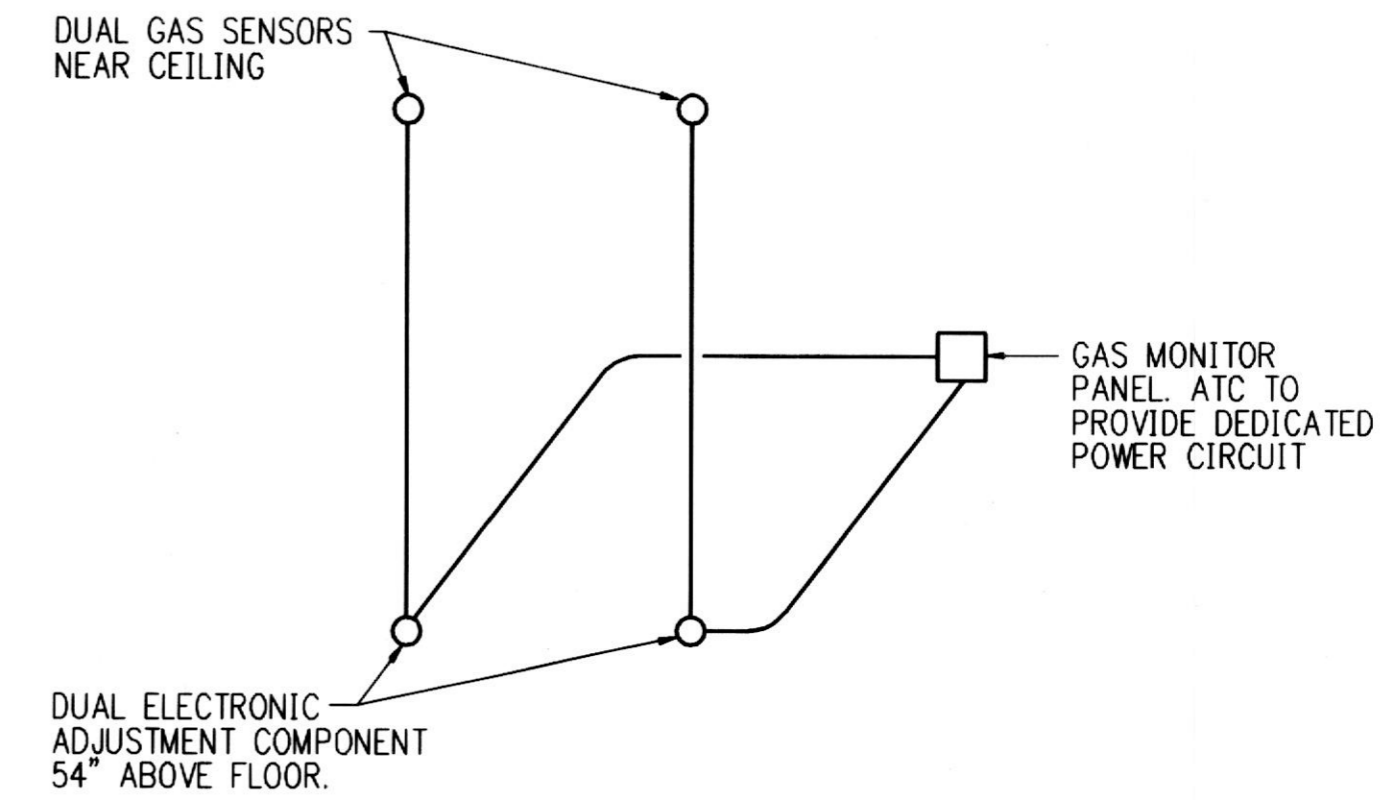


ATC SYMBOLS AND ABBREVIATIONS

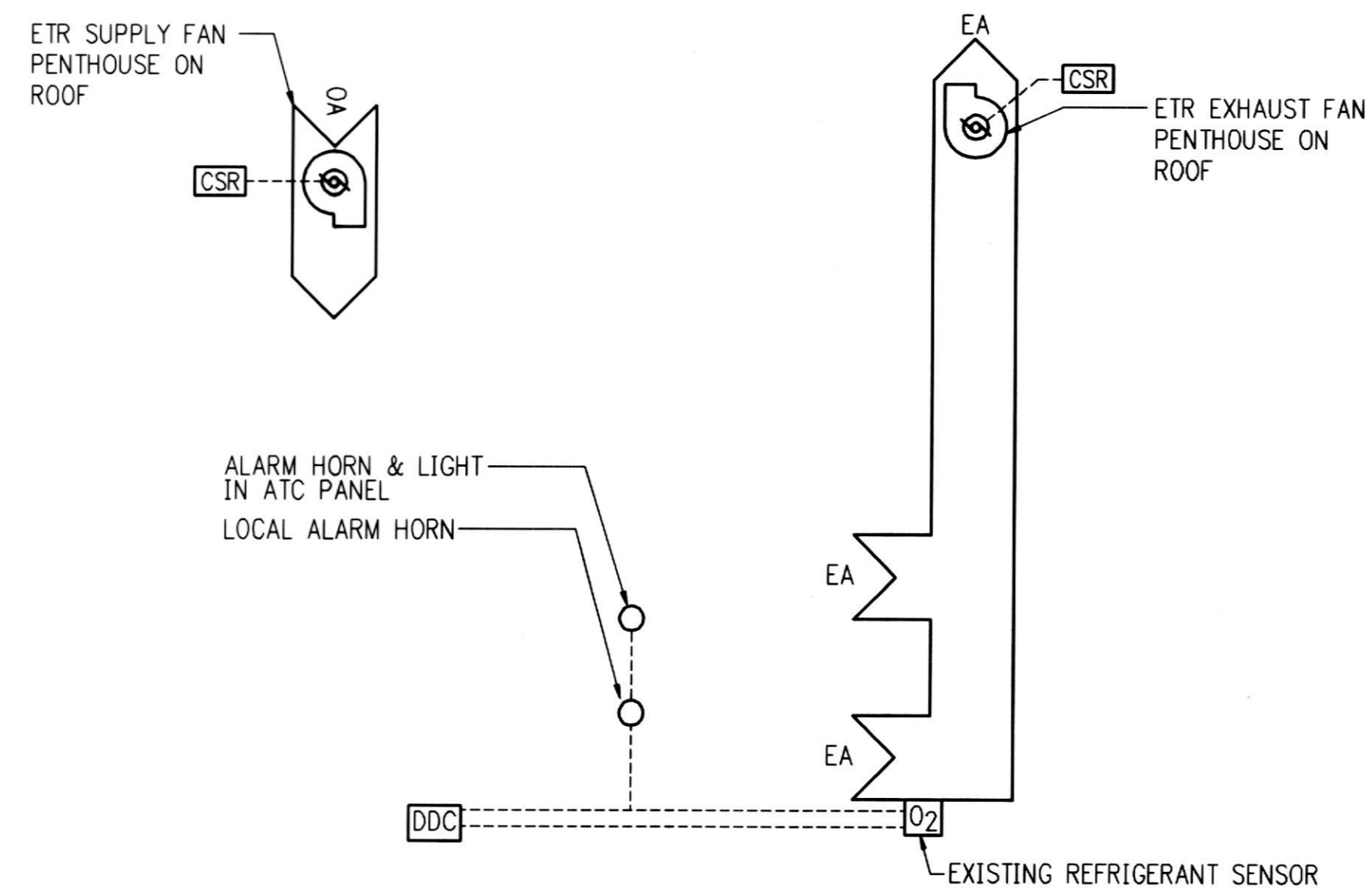
	ROOM TEMPERATURE SENSOR		IMMERSION TEMPERATURE SENSOR
	FAN		OUTDOOR AIR INSERTION TEMPERATURE SENSOR WITH SUN SHIELD
	PUMP		SURFACE MOUNTED TEMPERATURE SENSOR
	PATH OF AIRFLOW		DIFFERENTIAL PRESSURE SWITCH
	DAMPER AND DAMPER OPERATOR; (OA) OUTSIDE AIR, (RA) RETURN AIR, (EA) EXHAUST AIR, (PR) PRESSURE RELIEF		MOTOR
	AIR INSERTION TEMPERATURE SENSOR		H/C: HEATING COIL, C/C: COOLING COIL
	FREEZESTAT		EMERGENCY FAN DISCONNECT SWITCH
	3-WAY CONTROL VALVE		CURRENT SENSING RELAY
	2-WAY CONTROL VALVE	EA	EXHAUST AIR
	PRESSURE SENSOR	EF	EXHAUST FAN
		NC	NORMALLY CLOSED
		NO	NORMALLY OPEN
		OA	OUTDOOR AIR
		PR	PRESSURE RELIEF
		RA	RETURN AIR
		SA	SUPPLY AIR
		SF	SUPPLY FAN



COMBUSTIBLE GAS DETECTOR SYSTEM

A. OPERATION

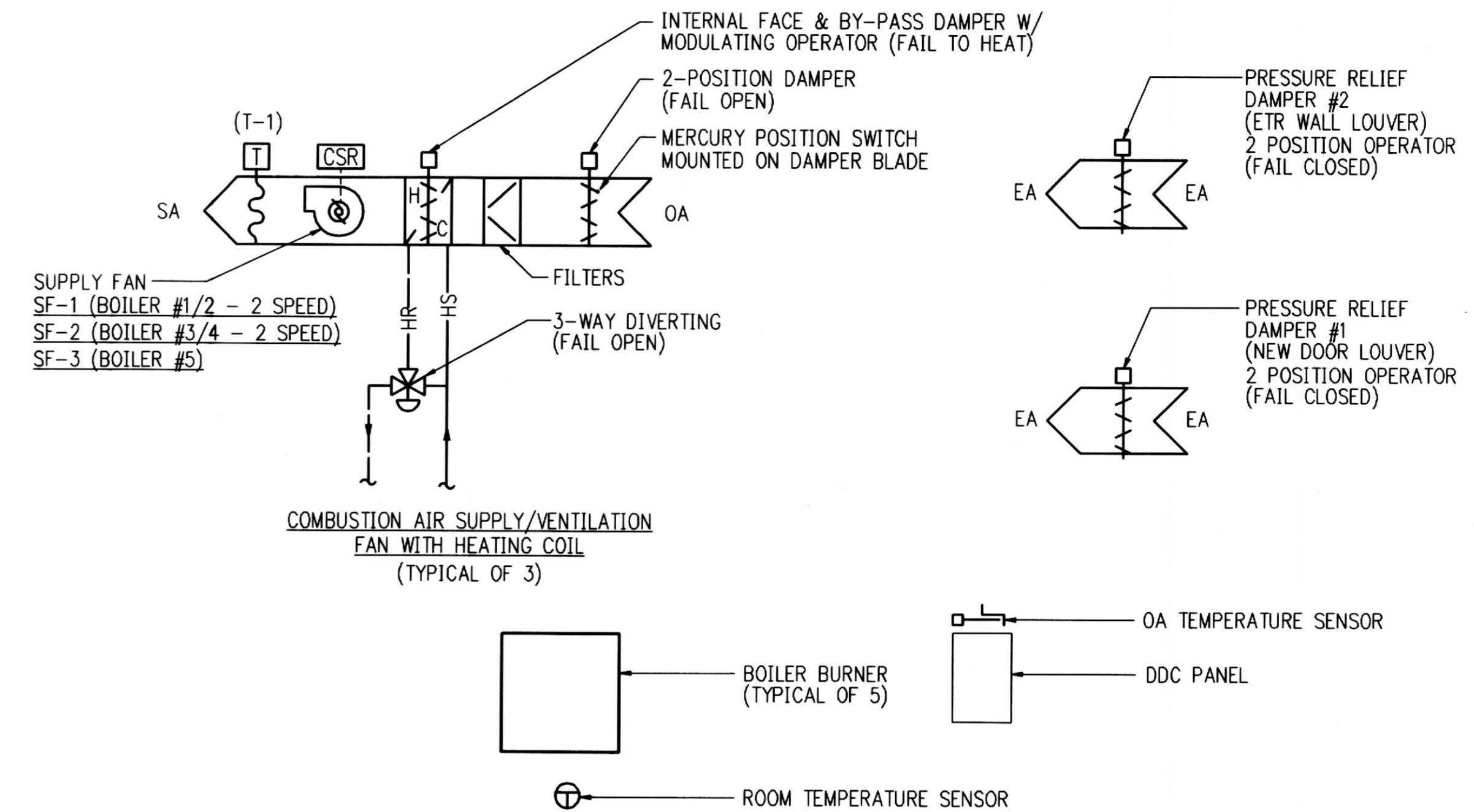
- IF NATURAL GAS IS DETECTED BY SENSORS IN MECHANICAL ROOM, THE GAS MONITOR PANEL SHALL SEND AN ALARM SIGNAL TO THE DDC SYSTEM AND SOUND A LOCAL ALARM IN THE MECHANICAL ROOM AND IN THE HALLWAY OUTSIDE OF THE MECHANICAL ROOM.



EXISTING VENTILATION SYSTEM - CHILLER ROOM

NOTE: PROVIDE ALL WIRING REQUIRED TO MAKE EXISTING MONITOR ALARMS AND SENSORS FUNCTION.

- PROVIDE CONTROL INTERFACE WITH EXISTING REFRIGERANT MONITOR, EXHAUST FAN AND SUPPLY FAN THROUGH DDC PANEL.
- PROVIDE CURRENT SENSING RELAYS ON SUPPLY AND EXHAUST FANS.
- EMERGENCY VENTILATION MODE:
 - THE EXISTING REFRIGERANT MONITOR SHALL REMAIN. CONNECT EXISTING REMOTE SENSING ELEMENTS FOR REFRIGERANT CONCENTRATIONS AND ALARMS.
 - WHEN THE INITIAL SETPOINT IS EXCEEDED AS SENSED BY THE REFRIGERANT MONITOR, ALARM LOCALLY AT THE DDC PANEL TO ALERT SERVICE PERSONNEL. THE DDC PANEL AND THE CHILLER CONTROL PANEL SHALL INDICATE ALARM THROUGH THE DDC PRINTER: "REFRIGERANT LEVEL EXCEEDED-CHILLER ROOM".
 - WHEN SECOND SETPOINT IS REACHED, INDICATING LIGHT AND HORN MOUNTED ON REFRIGERANT MONITOR PANEL SHALL BE ENERGIZED.
 - WHEN FINAL SETPOINT IS EXCEEDED, EXHAUST AND SUPPLY FAN SHALL BE ENERGIZED, AND CHILLER PLANT SHALL BE DEENERGIZED. OPERATION SHALL BE HARD WIRED AND SHALL NOT REQUIRE OPERATION OF THE DDC SYSTEM IN ORDER TO FUNCTION.



A. SPACE COOLING TEMPERATURE CONTROL:

- ROOM TEMPERATURE SENSOR SETPOINT: 80 DEGREES F.
- ON A RISE IN ROOM TEMPERATURE ABOVE THE ROOM TEMPERATURE SENSOR SETPOINT, PRESSURE RELIEF AIR DAMPERS SHALL OPEN.
- ON A CONTINUED RISE IN ROOM TEMPERATURE, OA DAMPERS FOR SUPPLY FANS SHALL BE OPENED AND SUPPLY FANS SHALL BE ENERGIZED / DEENERGIZED IN SEQUENCE TO MAINTAIN ROOM TEMPERATURE SENSOR SETPOINT. HEATING COIL CONTROL VALVE SHALL BE CLOSED.
- ON A FALL IN ROOM TEMPERATURE, THE REVERSE SHALL OCCUR.

B. COMBUSTION AIR CONTROL:

- PROVIDE HARDWIRED CONTROL INTERLOCK WITH EACH BOILER BURNER'S CONTROLS AND THE FOLLOWING ASSOCIATED COMBUSTION AIR COMPONENTS:
 - MERCURY POSITION SWITCH MOUNTED ON ONE BLADE OF THE BOILER'S DESIGNATED COMBUSTION AIR OA DAMPER.
 - CURRENT SENSING RELAY ON THE BOILER'S DESIGNATED COMBUSTION AIR SUPPLY FAN MOTOR.
- COMBUSTION AIR CONTROLS SHALL OVERRIDE APPLICABLE PORTIONS OF SPACE COOLING TEMPERATURE CONTROLS.

3. ON A REQUIREMENT FOR BURNER OPERATION, ASSOCIATED COMBUSTION AIR SUPPLY/VENTILATION UNIT SHALL BE ACTIVATED.

- IF OA TEMPERATURE IS BELOW 60 DEGREES F., CIRCULATING PUMP SHALL ENERGIZE AND HEATING COIL CONTROL VALVE SHALL OPEN, OA DAMPER SHALL OPEN AND SF MOTOR SHALL BE ENERGIZED AND RUN CONTINUOUSLY TO THE SPEED REQUIRED BASED ON THE NUMBER OF BOILERS THAT ARE OPERATING.
- HEATING COIL INTERNAL FACE AND BYPASS DAMPERS SHALL MODULATE TO MAINTAIN DISCHARGE TEMPERATURE SENSOR T-1 SETPOINT (60 DEGREES F).
- IF OA TEMPERATURE IS ABOVE 60 DEGREES F., HEATING COIL CONTROL VALVE SHALL BE CLOSED, OA DAMPER SHALL OPEN AND SF MOTOR SHALL BE ENERGIZED AND RUN CONTINUOUSLY AS DESCRIBED.
- WHEN COMBUSTION AIR IS PROVEN, AS SENSED BY THE DAMPER BLADE SWITCH AND THE SUPPLY FAN'S CURRENT SENSING RELAY, THE BURNER SHALL BE ENERGIZED THROUGH ITS PACKAGED CONTROLS.
- WHEN ANY COMBUSTION AIR FAN IS ENERGIZED, PRESSURE RELIEF DAMPER # 1, #2 & #3 SHALL OPEN. WHEN ALL COMBUSTION AIR FANS ARE DEENERGIZED, PRESSURE RELIEF DAMPER SHALL REVERT TO SPACE COOLING TEMPERATURE CONTROL.
- WHEN ALL BURNERS ARE DEENERGIZED, ASSOCIATED COMBUSTION AIR SUPPLY/VENTILATION UNIT SHALL REVERT TO SPACE COOLING TEMPERATURE CONTROL.

BOILER ROOM TEMPERATURE AND COMBUSTION AIR CONTROL

BOILER REPLACEMENT FOR
NOTRE DAME PREPARATORY SCHOOL
 815 HAMPTON LANE
 TOWSON, BALTIMORE COUNTY, MARYLAND 21286



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Comm. No. 5806-09

Sym.	REVISIONS	Date

Drawn	TGS
Designed	TGS
Checked	SJH
Approved	

Scale NONE

Comm No 5806-09

Date 4/7/2010

Drawing Title
ATC SEQUENCES

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