Modified Downdraft Paint Booth - Model AMD-26

Dimensions:	Interior	Exterior
Width:	14'-0"	15'-0"
Height:	9'-0"	11'-2" (plus exhaust fan)
Depth:	26'-0"	26'-2"

Scope:

Air flows into the intake plenum located on top of the booth at the front of the paint booth next to the front doors. The clean air flows into the booth through the intake filters (located in the ceiling of the booth), moves downward through the work area and exits through the exhaust at the rear of the booth. Filtered exhaust air is drawn thru the exhaust plenum and discharged upward into the atmosphere through the exhaust stack.

Construction Features:

Panels – Pre-Punched on 6" Centers for Sure Panel Alignment:

- Panels are fabricated from 18-gauge prime quality G-90 galvanized steel. Panels are fastened together with nuts and bolts for maximum rigidity and ease of assembly. Holes are precision CNC punched on 6" centers, this leads to true panel alignment and.

LED Illumination – 10 LED Light Fixtures – 6,500 Lumens Each:

- Lighting is provided by 48" long, LED type fixtures. All fixtures are ETL listed and approved for their intended use and placement. Fixtures are supplied to accept either 120V or 277V power.

Filtration:

- Intake air filters: Rated by UL as Class 2 and are EPA registered as environmentally safe. Filters are self-supporting in an internal frame sized 20" x 20" x 1". One set of filters will be supplied.
- Exhaust air filters are fiberglass paint arrestor pads made specifically for the collection of paint over spray. These filters are UL rated as Class 2. A filter holding grid is provided for each filter cell. This unit is provided with one set of filters and one manometer.

Exhaust – 12,600 C.F.M. Standard:

- Tube axial type duct fan(s) specifically designed and constructed for use in paint spray booths and similar applications is provided for exhaust. A precision balanced, fabricated, aluminum non-sparking fan blade moves the air through the fan. Bearings are permanently lubricated and mounted in rubber isolators for smooth operation. The motor, drive and bearings are isolated from the exhaust air stream. This unit will utilize one (1) 30" diameter fan driven by a 3 HP motor (208/230/460V/3PH/60HZ), operating at 12,600 SCFM at ½" static pressure.

Product Doors:

- One (1) set of product entry doors with widows shall be provided. The doors are skinned with an 18 Ga. galvanized steel sheet, sealed to the frame, and welded in place. These doors are provided with a closed cell foam rubber weather stripping seal about the perimeter and a neoprene rubber sweep seal at the threshold. The mounting hardware provided includes a panic type safety latch and four 9'' door pulls. These shall be double doors having a clear opening of approximately 9-0'' wide by 8'-6'' tall.

Personnel Access Door with Window:

- Personnel access doors are provided as a double wall 18-gauge galvanized steel unit sized at 36'' x 84” and is provided pre-hung in a heavy gauge steel frame ready for mounting to the spray booth. The mounting hardware includes a panic type safety latch and two 6'' door pulls.

Air Make-Up Unit Features - TTV-20:

- 12,600 CFM Direct Fired Gas Heated Air Make-up Unit (TTV-20) to replace the exhaust air from the paint spray booth. Air Make-up Unit features 100% fuel efficiency.
- TTV-20 Vertical Unit Arrangement with Side Discharge
- 100% Replacement Air
- 12,600 SCFM / 0.38 Duct SP - Electric Current: 208-230-460/60/3 3-wire
- ETL Label
- High Efficiency Motor
- Burner/Blower Service Switches
- Stainless Steel Burner /Aluminum Casting
- Outdoor Safety Switch (Disconnect) and Motor Starters
- Unit Location: Outdoor Installation
- 7.5 HP Motor - ODP - High Efficiency EPACT
- 1,320 BTUH (in 1000’s)
- 120° F Temperature Rise
- Gas Pressure: 1# to 5# (Natural Gas or Propane)
- Gas Manifold: ANSI w/2 Solenoid Gas Valves
- Temperature Control System: 401M - Maxitrol
- “M Series” Programmable Temperature Controller
- G-90 Galvanized Casing - Unpainted Casing
- Flame Failure Light & High Temp Limit
- Burner On/Off Intake Air Duct-stat
- Fused Disconnect
- Automatic Discharge Damper with Actuator
- 3 H.P Variable Frequency Drive for Exhaust Fan
- 7.5 H.P Variable Frequency Drive for the Intake Fan
- V-Bank Pre Filter System with 2” Cleanable Filters
- Deluxe Remote Control Panel
- Spray and Bake Modes
- Variable Airflow Control System
- Automatic Booth Pressure Balancing System

Deluxe Digital Control Panels:

- NEMA 1 Enclosure
- Spray Push Button - Bake Push Button
- Emergency Stop Push-Pull Switch
- Digital Bake Timer
- Delay Start Timer
- Purge Timer
- Cool Down Timer
- Spray Mode Light - Bake Mode Light
- Purge Mode Light
- Cool Down Mode Light
- Photohelic Pressure Gauge

Variable Airflow Control Systems – Saves Energy – Improves Efficiency:

- We use special gas valving and controls coupled with a variable frequency drive for the air makeup unit motor to properly control airflow volume. Many use just a damper and "choke" off the airflow while the motor and gas are still running at 100%. Not efficient and not safe. The air flow system has been designed for ideal air flow control providing you the ability to adjust to different types of paint such as **water based and solvent based**. The system also allows you to adjust to different outdoor air conditions such as humidity. The higher the humidity the greater the air flow required to efficiently flash or cure your paints.

- We offer the ability to flash and cure at 100% airflow and high temperatures. We can provide 100% airflow and a 120 Degree temperature rise over the outside air temperature. If it is 20 Degrees outside our system can provide 100% airflow at 14 Degrees.

- Most systems in the industry can only provide these temperature rises at 50% air flow. Proper total control over air flow and temperature are necessary to deal with the different chemistries of different paints and to deal with changes in ambient air conditions in your area.

- This system allows you to control how much air is used by the air make-up unit allowing you to control operational costs as well. System includes Variable Frequency Drives for both intake and exhaust volume control. Includes Programmable Digital Control Panel. Includes a booth pressure Auto Balance system. Just set the pressure desired in the booth and the air flow desired from the Air Makeup Unit, The system will automatically balance the fans to maintain the desired air flow and pressure. The system compares the readings on the booth pressure sensor to the booth pressure setting that you selected and then adjusts everything automatically to maintain your preset pressure. Cut energy costs by up to 50% in some cases.

Automatic Booth Pressure Balancing Control System:

- No more need for constantly adjusting the exhaust fan as the exhaust filters load up with paint. No more doors blowing open. The Automatic Balancing System speeds up the exhaust fan to keep the pressure balanced in the booth and the airflow at a proper speed. Set the pressure desired in the booth and the system through the readings on the photohelic booth cabin pressure sensor will automatically adjust the speed of the exhaust fan to maintain the desired preset pressure.

AMD-26 with Heat, Cure, Variable Airflow, and Auto Balance

	Description		Cost
1	AMD-26 - 14’ W x 9’ T x 26” D - Modified Downdraft		31,000.00
1	Heated Air Makeup Unit with Stand – Spray and Bake Modes		Included
1	Variable Airflow Control System		Included
1	Custom Gas Control System for Variable Airflow		Included
1	Intake Fan Variable Frequency Drive		Included
1	Exhaust Fan Variable Frequency Drive		Included
1	Automatic Booth Pressure Balance System		Included
1	Paint Gun Air Lock Out Solenoid Valve		Included
10	LED Light Fixtures – 6,500 Lumens Each		Included
1	Freight		Included
	Standard Options		
1	Booth Only - No Air Makeup – Freight Included		13,200.00
1	Exhaust Duct Package for a 16’ Roof		950.00
1	Extend Length of Booth - Cost / Foot		300.00
1	Additional LED Light Fixtures – Cost / Fixture		350.00
1	Drive Though Booth – Entry Doors at Each End		2,500.00
1	Reverse Airflow Booth		2,000.00
1	Door Limit Switch / Explosion Proof		275.00
1	Call Us for Anything Else – We Can Provide Anything You Want		

The following may be required for your equipment but are **not** included by AEI in this proposal: Installation, freight, electrical controls wiring, piping, intake ductwork, exhaust ductwork, fire protection, taxes or permits.

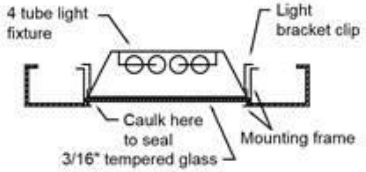
Code Compliance:

- All AEI are designed to meet or exceed the requirements and recommendations of the National Fire Protection Association (NFPA), Standard Number 33, as well as Occupational Health and Safety Administration (OSHA) CFR 29.1910.

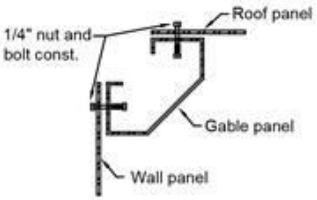
Warranty:

- AEI warrants to buyer that the equipment is to be free from defects of materials or workmanship under normal use and maintenance for a period of one year.
- All components supplied but not produced by AEI shall carry the warranty of the manufacturer.

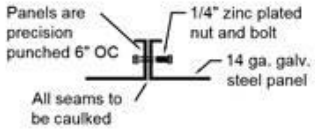
Detailed Drawings of Equipment Below:



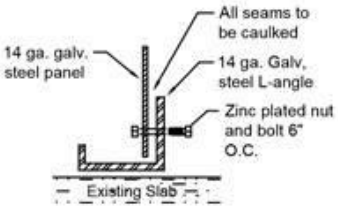
LIGHT DETAIL



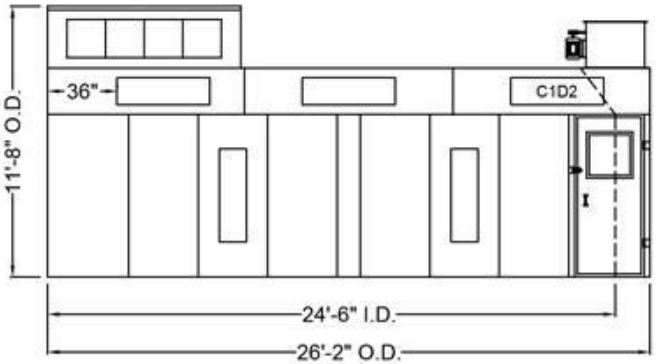
GABLE TO WALL AND ROOF DETAIL



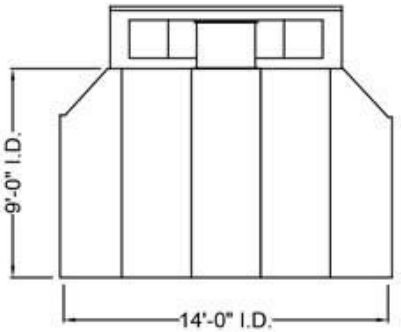
PANEL TO PANEL DETAIL



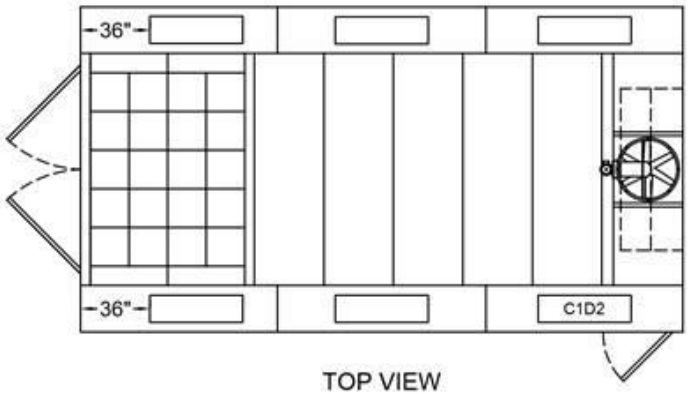
PANEL TO FLOOR RAIL DETAIL



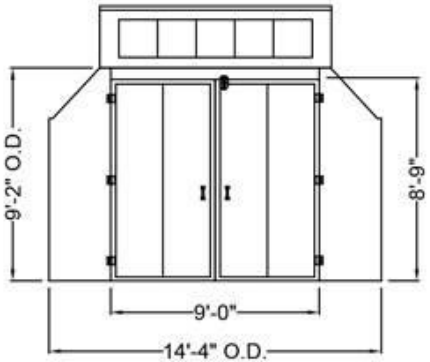
SIDE VIEW



REAR VIEW



TOP VIEW



FRONT VIEW

CONSTRUCTION:

Panels - 18 Ga. galvanized steel precision punched @ 6" O.C. (fastened with 1/4" nuts & bolts).

Floor Rails - 14 Ga. galvanized steel precision punched @ 6" O.C. (fastened with 1/4" nuts & bolts).

Access Door - Double wall 18 Ga. galvanized steel 36" wide x 84" high.

Product Door - Double wall 18 Ga. galvanized steel 107" wide x 104" high.

ELECTRICAL:

Lights - Enclosed 4 tube - 4' fluorescent fixtures with energy efficient ballast, mounted on 3/16" glass. (Qty. 9)

Lights - Vapor tight 4 tube 4' flourescent fixtures with energy efficient ballast. (Qty. 1)

Motor - 2hp 3ph 208-240/460V O.D.P. 1745 R.P.M.

MECHANICAL:

Fan - 30" tubeaxial with aluminum spark proof blade, CFM = 11,710 @ 1/8" S.P.

Manometer - Dwyer Model 25 air filter gauge.

Door Latches - Pressure activated.

DRAWING INTENDED FOR CUSTOMER APPROVAL. MANUFACTURING WILL NOT BE COMPLETED UNTIL SIGNED DRAWING IS RETURNED.

APPROVED BY: _____

VOLTAGE: _____ PHASE: _____ DATE: _____

MAN DOOR SWING: LEFT: _____ RIGHT: _____

CUSTOMER:

REV	DATE	DESCRIPTION
1		

SCALE:

DATE:

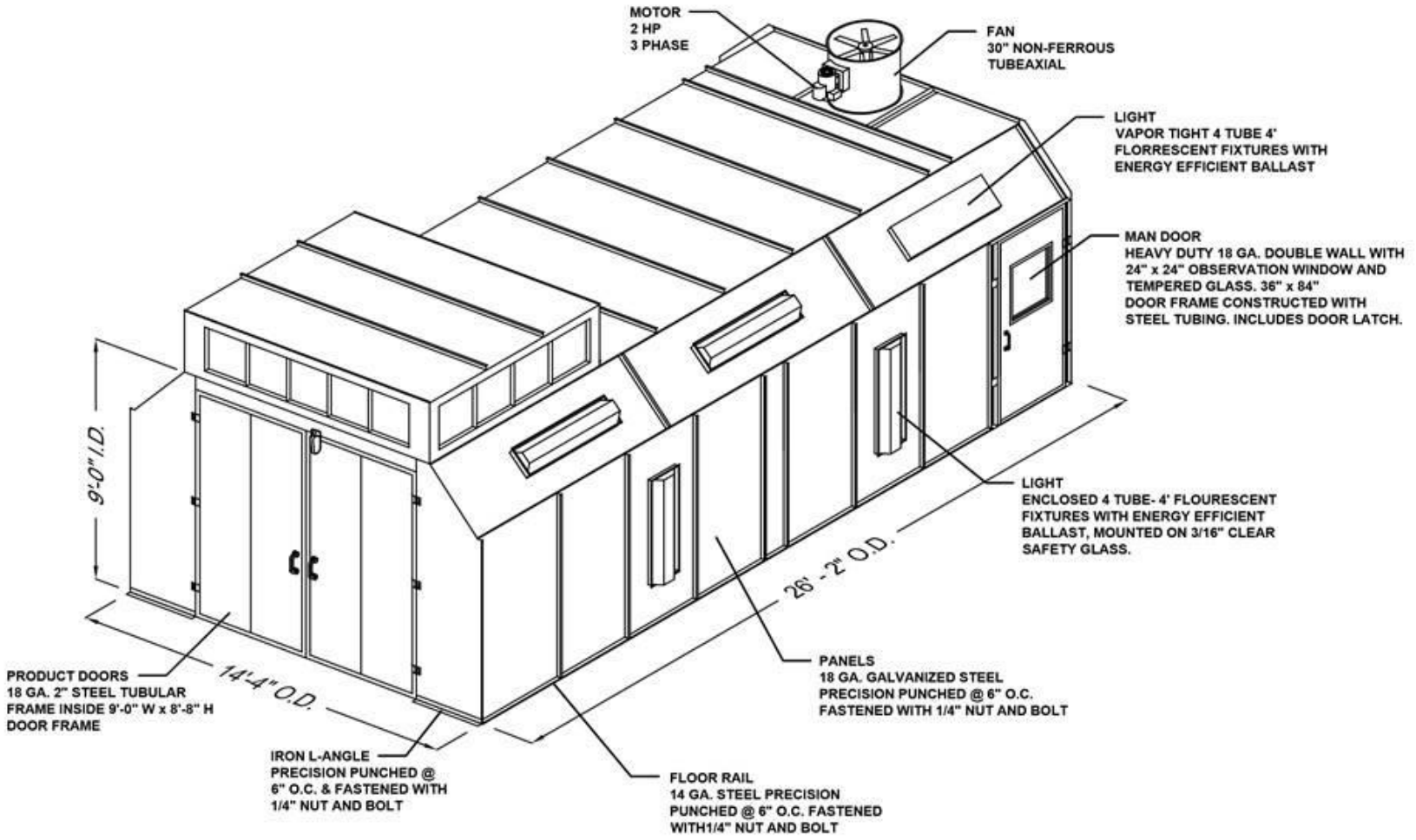
APPROVED BY:

AUTO SPRAY BOOTH
SL-SDD-14269

BOOTH IS MANUFACTURED IN ACCORDANCE WITH THE FOLLOWING CODES AND GUIDELINES: NFPA 33, NEC 516, UFC 15 AND OSHA GUIDELINES.

DRAWN BY:

SHEET
1



REV	DATE	DESCRIPTION
1		

SCALE:

DATE:

APPROVED BY:

AUTO SPRAY BOOTH
SL-SDD-14269

BOOTH IS MANUFACTURED IN ACCORDANCE WITH THE FOLLOWING CODES AND GUIDELINES: NFPA 33, NEC 516, UFC 15 AND OSHA GUIDELINES.

DRAWN BY:

SHEET
2

Fan # 1 TTV 20 2153.9 lbs.

Vertical Industrial Heater with a 36" burner and a 20" blower.

Supply Motor

Model DTP7/54 • 7.5 HP • 3 Phs • 230 V • 19.1 FLA • 60 Hz • ODP, Premium (E-Plus3) Eff.

Pulley information

Part Type	Qty	Browning #	Turns Out
Belt	2	BX76	
Blower Pulley	1	2BK190H	
Motor Pulley	1	2VP65 x 1 3/8	1.0

Burner

Min Output BTU: 57,000 BTU/Hr
Max Output BTU: 1,710,000 BTU/Hr
Size: 36" long
Gas Type: Natural

Supply Performance

Volume: 12600 cfm
RPM: 578
Tip Speed: 3026 ft/min
SP: 0.248" w.g.
(0.05" Ext + 0.198" Opt /Int)
BHP: 5.094

Heating Schedule

Altitude: 0'
Winter Design Temp: 20 °F
Temp Rise: 120 °F
Output BTU: 1378944
Input BTU: 1498852
BTUs BASED OFF ACTUAL AIR DENSITY

Supply Installation Information

Gas Inlet Pressure: 1 lb. - 5 lb.
Insurance: No Insurance Requirement (ANSI)
Motor Circuit: 23.9 Amps MCA, 40 Amps MOP, 230 V, 10 AWG Wire Min.
Control Circuit:4 Amps MCA, 15 Amps MOP, 120 V, 14 AWG Wire Min.
Unit Voltage: 3 phs 230 V

Blower

20"-18" centrifugal, forward curved blower. Full frame, pillow block bearings, 5000-15000 CFM, 15 MAX BHP, 1-7/16 x 39.25" Shaft, 1325 MAX RPM, used in Size 20 Industrial Horizontal/Vertical Heaters.

Temp Control

Paint Booth • Maxitrol "M" Series Programmable Control • Spray/Cure • High Temp

Intake

V-BANK - 43.25" Width X 61.5" Length X 32" Height for Vertical Industrial, Standard 2" EZ Filter With Filter Intake Screen, CFA2

Filters

12 - MV EZ Kleen Metal Mesh Filter. 20"x 25"x 2" Used for heater and supply fan intakes. (3416)

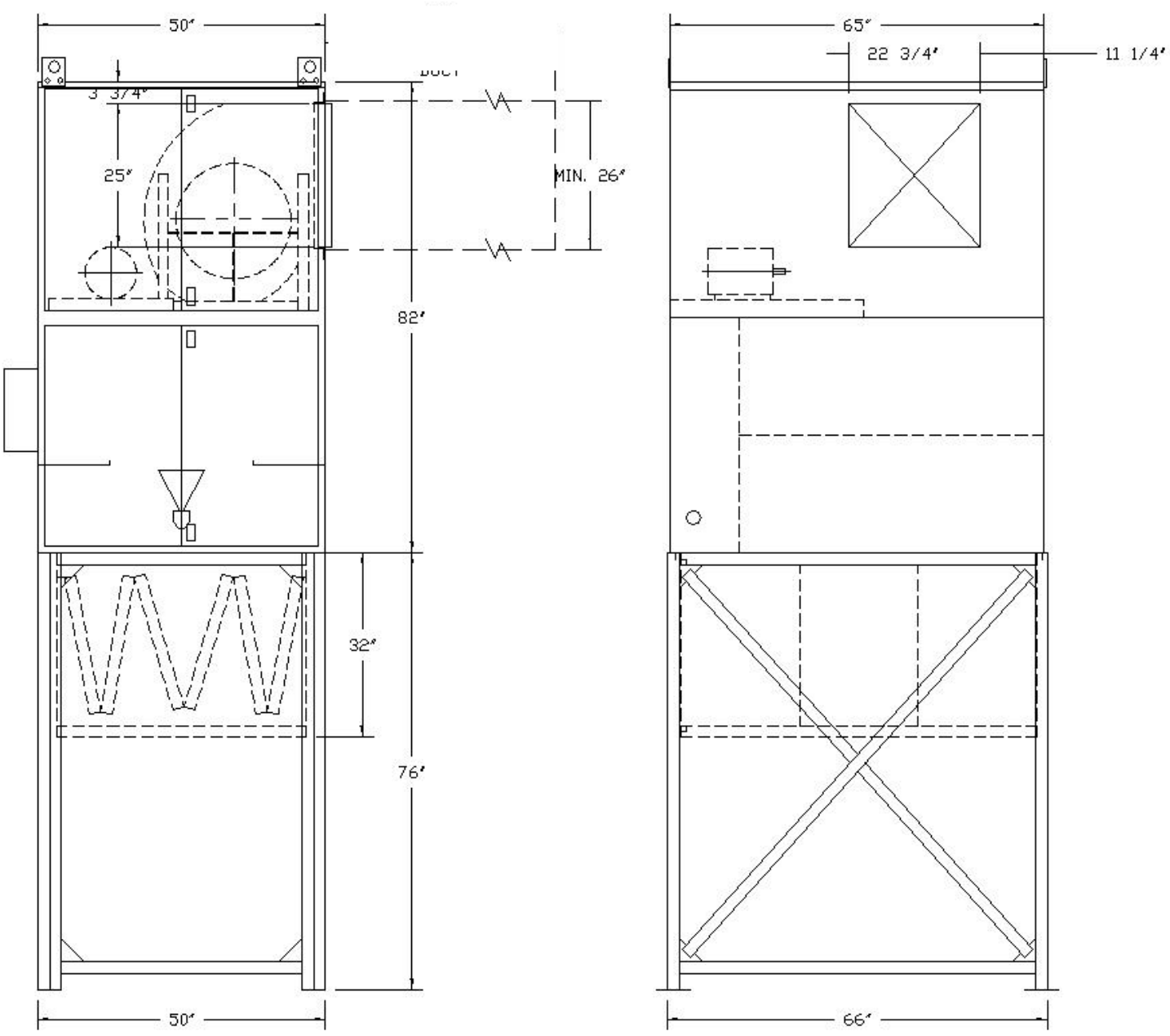
Selected Option(s)

- Fan housing assembled without the use of silicone caulk. Primarily used for paint booth applications.
- Gas Pressure Gauge, 0-5#, 2.5" Diameter, 1/4" Thread Size
- External Side Discharge Damper for size 2 Horizontal industrial units with 20" blowers. Includes actuator.
- Auto Balance Exhaust VFD Static Pressure Control (preset to: -0.01 and 0.02)

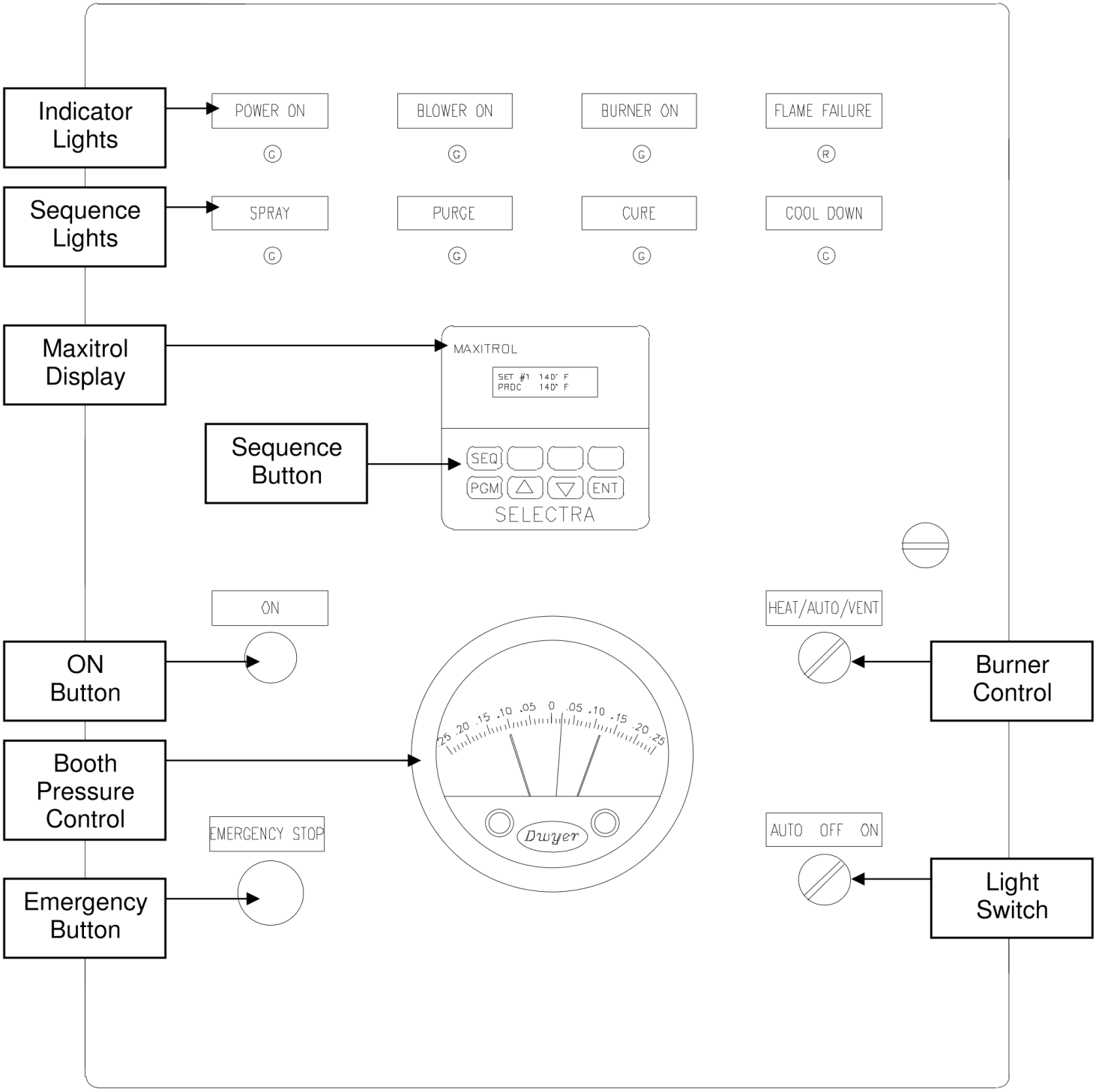
  To control the following motor(s):
  3.000 HP • 3 Phs • 230 V • 7.9 FLA
- Paint Booth Lighting Circuit Switch and Auto Off in Cure Mode.
- Gas Pressure Gauge, -5 to +15 Inches Wc., 2.5" Diameter, 1/4" Thread Size
- High Gas Press. Switch (1" - 20" WC) Factory set at 8" w.c.
- Size 2 Vertical Heater VAV Profile and Wiring Package w/ Constant Speed Control or Analog Input Control

  Variable Frequency Drive, 7.5 HP, 208-240 V, NEMA1 enclosure, (Shipped Loose for Field Installation)
- Paint Booth Purge Cycle with Light

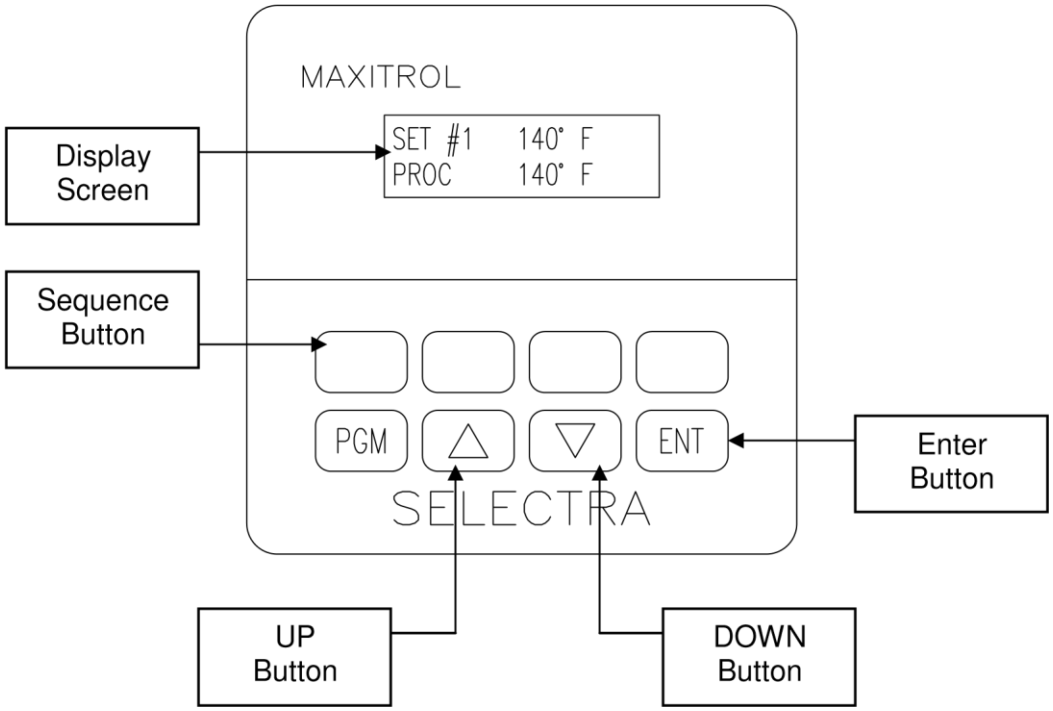
ThermoTek TTV-20 Vertical Heated Air Makeup Unit Dimensions



Deluxe Digital Control Panel Layout



Display Screen Layout



SAMPLE PROGRAM (FIELD ADJUSTABLE)

Temperature Set Points		
Sequence	Description	Temp
#1	Start Delay	70
#2	Spray	70
#3	Purge Delay	70
#4	Purge	70
#5	Bake	140
#6	Cool Down	70
#7	Shut Down	70

Process Times		
Sequence	Description	Time
#1	Start Delay	3 Sec
#2	Spray	Manual
#3	Purge Delay	1 Sec
#4	Purge	1 Min
#5	Bake	1 Hour
#6	Cool Down	5 Min
#7	Shut Down	3 Sec