

## MUA (5-26) Sequence of Operations

### Run Conditions - Scheduled:

The unit shall run according to a user definable time schedule in the following modes:

- Occupied Mode: The unit shall maintain
  - A 28°C (adj.) cooling setpoint
  - A 10°C (adj.) heating setpoint.
- Unoccupied Mode (night setback): The unit shall maintain
  - A 28°C (adj.) cooling setpoint.
  - A 10°C (adj.) heating setpoint.

Alarms shall be provided as follows:

- Low Zone Temp: If the zone temperature is less than the heating setpoint by a user definable amount (adj.).

### Supply Fan:

The supply fan shall run anytime the unit is commanded to run, unless shutdown on safeties. To prevent short cycling, the supply fan shall have a user definable (adj.) minimum runtime.

Alarms shall be provided as follows:

- Supply Fan Failure: Commanded on, but the status is off.
- Supply Fan in Hand: Commanded off, but the status is on.
- Supply Fan Runtime Exceeded: Status runtime exceeds a user definable limit (adj.).

### Heating Coil Valve:

The controller shall measure the zone temperature and modulate the heating coil valve to maintain its heating setpoint.

The heating shall be enabled whenever the outside air temperature is less than 13°C (adj.), and heating is required.

### Economizer:

The controller shall measure the zone temperature and modulate the economizer dampers in sequence to maintain its cooling setpoint. The outside air dampers shall open 100% (adj.) open whenever the schedule is occupied., and the unit shall run as a make up air unit.

The economizer shall be enabled whenever:

- The supply fan status is on during dispatch mode.

The economizer shall close:

- On a loss of supply fan status.

The outside air dampers shall close and the return air damper shall open when the unit is off.

### Minimum Outside Air Ventilation - Nitrogen Dioxide (NO2) Control:

The controller shall measure the space NO2 levels.

Alarms shall be provided as follows:

- High Nitrogen Dioxide Concentration: If the NO2 concentration is greater than 4 ppm (adj.).

### Exhaust Fan:

The associated exhaust fan shall run whenever the unit is commanded to run.

Alarms shall be provided as follows:

- Exhaust Fan Failure: Commanded on, but the status is off.
- Exhaust Fan in Hand: Commanded off, but the status is on.
- Exhaust Fan Runtime Exceeded: Status runtime exceeds a user definable limit (adj.).

### Final Filter Differential Pressure Monitor:

The controller shall monitor the differential pressure across the final filter.

Alarms shall be provided as follows:

- Final Filter Change Required: Final filter differential pressure exceeds a user definable limit (adj.).

### Supply Air Temperature:

The controller shall monitor the supply air temperature.

Alarms shall be provided as follows:

- High Supply Air Temp: If the supply air temperature is greater than 49°C (adj.).
- Low Supply Air Temp: If the supply air temperature is less than 8°C (adj.).

### Overhead Door Contacts:


The controller shall continuously monitor the overhead door contacts.

Alarms shall be provided as follows:

- Overhead Door Alarm: The overhead door has been open for more than 60 minutes (adj.) and the outside air temperature is less than 5°C (adj.).

For Wiring details on MUA5 through MUA19 refer to page 24

For Wiring details on MUA20 through MUA26 refer to page 25

Winnipeg Transit			
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