

HARVARD
PLANNING OFFICE



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MAR 16 2017

CAMBRIDGE HISTORICAL COMMISSION

March 15, 2017

Charles Sullivan, Executive Director
Cambridge Historical Commission
831 Massachusetts Avenue
Cambridge, MA 02139

RE: 126 Mount Auburn Street, Cambridge, MA

Dear Mr. Sullivan:

Enclosed please find twelve copies of additional materials related to the application for a Certificate of Appropriateness for the proposed HVAC equipment at 126 Mount Auburn Street.

We presented the project to the Cambridge Historical Commission at the December 1, 2016 public hearing and the hearing was continued to provide further information related to equipment, noise, siting and visual impacts. Upon further review, we share the following.

- Noise: Working with acoustical consultant Acentech, we have confirmed that the installation and operation of the planned equipment will be fully compliant with the City of Cambridge noise control requirements. In addition, the noise impacts are not anticipated to affect the occupants of the building. (See attached equipment specifications and Acentech assessment.)
- Siting: We verified that the site constraints dictate that the proposed location is the only feasible location on site. (See attached plan of alternate locations considered.)
- Visual Impacts: We have revised the screening to incorporate vertical slats and plantings. (See revised screening proposal.)

If you have any questions or need additional information, please feel free to contact me at 617-496-3606. I look forward to presenting the project at the upcoming April 6, 2017 hearing.

Sincerely,

Diane Gray
Senior Campus Planner

Cc: Kathleen McCarthy, HRES
Tom Lucey, Harvard University

Enclosure



15 March 2017

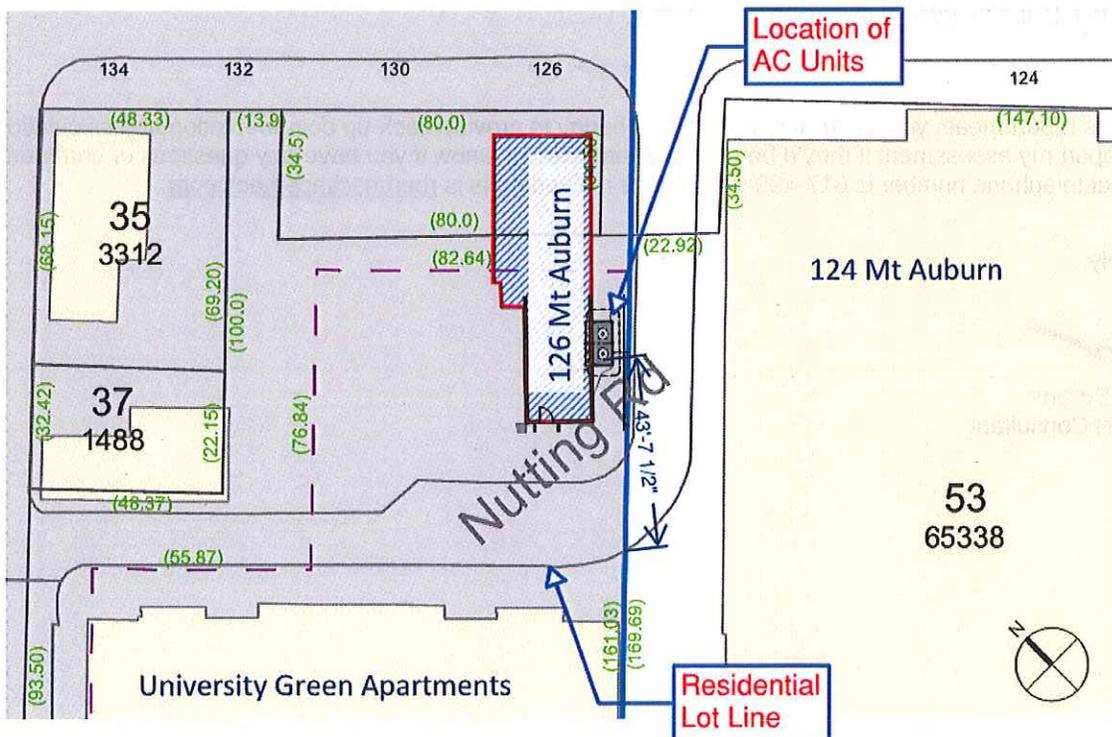
Kathleen McCarthy
Assistant Property Manager
Harvard Real Estate
1350 Massachusetts Ave, Suite 801
Cambridge, MA 02138

Subject: 126 Mount Auburn Street
Acoustical Assessment on Planned AC Units
Acentech Reference: 628825-126_MtAuburn_Noise.docm

Dear Kathy:

You've asked Acentech to look into the acoustical performance of the two air conditioner condenser units planned for installation at 126 Mt. Auburn Street, and specifically to assess their expected compliance with the City of Cambridge Noise Ordinance. Cambridge limits "daytime" noise emissions from sources like these AC units to less than 60 dBA at lot lines of properties in residential use during the hours of 7:00 a.m. to 6:00 p.m. daily except Sundays and holidays, and to less than 50 dBA during "other times;" the Cambridge limit for properties in Commercial use is 65 dBA "anytime."

A plan of the 126 Mt. Auburn Street building is presented below (the figure is extracted from the City of Cambridge Assessing Department's Parcel Block Map 165, overlaid with a detail from architectural plans for 126 Mt. Auburn). The property abuts a Harvard University office building at 124 Mt. Auburn to the southeast, and the University Green apartments to the southwest. The closest residential lot line (to the apartment property) lies a little over 43 feet to the southwest of the planned AC units.



Based on acoustical data obtained from Trane, manufacturer of the proposed AC units, I estimate that noise levels at the residential lot line will be less than 48 dBA when both of the units are in full-load operation. Levels at the windows and balconies of the apartment units farther removed from the new condensers would be expected to be even lower.

The predicted maximum noise level of 48 dBA at the nearest residential lot line therefore fully complies with the City of Cambridge's 60 dBA "daytime" limit, as well as with the more restrictive (50 dBA) "other times" limit.

I understand that there has been concern voiced that the planned AC units could produce excessive noise levels inside the 126 Mt. Auburn Street building itself, potentially interfering with some of the youth academic activities that take place there. I should point out that the units in question are similar to standard residential-grade whole-house air conditioning systems, commonly employed in similar proximity to wood-frame residential constructions throughout New England; in my many years of experience, I've never heard of complaints arising over interior noise levels associated with this operation of such units – typically such complaints are lodged by open-windowed abutters about the noise from their next-door neighbor's air conditioner. That said, I made some calculations to estimate the likely sound levels that the AC units would produce inside the 126 Mt. Auburn Street building, based on some data on the outside-to-inside noise reduction of wood-frame residential construction that Acentech has collected over the years in conjunction with a long-term Residential Sound Isolation Program around MassPort's Logan Airport. I expect that the AC units in question will produce noise levels of less than about 32 dBA inside the first-floor conference room adjacent to the planned location of the condensers; on the second floor, a corridor runs the length of the building on the condenser side, providing a substantial buffer from any noise coming through the south façade, and levels in the second-floor offices off the corridor would be expected to be significantly quieter than 32 dBA. For reference, ANSI/ASA S12.60, *American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools*, recommends maximum sound levels of 35 dBA in "core learning spaces." Levels everywhere inside the 126 Mt. Auburn building are therefore expected to be in compliance with the ANSI/ASA S12.60 criteria.

Overall, it is my judgment that the installation and operation of the planned air-conditioning system at 126 Mt. Auburn Street will be fully compliant with the City of Cambridge's noise control requirements at all offsite locations, and will result in interior sound levels completely compatible with whatever academic pursuits are undertaken in the building.

* * * * *

I trust this report meets your current needs. I'd be happy to provide back-up documentation and calculations that support my assessment if they'd be useful. Please let me know if you have any questions or comments. My direct telephone number is 617-499-8028; my e-mail address is rberens@acentech.com.

Sincerely,



Robert Berens
Principal Consultant

1.5 - 5 Ton Unitary Split Systems

Job Information

		AMS/ Misc Selections Boston Main Office (B22)David Martin	
Tag	Harvard	Quantity	1
Model number	4TTR6060J1-TUD1C1009H5-4TXCC009DS3CH		

Condenser Information

Cooling unit product type	4TTR6	Cooling electrical characteristics	200/230/1/60
Cooling nominal capacity	060		

Furnace Information

Furnace type	TUD1C	Furnace power supply and fuel	9
Nominal capacity in 000's of BTUH's	100	Furnace airflow capacity for cooling	H51

Coil Information

Coil type	4TXC	Nominal capacity	009
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Cooling Information

Cooling EDB	77.00 F	Clg net latent capacity	14162.00 Btuh
Cooling EWB	65.00 F	Calc clg LDB	56.90 F
Cooling outdoor DB	95.00 F	Calc clg LWB	55.30 F
Cooling airflow	2000 cfm	Capacity @ AHRI	56500.00 Btuh
Clg net total capacity	57069.00 Btuh	EER @ AHRI	12.5 EER
Clg net sensible capacity	42907.00 Btuh	SEER @ AHRI	14.50 btuh/watt

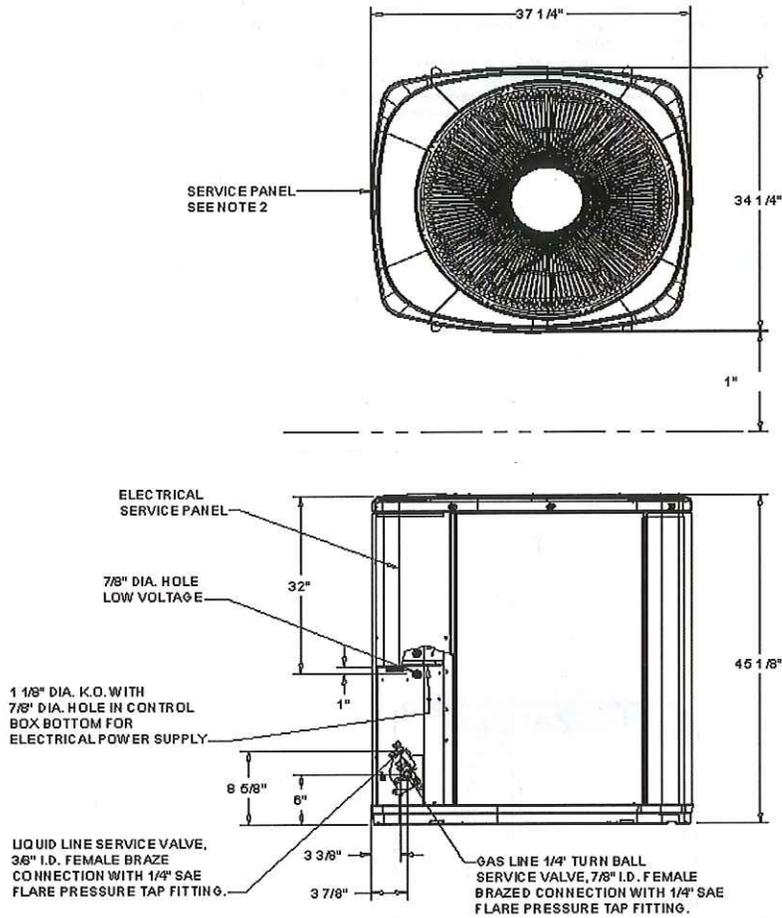
Information for LEED Projects

ASHRAE 90.1 S6.4.1 compliant	Yes	AHRI compressor power clg mode	3711.0 W
EER @ AHRI	12.5 EER	AHRI condenser fan power clg mode	254.0 W
SEER @ AHRI	14.50 btuh/watt	AHRI supply fan power clg mode	555.0 W
Notes: This product meets the minimum equipment efficiency requirements of ASHRAE Standard 90.1-2007 and -2010 (which are based on AHRI standard rating conditions) and, therefore, also meets the LEED "Minimum Energy Performance" prerequisite in the Energy and Atmosphere section.			
The LEED Green Building Rating System™, developed by the U.S. Green Building Council, provides independent, third-party verification that a building project meets green building and performance measures.			



NOTES

1. TOP DISCHARGE AREA SHOULD BE UNRESTRICTED FOR AT LEAST 60° ABOVE UNIT. UNIT SHOULD BE PLACED SO ROOF RUN-OFF WATER DOES NOT POUR DIRECTLY ON UNIT, AND SHOULD BE AT LEAST 12" FROM WALL AND ALL SURROUNDING SHRUBBERY ON TWO SIDES. OTHER TWO SIDES UNRESTRICTED.
2. ELECTRICAL AND REFRIGERANT COMPONENT CLEARANCES PER PREVAILING CODES.
3. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION



4TTR6049 and 060
OUTLINE DRAWING

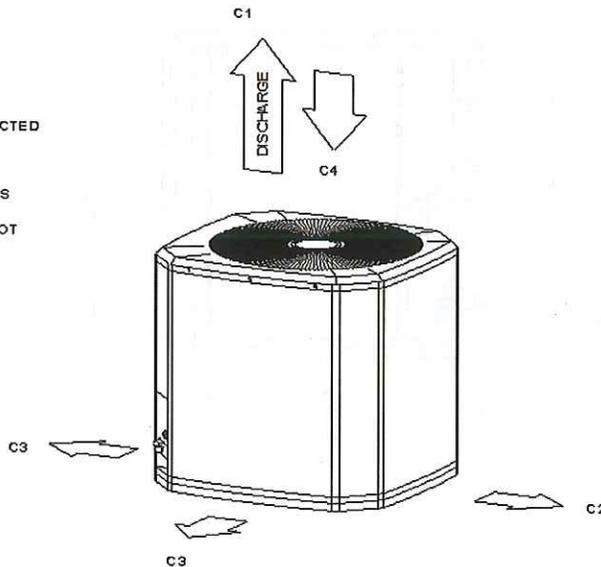


ELECTRICAL / GENERAL DATA

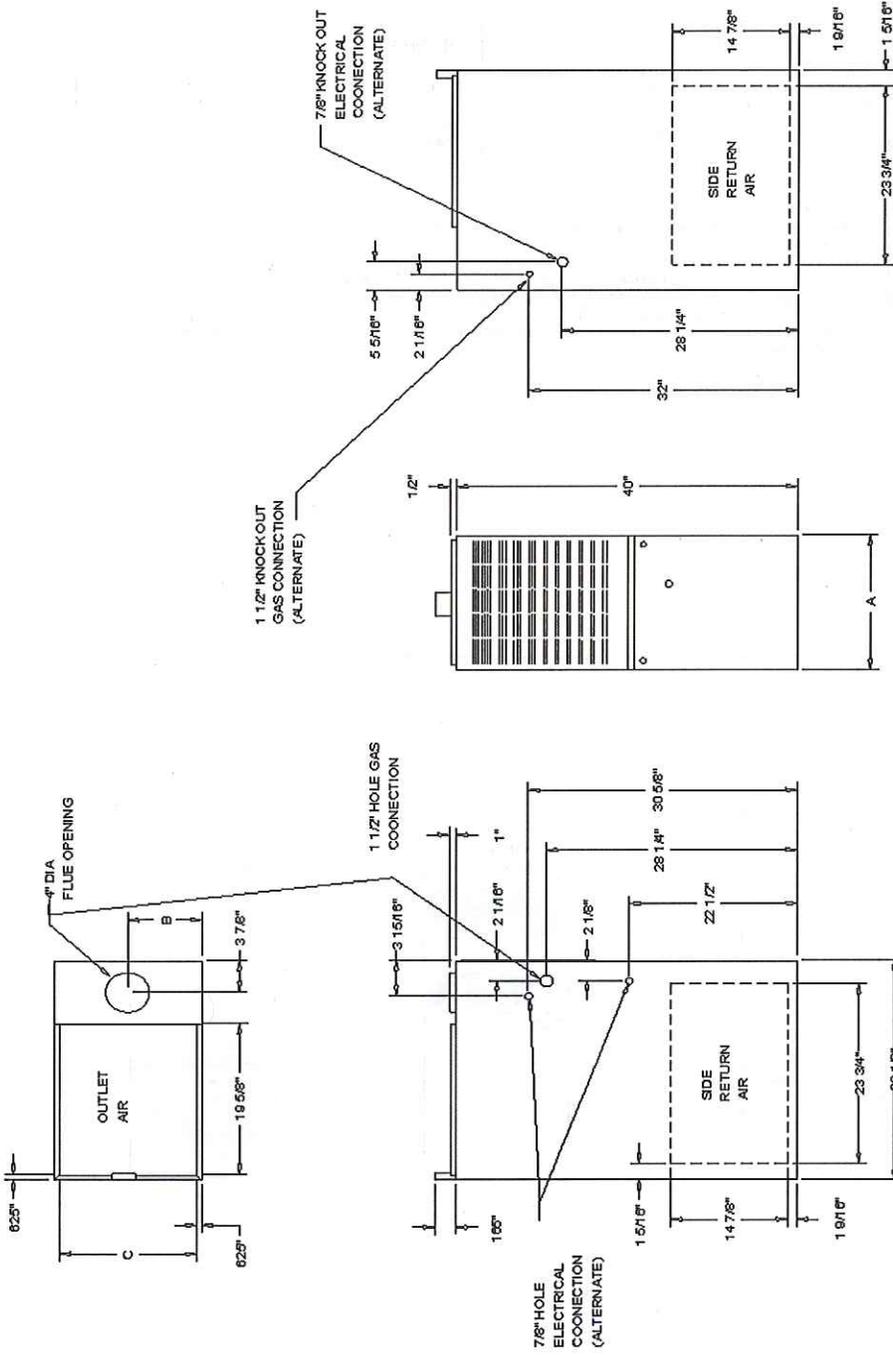
GENERAL Model: 4TTR6060 Voltage: 208 Unit Hertz: 230 Unit Phase: 60 1	POWER CONN. Minimum Circuit Ampacity: 32.0 Maximum Circuit Breaker: 60.0 Minimum Protection Rating: 60.0	COMPRESSOR Number: 1 Phase: 1 Rated Load Amps: 23.7 Locked Rotor Amps: 162.5
OUTDOOR MOTOR Number: 1 Horsepower: 0.20 Motor Speed (RPM): - Phase: 1.05 Full Load Amps: - Locked Rotor Amps: -	NOTES: 1. Certified in accordance with the Unitary Air-Conditioner equipment certification program which is based on AHRI Standard 210/240. 2. Calculated in accordance with N.E.C. Use only HACR circuit breakers or fuses. 3. Standard line lengths - 60'. Standard lift - 60' Suction and Liquid line. For Greater lengths and lifts refer to refrigerant piping software Pub# 32-3312-0 4. * = 15, 20, 25, 30, 40 and 60 foot lineset available.	
REFRIGERANT Type: R410A Charge: 9.8 lb Line Size O.D. Gas: 1 1/8" Line Size O.D. LIQ: 3/8"		

WEIGHT	
NET	327.0 lb
SHIPPING	277.0 lb

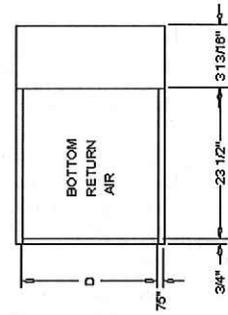
- NOTES:**
- C1. TOP DISCHARGE SHOULD BE UNRESTRICTED FOR AT LEAST 60" ABOVE UNIT
 - C2. PLACE UNIT FROM WALL
 - C3. PLACE SHRUBBERY AT LEAST 42" FROM UNIT ON TWO SIDES, OTHER SIDES UNRESTRICTED
 - C4. PLACE UNIT SO ROOF RUN-OFF DOES NOT FALL DIRECTLY ON UNIT



WEIGHT AND CLEARANCE



UNIT DIMENSIONS	DIM - A	DIM - B	DIM - C	DIM - D
TUD1B04ASH-21B	14 1/2"	9 5/8"	13 1/4"	13"
TUD1B080ASH-51B/TDD1B080ASH-51B	17 1/2"	9 5/8"	16 1/4"	16"
TUD1B100ASH-51B	17 1/2"	9 5/8"	16 1/4"	16"
TUD1B080ASH-H1B/TUD1C100ASH-51B	21"	13 1/8"	19 3/4"	16 1/2"
TUD1B120ASH-51B/TUD1B140ASH-51B	24 1/2"	15 5/8"	23 1/4"	23"



TOPSS Dimension Drawing
 ALL WEIGHTS AND DIMENSIONS ARE APPROXIMATE.



ELECTRICAL / GENERAL DATA

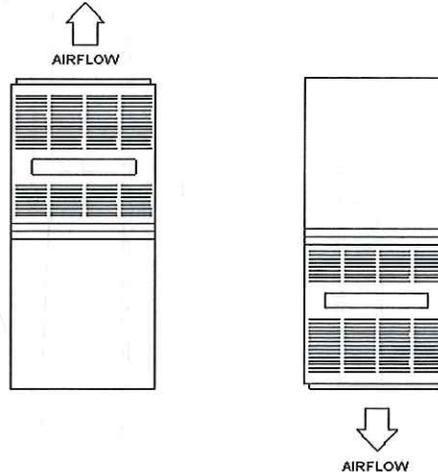
GENERAL - POWER CONN Model: TUD1C100A0H51B Voltage: 115/1/60 Ampacity (Amps): 15.4 Max Over. Pro. (Amps): 20.0	COMBUSTION FAN Type: Centrifugal Motor HP: 0.02 Motor Speed RPM: 3100 Phase: 1 Full Load Amps: 1.09	BLOWER DRIVE Drive: Direct No. Used: 1 Motor HP: 1.0 Speed RPM: 1075 Phase: 1
ORIFICES Nat. Gas Qty - Drill Size: 5 - 45 L.P. Gas Qty. - Drill Size: 5 - 56 Gas Valve: Redundant - Single Stage	NOTES: 1. Central Furnace heating designs are certified by AGA and CSA. 2. For U.S. applications, above input ratings (BTUH) are up to 2,000 feet, derate 4 percent per 1,000 feet for elevations above 2,000 feet above sea level. For Canadian applications, above input ratings (BTUH) are up to 4,500 feet, derate 4 percent per 1,000 feet for elevations above 4,500 feet above sea level. 3. Based on U.S. government standard tests. 4. The above wiring specifications are in accordance with National Electrical Code; however, installations must comply with local codes.	
FILTERS Type: High Velocity Furnished: Yes Number: 1 Recommended: 20"x25"x1"		

WEIGHT (AIR HANDLER ONLY)	
NET	151.0 lb
SHIPPING	162.0 lb

UNIT CLEARANCE TABLE			
MINIMUM CLEARANCE TO COMBUSTIBLE MATERIALS			
LEFT SIDE	0	FRONT	3"
RIGHT SIDE	+ 0	BACK	0
FLUE	# 6"	TOP	1"
HORIZONTAL CLOSET (SEE NOTE 2)			
TOP	+ 2"	BACK	3"
FLUE	# 6"	SIDE	1"
FRONT	18"	(SEE NOTE 1)	
HORIZONTAL ALCOVE (SEE NOTE 2)			
TOP	+ 1"	BACK	0
FLUE	# 6"	SIDE	0
FRONT	18"		

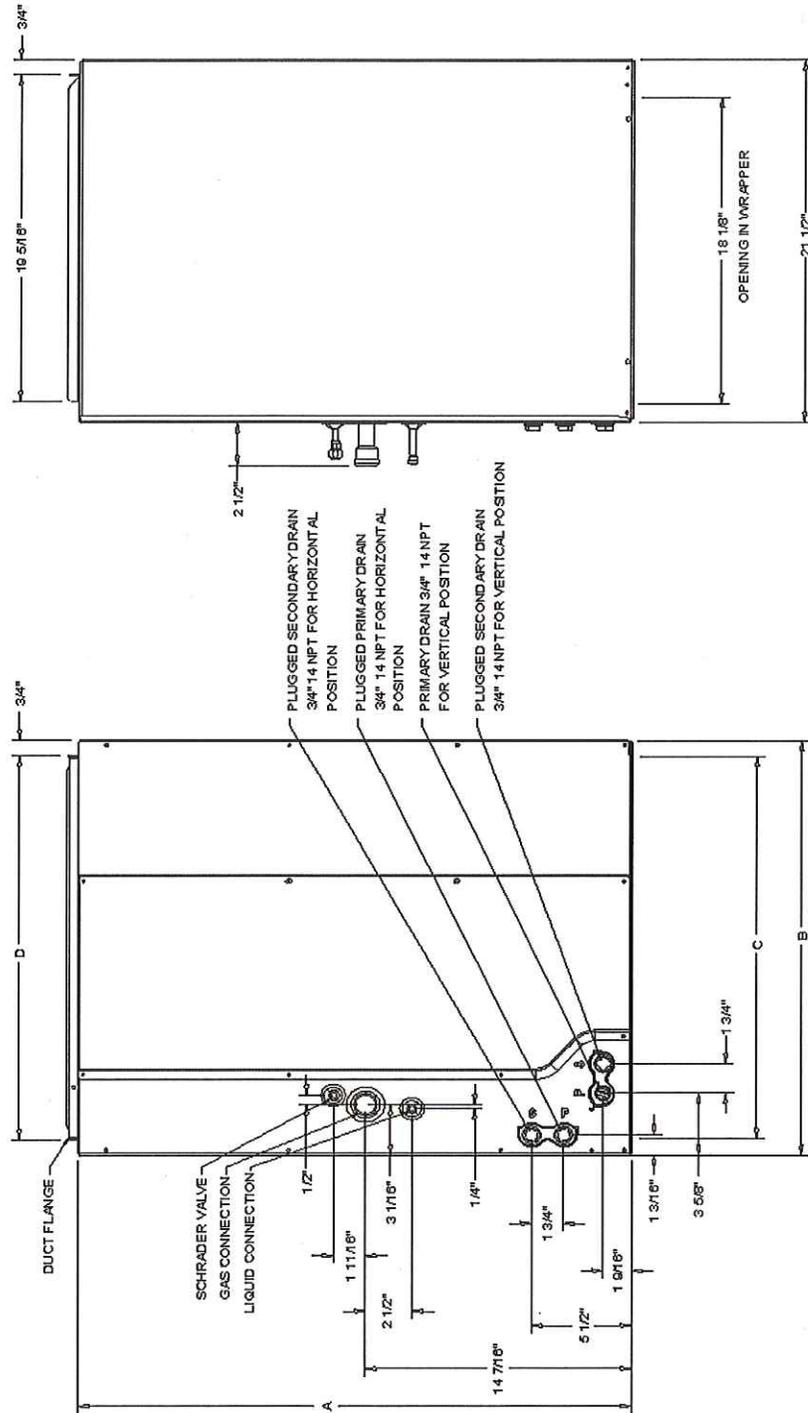
- MAYBE 1" WHEN TYPE B-1 VENT IS USED
 + - FOR 14 1/2" CABINET 3" WHEN SINGLE WALL VENT PIPE IS USED.
 WHEN 14 1/2" CABINETS (ALL *UD040C - *UD00TR -, UD080C -, AND *UD080R038) ARE INSTALLED IN A HORIZONTAL POSITION AND A SINGLE WALL VENT PIPE IS USED, A 6" CLEARANCE MUST BE SUPPLIED BETWEEN THE VENT PIPE AND COMBUSTIBLE FLOORING

NOTES:
 1. MINIMUM CLEARANCE TO FRONT ON *UD140R060 AND *UD140C060 IS 6"
 2. MAYBE INSTALLED ON COMBUSTIBLE FLOOR WHEN TYPE B-1 VENT IS USED.





4TXCD008	
DIMENSION (A)	30 11/16"
DIMENSION (B)	24 1/2"
DIMENSION (C)	23 7/16"
DIMENSION (D)	22 3/4"
MATCHED FURNACE WIDTH	24 1/2"
GAS CONNECTION	3/4" BRAZE
LIQUID CONNECTION	3/8" BRAZE
REFRIGERANT CONTROL	TXV (NON-BLEED)
DRAIN PAN	PLASTIC
WEIGHT NET	66.0 lb



TOPSS Dimension Drawing
 ALL WEIGHTS AND DIMENSIONS ARE APPROXIMATE.



Project Number:
1629
 Project Title:
126 Mount Auburn
Equipment Pad &
Enclosures
 126 Mount Auburn Street
Cambridge, MA
02138

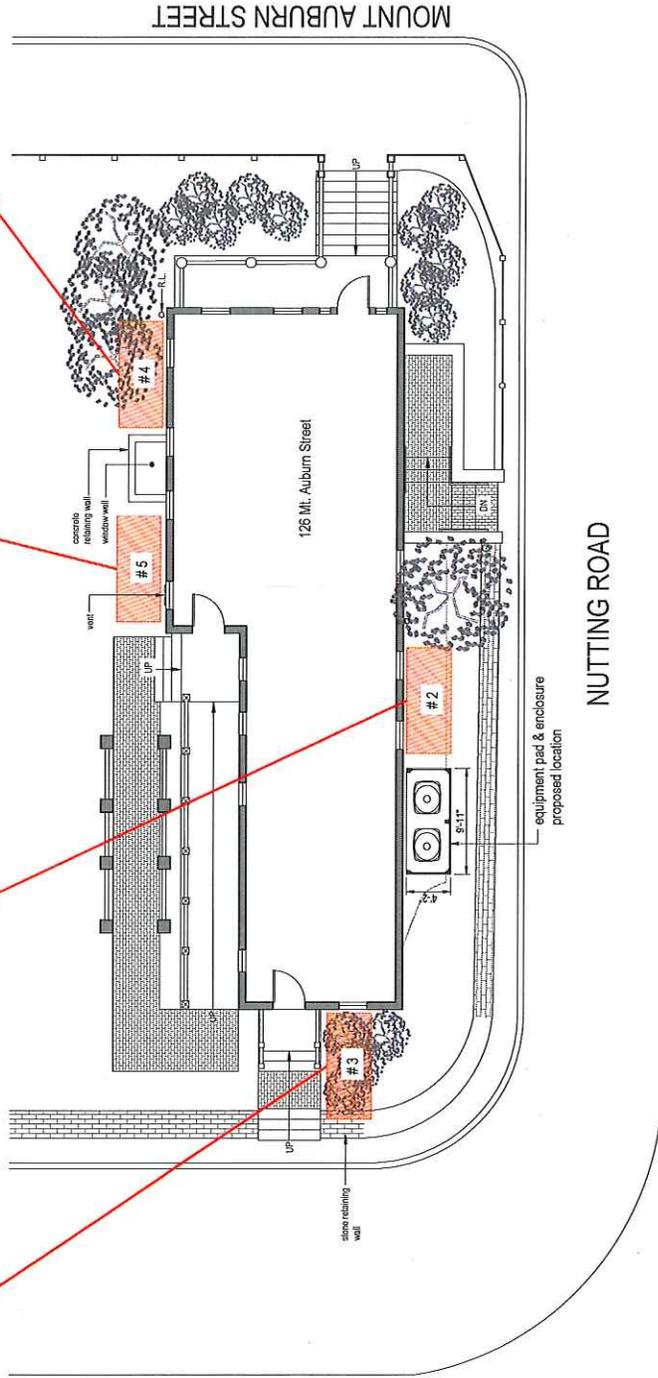
Drawing Title:
Partial Site Plan

Date/Issued For:
11.29.2016
 Permit

**NOT FOR
 CONSTRUCTION**
 Print: 24x36
 Scale:
As Noted

Drawn By:
YL

Drawing Number:
A-101a



1 Partial Site Plan Scale: 1/8" = 1'-0"

Project Number
1629

Project Title
126 Mount Auburn
Equipment Pad &
Enclosures

126 Mount Auburn Street
Cambridge, MA
02138

Drawing Title
Partial Elevation

Date/Issued For
03.10.2017

Permit

NOT FOR
CONSTRUCTION

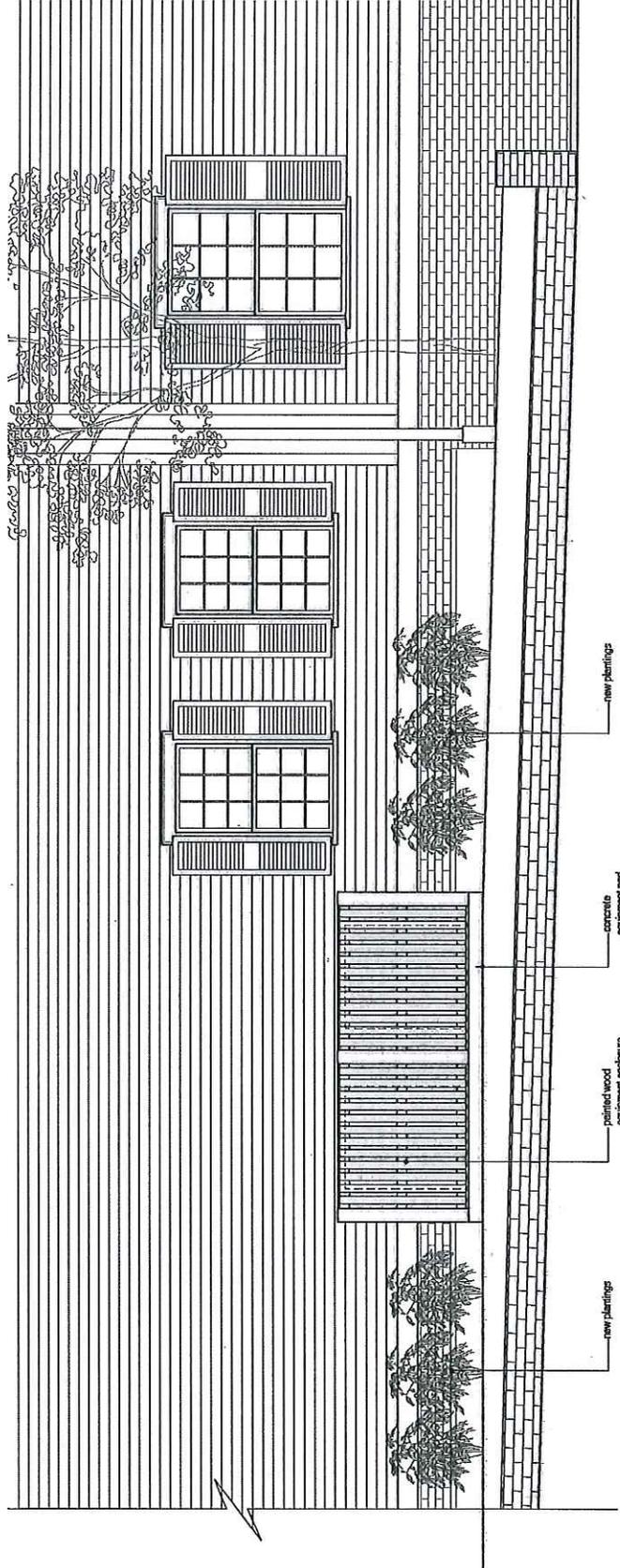
Scale
As Noted

Print 24x36

Drawn By
YL

Drawing Number

A-201



① Partial East Elevation

Scale: 1/2" = 1'-0"

Project Number
1629
Project Title
126 Mount Auburn
Equipment Pad &
Enclosures
126 Mount Auburn Street
Cambridge, MA
02138

Drawing Title
Site Rendering

Date/Issued for
03.15.2017
Permit

**NOT FOR
CONSTRUCTION**
Print 2x6x6
Scale
As Noted
Drawn By
YL

Drawing Number
A-202



① Existing Conditions - East Elevation

Scale: 1/2" = 1'-0"



② Proposed Rendering - Equipment Pad & Enclosure

Scale: 1/2" = 1'-0"