

ISSUE: Certificate of Appropriateness for alterations

APPLICANT: Lorraine & Fred Griesbach

LOCATION: Old and Historic Alexandria District
425 Gibbon Street

ZONE: RM/Townhouse Zone

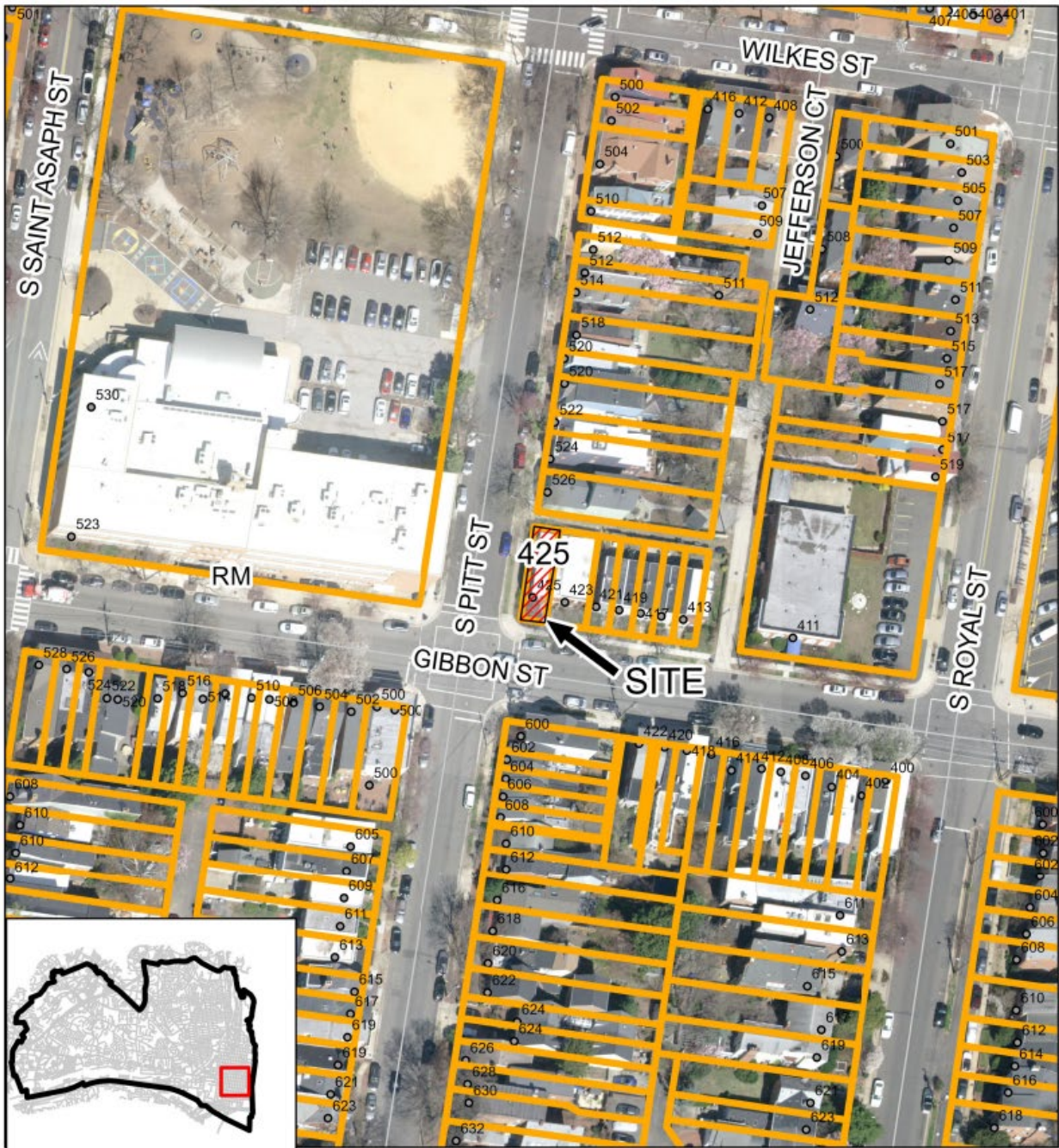
STAFF RECOMMENDATION

Staff recommends approval of the Certificate of Appropriateness for alterations, with the following conditions:

- Work with staff to find an appropriate location for the mini risers and drainage pipe on the rear addition.
- If the rooftop condenser unit is visible from a public right-of-way once installed, work with staff to add appropriate screening.

GENERAL NOTES TO THE APPLICANT

1. **APPEAL OF DECISION:** In accordance with the Zoning Ordinance, if the Board of Architectural Review denies or approves an application in whole or in part, the applicant or opponent may appeal the Board's decision to City Council on or before 14 days after the decision of the Board.
2. **COMPLIANCE WITH BAR POLICIES:** All materials must comply with the BAR's adopted policies unless otherwise specifically approved.
3. **BUILDING PERMITS:** Most projects approved by the Board of Architectural Review require the issuance of one or more construction permits by Department of Code Administration (including signs). The applicant is responsible for obtaining all necessary construction permits after receiving Board of Architectural Review approval. Contact Code Administration, 703-746-4200 for further information.
4. **ISSUANCE OF CERTIFICATES OF APPROPRIATENESS AND PERMITS TO DEMOLISH:** Applicants must obtain a copy of the Certificate of Appropriateness or Permit to Demolish PRIOR to applying for a building permit. Contact BAR Staff, Room 2100, City Hall, 703-746-3833, or preservation@alexandriava.gov for further information.
5. **EXPIRATION OF APPROVALS NOTE:** In accordance with Sections 10-106(B), 10-206(B) and 10-307 of the Zoning Ordinance, any Board of Architectural Review approval will expire 12 months from the date of issuance if the work is not commenced and diligently and substantially pursued by the end of that 12-month period.
6. **HISTORIC PROPERTY TAX CREDITS:** Applicants performing extensive, certified rehabilitations of historic properties may separately be eligible for state and/or federal tax credits. Consult with the Virginia Department of Historic Resources (VDHR) prior to initiating any work to determine whether the proposed project may qualify for such credits.



BAR2025-00299
425 Gibbon Street



0 40 80 160 Feet

I. APPLICANT'S PROPOSAL

The applicant requests a Certificate of Appropriateness for alterations to install two mini split risers for an HVAC system on the North Pitt Street (west) elevation. The applicant will also install a condenser unit on the rooftop, with a drainage pipe extending down the house.

Site context

The building is bound by Gibbon Street to the south, North Pitt Street to the west, and a public alley to the north. It is attached to 423 Gibbon Street.

II. HISTORY

The two-story brick rowhouse at 425 Gibbon Street is the end unit of five constructed ca. **1956** in a very simple vernacular Federal Revival style. In 2004, the Board approved the construction of a two-story addition on the rear (north) elevation.

Previous BAR Approvals

September 8, 1955

BAR2004-00166 & BAR2004-00167

BAR2024-00161

Construction approved

Rear two-story addition

Window replacement

III. ANALYSIS

The applicant requests a Certificate of Appropriateness for alterations to install two mini split risers for an HVAC system on the North Pitt Street (west) elevation. The applicant will also install a condenser unit on the rooftop, with a drainage pipe extending down the house from the mini risers. The 18-inch mini risers will be made of PVC, painted brick red to match the color of the existing brick on the house, and will extend from the rooftop down the side of the house (Figure 1).



Figure 1. Location of proposed mini risers and drainage pipe.

The *Design Guidelines* state that “HVAC equipment...can have an important effect on the overall visual composition of a historic building and, if not appropriately located, may be a visual disruption of the skyline and a unified building design. To the extent possible, HVAC equipment should be hidden from view.” From the aerial photo provided, it appears that the rooftop condenser unit will be set back from the roof edge and is unlikely to be visible from the public right-of-way. In the case that it is visible once installed, the applicant should add appropriate screening.

However, staff does not support the installation of the mini split risers in the proposed location on the west elevation. The *Design Guidelines* discourage HVAC equipment from being installed in conspicuously visible locations. The proposed risers would be installed on a street-facing elevation, which would be prominently visible from the street and detract from the overall architectural composition of the building. The application included a photo of pipes installed at nearby 421 Gibbon Street. Staff could not find any BAR approval associated with those pipes; staff also notes that the pipes at 421 Gibbon Street are located on a non-street-facing elevation. While it is true that there are several examples of mini split systems installed on the sides of buildings in the historic districts, many of these systems have been installed without approval and are in violation. In one notable example at 319 North Alfred Street, mini split pipes were installed without approval and were subsequently removed after the property owner received notices of violation (Figure 2). Staff believes that the removal of the mini split system on this building helped promote a unified building design.



Figure 2. 319 North Alfred Street with unapproved mini split pipes (left) and after removal of the pipes (right).

As an alternative to installing the mini split system on the west elevation, staff recommends locating the mini risers and drainage pipe on the rear addition, which is mostly non-street-facing and has a more modern façade (Figure 3). This change would be more historically appropriate as it would not affect the visual composition of the street-facing brick façade.



Figure 3. The modern rear addition of 425 Gibbon Street, on the left in this photo, would be a more appropriate location for the proposed mini split risers.

Therefore, staff recommends approval of the Certificate of Appropriateness for alterations, with the following conditions:

- Work with staff to find an appropriate location for the mini risers and drainage pipe on the rear addition.
- If the rooftop condenser unit is visible from a public right-of-way once installed, work with staff to add appropriate screening.

STAFF

Brendan Harris, Historic Preservation Planner, Planning & Zoning

Tony LaColla, AICP, Land Use Services Division Chief, Planning & Zoning

IV. CITY DEPARTMENT COMMENTS

Legend: C- code requirement R- recommendation S- suggestion F- finding

Zoning

C-1 Proposed roof mounted AC equipment will comply with zoning.

Code Administration

A building permit is required.

Transportation and Environmental Services

- R-1 The building permit must be approved and issued prior to the issuance of any permit for demolition, if a separate demolition permit is required. (T&ES)
- R-2 Applicant shall be responsible for repairs to the adjacent city right-of-way if damaged during construction activity. (T&ES)
- R-3 No permanent structure may be constructed over any existing private and/or public utility easements. It is the responsibility of the applicant to identify any and all existing easements on the plan. (T&ES)
- F-1 A released grading plan is required prior to submitting for building permits. (T&ES)
- F-2 If the alley adjacent to the parcel is to be used at any point of the construction process, the following will be required:
For a Public Alley - The applicant shall contact T&ES, Construction Permitting & Inspections at (703) 746-4035 to discuss any permits and accommodation requirements that will be required.
For a Private Alley - The applicant must provide proof, in the form of an affidavit at a minimum, from owner of the alley granting permission of use. (T&ES)
- C-1 The applicant shall comply with the City of Alexandria's Solid Waste Control, Title 5, Chapter 1, which sets forth the requirements for the recycling of materials (Sec. 5-1-99). (T&ES)
- C-2 The applicant shall comply with the City of Alexandria's Noise Control Code, Title 11, Chapter 5, which sets the maximum permissible noise level as measured at the property line. (T&ES)
- C-3 Roof, surface and sub-surface drains be connected to the public storm sewer system, if available, by continuous underground pipe. Where storm sewer is not available applicant must provide a design to mitigate impact of stormwater drainage onto adjacent properties and to the satisfaction of the Director of Transportation & Environmental Services. (Sec.5-6-224) (T&ES)
- C-4 All secondary utilities serving this site shall be placed underground. (Sec. 5-3-3) (T&ES)
- C-5 Any work within the right-of-way requires a separate permit from T&ES. (Sec. 5-2) (T&ES)
- C-6 All improvements to the city right-of-way such as curbing, sidewalk, driveway aprons, etc. must be city standard design. (Sec. 5-2-1) (T&ES)

Alexandria Archaeology

No archaeology comments.

V. ATTACHMENTS

- Application Materials

- Completed application
- Plans
- Material specifications
- Scaled survey plat if applicable
- Photographs
- Public comment
- HOA approval if applicable

BAR CASE#

(OFFICE USE ONLY)

ADDRESS OF PROJECT: 425 Gibbon St, Alexandria VA 22314

DISTRICT: ☒ Old & Historic Alexandria ☐ Parker – Gray ☐ 100 Year Old Building

TAX MAP AND PARCEL: 080.02; 11765500 ZONING: RM

APPLICATION FOR: (Please check all that apply)

☒ CERTIFICATE OF APPROPRIATENESS☐ PERMIT TO MOVE, REMOVE, ENCAPSULATE OR DEMOLISH
(Required if more than 25 square feet of a structure is to be demolished/impacted)☐ WAIVER OF VISION CLEARANCE REQUIREMENT and/or YARD REQUIREMENTS IN A VISION
CLEARANCE AREA (Section 7-802, Alexandria 1992 Zoning Ordinance)☐ WAIVER OF ROOFTOP HVAC SCREENING REQUIREMENT
(Section 6-403(B)(3), Alexandria 1992 Zoning Ordinance)Applicant: ☒ Property Owner ☐ Business (Please provide business name & contact person)

Name: Lorraine & Fred Griesbach

Address:

City:

State:

Zip:

Phone:

E-mail:

Authorized Agent (if applicable): ☐ Attorney ☐ Architect ☐

Name:

Phone:

E-mail:

Legal Property Owner:

Name: Lorraine & Fred Griesbach

Address:

City:

State:

Zip:

Phone:

E-mail:

BAR CASE#

(OFFICE USE ONLY)

NATURE OF PROPOSED WORK: *Please check all that apply*

- ☐ NEW CONSTRUCTION
☒ EXTERIOR ALTERATION: *Please check all that apply.*
 ☐ awning ☐ fence, gate or garden wall ☐ HVAC equipment ☐ shutters
 ☐ doors ☐ windows ☐ siding ☐ shed
 ☐ lighting ☐ pergola/trellis ☐ painting unpainted masonry
 ☐ other _____
☐ ADDITION
☐ DEMOLITION/ENCAPSULATION
☐ SIGNAGE

DESCRIPTION OF PROPOSED WORK: *Please describe the proposed work in detail (Additional pages may be attached).*

Installation of Mini Split HVAC in two bedrooms. Condenser to be placed on Roof.
 Two mini risers to be place on Pitt St side of house extending from rooftop down for 18 ¹/₂ inches.
 Both mini risers will be painted brick red to blend in with existing brick.
 Narrow drainage pipe from condenser to extend down back of home.

SUBMITTAL REQUIREMENTS:

- ☐ Check this box if there is a homeowner's association for this property. If so, you must attach a copy of the letter approving the project.

Items listed below comprise the **minimum supporting materials** for BAR applications. Staff may request additional information during application review. Please refer to the relevant section of the *Design Guidelines* for further information on appropriate treatments.

Applicants must use the checklist below to ensure the application is complete. Include all information and material that are necessary to thoroughly describe the project. Incomplete applications will delay the docketing of the application for review. Pre-application meetings are required for all proposed additions. All applicants are encouraged to meet with staff prior to submission of a completed application.

Demolition/Encapsulation : *All applicants requesting 25 square feet or more of demolition/encapsulation must complete this section. Check N/A if an item in this section does not apply to your project.*

- N/A
- ☐ ☒ Survey plat showing the extent of the proposed demolition/encapsulation.
☐ ☒ Existing elevation drawings clearly showing all elements proposed for demolition/encapsulation.
☐ ☒ Clear and labeled photographs of all elevations of the building if the entire structure is proposed to be demolished.
☐ ☒ Description of the reason for demolition/encapsulation.
☐ ☒ Description of the alternatives to demolition/encapsulation and why such alternatives are not considered feasible.

Additions & New Construction: Drawings must be to scale and should not exceed 11" x 17" unless approved by staff. Check N/A if an item in this section does not apply to your project.

- ☐ ☒ N/A Scaled survey plat showing dimensions of lot and location of existing building and other structures on the lot, location of proposed structure or addition, dimensions of existing structure(s), proposed addition or new construction, and all exterior, ground and roof mounted equipment.
- ☐ ☒ FAR & Open Space calculation form.
- ☐ ☒ Clear and labeled photographs of the site, surrounding properties and existing structures, if applicable.
- ☐ ☒ Existing elevations must be scaled and include dimensions.
- ☐ ☒ Proposed elevations must be scaled and include dimensions. Include the relationship to adjacent structures in plan and elevations.
- ☐ ☒ Materials and colors to be used must be specified and delineated on the drawings. Actual samples may be provided or required.
- ☐ ☒ Manufacturer's specifications for materials to include, but not limited to: roofing, siding, windows, doors, lighting, fencing, HVAC equipment and walls.
- ☐ ☒ For development site plan projects, a model showing mass relationships to adjacent properties and structures.

Signs & Awnings: One sign per building under one square foot does not require BAR approval unless illuminated. All other signs including window signs require BAR approval. Check N/A if an item in this section does not apply to your project.

- ☐ ☒ N/A Linear feet of building: Front: _____ Secondary front (if corner lot): _____.
- ☐ ☒ Square feet of existing signs to remain: _____.
- ☐ ☒ Photograph of building showing existing conditions.
- ☐ ☒ Dimensioned drawings of proposed sign identifying materials, color, lettering style and text.
- ☐ ☒ Location of sign (show exact location on building including the height above sidewalk).
- ☐ ☒ Means of attachment (drawing or manufacturer's cut sheet of bracket if applicable).
- ☐ ☒ Description of lighting (if applicable). Include manufacturer's cut sheet for any new lighting fixtures and information detailing how it will be attached to the building's facade.

Alterations: Check N/A if an item in this section does not apply to your project.

- ☒ ☒ N/A Clear and labeled photographs of the site, especially the area being impacted by the alterations, all sides of the building and any pertinent details.
- ☒ ☒ Manufacturer's specifications for materials to include, but not limited to: roofing, siding, windows, doors, lighting, fencing, HVAC equipment and walls.
- ☐ ☒ Drawings accurately representing the changes to the proposed structure, including materials and overall dimensions. Drawings must be to scale.
- ☐ ☒ An official survey plat showing the proposed locations of HVAC units, fences, and sheds.
- ☐ ☒ Historic elevations or photographs should accompany any request to return a structure to an earlier appearance.

ALL APPLICATIONS: *Please read and check that you have read and understand the following items:*

- ☒ I understand that after reviewing the proposed alterations, BAR staff will invoice the appropriate filing fee in APEX. The application will not be processed until the fee is paid online.
- ☒ I understand the notice requirements and will return a copy of the three respective notice forms to BAR staff at least five days prior to the hearing. If I am unsure to whom I should send notice I will contact Planning and Zoning staff for assistance in identifying adjacent parcels.
- ☒ I, the applicant, or an authorized representative will be present at the public hearing.
- ☒ I understand that any revisions to this initial application submission (including applications deferred for restudy) must be accompanied by the BAR Supplemental form and revised materials.

The undersigned hereby attests that all of the information herein provided including the site plan, building elevations, prospective drawings of the project, and written descriptive information are true, correct and accurate. The undersigned further understands that, should such information be found incorrect, any action taken by the Board based on such information may be invalidated. The undersigned also hereby grants the City of Alexandria permission to post placard notice as required by Article XI, Division A, Section 11-301(B) of the 1992 Alexandria City Zoning Ordinance, on the property which is the subject of this application. The undersigned also hereby authorizes the City staff and members of the BAR to inspect this site as necessary in the course of research and evaluating the application. The applicant, if other than the property owner, also attests that he/she has obtained permission from the property owner to make this application.

APPLICANT OR AUTHORIZED AGENT:Signature: Lorraine GriesbachPrinted Name: Lorraine GriesbachDate: 7-23-25

OWNERSHIP AND DISCLOSURE STATEMENT
Use additional sheets if necessary

1. Applicant. State the name, address and percent of ownership of any person or entity owning an interest in the applicant, unless the entity is a corporation or partnership, in which case identify each owner of more than three percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. Lorraine Griesbach		100%
2. Frederick Griesbach		100%
3.		

2. Property. State the name, address and percent of ownership of any person or entity owning an interest in the property located at 425 Gibbon St Alexandria VA (address), unless the entity is a corporation or partnership, in which case identify each owner of more than three percent. The term ownership interest shall include any legal or equitable interest held at the time of the application in the real property which is the subject of the application.

Name	Address	Percent of Ownership
1. Lorraine Griesbach		100%
2. Frederick Griesbach		100%
3.		

3. Business or Financial Relationships. Each person or entity listed above (1 and 2), with an ownership interest in the applicant or in the subject property is required to disclose any business or financial relationship, as defined by Section 11-350 of the Zoning Ordinance, existing at the time of this application, or within the 12-month period prior to the submission of this application with any member of the Alexandria City Council, Planning Commission, Board of Zoning Appeals or either Boards of Architectural Review.

Name of person or entity	Relationship as defined by Section 11-350 of the Zoning Ordinance	Member of the Approving Body (i.e. City Council, Planning Commission, etc.)
1. Lorraine & Fred Griesbach	none	
2. Lorraine & Fred Griesbach	none	
3. Lorraine & Fred Griesbach	none	

NOTE: Business or financial relationships of the type described in Sec. 11-350 that arise after the filing of this application and before each public hearing must be disclosed prior to the public hearings.

As the applicant or the applicant's authorized agent, I hereby attest to the best of my ability that the information provided above is true and correct.

8/5/25
Date

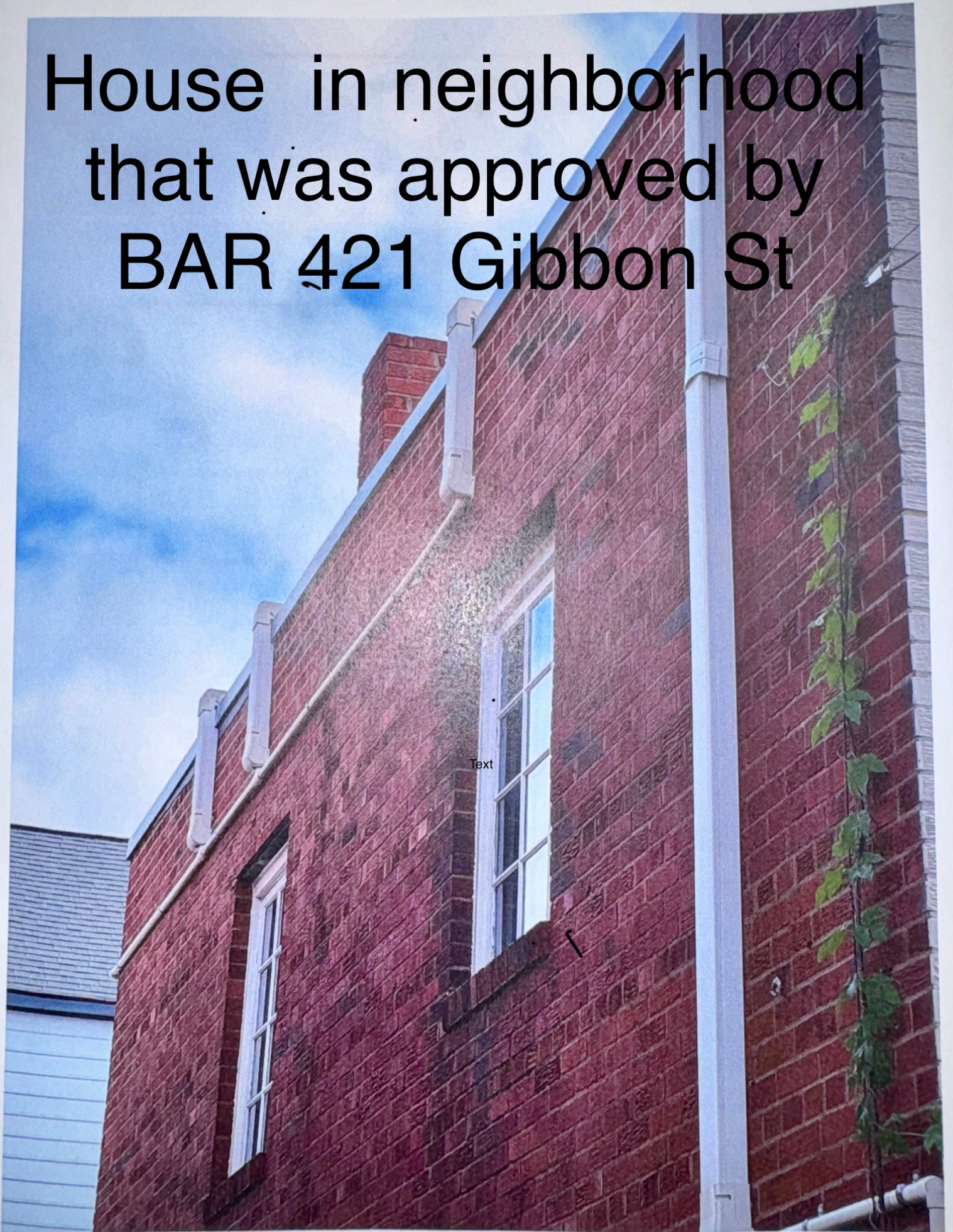
Lorraine Griesbach
Printed Name

Lorraine Griesbach / *Lorraine Griesbach*
Signature

Drainage pipe and risers
will be painted brick red



House in neighborhood
that was approved by
BAR 421 Gibbon St









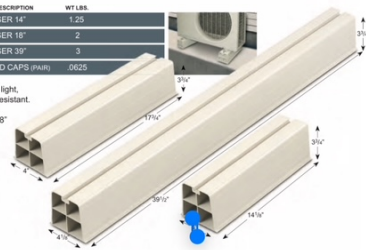
POLYMER RISERS

MODEL	DESCRIPTION	WT/LBS
PR-351N-I	RISER 14"	1.25
PR-351N-M	RISER 18"	2
PR-351N-L	RISER 39"	3
PRC-351N	END CAPS (PAIR)	.0625

Our polymer risers are light, durable, and weather resistant. Linear track holds 3/8" hex head bolts - two 7/8" long bolts included. End caps available.

Material: PVC

Max weight capacity:
PR-351N-I - 308 lbs
PR-351N-M - 397 lbs
PR-351N-L - 880 lbs



MXZ-2D20NL

20,000 BTU/H HEAT PUMP OUTDOOR UNIT



Job Name:

System Reference:

Date:



GENERAL FEATURES

- Compact, small chassis
- Compressor overcurrent detection
- Compressor thermal protection
- Fan motor overheating/voltage protection
- Freeze-prevention base pan heater equipped as standard
- High-pressure protection
- Prolonged heating over an extended duration
- Quiet outdoor unit operation as low as 52 dB(A)
- Rated for 2,000 hours spraying time per ASTM B117 Standard
- Variable speed INVERTER-driven compressor
- Blue Fin anti-corrosion treatment applied to the outdoor unit heat exchanger for increased coil protection and longer life

Specifications			System
Unit Type			MXZ-2D20NL
Cooling at 95F ¹ (Non-Ducted // Mixed // Ducted)	Maximum Capacity	Btu/h	20,000 // 21,000 // 22,000
	Rated Capacity	Btu/h	18,000 // 19,000 // 20,000
	Minimum Capacity	Btu/h	5,700 // 5,700 // 5,700
	Maximum Power Input	W	2,245 // 2,257 // 2,270
	Rated Power Input	W	1,384 // 1,692 // 2,000
	Power Factor (208V)	%	0.99 // 0.99 // 0.99
	Power Factor (230V)	%	0.99 // 0.99 // 0.99
Heating at 47F ² (Non-Ducted // Mixed // Ducted)	Maximum Capacity	Btu/h	25,700 // 25,750 // 25,800
	Rated Capacity	Btu/h	24,000 // 22,000 // 23,000
	Minimum Capacity	Btu/h	7,400 // 7,400 // 7,400
	Maximum Power Input	W	2,465 // 2,498 // 2,530
	Rated Power Input	W	1,794 // 1,783 // 1,771
	Power Factor (208V)	%	0.99 // 0.99 // 0.99
	Power Factor (230V)	%	0.99 // 0.99 // 0.99
Heating at 17F ³ (Non-Ducted // Mixed // Ducted)	Maximum Capacity	Btu/h	16,600 // 16,200 // 15,800
	Rated Capacity	Btu/h	16,500 // 15,000 // 13,500
	Maximum Power Input	W	1,860 // 1,910 // 1,960
	Rated Power Input	W	1,690 // 1,590 // 1,490
Heating at 5F ⁴ (Non-Ducted // Mixed // Ducted)	Maximum Capacity	Btu/h	13,700 // 12,600 // 11,800
	Maximum Power Input	W	1,800 // 1,815 // 1,830
Efficiency (Non-Ducted // Mixed // Ducted)	SEER ²		20 // 18 // 16
	EER ²		13 // 11.50 // 10
	HSPF ² (IV) ²		10 // 9.55 // 9.10
	COP at 47°F ²		3.92 // 3.76 // 3.64
	COP at 17°F at Maximum Capacity ³		2.60 // 2.48 // 2.36
	COP at 5°F at Maximum Capacity ⁴		2.23 // 2.04 // 1.88
	ENERGY STAR® Certified		Yes // Yes // No
Electrical	Electrical Power Requirements	V AC / V AC, ø, Hz	208 / 230, 1, 60
	Guaranteed Voltage Range	V AC	198 - 253
	Voltage: Indoor - Outdoor, S1-S2	V AC	208/230
	Voltage: Indoor - Outdoor, S2-S3	V DC	24
	Recommended Wire Size (Indoor - Outdoor)	AWG	14
	Short-circuit Current Rating (SCCR)	kA	5
	MCA	A	21.7
	MOCP	A	38

NOTES

¹Cooling at 95°F (Indoor: 80°F DB, 67°F WB // Outdoor: 95°F DB, 75°F WB)

²Heating at 47°F (Indoor: 70°F DB, 60°F WB // Outdoor: 47°F DB, 43°F WB)

³Heating at 17°F (Indoor: 70°F DB, 60°F WB // Outdoor: 17°F DB, 15°F WB)

⁴Heating at 5°F (Indoor: 70°F DB, 60°F WB // Outdoor: 5°F DB, 4°F WB)

Capacity varies based on the number of indoor units operating and the model of the Multi-zone Outdoor Unit. For reference to connected capacity charts, please refer to Multi-zone Outdoor Unit Operational Performance.

For actual capacity performance based on indoor unit type and number of indoor units connected, please refer to MXZ Operational Performance.

Although the maximum connectable capacity is 130%, the outdoor unit cannot provide more than 100% of the rated capacity.

Please utilize this over capacity capability for load shedding or applications where it is known that all connected units will NOT be operating at the same time.

^{*} Indoor/Outdoor Unit Operating Temperature Range (Cooling Air Temp [Maximum / Minimum]):

• Applications should be restricted to comfort cooling only; equipment cooling applications are not recommended for low ambient temperature conditions.

^{**} Outdoor Unit Operating Temperature Range (Cooling Thermal Lock-out / Re-start Temperatures; Heating Thermal Lock-out / Re-start Temperatures):

• System cuts out in heating mode and automatically restarts at these temperatures.

SPECIFICATIONS: MXZ-2D20NL

Specifications			System
Unit Type			MXZ-2D20NL
Outdoor Unit	Fan Motor Full Load Amperage	A	1.77
	Fan Motor Output	W	64
	Defrost Method		Reverse Cycle
	Blue Fin Heat Exchanger Coating		Yes
	Airflow Rate Cooling/Heating	CFM	1,324 / 1,451
	Sound Pressure Level, Cooling ¹	dB (A)	51
	Sound Pressure Level, Heating ²	dB (A)	55
	Compressor Type		Twin Rotary
	Compressor Model		SRB140FQHM1T
	Compressor Oil Type // Charge	Type // oz	RM68EH // 20.3
	External Finish Color		Munsell 3.0Y 7.8/1.1
	Base Pan Heater		Optional
	Unit Dimensions (W x D x H)	inch x inch x inch [mm x mm x mm]	33-1/16 x 13 x 27-15/16 [840 x 330 x 710]
	Package Dimensions (W x D x H)	inch x inch x inch [mm x mm x mm]	38-31/32 x 17-5/16 x 34-21/32 [990 x 440 x 880]
	Unit Weight	lbs [kg]	119 [54]
	Package Weight	lbs [kg]	137 [62]
ODU Operating Temp. Range	Cooling Intake Air Temp (Maximum / Minimum)	°FDB	115 / 14
	Cooling Thermal Lock-out / Re-start Temperatures	°FDB	10 / 14
	Heating Intake Air Temp [Maximum / Minimum]	°FDB, °FWB / °FDB, °FWB	75, 65 / 6, 5
	Heating Thermal Lock-out / Re-start Temperatures**	°FDB	-4 / 5
Refrigerant	Type		R454B
	Pre-Charged Refrigerant Amount	lbs, oz	4, 7
	Maximum Pre-Charged Piping Length	ft	164
IDU Connection	Minimum Number of Connected IDU		2
	Maximum Number of Connected IDU		2
	Minimum Connected Capacity	Btu/h	12,000
	Maximum connected capacity	Btu/h	24,000
Piping	Liquid Pipe Size O.D. (Flared)	inch	A: 1/4 B: 1/4
	Gas Pipe Size O.D. (Flared)	inch	A: 3/8 B: 3/8
	Total Piping Length	ft [m]	164 [50]
	Farthest Piping Length	ft [m]	82 [25]
	Maximum Height Difference, ODU above IDU	ft [m]	32 [10]
	Maximum Height Difference, ODU below IDU	ft [m]	49 [15]
Maximum Number of Bends for IDU			50

NOTES

¹Cooling at 95°F (Indoor: 80°F DB, 67°F WB // Outdoor: 95°F DB, 75°F WB)

²Heating at 47°F (Indoor: 70°F DB, 60°F WB // Outdoor: 47°F DB, 43°F WB)

³Heating at 17°F (Indoor: 70°F DB, 60°F WB // Outdoor: 17°F DB, 15°F WB)

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^{**} Outdoor Unit Operating Temperature Range (Cooling Thermal Lock-out / Re-start Temperatures; Heating Thermal Lock-out / Re-start Temperatures):

• System cuts out in heating mode and automatically restarts at these temperatures.

OUTDOOR UNIT ACCESSORIES: MXZ-2D20NL

Port Adaptor	Adaptor 1/2 x 3/8	PAC-SK88RJ-E
	Adaptor 1/2 x 5/8	PAC-SK89RJ-E
	Adaptor 1/4 x 3/8	PAC-493PI
	Adaptor 3/8 x 1/2	ADP3812
	Adaptor 3/8 x 5/8	PAC-SK90RJ-E
Ball Valve	Refrigeration Ball Valve - 1/2	BV12FFSI2
	Refrigeration Ball Valve - 1/4	BV14FFSI2
	Refrigeration Ball Valve - 3/8	BV38FFSI2
	Refrigeration Ball Valve - 5/8	BV58FFSI2
Mini-Split Wire	14 Gauge 4 wire Armored MiniSplit Cable250 ft roll	SW144-250
	14 Gauge 4 wire Armored MiniSplit Cable50 ft roll	SW144-50
	14 Gauge 4 wire MiniSplit Cable250 ft roll	S144-250
	14 Gauge 4 wire MiniSplit Cable50 ft roll	S144-50
	16 Gauge 4 wire Armored MiniSplit Cable250 ft roll	SW164-250
	16 Gauge 4 wire Armored MiniSplit Cable50 ft roll	SW164-50
	16 Gauge 4 wire MiniSplit Cable250 ft roll	S164-250
	16 Gauge 4 wire MiniSplit Cable50 ft roll	S164-50
Air Outlet Guide	Air Outlet Guide	MAC-856SG
Hail Guards	Hail Guard	HG-A8
Stand	18 Single Fan Stand	QSMS1801M
	24 Single Fan Stand	QSMS2401M
	Condenser Wall Bracket	QSWB2000M-1
	Condenser Wall Bracket - Stainless Steel Finish	QSWBSS
	Outdoor Unit 3-14 inch Mounting Base Pair - Plastic	DSD-400P
	Outdoor Unit Stand 12 High	QSMS1201M
Control/Service Tool	Maintenance Tool Interface	PAC-USCMS-MN-1
Optional Defrost Heater	Optional Defrost Heater	PAC-646BH-E
Control Interface	M-NET Interface for MXZ	PAC-IF01MNT-E
Drain Socket	Drain Socket	MAC-811DS
Mounting Pad	Condensing Unit Mounting Pad 16 x 36 x 3	ULTRILITE1
Snow/Rain Diverter	SnowRain Diverter	SRD-4
Muffler	Muffler	MAC-001MF-E
NOTES		

MXZ-2D20NL-U1

