

June 5, 2018

Boston Landmarks Commission Application

Location: Boston Public Library, 700 Boylston Street, Boston

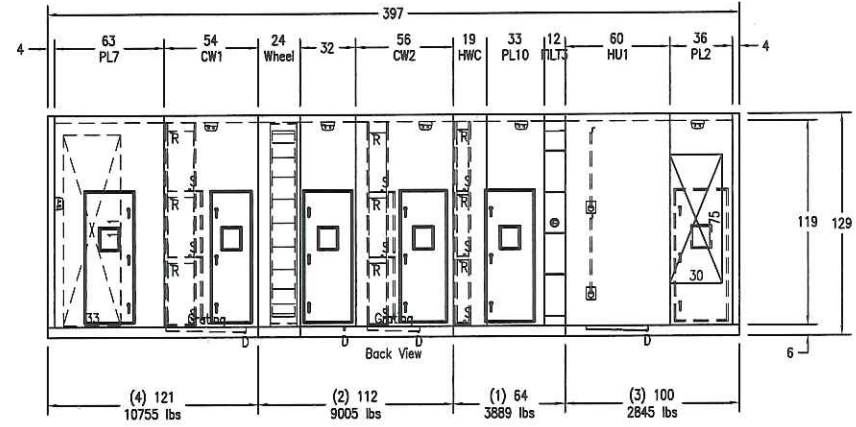
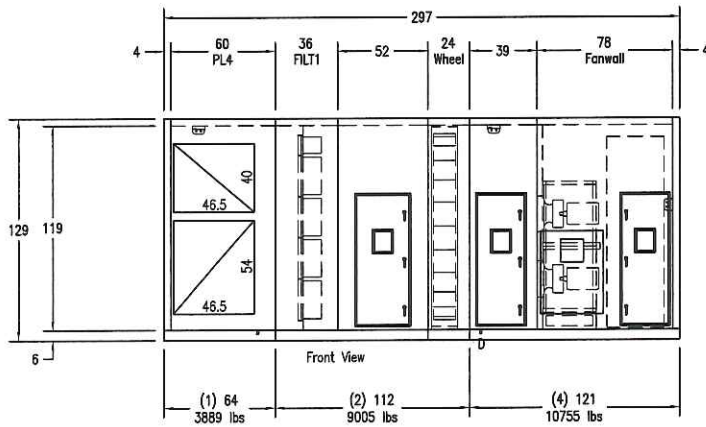
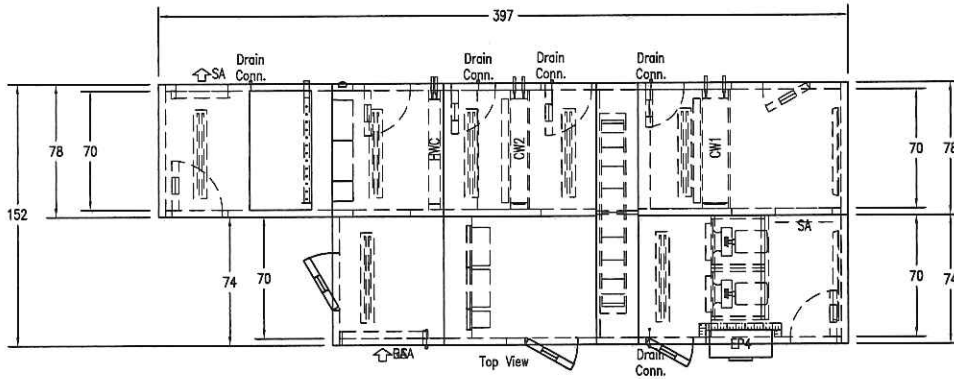
Applicant: Public Facilities Department

Property Owner: City of Boston

Architect: Finegold Alexander Architects Inc

Application and List of Attachments

1. Application Form
2. Existing Condition Photographs – Johnson Building Roof
 - #1 – Approximate location for new equipment
 - #2 – Existing equipment to remove
 - #3 – Existing equipment to remove
 - #4 – View to Boylston Street
 - #5 – Existing to remain between Johnson/McKim
 - #6 – Cramped 7th floor mechanical room below roof
3. Existing Sightline Photographs – Johnson and McKim Building Elevations
 - #1 – Boylston Street looking W, McKim-Johnson
 - #2 – Boylston-Dartmouth looking SW, McKim-Johnson
 - #3 – Boylston Street looking SW, McKim-Johnson
 - #4 – Boylston Street looking SW, McKim-Johnson
 - #5 – Boylston Street looking S, Johnson
 - #6 – Boylston Street looking E, Johnson-McKim
 - #7 – Boylston-Exeter looking SE, Johnson
 - #8 – Blagden Street looking NE, Johnson
 - #9 – Blagden-Dartmouth looking NW, McKim-Johnson
 - #10 – Dartmouth Street looking W, McKim
4. Roof Plan – Johnson and McKim Buildings
5. Equipment Demolition Plan – Johnson Building Roof, Dwg. MD105
6. New Equipment Plan – Johnson Building Roof, Dwg. M108
7. New Equipment Cut Sheets – Johnson Building Roof
 - Air Handling Unit
 - Air Cooled Chiller
 - Exhaust Fans – EF-1, EF-2, EF-3
8. Pros and Cons of Rooftop Installation
9. To be issued separately: Photos of Mockup to be taken from same locations as Item 3.



Printed 6/14/2018 4/2/2018

All dimensions shown in inches, Operating weights shown in pounds. Overall unit dimensions do not include lifting lugs, electrical panels, pipe connections, door handles, etc.
Panelized Construction
Drawing not to scale.



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Rev	Revision Description	Date m/d/y
	Boston Public Library	
Unit Type	Indoor	Day City
Unit No	ERU-1	1
Rep Firm	APA, LLC: Canton Canton, MA, US	Weight
Rep Contact	Elise Stacey, 781-988-5900	Box City
Model No	CSU-20K HW/CHW	4
Factory SAE	7.0.5	Date m/d/y
Drawn No		2/28/2018
Job No		Rev
		A

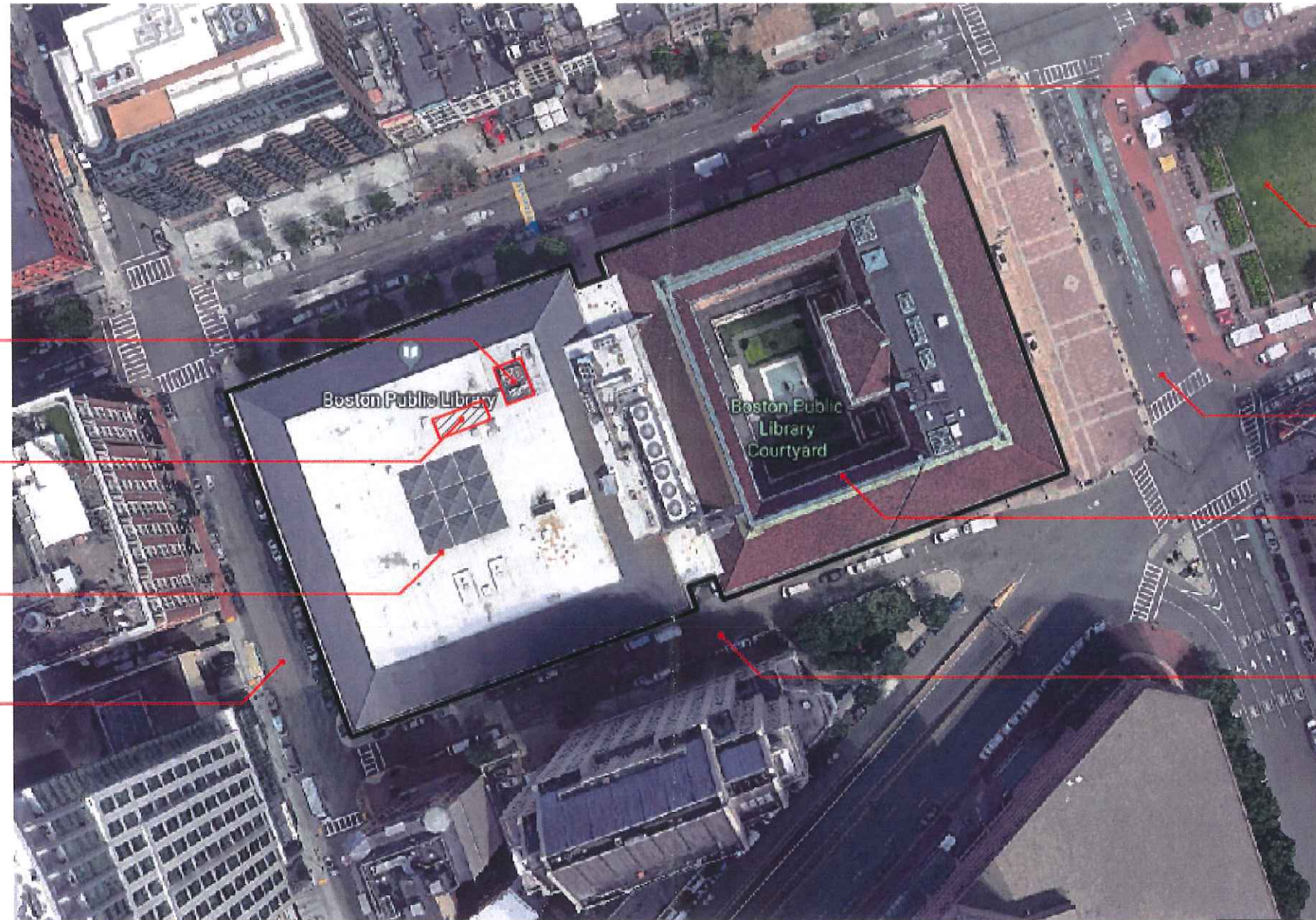
Attachment #4
Roof Plan - Johnson & McKim Buildings

Location of equipment
to be removed

Location of new
equipment

Johnson Building

Exeter Street



Boylston Street

Copley Square

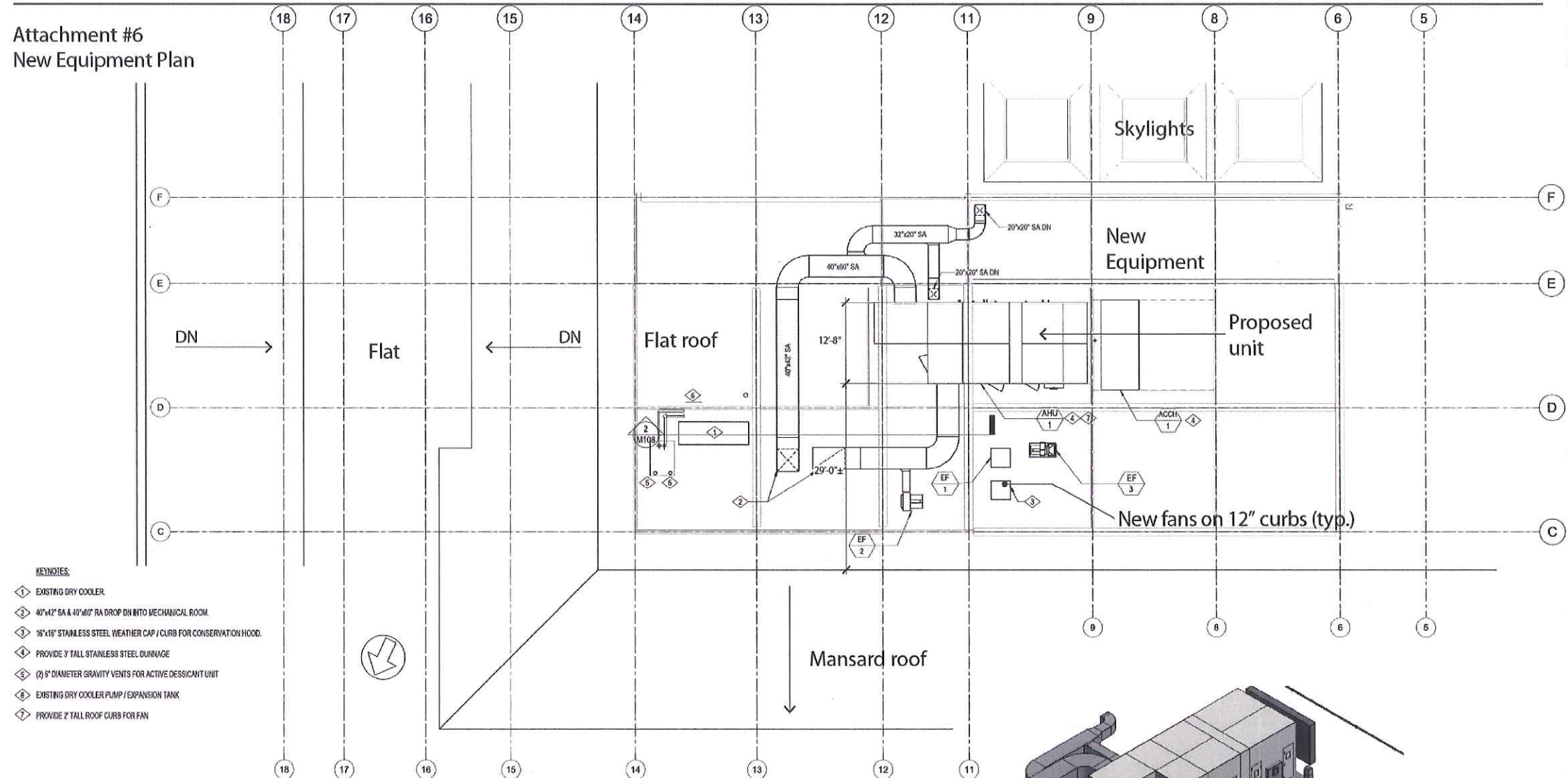
Dartmouth Street

McKim Building

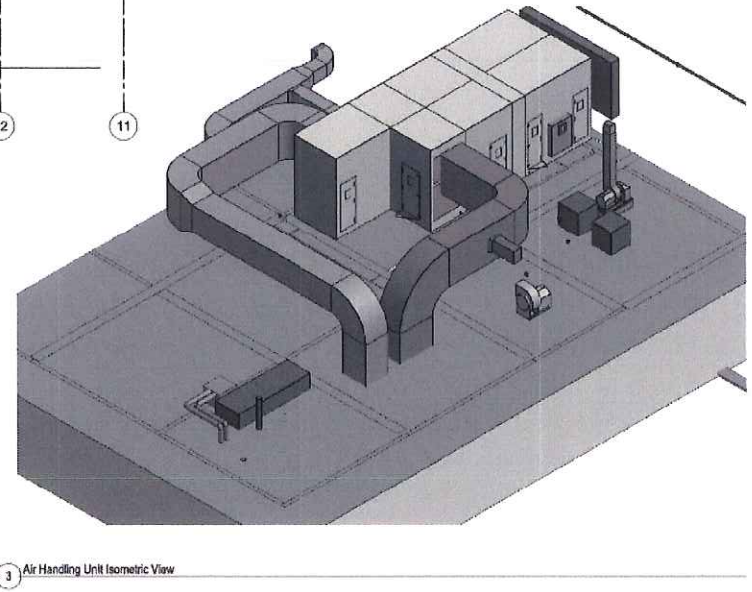
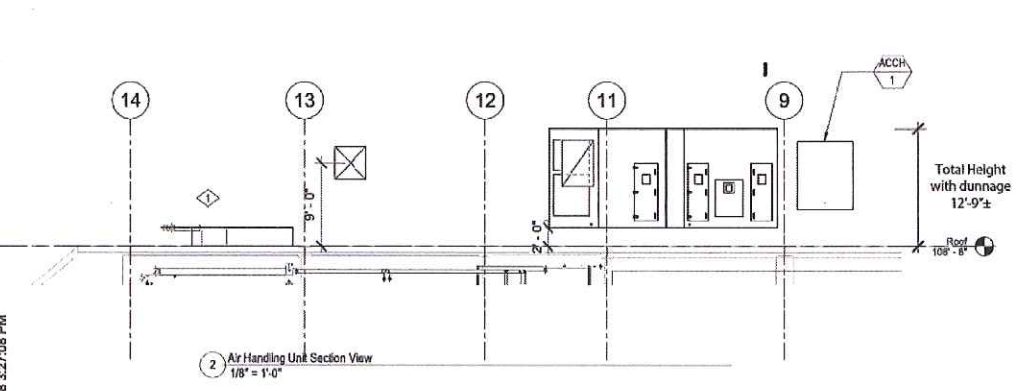
Blagden Street



Attachment #6
New Equipment Plan



- KEYNOTES:**
- 1 EXISTING DRY COOLER
 - 2 40"x42" SA & 40"x60" RA DROP DN INTO MECHANICAL ROOM
 - 3 18"x18" STAINLESS STEEL WEATHER CAP / CURB FOR CONSERVATION HOOD
 - 4 PROVIDE 3 TALL STAINLESS STEEL DUNNAGE
 - 5 6" 5" DIAMETER GRAVITY VENTS FOR ACTIVE DESSICANT UNIT
 - 6 EXISTING DRY COOLER PUMP / EXPANSION TANK
 - 7 PROVIDE 2 TALL ROOF CURBS FOR FAN



Finegold AlexanderArchitects

PROJECT TEAM

OWNER:
Boston Public Library

Structural Engineer
RBE Associates, Inc.

Costs Consultant
R.W. Sullivan Engineering

Cost Estimating
Fennessy Consulting Services

Building Envelope
Ania Building Enclosure Consulting

Archival Facilities Consultant
Michele F. Pacifico

WSP USA
88 Black Falcon, Ste 210 Boston MA 02210
617-210-1600
wsp.com

Climate Control Consultant
Linden Preservation Services

KEY PLAN:

SEAL: _____

NOT FOR CONSTRUCTION

PROJECT INFORMATION

Rare Books Improvements

700 Boylston Street
Boston, MA 02116

PROJECT #: 61605942.000
PROJECT ISSUE DATE: 05/01/2018
PROJECT STATUS: Design Development

SHEET NAME:
MECHANICAL ROOF PLAN

DRAWING HISTORY:

NO.	DATE	DESCRIPTION

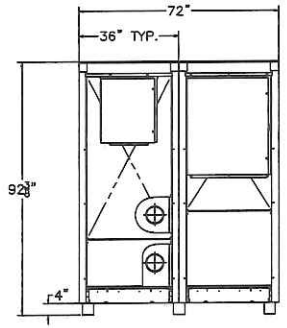
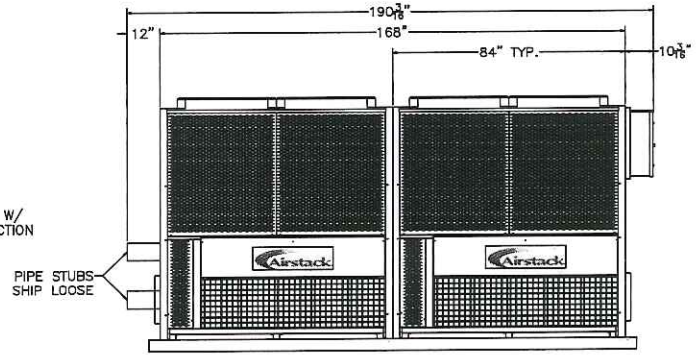
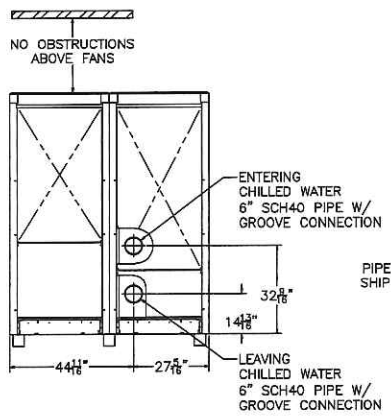
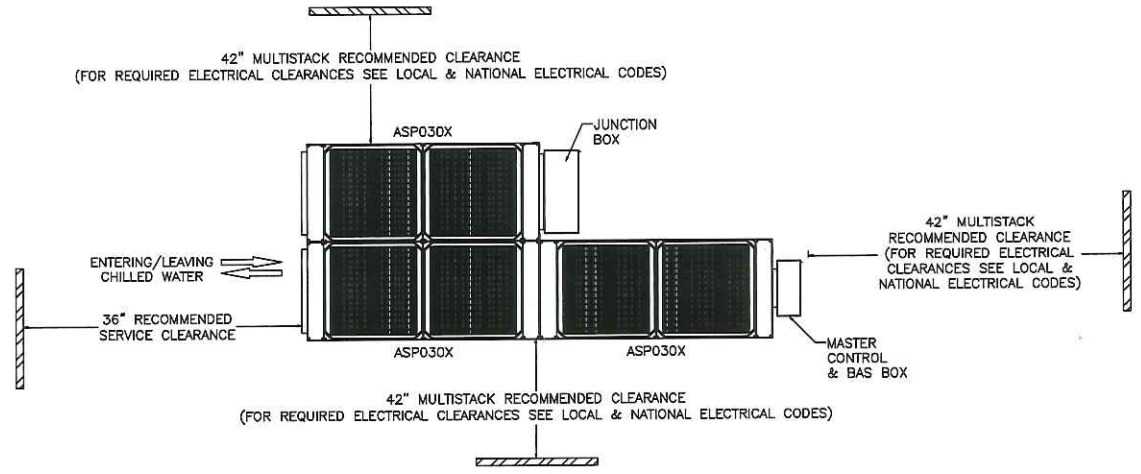
SHEET #
M108

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5/1/2018 3:27:08 PM

REVISION	DATE	BY

MULTISTACK		D LAYOUT	
Sparto, Wisconsin 54656		BOSTON PUBLIC LIBRARY	
ALL DIMENSIONS IN INCHES / DO NOT SCALE DRAWING		(3) ASP030X	
DESIGNED BY: RS	CHECKED BY: DCS	DATE: 4/18/18	SCALE: NONE

ESTIMATED WEIGHTS
 WET - 7,715 LBS
 DRY - 7,240 LBS



IF CHILLER IS GOING TO BE INSTALLED IN A PIT, CONTACT FACTORY.
 LAYOUT DRAWINGS ARE FOR REFERENCE ONLY, DIMENSIONAL DATA IS SUBJECT TO CHANGE UPON FINAL DESIGN

D LAYOUT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Model: G-097-VG

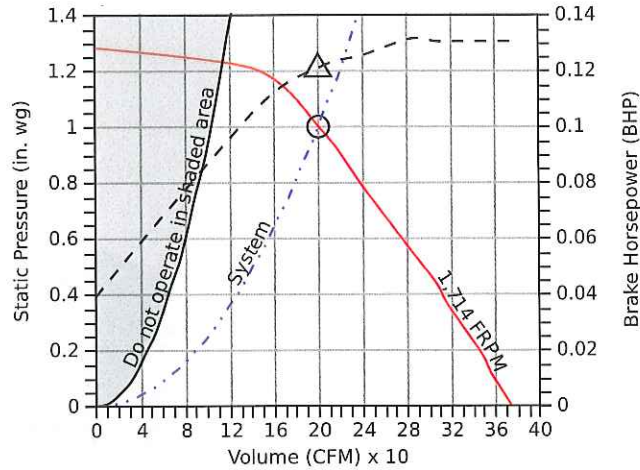
Direct Drive Centrifugal Roof Exhaust Fan

Standard Construction Features: Aluminum housing. Centrifugal backward inclined aluminum wheel. Direct driven motor mounted on vibration isolation.

Fan Configuration	
Drive type	Direct

Performance	
Requested Volume (CFM)	200
Actual Volume (CFM)	200
Total External SP (in. wg)	1
Fan RPM	1,714
Operating Power (bhp)	0.12
Startup Power (bhp)	0.12
Air Stream Temp (F)	70
Start-up Temp (F)	70
Air Density (lbs/ft ³)	0.075
Static Efficiency (%)	26
Outlet Velocity (ft/min)	208

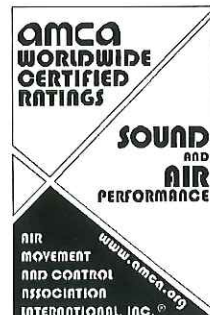
Motor	
Enclosure	ODP
Size (hp)	1/4
V/C/P	115/60/1
NEC FLA (Amps)	2.85



- Fan curve
- - - Brake horsepower curve
- Operating Point SP
- △ Operating Bhp point
- Max system curve
- · - System curve

Sound

	Octave Bands (hz)								LwA	dBA	Sones
	62.5	125	250	500	1000	2000	4000	8000			
Inlet	75	76	76	65	61	54	52	48	70	58	9.4



Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type A: Free inlet, Free outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings include the effects of birdscreen. The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal for Sound applies to inlet sone ratings only.

FLA - based on tables 150 or 148 of National Electric Code 2002. Actual motor FLA may vary, for sizing thermal overload, consult factory.

Model: USF-320-BI

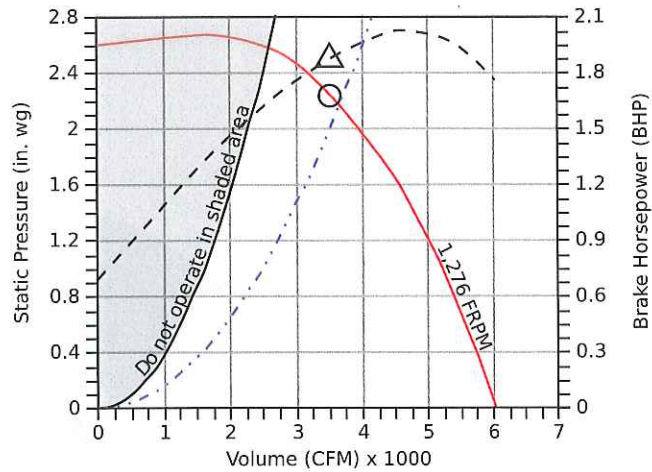
Backward Inclined Single Width Blower

Standard Construction Features: Steel scroll, Permalock seam (optional welded seam). Centrifugal backward inclined steel wheel. Steel inlet cone. Belt driven motor mounted out of the air stream.

Fan Configuration	
Arrangement	10
Discharge position	TH
Wheel rotation	CW
Fan material	Steel
Drive type	Belt

Performance	
Requested Volume (CFM)	3,500
Actual Volume (CFM)	3,500
Total External SP (in. wg)	2.24
Fan RPM	1,276
Drive Loss (%)	8
Operating Power (bhp)	1.87
Startup Power (bhp)	1.87
Air Stream Temp (F)	70
Start-up Temp (F)	70
Air Density (lbs/ft ³)	0.075
Static Efficiency (%)	71
Outlet Velocity (ft/min)	1,522

Motor	
Enclosure	ODP
Size (hp)	2
V/C/P	460/60/3
NEC FLA (Amps)	3.4



- Fan curve
- - - Brake horsepower curve
- Operating Point SP
- △ Operating Bhp point
- Max system curve
- · - · - System curve

Static Pressure Calculations

External SP	2 in. wg
Control Damper	0.24 in. wg
Total External SP	2.24 in. wg

Sound

	Octave Bands (hz)								LwA	dBA	Sones
	62.5	125	250	500	1000	2000	4000	8000			
Inlet	89	87	85	80	76	72	68	64	83	71	21



Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. Performance certified is for installation type B: Free inlet, Ducted outlet. Power rating (BHP/kW) includes transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA Standard 301. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301. Values shown are for inlet LwI, LwIA, and outlet LwO, LwOA sound power levels for installation type B: free inlet, ducted outlet. Outlet ratings include the effects of duct end correction. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal for Sound applies to inlet LwI, LwIA and outlet LwO, LwOA ratings only. The AMCA licensed air and/or sound performance data has been modified for installation, appurtenances or accessories, etc. not included in the certified data. The modified performance is not AMCA licensed but is provided to aid in selection and applications of the product.

FLA - based on tables 150 or 148 of National Electric Code 2002. Actual motor FLA may vary, for sizing thermal overload, consult factory.

Model: FJC-312

Tubular Centrifugal Belt Drive Fan with High Plume Conical Nozzle

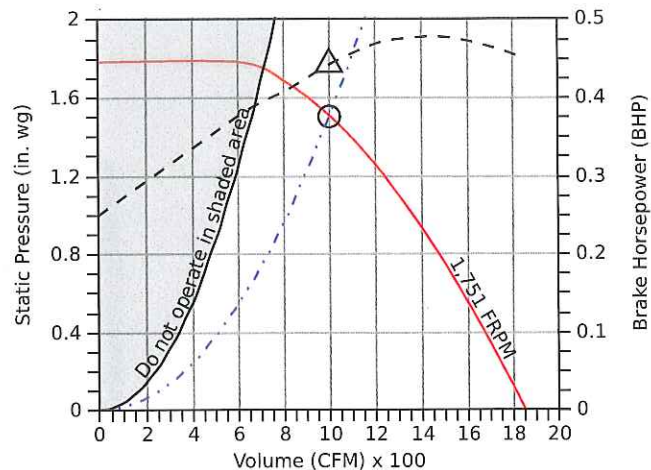
Standard Construction Features: Steel scroll, PermaLock seam with bolted frame and discharge stack. Centrifugal backward inclined steel wheel (optional aluminum with spark C). Steel inlet cone (optional aluminum with spark C). Belt driven motor mounted out of the airstream.

Design Conditions	
Bypass Air Plenum	No
Total Exhaust Volume (CFM)	1,000
External SP (in. wg)	1.5

Performance	
Exhaust Volume per Fan (CFM)	1,000
Total SP (in. wg)	1.5
Fan RPM	1,751
Operating Power (bhp)	0.44
Drive Loss (%)	13
Startup Power (bhp)	0.44
Airstream Temp (F)	70
Windspeed (mph)	10
Effective Plume Ht (ft)	10
Calculation Method	Momentum Flux

Fan Configuration	
Material Type	Steel
Drive Type	Belt
Arrangement	10
Weight w/o Accessories (lbs)	182

Motor	
Enclosure	ODP
Size (hp)	1/2
V/C/P	115/60/1



- Fan curve
- - - Brake horsepower curve
- Operating Point SP
- △ Operating Bhp point
- Max system curve
- · - · System curve

Sound

	Octave Bands (hz)								LwA	dBA	Sones
	62.5	125	250	500	1000	2000	4000	8000			
Inlet	78	78	74	72	72	66	63	59	76	64	13.0



Greenheck Fan Corporation certifies that the model shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings only. Power rating (BHP/kW) includes transmission losses. Performance ratings do not include the effects of appurtenances (accessories). The sound ratings shown are loudness values in fan sones at 5 ft. (1.5 m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for installation type A: free inlet hemispherical sone levels. dBA levels are not licensed by AMCA International. The AMCA Certified Ratings Seal for Sound applies to inlet sone ratings only.

FLA - based on tables 150 or 148 of National Electric Code 2002. Actual motor FLA may vary, for sizing thermal overload, consult factory.

June 5, 2018

Boston Landmarks Commission Application

Boston Public Library, 700 Boylston Street, Boston

Pros and Cons of Rooftop Installation

Attachment #8

Following are Pros and Cons of locating new mechanical equipment on the Johnson Building roof, as opposed to in the interior mechanical space.

PROs

- There are no height or footprint limitations when locating the equipment on the roof. The air handling unit is too tall and requires too much space to fit in the 7th floor mechanical room below the proposed roof location.
- If the equipment were able to fit within the mechanical room, access limitations would require a "stick-build" approach of small components which is time consuming, more costly, and difficult to install properly.
- Rooftop equipment is easier to service, particularly large components that may need future replacement.

CONS

- Some equipment may be visible from street level at a distant angle. This will be tested with a mockup and photographs.