

## AIR HANDLER SPECIFICATION



### Air Handlers AH-1 through 5

The following air handlers will be supplied:

AH-1	FX15-4842 Series	5700 CFM
AH-2	FX15-4236 Series	3990 CFM
AH-3	FX15-3633 Series	2570 CFM
AH-4	FX15-3330 Series	1450 CFM
AH-5	FX15-4236 Series	3740 CFM

#### **A. General**

1. Air handlers shall be Aqua-Air factory assembled. Units will consist of a filter/mixing box section, chilled water coil, mist eliminator ( if necessary ), humidifier and blower/motor section .
2. Units shall be shipped fully assembled. All motorized water regulating valves and humidifier modules will be shipped loose.

#### **B. Unit Cabinet**

1. Unit panels shall be constructed of 1" thick foam core panels. The outer sheathing on the panels is aluminum. Casing panels shall be removable for easy access to the internal components. Bolts and screws used shall be stainless steel.
2. Access doors shall be of 1" thick foam core panels. Each will be equipped with a minimum of two latching mechanisms.
3. Casing shall be constructed of the 1" thick foam core panels
4. Casing exteriors shall be painted to meet 500 hour salt spray requirement. Color shall be Awlgrip Matterhorn White.

5. Framework for the unit will be constructed of extruded aluminum material with cast aluminum corners. The framework on the discharge side of the cooling coil will be insulated internally to prevent external condensation and to prevent the transmission of noise.

### **C. Fan Section**

1. Fan section shall be constructed of insulated aluminum framework and panels and have a formed channel base for integral mounting of fan assembly and casing panels. Fan scroll, wheel, shaft, bearings, drives and motor shall be mounted on a galvanized steel assembly which shall be isolated from the outer casing with rubber vibration isolators and vibration absorbent fan discharge seal. A removable access door will be provided on the designated access side of the unit.
2. Each unit shall have one fan wheel and scroll only. Fans shall be double width, double inlet type with forward curved blades. Blower wheels shall be bonderized galvanized steel. Blower housings are constructed of galvanized steel.
3. Fan wheels shall be keyed to the shaft and shall be designed for continuous operation at the maximum rated fan speed and motor horsepower.
4. Fan shafts shall be solid steel, turned, ground, polished and coated with a rust preventative oil. Access doors shall be provided so that the shaft can be removed without removal of casing panels.
5. Fan bearings shall be self-aligning, pillow-block regreasable ball- or roller-type selected for a minimum average life of 20,000 hours.
6. The motor shall be mounted within the fan section casing on slide rails having an adjustable screw. Motors shall be open, drip-proof NEMA Design B or TEFC type. Motors shall be mounted on a horizontal flat surface and shall not be supported by the fan or its structural members. Each motor will be tested in the assembled unit with voltage

and amp readings verified.

7. Motors shall be 460-3-60.

#### ***D. Coil Sections***

1. The coil sections shall be constructed of insulated aluminum panels. All coils must be easily removed from the side of the unit. The main drain pan shall have a inner pan of stainless steel with a 1/2" insulation barrier between the inner pan and the outer steel housing. A minimum of four 1-1/8" OD drains shall be supplied on each drain pan. Drain pan internal depth to be no less than 2".
2. All coils shall be tested at 400-psig air pressure while submerged in water. Coil performance shall be in accordance with ARI Standard 410. All coils shall have stainless steel casings as standard.
3. Chilled water coils shall be copper plate fin type with belled collars and shall be bonded to 5/8" OD copper tubes by mechanical expansion. Coils shall have copper headers with MPT connections. Working pressure shall be 300 psig at 200 F.
4. Coils shall be drainable and have non-trapping circuits. No turbulence promoting devices will be permitted inside the tubes. Headers shall have drain and vent connections. Vents and drains that are installed in coil return or supply bends promote coil tube fatigue and shall not be allowed. Coil nozzles and headers shall be of the same material.

**E. Filter Section**

1. Each filter section shall be designed and constructed to house one or more 4" thick return air filter(s) of standard size.

**F. Mist Eliminators**

1. Units whose cooling coil air flow face velocity exceeds 500 FPM will be supplied with mist eliminators.
2. The unit mist eliminator will be constructed of extruded polypropylene profiles mounted in a stainless steel frame.
3. All condensate removed from the air stream by the mist eliminator will drain into the extended drain pan that is under the cooling coil, mist eliminator and humidifier dispersion tube.

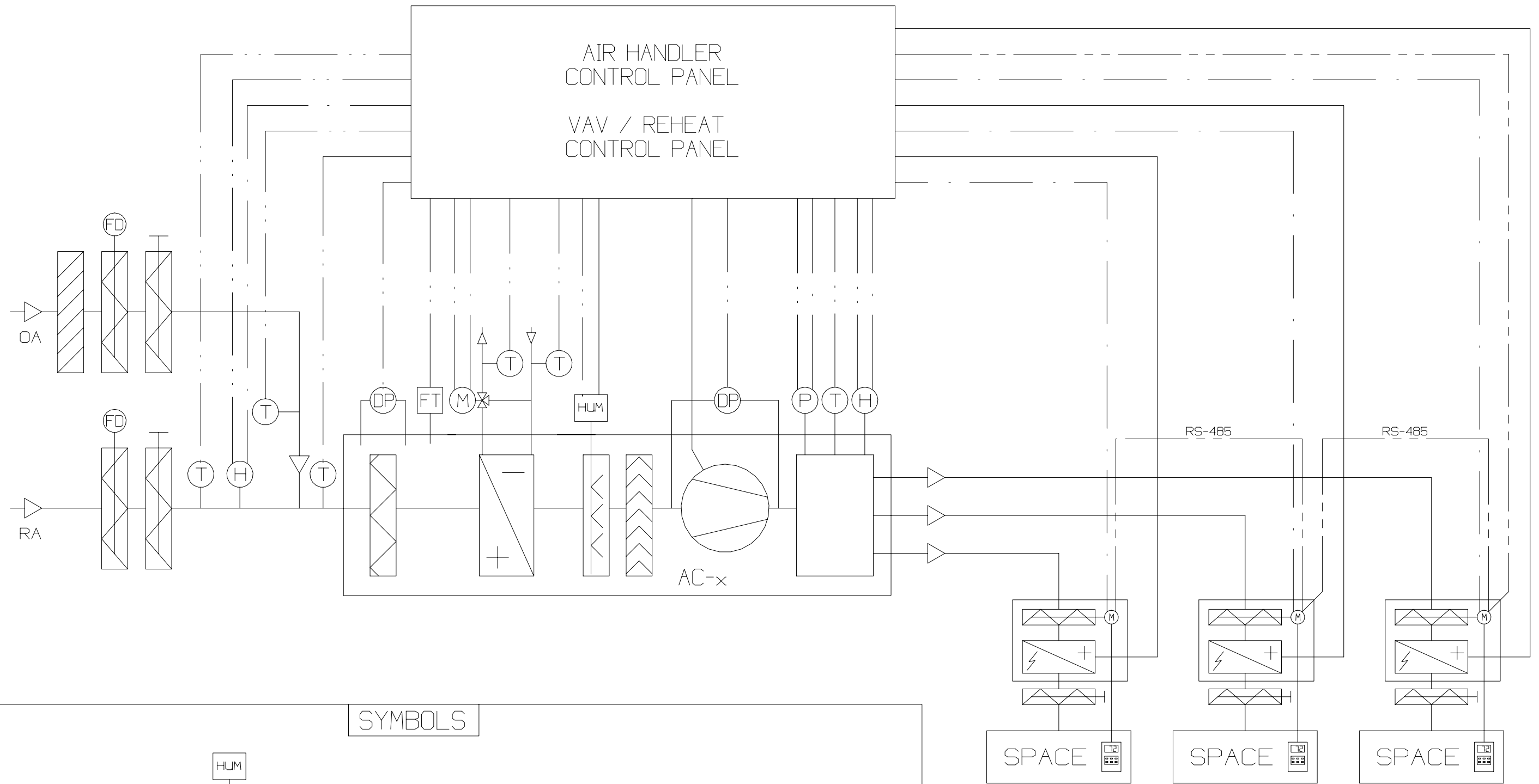
**G. Sensors**

1. Unit will be equipped with the appropriate return air, outside air, supply air and filter pressure differential sensors as necessary.
2. Unit will be equipped with a pressure differential type air flow switch to provide positive fan interlock.
3. Unit will be equipped with a pressure differential type air flow switch to provide verification of a clean filter.

**H. Humidifier**

- 1 Each air handler will be supplied with an appropriately sized steam humidifier.
- 2 The humidifier will be a self-generating electrode type utilizing a plastic cylinder with full probes connected to electric power via electrode screw connectors.
- 3 The electrodes will be constructed of low carbon steel, zinc plated and dynamically formed for precise current control and cleanability. Electrodes will be compatible with 460-3-60 power.

4. The humidifier will be a UL listed product. The cylinder shall be made from UL approved plastic with a removable drain screen for easy maintenance and inspection.
5. The humidifier cabinet shall be constructed of 16 gauge steel and shall be painted and corrosion protected on both sides for added protection.
6. The humidifier will introduce steam into the air handler via a stainless steel distributor tube mounted in the air stream after the mist eliminator.
7. Control of the humidifier will be via a microprocessor that shall provide modulating output based on a proportional signal received from a humidistat located in the return air to the air handler.



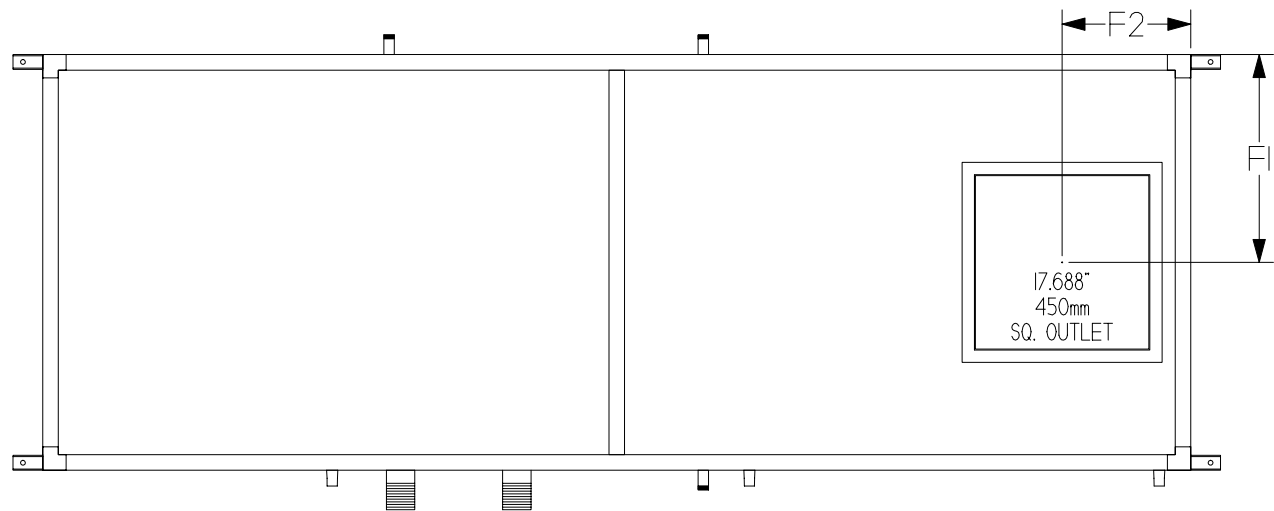
SYMBOLS

- |  |                   |  |                 |  |                  |  |                  |  |                        |  |                              |
|--|-------------------|--|-----------------|--|------------------|--|------------------|--|------------------------|--|------------------------------|
|  | LOUVER            |  | FILTER          |  | STEAM HUMIDIFIER |  | MIXING BOX       |  | TEMPERATURE TRANSDUCER |  | MOTORIZED MIXING VALVE       |
|  | FIRE DAMPER       |  | ELECTRIC HEATER |  | MIST ELIMINATOR  |  | MOTORIZED DAMPER |  | HUMIDITY TRANSDUCER    |  | DIFFERENTIAL PRESSURE SWITCH |
|  | MANUAL AIR DAMPER |  | COOLING COIL    |  | FAN              |  | THERMOSTAT       |  | PRESSURE TRANSDUCER    |  | FREEZE THERMOSTAT            |

**AQUAAIR** MARINE AIR CONDITIONING SYSTEMS

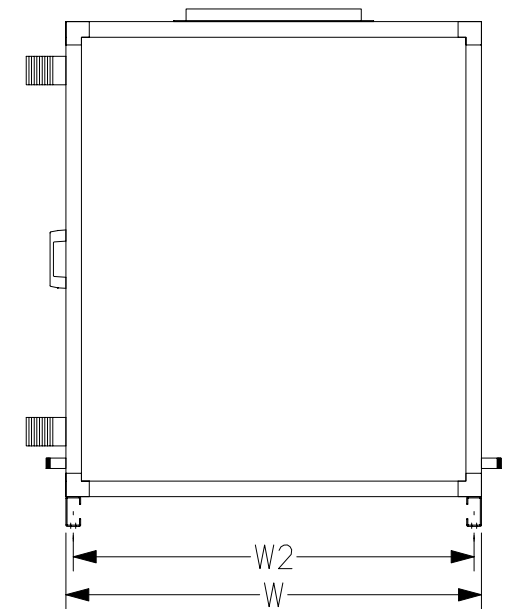
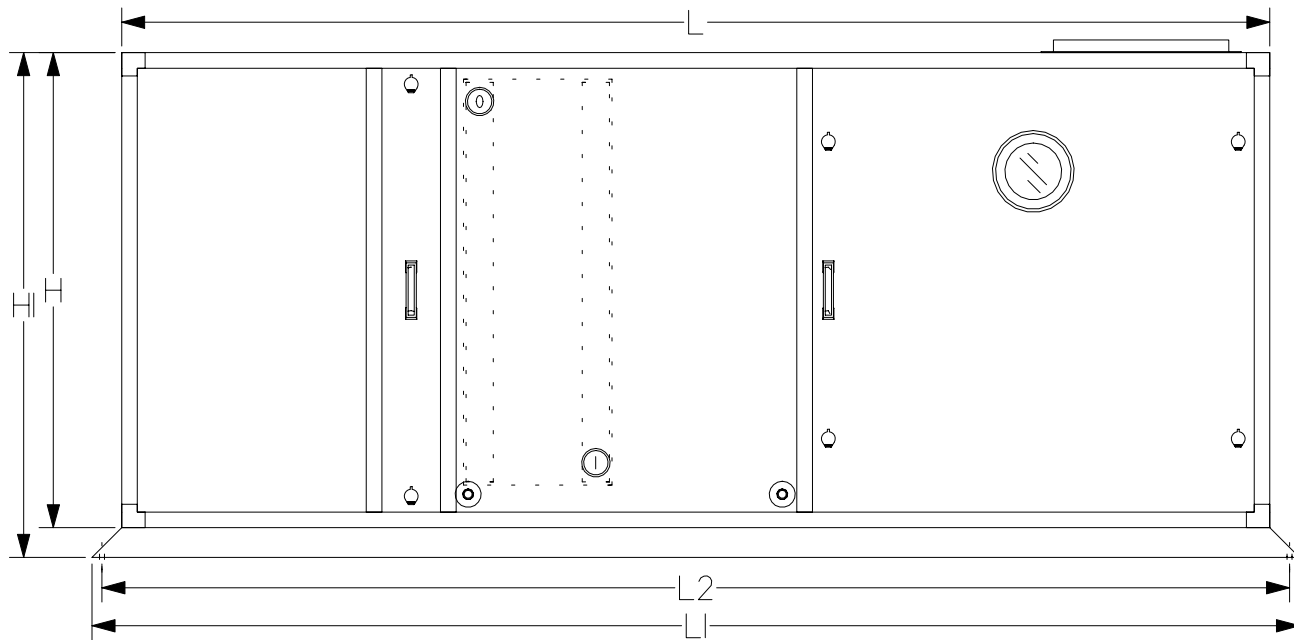
TYPICAL AIR HANDLER w/  
VAV-TERMINAL REHEAT IN SPACES

DRAWING NUMBER	AH-VAVRH-2	DRAWN BY	DN	DATE	7-2-00
SCALE	NONE	APPROVED BY		REVISION DATE	
					REV A



AH1

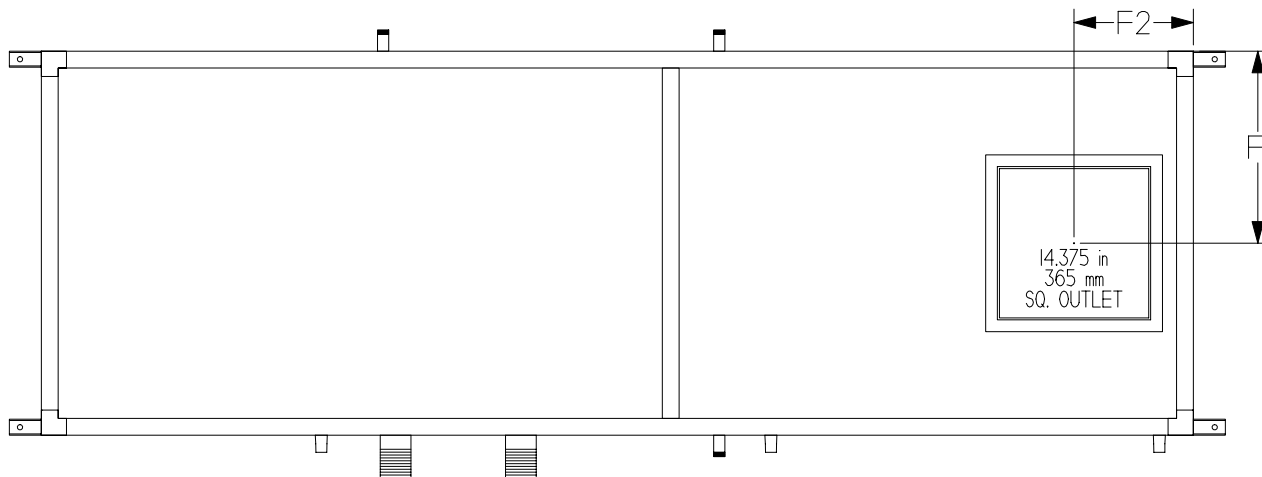
L	116 in	2946.4 mm
L1	122 in	3098.8 mm
L2	120 in	3048 mm
W	42 in	1066.8 mm
W2	40.5 in	1028.7 mm
H	48 in	1219.2 mm
H1	51 in	1295.4 mm
F1	21 in	533.4 mm
F2	13 in	330.2 mm



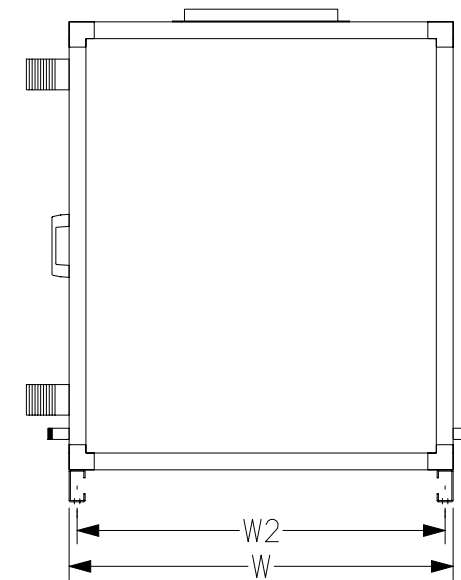
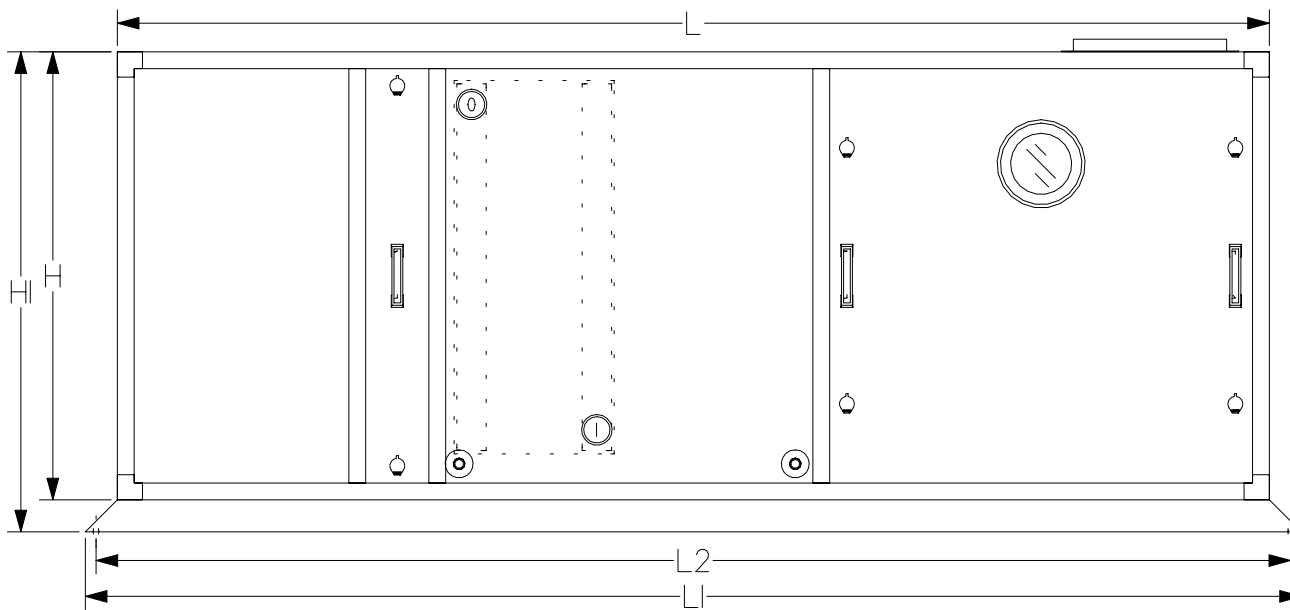
**AQUA-AIR** MARINE AIR CONDITIONING SYSTEMS

AIR HANDLER 03022201AH001  
 FX15-4842 5700 CFM 460-3-60

DRAWING NUMBER	03022201-1	DRAWN BY	DN	DATE	3-17-03
SCALE	FULL	APPROVED BY		REVISION DATE	
					REV A



L	108 in	2743.2 mm
L1	114 in	2895.6 mm
L2	112 in	2844.8 mm
W	36 in	914.4 mm
W2	34.5 in	876.3 mm
H	42 in	1066.8 mm
H1	45 in	1143 mm
F1	18 in	457.2 mm
F2	11.188 in	284 mm



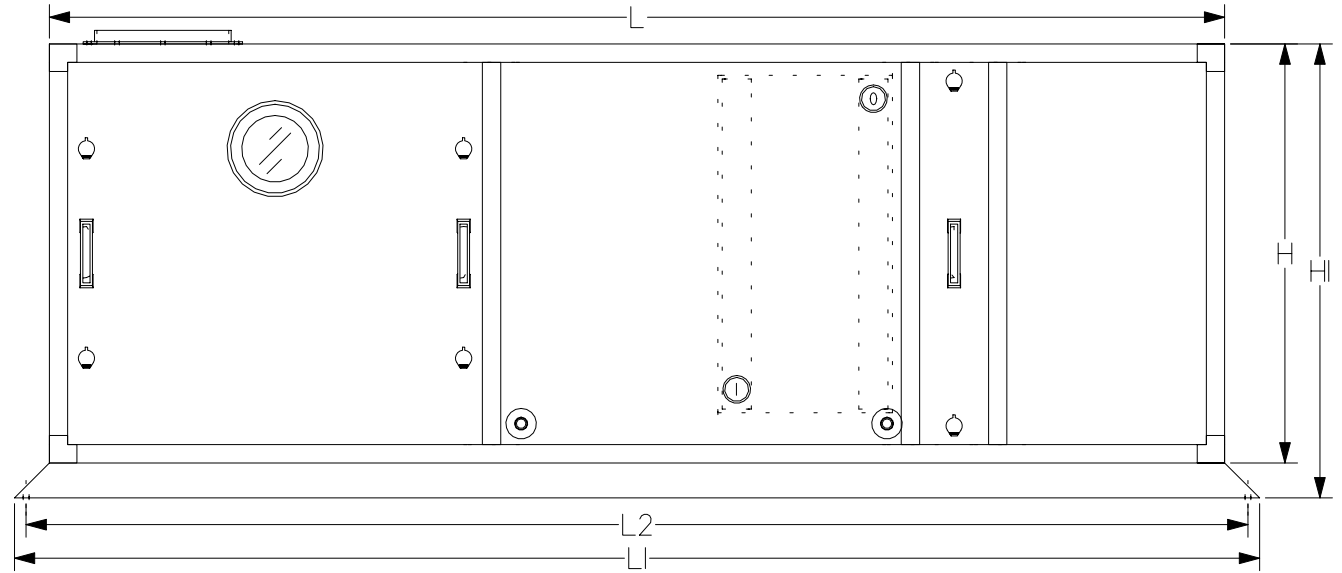
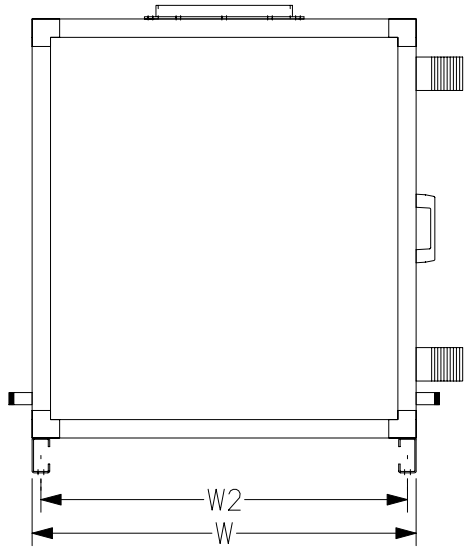
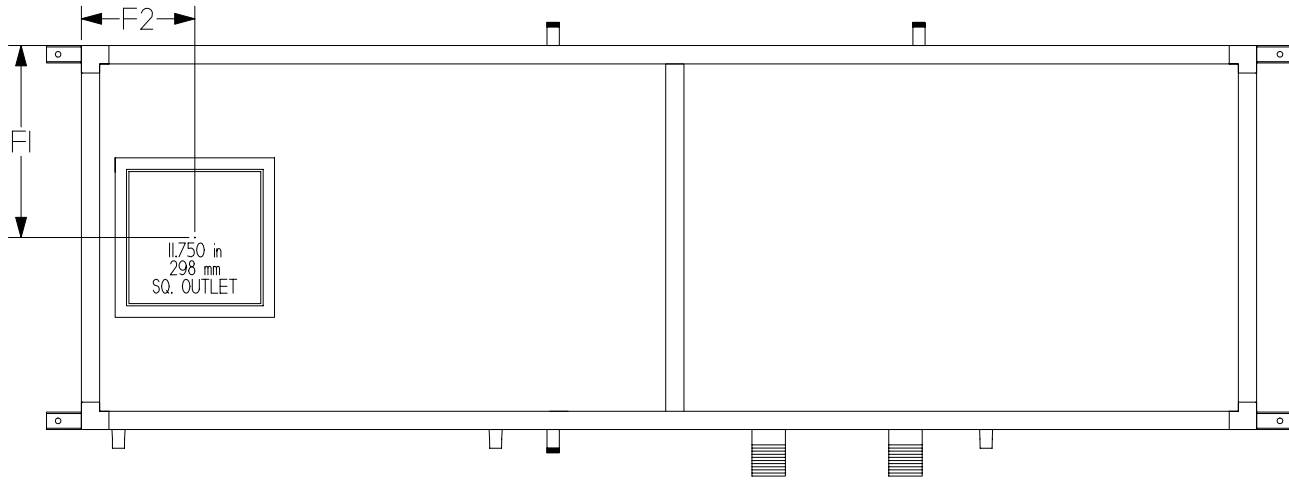
**AQUA-AIR** MARINE AIR CONDITIONING SYSTEMS

AIR HANDLER 03022201AH002  
 FX15-4236 3990 CFM 460-3-60

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SCALE	FULL	APPROVED BY		REVISION DATE	
					REV A



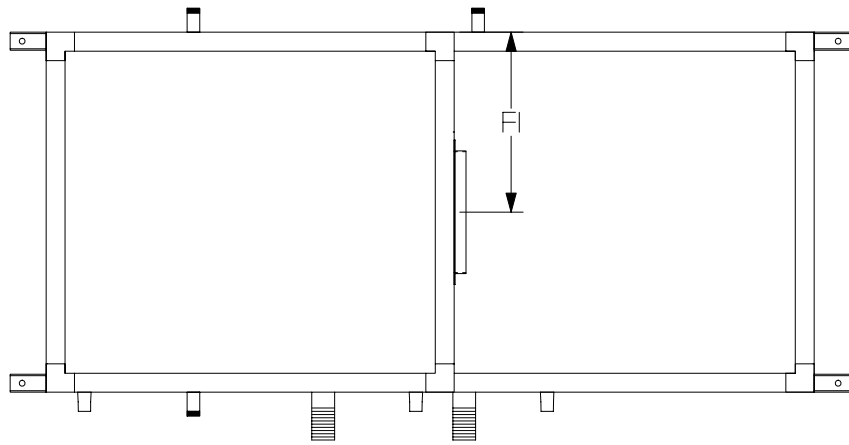
L	101 in	2565.4 mm
LI	107 in	2717.8 mm
L2	105 in	2667 mm
W	33 in	838.2 mm
W2	31.5 in	800.1 mm
H	36 in	914.4 mm
HI	39 in	990.6 mm
FI	16.5 in	419.1 mm
F2	9.75 in	248 mm



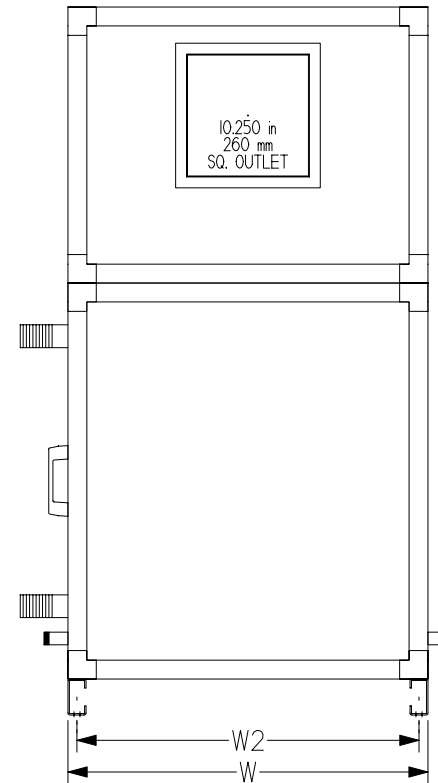
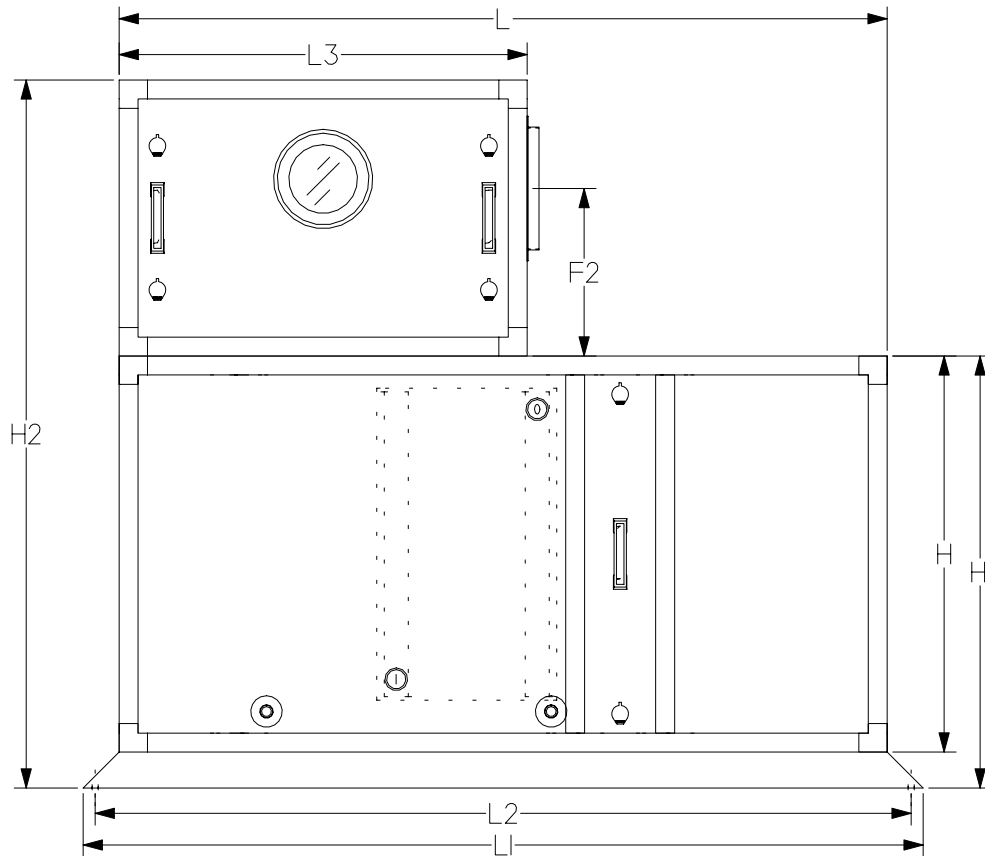
**AQUA-AIR** MARINE AIR CONDITIONING SYSTEMS

AIR HANDLER 03022201AH003  
 FX15-3633 2570 CFM 460-3-60

DRAWING NUMBER	03022201-3	DRAWN BY	DN	DATE	03-17-03
SCALE	FULL	APPROVED BY		REVISION DATE	
					REV A



L	64 in	1625.6 mm
L1	94 in	2387.6 mm
L2	92 in	2336.8 mm
L3	34 in	863.6 mm
W	30 in	762 mm
W2	28.5 in	723.9 mm
H	33 in	838.2 mm
H1	36 in	914.4 mm
H2	59 in	1498.6 mm
F1	15 in	381 mm
F2	13.938 in	354 mm

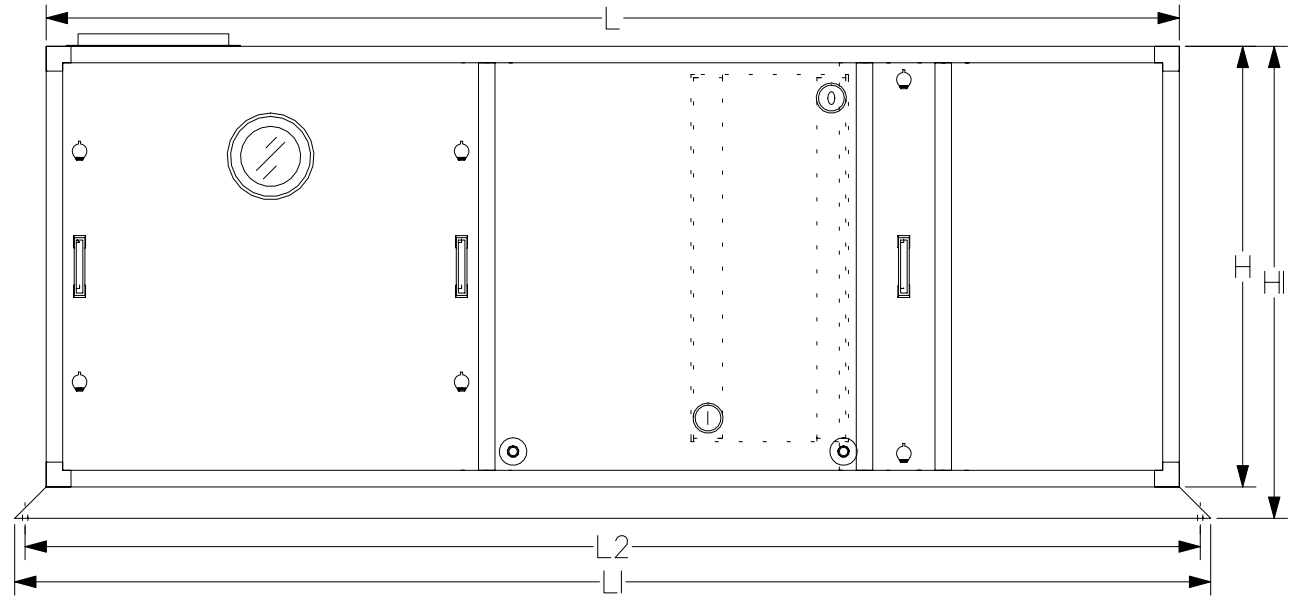
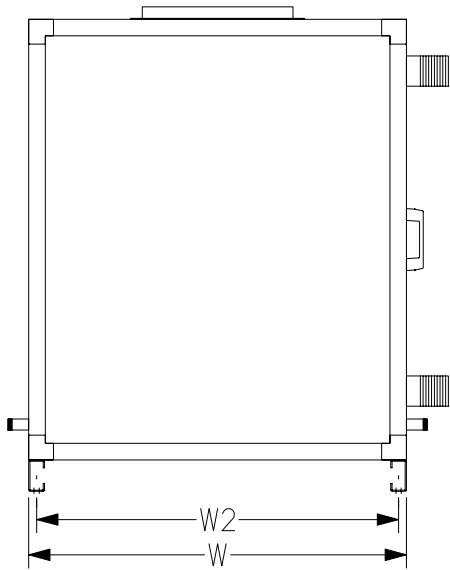
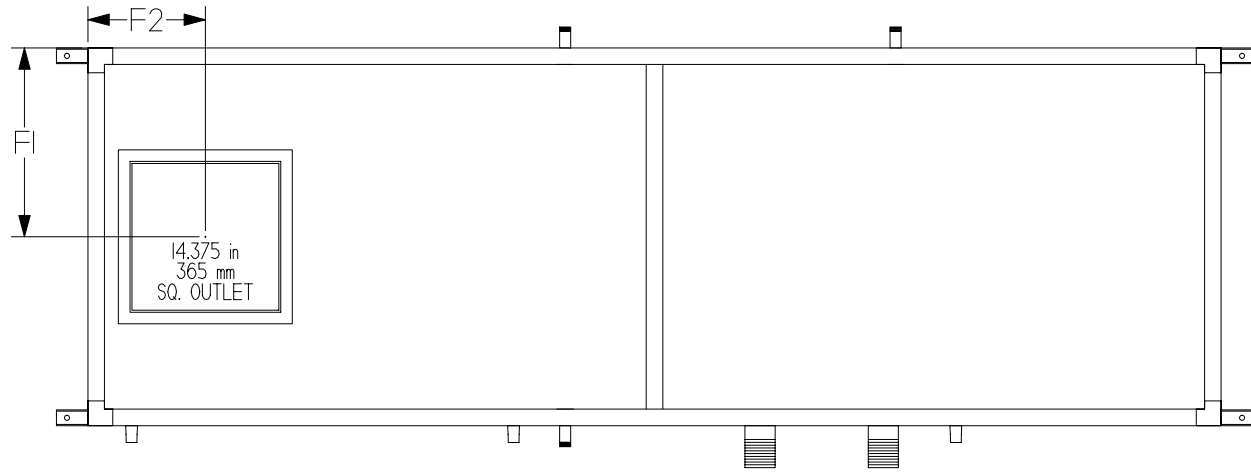


**AQUA-AIR** MARINE AIR CONDITIONING SYSTEMS

AIR HANDLER 03022201AH004  
FX15-3330 1450 CFM 460-3-60

DRAWING NUMBER	03022201-4	DRAWN BY	DN	DATE	03-17-03
SCALE	FULL	APPROVED BY		REVISION DATE	
					REV A

L	108 in	2743.2 mm
L1	114 in	2895.6 mm
L2	112 in	2844.8 mm
W	36 in	914.4 mm
W2	34.5 in	876.3 mm
H	42 in	1066.8 mm
H1	45 in	1143 mm
F1	18 in	457.2 mm
F2	11.88 in	284 mm



<b>AQUA-AIR</b>		MARINE AIR CONDITIONING SYSTEMS	
AIR HANDLER 03022201AH005			
FX15-4236 3740 CFM 460-3-60			
DRAWING NUMBER	03022201-5	DRAWN BY	DN
SCALE	FULL	DATE	03-17-03
APPROVED BY		REVISION DATE	
		REV	A