



CS 1800

UNDERGUIDE CONSTRUCTION

SPECIFICATIONS

BUILDER NOTE:

If the pool does not have the standard configurations shown in these specifications, you must send drawings to your Coverstar distributor for approval. This can prevent costly misunderstandings. Negative edge, pool-in-pool, raised bond beams, waterfalls etc. can be accommodated, but they require drawings and notice to your Coverstar distributor before building the pool to ensure a smooth cover installation.

IMPORTANT NOTICE TO ALL POOL SUB-CONTRACTORS!

Each pool sub-contractor has a section in the enclosed instructions. Please read the page covering your trade. We want to work with you to provide a professional pool cover installation. If you find the instructions unclear or you still have questions or suggestions please do not hesitate to call your Coverstar distributor.

CONTENTS

<u>POOL CONSTRUCTION REQUIREMENTS</u>	<u>2</u>
<u>SCHEDULING</u>	<u>3</u>
<u>EXCAVATION</u>	<u>3</u>
<u>COVER HOUSING</u>	<u>4</u>
<u>STEEL</u>	<u>5</u>
<u>PLUMBING</u>	<u>6</u>
<u>ELECTRICAL</u>	<u>6</u>
<u>GUNITE WALLS AND COVER BOX</u>	<u>8</u>
<u>COPING / CANTILEVERED EDGE</u>	<u>11</u>
<u>DECKING</u>	<u>12</u>
<u>TILE</u>	<u>14</u>
<u>OTHER APPLICATIONS</u>	
<u>Vanishing Edge Pool Application</u>	<u>15</u>
<u>Hidden Leading Edge with Extended Tray Lid Option</u>	<u>16</u>
<u>Raised Side Spa Detail</u>	<u>17</u>
<u>Raised Wall Detail for Cover Housing</u>	<u>18</u>

REVISED 3-28-2003

POOL CONSTRUCTION REQUIREMENTS

1. The pool must be a true rectangle.
2. The mechanism-end bond beam and interior spa walls are shot 2 inches lower than side bond beams and then tiled on top. The top of the tiled end bond beam should be sloped towards the water and leave a 1" gap between the top of the bond beam and the bottom of the decking or coping.
3. The cantilever of the deck or flat coping must be **2" finished and flat** on the bottom **after tile** on both sides. The pool edge at the end of the pool opposite the mechanism should be cantilevered to **provide 2" of flat cantilever**. Bullnose brick must be cantilevered so that the **flat portion of the cantilever is 2"** on each side of the pool. **Deck edge must be a minimum thickness of 2"**.
4. **Adequate drainage** is required from the housing. Because every job site is different, your Coverstar distributor will not assume any responsibility for the type or adequacy of housing drainage. **A 3" drain to open air is required** at the end of the motor side of the housing.
5. **The Coverstar electric motor is ¾ horsepower, draws 9 amps and requires 110 AC. See wiring diagram for installation instructions.** Wiring must conform to all applicable building codes.
6. A # 8 bonding wire must be run to both ends of housing.

SCHEDULING

The pool builder must contact your Coverstar distributor at the following times:

ONE WEEK PRIOR TO EXCAVATION.

If your Coverstar distributor will be setting a redwood housing for the cover roller mechanism, this is normally done **BEFORE** gunite. The housing can be set after gunite if the back edge of the gunite has been cut perfectly straight and vertical at least 14" below the top of the side bond beams and your Coverstar distributor has been notified **in advance** of gunite. If you are doing a gunite housing, continue to Track and Presite:

TRACK AND PRESITE

Once coping, tile and grout are complete, it is normal to install the tracks and obtain final measurements for the pool cover. It is recommended that installation of the tracks be done before you plaster and fill the pool.

FINAL INSTALLATION.

Once you have a plaster date, **call** your Coverstar distributor to schedule the pool cover installation. There must be water in the pool in order to run the cover over the pool. No cover can installed or run out over the pool unless it is filled to its normal level. A cover, unsupported by water underneath operated under much stress. Also, it is possible that rain or a heavy object could pull the guides off the coping or pull the coping into the pool.

EXCAVATION

IMPORTANT: Notify your Coverstar distributor one week prior to pool excavation.

POOL LAYOUT

The pool must be a true rectangle.

After the excavation forms are in place, measure the widths at both ends, the lengths along both sides, and both diagonals of the rectangle you have formed. If the widths are equal, the lengths are equal, and the diagonals are equal, you have a rectangle. If there is a variance in the measurements, now is the time to correct the problem. It is vital that a pure rectangle is formed and excavated.

SKIMMER PLACEMENT

Since the cover housing mechanism will occupy one end of the pool, skimmers should be placed along either side or at the end opposite the mechanism, not at the mechanism end of the pool.

SQUARE CORNERS

The corners of the pool should be cut square at the top of the bond beams.(no radius corners)

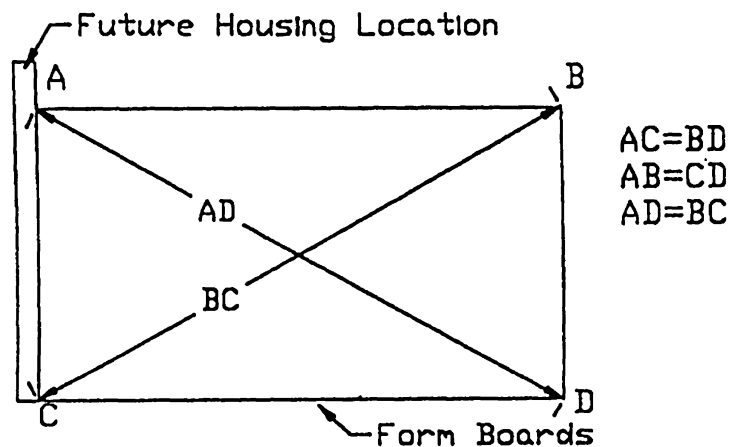
HOUSING EXCAVATION (for the Redwood Housing option)

While excavating the pool, excavate the area for the cover housing from side wall to side wall of the pool. Excavate 16 inches down from the top of the end form board and 18 inches back from the end form board. It is also necessary to excavate the area for the motor end of the housing (36" from inside of bond beam).

NOTE: A shallow end dig entry is preferred whenever possible. A deep end dig entry removes most of the dirt under the cover housing and makes it very difficult to maintain its position during construction. The housing is almost always placed at the deep end because there is less traffic in and out of the pool at that end.

HOUSING DRAINAGE

If a French drain will be used to provide housing drainage, the excavator should coordinate the location and size of the pit with the pool builder's job supervisor. Other trenching for a drain line may need to be planned at this time. **French drains are not recommended unless the soil and surrounding area can absorb full hose volume for an indefinite period of time.**



COVER HOUSING (Redwood)

INSTALLATION

The housing for the cover should be installed between excavation and gunite stages. An electrical line and a 3" drain is required to the housing. It is advantageous for you to notify your Coverstar distributor before the electrician or plumber is sent so the cover housing will be in place for the electrical line and drain line installation.

REDWOOD HOUSING POSITION

The housing will sit at the end of the pool as shown below. To place the housing, first remove the end form board and then put the front of the housing 1" lower than the side wall form boards. Note: Indicate, which side of the redwood housing the motor will be placed on your distributor's copy of pool plans.

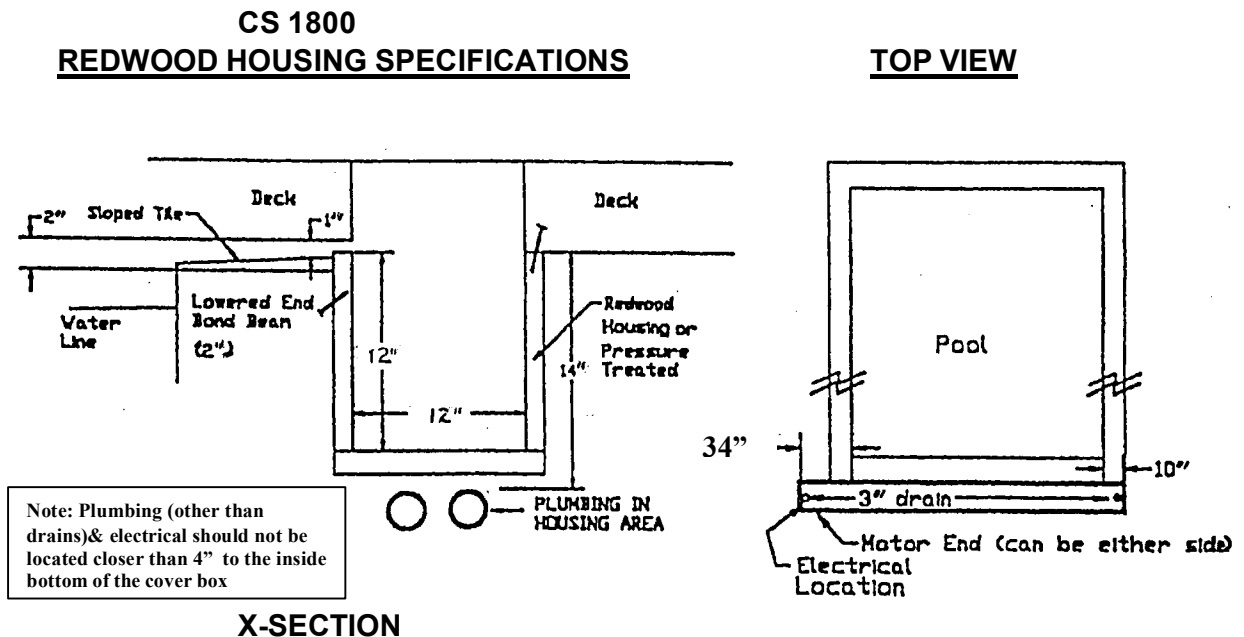
THE HOUSING MUST NOT BE MOVED!

CAUTION: When backfilling against the housing, be sure the housing stays straight, does not move, and is level from end to end.

NOTE: The housing dimensions (12" wide by 12" deep) are good for pool lengths of 42 feet and under. For pools 42+ to 55 feet long, increase the box width and depth to 14". For longer pools, call your distributor. **Back wall must be perfectly straight, vertical and smooth from top to bottom.**

MOTOR END AND EXTERIOR HOUSING DIMENSION

The motor placement of our pool cover mechanism is determined by standing behind the mechanism housing facing the pool. The motor may be on either side. The inside motor end of the housing extends 36 inches past the inside wall of the pool. The inside opposite end of the mechanism housing extends 10 inches past the inside wall of the pool. Any plumbing or electrical lines routed through this area must be placed at least 16 inches down from the top of the end form board or routed around either end of the mechanism housing. The interior width dimension of the pool cover housing is 12 inches. The interior depth of the housing is 12 inches below the sidewall form board.



STEEL

BOND BEAM AND INTERIOR SPA MODIFICATION

The steel forming the end bond beam where the cover housing will sit will be bent down 2 inches lower than the side wall steel from inside wall to inside wall unless encapsulation is being placed on top of the side bond beam. Any interior spa walls must also be held 2 inches lower than the side wall bond beams. This accommodates the bar which supports the front edge of our cover as it moves across the pool. The surface of this end bond beam and the interior spa dam wall will be tiled. The finished level of this tiled surface is 1 inch lower than the side bond beam elevation.

SQUARE CORNERS

You should steel the pool for square corners (no radius corners).

STEEL-(Motor end)



PLUMBING

PLACEMENT OF PLUMBING

If plumbing is to be put in before the housing is in place, care should be taken in the area where the box sits that pipes are routed around the box. If they go through the box area, they must be down a minimum of 16 inches below the top of gunite. If the housing is in place, do not disturb it. Add 2 inches to depth of top of plumbing if length of pool is over 42 feet long.

HOUSING DRAINAGE

The housing **must** have a drain. **It should be at least a 3 inch pipe and should be placed at the motor end of the housing to allow visibility for the homeowner to remove debris from the drain cover.** It is strongly recommended that the cover drain not be tied to the deck drains. If it is, it must be arranged so the housing **cannot** fill up during heavy rains.

Note: "side drainage" is acceptable if level with floor.

Three suggested methods are listed below. The type of drainage used is the sole decision of the pool builder.

1. Drain to street
2. Drain to open air
3. French drain adequate distance from pool. Be sure to check soil conditions for percolation.

NOTE: Housing drainage is the responsibility of the pool cover purchaser. Your Coverstar distributor does not assume any responsibility for the type or adequacy of housing drainage. Check local building regulations.

ELECTRICAL

BONDING

All Coverstar pool cover systems require bonding. The electrician should provide a #8 AWG solid copper ground from the pool equipment pad to a ground clamp on the electrical conduit inside the housing, with a 2-foot tail that will be attached to the mechanism ground bar. Be sure to follow local codes in all instances. **Note: Place bonding wires at each end of the housing.**

RUNNING WIRES Bring 110V to the key switch from the panel. Run 3 wires (hot, neutral and an unbroken green ground). From the key switch to the motor end of the housing run 4 wires (two directionals, a neutral and an unbroken ground). Terminate the wires in a weather tight "J" box. Wire and breaker size must be adequate size for a 3/4 HP with full load amperage of 9 amps. Follow all applicable codes regarding wire size, grounding, connections, etc. (See Diagrams 6A & 6B)

KEY SWITCHES Mount a standard, single gang, all weather junction box for the key switch at a point where 100% of the pool is visible. This is mandatory to meet ASTM safety standards. The key switch should not be placed in the mechanism box as it does not meet UL standards or code.

GROUND FAULT CIRCUIT INTERRUPTER

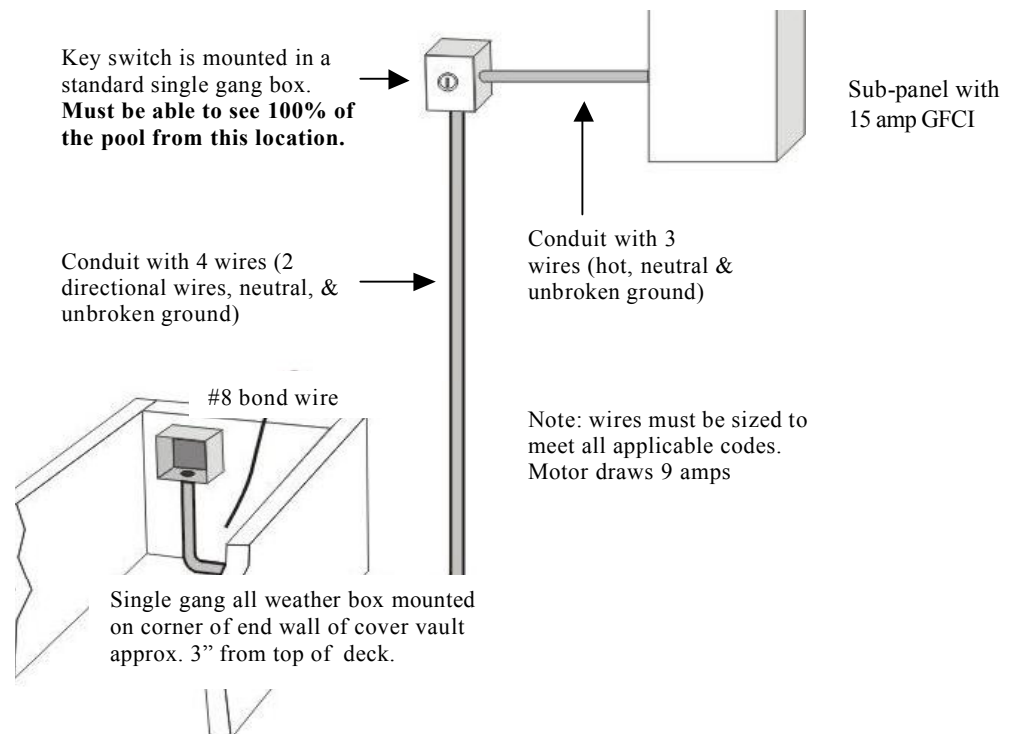
A dedicated GFCI should be used in the electrical supply line for the motor.

Note: Builder is responsible to bring proper electric lines, conduit and bonding to the mechanism.



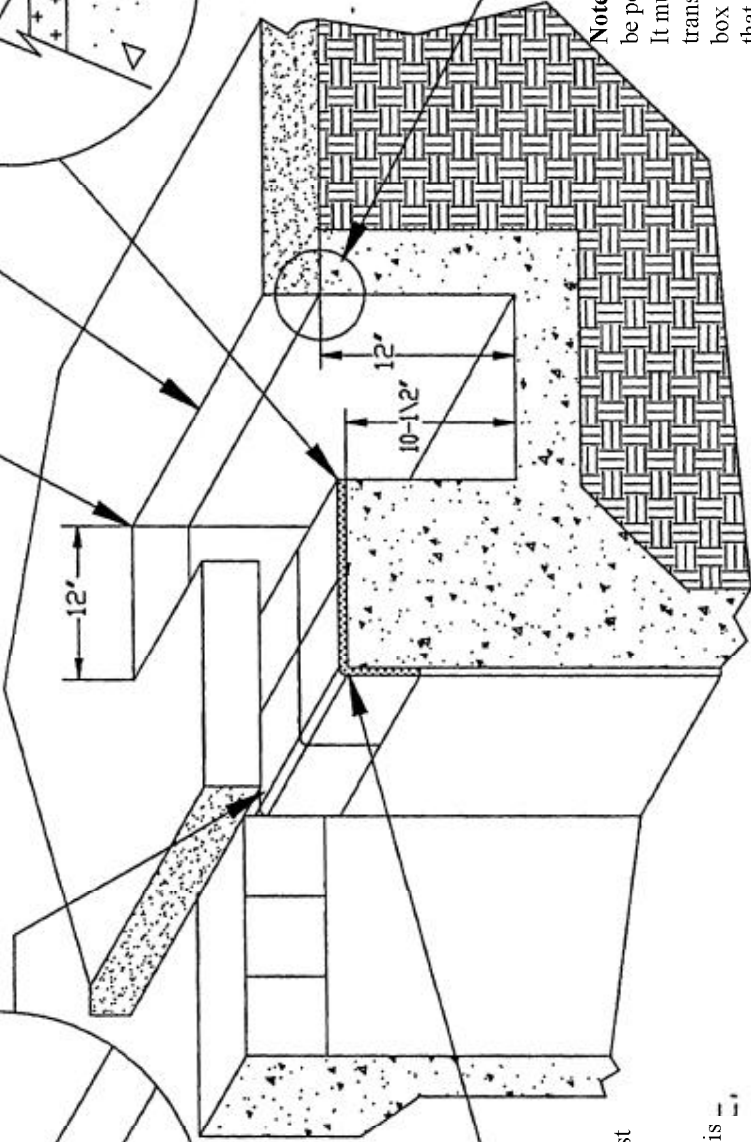
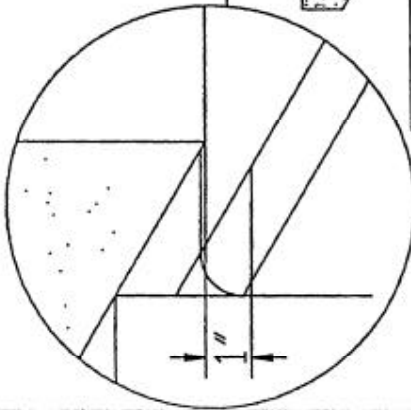
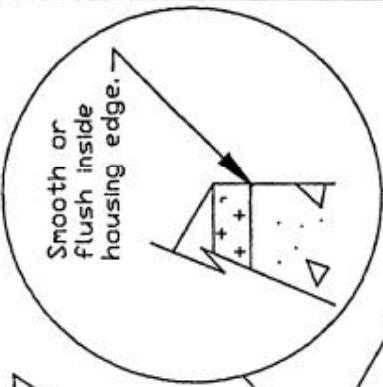
Note: It is best if electrical junction box is placed in either corner instead of in the middle.

Picture 6A



GUNITITE HOUSING

BACK EDGE MUST BE STRAIGHT AND LEVEL
 CORNERS MUST BE SQUARE



BULLNOSE OR 1/4" ROUND TILE

Note: End bond beam must be 2" (1" after tile) lower than the side bond beam unless encapsulated guide is being placed on top of the side bond beam.

Note: Back wall must be perfectly vertical. It must make a smooth transition between the box and the deck so that the lid brackets will fit properly

NOTE: THERE MUST BE A 3" DRAIN AT EACH END OF THE HOUSING.

DIAGRAM 7A

VALID FOR POOLS UP TO 42 FEET LONG. LONGER POOLS REQUIRE A LARGER BOX

GUNITE

POOL DIMENSIONS

After you string your wires, recheck:

- a. Widths at both ends.
- b. Lengths along both sides.
- c. Both diagonals.

It is very important at this stage that all measurement show that the pool will be shot as a pure rectangle. Only if the widths are the same, the lengths are the same, and the diagonals are the same can you be sure of the correct result. Before shooting the gunite, be sure that the housing is still square with the sides of the pool and level from end to end on the housing floor.

LOWERED BOND BEAM

The end bond beam in front of the housing must be lowered 2 inches between the sidewalls. If you are using a wood housing you should shoot the gunite against the face of the housing so that it ties into the nails in the front of the housing.

INTERIOR SPAS

All interior spa walls must be gunited 2 inches lower than the sidewalls to allow the cover's aluminum leading bar to clear the top of the spa wall.

SQUARE CORNERS

Take care that the corners are square (no radius corners).

RAISED BEAMS

If all bond beams are not to be the same level, you must notify us so we can coordinate this type of design.



PICTURE 7B GUNITE HOUSING (MOTOR END)

HOUSING SPECIFICATIONS FOR GUNITE -- INTERIOR BOX DIMENSIONS:

- Depth:**
1. Should be 12 inches below level of gunited side bond beams for pools less than 42 feet.
 2. The bottom should be flat and level for 3 feet at each end of the box before any sloping for drains.

Width: 1. Should be 12 inches wide for pools 42' or less. Allow a 14" width for pools 42+ to 55 feet long.

Length: The box should extend the width of the pool along the lowered bond beam plus 36 inches past the inside (water) wall on the motor end and 9 inches past the inside (water) wall on the non-motor end. Be sure to note the *motor side* on the contract.

Interior surface of box: Should be **smooth** so as not to cause excessive wear on the cover. Check carefully for stripping lines or other rough areas that should be removed by the cement contractor.

Drains: All housings **must** have a 3" drain placed at motor end of the housing. An additional drain at the non-motor end is also highly advisable. Drains in center of housing are of little value as debris may render them inoperable and they are harder to access for cleaning.

EXTERIOR SPAS

When planning a pool with an exterior spa at zero elevation which will share the side wall of the pool, it is necessary to continue the pool decking cantilever edge across the dam wall. Do not route spillways over the surface of the pool edge. Any spillways must be subterranean or routed under the pool edge. This is necessary in order to provide the guide with a cantilever overhang to attach the guide along the entire length of the pool.

PICTURE 8A GUNITE HOUSING (MOTOR END)



CANTILEVERED EDGE

CANTILEVER/COPING

Notify your Coverstar distributor one week before cantilever or coping stone is to be installed to schedule the cover guide installation.

The deck man should form the deck edge so the cantilever overhangs the gunite **2 1/2 inches or more** on either side of the pool and on the end of the pool opposite the mechanism. This will allow approximately 1/2" for the tile and will give the required **2" finished flat cantilever** for the guides. The cantilever at the end opposite the mechanism allows the pulleys in the guides to sit back far enough that the leading edge bar can seal the pool. Decking should also be formed to the inside of the cover housing.

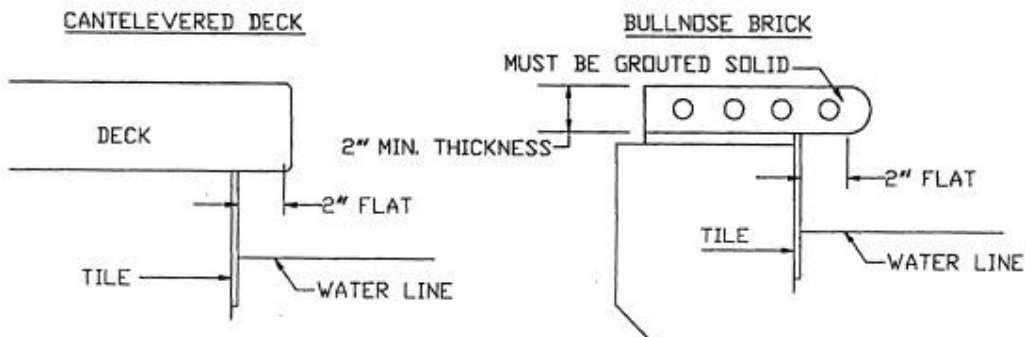
Brick or coping used as a decking edge must be hard baked. Soft brick, is unacceptable. Since brick must overhang the gunite by 2 1/2 inches, it should be at least 10 inches long to be properly seated in a mortar bed. your Coverstar distributor will be happy to test any brick or coping stone for performance and issue a written approval of the brick or coping stone. However, your Coverstar distributor is not responsible for type and adequacy of brick or cantilevered edge unless they offer a written acceptance prior to installation. Concrete decking or coping stone or brick must have adequate strength to hold a screw and anchor. All deck edges are the responsibility of the coping or deck contractor.

*Bullnose brick or Bullnose coping stone - Since the under side of the coping must have a **finished 2" minimum flat surface** to install the guides, these types of coping must overhang the gunite by enough to provide the required flat 2 inches after tile. Further, bullnose brick with cross holes should have the hole nearest the bullnose be mortar filled so the guide screw and anchor has holding power.

UNUSUAL STONE COPING OR REDWOOD DECK

Wood decks constructed of plank no smaller than 2x4's may be acceptable. 2x6's are recommended, but guides may loosen as the wood around the stainless steel guide screws softens over the years. your Coverstar distributor does not warranty installation of screws in wood over time, but rather offers guidelines to follow.

Flagstone, slate, marble, palos verde stone, etc., must be **test drilled** by your Coverstar distributor. Used (soft) brick or hollow cored brick or coping is unacceptable for a standard install. A concrete sub-deck can be poured to accommodate these decks, or an optional track encapsulation system can be used. When the cover guides will be screwed to the bottom of the deck, **it is necessary to have the deck edge be at least 2" thick and flat on the bottom surface.** Call your Coverstar distributor for approved suggestions or optional hardware available for use with unusual decking.



DECKING

HOUSING AREA

The decking in the housing area is formed to the inside of the cover housing when a wood housing is used. This allows the deck to be poured flush with the inside of the housing and ties the housing to the deck by means of nails on the top of the back board.

Deck slope must not occur until **4 inches away** from the housing, leaving a flat level surface from one end of the housing to the other. This allows the housing lid to sit flat on the deck. Note: For our **flush mount lid** application, care must be taken to insure the **deck around the housing is straight, true and level**. If this can not be accomplished, then the standard aluminum lid must be used.

BOND BEAM AREA

In the area over the bond beam you should form to allow the cantilever to continue over the lowered bond beam, leaving a 2-inch space between top of gunited bond beam and underside of cantilever. When tile is installed prior to decking the clearance between the top of the tiled bond beam and the bottom of the cantilevered deck should be 1 inch at the highest elevation of the tile.

FORMING FOR CANTELEVERED DECK

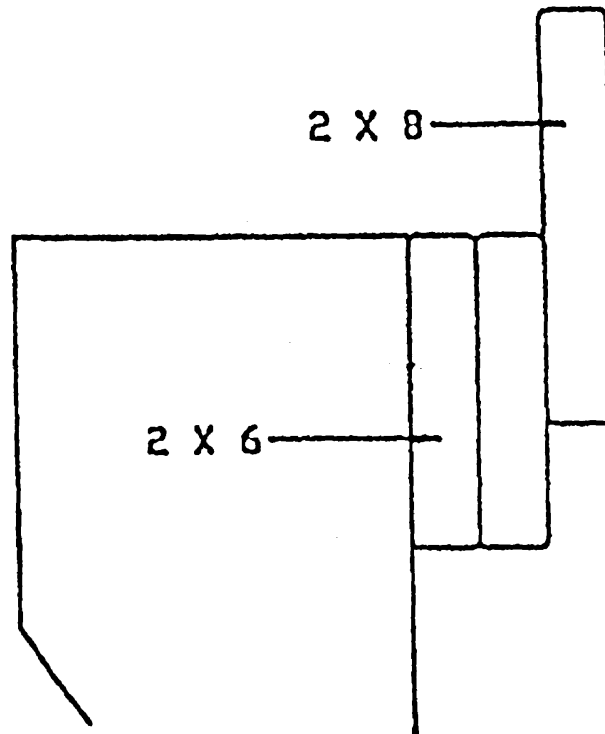
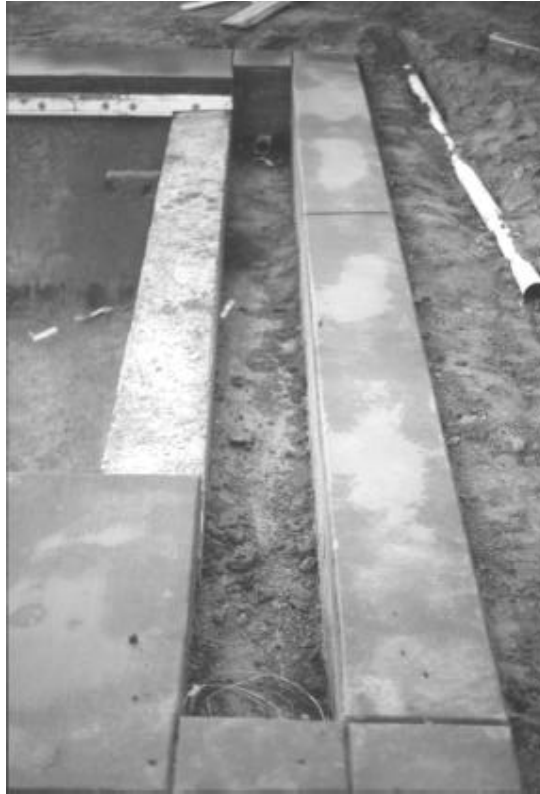


Diagram 10A

COVER VAULT (12 in. width, finished for covers up to 42' long)

Note: Back side of vault must be perfectly vertical. Poured deck must be flush with the box below so that the lid brackets can be mounted properly



Picture 10B

DECKS USING WOOD FORMING



Picture 10C

TILE

THE BOND BEAM

Tile the pool the same except at the mechanism end. The bond beam at the mechanism end is 2 inches lower than the side walls to allow the top of the bond beam to be tiled. Use quarter round or bullnose tile for pool facing edge of lowered end bond beam.

CLEARANCE

There should be a **1 inch final clearance** between the bottom of the cantilever deck and the top of the bond beam after tile.

SLOPED OR LEVEL

The top of the bond beam can be tiled level or preferably slightly sloped back to the pool. The top of the tile next to the cover housing should be $1/2$ " below the top of the wood (if redwood housing is used).

CS 1800 REDWOOD HOUSING SPECIFICATIONS X-SECTION

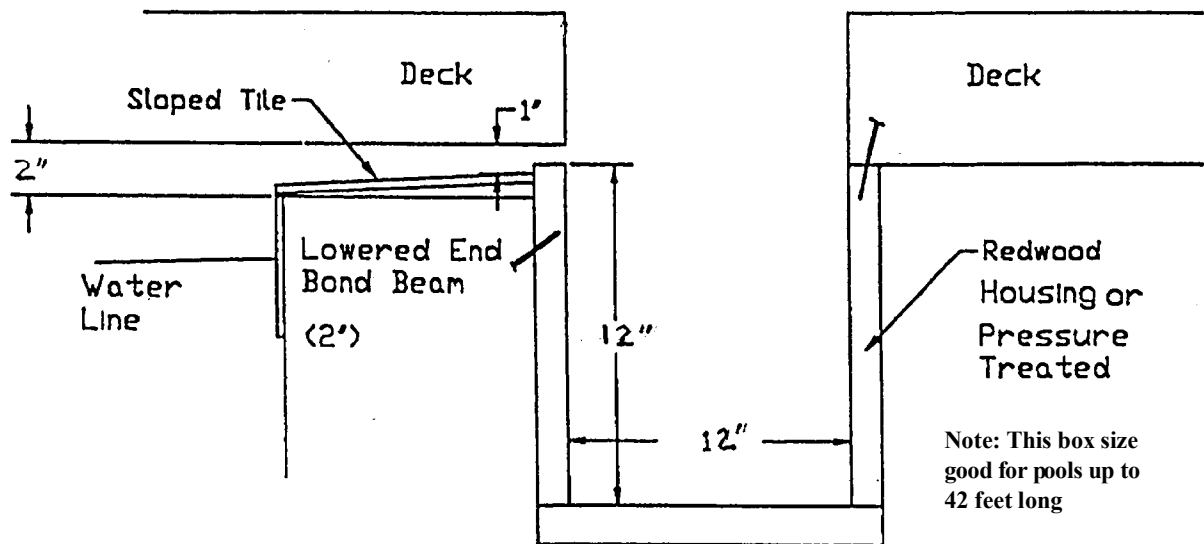


Diagram 11A

Note: It is imperative that nails be placed in each side of the box so that it can tie the wood with the concrete. Concrete must be poured on the back side of the box to hold the lid brackets in place. Back wall of box must be vertical with a smooth transition between box and deck



Vanishing Edge Pool Application

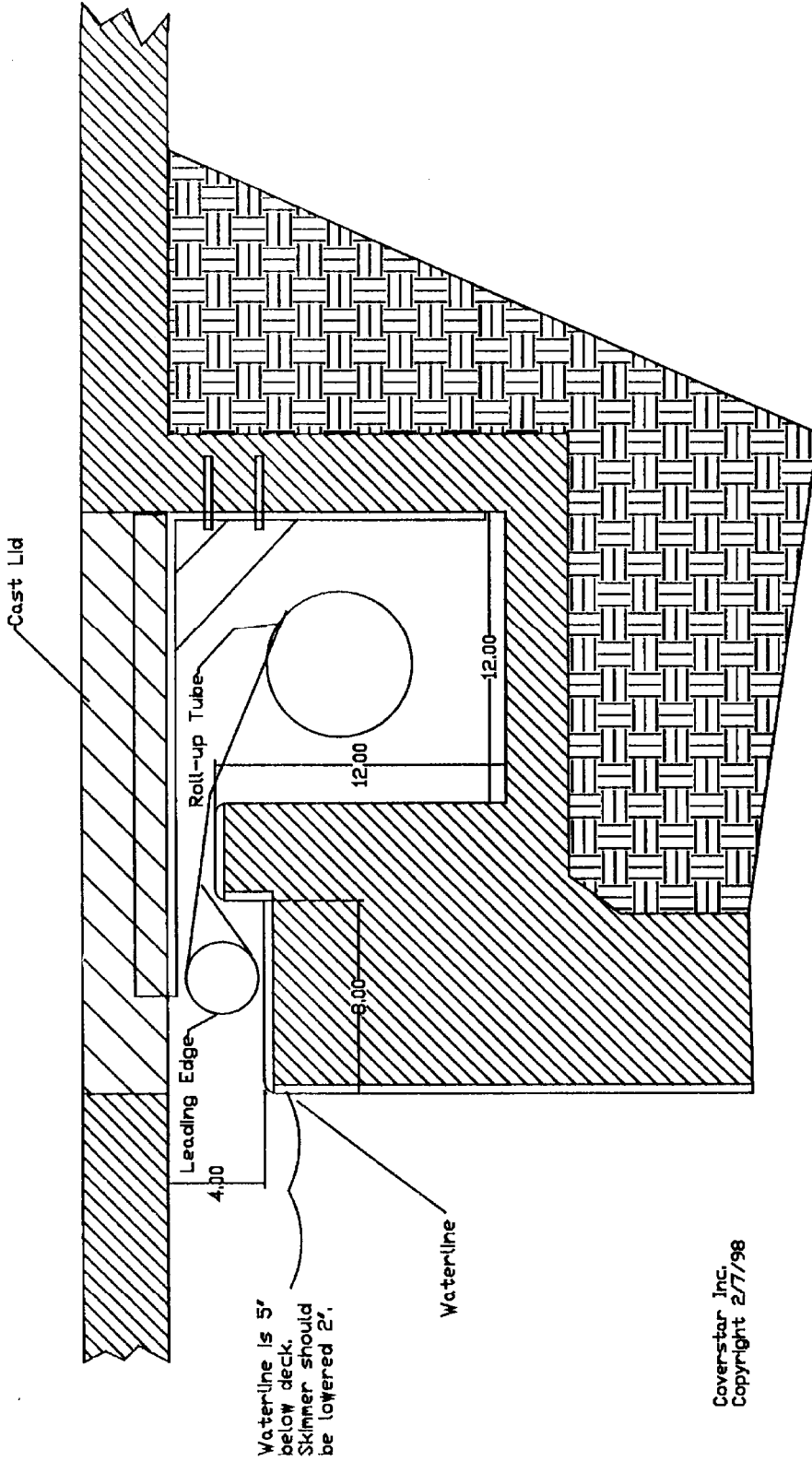
Coverstar's automatic system works especially well on vanishing edge pools. Since each pool is custom as well as the application, specific modifications to the pool and pool cover system are needed during the initial construction.

These modifications are as follows:

1. The pool cover motor will always be opposite the pool's vanishing edge.
2. Recessed housing length remains the same with the motor side extended 34" and opposite end extended 8". Both measurements need to start where track is mounted.
3. Housing depth should be 12" - 14" lower than the motor end side lowered bond beam.
4. Drain for housing should be on the side wall of housing on negative edge side.
5. Track on the negative edge wall must not be more than 6" below motor end track. Note: track will be raised 3/8" - 1/2" off of tile and some tile may be broken during installation of track on the negative edge side.
6. A plastic shim (3/8" - 1/2") will be used under the top track mounted to the negative edge with stainless steel screws allowing for proper water flow.
7. Standard under track and application will be used on motor side.
8. All corners and edges of pool which cover slides over should be rounded to a minimum of 1/2" radius.
9. Lowered bond beam in front of pool cover housing should be 1" higher than water line – even at location where track crosses from negative edge. This is to prevent pool water from flowing into pool cover housing.

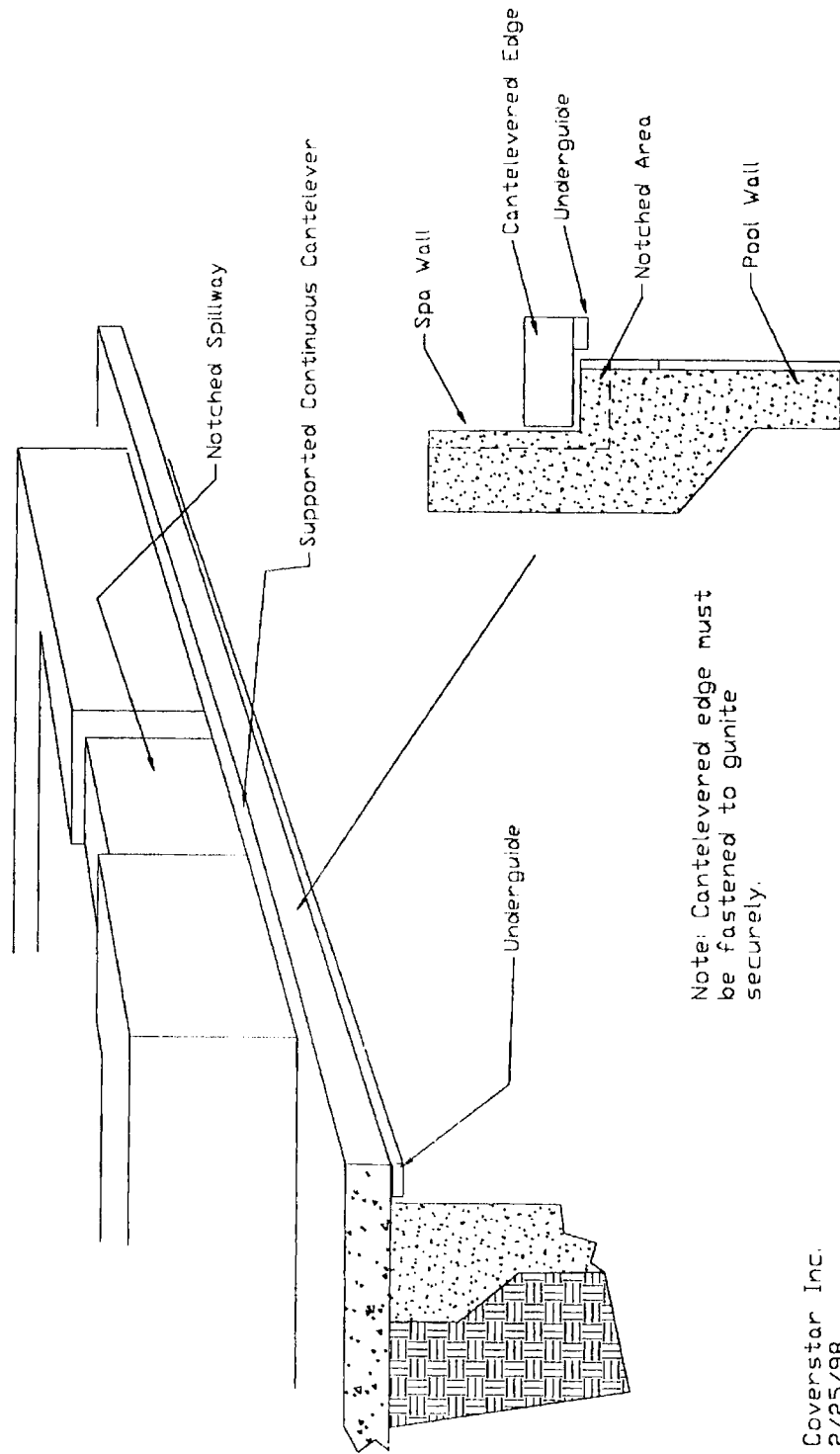
NOTE: Other configurations are possible. Contact your Coverstar distributor for details

Hidden Leading Edge with Extended Tray Lid Option End View



Coverstar, Inc.
Copyright 2/7/98

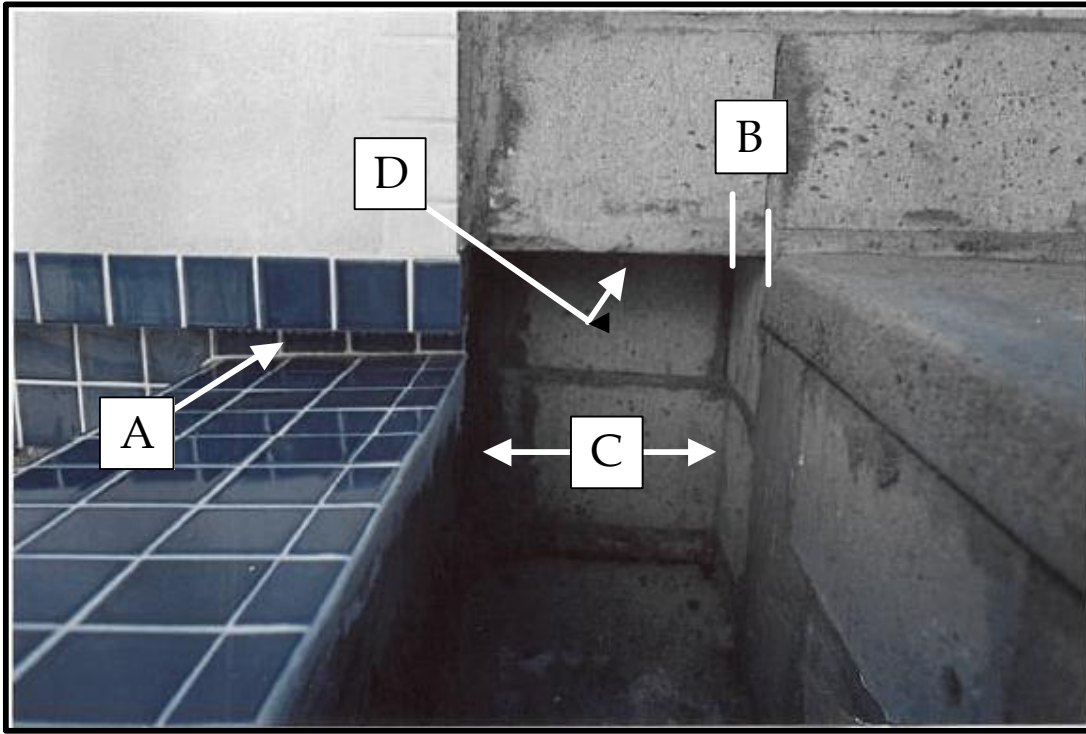
Raised Side Spa Detail



Note: Cantilevered edge must be fastened to Gunitite securely.

Coverstar Inc.
2/25/98

RAISED WALL DETAIL FOR COVER HOUSING



- A.) TRACK LOCATION MUST HAVE MINIMUM 2" CANTILEVER AND 1" CLEARANCE FROM TOP OF END BONDBEAM TO BOTTOM OF CANTILEVER
- B.) CAVITY DEPTH RECESSED INTO WALL SHOULD BE A MIN. OF 9" FROM POOL WATER WALL
- C.) HOUSING WIDTH VARIES DEPENDING ON COVER LENGTH
12" (STANDARD) POOLS UPTO 42' IN LENGTH
13" FOR POOLS OVER 42' UPTO 50" IN LENGTH
14" FOR POOLS OVER 50" UPTO 58" IN LENGTH
- D.) UNDER SIDE OR "CEILING" OF COVER HOUSING MUST BE SAME ELEVATION AS FINISHED DECK HEIGHT.