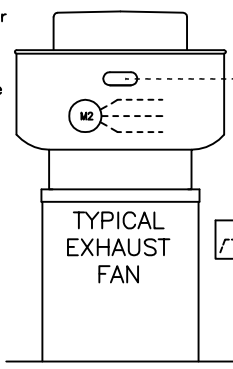
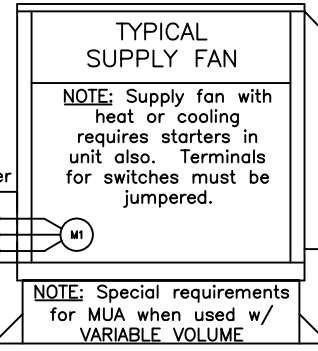
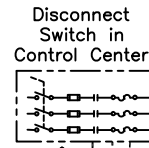


GFC VARIABLE VOLUME ARRANGEMENT

This arrangement requires individual power connections for each fan from remote circuit breakers, thru the fan's VFD. It requires control circuits to be wired from the MUA to the I/O processor.



Disconnect Switch in Control Center (w/ Starters)



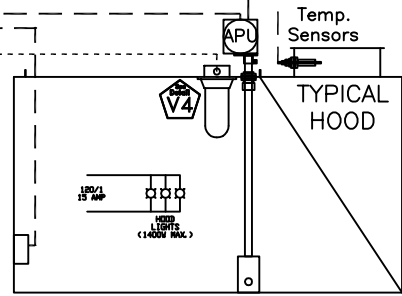
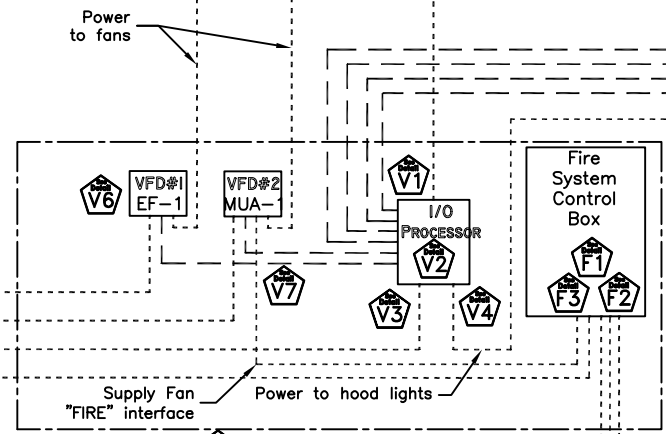
Power for MUA controls must be 120V/1 and not from a variable volume motor VFD.

NOTE: All wiring to be done by certified and qualified persons and must be wired to all local & national codes.

24VDC MUA controls

To Remote Circuit Breakers

- 120V/1Ph, 15Amp for Supply Fan Controls
- ___V/___Ph, ___Amp for Exhaust Fan
- ___V/___Ph, ___Amp for Supply Fan
- 120V/1Ph, 20Amp for Controls
- 120V/1Ph, 15Amp for Fire System



Keypad Locations: Optic Sensors
 A. Hood
 B. Utility Cabinet
 C. Wall
 D. UDS

These components may be mounted in a hood mounted end cabinet or on a wall near the hood

- To Appliance Shunt Trip Breaker
- To Mechanical or Electrical Gas Valve
- To Building Alarm
-

NOTE:
 GFC recommends mechanical gas valves

LEGEND

- Factory Installed
- - - Field Installed Wiring
- - - Field Installed VV Cables

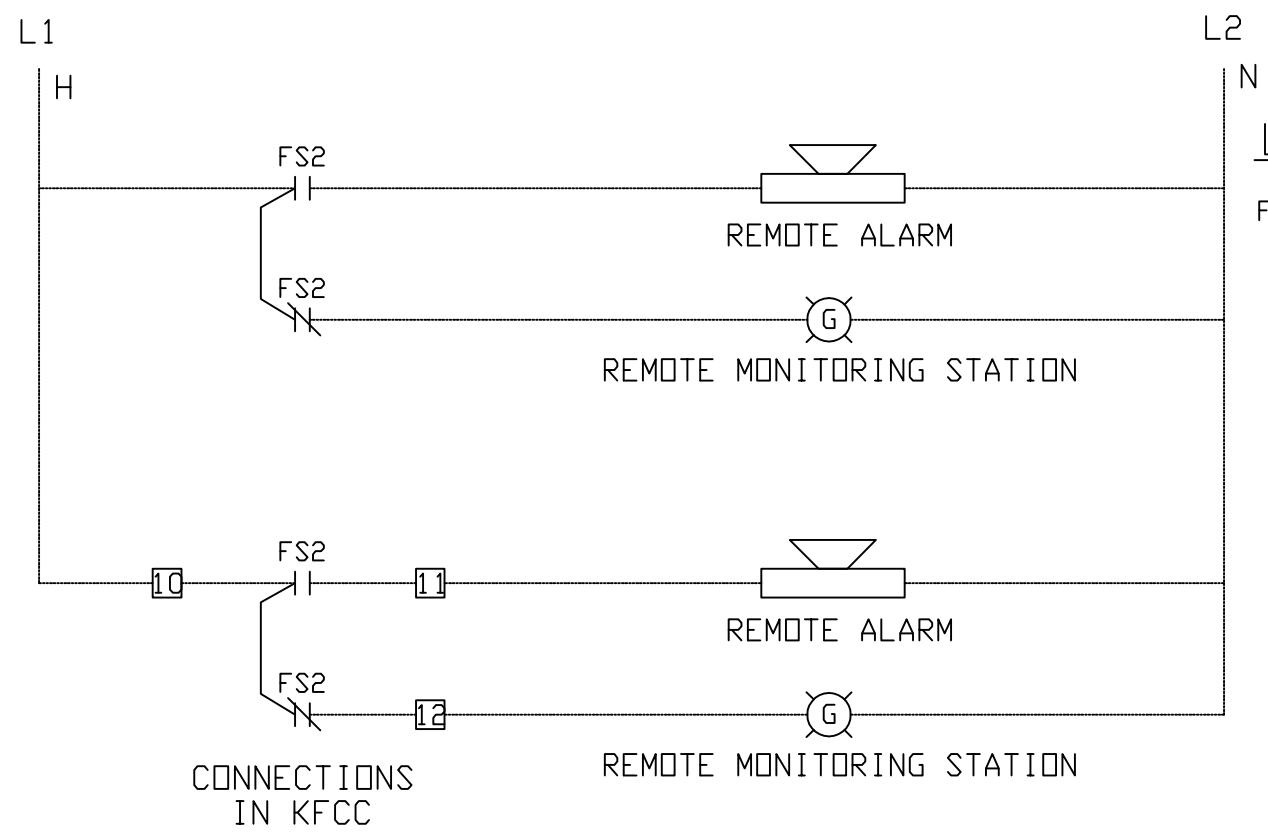
VFD = Variable Frequency Drive (electronic motor starter)

DRAWING NOT TO SCALE

	Power
	2/10/03
TYPICAL FIELD WIRING HOOD, EXHAUST FAN, SUPPLY FAN & VARIABLE VOLUME	
1/12	FW-VV

TYPICAL ALARM WIRING DIAGRAM

FROM REMOTE
POWER SOURCE
W/ BATTERY
BACK-UP



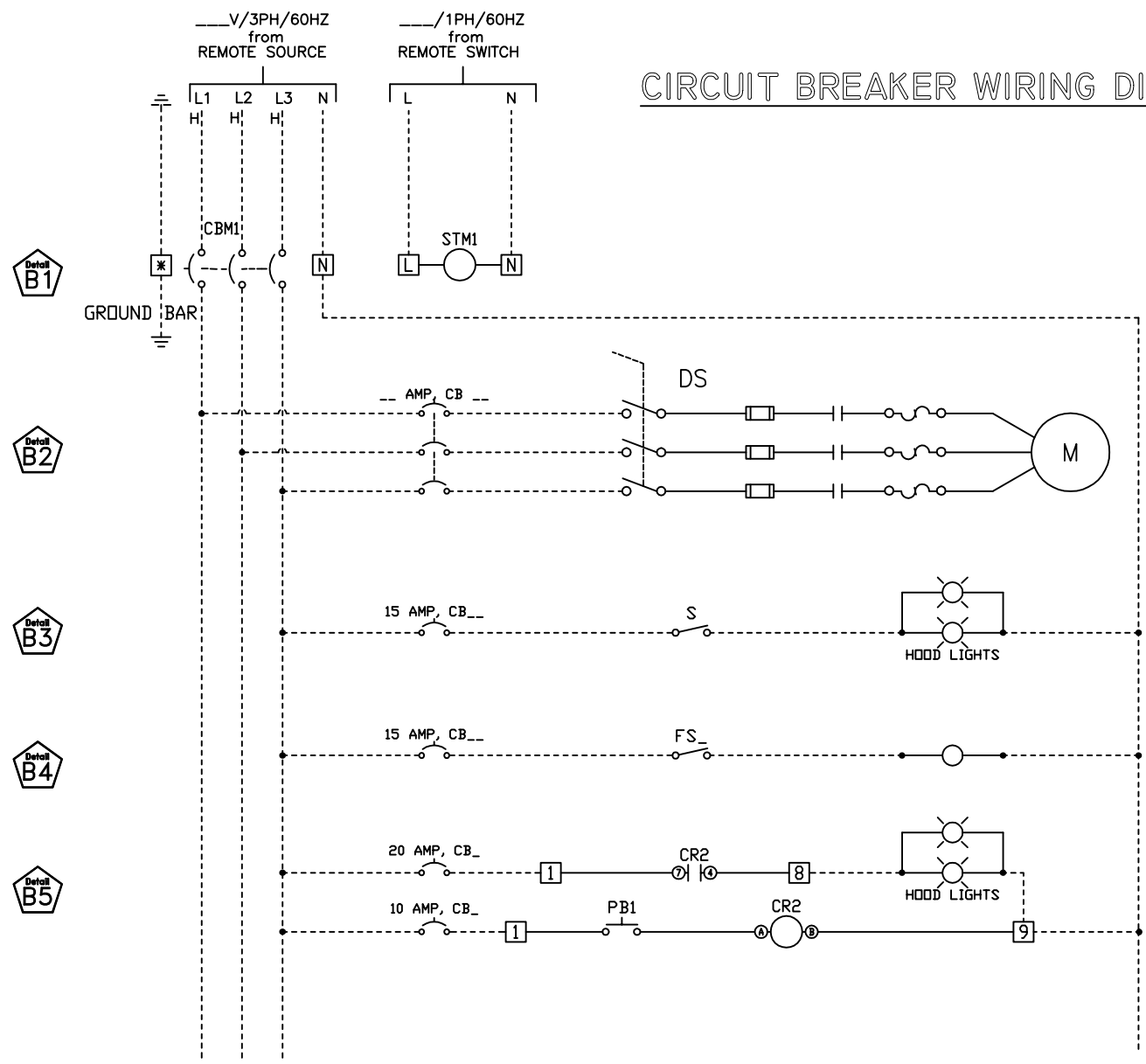
LEGEND

FS2 - FIRE SYSTEM MICRO-SWITCH
(NON-FIRE MODE SHOWN)

LEGEND
 ——— Factory Installed
 - - - - - Field Installed Wiring
DRAWING NOT TO SCALE

	Date: 3/25/03 Rev: 1/1
	Detail A - TYPICAL CONNECTIONS FOR REMOTE ALARMS
DETAIL A	

CIRCUIT BREAKER WIRING DIAGRAMS



Detail B1

Detail B2

Detail B3

Detail B4

Detail B5

TYPICAL MAIN BREAKER W/ SHUNT

TYPICAL FAN BREAKER

TYPICAL LIGHT BREAKER

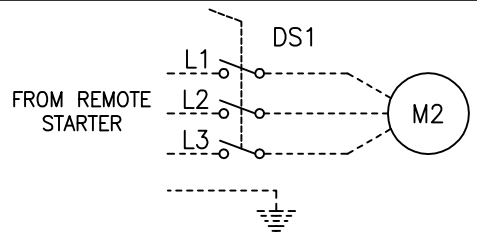
TYPICAL FIRE SYSTEM BREAKER

TYPICAL LIGHT BREAKER FOR WATER WASH OR PUSHBUTTON CONTROLS

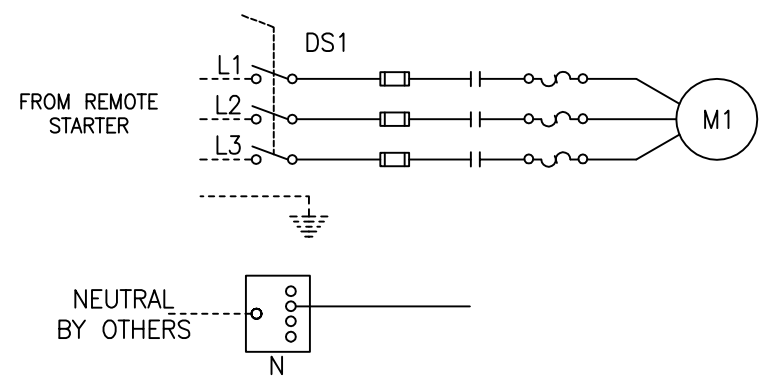
LEGEND
 ——— Factory Installed
 - - - - - Field Installed Wiring
 DRAWING NOT TO SCALE

	Power	
	3/24/03	
Detail B - TYPICAL CONNECTIONS FOR CIRCUIT BREAKERS		1/12 DETAIL B

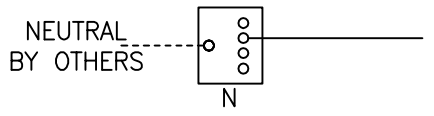
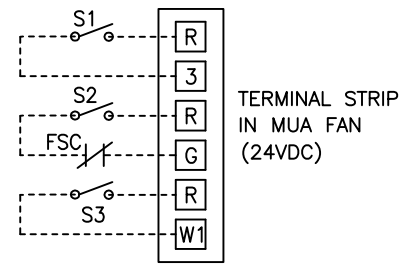
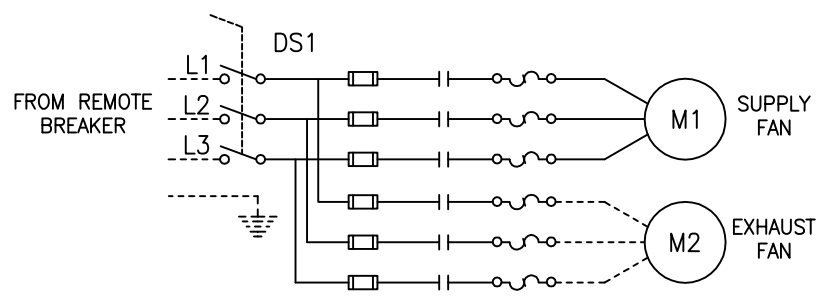
Detail D1 EXHAUST FAN DISCONNECT



Detail D2 SUPPLY FAN DISCONNECT



Detail D3 GFC MUA FAN DISCONNECT & TERMINALS

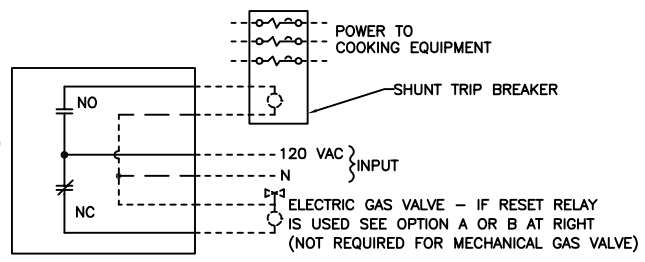


LEGEND
 ——— Factory Installed
 - - - - - Field Installed Wiring
DRAWING NOT TO SCALE

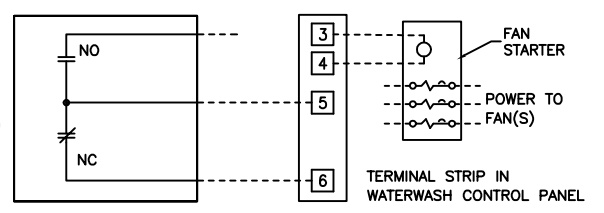
	Power	
	3/06/03	
Detail D - TYPICAL CONNECTIONS FOR FAN DISCONNECTS		1/2 Detail D

FIRE SYSTEM DPDT SWITCHES

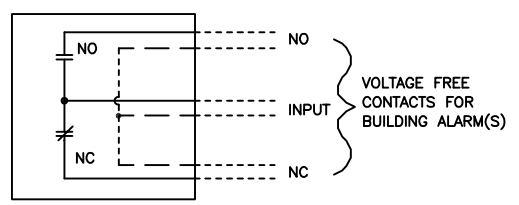
Detail F1
COOKING EQUIPMENT SHUT DOWN



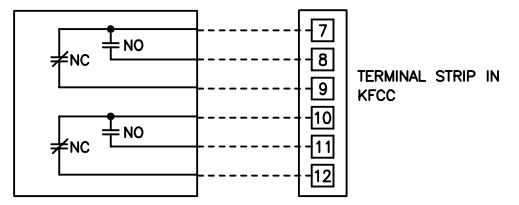
Detail F5
WATER WASH CONTROL PANEL



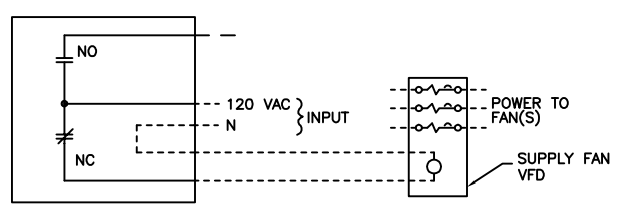
Detail F2
BUILDING ALARM



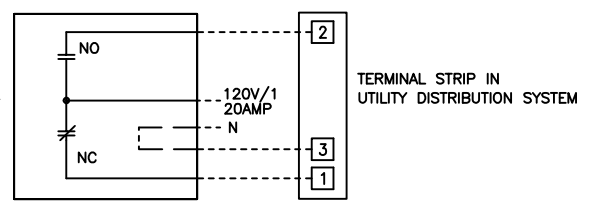
Detail F6
KFCC



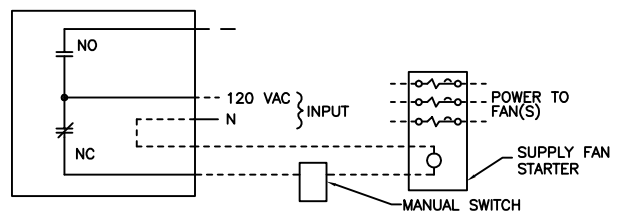
Detail F3
FAN SHUT DOWN



Detail F7
UTILITY DISTRIBUTION SYSTEM



Detail F4
FAN SHUT DOWN

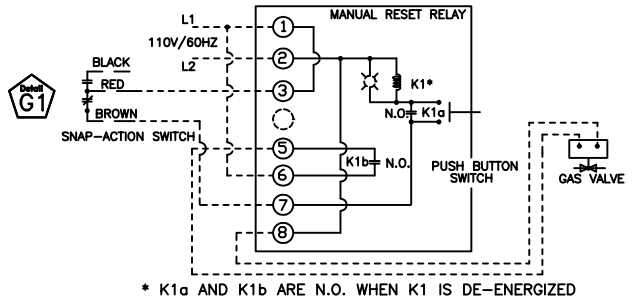


LEGEND
 ——— Factory Installed
 - - - - - Field Installed Wiring
DRAWING NOT TO SCALE

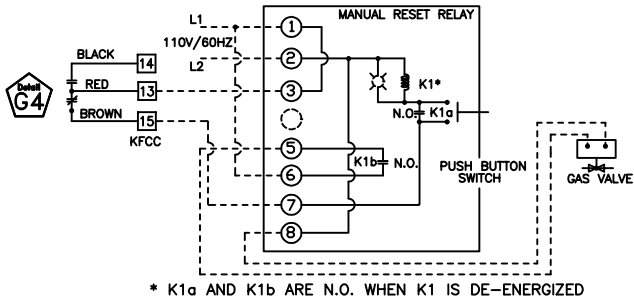
GREENHECK <small>GREENHECK INDUSTRIES, INC.</small>	Power	
	3/06/03	
Detail F - TYPICAL CONNECTIONS FOR ANSUL FIRE SYSTEM	1/12	Detail F

ELECTRIC GAS VALVES RESET RELAYS

ANSUL OPTION A

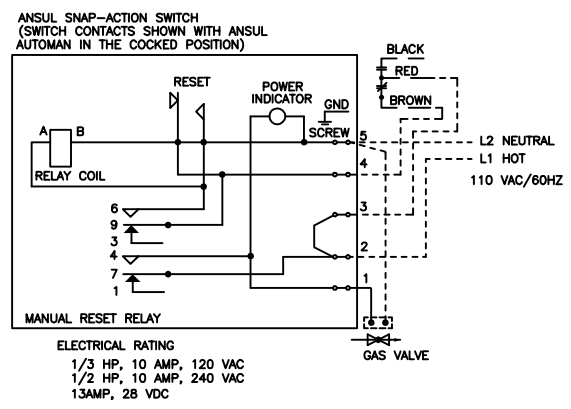


KFCC OPTION A

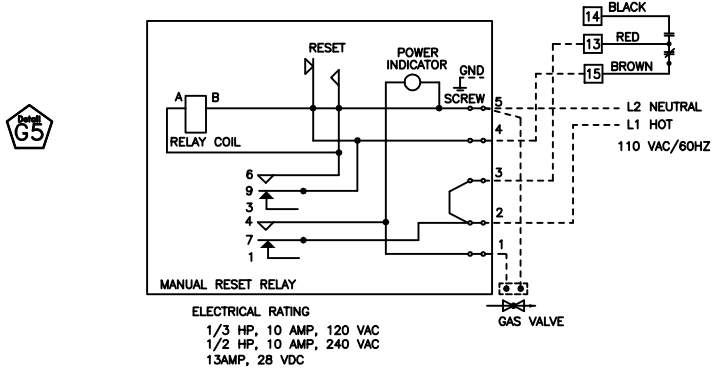


NOTE:
GFC recommends
mechanical gas valves,
not the electrical valves
shown on this page

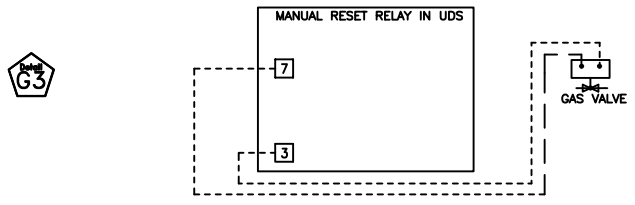
ANSUL OPTION B



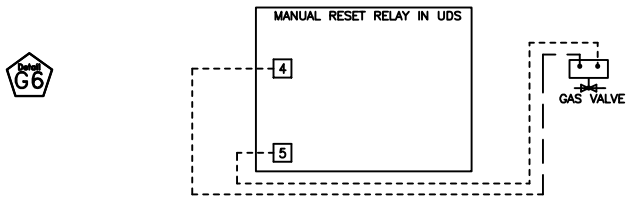
KFCC OPTION B



UTILITY DISTRIBUTION SYSTEM



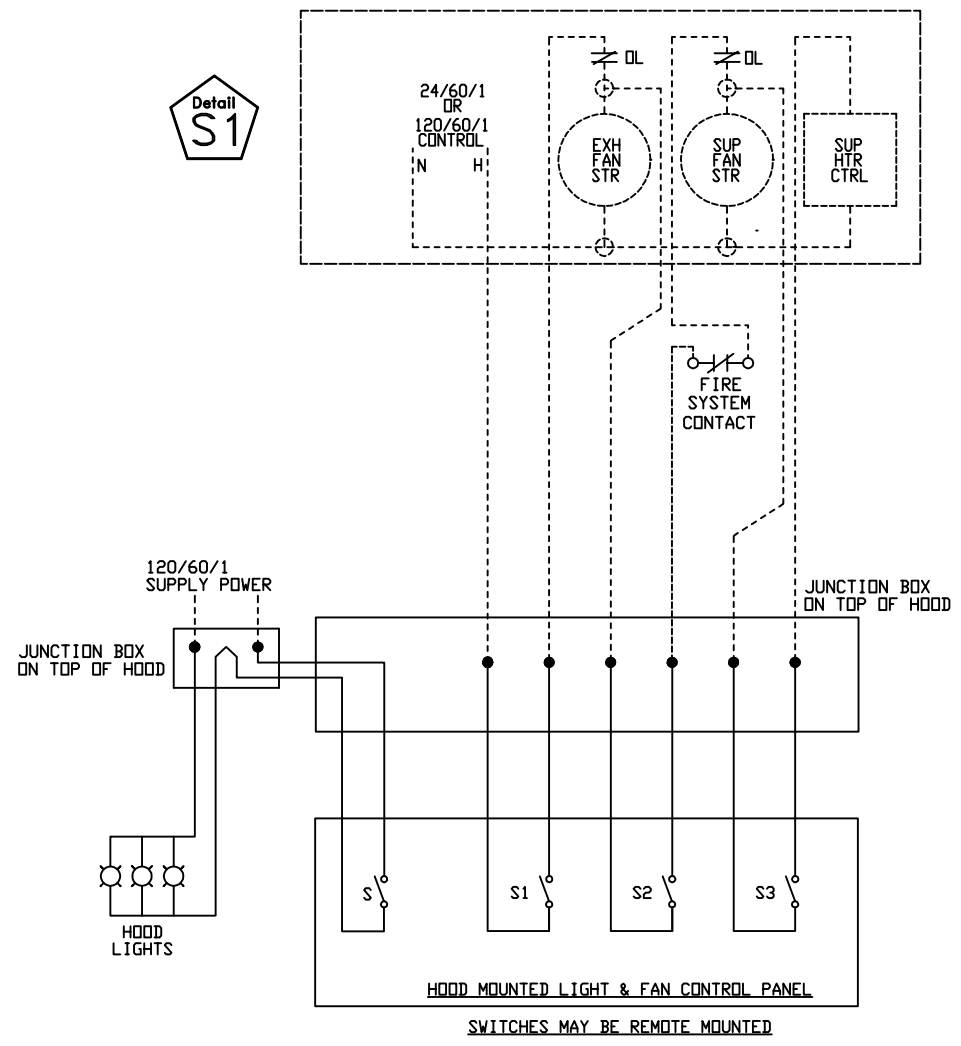
WATER SPRAY CONTROL PANEL



LEGEND
 ——— Factory Installed
 - - - - - Field Installed Wiring
DRAWING NOT TO SCALE

	Power	
	3/07/03	
Detail F - TYPICAL CONNECTIONS FOR Gas Solenoid Valves		1/12 DETAIL G

HOOD OR REMOTE MOUNTED SWITCHES

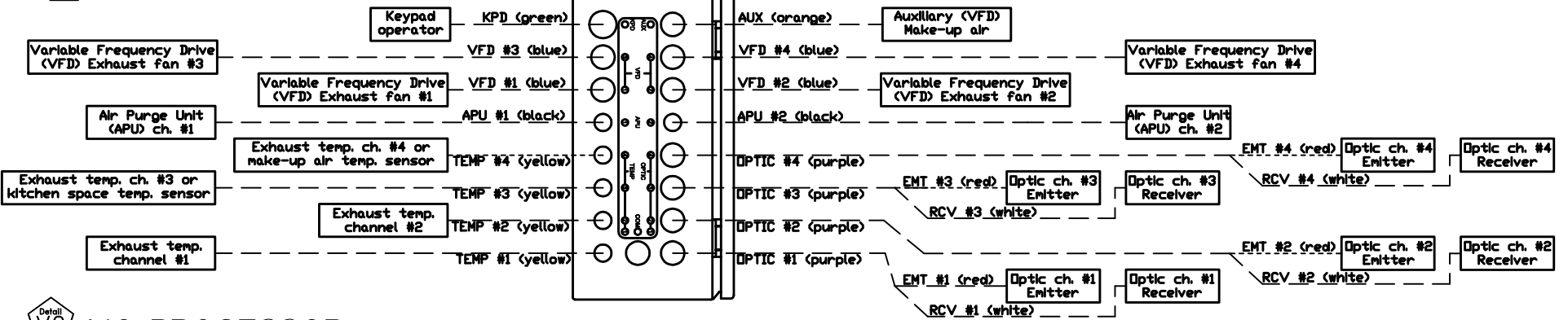


LEGEND
 ——— Factory Installed
 - - - - - Field Installed Wiring
DRAWING NOT TO SCALE

	Power	
	3/26/03	
Detail S - TYPICAL CONNECTIONS FOR HOOD MTD. SWITCHES		1/4 DETAIL S

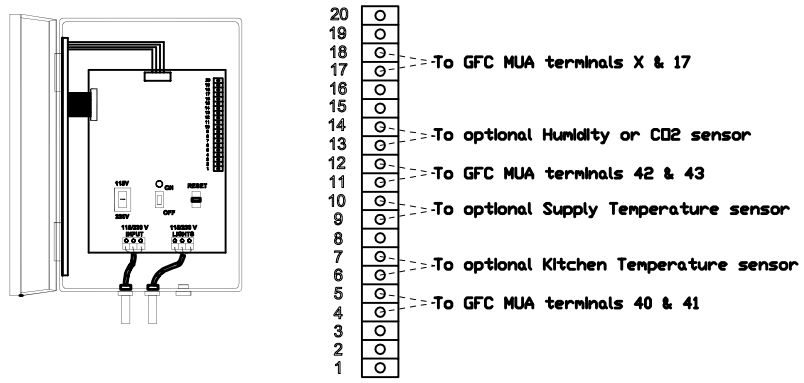
Detail V1

I/O PROCESSOR - SIDE

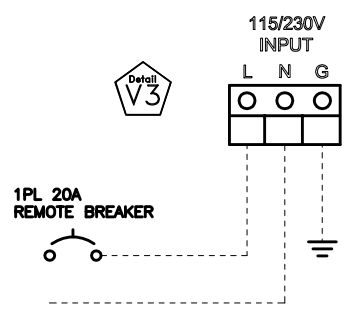


Detail V2

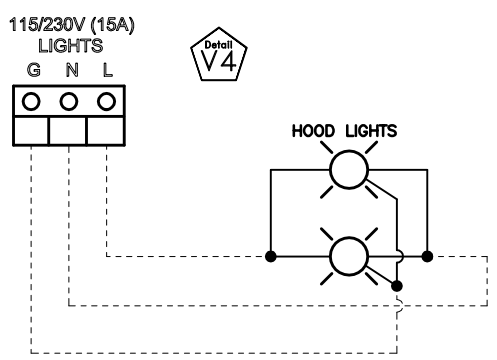
I/O PROCESSOR



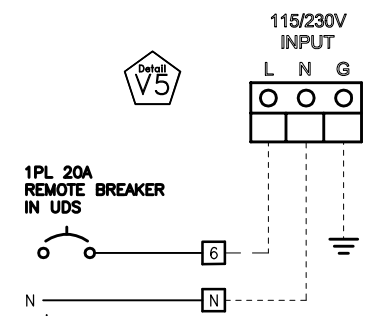
Detail V3



Detail V4



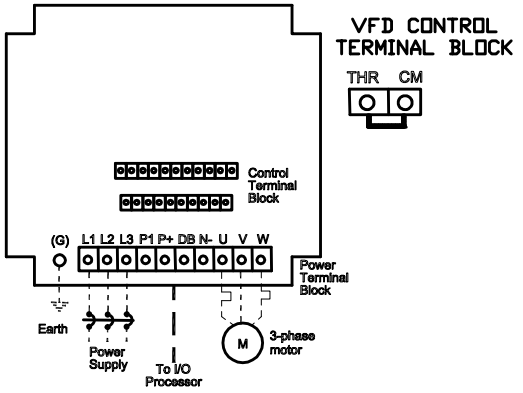
Detail V5



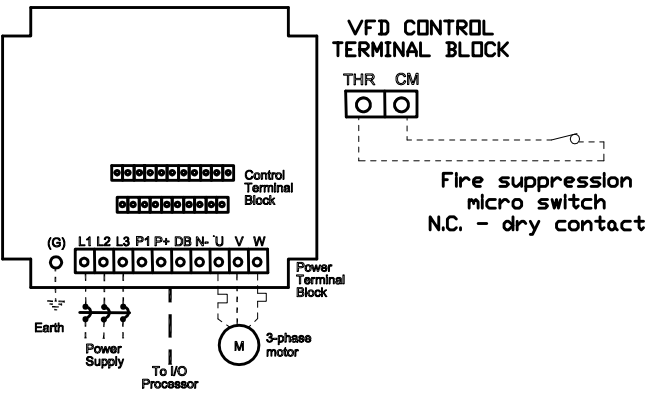
LEGEND
 - - - - - Factory Installed
 - - - - - Field Installed Wiring
 - - - - - Field Installed VV Cables
 VFD = Variable Frequency Drive (electronic motor starter)
 DRAWING NOT TO SCALE

	Date: 3/4/03
	1/02
DETAIL V - TYPICAL CONNECTIONS FOR VARIABLE VOLUME	
Detail V	

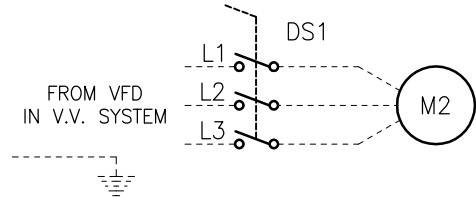
Detail V6 EXHAUST VFD



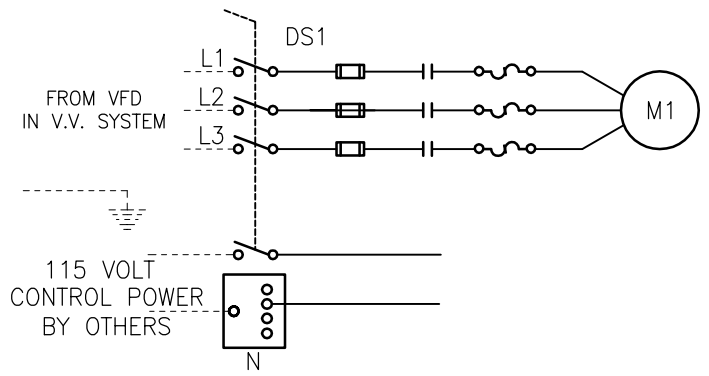
Detail V7 SUPPLY VFD



Detail V8 EXHAUST FAN DISCONNECT

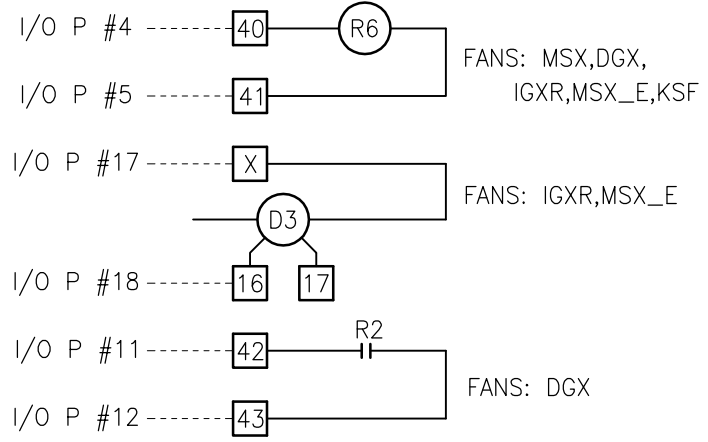


Detail V9 SUPPLY FAN DISCONNECT



Detail V0 SUPPLY FAN TERMINAL BLOCK

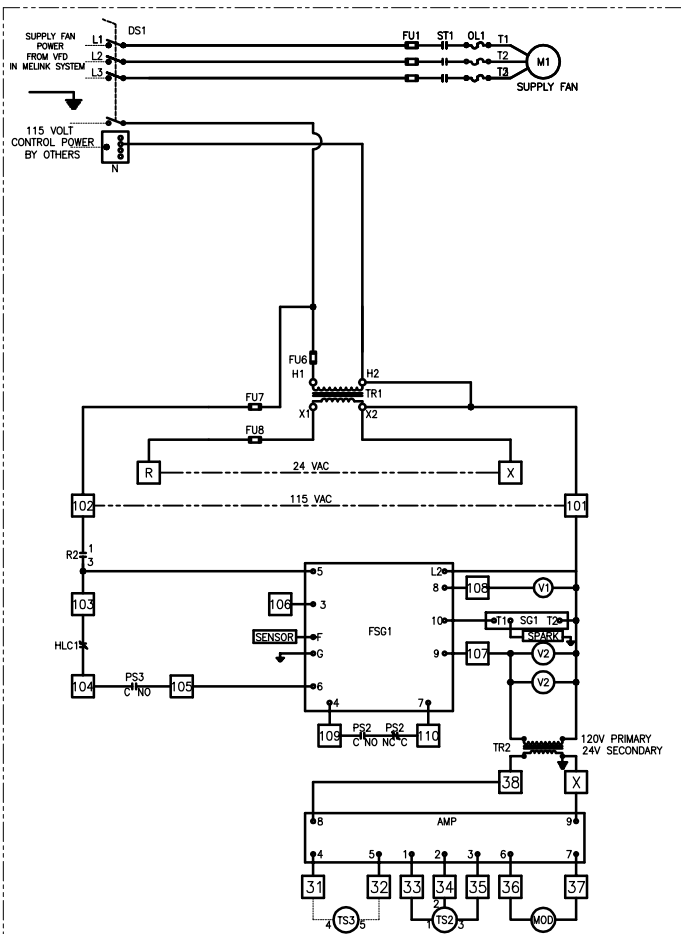
TO VARIABLE VOLUME I/O PROCESSOR TERMINAL



LEGEND
 - - - - - Factory Installed
 - - - - - Field Installed Wiring
 - - - - - Field Installed VV Cables
 VFD = Variable Frequency Drive (electronic motor starter)
 DRAWING NOT TO SCALE

	Date: 3/25/03 Rev: 1/12
	DETAIL VA - TYPICAL CONNECTIONS FOR VARIABLE VOLUME DETAIL VA

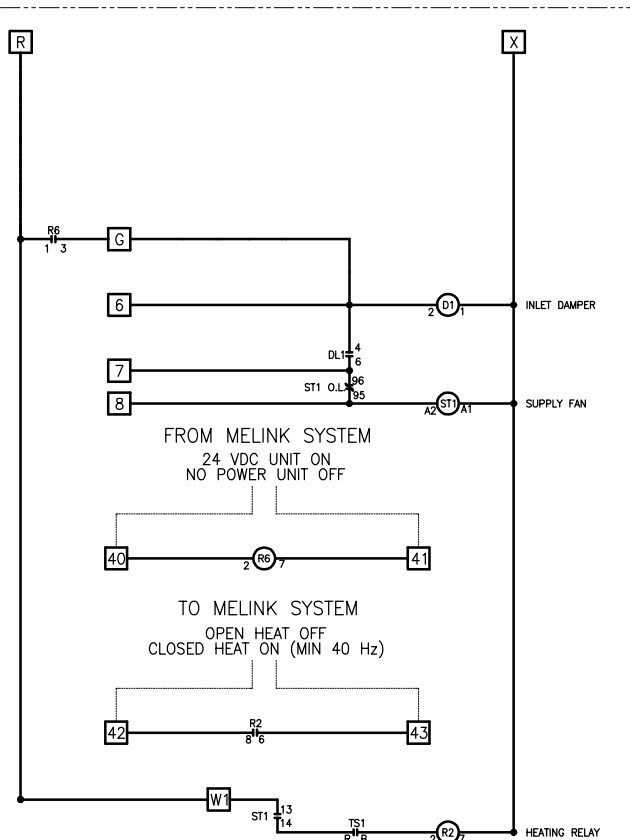
TYPICAL MUA-VARIABLE VOLUME WIRING DIAGRAM



BLOWER WILL TURN ON WHEN 24VDC SIGNAL IS RECEIVED FROM MELINK SYSTEM (TERMINALS 40 & 41)

HEAT WILL BE TURNED ON (R2) WHEN THE INCOMING AIR TEMPERATURE IS BELOW THE SET POINT (TS1).

A N.O. CONTACT (TERMINALS 42 & 43) WILL CLOSE TO SIGNAL THE MELINK SYSTEM THAT THERE IS A CALL FOR HEAT. THE SYSTEM WILL NOT DROP BELOW 40Hz WHEN THERE IS A CALL FOR HEAT.



NOTES:

1. WIRING TO SENSOR OR SELECTOR TO BE IN SEPARATE CONDUIT OR TO BE USED WITH SHIELDED CABLE.
2. 0 TO 99 TERMINAL BLOCK 24 VOLT LETTERED TERMINAL BLOCK 24 VOLT 100-199 TERMINAL BLOCK HIGH VOLTAGE
3. USE COPPER CONDUCTORS ONLY, 60" MINIMUM FOR FIELD CONNECTIONS.
4. TORQUE FIELD WIRING TERMINALS AND SUPPLY GROUND LUG TO 20 IN. LBS.

CAUTION

UNIT SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. POWER MUST BE OFF WHILE SERVICING.

ELECTRICAL COMPONENTS

- * D1 INLET DAMPER
- * D2 OUTLET DAMPER
- * D3 RETURN AIR DAMPER
- * DL1 DAMPER LIMIT SWITCH
- * DS1 DISCONNECT SWITCH
- * FU1 SUPPLY MOTOR FUSE(S)
- * FU2 EXHAUST MOTOR FUSE(S)
- * FU3 EXHAUST MOTOR FUSE(S)
- * FU4 EXHAUST MOTOR FUSE(S)
- * FU5 EXHAUST MOTOR FUSE(S)
- * FU6 PRIMARY FUSE(S)
- * FU7 SECONDARY FUSE(S)
- * FU8 SECONDARY FUSE(S)
- * FSC FIRE CONTACT (BY OTHERS)
- * FZ1 FREEZE PROTECTION
- * M1 SUPPLY MOTOR
- * M2 EXHAUST MOTOR
- * M3 EXHAUST MOTOR
- * M4 EXHAUST MOTOR
- * M5 EXHAUST MOTOR
- * P1 AIR PROVING HEAT SWITCH
- * PS3 DIRTY FILTER SWITCH
- * PS5
- R1 COOL RELAY
- R2 HEAT RELAY
- R3 RELAY FOR TIME DELAY
- R4 FAN RELAY
- R5 VFD RELAY
- R6 FIELD POWERED ON/OFF RELAY
- S1 EXHAUST FAN SWITCH
- S2 SUPPLY FAN SWITCH
- S3 HEAT STAGE 1 SWITCH
- S4 COOL SWITCH
- S5 RECIRCULATION SWITCH
- ST1 SUPPLY STARTER
- ST1(AUX) AUXILIARY CONTACT
- ST1A SUPPLY STARTER HIGH SPEED
- ST1B SUPPLY STARTER LOW SPEED
- ST2 EXHAUST STARTER
- ST3 EXHAUST STARTER
- ST4 EXHAUST STARTER
- ST5 EXHAUST STARTER
- T1 TIME DELAY RELAY
- TR1 TRANSFORMER 1
- TR2 TRANSFORMER 2
- TS1 INLET AIR SENSOR

DIRECT GAS COMPONENTS

- * AMP AMPLIFIER
- * FSG1 FLAME SAFEGUARD
- * HLC1 HIGH LIMIT CONTROL 1
- * IGN IGNITION CONTROL 1
- * MOD MODULATING VALVE
- * PS1 GAS PRESSURE SWITCH
- * PS2 AIR PROVING SWITCH
- * SG1 SPARK GENERATOR
- * TS2 DISCHARGE AIR SENSOR
- * TS3 TEMPERATURE SELECTOR
- * TS4 ROOM OVERRIDE SENSOR
- * TS5 ROOM OVERRIDE SENSOR
- * V1 PILOT VALVE
- * V2 MAIN VALVE
- * V3 VENT VALVE

- * FACTORY SUPPLIED AND WIRED
- o FIELD WIRED

GREENHECK GREENHECK INDUSTRIES, INC.

Detail DV -
TYPICAL CONNECTIONS
FOR
MUA FANS w/V.V.

3/21/93
1/4
DETAIL DV