

### AIR SYSTEM SIZING RTU-1

**Air System Information**  
 Air System Name: RTU-1  
 Equipment Class: PKG ROOF  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 2340.0 ft<sup>2</sup>  
 Location: Portland, Maine

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Peak zone sensible load  
 Space CFM Sizing: Coincident space loads

**Central Cooling Coil Sizing Data**  
 Total coil load: 7.7 Tons  
 Total coil load: 82.1 MBH  
 Sensible coil load: 76.3 MBH  
 Coil CFM at Jul 1500: 2985 CFM  
 Max block CFM: 2885 CFM  
 Sum of peak zone CFM: 2985 CFM  
 Sensible heat ratio: 0.917  
 #7/Ton: 304.7  
 BTU/(hr-ft<sup>2</sup>): 38.4  
 Water flow @ 10.0 °F rise: N/A

**Central Heating Coil Sizing Data**  
 Max coil load: 76.0 MBH  
 Coil CFM at Des Htg: 2885 CFM  
 Max coil CFM: 2885 CFM  
 Water flow @ 20.0 °F drop: N/A

**Supply Fan Sizing Data**  
 Actual max CFM: 2885 CFM  
 Standard CFM: 2978 CFM  
 Actual max CFM/R<sup>2</sup>: 1.29 CFM/R<sup>2</sup>

**Outdoor Ventilation Air Data**  
 Design airflow CFM: 515 CFM  
 CFM/R<sup>2</sup>: 0.22 CFM/R<sup>2</sup>

### VENTILATION SIZING RTU-1

**1. Summary**  
 Ventilation Sizing Method: Sum of Space OA Airflows  
 Design Ventilation Airflow Rate: 515 CFM

**2. Space Ventilation Analysis**

Zone Name / Space Name	Mult.	Floor Area (ft <sup>2</sup> )	Maximum Occupants	Maximum Supply Air (CFM)	Required Outdoor Air (CFM/person)	Required Outdoor Air (CFM/R <sup>2</sup> )	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (CFM)
Zone 1								
SALES (1)	1	1517.0	20.2	2336.0	7.50	0.12	0.0	333.7
SALES (2)	1	823.0	11.0	648.8	7.50	0.12	0.0	181.1
<b>Totals (incl. Space Multipliers)</b>				<b>2984.7</b>				<b>514.8</b>

### AIR SYSTEM SIZING RTU-3

**Air System Information**  
 Air System Name: RTU-3  
 Equipment Class: PKG ROOF  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 2196.0 ft<sup>2</sup>  
 Location: Portland, Maine

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Peak zone sensible load  
 Space CFM Sizing: Coincident space loads

**Central Cooling Coil Sizing Data**  
 Total coil load: 6.6 Tons  
 Total coil load: 78.4 MBH  
 Sensible coil load: 68.9 MBH  
 Coil CFM at Aug 1500: 2600 CFM  
 Max block CFM: 2600 CFM  
 Sum of peak zone CFM: 2600 CFM  
 Sensible heat ratio: 0.941  
 #7/Ton: 336.6  
 BTU/(hr-ft<sup>2</sup>): 38.7  
 Water flow @ 10.0 °F rise: N/A

**Central Heating Coil Sizing Data**  
 Max coil load: 57.4 MBH  
 Coil CFM at Des Htg: 2600 CFM  
 Max coil CFM: 2600 CFM  
 Water flow @ 20.0 °F drop: N/A

**Supply Fan Sizing Data**  
 Actual max CFM: 2600 CFM  
 Standard CFM: 2694 CFM  
 Actual max CFM/R<sup>2</sup>: 1.16 CFM/R<sup>2</sup>

**Outdoor Ventilation Air Data**  
 Design airflow CFM: 402 CFM  
 CFM/R<sup>2</sup>: 0.18 CFM/R<sup>2</sup>

### VENTILATION SIZING RTU-3

**1. Summary**  
 Ventilation Sizing Method: Sum of Space OA Airflows  
 Design Ventilation Airflow Rate: 402 CFM

**2. Space Ventilation Analysis**

Zone Name / Space Name	Mult.	Floor Area (ft <sup>2</sup> )	Maximum Occupants	Maximum Supply Air (CFM)	Required Outdoor Air (CFM/person)	Required Outdoor Air (CFM/R <sup>2</sup> )	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (CFM)
Zone 1								
SALES (3)	1	971.0	12.9	976.1	7.50	0.12	0.0	213.6
CORR	1	216.0	0.0	61.8	7.50	0.12	0.0	26.2
EMPLOYEE	1	350.0	1.8	588.6	7.50	0.12	0.0	25.1
OFFICE	1	710.0	2.0	423.1	5.00	0.08	0.0	14.2
RESTROOMS	1	394.0	0.0	227.7	7.50	0.12	0.0	43.7
SALES (5C)	1	225.0	3.0	296.7	7.50	0.12	0.0	46.5
<b>Totals (incl. Space Multipliers)</b>				<b>2600.1</b>				<b>402.3</b>

### AIR SYSTEM SIZING RTU-2

**Air System Information**  
 Air System Name: RTU-2  
 Equipment Class: PKG ROOF  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 2886.0 ft<sup>2</sup>  
 Location: Portland, Maine

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Peak zone sensible load  
 Space CFM Sizing: Coincident space loads

**Central Cooling Coil Sizing Data**  
 Total coil load: 7.7 Tons  
 Total coil load: 82.4 MBH  
 Sensible coil load: 71.8 MBH  
 Coil CFM at Jul 1500: 2704 CFM  
 Max block CFM: 2704 CFM  
 Sum of peak zone CFM: 2704 CFM  
 Sensible heat ratio: 0.777  
 #7/Ton: 374.9  
 BTU/(hr-ft<sup>2</sup>): 32.0  
 Water flow @ 10.0 °F rise: N/A

**Central Heating Coil Sizing Data**  
 Max coil load: 76.1 MBH  
 Coil CFM at Des Htg: 2704 CFM  
 Max coil CFM: 2704 CFM  
 Water flow @ 20.0 °F drop: N/A

**Supply Fan Sizing Data**  
 Actual max CFM: 2704 CFM  
 Standard CFM: 2898 CFM  
 Actual max CFM/R<sup>2</sup>: 0.94 CFM/R<sup>2</sup>

**Outdoor Ventilation Air Data**  
 Design airflow CFM: 682 CFM  
 CFM/R<sup>2</sup>: 0.24 CFM/R<sup>2</sup>

### VENTILATION SIZING RTU-2

**1. Summary**  
 Ventilation Sizing Method: Sum of Space OA Airflows  
 Design Ventilation Airflow Rate: 604 CFM

**2. Space Ventilation Analysis**

Zone Name / Space Name	Mult.	Floor Area (ft <sup>2</sup> )	Maximum Occupants	Maximum Supply Air (CFM)	Required Outdoor Air (CFM/person)	Required Outdoor Air (CFM/R <sup>2</sup> )	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (CFM)
Zone 1								
SALES (3)	1	707.0	9.4	394.7	7.50	0.12	0.0	155.5
SALES (4)	1	1007.0	14.6	1257.3	7.50	0.12	0.0	241.3
SALES (5A)	1	550.0	7.3	827.7	7.50	0.12	0.0	121.0
SALES (5B)	1	225.0	3.0	299.7	7.50	0.12	0.0	46.5
EXIT CORR	1	307.0	0.0	124.6	7.50	0.12	0.0	36.8
<b>Totals (incl. Space Multipliers)</b>				<b>2704.0</b>				<b>604.2</b>

### AIR SYSTEM SIZING RTU-4

**Air System Information**  
 Air System Name: RTU-4  
 Equipment Class: PKG ROOF  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 3027.0 ft<sup>2</sup>  
 Location: Portland, Maine

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Peak zone sensible load  
 Space CFM Sizing: Coincident space loads

**Central Cooling Coil Sizing Data**  
 Total coil load: 3.9 Tons  
 Total coil load: 47.3 MBH  
 Sensible coil load: 34.7 MBH  
 Coil CFM at Jul 1500: 1210 CFM  
 Max block CFM: 1210 CFM  
 Sum of peak zone CFM: 1210 CFM  
 Sensible heat ratio: 0.733  
 #7/Ton: 766.6  
 BTU/(hr-ft<sup>2</sup>): 16.6  
 Water flow @ 10.0 °F rise: N/A

**Central Heating Coil Sizing Data**  
 Max coil load: 34.7 MBH  
 Coil CFM at Des Htg: 1210 CFM  
 Max coil CFM: 1210 CFM  
 Water flow @ 20.0 °F drop: N/A

**Supply Fan Sizing Data**  
 Actual max CFM: 1210 CFM  
 Standard CFM: 1207 CFM  
 Actual max CFM/R<sup>2</sup>: 0.40 CFM/R<sup>2</sup>

**Outdoor Ventilation Air Data**  
 Design airflow CFM: 477 CFM  
 CFM/R<sup>2</sup>: 0.16 CFM/R<sup>2</sup>

### VENTILATION SIZING RTU-4

**1. Summary**  
 Ventilation Sizing Method: Sum of Space OA Airflows  
 Design Ventilation Airflow Rate: 477 CFM

**2. Space Ventilation Analysis**

Zone Name / Space Name	Mult.	Floor Area (ft <sup>2</sup> )	Maximum Occupants	Maximum Supply Air (CFM)	Required Outdoor Air (CFM/person)	Required Outdoor Air (CFM/R <sup>2</sup> )	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (CFM)
Zone 1								
STOCKROOM	1	3027.0	15.1	1210.1	7.50	0.12	0.0	476.5
<b>Totals (incl. Space Multipliers)</b>				<b>1210.1</b>				<b>476.5</b>

OWNER: **WILLIAMS-SONOMA, INC.**  
 3250 Van Ness Avenue  
 San Francisco, CA 94109  
 T 415 616 8602  
 F 415 439 8164  
 www.williams-sonomainc.com

**EEA**  
 EEA Consulting Engineers  
 6615 Vaughn Ranch Road, Suite 200  
 Austin, Texas 78730-2314 USA  
 512.744.4400 main 512.744.4444 fax  
 www.eeac.com  
 State of Registration: MAINE  
 Firm Registration No. N/A  
 EEA Project No. 20166538  
 DRAWN BY: ARC  
 CHECKED BY: BKK

PRELIMINARY DESIGN DOCUMENT  
 Not intended for Construction. Bidding or Permit. This document is released under the authority of:  
 Registrant's Name: MICHAEL N. HART  
 Serial No. 20822

**west elm**  
 Downtown Portland  
 164 Middle Street  
 Portland, ME 04101  
 PROJECT #006-160335-00

ISSUED / REVISED	DATE
PRELIMINARY SET	09/08/16
LL COORDINATION SET	11/08/16
LL/PERMIT SET	11/21/16
BID SET	1/26/17
MSK-2	3/17/17

HVAC CALCULATIONS

M-003