

SUPERBLOCK ENERGY RECOVERY



Superblock energy recovery technology puts Bousquet at the forefront of the energy efficiency movement in the HVAC industry. With an innovative array of dampers and a revolutionary dual-core recovery system, Superblock provides up to 95% effectiveness while limiting cross contamination. Available with an optional desiccant dehumidifier, the Superblock is capable of recovering sensible and latent heat all year round.



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PROJECT 46094 Corporate Office Building Massachusetts (USA)



PROJECT DETAILS

Seen as the "holy grail of energy recovery", Bousquet's Superblock technology has been targeted as a key component in the quest to achieve net zero building design. The combination of a Superblock DOAS unit with a VRF System was the perfect retrofit solution for the existing packaged units serving the space. The use high-end regenerative energy recovery will significantly reduce energy usage as well as cooling and heating capacities required to provide tempered airflow to the office space.



UNIT SUMMARY

- Minimum O/A Damper w/ possibility of 100% O/A
- Variable Air Volume
- Supply Air: 52,000 CFM
- Exhaust Air: 26,000 CFM

- DX Cooling Coil coupled to field supplied VRF system
- Superblock Energy Recovery
- Sensible Effectiveness: 90.7%
- Latent Effectiveness: 80.4%

SENSIBLE EFFECTIVENESS



LATENT EFFECTIVENESS





TIMU TU@YAJ

MODEL NUMBER BC((RER))600-DX





TIMU TU@YAJ

MODEL NUMBER BC((RER))600-DX





UNIT Layout

S/A = 52,000 CFM E/A = 26,000 CFM

PROJECT 46094

UNIT LAYOUT









ENERGY RECOVERY

| PERFORMANCE DATA | | | | |
|----------------------------|------------|---------|------------|---------|
| | | | | |
| | Winter | | Summer | |
| Sensible Effectiveness [%] | 90.7 | | 89.3 | |
| Latent Effectiveness [%] | 80.4 | | 0.0 | |
| Total Effectiveness [%] | 88.7 | | 41.1 | |
| Recuperation Power [BTU/h] | 816839 | | 149838 | |
| EATR (%) / OACF | 2.4 / 1.00 | | 2.1 / 1.00 | |
| | Supply | Exhaust | Supply | Exhaust |
| Std. Pressure Drop [in WC] | 0.84 | 0.71 | 0.84 | 0.71 |
| Face Velocity [ft/min] | 374 | 390 | 451 | 393 |
| Condensate [USgal/h] | 0.0 | 0.0 | 0.0 | 0.0 |
| Entering Superblock | | | | |
| Nominal Airflow [cfm] | 10500 | 9460 | 10500 | 9460 |
| Density [lb/ft3] | 0.0862 | 0.0744 | 0.0714 | 0.0738 |
| Dry Bulb Temperature [°F] | 0.0 | 72.0 | 91.0 | 75.0 |
| Wet Bulb Temperature [°F] | 0.0 | 54.0 | 73.0 | 62.3 |
| Relative Humidity [%] | 100.0 | 28.7 | 42.6 | 49.1 |
| Absolute Humidity [gr/lb] | 5.5 | 33.3 | 93.0 | 63.4 |
| Enthalpy [BTU/lb] | 0.84 | 22.55 | 36.65 | 28.04 |
| Leaving Superblock | | | | |
| Density [lb/ft3] | 0.0763 | 0.0850 | 0.0732 | 0.0718 |
| Dry Bulb Temperature [°F] | 58.9 | 6.7 | 78.1 | 89.3 |
| Wet Bulb Temperature [°F] | 46.1 | 6.6 | 69.3 | 67.0 |
| Relative Humidity [%] | 35.0 | 99.0 | 64.6 | 31.0 |
| Absolute Humidity [gr/lb] | 25.7 | 7.6 | 93.0 | 63.4 |
| Enthalpy [BTU/lb] | 18.16 | 2.77 | 33.49 | 31.53 |



WINTER DATA





SUMMER Data



PROJECT 45003 HIGH-RISE RESIDENTIAL BUILDIN QUEBEC (CAN)

PROJECT DETAILS

Bousquet Technologies was tasked with providing high end ventilation to a luxurious 80-unit residential building. The Bousquet Superblock heating and cooling units will be serving the residence's common spaces with tempered airflow all the while operating at low cost and providing industry-leading energy recovery. Since the building will be occupied 24/7 with residents; the units have been equipped with direct drive plenum fan arrays as well as sound attenuators to ensure quiet unit operation.



UNIT SUMMARY

- 100% DOAS Ventilation
- Variable Air Volume
- Supply Air: 5,851 CFM
- Exhaust Air: 3,423 CFM
- Electric Heating Coil

- DX Cooling Coil coupled to field supplied VRF system
- Superblock Energy Recovery
- Sensible Effectiveness: 91.9%
- Latent Effectiveness: 84.6%

SENSIBLE EFFECTIVENESS



LATENT EFFECTIVENESS





tinu tuoyal

MODEL NUMBER BC((RER))75-EL-DX





TIMU TU@YAJ

MODEL NUMBER BC((RER))75-EL-DX





UNIT LAYOUT

S/A = 5,851 CFM E/A = 3,423 CFM

PROJECT 45006

UNIT Layout











ENERGY RECOVERY

| PERFORMANCE DATA | | | | |
|----------------------------|-----------|---------|----------------|---------|
| | | _ | | |
| | Wi | nter | Summer | |
| Sensible Effectiveness [%] | 91.9 | | 90.7 | |
| Latent Effectiveness [%] | 84.6 | | 70.8 | |
| Recuperation Power [BTU/h] | 378493 | | 159412 | |
| EATR (%) / OACF | 2.8 / 1.0 | | 2.3 / 1.0 | |
| | Supply | Exhaust | Supply | Exhaust |
| Std. Pressure Drop [in WC] | 0.674 | 0.575 | 0.674 <u>ĭ</u> | 0.575 |
| Face Velocity [ft/min] | 312 | 343 | 398 | 346 |
| Condensate [USgal/h] | 0.0 | 0.0 | 0.0 | 0.0 |
| Entering Superblock | | | | |
| Nominal Airflow [cfm] | 3784 | 3432 | 3784 | 3432 |
| Density [lb/ft3] | 0.0902 | 0.0744 | 0.0708 | 0.0738 |
| Dry Bulb Temperature [°F] | -20.0 | 72.0 | 95.0 | 75.0 |
| Wet Bulb Temperature [°F] | -20.0 | 54.0 | 77.6 | 62.2 |
| Relative Humidity [%] | 100.0 | 29.1 | 46.8 | 49.1 |
| Absolute Humidity [gr/lb] | 1.8 | 33.7 | 116.0 | 63.4 |
| Enthalpy [BTU/lb] | -4.52 | 22.60 | 41.30 | 28.03 |
| Leaving Superblock | | | | |
| Nominal Airflow [cfm] | 3784 | 3432 | 3784 | 3432 |
| Density [lb/ft3] | 0.0766 | 0.0887 | 0.0732 | 0.0711 |
| Dry Bulb Temperature [°F] | 56.7 | -12.6 | 78.5 | 93.1 |
| Wet Bulb Temperature [°F] | 45.2 | -12.6 | 67.2 | 74.1 |
| Relative Humidity [%] | 38.8 | 99.0 | 56.5 | 41.8 |
| Absolute Humidity [gr/lb] | 26.3 | 2.7 | 82.3 | 97.2 |
| Enthalpy [BTU/lb] | 17.73 | -2.60 | 31.88 | 37.84 |



WINTER DATA





SUMMER Data



PROJECT 45746 LIVING BUILDING DESIGN IOWA (USA)

PROJECT DETAILS

The Living Building Challenge stands as the world's most rigorous performance standard for buildings. To achieve certification, Living Buildings must generate all of their own energy, be self-sufficient, and create a positive impact on the human and natural systems that interact with them. In short, a Living Building is one that gives more than it takes. Leading the way on the energy recovery side, Bousquet's Superblock technology comes in as one very important piece of a very complex puzzle.



UNIT SUMMARY

- Dual Heat Exchangers (RER + Sensible wheel)
- Constant Air Volume
- Supply Air: 2,520 CFM
- Exhaust Air: 1,655 CFM

- DX Cooling Coil coupled to field supplied VRF system
- Sensible Wheel reheat
- Sensible Effectiveness: 97.3%
- Latent Effectiveness: 82.7%

SENSIBLE EFFECTIVENESS



LATENT EFFECTIVENESS





TIMU TU@YAJ

MODEL NUMBER BC((ECW-RER))50-DX





TIMU TU@YAJ

MODEL NUMBER BC((ECW-RER))50-DX







S/A = 2,520 CFM E/A = 1,655 CFM

PROJECT 45716

**

UNIT Layout











ENERGY RECOVERY

| PERFORMANCE DATA | | | | |
|----------------------------|--------|---------|------------|---------|
| | | | | |
| | VVII | nter | Summer | |
| Sensible Effectiveness [%] | 97.3 | | 97.3 | |
| Latent Effectiveness [%] | 82.7 | | 82.7 | |
| Total Effectiveness [%] | 94.5 | | 90.6 | |
| Recuperation Power [BTU/h] | 167491 | | 98640 | |
| EATR (%) / OACF | 2.5 / | 1.00 | 2.1 / 1.00 | |
| | Supply | Exhaust | Supply | Exhaust |
| Std. Pressure Drop [in WC] | 0.80 | 0.40 | 0.80 | 0.40 |
| Face Velocity [ft/min] | 355 | 275 | 439 | 271 |
| Condensate [USgal/h] | 0.0 | 0.0 | 0.0 | 0.0 |
| Entering Superblock | | | | |
| Nominal Airflow [cfm] | 2520 | 1655 | 2520 | 1655 |
| Density [lb/ft3] | 0.0882 | 0.0747 | 0.0712 | 0.0759 |
| Dry Bulb Temperature [°F] | -10.0 | 70.0 | 92.0 | 59.9 |
| Wet Bulb Temperature [°F] | -10.9 | 52.7 | 75.7 | 57.0 |
| Relative Humidity [%] | 52.5 | 29.0 | 47.6 | 84.0 |
| Absolute Humidity [gr/lb] | 1.7 | 31.4 | 107.3 | 64.5 |
| Enthalpy [BTU/lb] | -2.14 | 21.76 | 39.18 | 24.52 |
| Leaving Superblock | | | | |
| Density [lb/ft3] | 0.0791 | 0.0877 | 0.0741 | 0.0715 |
| Dry Bulb Temperature [°F] | 41.1 | -7.8 | 71.5 | 91.1 |
| Wet Bulb Temperature [°F] | 34.2 | -7.9 | 65.4 | 72.1 |
| Relative Humidity [%] | 47.1 | 99.0 | 73.0 | 40.3 |
| Absolute Humidity [gr/lb] | 17.9 | 3.5 | 84.1 | 87.8 |
| Enthalpy [BTU/lb] | 12.66 | -1.34 | 30.45 | 35.85 |



WINTER DATA



2

O/A LEAVING SUPERBLOCK







SUMMER Data





PROJECT 45106 COMMERCIAL WAREHOUSE QUEBEC (CAN)

PROJECT DETAILS

Superblock technology is the ideal solution for your next warehouse project. With significant reductions on heating loads and the absence of efficiencykilling frost prevention cycles; the Superblock offers a cost effective, energy efficient alternative to traditional makeup air units. In many cases, the looser requirements on warehouse supply air termperatures paired to the industry leading energy recovry effectiveness of the Superblock can even negate the need for supplemental heat altogether.



UNIT SUMMARY

- Minimum O/A Damper w/ possibility of 100% O/A
- Constant Air Volume
- Supply Air: 24,000 CFM
- Exhaust Air: 24,000 CFM

- Superblock Energy Recovery (no MS3A desiccant)
- Sensible Effectiveness: 90.2%
- Latent Effectiveness: 82.6%
- Indirect gas fired heating

SENSIBLE EFFECTIVENESS



LATENT EFFECTIVENESS





TIMU TU@YAJ

MODEL NUMBER BC((RER))-300-DTHR-100





TIMU TU@YAJ

MODEL NUMBER BC((RER))-300-DTHR-100

6







S/A = 24,000 CFM E/A = 24,000 CFM

PROJECT 45106











UNIT Layout





ENERGY RECOVERY

PERFORMANCE DATA

| | Winter | | Summer | |
|----------------------------|------------|---------|------------|---------|
| Sensible Effectiveness [%] | 90.2 | | 88.9 | |
| Latent Effectiveness [%] | 82.6 | | 0.0 | |
| Total Effectiveness [%] | 89.2 | | 9.5 | |
| Recuperation Power [BTU/h] | 856033 | | 28597 | |
| EATR (%) / OACF | 2.8 / 1.00 | | 2.3 / 1.00 | |
| | Supply | Exhaust | Supply | Exhaust |
| Std. Pressure Drop [in WC] | 0.85 | 0.85 | 0.85 | 0.85 |
| Face Velocity [ft/min] | 309 | 366 | 389 | 385 |
| Condensate [USgal/h] | 0.0 | 0.0 | 0.0 | 0.0 |
| Entering Superblock | | | | |
| Nominal Airflow [cfm] | 9650 | 9650 | 9650 | 9650 |
| Density [lb/ft3] | 0.0902 | 0.0762 | 0.0718 | 0.0724 |
| Dry Bulb Temperature [°F] | -20.0 | 60.0 | 88.0 | 85.0 |
| Wet Bulb Temperature [°F] | -20.0 | 45.0 | 74.0 | 65.8 |
| Relative Humidity [%] | 100.0 | 26.8 | 52.2 | 35.8 |
| Absolute Humidity [gr/lb] | 1.8 | 20.4 | 103.8 | 64.1 |
| Enthalpy [BTU/lb] | -4.52 | 17.61 | 37.63 | 30.58 |
| Leaving Superblock | | | | |
| Density [lb/ft3] | 0.0774 | 0.0886 | 0.0721 | 0.0721 |
| Dry Bulb Temperature [°F] | 52.2 | -12.2 | 85.3 | 87.7 |
| Wet Bulb Temperature [°F] | 40.0 | -12.2 | 73.3 | 66.7 |
| Relative Humidity [%] | 30.0 | 99.0 | 57.0 | 32.9 |
| Absolute Humidity [gr/lb] | 17.2 | 2.8 | 103.8 | 64.1 |
| Enthalpy [BTU/lb] | 15.21 | -2.49 | 36.97 | 31.23 |



WINTER DATA





SUMMER Data



PROJECT 46063 COFFEE PROCESSING PLANT QUEBEC (CAN)

PROJECT DETAILS

Modern manufacturing facilities demande more out of their HVAC as many plants operate for extended hours (even on 24/7 schedules in many cases). Superblock equipped dedicated outdoor air systems (DOAS) by Bousquet are an excellent solution to ensure proper ventilation, temperature control, and indoor air quality (IAQ). Seeing as air handling unit breakdowns and dowtime result in significant financial loss; the Bousquet DOAS has been equipped with backup emergency heat as well as fan backdraft isolation dampers in the event of a fan or energy recovery failure.



UNIT SUMMARY

- 100% Outside Air
- Variable Air Volume
- Supply Air: 16,000 CFM
- Exhaust Air: 16,000 CFM
- VRF Heat Pump Coil

- Superblock Energy Recovery (w/ MS3A desiccant)
- Sensible Effectiveness: 90.0%
- Latent Effectiveness: 84.0%
- Backup Electric Heating Coil

SENSIBLE EFFECTIVENESS



LATENT EFFECTIVENESS





TIMU TU@YAJ

MODEL NUMBER BC((RER))-200-EL-DX





TIMU TU@YAJ

MODEL NUMBER BC((RER))-200-EL-DX









UNIT LAYOUT









UNIT Layout





ENERGY RECOVERY

| PERFORMANCE DATA | | | | |
|----------------------------|------------|---------|------------|---------|
| | | | | |
| | Winter | | Summer | |
| Sensible Effectiveness [%] | 90.0 | | 88.9 | |
| Latent Effectiveness [%] | 84.0 | | 69.4 | |
| Total Effectiveness [%] | 88.9 | | 76.9 | |
| Recuperation Power [BTU/h] | 1744038 | | 463523 | |
| EATR (%) / OACF | 2.8 / 1.00 | | 2.3 / 1.00 | |
| | Supply | Exhaust | Supply | Exhaust |
| Std. Pressure Drop [in WC] | 0.86 | 0.86 | 0.86 | 0.86 |
| Face Velocity [ft/min] | 310 | 376 | 390 | 379 |
| Condensate [USgal/h] | 0.0 | 0.0 | 0.0 | 0.0 |
| Entering Superblock | | | | |
| Nominal Airflow [cfm] | 16000 | 16000 | 16000 | 16000 |
| Density [lb/ft3] | 0.0902 | 0.0744 | 0.0718 | 0.0738 |
| Dry Bulb Temperature [°F] | -20.0 | 72.0 | 88.0 | 75.0 |
| Wet Bulb Temperature [°F] | -20.0 | 54.4 | 73.0 | 62.6 |
| Relative Humidity [%] | 100.0 | 30.1 | 49.3 | 50.1 |
| Absolute Humidity [gr/lb] | 1.8 | 34.9 | 97.9 | 64.8 |
| Enthalpy [BTU/lb] | -4.52 | 22.80 | 36.69 | 28.26 |
| Leaving Superblock | | | | |
| Density [lb/ft3] | 0.0757 | 0.0883 | 0.0735 | 0.0721 |
| Dry Bulb Temperature [°F] | 62.8 | -10.8 | 76.4 | 86.6 |
| Wet Bulb Temperature [°F] | 49.1 | -10.8 | 65.2 | 70.8 |
| Relative Humidity [%] | 35.1 | 99.0 | 55.3 | 46.5 |
| Absolute Humidity [gr/lb] | 29.6 | 3.0 | 74.9 | 87.7 |
| Enthalpy [BTU/lb] | 19.75 | -2.14 | 30.21 | 34.73 |



WINTER DATA







SUMMER Data





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