

WEATHER DATA

City Name Orlando
Location Florida
Latitude 28.4 Deg.
Longitude 81.3 Deg.
Elevation 105.0 ft
Summer Design Dry-Bulb 94.0 F
Summer Coincident Wet-Bulb 76.0 F
Summer Daily Range 16.6 F
Winter Design Dry-Bulb 37.0 F
Winter Design Wet-Bulb 31.1 F
Atmospheric Clearness Number 0.90
Average Ground Reflectance 0.20
Soil Conductivity 0.890 BTU/(hr ft^2)
Local Time Zone (GMT +/- N hours) 5.0 hours
Consider Daylight Savings Time No
Simulation Weather Data 2001 ASHRAE Handbook
Current Data Is 2001 ASHRAE Handbook
Design Cooling Months January to December

AIR SYSTEM SIZING RTU-1

Air System Information
Air System Name RTU(1)
Equipment Class PKG ROOF
Air System Type SCAV
Number of zones 1
Floor Area 2660.0 ft^2
Location Orlando, Florida
Sizing Calculation Information
Calculation Months Jan to Dec
Sizing Data User-Modified
Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads
Central Cooling Coil Sizing Data
Total coil load 8.8 Tons
OA DB / WB 106.1 MBH
Sensible coil load 78.5 MBH
Coil CFM at Aug 1500 3200 CFM
Max block CFM 3200 CFM
Sum of peak zone CFM 3200 CFM
Sensible heat ratio 0.740
RTON 300.8
BTU/(hr-ft^2) 39.9
Water flow @ 10.0 F rise N/A
Load occurs at Aug 1300
OA DB / WB 82.2 / 75.5 F
Entering DB / WB 78.7 / 68.9 F
Leaving DB / WB 55.9 / 54.8 F
Coil ADP 53.4 F
Bypass Factor 0.100
Resulting RH 91 %
Design supply temp 55.0 F
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 F
Central Heating Coil Sizing Data
Max coil load 35.7 MBH
Coil CFM at Des Htg 3200 CFM
Max coil CFM 3200 CFM
Water flow @ 20.0 F drop N/A
Load occurs at Des Htg
BTU/(hr-ft^2) 13.4
Ent. DB / Lvg DB 61.0 / 71.4 F
Supply Fan Sizing Data
Actual max CFM 3200 CFM
Standard CFM 3188 CFM
Actual max CFM/R 1.20 CFM/R
Fan motor BHP 1.75 BHP
Fan motor kW 1.39 kW
Fan static 0.71 CFM/R in wg
Outdoor Ventilation Air Data
Design airflow CFM 735 CFM
CFM/R 0.28 CFM/R
CFM/person 20.72 CFM/person

AIR SYSTEM SIZING RTU-2

Air System Information
Air System Name RTU(2)
Equipment Class PKG ROOF
Air System Type SCAV
Number of zones 1
Floor Area 2260.0 ft^2
Location Orlando, Florida
Sizing Calculation Information
Calculation Months Jan to Dec
Sizing Data User-Modified
Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads
Central Cooling Coil Sizing Data
Total coil load 4.8 Tons
OA DB / WB 57.8 MBH
Sensible coil load 39.4 MBH
Coil CFM at Aug 1500 1600 CFM
Max block CFM 1600 CFM
Sum of peak zone CFM 1600 CFM
Sensible heat ratio 0.681
RTON 468.1
BTU/(hr-ft^2) 25.6
Water flow @ 10.0 F rise 0.0
Load occurs at Aug 1500
OA DB / WB 94.0 / 76.0 F
Entering DB / WB 81.1 / 68.9 F
Leaving DB / WB 58.9 / 57.5 F
Coil ADP 56.0 F
Bypass Factor 0.100
Resulting RH 95 %
Design supply temp 55.0 F
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 F
Central Heating Coil Sizing Data
Max coil load 18.3 MBH
Coil CFM at Des Htg 1600 CFM
Max coil CFM 1600 CFM
Ent. DB / Lvg DB 56.9 / 67.5 F
Water flow @ 20.0 F drop N/A
Load occurs at Des Htg
BTU/(hr-ft^2) 8.1
Ent. DB / Lvg DB 56.9 / 67.5 F
Supply Fan Sizing Data
Actual max CFM 1600 CFM
Standard CFM 1594 CFM
Actual max CFM/R 0.71 CFM/R
Fan motor BHP 0.88 BHP
Fan motor kW 0.70 kW
Fan static 0.20 CFM/R in wg
Outdoor Ventilation Air Data
Design airflow CFM 570 CFM
CFM/R 0.25 CFM/R
CFM/person 18.92 CFM/person

AIR SYSTEM SIZING RTU-3

Air System Information
Air System Name RTU(3)
Equipment Class PKG ROOF
Air System Type SCAV
Number of zones 1
Floor Area 2420.0 ft^2
Location Orlando, Florida
Sizing Calculation Information
Calculation Months Jan to Dec
Sizing Data User-Modified
Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads
Central Cooling Coil Sizing Data
Total coil load 4.9 Tons
OA DB / WB 58.7 MBH
Sensible coil load 39.6 MBH
Coil CFM at Jul 1500 1600 CFM
Max block CFM 1600 CFM
Sum of peak zone CFM 1600 CFM
Sensible heat ratio 0.674
RTON 495.6
BTU/(hr-ft^2) 24.2
Water flow @ 10.0 F rise N/A
Load occurs at Jul 1500
OA DB / WB 94.0 / 76.0 F
Entering DB / WB 82.1 / 68.5 F
Leaving DB / WB 59.2 / 58.1 F
Coil ADP 56.6 F
Bypass Factor 0.100
Resulting RH 91 %
Design supply temp 55.0 F
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 F
Central Heating Coil Sizing Data
Max coil load 20.0 MBH
Coil CFM at Des Htg 1600 CFM
Max coil CFM 1600 CFM
Water flow @ 20.0 F drop N/A
Load occurs at Des Htg
BTU/(hr-ft^2) 6.5
Ent. DB / Lvg DB 56.0 / 67.8 F
Supply Fan Sizing Data
Actual max CFM 1600 CFM
Standard CFM 1592 CFM
Actual max CFM/R 0.70 CFM/R
Fan motor BHP 0.88 BHP
Fan motor kW 0.70 kW
Fan static 0.20 CFM/R in wg
Outdoor Ventilation Air Data
Design airflow CFM 620 CFM
CFM/R 0.26 CFM/R
CFM/person 18.18 CFM/person

AIR SYSTEM SIZING RTU-4

Air System Information
Air System Name RTU(4)
Equipment Class PKG ROOF
Air System Type SCAV
Number of zones 1
Floor Area 2276.0 ft^2
Location Orlando, Florida
Sizing Calculation Information
Calculation Months Jan to Dec
Sizing Data User-Modified
Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads
Central Cooling Coil Sizing Data
Total coil load 4.9 Tons
OA DB / WB 59.9 MBH
Sensible coil load 40.0 MBH
Coil CFM at Jul 1600 1600 CFM
Max block CFM 1600 CFM
Sum of peak zone CFM 1600 CFM
Sensible heat ratio 0.678
RTON 453.5
BTU/(hr-ft^2) 25.9
Water flow @ 10.0 F rise N/A
Load occurs at Jul 1600
OA DB / WB 93.5 / 75.9 F
Entering DB / WB 81.2 / 68.9 F
Leaving DB / WB 56.4 / 57.0 F
Coil ADP 56.5 F
Bypass Factor 0.100
Resulting RH 91 %
Design supply temp 55.0 F
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 F
Central Heating Coil Sizing Data
Max coil load 18.4 MBH
Coil CFM at Des Htg 1600 CFM
Max coil CFM 1600 CFM
Water flow @ 20.0 F drop N/A
Load occurs at Des Htg
BTU/(hr-ft^2) 8.4
Ent. DB / Lvg DB 61.0 / 69.3 F
Supply Fan Sizing Data
Actual max CFM 1600 CFM
Standard CFM 1594 CFM
Actual max CFM/R 0.70 CFM/R
Fan motor BHP 0.88 BHP
Fan motor kW 0.70 kW
Fan static 0.20 CFM/R in wg
Outdoor Ventilation Air Data
Design airflow CFM 570 CFM
CFM/R 0.25 CFM/R
CFM/person 18.78 CFM/person

AIR SYSTEM SIZING RTU-5

Air System Information
Air System Name RTU(5)
Equipment Class PKG ROOF
Air System Type SCAV
Number of zones 1
Floor Area 1575.0 ft^2
Location Orlando, Florida
Sizing Calculation Information
Calculation Months Jan to Dec
Sizing Data User-Modified
Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads
Central Cooling Coil Sizing Data
Total coil load 4.8 Tons
OA DB / WB 57.8 MBH
Sensible coil load 39.4 MBH
Coil CFM at Aug 1500 1600 CFM
Max block CFM 1600 CFM
Sum of peak zone CFM 1600 CFM
Sensible heat ratio 0.681
RTON 468.1
BTU/(hr-ft^2) 40.6
Water flow @ 10.0 F rise N/A
Load occurs at Aug 1500
OA DB / WB 94.0 / 76.0 F
Entering DB / WB 81.1 / 68.9 F
Leaving DB / WB 58.9 / 57.5 F
Coil ADP 54.1 F
Bypass Factor 0.100
Resulting RH 95 %
Design supply temp 55.0 F
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 F
Central Heating Coil Sizing Data
Max coil load 8.3 MBH
Coil CFM at Des Htg 2400 CFM
Max coil CFM 2400 CFM
Water flow @ 20.0 F drop N/A
Load occurs at Des Htg
BTU/(hr-ft^2) 5.2
Ent. DB / Lvg DB 64.2 / 67.4 F
Supply Fan Sizing Data
Actual max CFM 2400 CFM
Standard CFM 2391 CFM
Actual max CFM/R 1.52 CFM/R
Fan motor BHP 1.31 BHP
Fan motor kW 1.04 kW
Fan static 0.20 CFM/R in wg
Outdoor Ventilation Air Data
Design airflow CFM 295 CFM
CFM/R 0.19 CFM/R
CFM/person 21.69 CFM/person

VENTILATION SIZING SUMMARY RTU-1

1. Summary
Ventilation Sizing Method ASHRAE Std 62.1-2013
Design Conditions Heating operation
Occupant Diversity (D) 1.000
Unmeasured Outdoor Air Intake (Unm) 488 CFM
System Ventilation Efficiency (E\_v) 0.928
Outdoor Air Intake (V\_o) 735 CFM

Table with 12 columns: Zone Name / Space Name, Mult, Supply Air (CFM), Space Floor Area (ft^2), Area Outdoor Air Rate (CFM/ft^2), Time Averaged Outdoor Air Concentration (ppm), People (Person), Air Rate (CFM/Person), Air Distribution Effectiveness (E\_d), Space Outdoor Air (CFM), Breathing Zone Outdoor Air (CFM), Space Ventilation Efficiency (E\_vz)

VENTILATION SIZING SUMMARY RTU-2

1. Summary
Ventilation Sizing Method ASHRAE Std 62.1-2013
Design Conditions Heating operation
Occupant Diversity (D) 1.000
Unmeasured Outdoor Air Intake (Unm) 497 CFM
System Ventilation Efficiency (E\_v) 0.878
Outdoor Air Intake (V\_o) 568 CFM

Table with 12 columns: Zone Name / Space Name, Mult, Supply Air (CFM), Space Floor Area (ft^2), Area Outdoor Air Rate (CFM/ft^2), Time Averaged Outdoor Air Concentration (ppm), People (Person), Air Rate (CFM/Person), Air Distribution Effectiveness (E\_d), Space Outdoor Air (CFM), Breathing Zone Outdoor Air (CFM), Space Ventilation Efficiency (E\_vz)

VENTILATION SIZING SUMMARY RTU-3

1. Summary
Ventilation Sizing Method ASHRAE Std 62.1-2013
Design Conditions Heating operation
Occupant Diversity (D) 1.000
Unmeasured Outdoor Air Intake (Unm) 532 CFM
System Ventilation Efficiency (E\_v) 0.818
Outdoor Air Intake (V\_o) 621 CFM

Table with 12 columns: Zone Name / Space Name, Mult, Supply Air (CFM), Space Floor Area (ft^2), Area Outdoor Air Rate (CFM/ft^2), Time Averaged Outdoor Air Concentration (ppm), People (Person), Air Rate (CFM/Person), Air Distribution Effectiveness (E\_d), Space Outdoor Air (CFM), Breathing Zone Outdoor Air (CFM), Space Ventilation Efficiency (E\_vz)

VENTILATION SIZING SUMMARY RTU-4

1. Summary
Ventilation Sizing Method ASHRAE Std 62.1-2013
Design Conditions Heating operation
Occupant Diversity (D) 1.000
Unmeasured Outdoor Air Intake (Unm) 691 CFM
System Ventilation Efficiency (E\_v) 0.878
Outdoor Air Intake (V\_o) 871 CFM

Table with 12 columns: Zone Name / Space Name, Mult, Supply Air (CFM), Space Floor Area (ft^2), Area Outdoor Air Rate (CFM/ft^2), Time Averaged Outdoor Air Concentration (ppm), People (Person), Air Rate (CFM/Person), Air Distribution Effectiveness (E\_d), Space Outdoor Air (CFM), Breathing Zone Outdoor Air (CFM), Space Ventilation Efficiency (E\_vz)

VENTILATION SIZING SUMMARY RTU-5

1. Summary
Ventilation Sizing Method ASHRAE Std 62.1-2013
Design Conditions Heating operation
Occupant Diversity (D) 1.000
Unmeasured Outdoor Air Intake (Unm) 244 CFM
System Ventilation Efficiency (E\_v) 0.838
Outdoor Air Intake (V\_o) 298 CFM

Table with 12 columns: Zone Name / Space Name, Mult, Supply Air (CFM), Space Floor Area (ft^2), Area Outdoor Air Rate (CFM/ft^2), Time Averaged Outdoor Air Concentration (ppm), People (Person), Air Rate (CFM/Person), Air Distribution Effectiveness (E\_d), Space Outdoor Air (CFM), Breathing Zone Outdoor Air (CFM), Space Ventilation Efficiency (E\_vz)

Order Plans

NEW STORE
OLD NAVY
CORPORATE ARCHITECTURE
HARRISON STREET
SAN FRANCISCO, CA 94105
REPS. ID: 000054156
STORE NUMBER: 4458
STORE LOCATION: VINELAND
8231 VINELAND AVENUE
SUITE 2151
ORLANDO, FLORIDA 32821

DESIGN TYPE: P3
GENERATION: 17Q12
PROTOTYPE DATE: 07/18/16
OPENING: 2017
CONSULTANT INFO:
EEA
EEA Consulting Engineers
6615 Vaughn Ranch Road, Suite 100
Austin, Texas 78720-2314 USA
512.744.4300 email 512.744.4444 fax
www.eea.com

PROFESSIONAL ENGINEER
MICHAEL J. BARR
LICENSE
No. 58351
STATE OF FLORIDA
PROFESSIONAL ENGINEER

ARCHITECT INFO:
B | R | R
architecture
ARCHITECT OF RECORD: BRR ARCHITECTURE, INC
6700 ANTHONY PLAZA, SUITE 300, MERRIMAN, KANSAS 66204

ISSUE TYPE:
PERMIT/BID: 04/07/17

DRAWN BY: CCP
A/E JOB NUMBER: 65013011

TITLE SHEET:
MECHANICAL LOAD CALCULATIONS

SHEET NUMBER:
M4-1