



#1
HVAC Coils
All Types

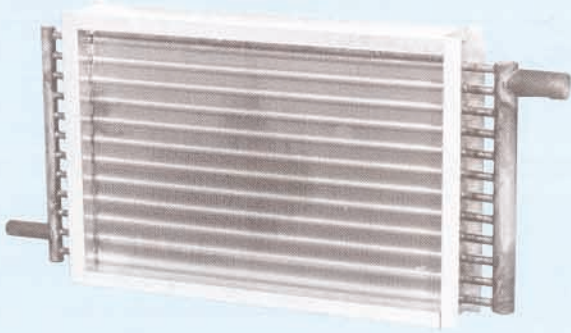
1-800-USA-COIL
(1-800-872-2645)

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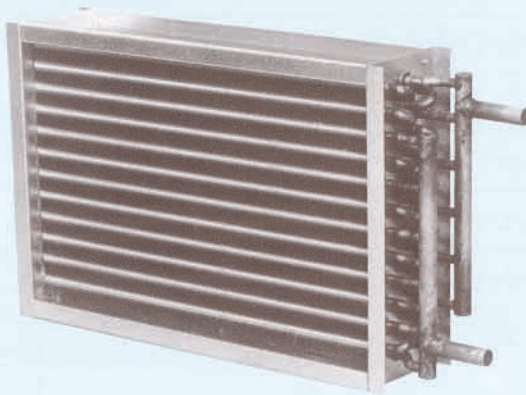
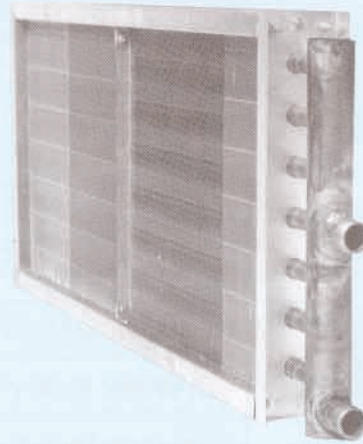
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1 Construction & Emergency Shipping



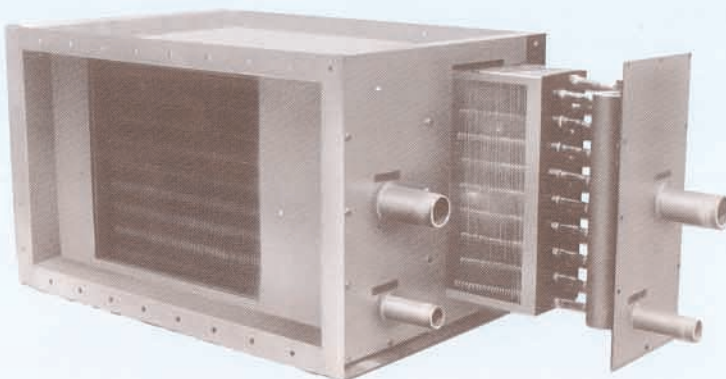
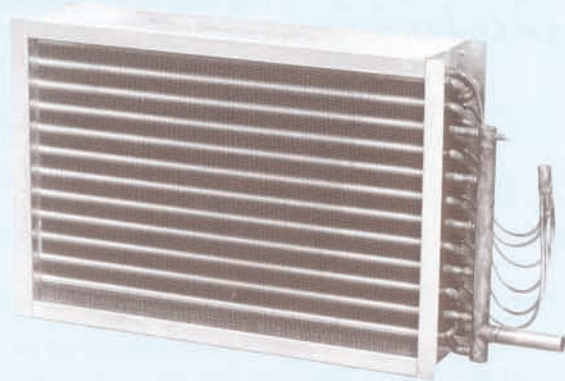
Standard Steam Heating Coil (SS) available with opposite end or same end connections. Standard coil construction good up to 100 PSIG steam pressure. Coils can be fabricated in 1 row or 2 row designs with 5/8" O.D. copper tubes.

Steam Distributing Coils (SD) available in 5/8" O.D. or 1" O.D. design. All coils have inner distributing tube in conjunction with outer condensing tube making them perfect for below freezing air or modulating steam applications.



Hot Water (HW) or Chilled Water (CW) Cooling Coils available in same or opposite end designs with a multitude of circuitry available. Coils constructed of 3/8", 1/2" and 5/8" O.D. tubes with aluminum or copper fins and galvanized or stainless steel casings.

Direct Expansion Cooling Coils (RE) available for all types of refrigerant cooling applications. 3/8", 1/2" and 5/8" O.D. tubes available. Coils consist of distributor leads and distributor. Face, row or intertwined coil splits also can be provided.



Industrial Heating, Cooling and Process Coils in all types of arrangements and construction to meet your exacting requirements. Included are cleanable tubes, fabricated headers, removable cores and air tight casings.

USA Coil & Air specializes in emergency shipments!

Three shipment programs are available for you to choose from:

- 1. STANDARD SHIPMENT:** Most coils ship in 4 to 5 weeks under this program. Coils made from very special materials that require a high degree of welding and other labor sometimes take 6 to 7 weeks to build.
- 2. SPECIAL 10 WORK DAY SHIPMENTS:** USA can build the vast majority of H.V.A.C. and process coils in 10 working days for a premium of 25%. More than 1/4 of all coils that USA manufactures ship under this program. (10 working days equals 2 weeks.)
- 3. SPECIAL 5 WORK DAY SHIPMENTS:** USA can also build most H.V.A.C. and process coils in 5 working days for a premium of 50%. About 1/5 of all coils that USA manufactures ship under this program. (5 work days equals one week.)

In addition, USA offers many expedited delivery methods. These include; special air freight, special motor freight, UPS or RPS, when available. There are, of course, extra charges for these quicker methods of delivery. It is important to remember that USA specializes in quick shipment. We are the best in the industry when it comes to arranging economical, fast delivery for an emergency job!

Materials of Construction*

TUBE MATERIALS	DIAMETER	THICKNESS	FIN MATERIALS	THICKNESS
COPPER	1/2" O.D.	.017" , .025"	ALUMINUM	.006" , .008" , .010" , .016" , .030"
COPPER	5/8" O.D.	.020" , .025" , .035" , .049" , .065"	COPPER	.006" , .008" , .010"
COPPER	5/8" O.D. NON-FREEZE STEAM	.025" , .035"	CARBON STEEL	.012"
COPPER	7/8" O.D.	.035" , .049" , .065" , .109"	304/316 STAINLESS	.010"
COPPER	1" O.D. NON-FREEZE	.035" , .049"	90/10 CUPRO-NICKLE	.010"
90/10 CUPRO-NICKLE	5/8" O.D.	.035" , .049" , .065"		
90/10 CUPRO-NICKLE	7/8" O.D.	.035 , .049" , .065"		
BRASS (RED/ADM.)	5/8" O.D.	.035" , .049" , .065"		
CARBON STEEL	5/8" O.D.	.035" , .049" , .065"		
CARBON STEEL	7/8" O.D.	.049" , .065" , .109"		
304/316 STAINLESS	5/8" O.D.	.035" , .049" , .065"		
304/316 STAINLESS	7/8" O.D.	.049" , .065" , .109"		
ALUMINUM	5/8" O.D.	.049" , .065"		

CASING MATERIALS	THICKNESS
GALV. STEEL	16 GA., 14 GA., 12 GA., 10 GA., 8 GA., AVAILABLE FOR ALL
304/316 STAINLESS	
ALUMINUM	

CONNECTIONS	CONNECTION TYPES
COPPER	M.P.T.
STEEL	F.P.T.
90/10 CUPRO-NICKLE	SWEAT
BRASS	FLANGED
ALUMINUM	

* USA Coil & Air has the tooling in place to build coils from all the materials and thicknesses in the above charts. Please keep in mind that some of these materials are very expensive and occasionally the commercial availability is not very good. Please check with USA prior to specifying or promising materials that are hard to get or exotic in any way.

1 Construction & Emergency Shipping

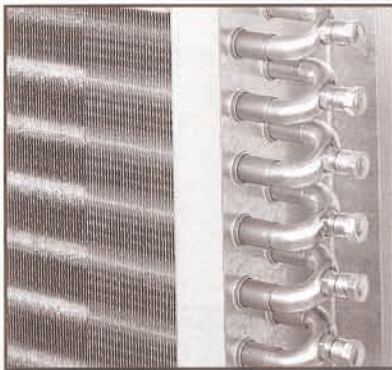
Stop freeze damage with USA Coil & Air SENTRY GUARD Coils.

The first coil designed to protect itself from the cold; and its only available from USA Coil & Air. Freeze damage. The leading cause of coil failure.

It happens every winter when water or condensate freezes and expands causing internal pressure to reach dangerous levels. And if cold air is delivered across coil surfaces by a fan, freezing can happen fast, resulting in damage occurring

within minutes. Until now freeze damage or bursting often lead to one repair solution – expensive and time consuming coil replacement.

Developed by USA Coil & Air, Sentry-Guard addresses the need for freeze protection by providing internal pressure relief well before catastrophic damage occurs. No other product offers this breakthrough freeze protection technology that is built into every Sentry-Guard coil.



Sentry-Guard coil with patent pending freeze relief plugs.

Sentry-Guard makes freeze protection easy, reliable, and very cost-efficient.

No other approach to coil freeze protection offers the operating and maintenance benefits of Sentry-Guard technology. The unique design incorporates easily removable pressure relief inserts into every coil return bend of a Sentry-Guard coil. As pressure approaches design limits, a specially designed plate ruptures, releasing pressure when and where required, protecting critical coil compo-

nents from damage – simply, effectively, and reliably.

Freeze severity determines how many Sentry-Guard

relief inserts rupture. In all cases repair is easy. Simply unscrew the top flange and set in a replacement insert. Hand tightening is all that's needed. Replacement Sentry-Guard inserts can easily be stored on or near each coil for quick,



convenient servicing.

While Sentry-Guard does not eliminate the need to winterize coils by draining or adding glycol, it offers the security of straightforward, dependable freeze damage protection unequalled in the industry today.

Protection for all coil applications – hot or cold. All backed by a 30 Month Warranty.

Heating coils, especially for comfort applications, operate at peak levels during winter months, and can be exposed to the dangers of freezing ambient temperatures. Boiler breakdown, power failure, or improperly operating freezestats and controls are some factors which lead to freeze damage to any type of coil, regardless of location. Sentry-Guard coils are available to meet most requirements served by conventional coils – in a wide range of sizes, types, and for heating, cooling and reheating.

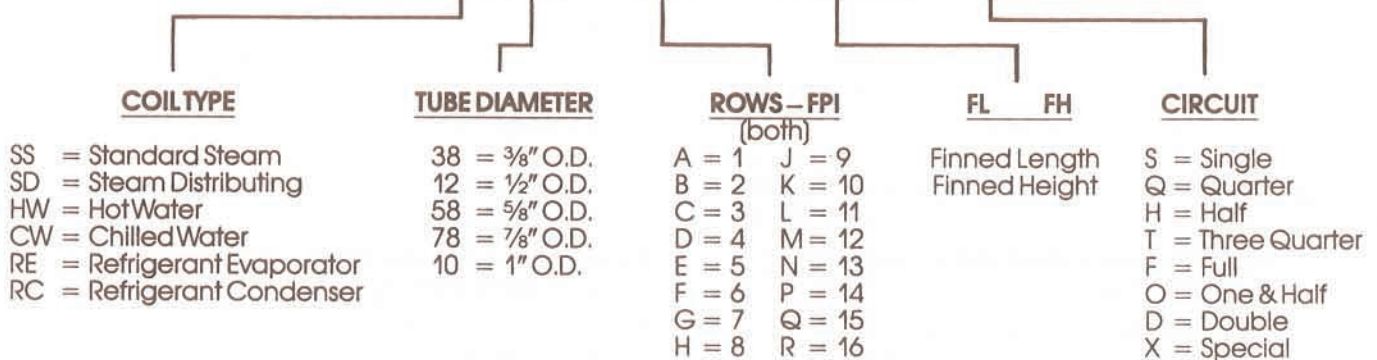


Patent pending freeze relief plug.

For additional information on the Sentry-Guard burst-proof coil call USA Coil & Air at 1-800-872-2645.

NOMENCLATURE

CW58 – DH – 08436 – F



COIL FACE AREA / ALLOWABLE VELOCITIES

DEFINITIONS

Coil Face Area is the open finned portion of the coil that the air passes across. It does not include any casing around the coil.

Finned Height is always measured perpendicular to the way the tubes are running regardless of how the coil is mounted. Usually, this is the shorter of the (2) dimensions.

Finned Length is always measured in the same direction that the tubes run. Usually, this is the longer of the (2) dimensions.

Example: Coil = 36" F.H. x 96" F.L.
 Fin Height x Fin Length = Coil Face Area
 36 x 96 = 3456 Sq. In.
 $\frac{3456 \text{ Sq. In.}}{144 \text{ Sq. In. / Sq. Ft.}} = 24 \text{ Sq. Ft. Face Area}$

Selection Limits on Coils.

Once you have determined the face area of your coil in square feet, then use the following formula to calculate face velocity across the coil.

Example: 12,000 CFM, 24 Sq. Ft. Face Area

$$\text{C.F.M. (Volume of Air)} \div \text{Coil Area (Sq. Ft.)} = \text{Face Velocity}$$

$$12,000 \text{ C.F.M.} \div 24 \text{ Sq. Ft.} = 500 \text{ Ft. / Minute}$$

There are limits to allowable Face Velocities on any coil. If the air travels too slowly or too quickly across the coil, then you don't get effective heat transfer. If you are cooling the air and taking moisture out of the air, then you are further restricted, because if the air is moving too fast, then it's possible to carry the moisture downstream where it can't be collected. You will have condensate collecting in areas that it doesn't belong. Drain pans are designed to collect condensate from cooling coils, but when air travels too fast across the coil, it carries condensate downstream past the drain pan.

TYPE COIL	DUTY	ALLOWABLE VELOCITY
HOT WATER	SENSIBLE HEATING	200 F.P.M. - 1200 F.P.M.
STEAM	SENSIBLE HEATING	200 F.P.M. - 1200 F.P.M.
CHILLED WATER	LATENT COOLING	200 F.P.M. - 550 F.P.M.
DX	LATENT COOLING	200 F.P.M. - 550 F.P.M.
DX / CHILLED WATER	SENSIBLE COOLING ONLY	200 F.P.M. - 1200 F.P.M.
CONDENSER	-----	600 F.P.M. - 800 F.P.M.

COILS GENERAL

All coils shall be constructed with plate fins and seamless tube construction as shown on plans and specifications. All coils shall conform to A.R.I standard 410. Seamless copper tubes shall be mechanically expanded into plate aluminum or copper fins to form an everlasting bond between primary and secondary surfaces. Fins shall be continuous type and shall have full collars to allow for expansion and contraction of fins. Headers (Manifolds), if required shall be constructed of round pipe type and shall be constructed of a minimum of .060" wall seamless copper. End caps shall be rounded so as to prevent excessive pressure drop. All coils shall be provided with copper vent and drain connections.

Provide heavy gauge casings, tube sheets and intermediate supports. Tube sheets shall be free of sharp edges and have properly sized holes for expansion and contraction of tube. Intermediate supports are required every 42" of finned length and shall be bolted to top and bottom casing channels. Coil connections shall be copper or steel MPT type and shall be brazed into manifold. Booster heating coils without manifolds may be copper sweat connections. All coils shall be leak tested at 400 PSI air pressure under warm water and shall be guaranteed for 200 PSIG water working pressure or 100 PSIG operating steam pressure if standard steam or steam distributing type. All coils are guaranteed up to 300 degrees F working temperature.

SPECIFIC WATER COIL CONSTRUCTION - (Use for hot water, chilled water or glycol coils)

Tubes: 5/8" O.D.. X ___ thick seamless copper tubes (.020" standard, .035" and .049" optional).
Fins: ___ construction (aluminum or copper). ___ thickness (.0065" standard, and .010" optional).

Casing: ___ construction (galvanized steel standard, 304 stainless steel optional) ___ gauge (16 gauge standard, 14 gauge optional).

SPECIFIC STEAM DISTRIBUTING COIL CONSTRUCTION - 5/8" - (Use "Coils General" and water coils except as follows:)

Tubes: 5/8 O.D. X ___ thick seamless copper condensing tube (.025" thick standard, .035" optional), 3/8 O.D.

inner seamless copper distributing tube.

SPECIFIC STEAM DISTRIBUTING COIL CONSTRUCTION - 1" - (Use "Coils General" and water coils except as follows:)

Tubes: 1" O.D. X ___ thick seamless copper condensing tube (.035" thick standard, .049" optional), 5/8" O.D. inner

seamless copper distributing tube.

SPECIFIC STANDARD STEAM COIL - 5/8" - (Use "Coils General" and water coils except as follows:)

Tubes: 5/8" O.D. X ___ thick seamless copper condensing tube (.025" thick standard, .035" optional, .049

optional), no inner distributing tube.

SPECIFIC DX COIL - DIRECT EXPANSION - 5/8" - (Use "Coils General" and water coils except as follows:)

Tubes: 5/8" O.D. X ___ thick seamless copper condensing tube (.020" thick standard, .035 optional, .049" optional).
Each coil shall have proper circuitry to provide lowest

refrigerant pressure drop. Each circuit shall have its own suction header with suction connection, and a distributor with distributor leads all properly sized for designated tonnage. Expansion valves shall be supplied by others.

SPECIFIC CONDENSER COILS - 1/2" OR 5/8" - (Use "Coils General" and water coils except as follows:)

Tubes: 1/2" O.D. X ___ thick seamless copper condensing tube (.017" thick standard, .025" optional).
Tubes: 5/8" O.D. X ___ thick seamless copper condensing tube (.020" thick standard, .035" optional, .049" optional).
All coils shall be circuited to provide lowest pressure drop.

Fin surface shall not exceed 14 fins/inch to facilitate cleaning. Provide hot gas inlet and liquid outlet of proper size. Coils can be circuited with separate sub-cooling circuit to allow for 10°F sub-cooling of refrigerant (optional).

SENTRY-GUARD BURSTPROOF FEATURE - (Except DX and Condenser)

All coils shall be furnished with special Sentry-Guard return bends and/or plugs as applicable. Special fittings shall be brazed construction with screw-on, screw-off removable insert. They shall be on all return bends on both sides of coil, on applicable headers and tube ends as required.

All Sentry-Guard coils shall be guaranteed against freeze damage, except for inserts, for a period of 30 months from date of shipment. Coils also have a standard 12 month material and workmanship warranty. (Please review Sentry-Guard limited warranty for full details.)

SELECTING TUBE DIAMETER AND THICKNESS

1/2" O.D. tube coils are used mostly in direct expansion evaporator and refrigerant condenser coils because there are more tubes for the coil engineer to work with when trying to circuit coils. A 30" fin height (FH) coil would have 24 tubes high per row versus the 5/8" O.D. coil having 20 tubes.

There is absolutely no reason to not specify water coils at 1/2" O.D. as long as nothing more than standard .017" tubing (optional .025 max.) is required. A standard 5/8" O.D. coil is .020" thick. The 1/2" O.D. coil is usually the least expensive selection. 1/2" O.D. coils shouldn't be used where water or tube side flow is dirty or untreated. The design, with its small inside diameter tubes, clogs fairly easy. See Industrial bulletin for cupro-nickel tubing and 7/8" O.D. tubing for an even better design. Most large 5/8" O.D. water or refrigerant coils that are

over 15 years old are standard .035" tube wall, even though our standard and the present industry standard is only .020" thick. A tube wall thickness is most important because the brazed joints of a coil are of much higher quality. The bursting pressure of a tube is over 1,000 PSIG but the joint is where quality is required at the factory. The thicker the tube, the more time heat can be applied to the joint and thus much higher quality. A simple analysis is that these heavy tube wall coils have lasted 15-20 years. What will today's coil last? Also remember the heavier tube wall coils are easier to repair in the field. .035" and .049" wall thickness should be used for adverse temperature and pressure reasons. See "Coil Temperature & Pressure" in Industrial Coil Bulletin. The heavier the tube wall, the longer the life of a coil.

FIN TYPE AND THICKNESS

Fin thickness of .0065" is standard for USA Coil & Air coils as well as most of the plate fin coil industry. .010" thickness should be used generally in higher heat applications or where high pressure cleaning of coil may be required. Remember that plate fins at .0065" thick are equal to the structural capability of .010" thick spiral fins. Plate fins are much larger pieces of metal and also have collars that increase strength.

The selection of aluminum or copper in HVAC coil application is generally a design decision. Some codes or applications can't have a "rust" or deterioration of fin and therefore copper is mandatory. Aluminum fits most applications and usually is just a matter of specifying thickness.

Salt laden atmospheres (see galvanic Corrosion – Industrial Bulletin) require the use of copper tube to copper fin contact since dissimilar metals causes electrolysis and deterioration of fin surface. See less expensive (less effective) phenolic coating alternative.

Plate fin coils have all tubes expanded into individual fin and therefore have a lifetime bond. Spiral fin copper coils are mechanically wound onto each individual tube and because copper is softer than aluminum requires the use of the lead tin based solder coating. Without it, they can't guarantee an everlasting bond between the primary (tube) and secondary (fin) surfaces. A loss in bond can reduce capacity by as much as 40%.

CASING AND SUPPORTS

Smaller coils of the 1/2" O.D. type are up to 4 rows and not longer than 48" finned length can be 18 gauge galvanized steel. All 5/8" O.D. and larger 1/2" O.D. coils should be 16 GA. galvanized steel. Very large coils that need extra heavy casings should be specified with 14 gauge casings. Many specifiers/engineers deal with the tubes and fins of

coil for corrosion resistance and then forget about the casing of a coil. The addition of stainless steel casing in either 18 gauge or 16 gauge only adds approximately 20% to a price of the coil. The addition of stainless steel many times prevents corrosion at tube and tubesheet area as well as rusting at mounting areas.

CONNECTIONS

Selection of MPT (male pipe thread) or FPT (female pipe thread) is usually according to the installation of coils. USA

Coil & Air can provide copper or steel connections of either variety.

COATING

The "phenolic" coating specified has a corrosion resistance effect against many different HVAC contaminants. The most important item that establishes longevity is complete coverage of coating on a coil that must be done after fabrication of coil. Spraying or other short cut type coatings won't provide longevity. Most times a corrosive agent attacks metals in contact with each other or where coating hasn't been applied. The most important area is where the tube and fins touch.

Specifier should realize that less fins per inch and rows raises the quality and effectiveness of the phenolic coating.

A phenolic coating has been applied and works well in salt laden atmospheres. It is used generally where copper fin price is prohibitive but some protection is required. Many 5 to 20 ton commercial condenser coils used this coating because the price of copper fins is not warranted.

5/8" O.D. AND 1" O.D. STEAM DISTRIBUTING COILS – 5/8" O.D. STANDARD STEAM COILS

Steam Distributing Coil applications are primarily for below freezing air applications. The inner distributing tubes theoretically supply hot steam down the entire length of tubes thus warming the condensate that has been pushed into the tubes.

Standard steam coil applications are for above freezing applications and the coils have only two differences than a water coil. This coil requires a standard .025" thick wall (water coils are .020") due to temperature and pressure requirements as well as having slightly oversized holes in tube sheets for expansion and contraction requirements. Standard steam coils are only 5/8" O.D. tube type and should be opposite end connected (single pass design) if possible. Same end connections are warrantable, but steam should never be passed around return bends, which are required to make same end connections. 5/8" O.D. Steam Coil (standard or steam distributing type) can have longevity enhanced by providing heavier wall tubes. It is suggested that .035" wall or .049" tubes are used as much as possible. Note that the maximum wall thickness for a steam distributing steam coil is .035" wall since there must be room between the inner and outer tubes to return condensate.

1" O.D. steam distributing coils have a standard .035" wall, which also is the maximum because of the condensate space limitation. These coils offer a 5/8" inner distributing while a 5/8" O.D. steam distributing coil only

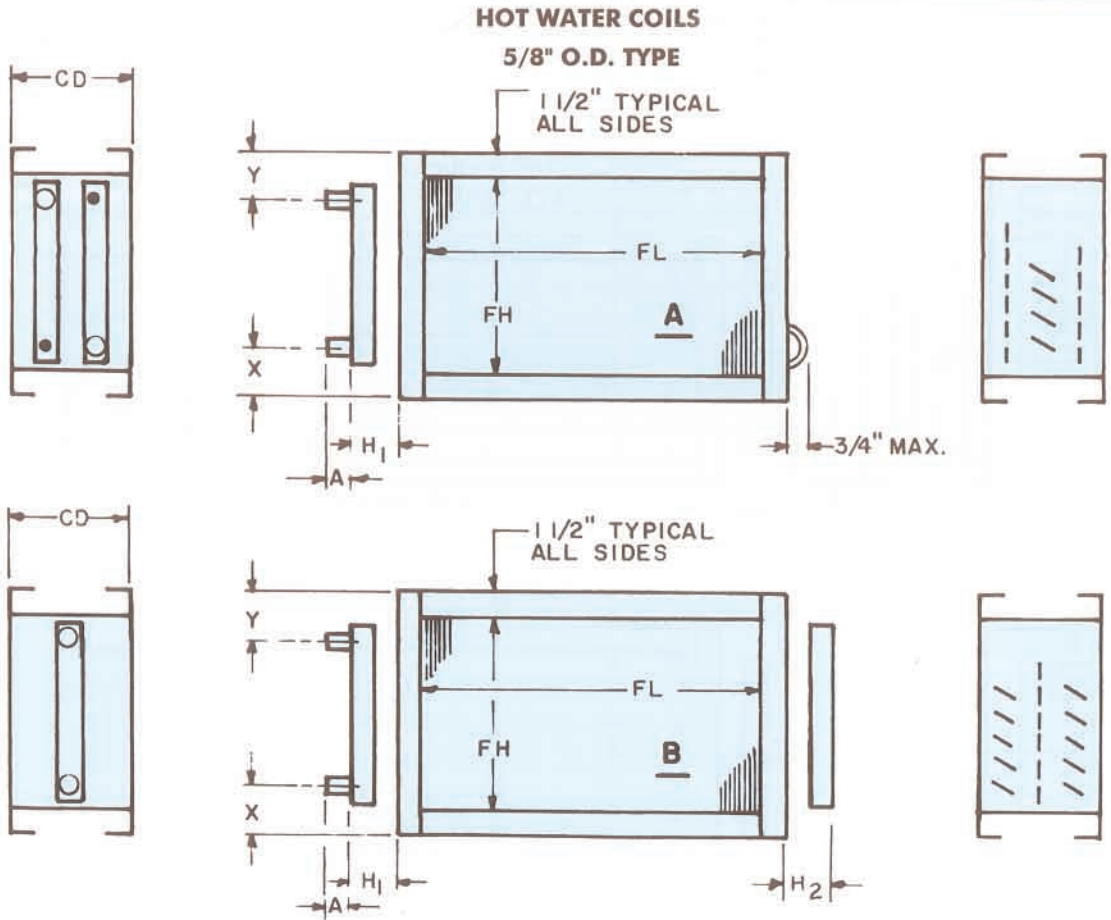
offers a 3/8" O.D. inner tubes. Also the 1" O.D. coil design offers a much larger area for condensate return.

The importance of large steam and condensate tube area is simple. Most HVAC preheat coils are all outside air temperature in conjunction with low pressure steam (5 PSIG equal 227.1 °F). In very large HVAC systems, coils get long (over 48" long) and this is when rapid condensate clogs the smaller 5/8" steam distributor coil design. This clogging reduces capacity because steam and condensate can take up the same space at the same time. It also may cause condensate to freeze up.

1" O.D. steam distributing one-row coils have the same capacity as two-row 5/8" O.D. type coils. Based on this, coils can't experience stress corrosion at joints due to the rows pulling away from each other.

One other option on steam distributing coils is to have two supply connections, one at each end of the coil to properly distribute steam evenly across the entire face. This is a must on all coils over 108" finned length.

Vertical tube coils, regardless of standard steam or steam distributing, have an advantage of not being condensate holders. This is all based on a workable trap, etc. Vertical tube arrangements cost more per square foot because more total tubes are supplied. Standard steam coils should be supplied in the top and out the bottom, while steam distributing coils can be in top and out bottom or in bottom and out bottom.



GPM RANGE	COPPER CONN. MPT	A	1 OR 2 ROW ARRGT "A"	1 ROW ARRGT "B"		2 ROW ARRGT "B"		X	Y	CD	
			H ₁	H ₁	H ₂	H ₁	H ₂			1 ROW	2 ROW
1-5	3/4	1 1/2	2 3/4	3 1/8	3 1/8	4 3/8	4 3/8	1 1/2	1 1/2	5	6 1/2
6-10	1	2	2 3/4	3 1/8	3 1/8	4 3/8	4 3/8	1.75	1.75	5	6 1/2
11-20	1 1/4	3	3	3 1/8	3 1/8	4 3/8	4 3/8	2	2	5	6 1/2
21-30	1 1/2	3	3 1/4	3 1/8	3 1/8	4 3/8	4 3/8	2	2	5	6 1/2
31-50	2	3	3 3/4	3 5/8	3 5/8	4 3/8	4 3/8	2	2	5	6 1/2
51-80	2 1/2	3 1/4	4 1/4	4 3/8	4 3/8	4 3/8	4 3/8	2 1/4	2 1/4	5	6 1/2
81-140	3	3 3/4	4 3/4	4 7/8	4 7/8	4 7/8	4 7/8	2 1/4	2 1/4	5	6 1/2

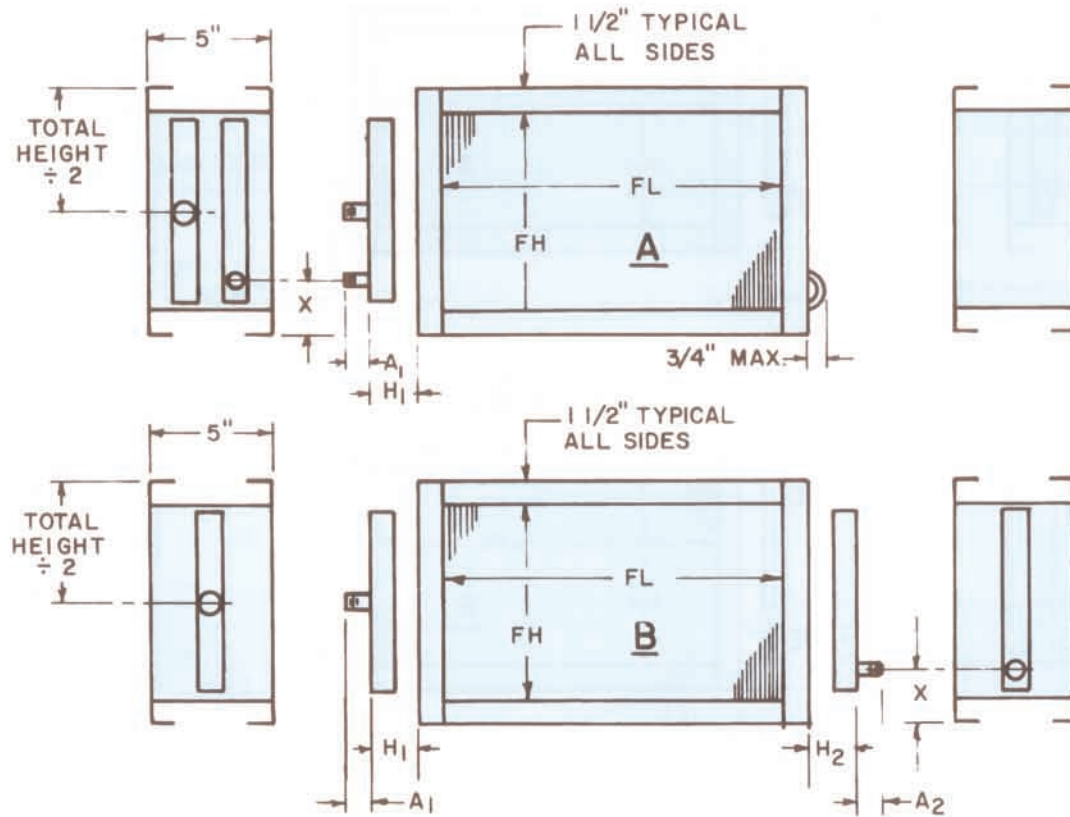
H₂ Tolerance ± 1/2

COIL CONSTRUCTION
5/8" O.D. x .020 wall copper.
.006 thick aluminum fins.
Heavy wall copper headers.
MPT copper connections.
1/4" IPS vent and drain.
All coils have 1/2" turned-over flanges.
Top supply - bottom return.
Tolerance ± 1/4" (except as noted)

3 New Coil Drawings

Standard Steam Coils
Dwg. # NSS-1

STANDARD STEAM COILS 5/8" O.D. TYPE



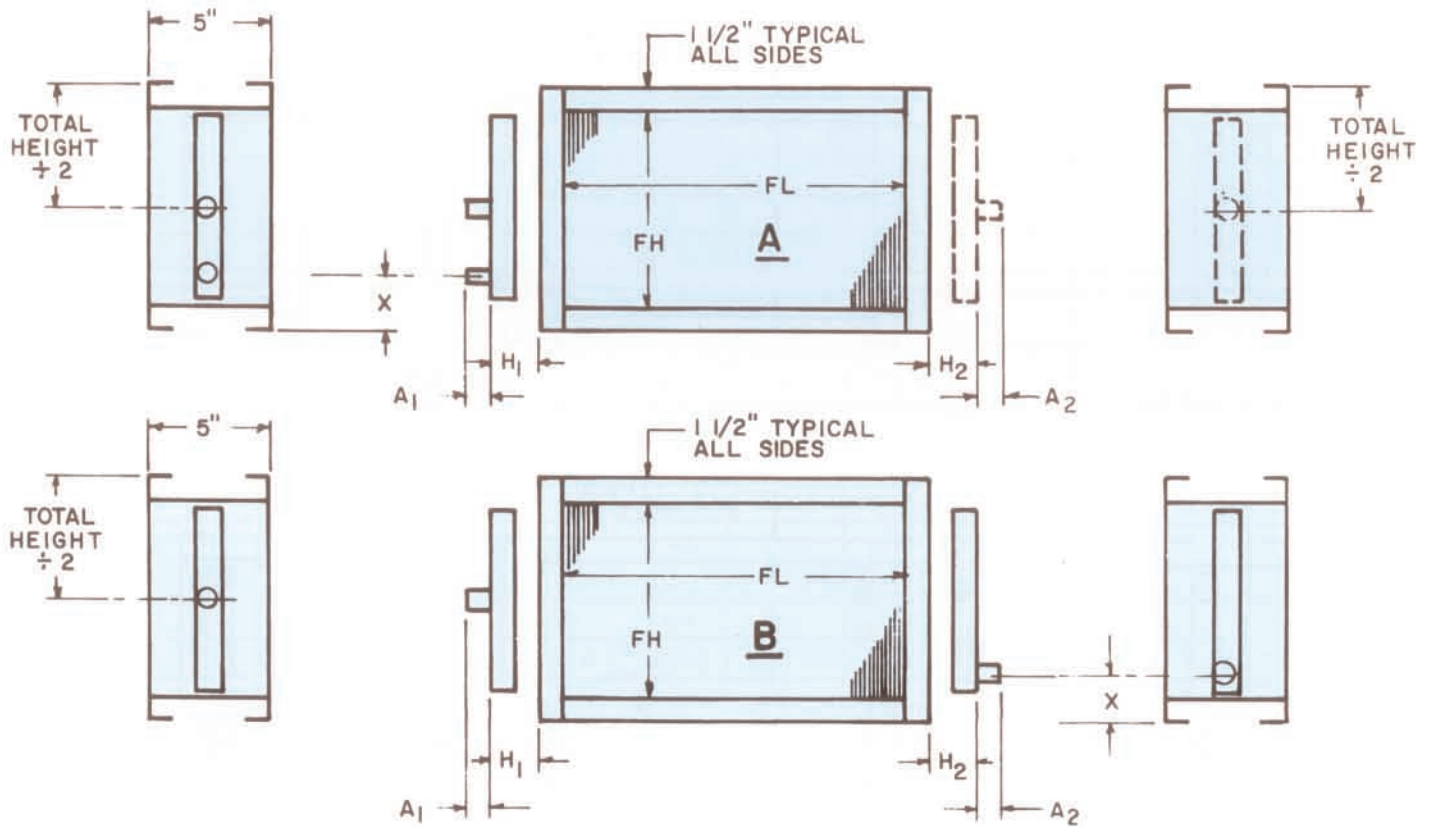
CONNECTION SIZES					
CONN'S SUP./RET.	"A" H ¹	"B" 1 ROW		"B" 2 ROW	
		H ²	H ³	H ²	H ³
1 1/2 - 1 1/2	3 1/4	3 1/4	3 1/4	4 1/2	4 1/2
2 - 1 1/2	3 3/4	3 1/2	3 1/2	4 1/2	4 1/2
2 1/2 - 1 1/2	4 1/4	3 3/4	3 3/4	4 1/2	4 1/2
2 1/2 - 2	4 1/4	4	4	4 1/2	4 1/2
3 - 2 1/2	4 3/4	4 1/2	4 1/2	4 3/4	4 3/4

CONNECTION SIZES - ALL COILS				
COIL FH	SUPPLY		RETURN	
	1R	2R	1R	2R
UP TO 24	1 1/2	2	1 1/2	1 1/2
24 - 27	2	2	1 1/2	1 1/2
30-33	2	2 1/2	1 1/2	1 1/2
36 & UP	2 1/2	3	2	2 1/2

COIL CONSTRUCTION
5/8" o.d. x .025 copper tubes.
.006 thick aluminum tubes.
heavy wall copper headers.
M.P.T. connections (copper).
16 Ga. galvanized steel casing supports.

All connections M.P.T. (O.D.)
X = 5/8" + return connection size

**STEAM DISTRIBUTING COILS (NON-FREEZE)
5/8" OR 1" O.D. TYPES**



CONNS		1 ROW - 5/8" O.D.			2 ROW - 5/8" O.D.			1 ROW - 1" O.D.		
SUP	RET	H ¹	H ²	A	H ¹	H ²	A	H ¹	H ²	A
1 1/2	1 1/2	4 1/4	2 1/4	3 1/2	4 3/4	3 3/4	4	3 1/2	3 1/2	3
2	1 1/2	4 1/4	2 3/4	3 1/2	4 3/4	3 3/4	4	4	3	3
2 1/2	1 1/2	4 1/4	3 1/4	3 1/2	4 3/4	3 3/4	4	4 1/2	3	3
2 1/2	2	4 1/4	3 3/4	3 1/2	4 3/4	3 3/4	4	4 1/2	3	3
3	2 1/2	4 3/4	4 1/4	4	4 3/4	4 1/4	4	-	-	-

CONNECTION SIZES - ALL COILS				
COIL FH	SUPPLY		RETURN	
	1R	2R	1R	2R
UP TO 24	1 1/2	2	1 1/2	1 1/2
24 - 27	2	2	1 1/2	1 1/2
30 - 33	2	2 1/2	1 1/2	1 1/2
36 & UP	2 1/2	3	2	2 1/2

COIL CONSTRUCTION

- 5/8" O.D. x .025 outer, 3/8" O.D. inner copper.
- 1" O.D. x .035 outer, 5/8" O.D. inner copper.
- .006" thick aluminum fins (5/8" O.D. tubes).
- .008" thick aluminum fins (1" O.D. tubes).
- Heavy wall copper headers, M.P.T. copper connections.
- 16 Ga. galvanized steel casing & supports.
- Coil connections to be copper MPT type.

APPLICATION NOTE:

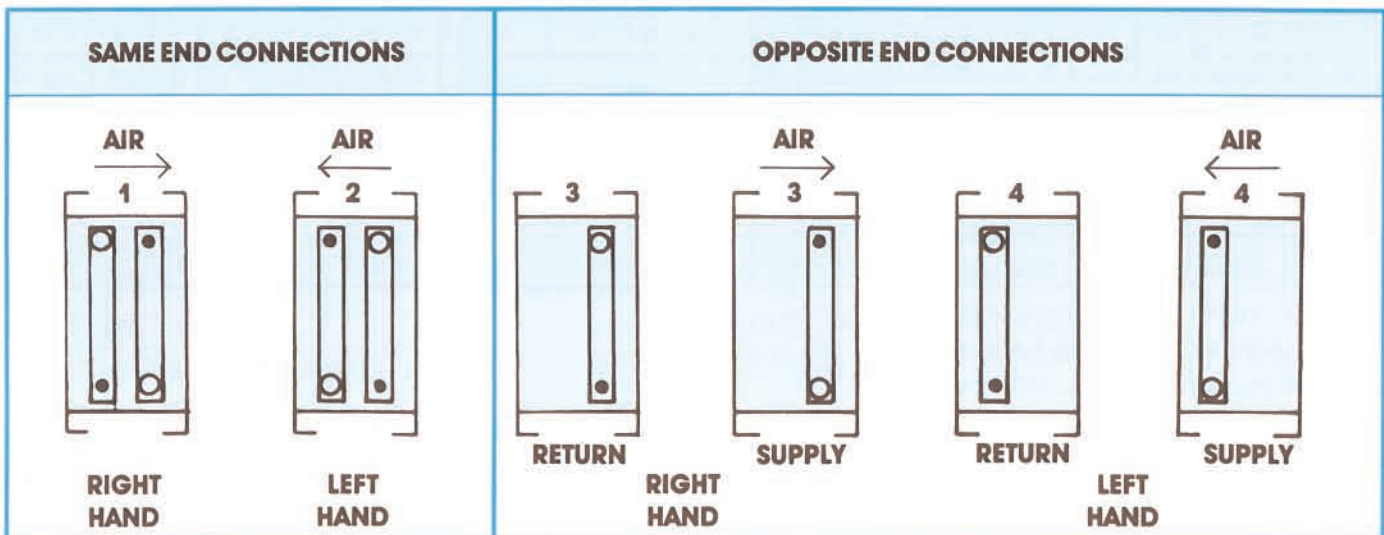
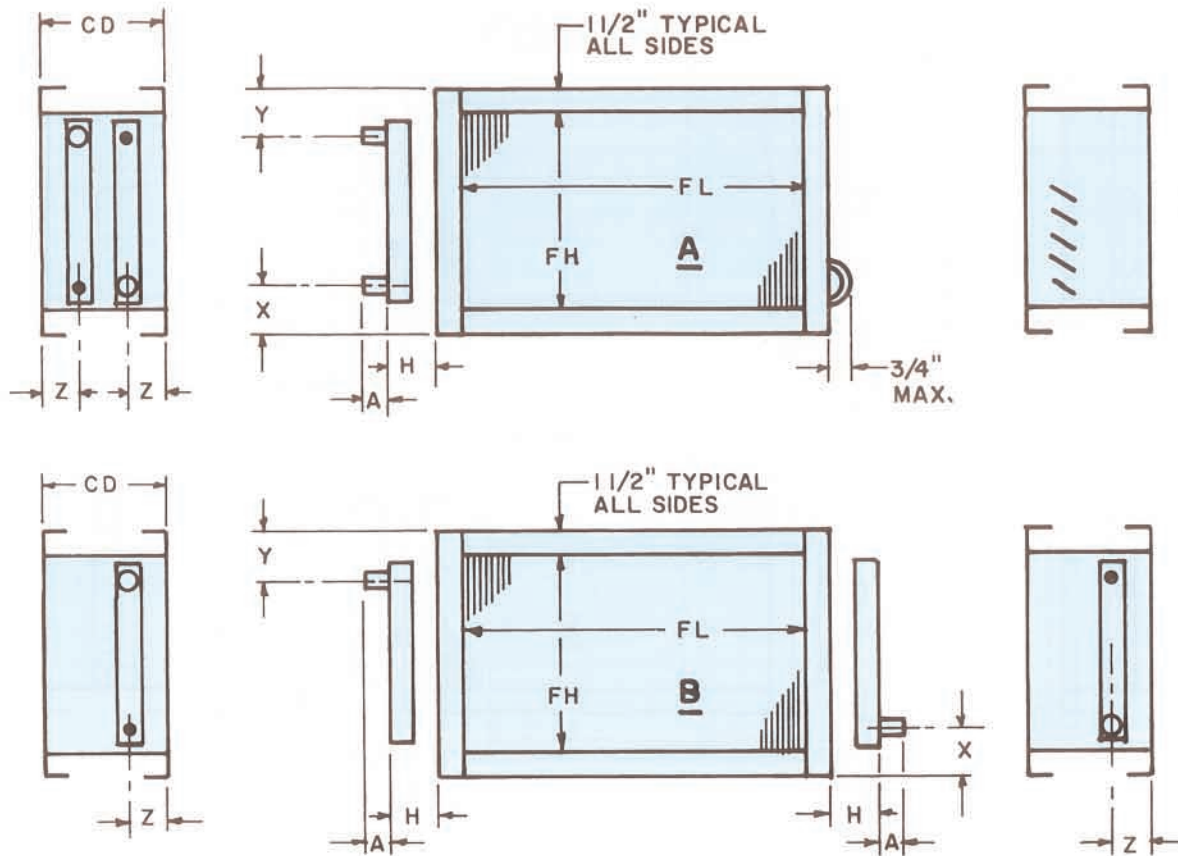
Any coil over 72" finned length, same end connections, in conjunction with outside air, should have dual supply connections (one supply each end). See arrangement 'B' showing two supplies.

All connections M.P.T. (O.D.).
X = 5/8" + Return Conn. Size.

4 New Coil Drawings

Chilled Water Cooling Coils
Dwg. # NCW-1A

CHILLED WATER COILS 1/2" OR 5/8" O.D. TYPES



GPM RANGE	CONNS MPT	CONN SIZE	H	A	X	Y
1 - 5	3/4	3/4	2 3/4	1 1/2	1 1/4	1 1/4
6 - 10	1	1	2 3/4	2	1 1/2	1 1/2
11 - 20	1 1/4	1 1/4	3	3	1 1/2	1 1/2
21 - 30	1 1/2	1 1/2	3 1/4	3	1 1/2	1 1/2
31 - 50	2	2	3 3/4	3	1 3/4	1 3/4
51 - 80	2 1/2	2 1/2	4 1/4	3 1/4	2	2
81 - 140	3	3	4 3/4	3 3/4	2 1/4	2 1/4

"Z" DIMENSION											
ROWS	CD	3/4" TO 1 1/2" CONNECTIONS			2" TO 3" CONNECTIONS			3/4" TO 1 1/2"		2" TO 3"	
		Q	H	F	Q	H	F	O	D	O	D
3	6 1/2	2	2	2	1 1/4	1 1/4	1 1/4	--	--	--	--
4	7 1/2	1 13/16	1 13/16	1 13/16	1 13/16	1 13/16	1 13/16	--	2 1/2	--	--
5	10	2 1/16	2 1/16	2 1/16	2 1/16	2 1/16	2 1/16	--	--	--	--
6	10	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	2 3/8	2 3/8	2 3/8	2 3/8
8	12 1/2	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	--	2 3/8	--	2 3/8
10	15	1 5/8	1 5/8	1 5/8	1 5/8	1 5/8	1 5/8	--	2 3/8	--	2 3/8
12	18	1 13/16	1 13/16	1 13/16	1 13/16	1 13/16	1 13/16	2 1/2	2 1/2	2 1/2	2 1/2

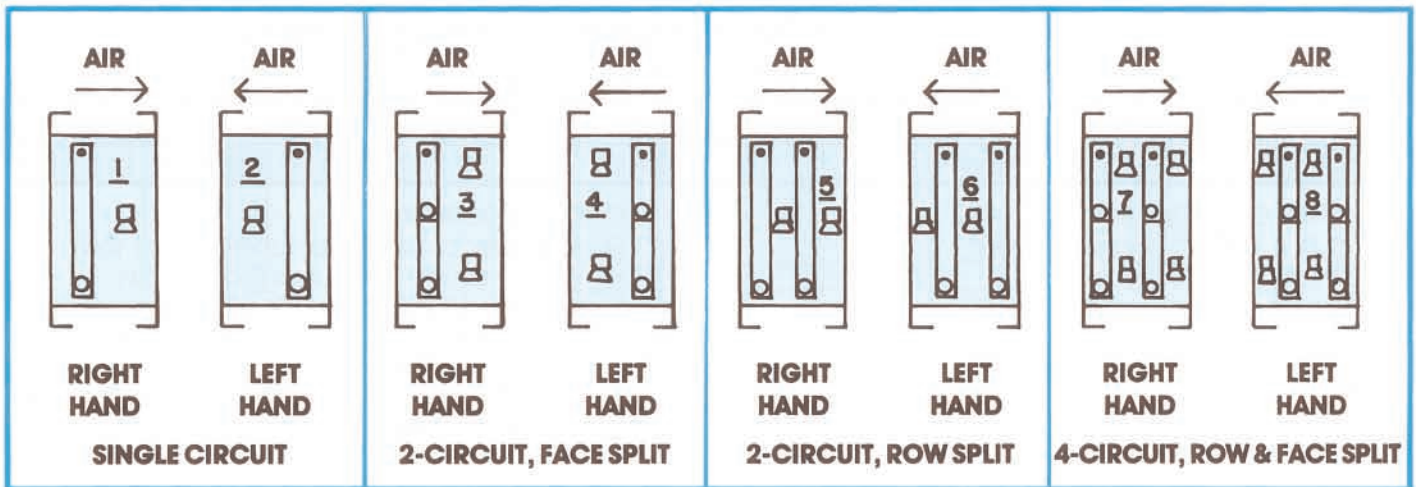
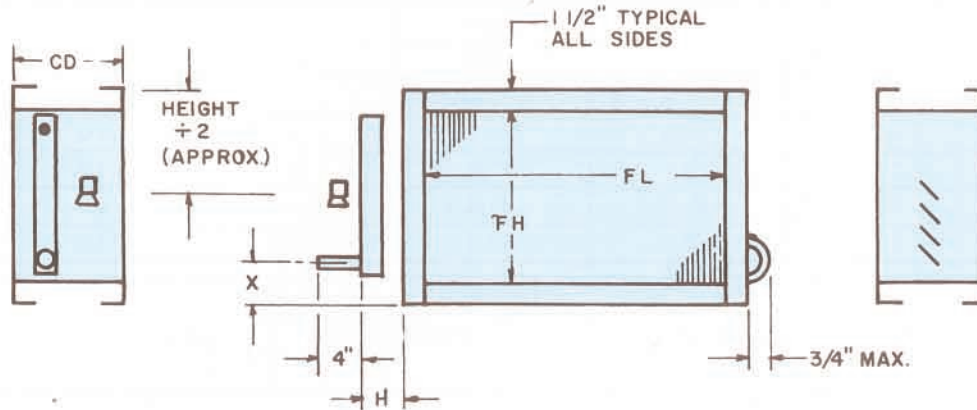
STANDARD CONSTRUCTION
 5/8" O.D. x .020 wall copper tubes,
 .006 thick plate aluminum,
 Heavy wall copper headers,
 MPT copper connections,
 1/4" I.P.S. vent and drain.
 All coils have 1/2" turned-over flanges for stacking purposes.
 Bottom supply – top return.
 Tolerance ± 1/4".

CIRCUIT DESCRIPTION
 Q = Quarter circuit (1/4 of tubes fed in 1 row).
 H = Half circuit (1/2 of tubes fed in 1 row).
 F = Full circuit (all of tubes fed in 1 row).
 O = One and half circuit (1 1/2 times fed vs. number of tubes in 1 row).
 D = Double circuit (2 times fed vs. number of tubes in 1 row).

4 New Coil Drawings

DX/Evapoator Coils
Dwg. # NRE-1

DIRECT EXPANSION COOLING COILS — 5/8" O.D. TYPE



R-22 TONNAGE	CONN. SIZE	H	X
2 - 4	7/8	2.75	1 1/4
5 - 7	1 1/8	2.75	1 1/2
8 - 13	1 3/8	3	1 1/2
14 - 20	1 5/8	3.25	1 1/2
21 - 39	2 1/8	3.75	1 3/4
40 - 63	2 5/8	4.25	2
64 - 99	3 1/8	4.75	2 1/4

ROWS	CD
3	6 1/2
4	7 1/2
5	10
6	10
8	12 1/2
10	15
12	18

COIL CONSTRUCTION

5/8" O.D. x .020 wall copper tubes,
.006 thick aluminum fins,
Heavy wall copper headers,
16 Ga. galvanized steel casings and supports,
O.D. copper sweat connections.

Tonnage vs. connection size based on each circuit.
Connections O.D. sweat type – suction distributor size based on performance.
