

**SUBJECT:**

**GALVANIZED DOOR**

**NO: D-2.0**

**15LE & 17LE Series 1 3/4" Full Flush  
& Seamless Solid Core Doors**

**DATE: 8/99**

**PAGE: 1**

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**SCOPE:**

This bulletin covers the details and features of the subject door.

**PURPOSE:**

To inform the reader of the construction features, specifications, and available types and sizes of these door Series.

**DESCRIPTION:**

While the details and specifications enclosed are self-explanatory, the following features should be noted:

- 1) Please note the chart covering in detail the applicable physical properties of Amweld's Super-Core material, as shown on page D-5.0.
- 2) The 15LE Series door will be furnished with a visible seam on the vertical edges. The 17LE Series door will be furnished as a completely seamless unit.
- 3) Super-Core, the rigid foam plastic core, is in a slab form and bonded to the panel faces with a heat cured urethane adhesive, pressure rolled to improve flatness.
- 4) The top of the door is flush to meet most architectural specifications. This allows the unit to be installed in exterior openings without the use of special top cap closures. For watertight conditions, caulking by painter is required.
- 5) Reference Page D-1.0 for typical door elevations/styles available.
- 6) Wrap around astragals required for inactive doors.
- 7) "G" lites in doors up to and including 9'0" in height will be the same size as those in 8'0" units. Those in doors from 9'1" up to and including 10'0" in height will be approximately 60" high. Standard glazing hole spacing from the top and both vertical edges will apply. The dimension from the bottom of the hole to the bottom of the door will vary.

**SUMMARY:**

The 1 3/4" doors, in Series 15LE full flush and Series 17LE seamless, provide an expanded Amweld door line coupled with a wide range of hardware preparations, enabling architects and contractors to exercise complete freedom in selecting door types and thicknesses for all construction projects.

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**SERIES 1 3/4" 15LE - 17LE SPECIFICATIONS**

Contractor shall furnish and install steel doors as manufactured by Amweld Building Products, in all openings except as otherwise provided for in the specifications.

**CONSTRUCTION** - 15LE Series full flush 1 3/4" doors shall have each face formed of 20, 18, 16 or 14 gauge\* steel to present a completely smooth and unbroken surface on faces of door. Visible seams permitted at door edges. With 18 gauge steel channels forming the top and bottom end closures, the face panels shall be securely continuously laser welded around their entire perimeters.

17LE Series seamless doors shall be similar in construction to full flush doors. Panels shall present a completely smooth and unbroken surface on faces and vertical edges of door. No visible seams permitted.

The panels shall be securely bonded by a thermosetting adhesive to Amweld's Super-Core, a 1# density, odorless, rigid foam that is resistant to fungus, bacteria, moisture, mildew and rot.

**HARDWARE** - Lockset preparation shall provide for field installation of locksets manufactured in accordance with ANSI/DHI A115.1 (Mortise) or A115.2 (Bored). The lock reinforcing shall be 14 gauge. They shall be pierced and tapped for mounting specified locksets. Mounting holes for surface applied escutcheons shall be drilled in the field by others. All doors require locksets with flat faces.

Hinge mortises shall be reinforced with 10 gauge steel standard, (6 gauge optional), welded in place and tapped for 1 1/2 pairs 4 1/2" x 4 1/2" templated hinges (2 pair at doors over 7'6") (5" regular or heavyweight optional). Hinges furnished by others. Mortises shall extend the full width of hinge stile and filler plates shall be provided to permit installation of hinges for right or left hand swing, as specified. 4 1/2" hinge preparation shall accept both regular and heavyweight.

All 15LE - 17LE Series 1 3/4" doors shall be prepared with closer reinforcing which will accept most regular or parallel arm applications. When called for on drawings, or otherwise specified, doors shall be prepared with 14 gauge reinforcing for push-pull plates. Reinforcings must be drilled and tapped in the field by installer.

Inactive leaves, where called for on drawings or in the door schedule, shall be mortised and reinforced with 14 gauge steel for top and bottom flush bolts (ANSI/DHI A115.4). Strike edge of all doors shall be prepared for ANSI/DHI A115.1 strike (4 7/8" Universal). Inactive doors shall be provided with an astragal, except inactive leaves prepared for push-pull plates or rim-type panic devices which shall have blank panels and be furnished without astragals.

**GLAZING** - Glass lite doors are furnished with formed (20 Ga. C.R.) steel glazing strips of the screw-in type to permit selection of secure side in the field. Muntin bars for multi-lite glazing are of the field applied type. Glazing arrangements accommodate 1/4" (6.4mm) thick glass, supplied by others.

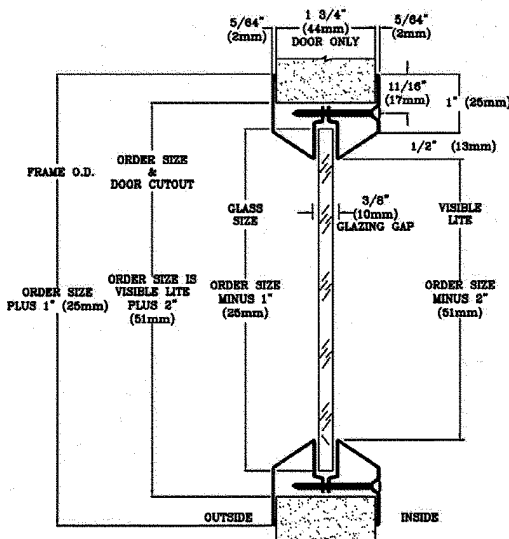
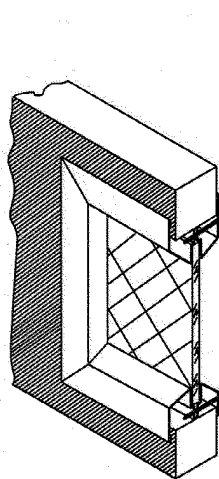
**FINISH** - Exposed surfaces on doors shall be cleaned, treated with a three (3) stage iron phosphate and given one shop coat of synthetic resin, rust-inhibitive alkyd enamel primer.

**STANDARD DOOR SIZES** -

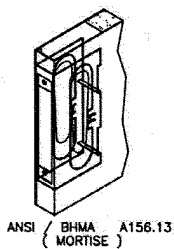
Width	2'0", 2'4", 2'6", 2'8", 2'10", 3'0", 3'4", 3'6", 3'8", 3'10" and 4'0"
Height	6'8", 7'0", 7'2", 7'10", 8'0", 8'1" to 10'0"

\*20 gauge available up to 3'6" x 7'2"  
18 and 16 gauge available up to 4'0" x 10'0"  
14 gauge available up to 4'0" x 8'0"

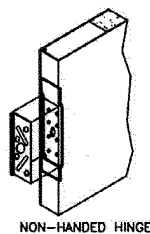
15LE & 17LE Series 1 3/4" Full Flush  
& Seamless Solid Core Doors



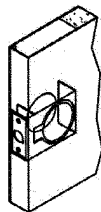
TYPICAL GLAZING SYSTEM



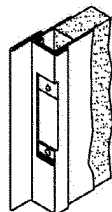
ANSI / BHMA A156.13 (MORTISE)



NON-HANDED HINGE

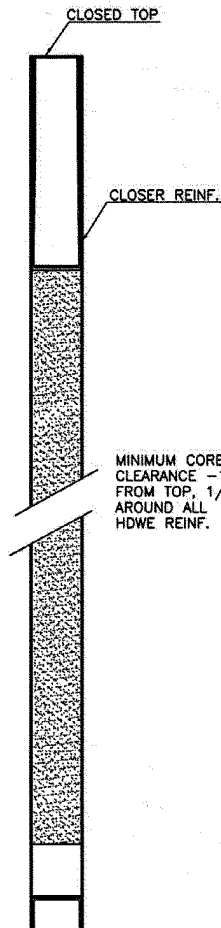


ANSI / BHMA A156.2 (BORED)



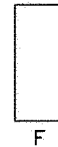
UNIVERSAL STRIKE

TYPICAL HARDWARE PREPARATIONS



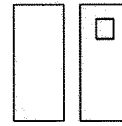
TYPICAL SECTION

3 HR. LABEL STYLES

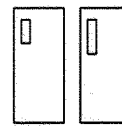


F

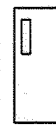
1 1/2 HR. LABEL STYLES



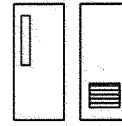
V



N520



N425

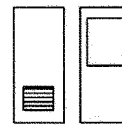


N333



LI

3/4 HR. LABEL STYLES



LI



G

**SCOPE:**

This bulletin covers specifications and features of Amweld's frames for 1 3/4" doors.

**PURPOSE:**

To provide a concise specification with details showing the frame construction and frame anchors.

**DESCRIPTION:**

The 1 3/4", 400 Series frames are available in the following depths in 1/8" increments and are applicable to virtually every type of wall construction. This is made possible by Amweld's frame anchoring system.

Double Rabbet (1 15/16" - 1 9/16") from 4 1/2" through 13 3/4"

→ Single Rabbet from 3" through 12 3/4"

Trimmed Opening from 3" through 12 3/4"

**SERIES 400 1 3/4" FRAME SPECIFICATIONS**

Contractor shall furnish and install steel frames as manufactured by Amweld Building Products, in all openings except as provided for in the specifications.

**CONSTRUCTION** - Frames shall be formed of 16 gauge steel (14 gauge optional). Frames shall be furnished as Amweld "Inter-Lok" construction for field assembly. Headers to be equipped at each miter joint with 18 gauge channel-shaped reinforcements. Headers and jambs shall have mating self-aligning slots and tabs for secure locking of the assembly. (Option: May be furnished as a complete one-piece welded assembly with header and jambs securely welded.) All corners shall present neat mitered joints. All stop heights are 5/8". All frame returns are 1/2" except the 5 3/4" which have 7/16". Three (3) steel snap-in anchors, for field insertion of wood stud, channel steel stud, or masonry, as specified, shall be provided with each jamb.

When specified, door frame members shall be manufactured of hot dip material in the .4 oz. (A40) or .6 oz. (A60) coating class conforming to ASTM A924 and A653 (formerly A525 and A526 respectively). The material shall be treated in the mill to insure superior prime paint adhesion.

Each jamb shall be equipped with one welded-in floor anchor as standard.

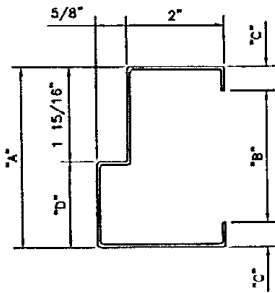
**HARDWARE** - Hinge jambs shall be mortised and reinforced with 10 gauge steel to receive 1 1/2 pairs of 4 1/2" x 4 1/2" template hinges (2 pairs on frames 7'6" and above in height). Hinge reinforcements shall be covered with a welded-in steel plaster guard. (Hinges not furnished.) Strike jambs shall be mortised and reinforced to receive an ANSI/DHI A115.1 strike (4 7/8" Universal) or optional 2 3/4" strike. Strike plate cutouts shall be covered with either an integral plaster guard as part of the reinforcement or with a welded-in steel plaster guard. Strike jambs shall be prepared to receive three (3) mutes and headers for double doors shall be prepared to receive two (2) mutes.

Communicating door frames are manufactured of 16 gauge steel with 1 15/16" rabbets formed on both sides and prepared for strikes and hinges. Must be ordered as 2200 Series.

**FINISH** - Exposed surfaces on frames shall be cleaned, treated with a three (3) stage iron phosphate and given one shop coat of synthetic resin, rust-inhibitive alkyd enamel primer.

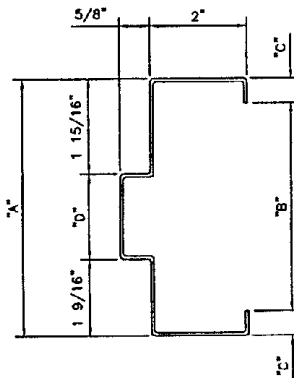
**STANDARD FRAME SIZES**

SINGLE FRAME WIDTHS	2'0" through 4'0"
DOUBLE FRAME WIDTHS	4'0", 4'8", 5'0", 5'4", 5'8", 6'0", 6'8", 7'0", 7'4", 7'8", & 8'0"
FRAME HEIGHTS	6'8", 7'0", 7'2", 7'10", 8'0", 8'1" to 10'0"



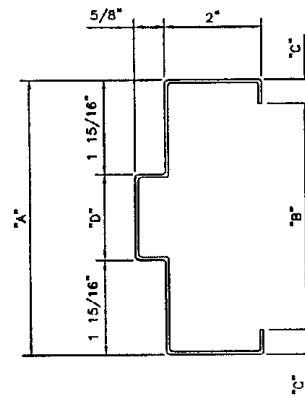
SINGLE RABBETED

A	B	C	D
3	2 1/8	7/16	1 1/16
3	1 3/4	5/8	1 1/16
3 3/4	2 3/4	1/2	1 13/16
ALL OTHERS	DEPTH - 1"		



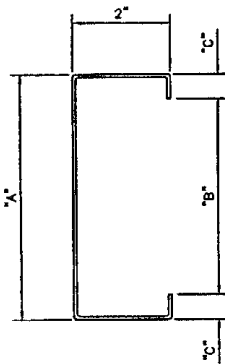
STANDARD DOUBLE RABBETED

A	B	C	D
5 3/4	4 7/8	7/16	2 1/4
ALL OTHERS	DEPTH - 1"	1/2	DEPTH - 3 7/8"



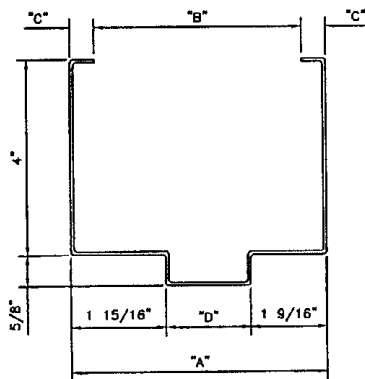
COMMUNICATING (2200 SERIES)

A	B	C	D
5 3/4	4 7/8	7/16	2 1/4
ALL OTHERS	DEPTH - 1"	1/2	DEPTH - 3 7/8"



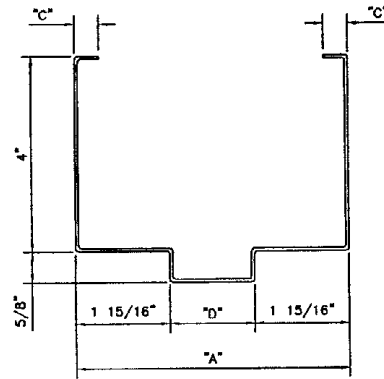
CASED OPENING

A	B	C
3	2 1/8	7/16
3	1 3/4	5/8
3 3/4	2 3/4	1/2
5 3/4	4 7/8	7/16
ALL OTHERS	DEPTH - 1"	1/2



4" FACE HEADER  
STANDARD DOUBLE RABBETED

A	B	C	D
5 3/4	4 7/8	7/16	2 1/4
ALL OTHERS	DEPTH - 1"	1/2	DEPTH - 3 7/8"



4" FACE HEADER  
COMMUNICATING (2200 SERIES)

A	B	C	D
5 3/4	4 7/8	7/16	2 1/4
ALL OTHERS	DEPTH - 1"	1/2	DEPTH - 3 7/8"

STANDARD SNAP-IN ANCHOR TYPES

WIRE MASONRY ANCHOR  
3" THRU 8 3/4"  
(STANDARD)  
SPECIFY "M"

WOOD STUD ANCHOR  
3 3/4", 4 3/4", 5 3/4",  
6 3/4", 7 3/4", 8 3/4"  
(STANDARD)  
SPECIFY "S"

CHANNEL STEEL STUD ANCHOR  
3 3/4", 4 3/4", 5 3/4"  
(STANDARD)  
SPECIFY "C"

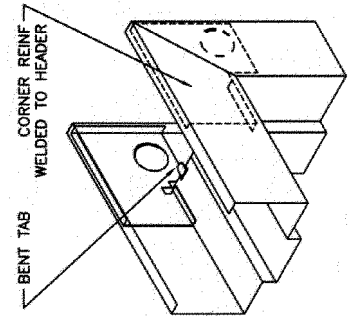
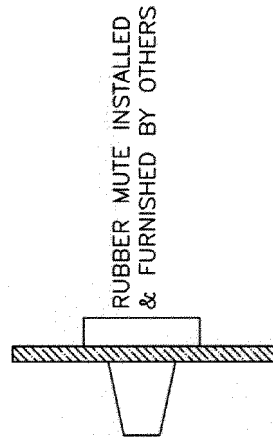
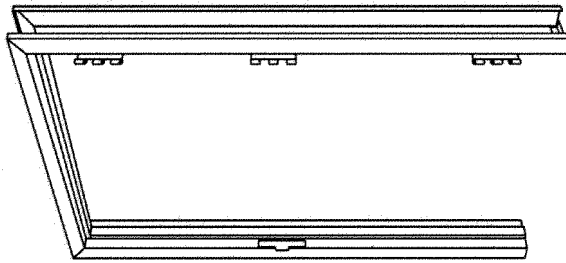
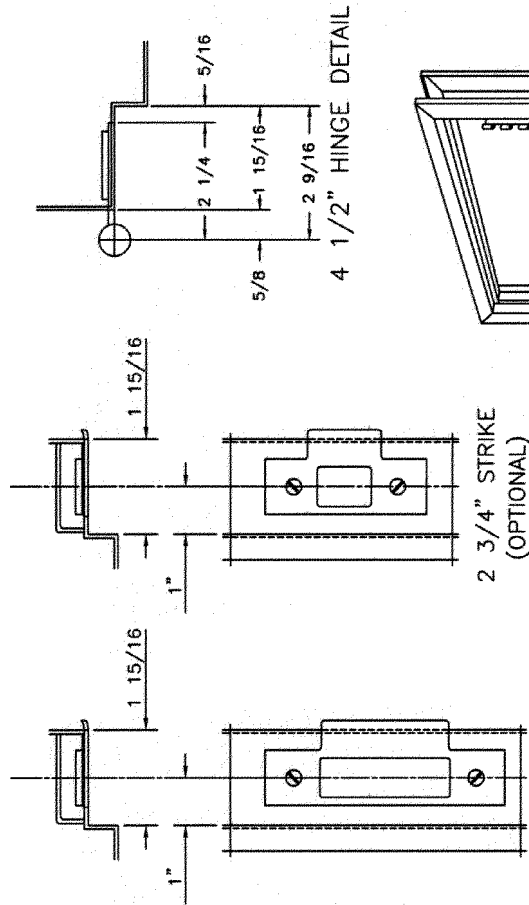
ADJUSTABLE WOOD STUD ANCHOR  
5 3/4", 6 1/4", 6 3/4", 7 1/4",  
7 3/4", 8 1/4", 8 3/4"  
(OPTIONAL)

FLOOR ANCHOR—WELDED  
(STANDARD)

COMPLETED OPENING ANCHOR / LAG BOLT  
5 3/4", 6 3/4"  
SPECIFY "CO" FOR COMPLETED OPENING  
SPECIFY "LAG" FOR LAG BOLT (OPTIONAL)

MASONRY ANCHOR  
9 1/2" AND OVER  
(OPTIONAL)  
SPECIFY "M"

NOTE: ALL OTHER SIZES WILL REQUIRE A WELD-IN TYPE ANCHOR



TYPICAL "INTER-LOK" K-D MITERED CORNER

**SCOPE:**

This bulletin covers the zinc-coated steel specifications that are applicable to the Amweld program.

**PURPOSE:**

To insure the reader is aware of the differences between the two methods of coating steel available in the Amweld program and to emphasize the additional value received when zinc-coated steel is employed.

**25LE-27LE OR 700 SERIES DOORS, 400 SERIES GALVANIZED FRAMES:**

The zinc-coated steel available in the 25LE-27LE or 700 Series doors, and as an option in the 400 Series product line, meets the following specification requirements.

(Door panels and end closures) (Door frame members) shall be manufactured of hot dipped material in the 0.4 oz. coating class conforming to ASTM Designations A924 and A653 (replaces A525 and A526 respectively) (coating class A40). The material shall be treated in the mill to insure superior prime paint adhesion.

Note that the reinforcements and other auxiliary pieces are not zinc-coated because of the problems inherent with welding dissimilar gage zinc-coated materials.

In addition, the galvanized doors and frames receive a coat of baked-on gray primer to insure maximum adherence of field applied finish paints.

In the galvanized process, cold reduced strip passes from the uncoilers through an open flame oxidizing furnace, which also serves as a flame-degreaser, into a reducing furnace, where it is normalized and the oxide film formed in the first furnace is reduced. The strip is cooled in the rearward zones of the reducing furnace to about the temperature of the coating bath. It then passes into the zinc bath through a conduit extending from the end of the furnace to slightly below the surface of the coating bath. Hydrogen or ammonia provides the necessary reducing atmosphere in the furnace. In the presence of hydrogen or ammonia, the iron oxide surface layer is reduced to elemental iron. This provides a clean, chemically reactive surface with which to establish an excellent bond between the steel base and zinc coating. This atmosphere is maintained in contact with the steel strip until the strip is immersed in the molten zinc pot, thus insuring excellent bonding of the zinc and steel. The strip then passes vertically upward from the bath where forced air is directed from the two sides (strip edges) onto the total strip surface to "wipe" off excess coating. This system, often referred to as "air coating control", produces a precise, uniform coating thickness. The strip continues upward, immediately entering a special furnace that is maintained at a temperature that most effectively diffuses the iron of the base metal through the zinc coating. The resultant coating is a 100% zinc-iron alloy whose composition is approximately 10% iron, balance zinc. This temperature varies slightly with line conditions, primarily speed and spelter composition.



**300 SERIES DOORS:**

The zinc finished steel available as a standard on the basic 300 Series doors meets the following specification requirements.

Door stiles, rails and panels are electro zinc-coated steel and phosphatized at the mill to insure superior prime paint adhesion.

Note that the reinforcements and other auxiliary pieces are not zinc-coated because of the problems inherent with welding dissimilar gage zinc-coated materials.

In addition, the electro zinc-coated door receives a coat of gray baked-on primer to insure a maximum adherence of field applied finish paint.

The technique employed in coating this steel is called a "wet system". The steel strip is immersed in an electrolyte solution, electrolytic reaction takes place and zinc is deposited on the steel. The steel strip is the negative pole or cathode. The zinc in the solution is the positive pole or anode. There is a natural flow from the anode to the cathode that is speeded up by the inducement to a high current to the electrolyte solution. The speed of deposit has a direct relationship to the number of amperes of current that are applied.

**14 GAGE 400 SERIES GALVANIZED STICKS:**

The zinc-coated steel standard on the 14 gage 400 Series sticks meets the following specification requirements.

Door frame members shall be manufactured of .4 oz. hot dipped material conforming to ASTM Designations A924 (coating class A40). The steel shall receive an iron zinc alloy coating which has been specifically designed for paint applications and weldability with resistance type welders.

Note that the reinforcements are not zinc-coated because of the problems inherent with welding dissimilar gage zinc-coated materials.

In addition, the galvanized doors and frames receive a coat of baked-on gray primer to insure maximum adherence of field applied finish paints.

The technique used to coat the steel is the same as noted for the 25LE-27LE Series door.

**ADVANTAGES OF ZINC COATING:**

In the technical promotion of this aspect of the Amweld product line, the following information might be of value.

- 1) Through galvanizing, the steel is protected in two ways. First, the zinc coating serves as a barrier between the steel and the corrosive elements in the atmosphere. Second, if the coating should be damaged, galvanic action will take over and the zinc continues to protect the steel by sacrificing itself. The surface of steel is not homogeneous so that each small area may be either anodic or cathodic to the adjacent area. In nature, then, a small electric current is found as in a storage battery and the anodic areas tend to oxidize and turn to rust. As rust progresses, these areas will change polarity so that rusting appears to be uniform over the surface. When zinc is placed in contact with iron, the difference in polarity between the two metals is much greater and the zinc becomes the anode to all of the iron which has now become the cathode. The zinc will slowly dissipate, protecting the iron from corrosion until all the zinc is used up. As a matter of fact, minor scratches may well be gradually closed in with zinc because of this sacrificial action. It is an automatically activated insurance policy of corrosion protection.
- 2) Galvanizing, due to the sacrificial characteristic noted above, is not affected by porosity and if a spot of rust occurs due to surface damage, the rust will not travel back under the adjacent coating, nor will it pit deeply into the abrasion.
- 3) The corrosion rate has been shown to be about 30 times that of zinc so that a thin coating of zinc will effectively protect a lot of steel.
- 4) Because of its strong resistance to corrosion of any type, galvanized or electro zinc-coated materials are recommended for use where the salt spray or chemical laden atmosphere is especially corrosive or where the use of acid or salt bearing additives are used in conjunction with concrete.
- 5) In the hot dip galvanizing process, the zinc actually alloys with the steel, becoming an integral part of the product instead of surface deposits.
- 6) The importance of the prime coat of paint should not be overlooked. Tests have been run by the zinc companies using a very thin coat of paint over regular cold rolled steel and over a thin galvanizing coat. These were compared with non-painted panels with the same quantity of zinc. The corrosion rate of paint alone and zinc alone was the same. The zinc-coated panels with paint resisted rust in excess of three times as long as those without paint. Conservatively, then, the combination of paint over zinc insures more than double the service life of either used alone.

#### **TESTING GALVANIZED MATERIAL:**

Through the years, we have been asked a number of times how you can tell galvanized steel from CRS after it is painted.

The key element in this is muriatic acid, a chemical available from most building supply stores (it is normally used to clean up masonry). If you scratch a regular steel painted surface and apply muriatic acid with a cotton swab, nothing happens. If you do the same thing on a galvanized steel painted surface, there is a definite bubbling action at the scratch that is easily observed.