

April 16, 2024

Written Statement / Scope of Proposed Work

Author: Timothy Sullivan and Kimberly Rosensteel, owners of 63 Humphrey's Court

63 Humphreys Court is an older home with no permanent air conditioning and is heated by hot water radiators which are inefficient and supplied with a propane-burning boiler. As the summers have become increasingly uncomfortable with three small children and no permanent air conditioning, we would like to install a minisplit heat pump with air-conditioning. There are three potential locations on the property for the external unit. We are requesting a variance because we would like the outdoor unit to be placed on the strip of land between our home at 63 Humphreys Court, and our neighbors at 53 Humphreys Court, in proximity to their pre-existing outdoor unit.

There are two alternative locations available. One is on the west side of our house, which is directly adjacent to a community garden that is enjoyed by members of the community. The other would be in the back yard area of our house, which would not require a variance, but our concerns are potential damage to the unit as this small area is the only place for our children to play, or that it could hinder potential future development of our limited backyard space.

The location between our home at 63 Humphreys Court, and 53 Humphreys Court, would have the biggest potential impact on our neighbors Michael and Zoe Daboul. However, there is a traditional air conditioner under the deck of our immediate neighbor to the north, 50 South School Street, that is significantly noisier than the Dabouls' heat pump, so a second heat pump in the same location should have minimal impact on noise in the backyard space. Additionally, our neighbors the Dabouls have told us "put the AC WHEREVER it works best for you. It won't affect us no matter where it is. Tell the city we approve".

Our intention is to have it as far back from Humphreys Court as possible, either directly across from our neighbors' unit, or else tucked back by our north addition room, as depicted in the two included pictures. The HVAC unit at 53 Humphreys Court is currently 3 feet from the property line between our two houses. Placing our unit directly across from our neighbors unit, allowing for a 0.75 foot offset from our garage, would put our unit 2.5 feet from the property line. If we placed the HVAC unit farther north, behind our garage, would allow a slightly larger setback of 2.65 feet from the property line. This location would minimize visibility from the street. Furthermore, having the unit in this area would minimize the external lines on the front and west sides of the home which are most visible from the street.

Zoning Ordinance to be met, as per City Ordinance 10.233.20:

10.233.21 The variance will not be contrary to the public interest:

The minisplit would be replacing the use of propane-powered boilers for heating in the fall / winter, and portable air conditioning units that we currently use in the summer which are inefficient and energy intensive. It is therefore in the public interest that the home be heated and cooled in a more energy-efficient manner.

10.233.22 The spirit of the Ordinance will be observed:

The proposed minisplit outdoor unit will set back from Humphreys Court in a minimally noticeable location. It avoids the west facing wall of the house which is directly across from the public gardens. This location also minimizes external line-sets that would be visible from the road.

10.233.23 Substantial justice will be done:

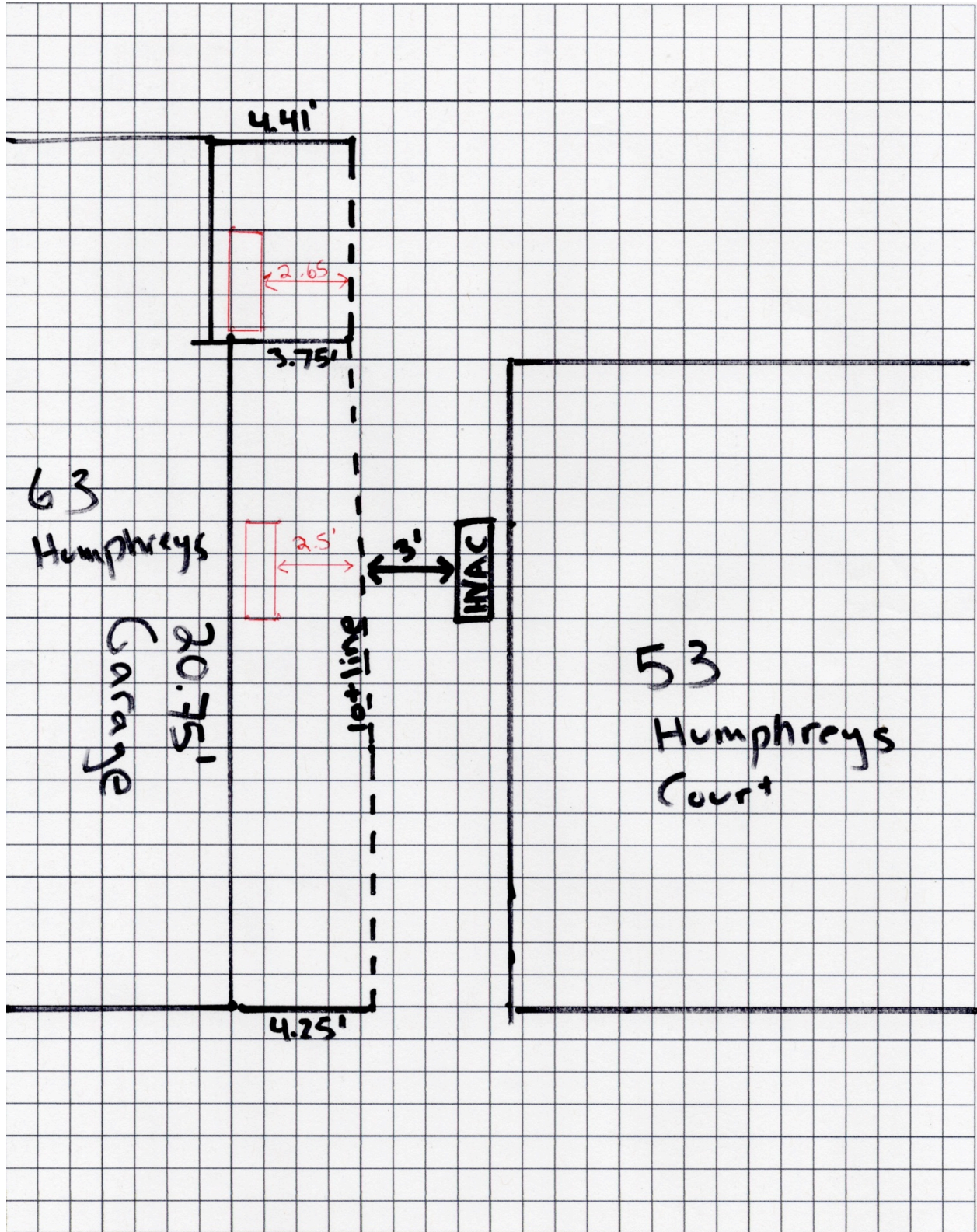
We would like to place the unit on the side of the home as far back from the road as reasonably possible where it could be seen by passersby. Substantial justice for the community regarding lower emissions will be done if the variance is granted.

10.233.24 The values of the surrounding properties will not be diminished:

Our neighbors at 53 Humphreys Court have an outdoor unit in essentially the same location, which has not diminished the property values in either home.

10.233.25 Literal enforcement of the provisions of the Ordinance would result in unnecessary hardship:

We have three small children and a very small lot. Our children use our backyard for their play, and our concern is that an HVAC unit in this location could get damaged. The strip of land between 63 Humphreys Court and our neighbors at 53 Humphreys Court is small, essentially unused, and currently already has an outdoor HVAC unit on our neighbors property. It is the obvious location for our own HVAC unit.







Outdoor
Unit



Outdoor unit

Master and dining room line set



Second floor line set





Living room line set

Job Name/Location: 63 HUMPHREYS CT, PORTSMOUTH, NH 03801

Tag No: KIM SULLIVAN

Date: 3/15/24

For: File Resubmit

PO No.: 63 HUMPHREYS

Approval Other

Architect:

GC:

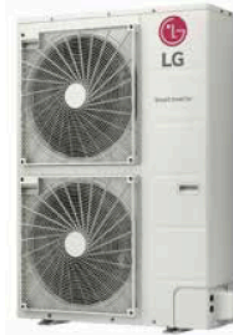
Engr:

Mech:

Rep: PETTIGREW PLUMBING & HVAC
(Company)

ERIC PELCHAT
(Project Manager)

**LMU480HHV
Multi F MAX with LGRED° Outdoor Unit
4.0 Ton Heat Pump**



Performance:

Cooling Capacity (Min.-Rated-Max., Btu/h)	10,800~48,000~58,000
Heating Capacity (Min.-Rated-Max., Btu/h)	12,420~52,500~59,000
Max. Heating Capacity at 17°F (Btu/h)	56,740
Max. Heating Capacity at 5°F (Btu/h)	52,840
Max. Heating Capacity at -4°F (Btu/h)	46,010
Max. Heating Capacity at -13°F (Btu/h)	39,870
Cooling COP @95°F (Rated)	3.84
Heating COP @47°F (Rated)	3.62

Cooling Nominal Test Conditions:
Indoor: 80°F DB / 67°F WB
Outdoor: 95°F DB / 75°F WB

Heating Nominal Test Conditions:
Indoor: 70°F DB / 60°F WB
Outdoor: 47°F DB / 43°F WB

Electrical:

Power Supply (V/Hz/Ø) ¹	208-230V, 60, 1
MOP (A)	40
MCA (A)	32.7
Cooling Rated Amps (A)	29.2
Heating Rated Amps (A)	29.2
Compressor (A)	22.0
Fan Motor (A)	1.6 x 2
Locked Rotor Amps (A)	22

MOP - Maximum Overcurrent Protection

MCA - Minimum Circuit Ampacity

Piping:

Refrigerant Charge (lbs.)	11.46
Liquid Line Connection (in., O.D.)	Ø3/8 x 1
Vapor Line Connection (in., O.D.)	Ø3/4 x 1
Maximum Total Piping ² (ft.)	475.7
Min. / Max. ODU to IDU Piping ³ (ft.)	32.8 / 229.6
Piping Length ⁴ (no add'l refrigerant, ft.)	180.4
Maximum Elevation between ODU and IDU (ft.)	98.4
Maximum Elevation between IDU and IDU (ft.)	49.2

ODU = Outdoor Unit

IDU = Indoor Unit

Features:

- R1 Scroll (Variable Speed) Compressor
- Auto operation
- Auto restart
- Self diagnosis
- Defrost / Deicing
- Low ambient cooling down to 14°F
- Soft start
- Restart delay (three [3] minutes)
- Factory installed Drain Pan Heater

Optional Accessories:

- PI-485 - PMNFP14A1
- AC Smart 5 - PACS5A000
- ACP 5 - PACP5A000
- MultiSITE™ Comm. Mgr. - PBACNBTR0A
- Power Distribution Indicator (PDI) Premium - PQNUD1S41
- Mobile LGMV - PLGMVW100
- Low Ambient Wind Baffle (Cooling Operation Down to -4°F) - ZLABGP04A x2

Required⁵ Accessories:

- 2 Port BD Unit - PMBD3620
- 3 Port BD Unit - PMBD3630
- 4 Port BD Unit - PMBD3640
- 4 Port BD Unit - PMBD3641

Operating Range:

Cooling (°F DB)	14 to 118
Heating (°F WB)	-13 to +64

Unit Data:

Refrigerant Type	R410A
Refrigerant Control	EEV
Sound Pressure (Cool / Heat) ±1 dB(A) ⁶	54 / 56
Net / Shipping Weight (lbs.)	218 / 243
Heat Exchanger Coating	Gold Fin™
Minimum No. of Indoor Units	2
Maximum No. of Indoor Units	8

Compressor:

Type	R1 Scroll
Quantity	1
Oil / Type	FVC68D

Fan:

Type	Propeller
Quantity	2
Motor / Drive	Brushless Digitally Controlled/Direct
Max. Airflow Rate (CFM)	2,119 x 2

Notes:

1. Acceptable operating voltage: 187V - 253V.
2. Piping lengths are equivalent.
3. 180.4 ft. of Main Piping + 49.2 ft. of Branch Piping.
4. 49.2 ft. of Main Piping + 131.2 of Branch Piping.
5. At least one branch distribution (BD) unit is required for system operation; a maximum of two can be installed per ODU with the use of a Y-branch accessory (PMBL5620).
6. Sound pressure levels are tested in an anechoic chamber under ISO Std. 3745.
7. All power / communication cable to be minimum 14 AWG from the ODU to the BD unit, and 14 AWG from the BD unit to the IDU.
8. All power / communication cable to be 4-conductor, stranded, shielded or unshielded, and must comply with applicable local and national codes. If shielded, the wire must be grounded to the chassis at the ODU only.
9. Power wiring size must comply with the applicable local and national codes.
10. See the Engineering Manual Capacity Tables for ODU sensible and latent capacities.
11. See the Engineering Manual Combination Tables for allocation of ODU rated capacity to each connected IDU when all are calling for full capacity. Allocation percentages should be applied to ODU capacity at design conditions.
12. This data is rated 0 ft. above sea level, with 0 ft. level difference between ODU and IDUs, and the following refrigerant pipe lengths:
LMU361HHV: 16.4 ft. Main + (16.4 ft. Branch x 5) = 98.4 ft.
LMU421HHV: 16.4 ft. Main + (16.4 ft. Branch x 6) = 114.8 ft.
LMU480HHV: 16.4 ft. Main + (16.4 ft. Branch x 8) = 147.6 ft.
All capacities are net with a combination ratio between 95 - 105%.
13. Must follow installation instructions in the applicable LG installation manual.
14. See the Engineering Manual Capacity Tables for ODU capacity at design conditions.



162279



Job Name/Location: 63 HUMPHREYS CT, PORTSMOUTH, NH 03801

LMU480HHV
Multi F MAX with LGRED® Outdoor Unit
4.0 Ton Heat Pump



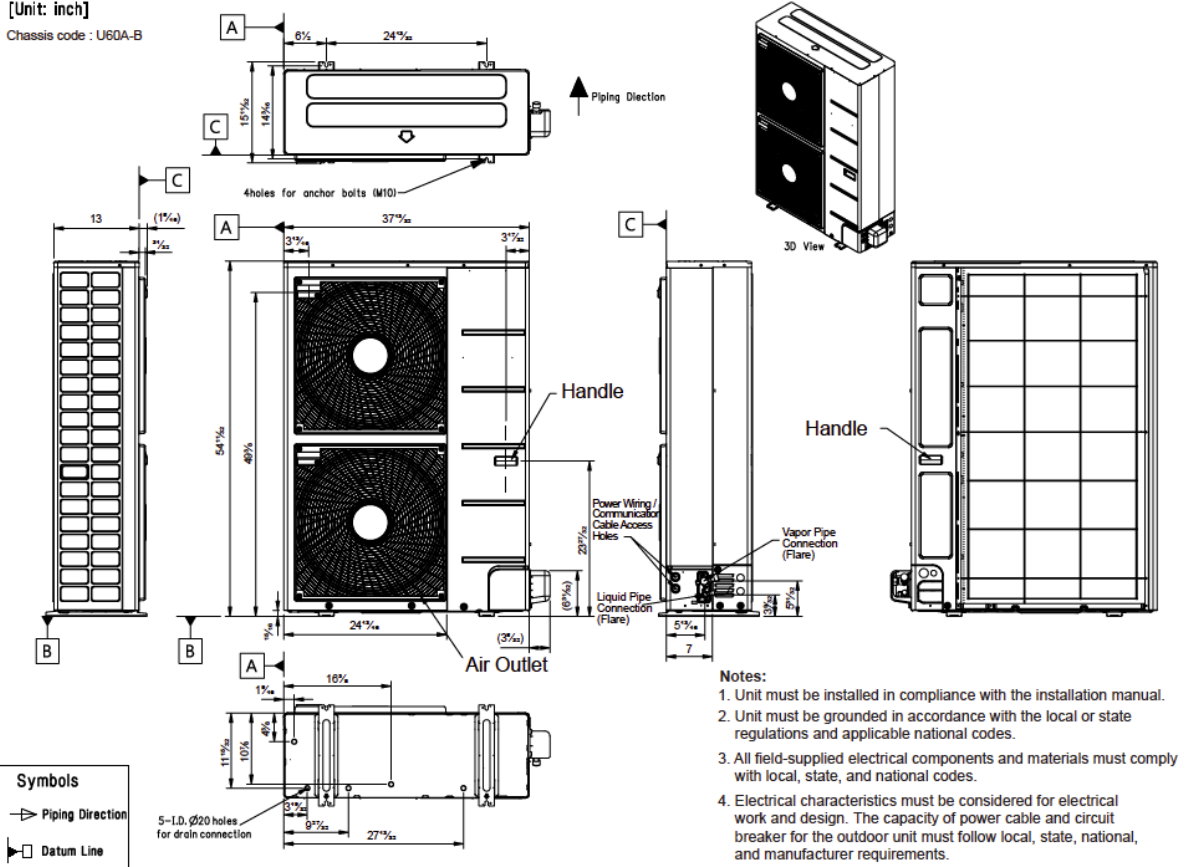
Tag No.: KIM SULLIVAN

Date: 3/15/24

PO No.: 63 HUMPHREYS

[Unit: inch]

Chassis code : U60A-B



- Notes:
1. Unit must be installed in compliance with the installation manual.
 2. Unit must be grounded in accordance with the local or state regulations and applicable national codes.
 3. All field-supplied electrical components and materials must comply with local, state, and national codes.
 4. Electrical characteristics must be considered for electrical work and design. The capacity of power cable and circuit breaker for the outdoor unit must follow local, state, national, and manufacturer requirements.

Symbols

- Piping Direction
- Datum Line

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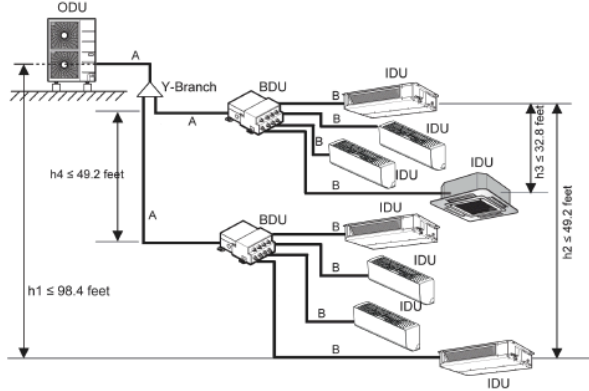
LMU480HHV
Multi F MAX with LGRED® Outdoor Unit
4.0 Ton Heat Pump



Tag No.: KIM SULLIVAN

Date: 3/15/24

PO No.: 63 HUMPHREYS

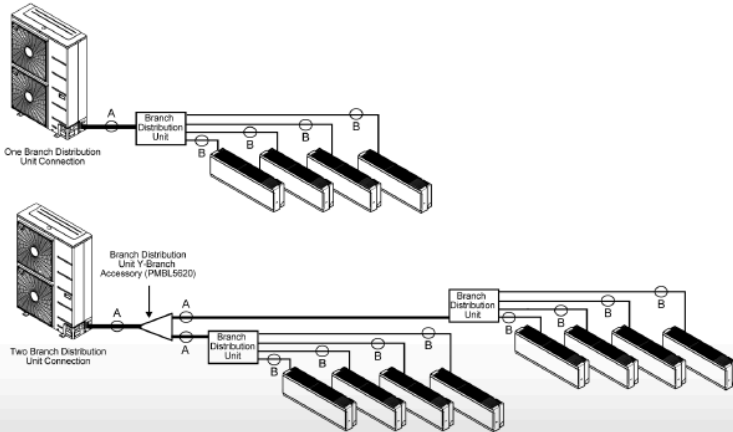


Example: LMU480HHV outdoor unit with eight (8) indoor units and two (2) branch distribution units connected.
 ODU: Outdoor Unit.
 IDU: Indoor Unit.
 BDU: Branch Distribution Unit(s).
 A: Main Pipe.
 B: Branch Pipe (Branch Distribution Unit[s] to Indoor Unit[s]).

Multi F MAX with LGRED Outdoor Unit Refrigerant Piping System Limitations.

Pipe Length (ELF = Equivalent Length of pipe in Feet)	Total piping length ($\Sigma A + \Sigma B$)		≤475.7 feet
	Main pipe (Outdoor Unit to Branch Distribution Units: A)	Minimum for Each (A) Piping Segment	16.4 feet
		Maximum (ΣA)	≤180.4 feet
	Total branch piping length (ΣB)		≤295.3 feet
Elevation Differential (All Elevation Limitations are Measured in Actual Feet)	Branch pipe (Branch Distribution Units to Indoor Units: B)		Minimum
			Maximum
	If outdoor unit is above or below indoor unit (h1)		≤98.4 feet
	Between the farthest two indoor units (h2)		≤49.2 feet
		Between branch distribution unit and farthest connected indoor unit(s) (h3)	≤32.8 feet
		Between branch distribution units (h4)	≤49.2 feet

Installing the Unit



Multi F MAX with LGRED Piping Sizes.

Piping	Main Pipe A (inch)	Branch Pipe B
Liquid	Ø3/8	Depends on the size of the indoor unit piping.
Vapor	Ø3/4	