

**SOUTH WINDSOR AGRICULTURE, ARTS & NATURE CENTER COMMITTEE**

**TOWN OF SOUTH WINDSOR**

**Minutes**

**Page 1**

**July 11, 2018**

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**South Windsor Public Library – Board Room**

**1. Call Meeting to Order**

The meeting was called to order at 5:38 p.m.

**2. Roll Call**

Members Present: Pat Botteron, Open Space Task Force  
Mary Etter, Director of S. W. Public Library  
Ray Favreau, Director of Parks & Recreation  
Jeff Folger, Senior Environmental Planner  
Michele Lipe, Director of Planning  
Virginia Macro, Historic District Commission  
John Mitchell, Rotary Club  
Deputy Mayor Andrew Paterna, Town Council  
Councilor Jan Snyder, Town Council  
Betty Warren, IWA/CC

Members Absent: John Caldwell, Park & Recreation Department  
Stephanie Dexter, Planning & Zoning Commission  
Katie Graham, Park & Recreation Commission  
Sandy Jeski, SWALPAC  
Tim Shepard, South Windsor Land Trust  
Councilor Liz Pendleton, Town Council

**3. Approval of Past Meeting Minutes (June 13, 2018)**

Councilor Snyder made a motion to approve the June 13, 2018 minutes. Mrs. Lipe seconded the motion; and it passed 9-0 with Mr. Mitchell abstaining.

**4. Public Input**

None

**5. Discussion Items**

**Update/Discussion Regarding Architects – Schedule of Deliverables Report**

Committee members reviewed the three options for the HVAC system that were provided by the architect, as shown in attached **Exhibit A**. Mrs. Lipe explained

**(Discussion Continued on Next Page)**

## MINUTES

South Windsor Agriculture, Arts & Nature Center Committee

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### ITEM:

#### 5. Discussion Items

##### Update/Discussion regarding Architects – Schedule of Deliverables Report (Continued)

that Mr. Major who is the Facilities Manager has a clear preference of Option C. Mr. Mitchell has asked to review the options before any decision is made and Mrs. Lipe will get an explanation from Mr. Major on why he chose Option C. At the next meeting, this item can be discussed further, and a decision can be made. Mrs. Warren requested that a cost comparison also be provided.

##### Window Designs/Plywood Distribution/Update

Mr. Folger explained that there is an announcement on the website for people to create a painted work of art on each plywood panel. There has not been any response to the request.

Mr. Favreau stated that there had been two requests for panels at this time. An announcement will go in the Park & Recreation Magazine. The children in the summer camp will work on some of the panels this summer also. Mr. Favreau then requested that the Park & Recreation Department be allowed to approve or deny the submissions for the window designs.

Councilor Snyder made a motion to allow the Park & Recreation Department staff to approve/deny the window designs. Mrs. Botteron seconded, the motion; and it was approved, unanimously.

##### Update/Hazardous Materials Evaluation

Mrs. Lipe explained that the purchase order has been complete and the wetlands have been flagged. Design Professionals, Inc. will create a site plan which would pick up the wetlands. The hazardous materials assessment cost was \$4,500 which came out the South Windsor Agriculture, Arts & Nature Center Committee's account. The cost for the services that Design Professions will provide is approximately \$4,200 and will come out of the Planning Departments budget.

## MINUTES

South Windsor Agriculture, Arts & Nature Center Committee

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### ITEM:

#### 5. Discussion items (Continued)

##### Donation of \$1,000 from the South Windsor Lions Club

Deputy Mayor Paterna informed the Committee that the South Windsor Lions Club donated \$1,000 to the Priest Property project and requested that something on the site reflect their donation. Deputy Mayor Paterna suggested that a trail on the property be named after them. Deputy Mayor Paterna stated that he would send a thank you note to the Lions Club.

Mrs. Lipe suggested that a list be created of the different organizations that donate towards this project and the list can be put on the website.

##### Intersection of Ellington Road and Sullivan Avenue – Traffic Light

Deputy Mayor Paterna received the first set of plans from DOT. Mr. DeMallie will be taking a look at the plan to see what can be done. The second plan should come next week.

Mrs. Lipe explained that Design Professionals could incorporate curb cuts into the work they are already doing with the site plan.

##### Possible Request – State Bond Commission

Deputy Mayor Paterna stated that he had a discussion with State Senator Beth Bye who is also the Executive Director of Auer Farm. She loves the Priest Property site and the plan. She suggested putting a request in for State money which she would support. Deputy Mayor Paterna stated that he would also be reaching out South Windsor representatives for support.

#### 6. New Business/Additional Discussion Items

Mrs. Lipe stated that she had a discussion with the gentleman who runs the Massaro Farm. He is willing to help South Windsor set up a CSA if we decide to.

Mrs. Macro explained that the Historic District Commission is running a program where residents who live in historic homes can buy a sign that can be displayed on their homes. The cost of the sign is \$30.00. The Historic District Commission

(Discussion Continued on Next Page)

## MINUTES

South Windsor Agriculture, Arts & Nature Center Committee

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### ITEM:

#### 6. Discussion items

##### *New Business/Additional Discussion Items (Continued)*

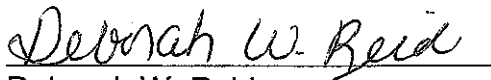
donated a sign for the Priest Property project (Lawrence Stoughton). After a brief discussion, the Commission decided that the sign would be put up now and when the renovations are under way it can be taken down, and put back up when renovations are complete. Mrs. Lipe will request Public Works to put the sign up after Mr. Folger gets the correct hardware. Commission members thanked the Historic District Commission.

7. Next Meeting Wednesday, September 12, 2018, at the South Windsor Public Library at 5:30 p.m. **No Meeting in August.**

#### 8. Adjournment

Mrs. Lipe made a motion to adjourn the meeting at 6:11 p.m. Councilor Snyder seconded the motion; and it was approved, unanimously.

Respectfully submitted,



Deborah W. Reid  
Council Clerk



## HVAC System Options

### PRIEST FARMHOUSE

*South Windsor, CT*

#### **OPTION A**

##### *NATURAL GAS FURNACE SPLIT SYSTEM*

The farmhouse will be provided with heating and cooling from a two natural gas condensing furnaces with central air conditioning. A horizontal natural gas furnace will be located in the attic and will serve the second floor. Supply and return ductwork will be routed in the attic and will connect to supply diffusers and return grills located in the ceiling of the second floor. A floor mounted vertical natural gas furnace will be located in the basement and will serve the first floor. Overhead supply and return ductwork will be routed in the ceiling of the basement and will connect to supply diffusers and return grills in the flooring at the first floor.

The natural gas furnace will be located in a mechanical closet and will be similar to a Goodman model GMS920803 unit with a 92% fuel efficiency. The furnace will provide central air conditioning from a DX-refrigerant cooling coil that will be served by an outdoor condensing unit located on the roof. The outdoor condensing unit will be similar to a Goodman model GSX160311A unit that utilizes a non-ozone depleting R-410a refrigerant and has a nominal cooling capacity ranging from 2-1/2 tons to 4 tons. Domestic hot water will be provided from tank type electric water heater located in the basement of the farmhouse. Cutsheets of the gas furnaces and outdoor condensing units are provided as an attachment to this document.

#### **OPTION B**

##### *SPLIT SYSTEM AIR CONDITIONING UNIT WITH NATURAL GAS COMBI BOILER*

The farmhouse will be provided with heating and cooling from a two indoor air handling units that will each contain a hot water heating coil, and a DX-refrigerant cooling coil. A horizontal air handling unit will be located in the attic and will serve the second floor. Supply and return ductwork will be routed in the attic and will connect to supply diffusers and return grills located in the ceiling of the second floor. A floor mounted vertical air handling unit will be located in the basement and will serve the first floor. Overhead supply and return ductwork will be routed in the ceiling of the basement and will connect to supply diffusers and return grills in the flooring at the first floor.



Heating hot water will be provided from a wall mounted natural gas fired combination condensing boiler that will have a 95% fuel efficiency. The boiler will be similar to a Navien model NCB-210E boiler that will provide heating hot water to the air handling units and domestic hot water for plumbing fixtures. The air handling units will provide central air conditioning from a DX-refrigerant cooling coil that will be served by an outdoor condensing unit located at grade. The outdoor condensing unit be similar to a Goodman model GSX160311A unit that utilizes a non-ozone depleting R-410a refrigerant and has a nominal cooling capacity ranging from 2-1/2 to 4 tons. Cutsheets of the air handling unit, outdoor condensing unit, and natural gas fired combination boiler are provided as an attachment to this document.

#### **OPTION C**

##### *SPLIT SYSTEM AIR COOLED VRF HEAT PUMP*

The farmhouse will be provided with heating and cooling from a two indoor fan coil units that will each contain a DX-refrigerant heating and cooling coil. A horizontal air handling unit will be located in the attic and will serve the second floor. Supply and return ductwork will be routed in the attic and will connect to supply diffusers and return grills located in the ceiling of the second floor. A floor horizontal air handling unit will be located in the basement and will serve the first floor. Overhead supply and return ductwork will be routed in the ceiling of the basement and will connect to supply diffusers and return grills in the flooring at the first floor.

The fan coil units will be served by a outdoor air cooled heat pump unit located at grade. The fan coil units will be similar to Mitsubishi model PEFY unit. The outdoor heat pump unit will be similar to a Mitsubishi model PUMY-A60NKA7 unit. The heat pump will be sized to provide sufficient heating capacity when the outdoor air temperature drops below 5°F. Domestic hot water will be provided from tank type electric water heater located in basement of the farmhouse. Cut sheets of the indoor fan coil unit and outdoor condensing units are provided as a attachment to this document.

This type of system is electric heating and cooling. The VRF system offers approximately 8% improved efficiency over non-VRF systems.

**OPTION A**  
**EQUIPMENT CUTSHEETS**



# GMSS92 / GCSS92

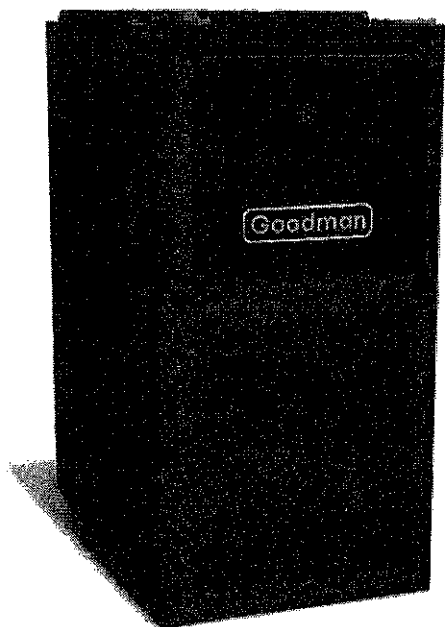
*SINGLE-STAGE, MULTI-SPEED*

*GAS FURNACE*

*UP TO 92% AFUE*

MODEL - GMS920803BNAA

HEATING INPUT: 40,000–120,000 BTU/H



## Contents

Nomenclature.....	2
Product Specifications.....	3
Dimensions.....	5
Airflow Specifications.....	7
Wiring Diagram.....	10
Accessories.....	11

## Standard Features

- Heavy-duty aluminized-steel tubular heat exchanger
- Stainless-steel secondary heat exchanger
- Single-stage gas valve
- Durable Silicon Nitride igniter
- Multi-speed blower motor
- Quiet single-speed induced draft blower
- Self-diagnostic control board
- All models comply with California 40 ng/l Low NOx emissions standard
- AHRI Certified; ETL Listed

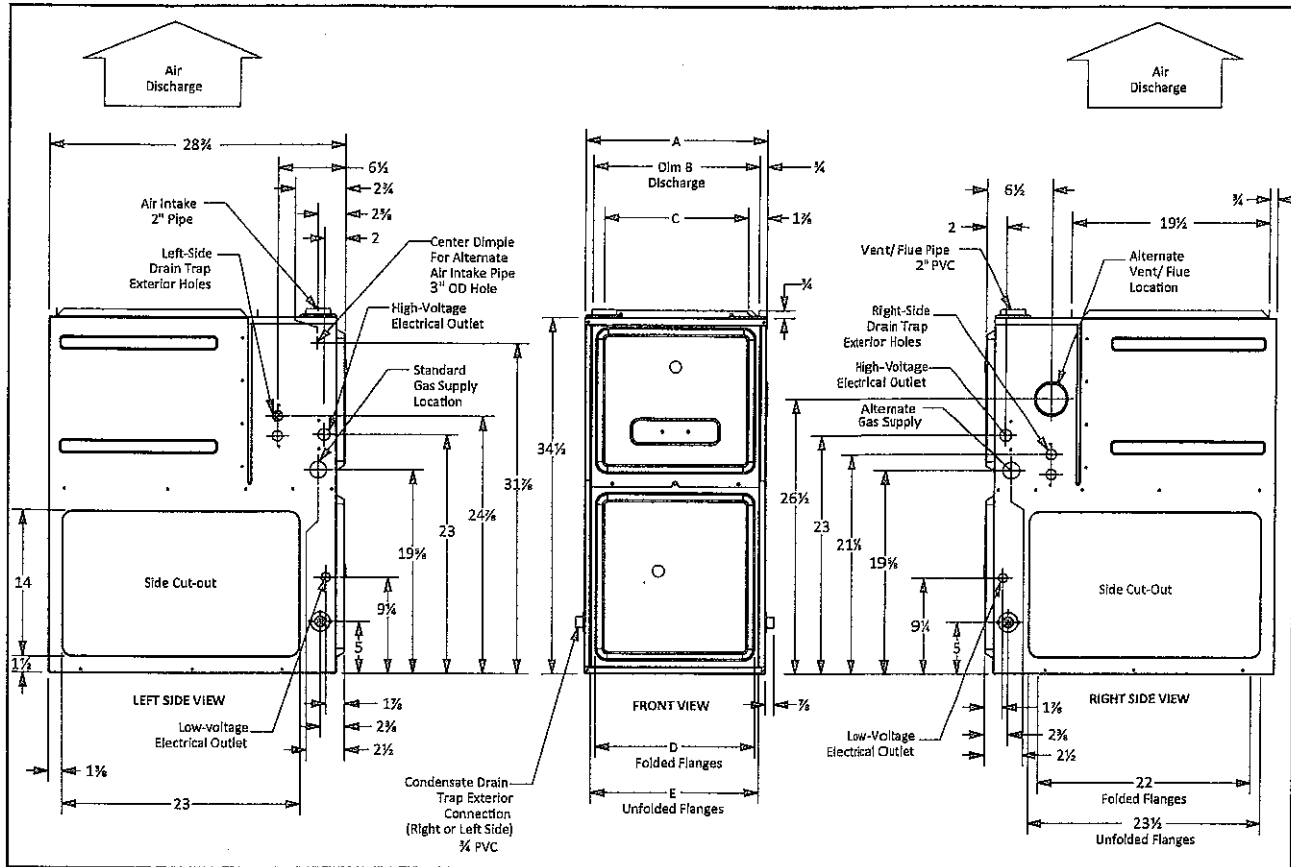
## Cabinet Features

- Designed for multi-position installation —  
GMSS92: upflow, horizontal left or right  
GCSS92: downflow, horizontal left or right
- Certified for direct vent (2-pipe)  
or on-direct vent (1-pipe)
- Easy-to-install top venting with optional side venting
- Convenient left or right connection  
for gas and electrical service
- Cabinet air leakage ( $Q_{leak}$ )  $\leq 2\%$
- Heavy-gauge steel cabinet with durable finish
- Foil-faced insulated heat exchanger cabinet
- Airtight solid bottom or side return with  
easy-cut tabs for effortless removal in  
bottom air-inlet applications



\* Complete warranty details available from your local dealer or at [www.goodmanmfg.com](http://www.goodmanmfg.com). To receive the Lifetime Heat Exchanger Limited Warranty (good for as long as you own your home), and 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Québec.





MODEL	A	B	C	D	E
GMSS920402BNA	17 1/2"	16"	13 3/8"	12 1/8"	13 3/8"
GMSS920603BNA	17 1/2"	16"	13 3/8"	12 1/8"	13 3/8"
GMSS920803BNA	17 1/2"	16"	13 3/8"	12 1/8"	13 3/8"
GMSS920804CNA	21"	19 1/2"	17 7/8"	16"	17 1/2"
GMSS920805CNA	21"	19 1/2"	17 7/8"	16"	17 1/2"
GMSS921004CNA	21"	19 1/2"	17 7/8"	16"	17 1/2"
GMSS921005CNA	21"	19 1/2"	17 7/8"	16"	17 1/2"
GMSS921205DNA	24 1/2"	23"	20 3/8"	19 1/8"	20 3/8"

#### MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS

POSITION	SIDES	REAR	FRONT	BOTTOM	FLUE	TOP
Upflow	0"	0"	3"	C	0"	1"
Horizontal	6"	0"	3"	C	0"	6"

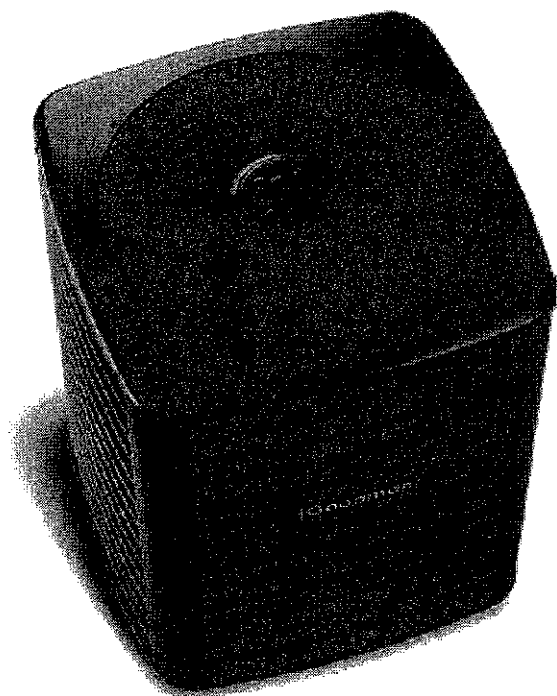
C = If placed on combustible floor, the floor MUST be wood ONLY.



# GSX13

**COOLING CAPACITY:**  
18,000 - 60,000 BTU/H

**ENERGY-EFFICIENT**  
**SPLIT SYSTEM AIR CONDITIONER**  
**13 SEER / 1½ TO 5 TONS**



### Contents

Nomenclature.....	2
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Expanded Cooling Data .....	4
AHRI Ratings .....	20
Wiring Diagrams .....	47
Dimensions .....	48
Accessories .....	48

**MODEL - GSX130311AA**

### Standard Features

- Energy-efficient compressor
- Factory-installed filter drier
- Copper tube/aluminum fin coil
- Service valves with sweat connections and easy-access gauge ports
- Contactor with lug connection
- Ground lug connection
- AHRI Certified; ETL Listed

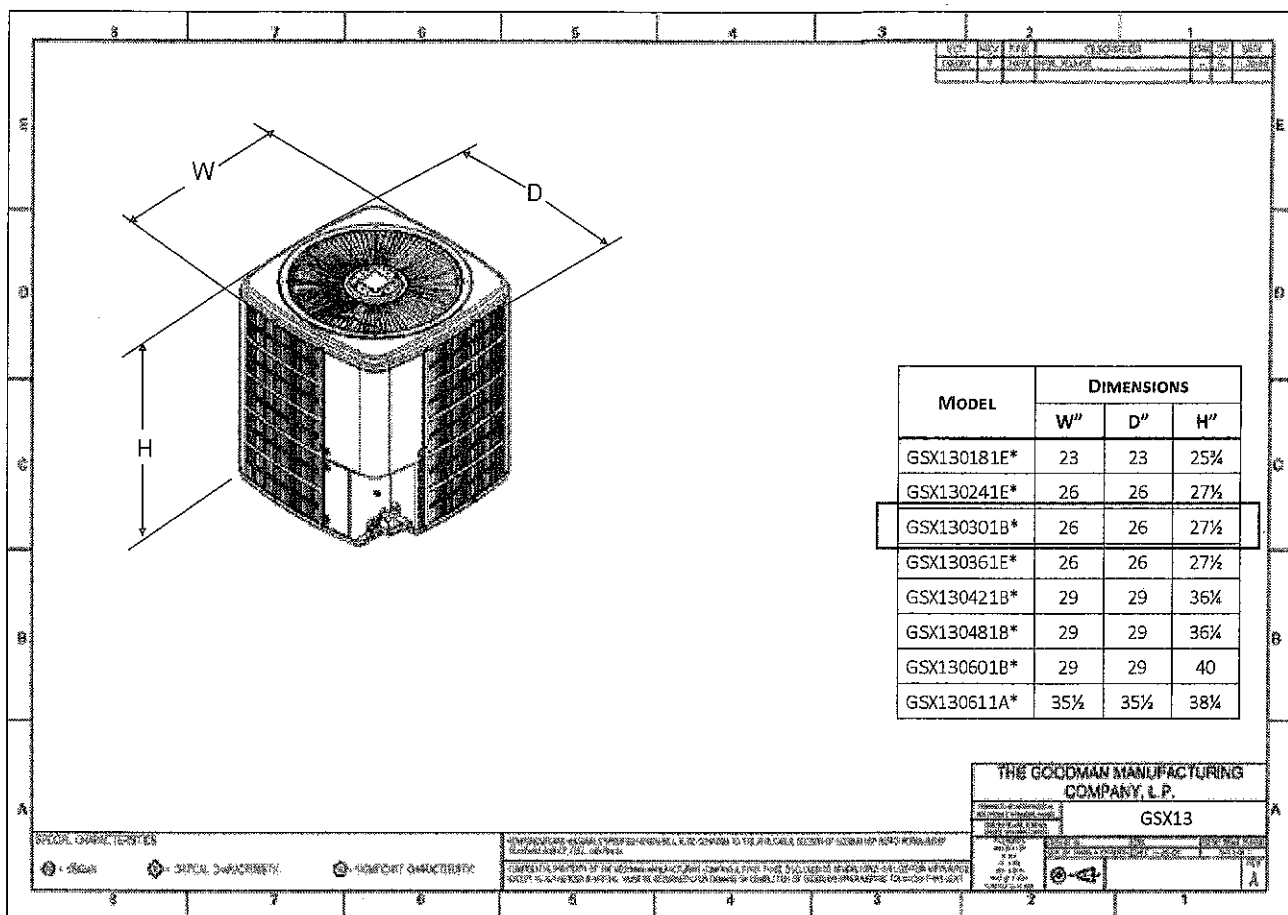
### Cabinet Features

- Heavy-gauge galvanized-steel cabinet with louvered sound control top
- Attractive Architectural Gray powder-paint finish with 500-hour salt-spray approval
- Steel louver coil guard
- Single-panel access to controls with space provided for field-installed accessories
- When properly anchored, meets the 2010 Florida Building Code unit integrity requirements for hurricane-type winds (Anchor bracket kits available.)



\* Complete warranty details available from your local dealer or at [www.amana-hac.com](http://www.amana-hac.com). To receive the 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Quebec.

## DIMENSIONS



## ACCESSORIES

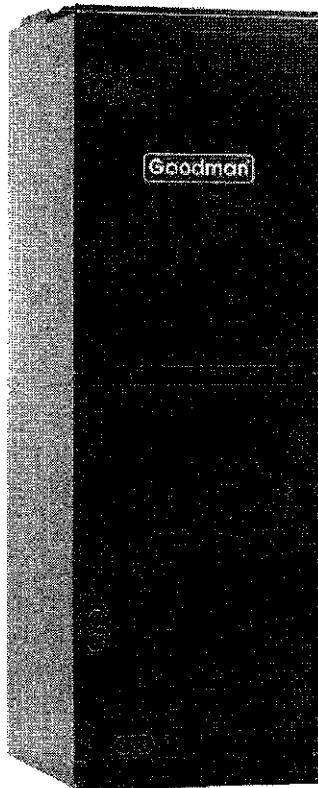
MODEL #	DESCRIPTION	GSX13 018E*	GSX13 024E*	GSX13 030B*	GSX13 036E*	EGSX13 042B*	GSX13 048B*	GSX13 060B*	GSX13 061A*
ABK-20	Anchor Bracket Kit ^		X	X	X	X	X	X	X
ABK-21	Anchor Bracket Kit ^	X							
ASC-01	Anti-Short Cycle Kit	X	X	X	X	X	X	X	X
CSR-U-1	Hard-start Kit	X	X	X	X				
CSR-U-2	Hard-start Kit					X	X	X	X
CSR-U-3	Hard-start Kit						X	X	X
FSK01A <sup>1</sup>	Freeze Protection Kit	X	X	X	X	X	X	X	X
LSK02A <sup>2</sup>	Liquid Line Solenoid Kit	X	X	X	X	X	X	X	X
LAKT01A	Low-Ambient Kit	X	X	X	X	X	X	X	X
0130R00000S	Low-Pressure Switch Kit	X	X	X	X	X	X	X	X
TX2N4 <sup>2</sup>	TXV Kit	X							
TX2N4A <sup>2</sup>	TXV Kit	X							
TX3N4 <sup>2</sup>	TXV Kit		X	X	X				
TX5N4 <sup>2</sup>	TXV Kit					X	X	X	X

<sup>A</sup> Contains 20 brackets; four brackets needed to anchor unit to pad

<sup>1</sup> Installed on indoor coil

<sup>2</sup> Field-Installed, non-bleed, expansion valve kit: Condensing units and heat pumps with reciprocating compressors require the use of start-assist components when used in conjunction with an indoor coil using a non-bleed thermal expansion valve refrigerant metering device or liquid line solenoid kit.

**OPTION B**  
**EQUIPMENT CUTSHEETS**



## ASPT SERIES

*MULTI-POSITION, MULTI-SPEED,  
ECM-BASED AIR HANDLER  
WITH INTERNAL TXV  
1½ TO 5 TONS*

### Contents

Air Handler Nomenclature .....	2
Heater Kit Nomenclature .....	2
Product Specifications .....	3
Dimensions .....	4
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Wiring Diagram .....	9
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Model - ASPT30B14AA

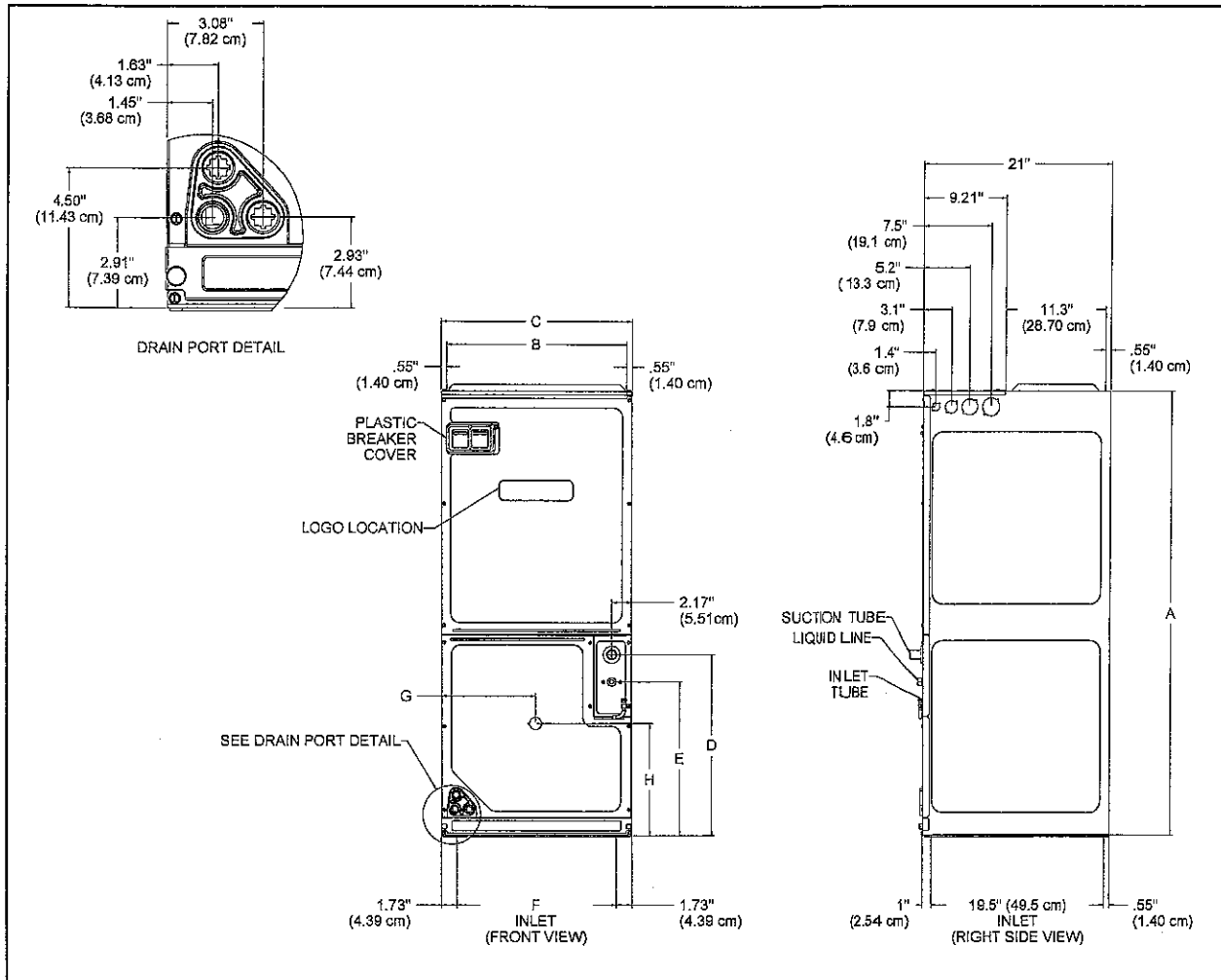
### Product Features

- Internal factory-installed thermal expansion valves for cooling and heat pump applications
- Direct drive, multi-speed ECM blower motor
- All-aluminum evaporator coil
- Coil mounting track for quick repositioning
- Optimized for use with R-410A refrigerant
- Cabinet air leakage less than 2.0% at 1.0 inch H<sub>2</sub>O when tested in accordance with ASHRAE standard 193
- Cabinet air leakage less than 1.4% at 0.5 inch H<sub>2</sub>O when tested in accordance with ASHRAE standard 193
- 3 kW – 25 kW electric heater kits
- AHRI certified; ETL listed
- Rigid SmartFrame™ cabinet
- Horizontal or vertical configuration capabilities
- 21" depth for easier attic access
- DecaBDE-free thermoplastic drain pan with secondary drain connections
- Screw-less sides and back helps to reduce condensation when installed in humid locations
- Foil-faced insulation covers the internal casing to reduce cabinet condensation
- Galvanized, leather grain-embossed finish
- Glue-less cabinet insulation retention
- Tool-less filter access



\* Complete warranty details available from your local dealer or at [www.goodmanmfg.com](http://www.goodmanmfg.com). To receive the 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Québec.

## DIMENSIONS



MODEL	A"	B"	C"	D"	E"	F"	G"	H"
ASPT25B14*	45	16%	17½	15¼	12	14 <sup>3</sup> / <sub>16</sub>	9%	12%
ASPT29B14*	53 <sup>7</sup> / <sub>16</sub>	16%	17½	23 <sup>11</sup> / <sub>16</sub>	20½	14 <sup>3</sup> / <sub>16</sub>	9%	7%
ASPT37B14*	53 <sup>7</sup> / <sub>16</sub>	16%	17½	23 <sup>11</sup> / <sub>16</sub>	20½	14 <sup>3</sup> / <sub>16</sub>	9%	7%
ASPT37C14*	53 <sup>7</sup> / <sub>16</sub>	19%	21	21 <sup>13</sup> / <sub>16</sub>	18%	17 <sup>11</sup> / <sub>16</sub>	10 <sup>13</sup> / <sub>16</sub>	6%
ASPT47C14*	53 <sup>7</sup> / <sub>16</sub>	19%	21	21 <sup>13</sup> / <sub>16</sub>	18%	17 <sup>11</sup> / <sub>16</sub>	10 <sup>13</sup> / <sub>16</sub>	6%
ASPT59C14*	53 <sup>7</sup> / <sub>16</sub>	19%	21	21 <sup>13</sup> / <sub>16</sub>	18%	17 <sup>11</sup> / <sub>16</sub>	10 <sup>13</sup> / <sub>16</sub>	6%
ASPT47D14*	53 <sup>7</sup> / <sub>16</sub>	23 <sup>5</sup> / <sub>16</sub>	24½	21½	18 <sup>5</sup> / <sub>16</sub>	21 <sup>1</sup> / <sub>16</sub>	12%	6%
ASPT49D14*	58	23 <sup>5</sup> / <sub>16</sub>	24½	26%	22%	21 <sup>3</sup> / <sub>16</sub>	12%	25%
ASPT61D14	58	23 <sup>5</sup> / <sub>16</sub>	24½	26%	22%	21 <sup>3</sup> / <sub>16</sub>	12%	25%



# GSX13

**COOLING CAPACITY:**  
18,000 - 60,000 BTU/H

**ENERGY-EFFICIENT**  
**SPLIT SYSTEM AIR CONDITIONER**  
**13 SEER / 1½ TO 5 TONS**

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**MODEL - GSX130311AA**



## Standard Features

- Energy-efficient compressor
- Factory-installed filter drier
- Copper tube/aluminum fin coil
- Service valves with sweat connections and easy-access gauge ports
- Contactor with lug connection
- Ground lug connection
- AHRI Certified; ETL Listed

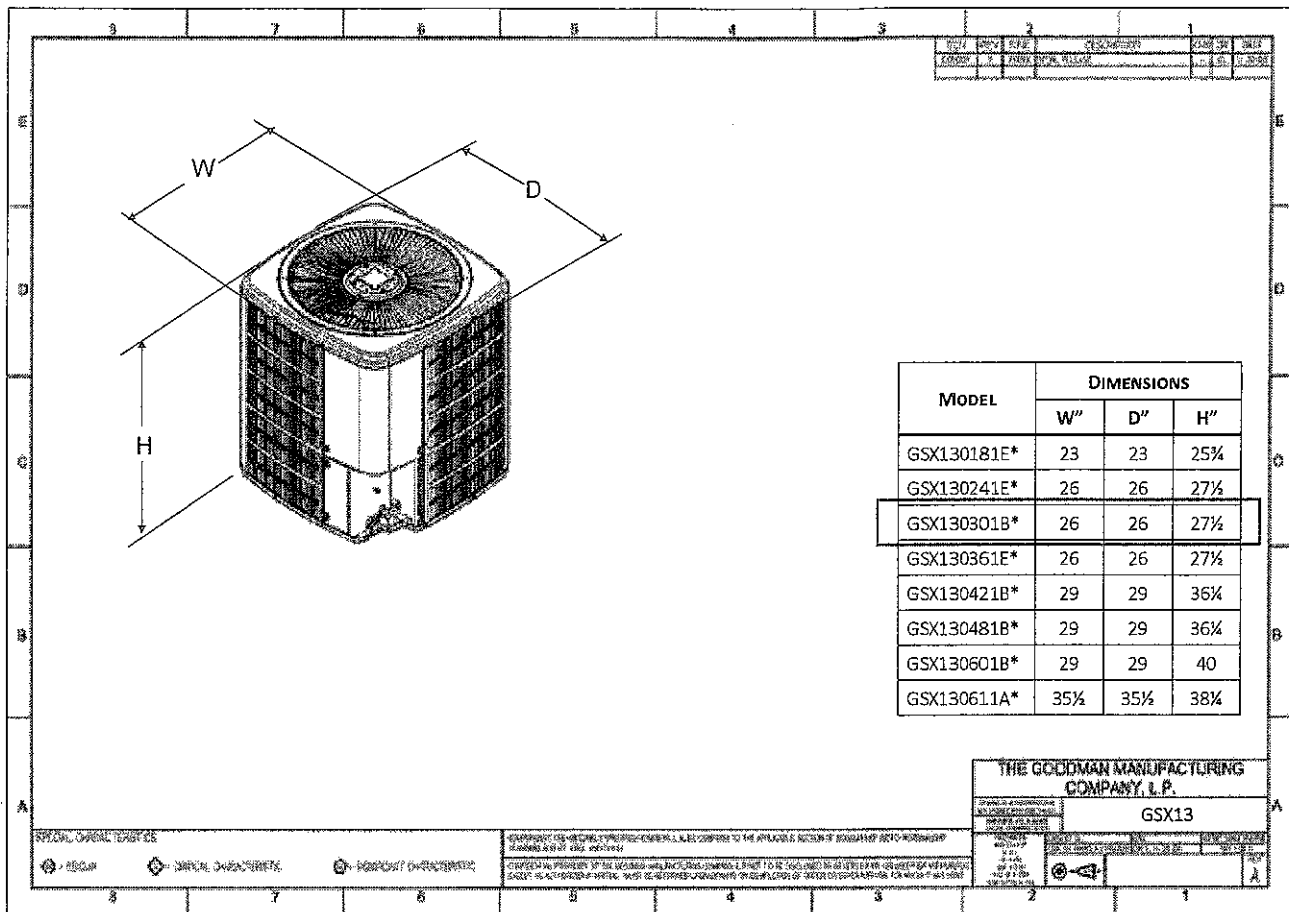
## Cabinet Features

- Heavy-gauge galvanized-steel cabinet with louvered sound control top
- Attractive Architectural Gray powder-paint finish with 500-hour salt-spray approval
- Steel louver coil guard
- Single-panel access to controls with space provided for field-installed accessories
- When properly anchored, meets the 2010 Florida Building Code unit integrity requirements for hurricane-type winds (Anchor bracket kits available.)



\* Complete warranty details available from your local dealer or at [www.amana-hac.com](http://www.amana-hac.com). To receive the 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Quebec.

## DIMENSIONS



## ACCESSORIES

MODEL #	DESCRIPTION	GSX13 018E*	GSX13 024E*	GSX13 030B*	GSX13 036E*	EGSX13 042B*	GSX13 048B*	GSX13 060B*	GSX13 061A*
ABK-20	Anchor Bracket Kit ^		X	X	X	X	X	X	X
ABK-21	Anchor Bracket Kit ^	X							
ASC-01	Anti-Short Cycle Kit	X	X	X	X	X	X	X	X
CSR-U-1	Hard-start Kit	X	X	X	X				
CSR-U-2	Hard-start Kit					X	X	X	X
CSR-U-3	Hard-start Kit						X	X	X
FSK01A <sup>1</sup>	Freeze Protection Kit	X	X	X	X	X	X	X	X
LSK02A <sup>2</sup>	Liquid Line Solenoid Kit	X	X	X	X	X	X	X	X
LAKT01A	Low-Ambient Kit	X	X	X	X	X	X	X	X
0130R00000S	Low-Pressure Switch Kit	X	X	X	X	X	X	X	X
TX2N4 <sup>2</sup>	TXV Kit	X							
TX2N4A <sup>2</sup>	TXV Kit	X							
TX3N4 <sup>2</sup>	TXV Kit		X	X	X				
TX5N4 <sup>2</sup>	TXV Kit					X	X	X	X

^ Contains 20 brackets; four brackets needed to anchor unit to pad

<sup>1</sup> Installed on indoor coil

<sup>2</sup> Field-Installed, non-bleed, expansion valve kit: Condensing units and heat pumps with reciprocating compressors require the use of start-assist components when used in conjunction with an indoor coil using a non-bleed thermal expansion valve refrigerant metering device or liquid line solenoid kit.

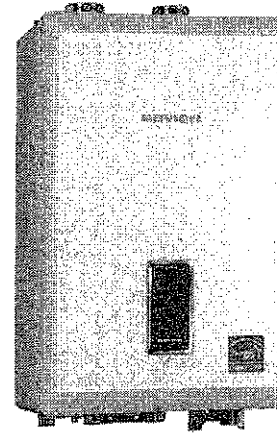


# navien

Condensing Gas  
Combination Boiler

## NCB Series Combination Boilers Specification Sheet

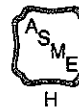
- Certified design according to ANSI Z21.13-2014/CSA 4.9-2014 standards for indoor residential applications
- Gas Input Ranges (Space Heating / DHW)
  - NCB-150E - 60,000 (120,000 for DHW) to 12,000 BTU/h
  - NCB-180/NCB-180E - 80,000 (150,000 for DHW) to 14,000 BTU/h
  - NCB-210/NCB-210E - 100,000 (180,000 for DHW) to 18,000 BTU/h
  - NCB-240/NCB-240E - 120,000 (199,900 for DHW) to 18,000 BTU/h
- Domestic Hot Water Flow Rate Capacity (\*based on 77°F temperature rise)
  - NCB-150E - 2.6 GPM
  - NCB-180/NCB-180E - 3.4 GPM
  - NCB-210/NCB-210E - 4.0 GPM
  - NCB-240/NCB-240E - 4.5 GPM
- Dual Primary and Secondary Stainless Steel Heat Exchangers for optimum efficiency and durability
- Stainless Steel Flat Plate Heat Exchanger\* for DHW  
(\* certified to IAPMO PS 92-2013 standards)
- Domestic Hot Water Priority
- Compatible with 2" PVC vent up to 60 ft\*\* and 3" PVC vent up to 150 ft\*\*  
(\*\* with no elbows)
- Backlit Front Panel - allows adjustment of hot water temperatures and boiler functions including Outdoor Reset Curve settings, heating setback, Integrated Low Water Safety Control, water fill pressure, and output capacity
- Cascade Capability with Navien water heater models - can be linked with up to 15 tankless water heaters for increased DHW output
- Internal Circulation Pump - comes included with a primary circulation pump and air vent for added value and convenience
- Low Voltage Terminal Strip - contacts for thermostat or zone controller, outdoor reset, 24 VAC device relay, air handler interrupt, and LWCO
- Temperature Options - two boiler setpoints: hydronic heating temperature settings range from 77°F up to 194°F and from 86°F to 140°F for DHW temperatures
- Outdoor Reset Sensor (optional) - when installed with an NCB Series model, the unit controls will sense outdoor ambient temperatures and adjust the boiler operation for maximum comfort and efficiency
- AFUE Ratings
  - NCB-150E - 95.0% (NG/LPG)
  - NCB-180/NCB-180E - 95.0% (NG/LPG)
  - NCB-210/NCB-210E - 95.0% (NG/LPG)
  - NCB-240/NCB-240E - 95.0% (NG/LPG)
- Compatible with Natural Gas (NG) and Propane (LPG)\*\*\*  
(\*\*\*) requires installation of included Field Conversion Kit by a qualified gas servicer
- Certified by CSA, ASME, NSF/ANSI 372 for Low Lead (DHW only), SCAQMD (Rule 1146.2 Type 1 - Complies with 14 ng/j or 20 ppm NOx @ 3% O<sub>2</sub>)
- 10-Year Heat Exchanger and 5-Year Parts Warranty\*\*\*\*  
(\*\*\*) see Navien Limited Residential Warranty
- Optional accessories are available (see below)



**Sleek Design - Compatible  
with 2" PVC Vent**



**INCLUDED Illuminated Front Panel with  
Advanced Hydronic and DHW Operation**



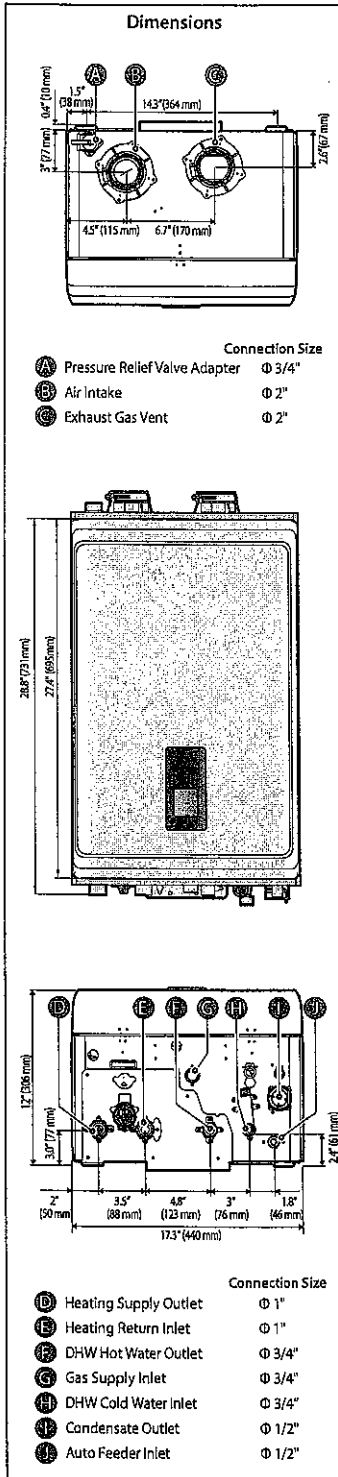
Certified to  
NSF/ANSI 372

<b>Quik-Install Manifold</b> (GPFM-MCOZUS-001)	<b>Plumb Easy Valve Set</b> (30010950A - 1" Standard) (30009323A - 3/4" Lead Free) (30012581A - 3/4" for Pipe Cover)	<b>Condensate Neutralizer</b> (GX00001322 - Single Unit) (GX00001324 - Up to 6 Units) (GX00001325 - Up to 16 Units)	<b>Ready-Link Cascade Communication Cable</b> (GX00000546)	<b>Outdoor Reset Sensor</b> (30012950A)	<b>Zone Pump Controller</b> (PFMZ-02P-001 - For 2 Zones) (PFMZ-03P-001 - For 3 Zones) (PFMZ-04P-001 - For 4 Zones) (PFMZ-06P-001 - For 6 Zones)

# navien

Condensing Gas  
Combination Boiler

## NCB Series Combination Boilers Specification Sheet



Navien Combination Boiler Space Heating Ratings					Other Specifications		
Model Number <sup>1</sup>	Heating Input, MBH		Heating Capacity <sup>2</sup> , MBH	Net AHRI Rating, Water <sup>3</sup> , MBH	AFUE <sup>2</sup> , %	Water Pressure	Water Connection Size (Supply, Return)
	Min	Max					
NCB-150E	12	60	56	49	95.0	12-30 psi	1 in NPT
NCB-180/NCB-180E	14	80	75	65	95.0		
NCB-210/NCB-210E	18	100	94	82	95.0		
NCB-240/NCB-240E	18	120	112	97	95.0		
<sup>1</sup> Ratings are the same for Natural Gas models converted to Propane use. <sup>2</sup> Based on U.S. Department of Energy (DOE) test procedures. <sup>3</sup> The NET AHRI Water Ratings shown are based on a piping and pickup allowance of 1.15. Consult Navien before selecting a boiler for installations having unusual piping and pickup requirements, such as intermittent system operation, extensive piping systems, etc.							
Specifications							
Item		NCB-150E	NCB-180 / NCB-180E	NCB-210 / NCB-210E	NCB-240 / NCB-240E		
Gas Input	Space Heating	12,000-60,000 BTU/H	14,000-80,000 BTU/H	18,000-100,000 BTU/H	18,000-120,000 BTU/H		
	Domestic Hot Water	12,000-120,000 BTU/H	14,000-150,000 BTU/H	18,000-180,000 BTU/H	18,000-199,900 BTU/H		
Flow Rate (DHW)	77°F (43°C) Temp Rise	2.6 GPM (9.8 L/m)	3.4 GPM (12.9 L/m)	4.0 GPM (15.1 L/m)	4.5 GPM (17.0 L/m)		
Dimensions		17"(W) x 28"(H) x 12"(D)	17"(W) x 28"(H) x 12"(D)	17"(W) x 28"(H) x 12"(D)	17"(W) x 28"(H) x 12"(D)		
Weight		66 lbs (30kg)	74 lbs (34kg)	84 lbs (38kg)	84 lbs (38kg)		
Installation Type		Indoor Wall-Hung					
Venting Type		Forced Draft Direct Vent					
Ignition		Electronic Ignition					
Water Pressure (Hydronic/DHW)		12-30 PSI / 15-150 PSI					
Natural Gas Supply Pressure (from source)		3.5"-10.5" WC					
Propane Gas Supply Pressure (from source)		8.0"-13.5" WC					
Natural Gas Manifold Pressure (min-max)		-0.08" WC to -0.34" WC	-0.07" WC to -0.66" WC	-0.05" WC to -0.36" WC	-0.06" WC to -1.2" WC		
Propane Gas Manifold Pressure (min-max)		-0.08" WC to -0.30" WC	-0.06" WC to -0.62" WC	-0.1" WC to -0.66" WC	-0.03" WC to -0.98" WC		
Minimum Flow Rate (DHW)		0.5 GPM (1.9 L/m)					
Connection Sizes	Heating Supply/Return	1" NPT					
	DHW Inlet/Outlet	3/4" NPT					
	Gas Inlet	3/4" NPT					
	Auto Feeder	1/2" NPT					
	Condensate Outlet	1/2" NPT					
Power Supply	Main Supply	120V AC, 60Hz					
	Maximum Power Consumption	200W (up to 2 amperes)					
Materials	Casing	Cold Rolled Carbon Steel					
	Heat Exchangers	Primary/Secondary Heat Exchanger: Stainless Steel DHW Heat Exchanger: Stainless Steel					
Venting	Exhaust	2" or 3" PVC, CPVC, Approved Polypropylene 2" or 3" Special Gas Vent Type BH (Class II, A/B/C)					
	Intake	2" or 3" PVC, CPVC, Polypropylene 2" or 3" Special Gas Vent Type BH (Class II, A/B/C)					
	Vent Clearances	0" to Combustibles					
Safety Devices	Flame Rod, APS, Gas Valve Operation Detector, Ignition Operation Detector, Water Temperature High Limit Switch, Exhaust Temperature High Limit Sensor						

\*Navien reserves the right to change specifications at any time without prior notice

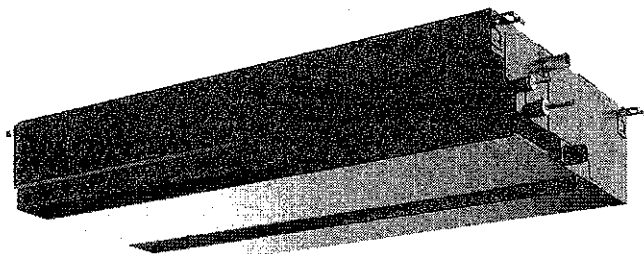
**OPTION C**  
**EQUIPMENT CUTSHEETS**

Job Name:

System Reference:

Date:

## Exhibit A



## GENERAL FEATURES

- Dual set point functionality
- Multiple fan speed settings
- Auto fan mode
- 9-7/8" (250mm) high for low ceiling heights
- Built-in condensate lift; lifts to 27-9/16" (700 mm)
- Ducted fan coil supporting multiple configurations for flexible installation

## OPTIONS

- ☐ External Heater Adapter.....CN24RELAY-KIT-CM3
- ☐ Filter Box (Includes 2" MERV 13 filter).....FBM2-5

## SPECIFICATIONS

## Capacity\*

Cooling.....	54,000 Btu/h
Heating.....	60,000 Btu/h

## Power

Power Source.....	208 / 230V, 1-phase, 60Hz
-------------------	---------------------------

## Power Consumption

Cooling.....	0.36 kW
Heating.....	0.34 kW

## Current

Cooling.....	2.24 / 2.2 A
Heating.....	2.13 / 2.09 A

Minimum Circuit Ampacity (MCA).....3.31 A

Maximum Overcurrent Protection (MOCP) Fuse.....15 A

External Finish.....Galvanized-steel Sheet

## External Dimensions

Inches.....	9-7/8 H x 63 W x 28-7/8 D
mm.....	250Hx1,600Wx732D

Net Weight.....86 lbs. / 39 kg

Coil Type.....Cross Fin  
(Aluminum Plate Fin and Copper Tube)

## Fan

Type x Quantity.....	Sirocco Fan x 2
Airflow Rate (Low-Mid-High).....	1,042 - 1,254 - 1,483 CFM
External Static Pressure.....	0.14 - 0.20 - 0.28 - 0.40 - 0.60" WG
Motor Type.....	DC Motor

Air Filter.....Polypropylene Honeycomb

## Refrigerant Piping Dimensions

Liquid (High Pressure).....	3/8" / 9.52 mm (Brazed)
Gas (Low Pressure).....	5/8" / 15.88 mm (Brazed)

Drainpipe Dimension.....O.D. 1-1/4" / 32 mm

## Sound Pressure Levels

Low-Mid-High.....	36 - 41 - 45 dB(A)
-------------------	--------------------

\* Cooling / Heating capacity indicated at the maximum value at operation under the following conditions:

Cooling | Indoor: 80° F (27° C) DB / 67° F (19° C) WB,

Cooling | Indoor: Outdoor 95° F (35° C) DB

Heating | Indoor: 70° F (21° C) DB,

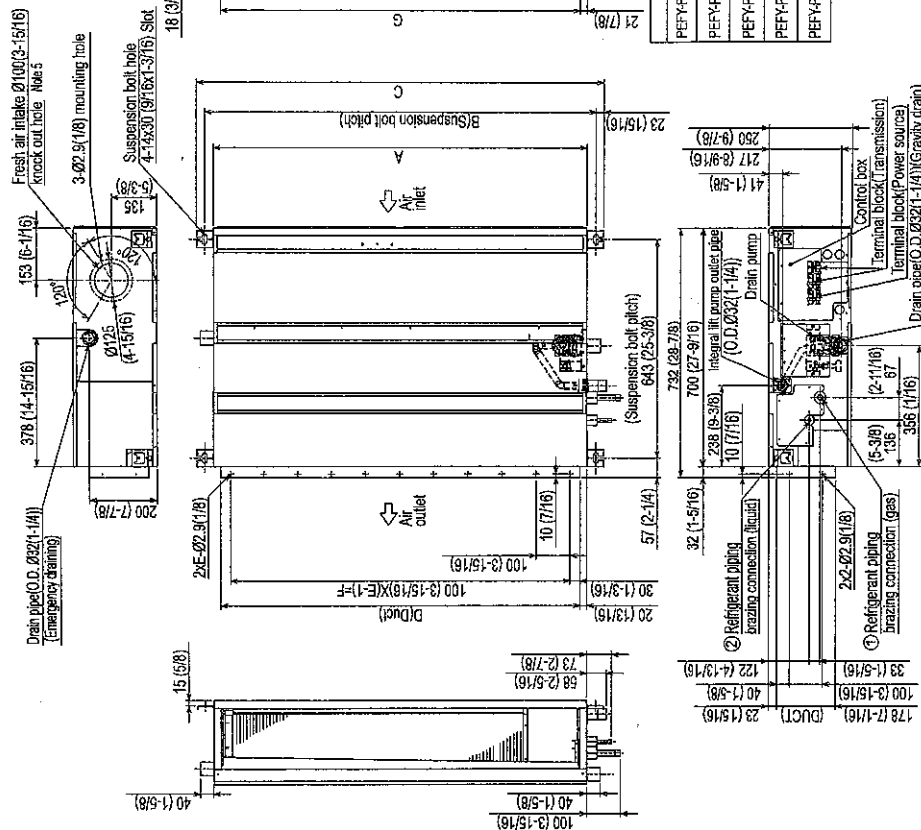
Heating | Outdoor 47° F (8° C) DB / 43° F (6° C) WB

# Model: PEFY-P54NMAU-E3 – DIMENSIONS

Unit: mm (in)

Exhibit A

1. Use an M10 screw for the suspension bolt (field supply).
2. Keep the service space for maintenance at the bottom.
3. This drawing is for PEFY-P24-27-30-36-48-64NMAU-E3 models, which have 2 fans. PEFY-P08-08-12-15-18NMAU-E3 models have 1 fan.
4. If the inlet duct is used, remove the air filter (supplied with the unit), then install the filter (field supply) at the suction side.
5. Heat air to 0°C (32°F) or higher when taking fresh air with a fresh air intake.



Model	① Gas pipe	② Liquid pipe	Unit:mm(in.)
PEFY-P08,08,12NMAU-E3	Ø12.7	Ø6.35	(1/2) (1/4)
PEFY-P15,15,18NMAU-E3	Ø15.88	Ø6.35	(5/8) (1/4)
PEFY-P24,27,30NMAU-E3	Ø15.88	Ø6.35	(5/8) (1/4)
PEFY-P36,36,48NMAU-E3	Ø15.88	Ø6.35	(5/8) (1/4)
PEFY-P54NMAU-E3	Ø15.88	Ø6.35	(5/8) (1/4)

Model	A	B	C	D	E	F	G	Unit:mm(in.)
PEFY-P08,08,12NMAU-E3	700	754	800	650	7	600	658	(27-9/16)(29-11/16)(31-1/2)(25-5/8)(25-15/16)
PEFY-P15,15,18NMAU-E3	900	954	1000	850	9	800	858	(35-3/8)(37-7/16)(39-3/8)(33-7/8)(33-13/16)
PEFY-P24,27,30NMAU-E3	1100	1154	1200	1050	11	1000	1058	(43-3/8)(45-7/16)(47-1/4)(41-3/4)(41-11/16)
PEFY-P36,36,48NMAU-E3	1400	1454	1500	1350	14	1300	1358	(55-1/8)(57-1/4)(59-1/16)(53-3/8)(53-1/2)
PEFY-P54NMAU-E3	1600	1654	1700	1550	16	1500	1558	(63)(65-1/8)(67-1/4)(61-1/16)(61-3/8)



COOLING & HEATING

1340 Satellite Boulevard, Suwanee, GA 30024  
Toll Free: 800-433-4822 www.mehvac.com

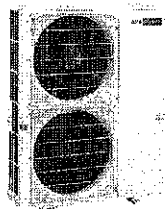


Job Name:

System Reference:

Date:

## Exhibit A



## OUTDOOR VRF SYSTEM

## UNIT OPTION

Standard Model.....PUMY-P60NKMU1  
Seacoast (BS) model.....PUMY-P60NKMU1-BS

## ACCESSORIES

Joint Kit.....For details see Pipe Accessories Submittal  
Header Kit.....For details see Pipe Accessories Submittal  
Air Outlet Guide (One Piece)\*\*.....PAC-SH96SG-E  
Front Wind Baffle (One Piece)\*\*.....WB-PA3  
Drain Pan.....PAC-SH97DP-E  
Drain Socket.....PAC-SG61DS-E  
Base Pan Heater.....PAC-SJ20BH-E  
\*\*PUMY requires two outlet guides and wind baffles for installation.

Specifications		Model Name
Unit Type		PUMY-P60NKMU1 (-BS)
Nominal Cooling Capacity (208/230V) *1	Btu/h	60,000
Nominal Heating Capacity (208/230V) *2	Btu/h	66,000
Operating Temperature Range	Cooling (Outdoor)	5° to 115° F (-15 to +46° C) DB **4
	Heating (Outdoor)	-13° to +59° F (-25° to +15.0° C) WB
External Dimensions (H x W x D)	In. / mm	52-11/16 x 41-11/32 x 13 (+1) / 1338 x 1050 x 330 (+25)
Net Weight	Lbs. / kg	306 / 139
External Finish		Galvanized steel sheets (+powder coating for -BS type)
Electrical Power Requirements	Voltage, Phase, Hertz	208/230V, 1-Phase, 60Hz
Minimum Circuit Ampacity (MCA)	A	36
Maximum Overcurrent Protection (MOP)	A	42
Recommended Fuse Size	A	40
Piping Diameter (Flare) In. / mm	Liquid (High Pressure)	3/8 / 9.52
	Gas (Low Pressure)	3/4 / 19.05
Indoor Unit	Total Capacity	50% to 130% of outdoor unit capacity
	Model / Quantity	P6 to 72 / 1 to 12
Fan Type x Quantity		Propeller fan x 2
Fan Motor Output	KW	0.200 + 0.200 (two fan motors)
Airflow Rate	CFM	4,879
Compressor Operating Range	Cooling	36% to 100%
	Heating	22% to 100%
Compressor Type x Quantity		INVERTER-driven Scroll Hermetic x 1
Compressor Motor Output	KW	4.1
Sound Pressure Level	Cooling	dB(A) 58
	Heating	dB(A) 59
Refrigerant		R410A 11 lbs. + 4 oz. (5.1 kg)
Lubricant		FV50S (2.3 liters)
Protection Devices	High Pressure	High pressure sensor, High pressure switch 601 psi (4.15 MPa)
	Inverter Circuit	Over-heat protection, Over-current protection
	Compressor	Over-heat protection
AHR Ratings (Ducted/Non-Ducted)	EER	11.1 / 12.5
	SEER	17.0 / 18.6
	COP	3.7 / 3.5
	HSPF	10.7 / 11.4

\*1 Cooling | Indoor: 80° F (26.7° C) DB / 67° F (19° C) WB; Outdoor: 95° F (35° C) DB

\*2 Heating | Indoor: 70° F (21.1° C) DB, Outdoor 47° F (8.3° C) DB / 43° F (6° C) WB

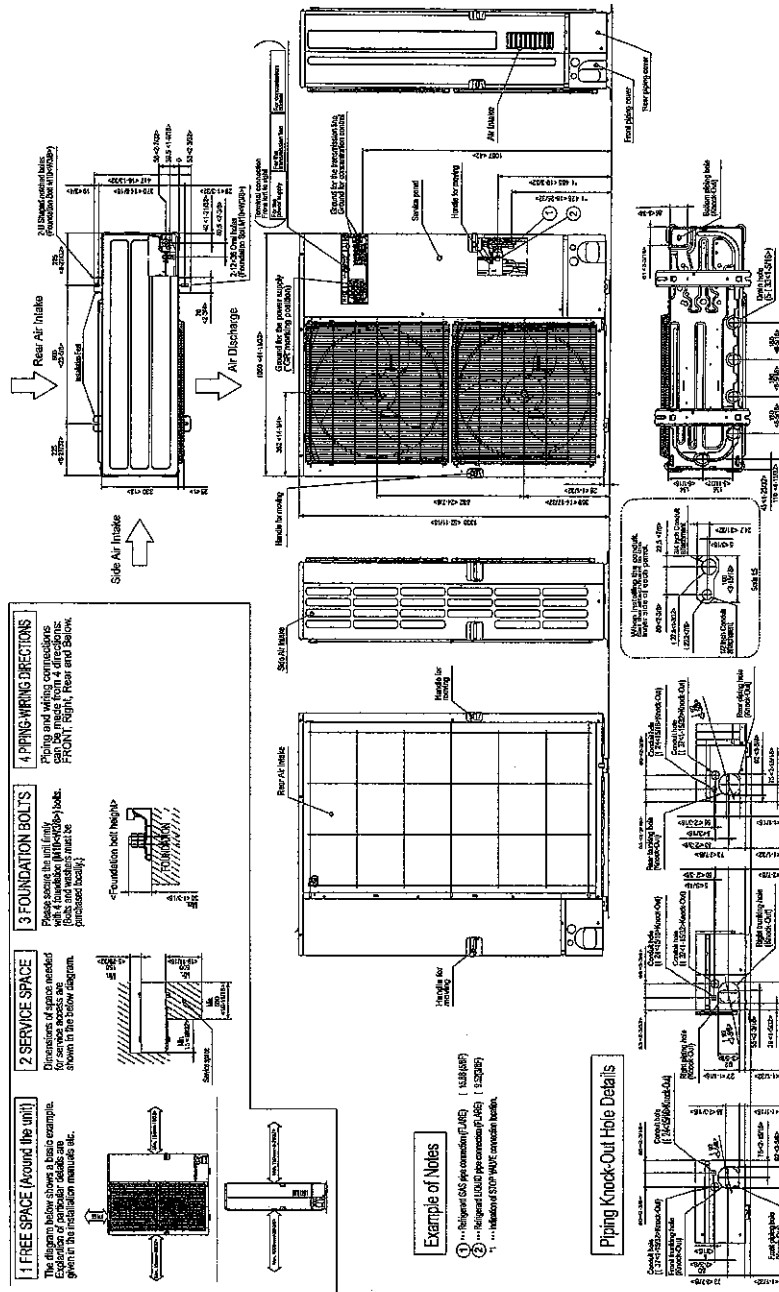
\*3 When using Wind Baffles [WB-PA3], the minimum operating range is 5° F. Without Wind Baffles, the minimum operating range is 23° F.

\*4 When connecting PKFY-P06NBMU/P08NHMU indoor units, the minimum operating range is 50° F.

# Model:PUMY-P60NKMU1 (-BS)- DIMENSIONS

Unit: mm  
<in>

Exhibit A



## NOTES

Blue Fin Anti-corrosion Protection:  
Cellulose- and polyurethane-resin coating treatment applied to condenser coil that protects it from air contaminants.  
Standard:  $\geq 1 \mu\text{m}$  thick; Salt Spray Test Method - no unusual rust development to 960 hours.



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