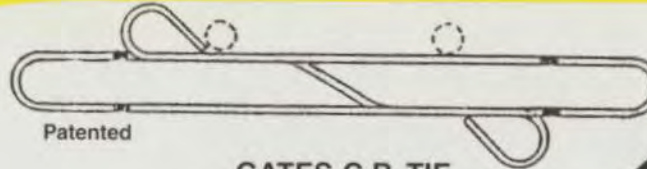


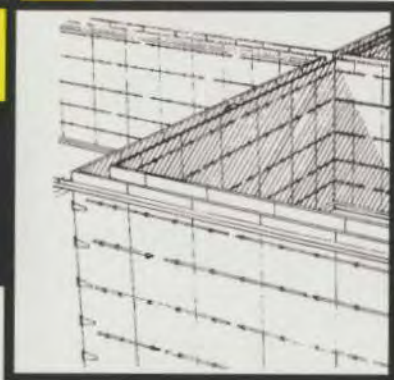
GATES EZ BREAKBACK
GALVANIZED ROD TIE



Patented

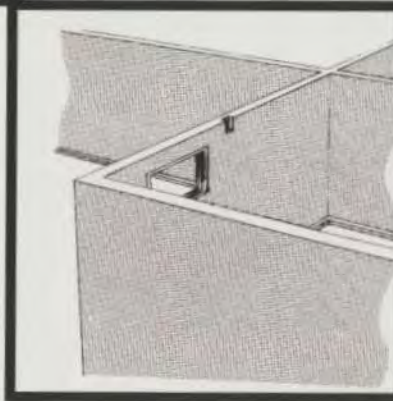
GATES C.B. TIE
(CRISP BREAK BACK)

HORIZONTAL



Gates

ROD PANEL



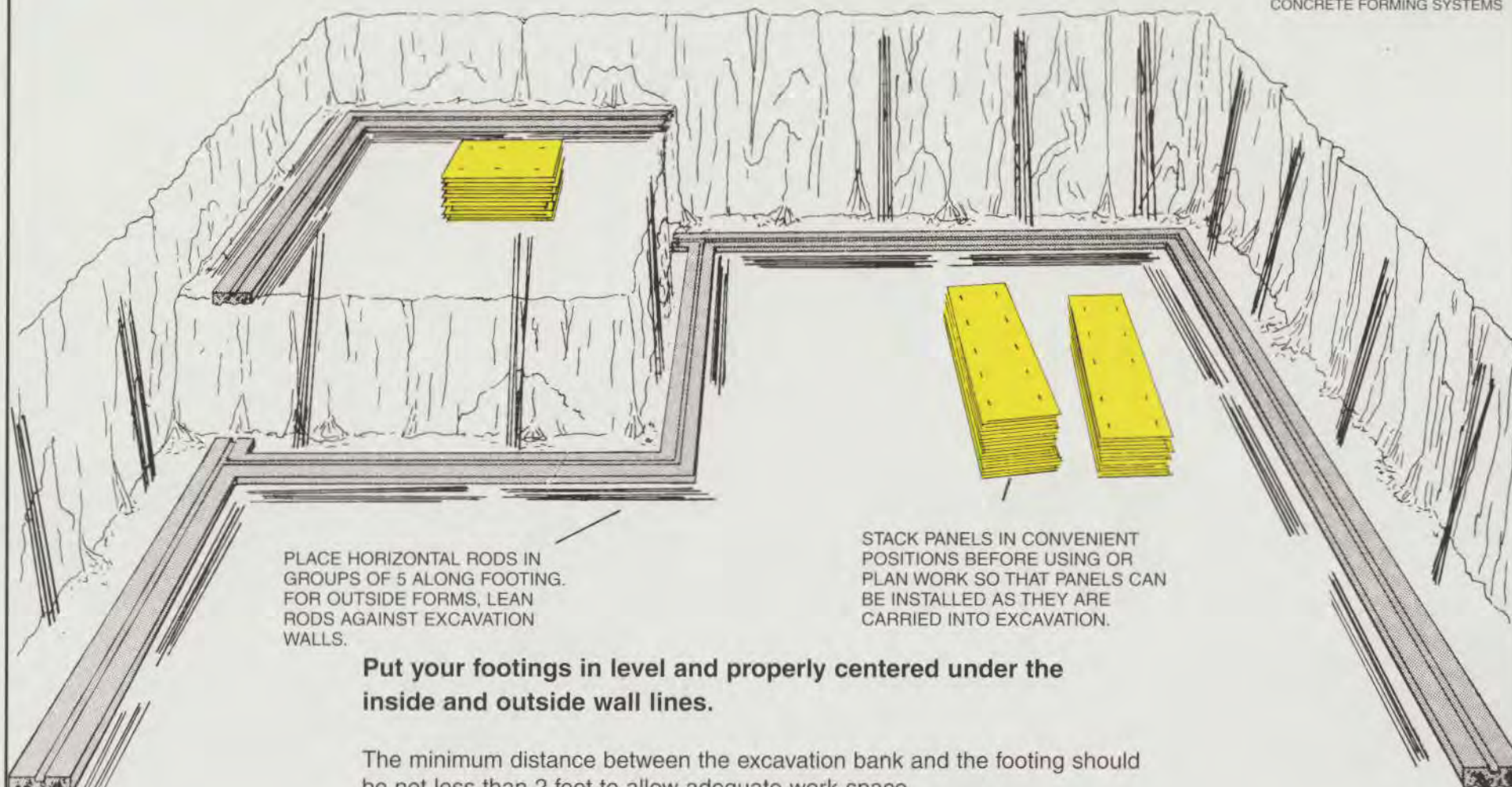
SYSTEM

**Solid
Concrete
Foundations**

how to do it...

STEP BY STEP

STEP 1 – PLACING THE FOOTINGS



PLACE HORIZONTAL RODS IN GROUPS OF 5 ALONG FOOTING. FOR OUTSIDE FORMS, LEAN RODS AGAINST EXCAVATION WALLS.

STACK PANELS IN CONVENIENT POSITIONS BEFORE USING OR PLAN WORK SO THAT PANELS CAN BE INSTALLED AS THEY ARE CARRIED INTO EXCAVATION.

Put your footings in level and properly centered under the inside and outside wall lines.

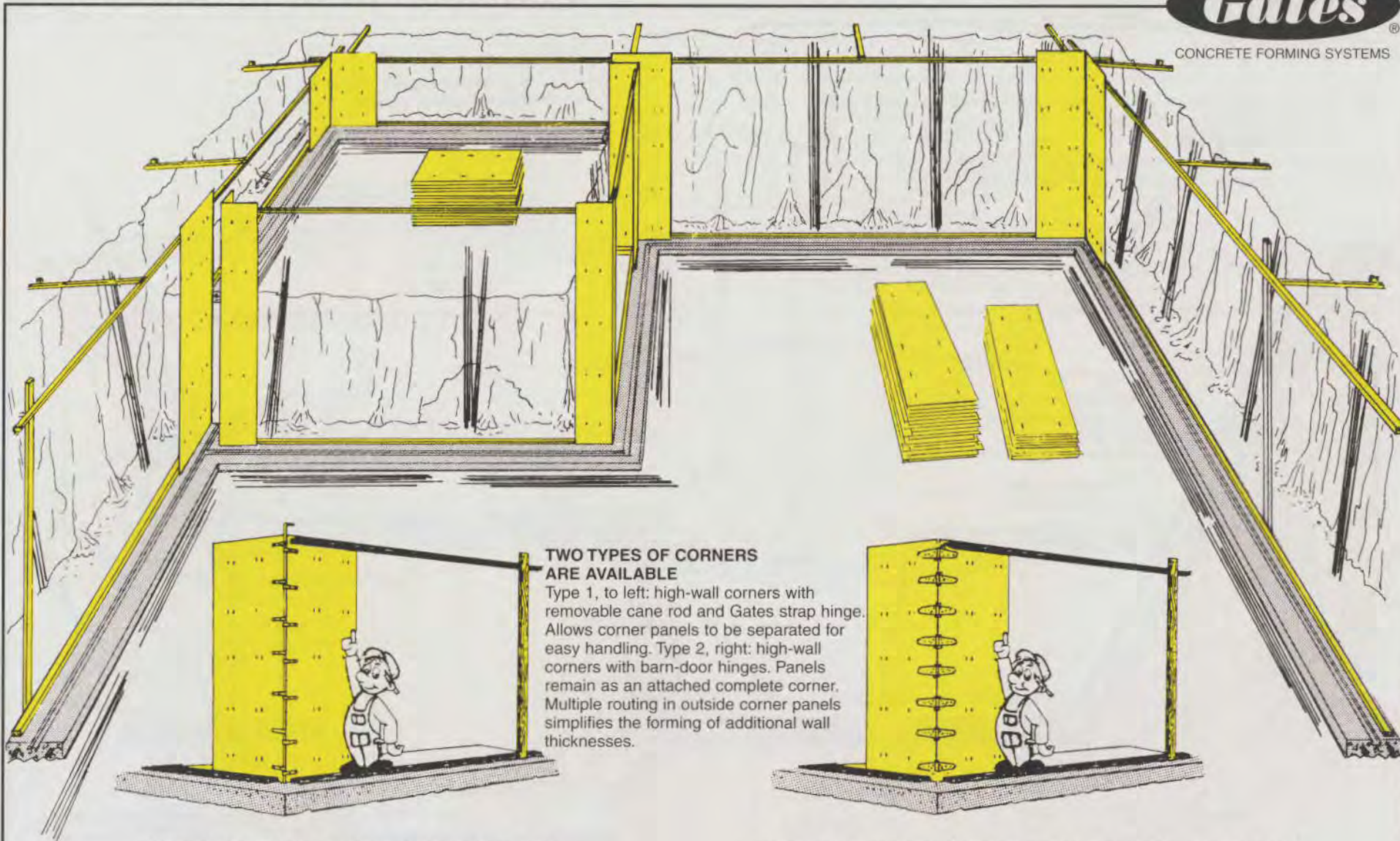
The minimum distance between the excavation bank and the footing should be not less than 2 feet to allow adequate work space.

Check with your local building department regarding reinforcing steel requirements for footings. Generally, two pieces of either 1/2" or 5/8" reinforcing steel are required and should lap at the ends approximately 10" to 14" (20 diameters). (2 Pcs. at bottom of wall and 2 pcs. just under windows).

The Gates system of forming utilizes the pressure of concrete to develop its strength, speed and economy. The Ties and 5/8" rods – not the waler – receive this pressure and put it to beneficial use; the waler serves only to align the wall. In the Gates system there is but ONE waler ONE side only.

STEP 2 – SETTING THE CORNERS

Gates
CONCRETE FORMING SYSTEMS



TWO TYPES OF CORNERS ARE AVAILABLE

Type 1, to left: high-wall corners with removable cane rod and Gates strap hinge. Allows corner panels to be separated for easy handling. Type 2, right: high-wall corners with barn-door hinges. Panels remain as an attached complete corner. Multiple routing in outside corner panels simplifies the forming of additional wall thicknesses.

SETTING THE CORNERS TO PLATES AND WALERS

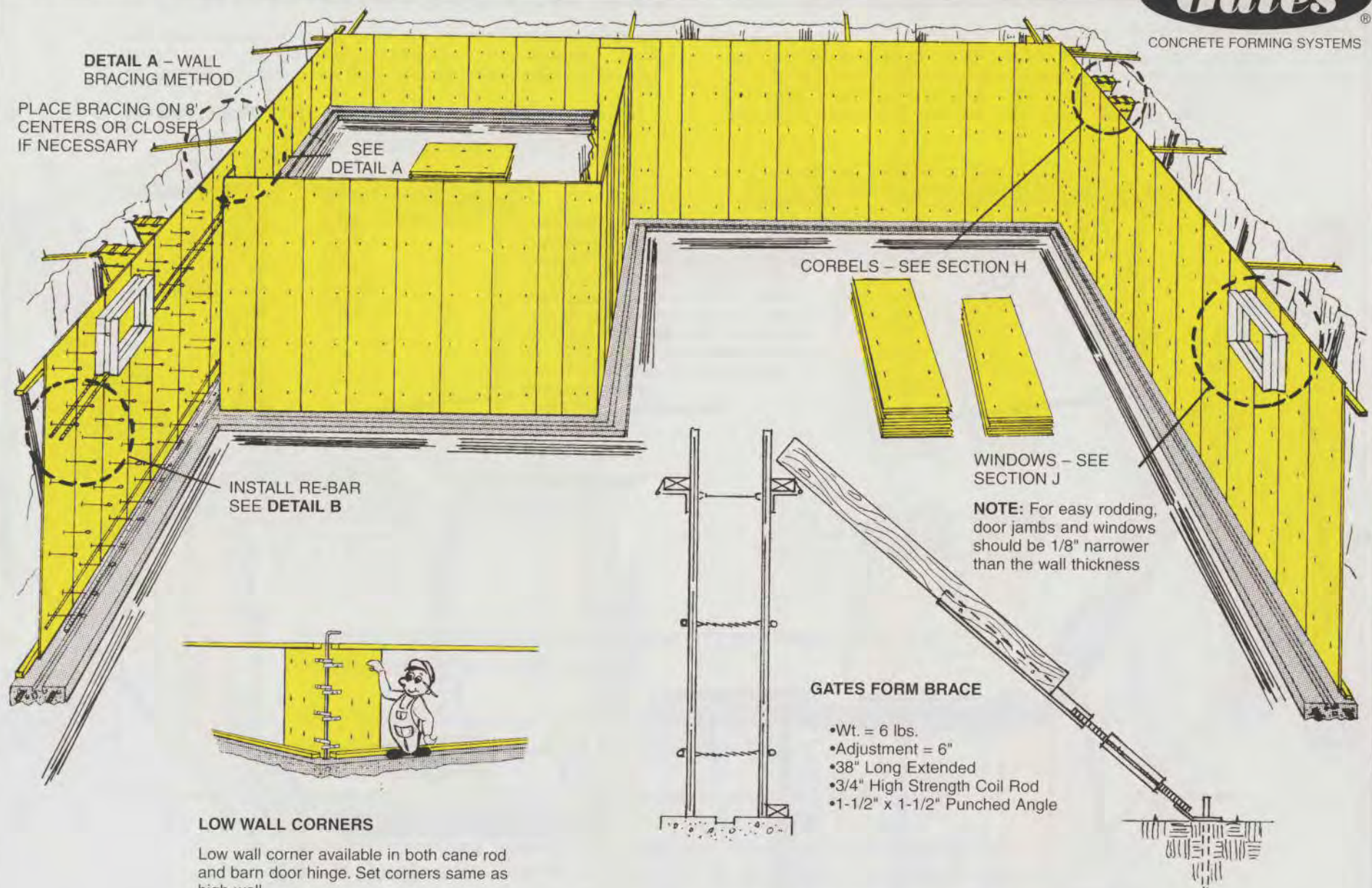
NOTE 1. Nail 2x4 plate to the green concrete footing (within 48 hours of placing footing) 3/4" back from the building line. Check diagonal measurements from corner to corner to make sure foundation is square.

NOTE 2. Set all outside corner panels, plumb and nail to plate with two 6d nails near each edge of panel at bottom.

NOTE 3. Nail waler (top plate) into place 2" to 5" down from top edge of panel with two 8d smooth box nails near each edge of panel. Allow at least 2" of panel to project above top waler for later use of top ties over the top of the panel form (see top tie drawing, Section I). Do not cover top row of tie holes.

NOTE 4. Recheck foundation measurements at top and bottom corner panels and also recheck all corners for plumb before nailing securely into plate. Check diagonal measurements at top of panel corners for square.

STEP 3 – SETTING THE OUTSIDE PANELS

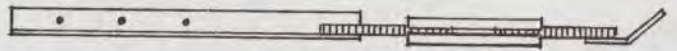


LOW WALL CORNERS

Low wall corner available in both cane rod and barn door hinge. Set corners same as high wall.

GATES FORM BRACE

- Wt. = 6 lbs.
- Adjustment = 6"
- 38" Long Extended
- 3/4" High Strength Coil Rod
- 1-1/2" x 1-1/2" Punched Angle



Gates Form Brace makes aligning forms fast and easy.

STEP 3 – SETTING THE OUTSIDE PANELS - CONTINUED



CONCRETE FORMING SYSTEMS



OUTSIDE WALLS

Note 5. Nail standard 2'-0" x 8'-0" outside panels to top waler and bottom plate.

Note 6. Add filler panels near center of wall to make up any odd wall measurements. Tie slots should be added down the center line of each filler panel and should not exceed normal spacing (See Detail Section I)

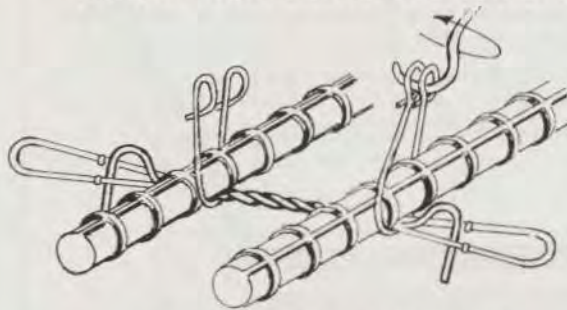
Note 7. Chalk grade line onto panels at proper elevation. Drive 6d finish nails along grade line 24" apart for permanent marking when finishing the top of the concrete wall

Note 8. Place ties and insert rods on outside of forms.

Note 9. Install windows, corbels and blockouts. (See section H, I, and J) Set windows level, plumb and square. Larger windows may require internal bracing to resist pressure of concrete.

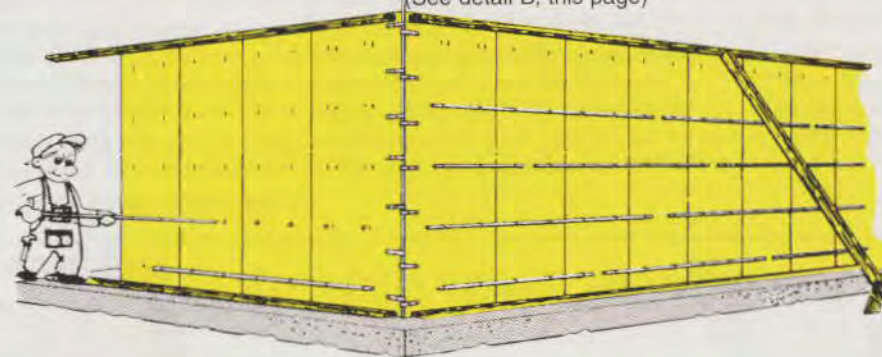
Note 10. Secure rebar to form ties before placing inside corner panels. (See detail B, this page)

GATES GALVANIZED ROD TIE



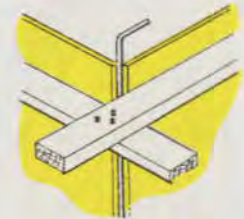
DETAIL B – METHOD OF TYING REBAR TO TIES

Check local building code requirements for proper size and spacing of reinforcing steel in your walls.

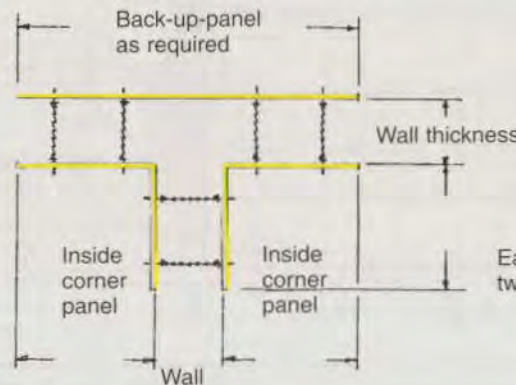


COMPLETED OUTSIDE WALL

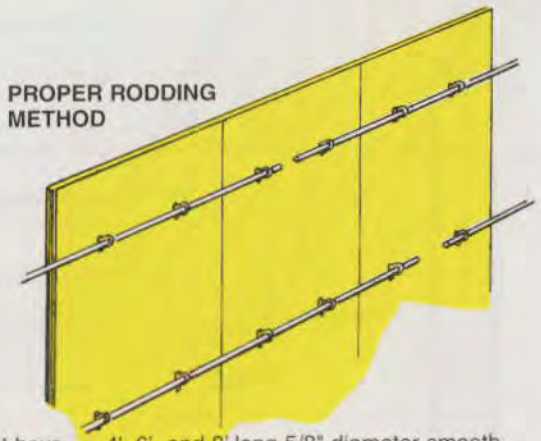
Crossover of walers strengthens the top outside corner.



PLAN OF "T" WALL FORM



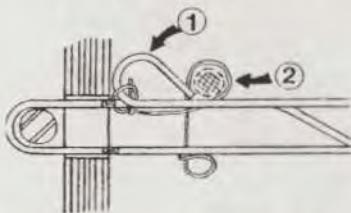
PROPER RODDING METHOD



Each panel must have two ties as shown.

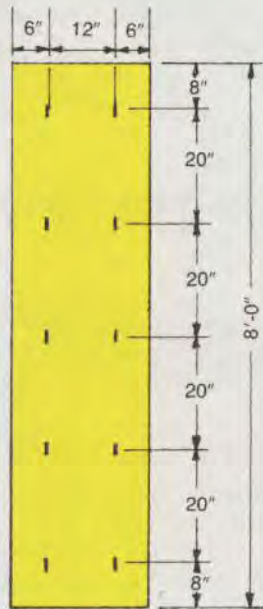
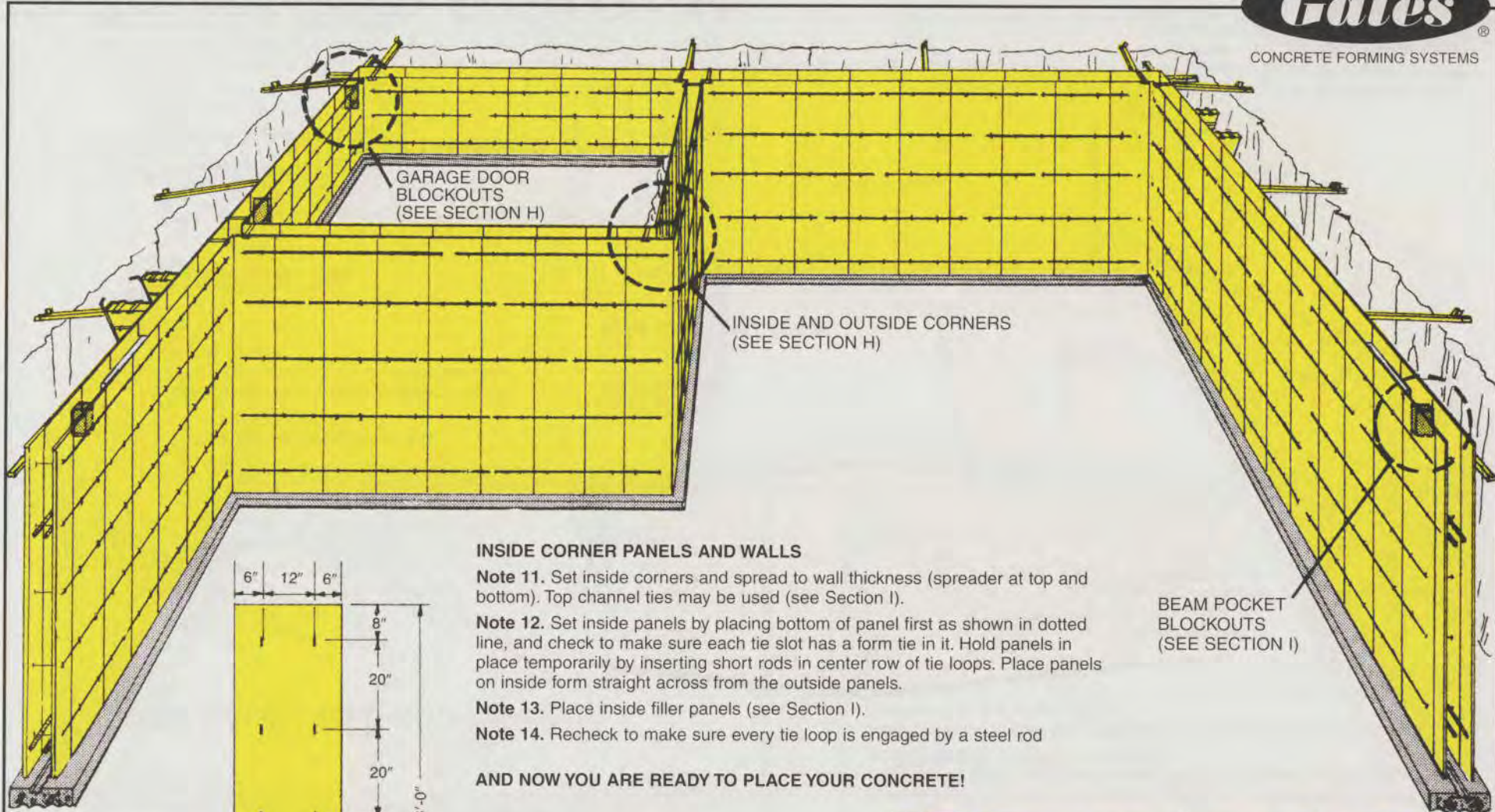
4', 6', and 8' long 5/8" diameter smooth carbon steel rods may be used to rod your forms. Ends of rods should break on center of panels between two ties, not over panel joints. Recheck to make sure every form tie loop is engaged by the steel rod.

GATES C.B. Tie



① To tie reinforcing steel in place, slip loop of 4" re-bar tie back and around spacer loop on C-B Tie. ② Wrap open end of rebar tie around steel, no tool required.

STEP 4 – SETTING THE INSIDE PANELS



TYPICAL 8' PANEL

INSIDE CORNER PANELS AND WALLS

Note 11. Set inside corners and spread to wall thickness (spreader at top and bottom). Top channel ties may be used (see Section I).

Note 12. Set inside panels by placing bottom of panel first as shown in dotted line, and check to make sure each tie slot has a form tie in it. Hold panels in place temporarily by inserting short rods in center row of tie loops. Place panels on inside form straight across from the outside panels.

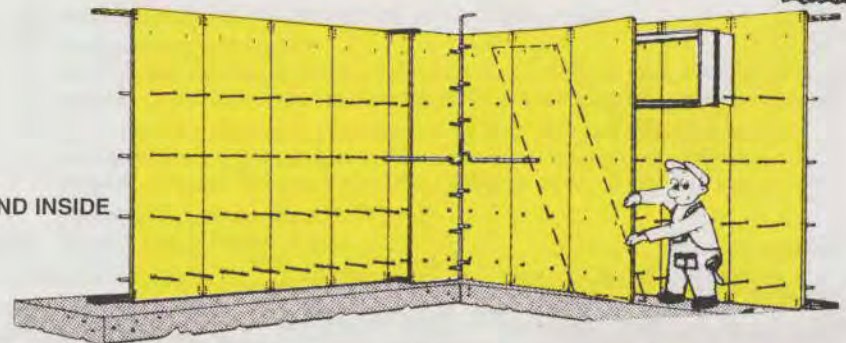
Note 13. Place inside filler panels (see Section I).

Note 14. Recheck to make sure every tie loop is engaged by a steel rod

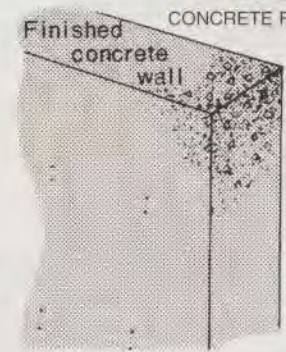
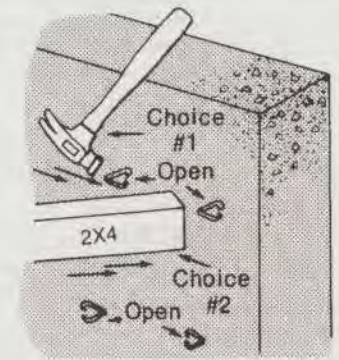
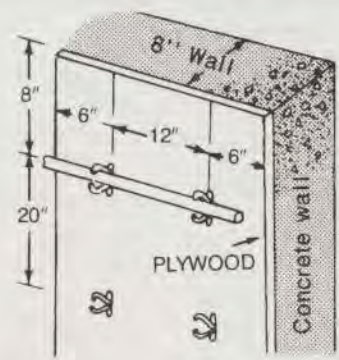
AND NOW YOU ARE READY TO PLACE YOUR CONCRETE!

BEAM POCKET
BLOCKOUTS
(SEE SECTION I)

VIEW OF INSIDE CORNER PANEL AND INSIDE WALL PANELS



STEP 5 – REMOVING THE FORMS



• Ties made of galvanized wire for better bond to concrete and elimination of rust

Note 1. After allowing adequate time for the concrete to properly set and harden, remove all braces – pulling all nails immediately to prevent an accident.

Note 2. With rods in place to hold the panels securely to the concrete wall, remove all walers at the top of the form and plates at the bottom.

Note 3. Remove any nails from panels that are holding windows, door jambs, or blockouts.

Note 4. Cut tie loops and remove rods from back of panels.

Note 5. Remove panels, taking care not to damage the edges or corners of the new concrete wall

Note 6. To remove Gates Galvanized EZ BreakBack Tie ends, bend tie ends over in one direction parallel to the face of the concrete wall. Tie ends normally break off 1/16" in back of the surface with 90° bend.

MAXIMUM LATERAL PRESSURE FOR DESIGN OF WALL FORMS (For Vibrated Concrete)

Rate of placement, R, ft. per hr.	P, maximum lateral pressure, psf, for temperature indicated					
	90F	80F	70F	60F	50F	40F
1	250	262	278	300	350	375
2	350	375	407	450	510	600
3	450	488	536	600	690	825
4	550	600	664	750	870	1050
5	650	712	793	900	1050	1275
6	750	825	921	1050	1230	1500
7	850	938	1050	1200	1410	1725
8	881	973	1090	1246	1466	1795
9	912	1008	1130	1293	1522	1865
10	943	1043	1170	1340	1578	1935

SOUND YOUR CONCRETE

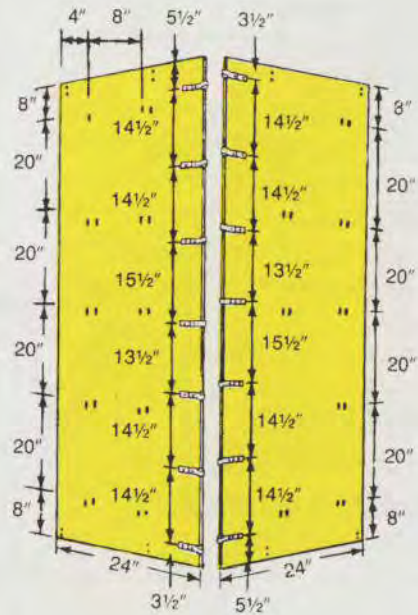
In order to know the firmness of your concrete as you make each lift (summer or winter), use a 5/8" piece of rebar and SOUND YOUR CONCRETE! As you push the rebar down through your concrete, you will be able to 'feel' if your previously placed concrete has taken its initial set. This test will help you determine if the concrete in your form is firm enough and ready to support an additional lift of concrete, without excessive pressure on your form and form ties.

REMEMBER, CONCRETE SETS VERY SLOWLY IN COLD WEATHER, AND ADEQUATE TIME SHOULD BE ALLOWED FOR IT TO PROPERLY SET AND HARDEN BEFORE FORMS ARE REMOVED. NEVER PLACE CONCRETE WHEN YOU KNOW THAT THE TEMPERATURE WILL DROP BELOW FREEZING WITHIN THE NEXT 48 HOURS OF PLACING YOUR CONCRETE.

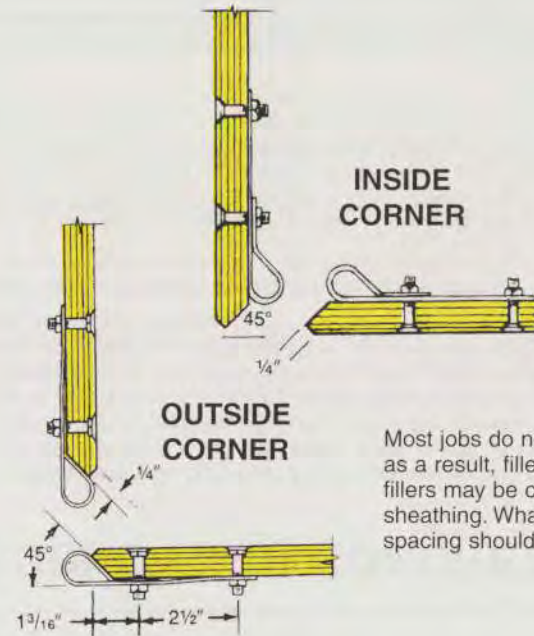
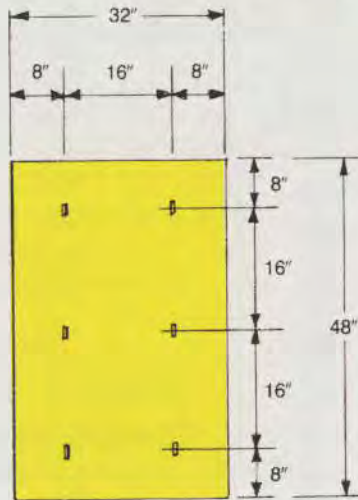
EXAMPLE:
In the summer, if you placed your concrete at 6'0" per hour at 80°F, the pressure on your form would be 825 lbs. psf. In the winter, your placement should be slowed to 3'0" per hour on a 40°F day to keep the pressure at 825 psf. (see chart to left)



MISCELLANEOUS FORM DETAILS

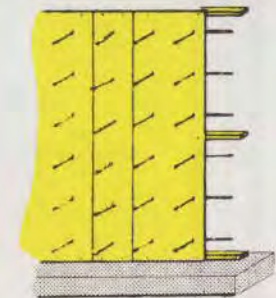


TYPICAL 32"x4" PANEL



INSIDE CORNER

OUTSIDE CORNER



FILLER PANELS

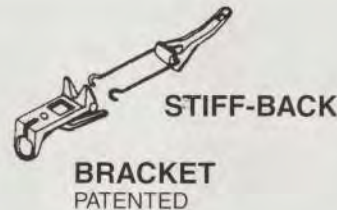
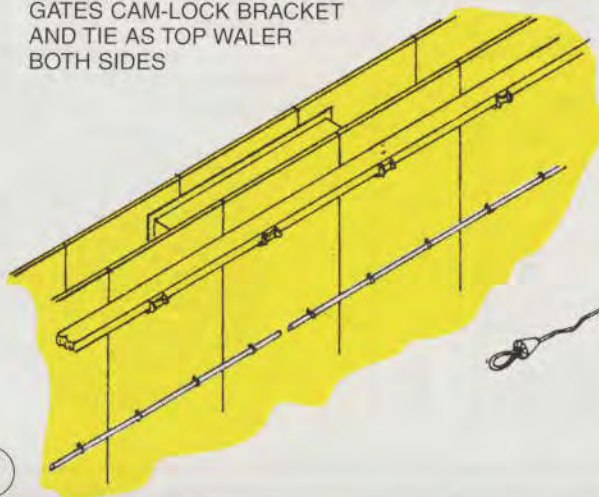
Most jobs do not conform to a two foot module, and as a result, filler panels must be provided. These fillers may be cut on the job from plywood or made of sheathing. Whatever width the filler may be, the tie spacing should never exceed the regular tie spacing.

NOTE corner details. All cuts are on 45 degree angles. The corner is joined (pinned) together by a 5/8" steel rod. Recommended that the rod be slightly longer than the panels to facilitate removal of rod.

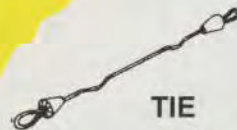
GATES TOP TIE



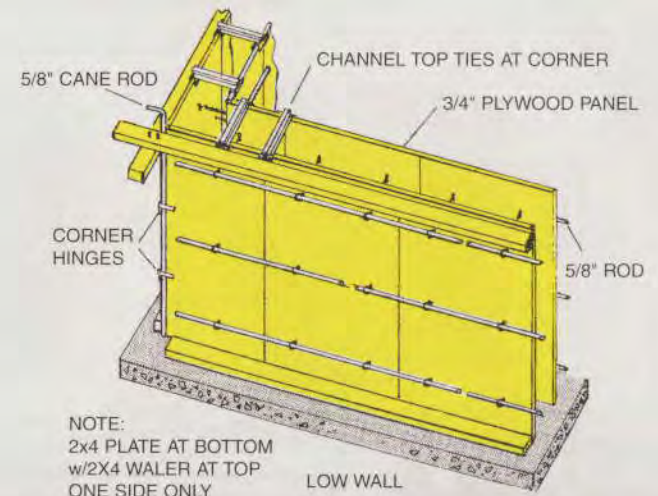
GATES CAM-LOCK BRACKET AND TIE AS TOP WALER BOTH SIDES



STIFF-BACK BRACKET PATENTED



TIE The Gates Cam-Lock system may be used with the Gates Rod Tie system at bottom and top of form. The Cam-Lock "D" cushion cone holds panels secure to the 2x4's without the use of nails.



NOTE: 2x4 PLATE AT BOTTOM w/2X4 WALER AT TOP ONE SIDE ONLY

LOW WALL

TWO GATES TIES TO CHOOSE FROM

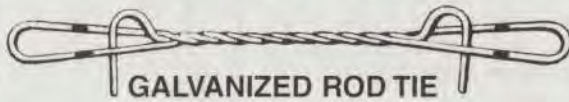


THE ORIGINAL GATES ROD TIE

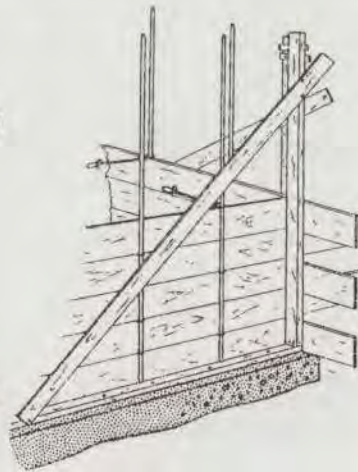


Manufactured from #9 soft black annealed wire, 4 cables. Patent first applied for Jan. 28, 1928, by Lee O. Gates, Sr.

THE PRESENT GATES ROD TIE



Manufactured from high tensile 11 gauge steel wire, 3 cables.



First use of Gates ties with 1x8 sheathing boards and vertical steel rods.

HISTORY OF GATES

Gates & Sons' history goes back to the late 1920's, when Lee Gates, Sr. invented his first twisted-wire form tie with a built-in spreader.

Until that time, most forms for concrete wall foundations were built with 1x8" sheathing boards, vertical 2x4 studs on 24" centers and held together with No. 9 black annealed soft wire to receive the wet concrete. 100 lb. coils of wire were delivered to the job site along with the 1x8" and 2x4 lumber. The No. 9 wire was job-cut to the proper length, bent 'U' shape to go around the two opposite vertical 2x4 studs and placed between every other joint of the 1x8" sheathing boards. As boards were added, the two strands of wire were center-twisted with a large screwdriver, or pin, against a 1x2" wood spreader cut to the desired wall thickness...one tie at a time...a very slow process!

While working on a new all-concrete mausoleum at Crown Hill Cemetery in northwest Denver, Lee Gates conceived the idea that a pre-twisted form tie could speed up the formwork. In the early development of his idea, he found that by using 5/8" smooth carbon-steel rods to replace the vertical 2x4s, additional speed in building the form was possible with his new tie. He started at once to design and build machines to manufacture his new 'twisted-wire' form tie. His new tie gained wide acceptance in and around Denver and the Colorado area.

Following World War II, 3/4" form plywood became readily available at an affordable price. Lee Gates' 4-strand, center-twisted tie made from black wire (that rusted) was then re-designed into a stronger, 3-strand, 11-gauge galvanized tie (no rust) and twisted from one end on automatic machines. Tie slots were routed in 2'-0"x8'-0" plywood panels and the 5/8" carbon-steel rods were run horizontally, creating a very fast, lightweight, inexpensive forming system!

To meet the greatly expanding home-building market that followed World War II, a national sales program was put into place. Later, other Gates forming systems were developed and patented for the commercial construction trade, making Gates & Sons a leader, nationwide, in forming systems today!

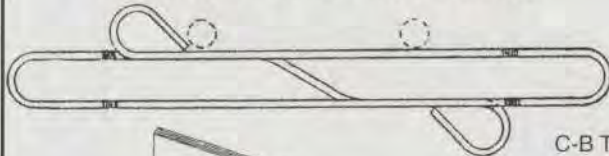
Lee Gates, Sr. lived to see his twisted-wire tie invention transform concrete construction. He died on April 7, 1975 at the age of 81 and is buried just a few hundred feet south of the mausoleum where his first form ties were used.

H. Gordon Gates, President

FEATURES OF OUR C.B. TIE...

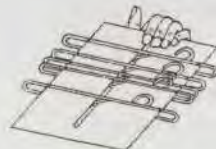
- STRONGER • CRISP BREAK BACK
- POSITIONS RE-BAR 1-1/2" FROM FACE
- STANDS OUT FROM FORM
- STAYS IN TIE SLOT FOR RODDING

The parallel strand design, combined with increased strength of the new GATES C-B Tie, virtually eliminates elongation!



C-B Ties come packaged 250 ties to the box in crossed layers of 50 ties each on cardboard-carrying pallets. Lay pallet of ties on arm, open end away. Insert ties from pallet into slots in panel.

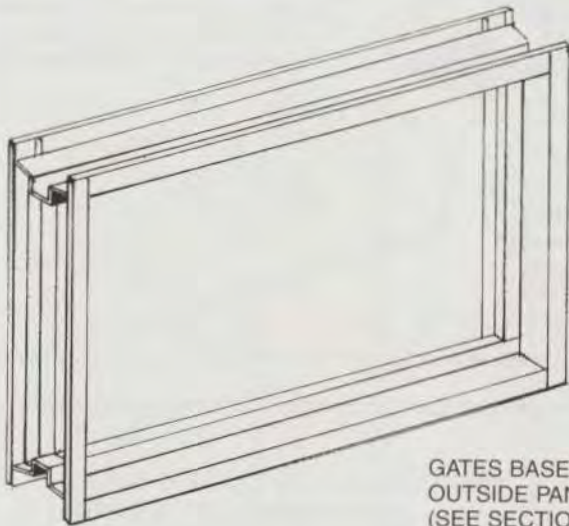
With the parallel strand design, inserted ties in panel stand out straight from face of form making doubling up second form faster and easier.



PATENTED

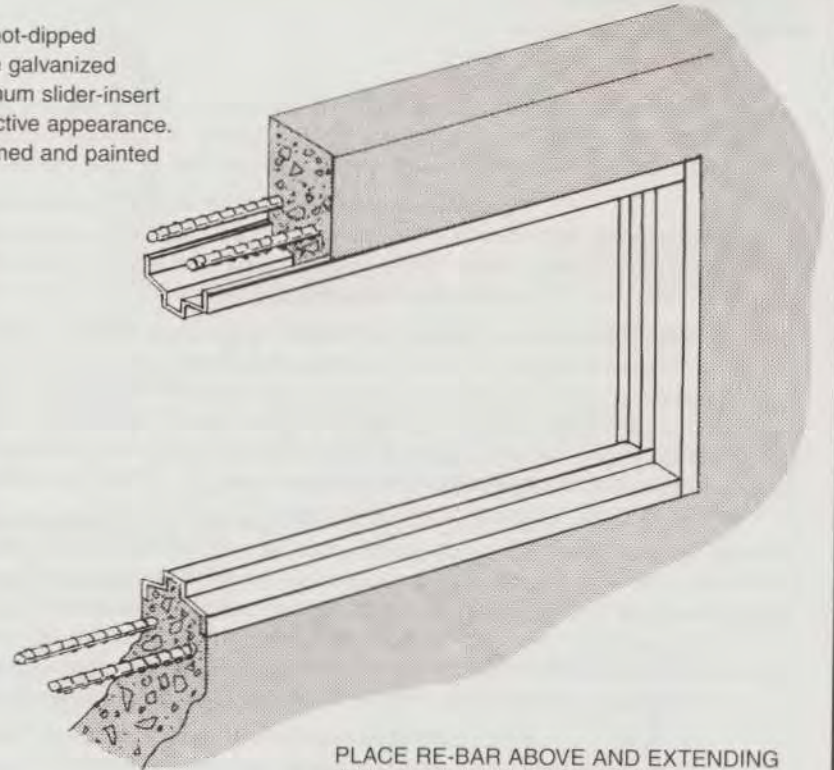


GATES BASEMENT WINDOWS

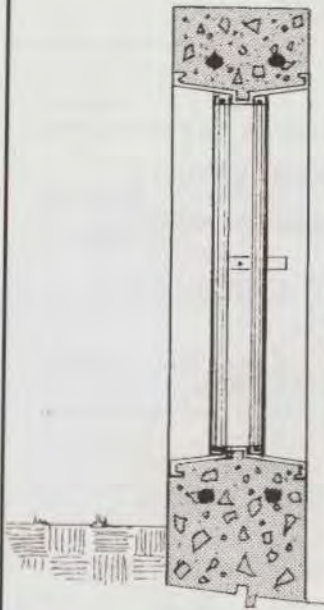


The outside frame is made from hot-dipped galvanized steel. The 'silver' of the galvanized frame and the 'silver' of the aluminum slider-insert blend together to provide an attractive appearance. The galvanized frame may be primed and painted another color, if desired.

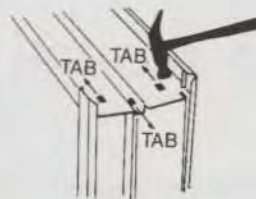
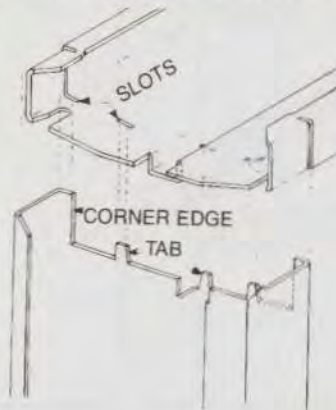
GATES BASEMENT WINDOWS ARE MOUNTED TO OUTSIDE PANEL WALL FORM ONCE IT IS IN PLACE (SEE SECTION E), WINDOWS CANNOT BE INSTALLED WRONG. THEY HAVE NO TOP - NO BOTTOM - NO FRONT AND NO BACK



PLACE RE-BAR ABOVE AND EXTENDING BEYOND WINDOWS TO PROVIDE EXTRA STRENGTH OVER WINDOWS.



TO ASSEMBLE WINDOW FRAME, SLIDE TABS AND CORNER EDGES SIMULTANEOUSLY INTO CORRESPONDING SLOTS, PRESS INTERLOCKING CORNERS AND TABS SECURELY TOGETHER AND ALTERNATELY BEND TABS TO ENDS AND TO CENTER.



GATES BASEMENT WINDOW - SIZES

OUTSIDE	INSIDE - 2 LIGHT
16" x 35 1/2"	15" x 12"
20" x 35 1/2"	15" x 16"
24" x 35 1/2"	15" x 20"
40" x 35 1/2"	15" x 36"

MANUFACTURED FOR 6", 7", 8", 9", AND 10" THICK WALLS

GATES ACCESS WINDOW



FIRE CODE REQUIRES AT LEAST 5 SQ. FT. OF WINDOW

GATES HAS 7 1/2 SQ. FT. OF WINDOW

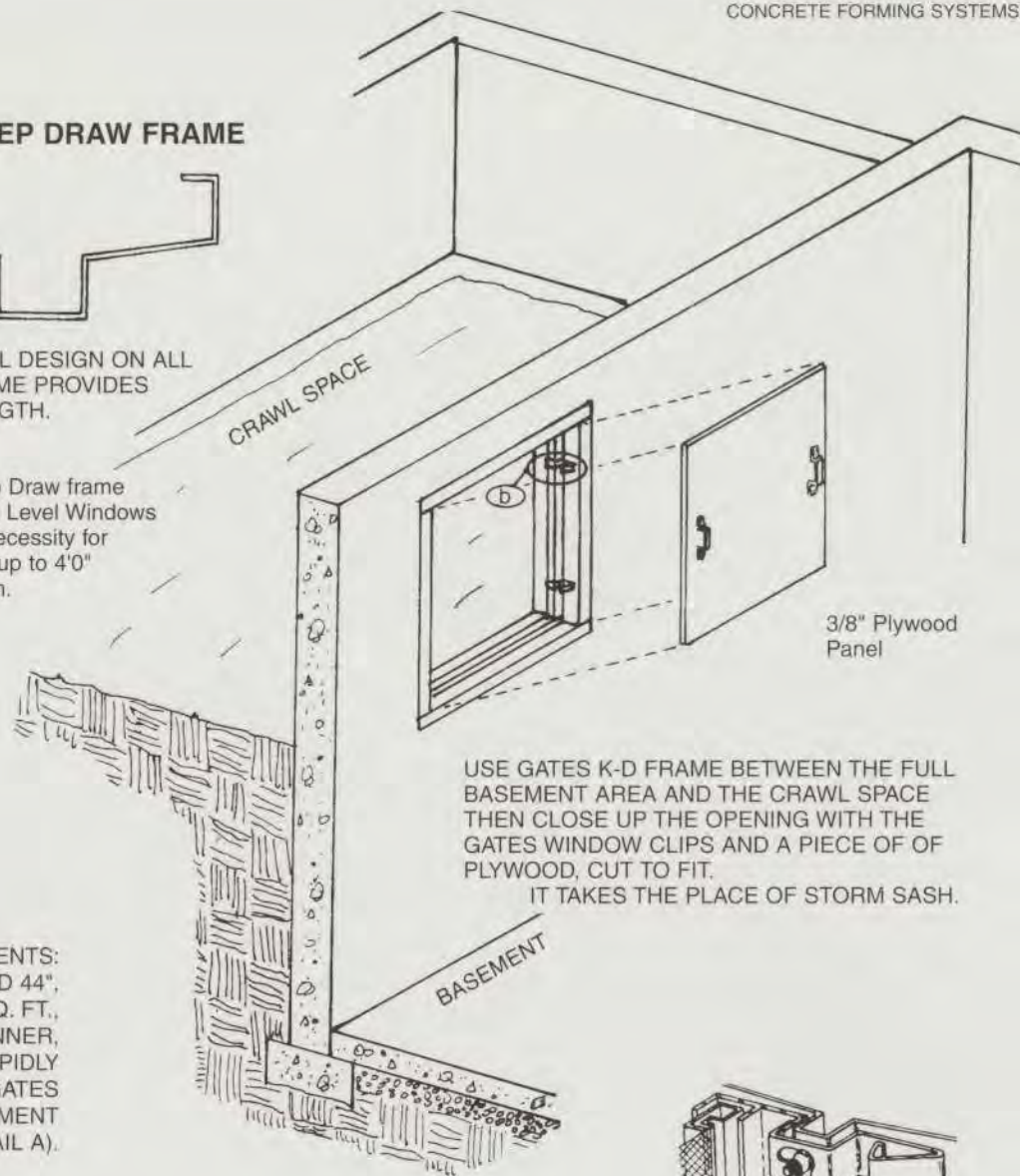
GATES DEEP DRAW FRAME

GATES DEEP DRAW FRAME



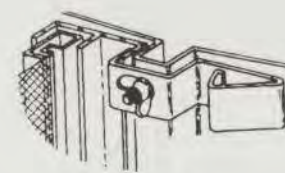
DEEP CHANNEL DESIGN ON ALL SIDES OF FRAME PROVIDES ADDED STRENGTH.

The Gates Deep Draw frame for large Garden Level Windows eliminates the necessity for internal bracing up to 4'0" wide by 4'0" high.



3/8" Plywood Panel

USE GATES K-D FRAME BETWEEN THE FULL BASEMENT AREA AND THE CRAWL SPACE THEN CLOSE UP THE OPENING WITH THE GATES WINDOW CLIPS AND A PIECE OF PLYWOOD, CUT TO FIT. IT TAKES THE PLACE OF STORM SASH.



DETAIL A

THE GATES ACCESS WINDOW MEETS EXISTING FIRE CODE REQUIREMENTS:

- (1) THAT FLOOR TO BOTTOM OF WINDOW CANNOT EXCEED 44",
- (2) OPEN AREA OF WINDOW MUST BE AT LEAST 5 SQ. FT.,
- (3) WINDOWS MUST BE ATTACHED IN SUCH A MANNER, THAT IT CAN BE PUSHED OUT OR REMOVED RAPIDLY WITHOUT TOOLS. WING NUTS ON THE GATES WINDOW CLIP MEETS THIS REQUIREMENT (SEE DETAIL A).

BRACE INSIDE OF FRAME ON ALL WINDOWS OVER 24" x 32" INSIDE DIMENSIONS, UNLESS GATES DEEP FRAME IS USED. (SEE ABOVE)

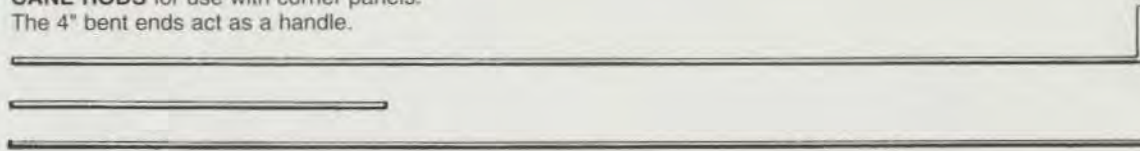
GATES ACCESSORIES AND TOOLS



PANEL BOLTS

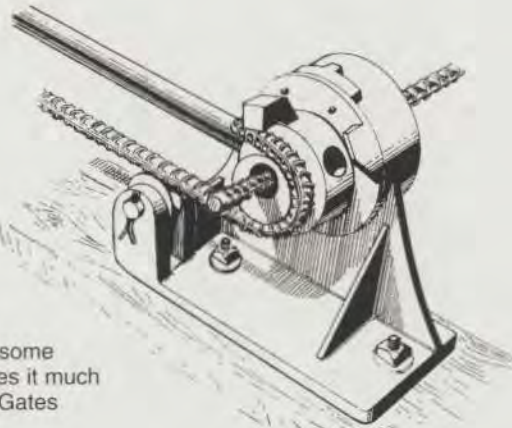
Galvanized semi-flat headed bolts 1/4"x1-1/8" to attach hinges to corner panels.

CANE RODS for use with corner panels. The 4" bent ends act as a handle.



5/8" SMOOTH ROD for inserting in ties. Only high carbon steel rod is handled by Gates.

WILLARD CUTTER BENDER for cutting and bending intermediate grade steel thru 5/8".

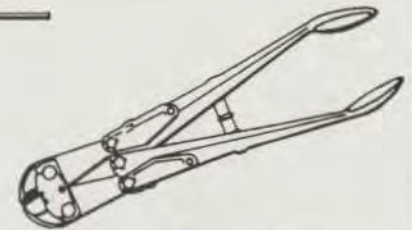


The Gates Channel Top Tie gives positive aligning of the panels and in some instances, eliminates the need for a tie in the top row of slots. This makes it much easier to install window backs and to screed off at the grade, since the Gates Channel Top Tie may be removed and replaced at will.

CHANNEL TOP TIES



CLEAN OUT TOOL for cleaning tie slots of excess concrete after forms have been removed from wall.



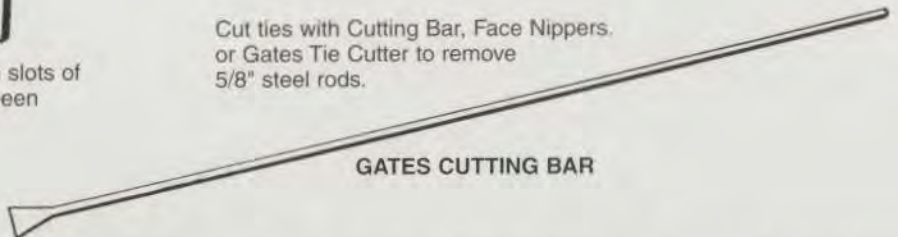
FACE NIPPERS with compound action to cut the tie free from rod and clip tie ends flush with face of concrete. 45° face for easy use.



TIE CUTTER speeds stripping of forms. Cuts tie at proper position for easy clipping or breakback.

Cut ties with Cutting Bar, Face Nippers, or Gates Tie Cutter to remove 5/8" steel rods.

GATES CUTTING BAR



GATES OF COLORADO
80 S. Galapago St.
Denver, CO 80223
(303) 744-6181

GATES OF LOS ANGELES
683 S. State College Blvd.
College Business Park, #F
Fullerton, CA 92631
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