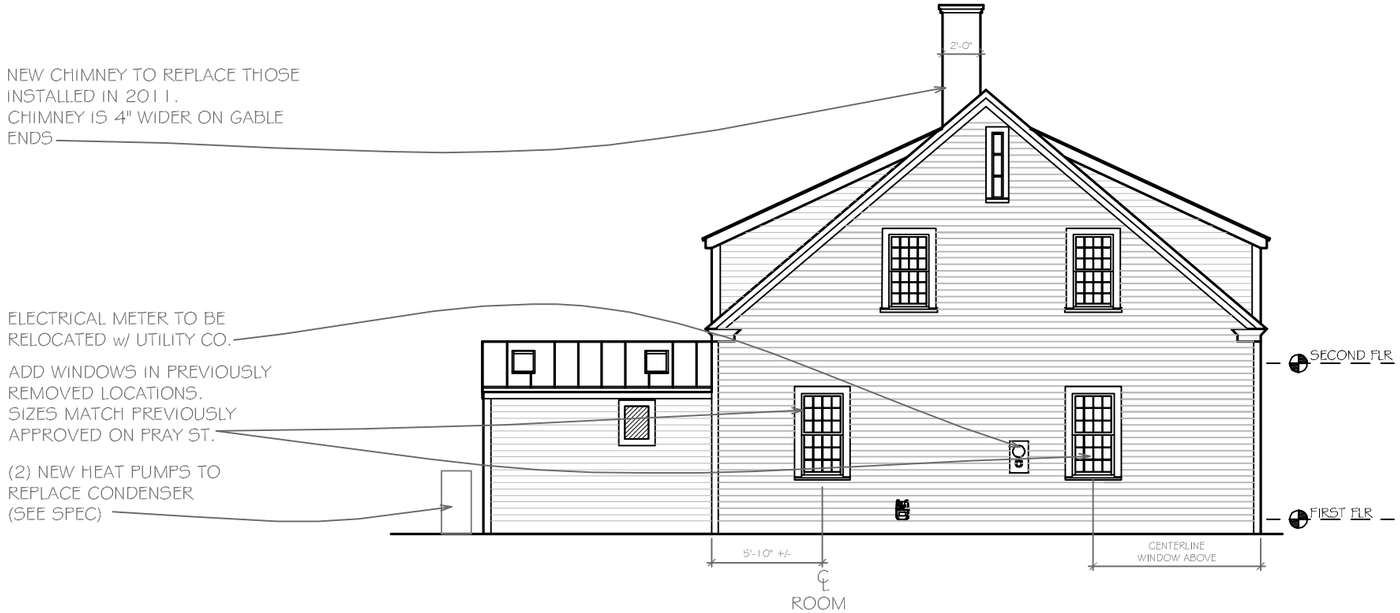
SCALE: 1/8" = 1'-0"

AA 7.2025

SHT. 3



Previously Approved Left Side Elevation



Proposed Left Side Elevation

53 Pray Street, Portsmouth, New Hampshire

Auger Building Company

Left Side Elevation

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

AA 7.2025

SHT. 4



1.Elevation Facing Yard

Replace In-Kind:
-French Doors and Screen Doors w/LePage to match previously approved
-Gable Window w/ LePage to match previously approved



General Details:

The Boathouse was remodeled and updated in 2011 with the House.
Existing windows are Brosco.
Existing Door were salvaged and retrofit into openings.

2.Elevation Facing Yard

Replace In-Kind:
-Windows with Lepage Double Hungs
-Roof with Hand Split Wood Shakes



3.Water Facing Elevation

Replace In-Kind:
-Windows w/LePage Double Hungs to match previously approved
-French Doors w/LePage to match previously approved
-Roof with Hand Split Wood Shakes



1.Elevation Facing Pray Street

No Change.

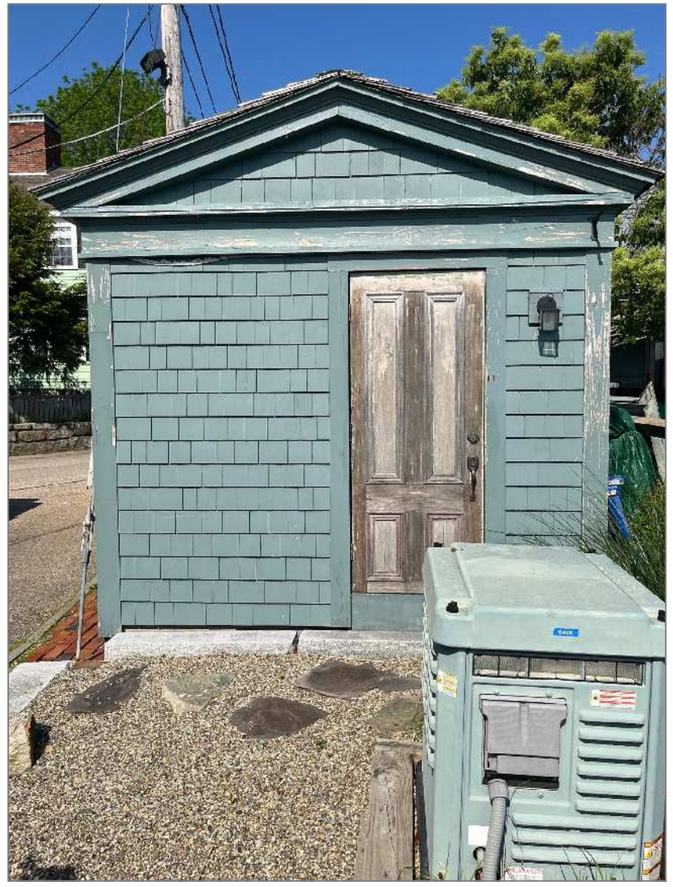


2.Elevation Facing Water and Yard

Replace In-Kind:

-Windows with previously approved Lepage fabrication with awning operation.

-Entire roof with Hand Split Wood Shakes



3.Elevation Facing Water

Replace In-Kind:

-Door in same style, sized to properly fit the existing opening.

General Details:

The Garage was remodeled and
updated in 2011 with the House.
Existing windows are repurposed sashes with vinyl jamb liners.
Existing Door was salvaged and retrofit into opening.

Exterior Lighting







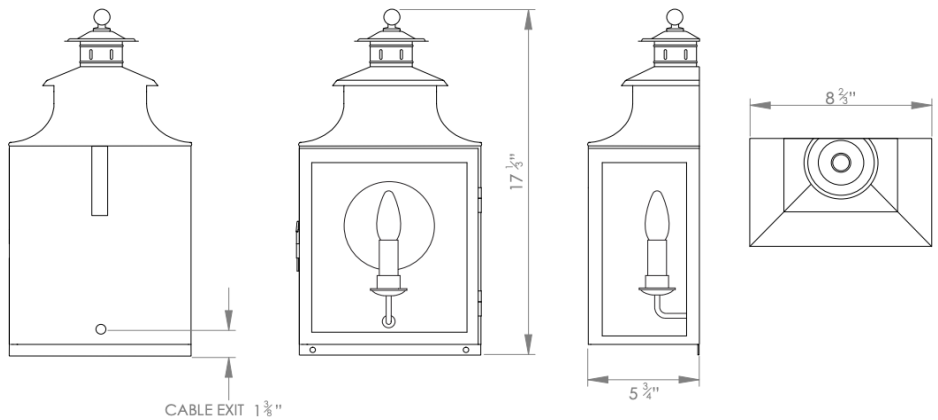
Proposed Front and Back

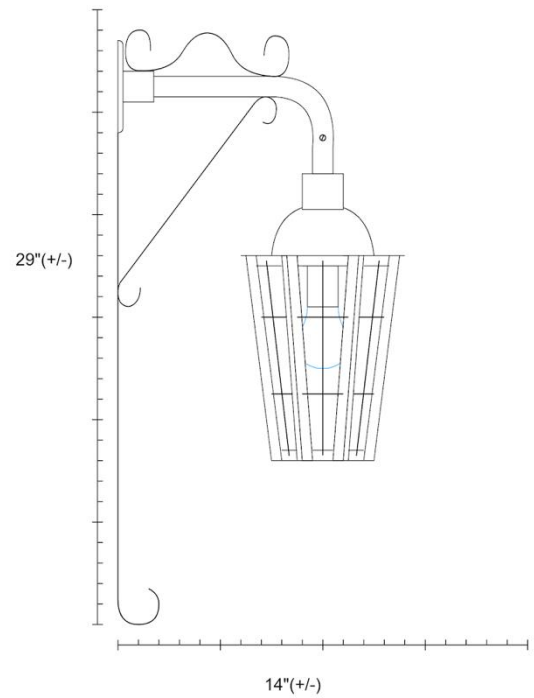
Original Front

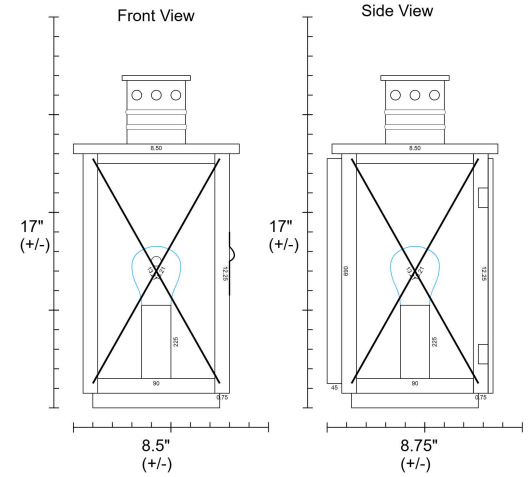
Orginal Back

PRODUCT CODE WL253 **CATEGORY: WALL LANTERNS**

DIMENSIONS







Endeavor® Line *Classic Plus*® Series Side-Discharge Universal Heat Pump



This product meets a stringent set of our internally defined sustainability standards

EcoNet®

RD17AZ

Cooling Efficiencies up to: 19 SEER2 / 12 EER2
Heating Efficiencies up to: 9.5 HSPF2
Nominal Sizes: 2 to 5 Tons [7.0 to 17.6 kW]
Cooling Capacities 22.8 to 53.0 kBTU [6.7 to 15.5 kW]
Refrigerant Type: R-410A

ISO 9001:2015 · AHRI CERTIFIED · Intertek · Dual Fuel · Sound and Space Constraint Solution · Most Efficient 2024 · ENERGY STAR COLD CLIMATE

Proper sizing and installation of equipment is critical to achieve optimal performance. Split system air conditioners and heat pumps must be matched with appropriate coil components to meet ENERGY STAR®. Ask your Contractor for details or visit www.energystar.gov.

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Performance Data 11
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Features and Benefits

- **Flexible and Universal Install Compatibility:**
  - — Works with nearly any HVAC System – including Rheem EcoNet® Enabled systems and non-communicating systems
  - — Install with any indoor system component via a Rheem algorithm **(IMPORTANT:** the indoor system component CFM must match the requirement of the outdoor system component)
  - — Install as a Universal Replacement with minimal alterations (coil only – with TXV)
- **Space Saver Solution:** The RD17AZ - with footprint options as low as 36.6" tall and 40.2" wide – is ideal for when installation locations are constrained; but is also perfect for any system or replacement option where an efficient, streamlined look is desired
- **Quiet Operation as low as 50dB[1]:** Offers sound dampening features such as a sound blanket, refrigerant tubing design, fan blade approach and innovative compressor and drive technologies – ensure that as efficiency goes up, sound levels stay low
- **EcoNet® Enabled[2]:** Automatic system configuration and optimization
- **PlusOne® Diagnostics & Bluetooth®[3, 4] Connectivity:** With the Rheem Contractor & EcoNet® Apps, built-in technology makes advanced set-up, monitoring, troubleshooting, and repairing the product easier than ever before
- **PlusOne® Variable Speed Twin Rotary Compressor & Inverter Drive:**
  - — Features variable speed operation from 45 to 100% capacity with the EcoNet® Smart Thermostat or with legacy and other thermostats when the utility 1 & 2 jumpers are installed or using the Rheem algorithm[5]
  - — Provides precise temperature control, advanced humidity control and greater efficiency
- **Brushless DC Condenser Motors (BLDC):** Enhances reliability and allows for easier serviceability
- **Swept Wing Fan Technology:** Features quieter operation and improved unit acoustics
- **7mm Condenser Copper Coil:** Requires less refrigerant allowing for a smaller and lighter footprint while enhancing reliability
- **Optional Base Pan Heater:** Utilizes a built-in thermostat to regulate the heating operation to prevent ice build-up on the base pan during extreme cold weather conditions
- **Traditional Refrigerant Piping:** Allows for use of existing refrigerant line sets for further ease of replacement installation flexibility
- **10-Year Conditional Parts Warranty (registration required):** Coverage when installed as a heat pump only or as part of a system – with no AHRI matched system requirement
- **Qualifies for Federal Incentives (conditions apply):**
  - — Federal Tax Credit compliant system combinations across all product tonnages (effective through 12/31/32) – up to $2000 for qualified heat pumps
  - — Visit Rheem.com/Federal-Incentives

[1]Based on Internal R&D Testing, 2023 Sound levels are also dependent on proper installation and location of outdoor product.

[2]When installed as part of a complete AHRI-matched, Rheem EcoNet® Enabled system.

[3]The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Rheem® is under license. Other trademarks and trade names are those of their respective owners.

[4]When installed as part of a complete Rheem system where both the outdoor & indoor components feature Bluetooth® Technology.

[5]Two-Stage (70% &100% capacity) operation when installed with legacy and other thermostats when the utility 1 & 2 jumpers are not installed. The 2-Ton model features a single rotary compressor.

Heat Pumps

R	D	17	A	Z	24	A	J	3	N	A
Brand	**Product Category**	**SEER2**	**Region**	**Refrigerant**	**Capacity**	**Major Series**	**Voltage**	**Type**	**Controls**	**Minor Series**
R - Rheem	D - Side-Discharge Heat Pump	17 - 17 SEER2	A - All Regions	Z - R-410A	24 - 24,000 [7.03 kW] 36 - 36,000 [10.55 kW] 48 - 48,000 [14.07 kW] 60 - 60,000 [17.58 kW]	A - 1st Design	J - 208/230/1/60	3 - 3+ Stage	N - Non-Communicating	A - 1st Series

[ ] Designates Metric Conversions

AVAILABLE MODELS	DESCRIPTION
RD17AZ24AJ3NA	Endeavor® Line *Classic Plus*® Series 2 Ton R-410A Universal Heat Pump
RD17AZ36AJ3NA	Endeavor® Line *Classic Plus*® Series 3 Ton R-410A Universal Heat Pump
RD17AZ48AJ3NA	Endeavor® Line *Classic Plus*® Series 4 Ton R-410A Universal Heat Pump
RD17AZ60AJ3NA	Endeavor® Line *Classic Plus*® Series 5 Ton R-410A Universal Heat Pump

NOTE: RD17AZ models are communicating when installed as part of a complete AHRI-matched, Rheem EcoNet® Enabled System

STANDARD EQUIPMENT
R-410A Refrigerant
Rotary Compressor
Field Installed Filter Drier
Low Ambient Control
Compressor Sound Cover
Low Pressure Control
Front Seating Service Valves
Internal Pressure Relief Valve
Easy Access to Internal Components
Optimized Venturi Airflow
Powder Coated Paint
Rust Resistant Screws
QR Code
External Gauge Ports

General Data

MODEL NO.	RD17AZ24AJ3NA	RD17AZ36AJ3NA	RD17AZ48AJ3NA	RD17AZ60AJ3NA
Nominal Tonnage	2.0T	3.0T	4.0T	5.0T
Valve Connections				
Liquid Line O.D. – in.	3/8	3/8	3/8	3/8
Suction Line O.D. – in.	3/4	3/4	7/8	7/8
Refrigerant (R-410A) furnished oz.[1]	81	116	222	236
Compressor Type				
Outdoor Coil				
Net face area – Outer Coil (Sq. Ft.)	11.0	15.1	17.2	17.2
Net face area – Inner Coil (Sq. Ft.)	N/A	15.1	17.2	17.2
Tube diameter – in.	0.276	0.276	0.276	0.276
Number of rows	1	2	3	3
Fins per inch	18	18	16	16
Outdoor Fan				
Diameter – in.	26	28	24	24
Number of blades	3	3	3	3
Motor hp	1/2	1/2	1/3	1/3
Nos	1	1	2	2
CFM	3175	3575	5150	5600
RPM	550	570	650	700
Watts	115	215	315	365
Shipping weight – lbs.	205	271	354	356
Operating weight – lbs.	146	200	278	280

Electrical Data

Line Voltage Data (Volts-Phase-Hz)	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
Maximum overcurrent protection (amps)[2]	20.0	25.0	40.0	45.0
Minimum circuit ampacity[3]	19.0	24.5	38.0	41.0
Compressor				
Rated load amps	9.7	10.4	17.0	22.0
Locked rotor amps	25	52	51	51
Condenser Fan Motor				
Full load amps	3.0	3.0	2.5	2.5
Locked rotor amps	6.4	6.4	4.1	4.1

[1]Refrigerant charge sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the installation instructions for information about set length and additional refrigerant charge required.
[2]HACR type circuit breaker of fuse.
[3]Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements.

Accessories

MODEL NO.		RD17AZ24AJ3NA	RD17AZ36AJ3NA	RD17AZ48AJ3NA	RD17AZ60AJ3NA
Compressor crankcase heater*		44-103663-15	44-103663-15	44-103663-15	44-103663-15
Basepan heater		44-109957-01	44-109958-01	44-109957-01	44-109957-01
Low ambient control		Included Standard	Included Standard	Included Standard	Included Standard
Compressor sound cover		Included Standard	Included Standard	Included Standard	Included Standard
Compressor hard start kit		N/A	N/A	N/A	N/A
Low pressure control		Included Standard	Included Standard	Included Standard	Included Standard
High pressure control		Included Standard	Included Standard	Included Standard	Included Standard
Liquid Line Solenoid (24 VAC, 50/60 Hz)	Solenoid Valve	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC
	Solenoid Coil	61-AMG24V	61-AMG24V	61-AMG24V	61-AMG24V
Liquid Line Solenoid (120/240 VAC, 50/60 Hz)	Solenoid Valve	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC	200RD2T3TVLC
	Solenoid Coil	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V	61-AMG120/240V

Weighted Sound Power Level (dBA)

UNIT SIZE - VOLTAGE, SERIES	SOUND PRESSURE AS LOW AS	SOUND POWER AS LOW AS	TYPICAL OCTAVE BAND SPECTRUM (dBA WITHOUT TONE ADJUSTMENT)						
			125	250	500	1000	2000	4000	8000
RD17AZ24	53	61	45.0	54.7	57.5	58.2	53.9	46.7	38.1
RD17AZ36	50	58	44.7	60.8	62.3	57.2	53.9	54.5	44.8
RD17AZ48	54	61	54.0	58.6	63.8	64.9	60.4	54.8	44.9
RD17AZ60	55	63	53.5	59.0	62.6	63.3	57.9	50.4	44.8

NOTE: Tested in accordance with AHRI Standard 270-08 (not listed in AHRI)

Unit Dimensions

MODEL NO.	OPERATING						SHIPPING					
	H (Height)		L (Length)		W (Width)		H (Height)		L (Length)		W (Width)	
	INCHES	cm	INCHES	cm	INCHES	cm	INCHES	cm	INCHES	cm	INCHES	cm
RD17AZ24AJ3NA	36.6	93.0	40.4	102.6	19.8	50.3	43.31	110.0	48.43	123.0	22.05	56.0
RD17AZ36AJ3NA	46.4	117.8	42.3	107.4	22.8	57.8	53.94	137.0	50.00	127.0	25.00	63.5
RD17AZ48AJ3NA	58.0	147.3	40.4	102.6	19.8	50.3	65.16	165.5	48.43	123.0	22.05	56.0
RD17AZ60AJ3NA	58.0	147.3	40.4	102.6	19.8	50.3	65.16	165.5	48.43	123.0	22.05	56.0

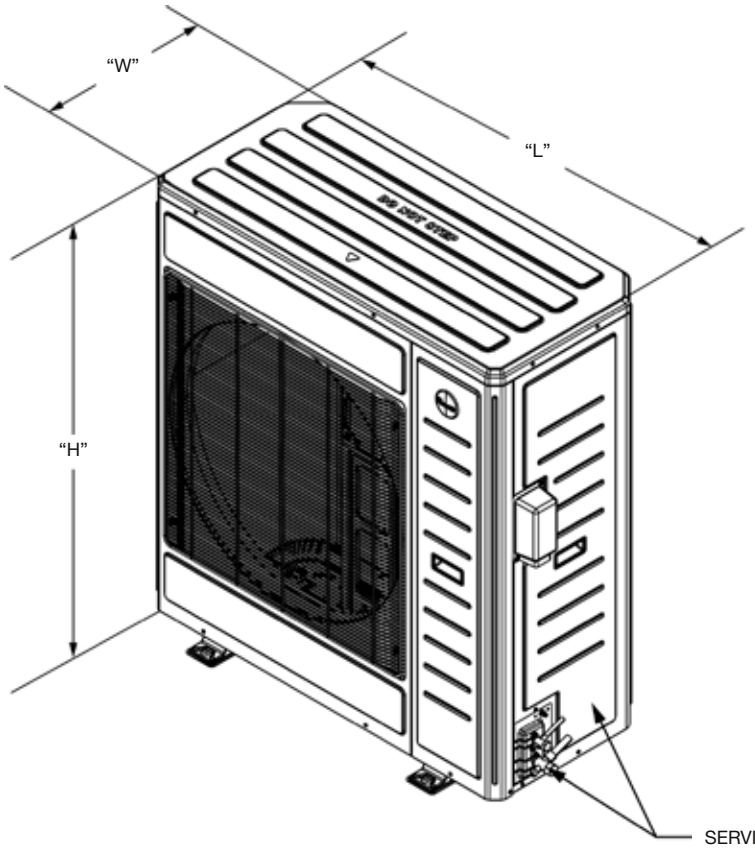


Illustration
A1345-02-00

[ ] Designates Metric Conversions

Allowable Clearances

Single Unit Installations

RD17AZ24, RD17AZ36				
	OBSTRUCTION MIN. CLEARANCE (IN.)			
	REAR	COIL SIDE	FRONT	SERVICE PANEL
Open Space Above	4	12	48	10
	12	4	48	10
	12	12	24	10
	4	12	24	10
Obstruction Above, Less Than 40"	12	12	48	10
	20	4	24	10

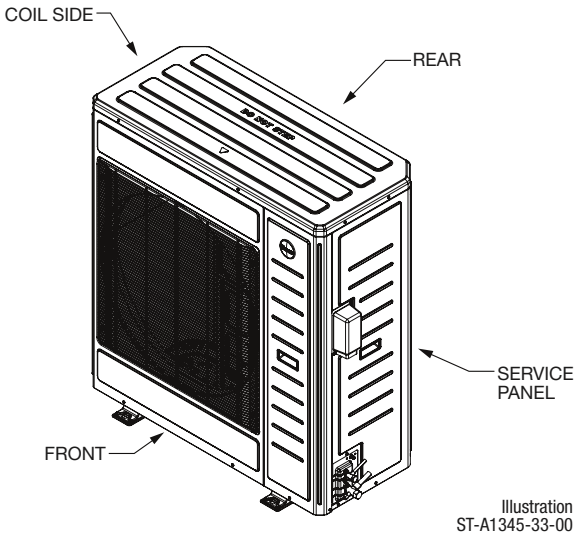


Illustration ST-A1345-33-00

RD17AZ48, RD17AZ60				
	OBSTRUCTION MIN. CLEARANCE (IN.)			
	REAR	COIL SIDE	FRONT	SERVICE PANEL
Open Space Above	6	8	60	10
	12	8	60	10
	12	12	40	10
	6	12	40	10
Obstruction Above, Less Than 40"	12	12	48	10
	20	4	60	10

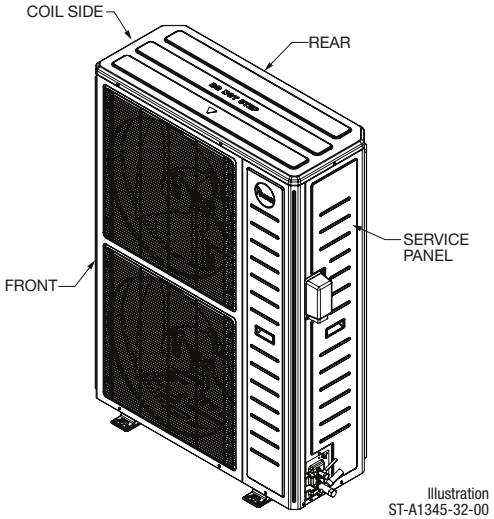


Illustration ST-A1345-32-00

Multiple Unit Installations

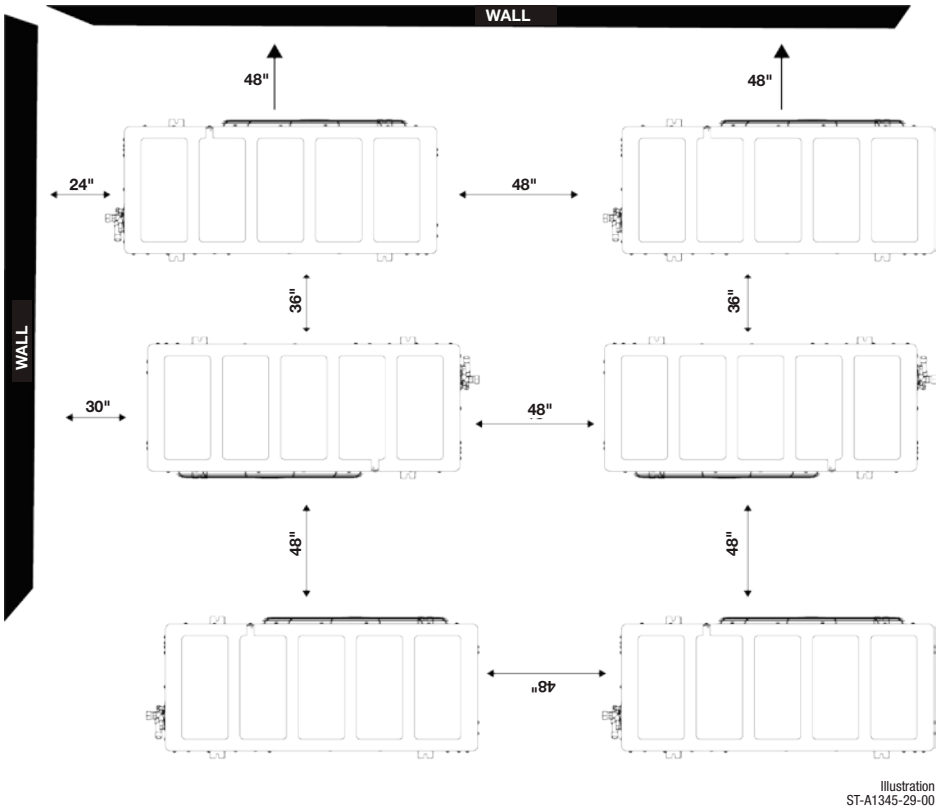


Illustration ST-A1345-29-00

IMPORTANT: Consult local and national building codes and ordinances for special installation requirements. Following location information will provide longer life and simplied servicing of the outdoor heat pump.

NOTICE: These units must be installed outdoors. No ductwork can be attached, or other modications made, to the discharge grille. Modications will affect performance or operation.

Refrigerant Line Size Information

17 SEER2 VARIABLE SPEED HEAT PUMPS								
UNIT SIZE	**ALLOWABLE LIQUID LINE SIZE**	**ALLOWABLE VAPOR LINE SIZE**	**OUTDOOR UNIT ABOVE OR BELOW INDOOR UNIT EQUIVALENT LENGTH (FEET)**					
			< 25	**26-50**	**51-75**	**76-100**	**101-125**	**126-150**
			MAXIMUM VERTICAL SEPARATION/CAPACITY MULTIPLIER					
2.0 TON ***SEE NOTE 3**	1/4"	5/8"	25/1.00	50/0.99	33/0.98	60/0.97	**NR**	**NR**
	5/16"	5/8"	25/1.00	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	3/8"	5/8"	25/1.00	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	1/4"	3/4"*	25/1.00	50/1.00	33/0.99	60/0.99	**NR**	**NR**
	5/16"	3/4"*	25/1.00	50/1.00	50/0.99	50/0.99	50/0.99	50/0.98
	3/8"	3/4"*	25/1.00	50/1.00	50/0.99	50/0.99	50/0.99	50/0.98
3 TON	5/16"	5/8"	25/0.99	50/0.97	50/0.95	50/0.93	36/0.91	**NR**
	3/8"	5/8"	25/0.99	50/0.97	50/0.95	50/0.93	50/0.91	**NR**
	5/16"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	36/0.97	20/0.96
	3/8"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.97	50/0.96
	1/2"	3/4"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.97	50/0.96
4 TON	3/8"	3/4"	25/0.99	50/0.98	50/0.96	50/0.95	50/0.93	50/0.92
	1/2"	3/4"	25/0.99	50/0.98	50/0.96	50/0.95	50/0.93	50/0.92
	3/8"	7/8"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.98	50/0.97
	1/2"	7/8"	25/1.00	50/0.99	50/0.99	50/0.98	50/0.98	50/0.97
5 TON	3/8"	3/4"	25/0.98	50/0.97	50/0.95	50/0.93	46/0.91	**NR**
	1/2"	3/4"	25/0.98	50/0.97	50/0.95	50/0.93	50/0.91	**NR**
	3/8"	7/8"	25/0.99	50/0.99	50/0.98	50/0.97	50/0.96	38/0.95
	1/2"	7/8"	25/0.99	50/0.99	50/0.98	50/0.97	50/0.96	50/0.95
	3/8"	1-1/8"**	25/1.00	50/1.00	50/1.00	50/0.99	50/0.99	38/0.99
	1/2"	1-1/8"**	25/1.00	50/1.00	50/1.00	50/0.99	50/0.99	50/0.99

NOTES:
1) Do not exceed 150 ft. linear line length.
2) Do not exceed 50 ft. vertical separation between indoor and outdoor units.
3) *3/4" vapor line should only be used for 2 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
4) **1-1/8" vapor line should only be used for 5 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
5) Always use the smallest liquid line allowable to minimize refrigerant charge.
6) Applications shaded in light gray indicate capacity multipliers between 0.90 and 0.96 which are not recommended, but are allowed.
7) Applications shaded in dark gray are not recommended due to excessive liquid or suction pressure drop.

Refrigerant Line Size Information (Con't.)

17 SEER2 VARIABLE SPEED HEAT PUMPS								
UNIT SIZE	**ALLOWABLE LIQUID LINE SIZE**	**ALLOWABLE VAPOR LINE SIZE**	**OUTDOOR UNIT ABOVE OR BELOW INDOOR UNIT EQUIVALENT LENGTH (METERS)**					
			< 8	**9-15**	**16-23**	**24-30**	**31-38**	**39-46**
			MAXIMUM VERTICAL SEPARATION/CAPACITY MULTIPLIER					
7.0 kW [2.0 TON] ***SEE NOTE 3**	6.35 [1/4]	15.88 [5/8]	8/1.00	15/0.99	10/0.98	20/0.97	**NR**	**NR**
	7.94 [5/16]	15.88 [5/8]	8/1.00	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	9.53 [3/8]	15.88 [5/8]	8/1.00	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	6.35 [1/4]	19.05 [3/4]	8/1.00	15/0.99	10/0.99	20/0.99	**NR**	**NR**
	7.94 [5/16]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.99	15/0.99	15/0.98
	9.53 [3/8]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.99	15/0.99	15/0.98
10.6 kW [3 TON]	7.94 [5/16]	15.88 [5/8]	8/0.99	15/0.97	15/0.95	15/0.93	11/0.91	**NR**
	9.53 [3/8]	15.88 [5/8]	8/0.99	15/0.97	15/0.95	15/0.93	15/0.91	**NR**
	7.94 [5/16]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	11/0.97	6/0.96
	9.53 [3/8]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.97	15/0.96
	12.70 [1/2]	19.05 [3/4]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.97	15/0.96
14.1 kW [4 TON]	9.53 [3/8]	19.05 [3/4]	8/0.99	15/0.98	15/0.96	15/0.95	15/0.93	15/0.92
	12.70 [1/2]	19.05 [3/4]	8/0.99	15/0.98	15/0.96	15/0.95	15/0.93	15/0.92
	9.53 [3/8]	22.23 [7/8]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.98	15/0.97
	12.70 [1/2]	22.23 [7/8]	8/1.00	15/0.99	15/0.99	15/0.98	15/0.98	15/0.97
17.6 kW [5 TON]	9.53 [3/8]	19.05 [3/4]	8/0.98	15/0.97	15/0.95	15/0.93	14/0.91	**NR**
	12.70 [1/2]	19.05 [3/4]	8/0.98	15/0.97	15/0.95	15/0.93	15/0.91	**NR**
	9.53 [3/8]	22.23 [7/8]	8/0.99	15/0.99	15/0.98	15/0.97	15/0.96	12/0.95
	12.70 [1/2]	22.23 [7/8]	8/0.99	15/0.99	15/0.98	15/0.97	15/0.96	15/0.95
	9.53 [3/8]	28.58 [1-1/8]**	8/1.00	15/0.99	15/0.98	15/0.99	15/0.99	12/0.99
	12.70 [1/2]	28.58 [1-1/8]**	8/1.00	15/0.99	15/0.98	15/0.99	15/0.99	15/0.99

NOTES:
1) Do not exceed 46 meters linear line length.
2) Do not exceed 15 meters vertical separation between indoor and outdoor units.
3) *19.05 mm [3/4 in.] vapor line should only be used for 2 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
4) **28.58 mm [1-1/8 in.] vapor line should only be used for 5 ton systems if outdoor unit is below or at same level as indoor unit to assure proper oil return.
5) Always use the smallest liquid line allowable to minimize refrigerant charge.
6) Applications shaded in light gray indicate capacity multipliers between 0.90 and 0.96 which are not recommended, but are allowed.
7) Applications shaded in dark gray are not recommended due to excessive liquid or suction pressure drop.

Performance Data @ AHRI Standard Conditions – Cooling

DESIGNATED TESTED COMBINATION (DTC)												
OUTDOOR UNIT	**COIL**	**TOTAL CAPACITY BTU/H [KW]**	**NET SENSIBLE BTU/H [KW]**	**NET LATENT BTU/H [KW]**	**SEER2**	**EER2**	**INDOOR CFM [L/S]**	**47 DEGREE HEATING CAPACITY BTU/H [KW]**	**47 DEGREE COP**	**17 DEGREE HEATING CAPACITY BTU/H [KW]**	**17 DEGREE COP**	**REGION IV HSPF2**
RD17AZ24AJ3NA	RCFZ2417MTANMC	22,800 [6.7]	16,880 [5.0]	5,920 [1.7]	14.3	9.8	750 [354]	22,800 [6.7]	3.30	16,000 [4.7]	2.56	7.5
RD17AZ36AJ3NA	RCFZ3621MTANMC	34,200 [10.0]	24,238 [7.1]	9,962 [2.9]	14.3	9.8	1,025 [484]	34,200 [10.0]	3.48	23,000 [6.7]	2.62	7.5
RD17AZ48AJ3NA	RCFZ4824MTANMC	45,000 [13.2]	31,760 [9.3]	13,240 [3.9]	14.3	9.8	1,250 [590]	45,000 [13.2]	3.42	33,000 [6.7]	2.66	7.5
RD17AZ60AJ3NA	RCFZ6024STANMC	53,000 [15.5]	36,263 [10.6]	16,737 [4.9]	14.3	9.8	1,450 [684]	53,000 [15.5]	3.36	36,500 [10.7]	2.50	7.5

DESIGNATED TESTED COMBINATION (DTC)												
OUTDOOR UNIT	**COIL**	**TOTAL CAPACITY BTU/H [KW]**	**NET SENSIBLE BTU/H [KW]**	**NET LATENT BTU/H [KW]**	**SEER2**	**EER2**	**INDOOR CFM [L/S]**	**47 DEGREE HEATING CAPACITY BTU/H [KW]**	**47 DEGREE COP**	**17 DEGREE HEATING CAPACITY BTU/H [KW]**	**17 DEGREE COP**	**REGION IV HSPF2**
RD17AZ24AJ3NA	RH3VZ3617STACNJ	22,600 [6.6]	17,500 [5.1]	5,300 [1.6]	17.0	11.7	725 [342.0]	22,600 [6.6]	2.90	18,700 [5.5]	2.5	9.5
RD17AZ36AJ3NA	RH3VZ4821STACNJ	34,200 [10.0]	26,200 [7.7]	8,000 [2.3]	18.0	11.7	1,050 [495.0]	34,200 [10.0]	2.78	31,200 [9.1]	2.3	8.1
RD17AZ48AJ3NA	RH3VZ6024STACNJ	45,500 [13.3]	34,900 [10.2]	10,600 [3.1]	17.0	11.7	1,375 [649.0]	45,500 [13.3]	2.94	43,000 [12.6]	2.4	8.1
RD17AZ60AJ3NA	RH3VZ6024STACNJ	55,500 [16.3]	42,600 [12.5]	12,900 [3.8]	19.0	10.0	1,500 [707.9]	53,500 [15.7]	2.32	50,000 [14.7]	2.0	8.1

NOTE: This data includes DTC (Designated Test Combination) ratings and is for reference purposes only. A full listing of official ratings and system match-ups, along with downloadable certificates, can be accessed from the AHRI website: www.ahridirectory.org.

[ ] Designates Metric Conversions

GENERAL TERMS OF LIMITED WARRANTY*

Rheem will furnish a replacement for any part of this product which fails in normal use and service within the applicable period stated, in accordance with the terms of the limited warranty.

***For complete details of the Limited and Conditional Warranties, including applicable terms and conditions, contact your local contractor or the Manufacturer for a copy of the product warranty certificate.**

Conditional Parts
(Registration Required).....Ten (10) Years

Applies to a heat pump only or system installation. Does not require the heat pump to be part of a properly matched system as specified by the Manufacturer and the Air Conditioning Heating & Refrigeration Institute (AHRI).

Before proceeding with installation, refer to installation instructions packaged with each model, as well as complying with all Federal, State, Provincial, and Local codes, regulations, and practices.

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12. 245 Marcy Street -Recommended Approval

Background: The applicant is seeking approval to replace siding and trim.

Staff Comment: Recommend Approval

Stipulations:

1. _____
2. _____
3. _____







