

**GENERAL NOTES:**

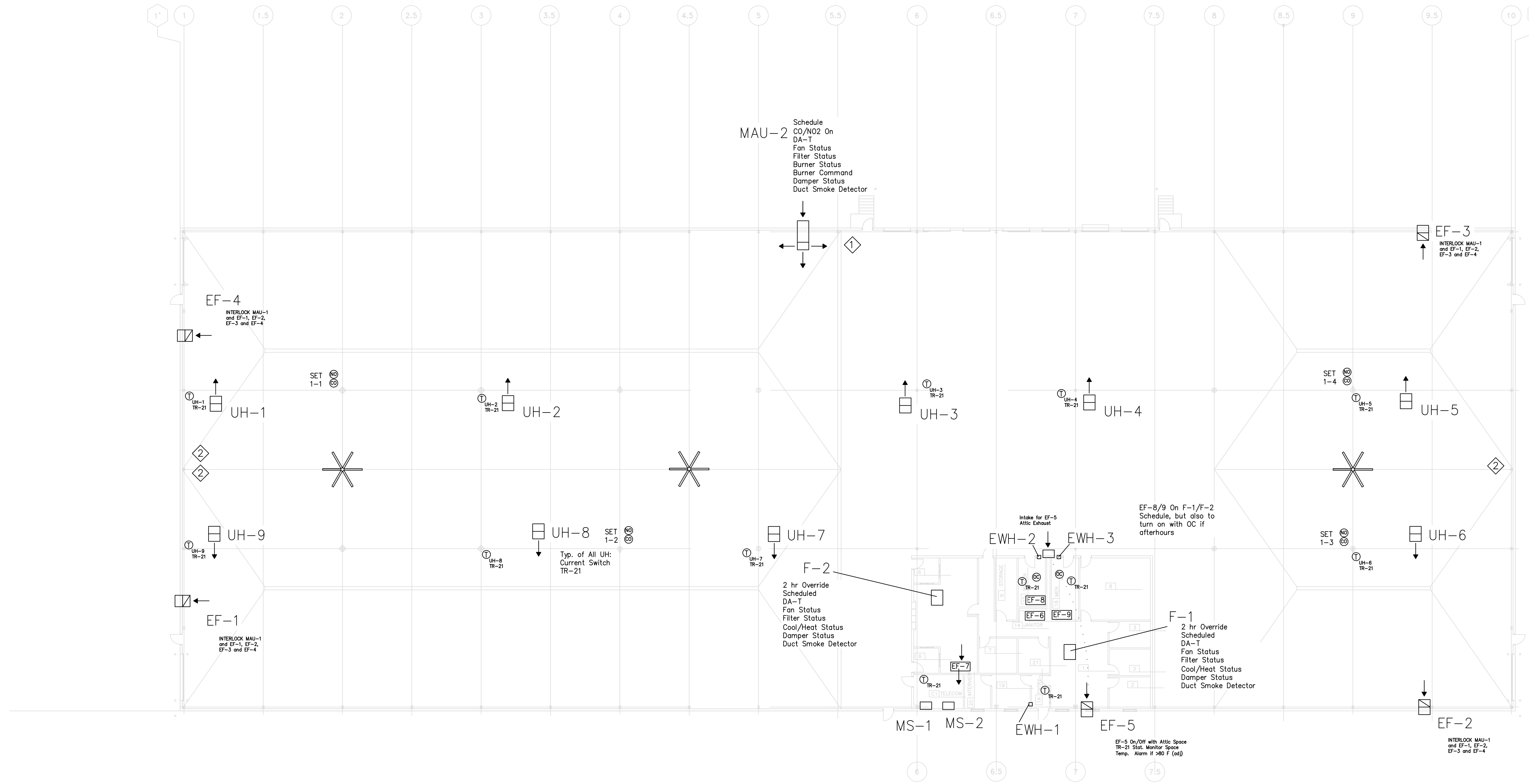
- A. CONTROL WIRING TO BE RUN IN CONDUIT (EMT). CONDUIT TO BE LABELED 'CONTROLS'
- B. UTILIZE AIRPORT OUTSIDE AIR TEMP SENSOR
- C. BUILDINGS ARE CONNECTED TO THE CITY FIBER NETWORK
- D. NEW JACES (TITAN) V4.10 WITH STATIC IP ADDRESSES FOR EACH BUILDING
- E. JACES TO CONNECT TO EXISTING CITY HONEYWELL WEBS SERVER RUNNING V4.10 ON THE NIAGARA N4 PLATFORM.
- F. BUILDING FLOORPLAN GRAPHICS TO BE PROVIDED TO CONTRACTOR FROM OWNER IN AUTOCAD FORMAT. GRAPHICS TO BE LOCATED UNDER THE METRO TRANSIT .NAV FILE IN WEBS. A NEW .NAV FILE FOR METRO TRANSIT WILL BE REQUIRED TO SEPARATE 1101 FROM HANSON RD FACILITY.
- G. SEQUENCES TO GENERALLY MIRROR 1101 E WASHINGTON AVE TO THE MAXIMUM EXTENT POSSIBLE.

**PLAN NOTES:**

- ① Locate Jace and Panel 1 Here
- ② Existing Destratification Fan Control Panels to Remain

EQUIPMENT INFORMATION							
EQUIP TAG	MODEL #	FUNCTION	ASSOCIATIONS	SCHEDULE	T-STAT TYPE	POINTS	NOTE
MAU-1	Captive Air CAH-33	Make Up Air and Exhaust for Bus Maint. Area	Interlocked. CO/NO2 Sensor Sets 1-4	SCHEDULE 1	DA-T	DA-T, DAMPER, BURNER, FAN, FILTER, DUCT SMOKE DETECTOR CO/NO2	(3)
EF-1 through EF-4	Twin City WPD 30E4	General Maint. Area Heat	--	--	TR-21 (9)	TR-21, CURRENT SWITCH, FAN, GAS VALVE	(3)
UH-1 through UH-9	STERLING TF-250	Attic Vent/Temp Control	--	--	TR-21	EF STATUS	(4)
EF-5	Carnes LWBK24-p1	Office Heat/Cool/Vent	Interlocked. (3) ZD and (1) BPD	SCHEDULE 2	TR-71 (3)	TR-71, DAMPER, ZDs, BPD, HEAT/COOL, FAN, FILTER	(1)
F-1	Trane TU	Office Heat/Cool/Vent	Interlocked. (3) ZD and (1) BPD	SCHEDULE 2	TR-71 (3)	TR-71, DAMPER, ZDs, PBD, HEAT/COOL, FAN, FILTER	(1)
F-2	Trane TU	Office Heat/Cool/Vent	Interlocked. (3) ZD and (1) BPD	SCHEDULE 2	--	EF STATUS	
EF-8 and EF-9	Broan L-250	Office Bathroom Exhaust	Occupancy Sensors	--	TR-21 (2)	OCC SENSORS (bathroom for after hours - just EFs)	(2)
EW-2 and EWH-3	QMARK CWH-1101-DS	Office Bathroom Heat	--	--	TR-21	TR-21	
EF-7	Broan L250	Transfer Air to IT Room	Interlock with F-1 and F-2	SCHEDULE 2	--	EF STATUS	
EF-6	Broan QTXE80	Janitor Closet Exhaust	--	24/7	--	EF STATUS	
EW-1	QMARK CWH1101-DS	Vestibule Heat	--	--	TR-21	TR-21 (ALARM IF < 40 F)	(2)
IT ROOM TEMP	--	Space High Temp Monitor	Keep Existing T-stats	--	TR-21	TR-21 (ALARM IF > 80 F)	

- (1) Trane Furnace Unit Controllers to integrate with Honeywell WEBS n4 Building Jace via BACnet protocol.
- (2) If not possible to install TR-21 with EWHs then install the TR-21 to monitor space temp only
- (3) Maintain Bus Maint Area at 60 F (adj) - DA-T from MAU and UH space setpoints.
- (4) EF-5 to turn on if TR-21 in attic >85 F (adj)



**SCOPE OF WORK AND SEQUENCE OF OPERATION DETAILS**

**MAU-1 and Associated EFs (1-4)**

1. Replace Remote Control Panel
2. Interlock EF-1 through EF-4
  - 2.1. Add EF Status and Alarm
3. Occupied and Unoccupied Schedule
  - 3.1. Unoccupied: Dampers closed, Burner off, Fan Off
  - 3.2. Occupied: Dampers open, Burner enabled, Fan On
4. Fan on/off status
5. Filter status
  - 5.1. SP=0.8" (adj)
6. Modulating burner status - heat on/off and % command
  - 6.1. Lockout burner if > 50 F (adj)
7. OA Damper status - open/closed and alarm
8. Duct smoke detector to shutdown unit and alarm
9. Replace CO/NO2 Sensors and DA-T sensor
  - 9.1. DA-T Setpoint: 60 F (adj)
  - 9.2. DA-T used for software freeze stat
    - 9.2.1. SP = 35 F (adj)
    - 9.2.2. Delay = 600 s (adj)
    - 9.2.3. Software reset (adj)
    - 9.2.4. Alarm
- 9.3. CO/NO2 Setpoints
  - 9.3.1. CO SP = 35 ppm (adj)
  - 9.3.2. NO2 SP = 1 ppm (adj)
  - 9.3.3. MAU to operate occupied if threshold exceeded.
  - 9.3.4. Allow MAU to sequence occupied if threshold is exceeded.
  - 9.3.5. MAU to operate for 30 min after setpoint threshold clears.
  - 9.3.6. MAU to send alarm during CO/NO2 activation.

**Unit Heaters (UH-1 through UH-9)**

1. Replace Existing thermostats with TR-21
2. Maintain a space temperature SP = 60 F (adj)
3. Add current switch for BAS monitoring and alarm
4. Alarm if space temp falls below 40 F (adj)

**Other Exhaust Fans (EF-5 through EF-9)**

1. EF-5 (attic ventilation and temp control)
  - 1.1. Replace temp sensor in attic with TR-21
  - 1.2. Cycle fan if temp sensor > 85 F (adj)
  - 1.3. Add Fan status and alarm
  - 1.4. Alarm if attic temp exceeds 90 F (adj)
2. EF-6 (janitors closet)
  - 2.1. Fan runs 24/7
  - 2.2. Add Fan status and alarm
3. EF-7 (transfer fan)
  - 3.1. Fan interlocked with F-1 and F-2 Schedule
  - 3.2. Add Fan status and alarm
4. EF-8 and EF-9 (bathroom exhaust)
  - 4.1. Fans interlocked with F-1 and F-2 Schedule
  - 4.2. Add occupancy sensor in each bathroom
    - 4.2.1. Occupancy sensor to turn on fan after hours
  - 4.3. Add Fan status and alarm

**Office Space Furnaces (F-1 and F-2)**

1. Occupied/Unoccupied Schedule
2. 2 hr override for after hours occupancy
3. Interlock Bathroom Fans
4. Replace Existing thermostats with Honeywell TR-71
5. Bacnet Integrate Zone Dampers and Bypass Dampers
  - 5.1. 3 Zone Dampers and 1 By Pass Damper per Furnace
6. Add
  - 6.1. DA-T
  - 6.2. DA-T reset
  - 6.3. Fan on/off and alarm
  - 6.4. cooling and heating status and alarm
  - 6.5. filter status and alarm
    - 6.5.1. SP = 0.8"

**Other**

1. IT Room
  - 1.1. Add TR-21 for space temp monitoring
  - 1.2. Alarm if space temp > 80 F (adj)
2. Electric Wall Heaters
  - 2.1. Add TR-21 for space temp control and monitoring
  - 2.2. Alarm if space temp < 40 F (adj)

1 BUILDING 3829 EQUIPMENT LAYOUT  
M101 SCALE: 1" = 16'

