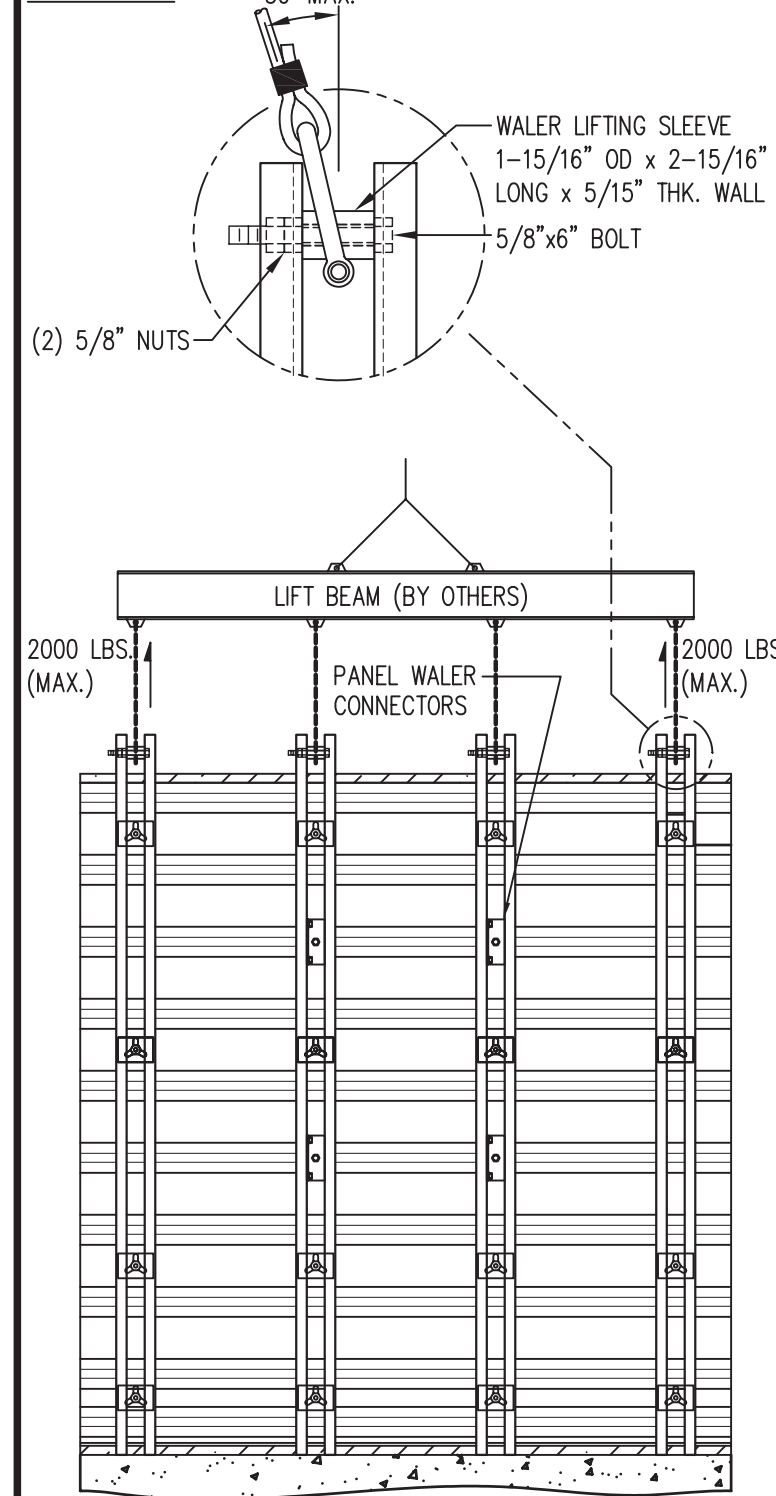


## LIFTING



CAUTION: ADHERE TO THE FOLLOWING SAFETY REQUIREMENTS WHEN LIFTING SYMONS ALUMINUM BEAM GANG FORMS:

1. USE ONLY SYMONS WALER LIFTING SLEEVES AS THE ATTACHMENT POINTS FOR CRANE RIGGING. PROPER SPACING IS ESSENTIAL.
2. THE SAFE WORKING LOAD OF THE LIFTING SLEEVE IS 2000 POUNDS. THE NUMBER OF LIFTING SLEEVES REQUIRED SHALL BE DETERMINED BY THE CONTRACTOR, BASED ON THE WEIGHT OF THE GANG TO BE LIFTED, INCLUDING ALL ATTACHMENTS.
3. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING THE RIGGING SO THAT ANY ONE LIFTING SLEEVE IS NOT OVERLOADED. SPREADER BEAMS ARE RECOMMENDED FOR ALL BUT SIMPLE TWO-POINT LIFTS.
4. THE LIFTING ANGLE AT ANY PICK POINT MUST NOT BE GREATER THAN 30 DEGREES TO VERTICAL (SEE ILLUSTRATION AT LEFT).
5. A MINIMUM OF TWO TAG LINES ARE REQUIRED FOR EACH GANG TO CONTROL MOVEMENT DURING LIFTING AND SETTING. DO NOT ALLOW PERSONNEL ON, OR DIRECTLY UNDER, ANY GANG FORM WHILE IT IS BEING MOVED OR IS SUSPENDED IN THE AIR.
6. BRACE, ANCHOR OR OTHERWISE SECURE GANG PRIOR TO RELEASING LIFTING MECHANISM.
7. DO NOT ATTEMPT TO BREAK GANG FORM LOOSE FROM THE CONCRETE BY PULLING BACK THROUGH THE WALER LIFTING SLEEVE, AS SEVERE DAMAGE AND WEAKENING MAY OCCUR TO THE GANG. THE WALER LIFTING SLEEVE IS DESIGNED SOLELY FOR LIFTING IN THE VERTICAL DIRECTION.
8. ANY WALER THAT IS USED TO LIFT THE GANG MUST HAVE TWO PANEL WALER CONNECTIONS SECURING IT TO THE GANG.

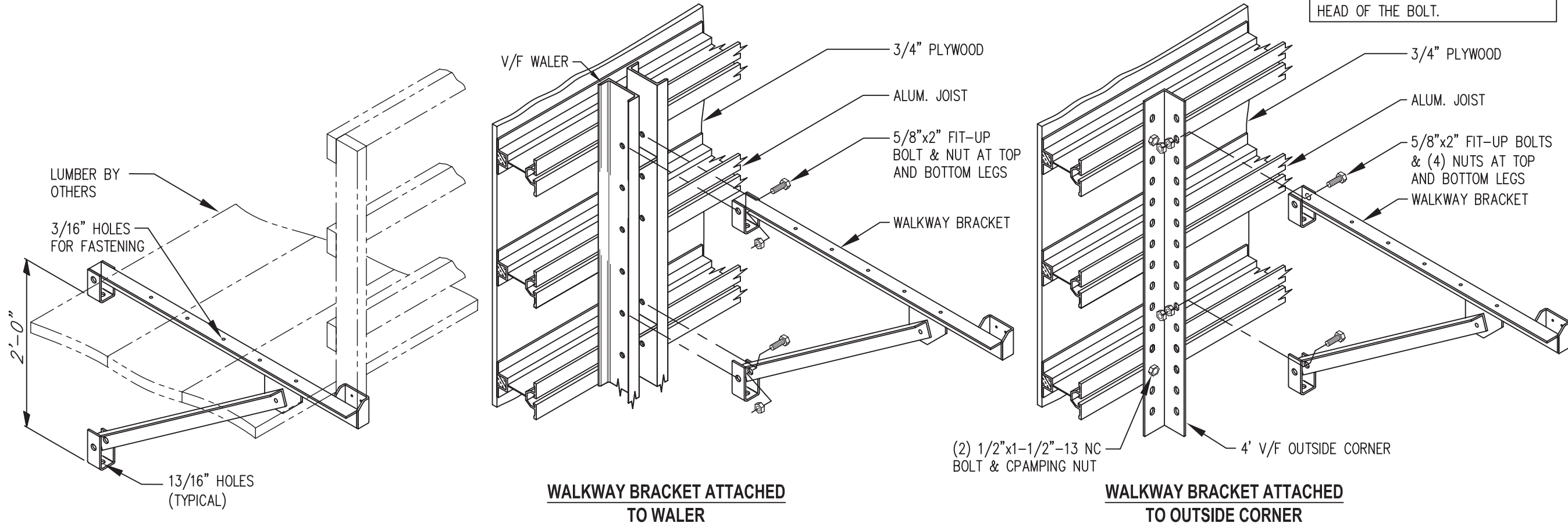
## WIDE WALKWAY BRACKET

- DO NOT USE WALKWAY BRACKET AS A LIFTING BRACKET OR TIE-OFF.
- ATTACH UPPER AND LOWER LEGS USING 5/8"x2" FIT-UP BOLTS.
- ALLOWABLE LOAD ON WALKWAY BRACKET IS 750 LBS. @ 4:1 SAFETY FACTOR. WHEN THE WALKWAY BRACKETS ARE SPACED AT 8'-0" C/C, MAXIMUM ALLOWABLE APPLIED LOAD ON BRACKETS = 25 PSF. SECURE PLANKING TO WALKWAY BRACKETS.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL WORKERS HAVE ADEQUATE FALL PROTECTION DURING FORMWORK ERECTION.
- THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING AND SUPPLYING ANY ADDITIONAL COMPONENTS (PLANKING, GUARDRAILS, ETC.) REQUIRED TO CREATE A WORK PLATFORM WHICH MEETS OR EXCEEDS ALL APPLICABLE INDUSTRY STANDARDS.

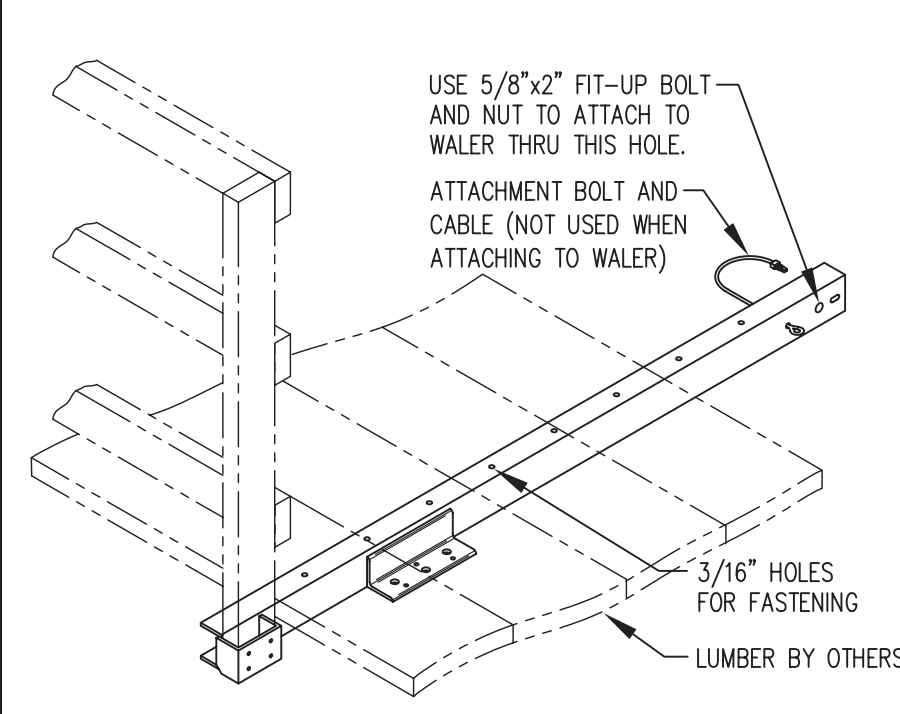
CAUTION: DO NOT USE WALKWAY BRACKETS TO SUPPORT CANTILEVERED CONCRETE SOFFIT FORMS, OR FOR TEMPORARY STORAGE OF CONSTRUCTION EQUIPMENT FOR MATERIAL SUCH AS BUNDLES OF REBAR. THEY ARE FOR USE SOLELY AS SUPPORT FOR A WORK PLATFORM.

WARNING - IMPROPER ATTACHMENT OF WALKWAY BRACKETS AND WALKWAY COMPONENTS MAY RESULT IN SEVERE INJURY.

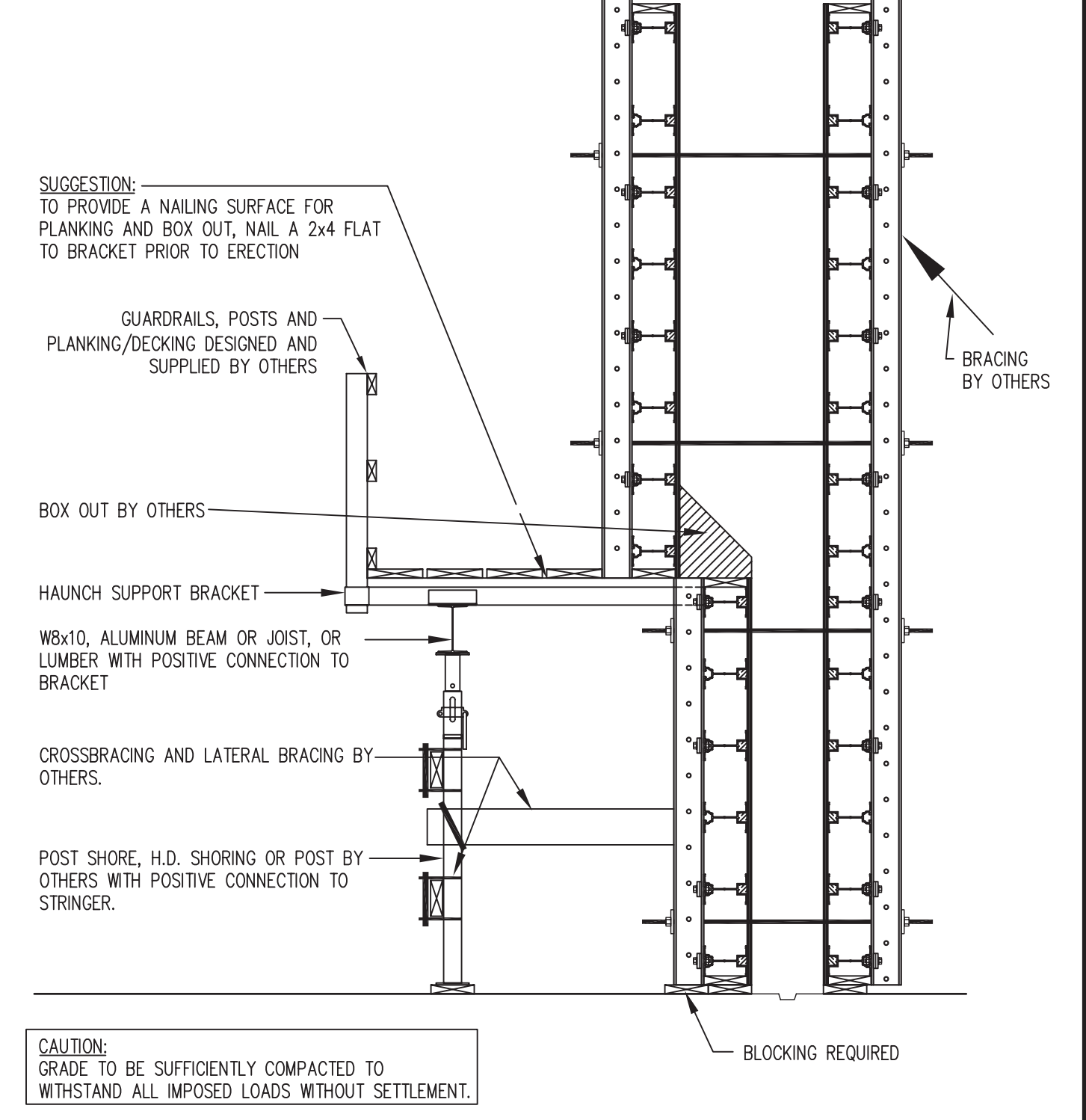
NOTE: CLAMPING NUTS/BOLTS ARE TO BE PLACED 6" FROM TOP & BOTTOM OF OUTSIDE CORNER. 1/2" I.D. STEEL WASHERS ARE REQUIRED UNDER THE HEAD OF THE BOLT.



## HAUNCH SUPPORT BRACKET



- ALL SUPPORT MEMBERS (SUCH AS POSTS, JOISTS, BEAMS, STRINGERS AND PLANKING), MUST BE DESIGNED FOR A 4:1 FACTOR OF SAFETY.
- FORMWORK, STRINGERS AND POSTS MUST BE IN PLACE AND BRACED PRIOR TO PLACING ANY FORMWORK OR PLANKING ON HAUNCH SUPPORT BRACKET.
- LOADING IS TO BE CALCULATED USING A MINIMUM OF 25 PSF (LIVE LOAD) OVER ENTIRE DECKED AREA PLUS FORM WEIGHT PLUS CONCRETE WEIGHT.

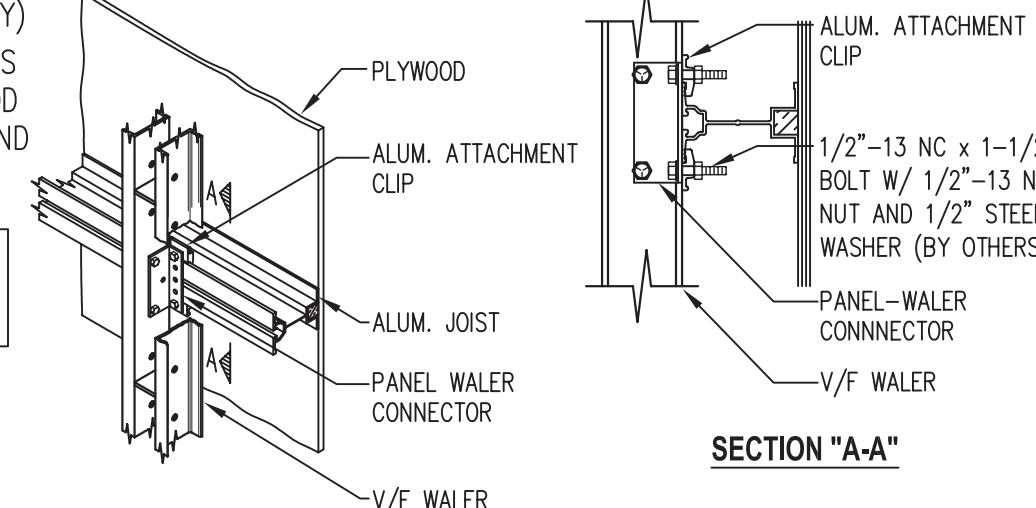


## POSITIVE WALER CONNECTION

WALERS MUST BE SECURED TO TWO ALUMINUM BEAMS WITH PANEL WALER CONNECTORS. ILLUSTRATED BELOW ARE TWO DIFFERENT METHODS FOR A POSITIVE CONNECTION.

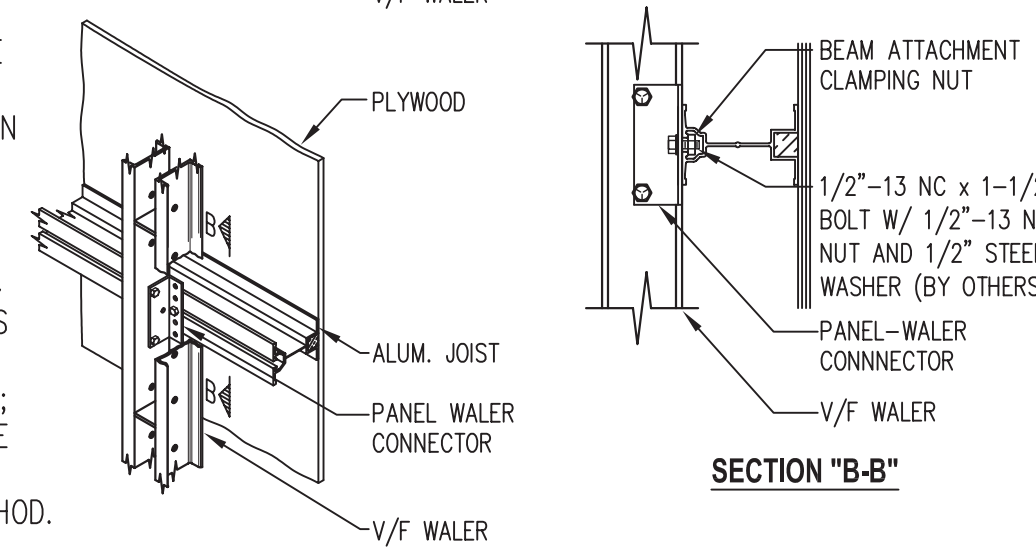
### METHOD "A"

(FOR ALUMINUM BEAM ONLY) WITH TWO BOLTS AND CLIPS IN OPEN VIEW. THIS METHOD IS POSITIVE AND EASIER AND FASTER TO INSTALL.



### METHOD "B"

(FOR ALUMINUM BEAM OR ALUMINUM JOIST) THIS METHOD UTILIZES ONE BOLT WITH CLAMPING NUT, BUT SINCE THE CONNECTION OCCURS DOWN UNDER THE BEAM AND BETWEEN THE WALER CHANNELS, INSTALLATION IS AWKWARD. THEREFORE, METHOD "A" IS PREFERRED FOR THE ALUMINUM BEAM. HOWEVER, THE MORE NARROW FLANGE OF THE JOIST REQUIRES ATTACHMENT BY THIS METHOD.



## TIES

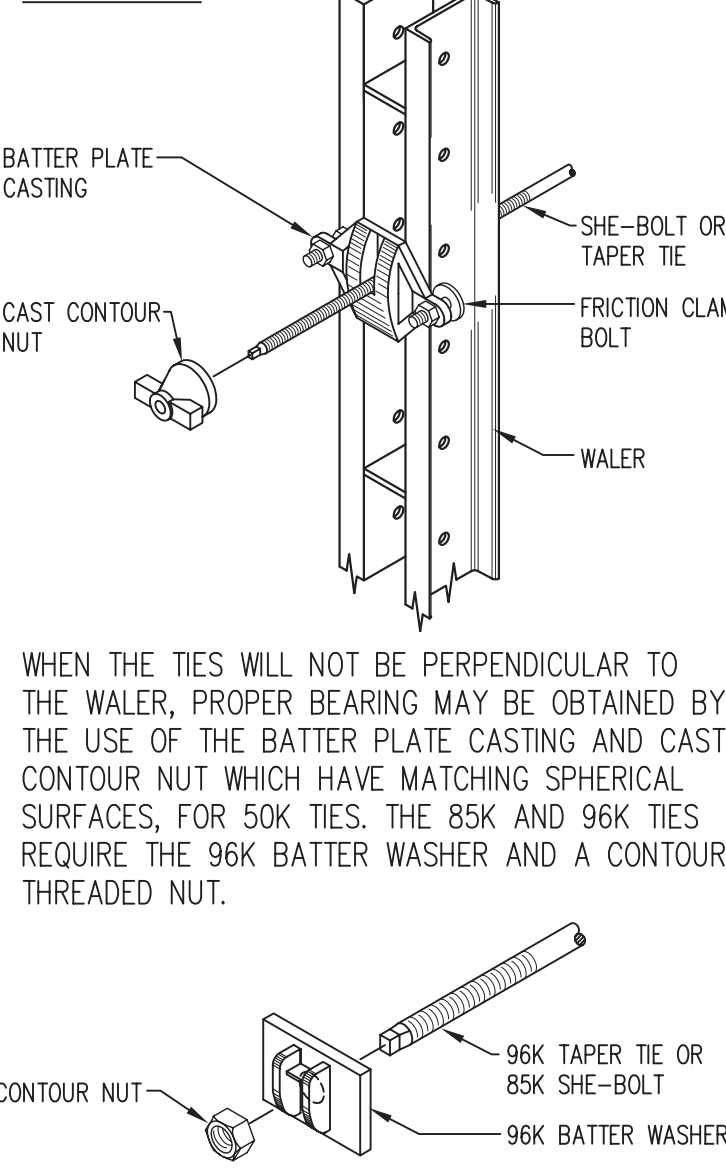
TAPER TIES				
DESIGNATION	D1	D2	ULTIMATE STRENGTH	SAFE WORKING LOAD AT 2 TO 1 SAFETY FACTOR
50K	1"	1 1/4"	50,000 LBS.	25,000 LBS.
96K	1 1/4"	1 1/2"	96,000 LBS.	48,000 LBS.

SHE-BOLTS				
DESIGNATION	D1	D2	E	SAFE WORKING LOAD AT 2 TO 1 SAFETY FACTOR
50K	7/8"	1 1/4"	2"	50,000 LBS.
85K	1 1/8"	1 1/2"	2 1/4"	85,000 LBS.

- A 2.0 TO 1.0 SAFETY FACTOR IS REQUIRED FOR ALL FORMWORK.
- THE SAFE WORKING LOAD OF THE SHE-BOLT TIE ASSEMBLY MUST BE REDUCED IF INNER TIE ULTIMATE STRENGTH IS LESS THAN SHE-BOLT ULTIMATE STRENGTH. SYMONS PROJECT DRAWINGS INDICATE SAFE WORKING LOAD OF ASSEMBLY WHEN INNER TIE IS SUPPLIED BY SYMONS CORPORATION.

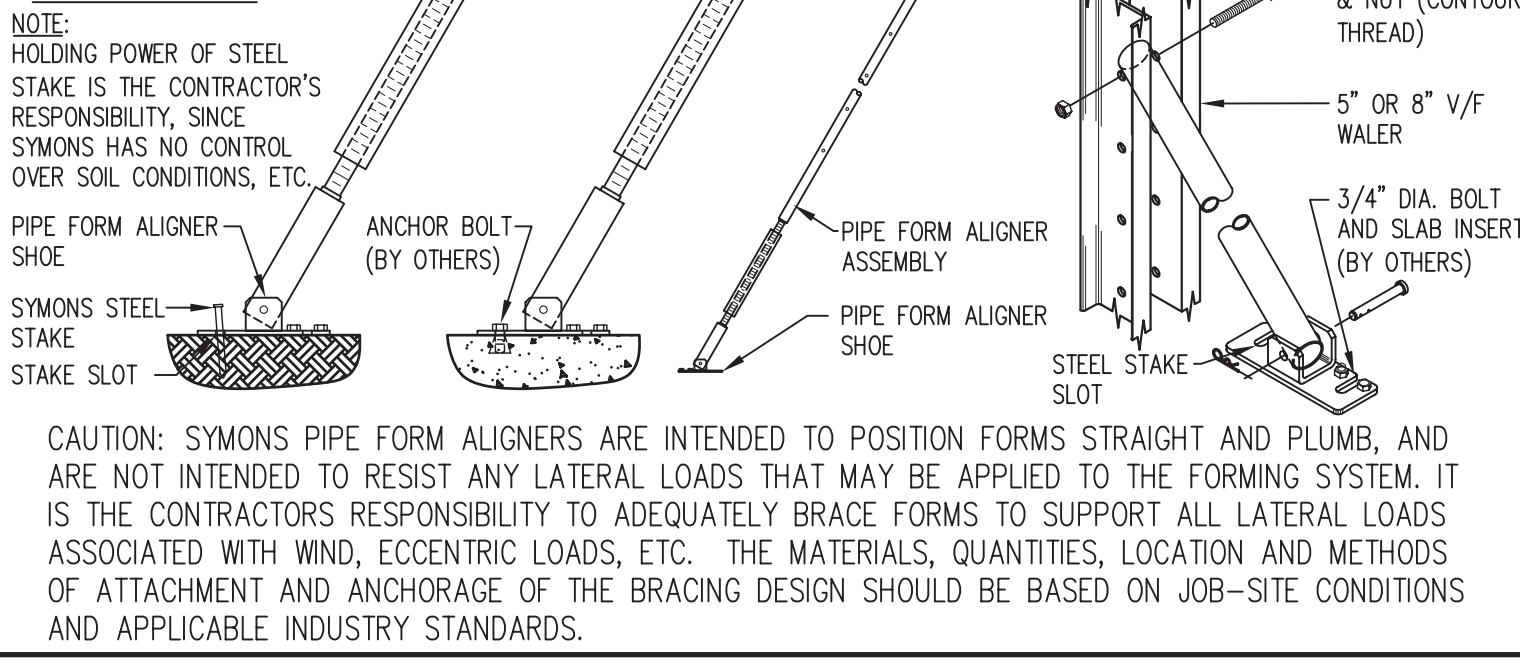
## BATTERS



WHEN THE TIES WILL NOT BE PERPENDICULAR TO THE WALER, PROPER BEARING MAY BE OBTAINED BY THE USE OF THE BATTER PLATE CASTING AND CAST CONTOUR NUT WHICH HAVE MATCHING SPHERICAL SURFACES. FOR 50K TIES, THE 85K AND 96K TIES REQUIRE THE 96K BATTER WASHER AND A CONTOUR THREADED NUT.

NOTE: FRESHLY PLACED CONCRETE BEHAVES AS A LIQUID. THE PRESSURE EXERTED ACTS AT RIGHT ANGLES TO THE FORM FACES. IN ALL BATTERED WALLS, THE HORIZONTAL COMPONENT OF CONCRETE PRESSURE IS ACCOMPANIED BY A COMPONENT ACTING UPWARD AGAINST THE HORIZONTAL PROJECTION OF THE FORM. THIS FORCE IS CALLED UPLIFT. IF IT IS NOT ADEQUATELY COUNTERACTED, THE ENTIRE FORM WILL FLOAT OUT OF POSITION. IT IS THE RESPONSIBILITY OF THE USER TO CALCULATE AND/OR VERIFY THE UPLIFT FORCE AND TO TAKE APPROPRIATE COUNTER ACTIONS.

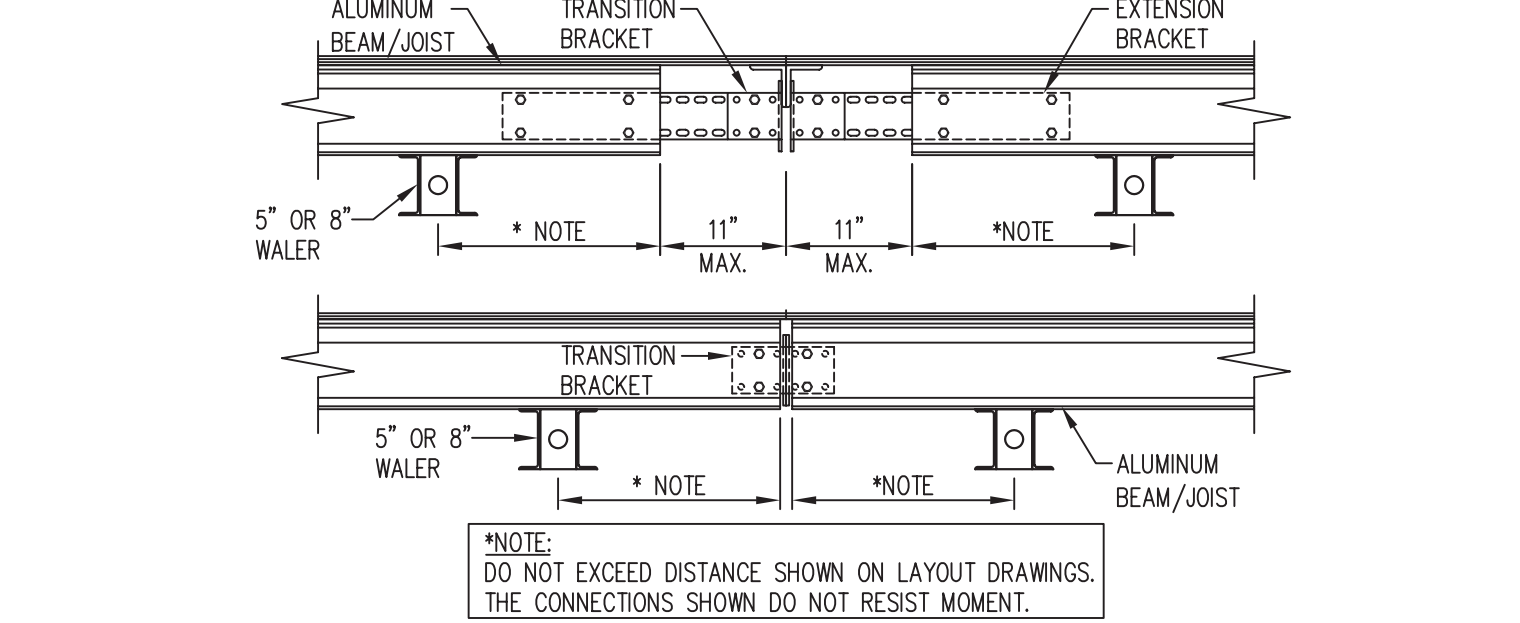
## ALIGNMENT



NOTE: HOLDING POWER OF STEEL STAKE IS THE CONTRACTOR'S RESPONSIBILITY, SINCE SYMONS HAS NO CONTROL OVER SOIL CONDITIONS, ETC.

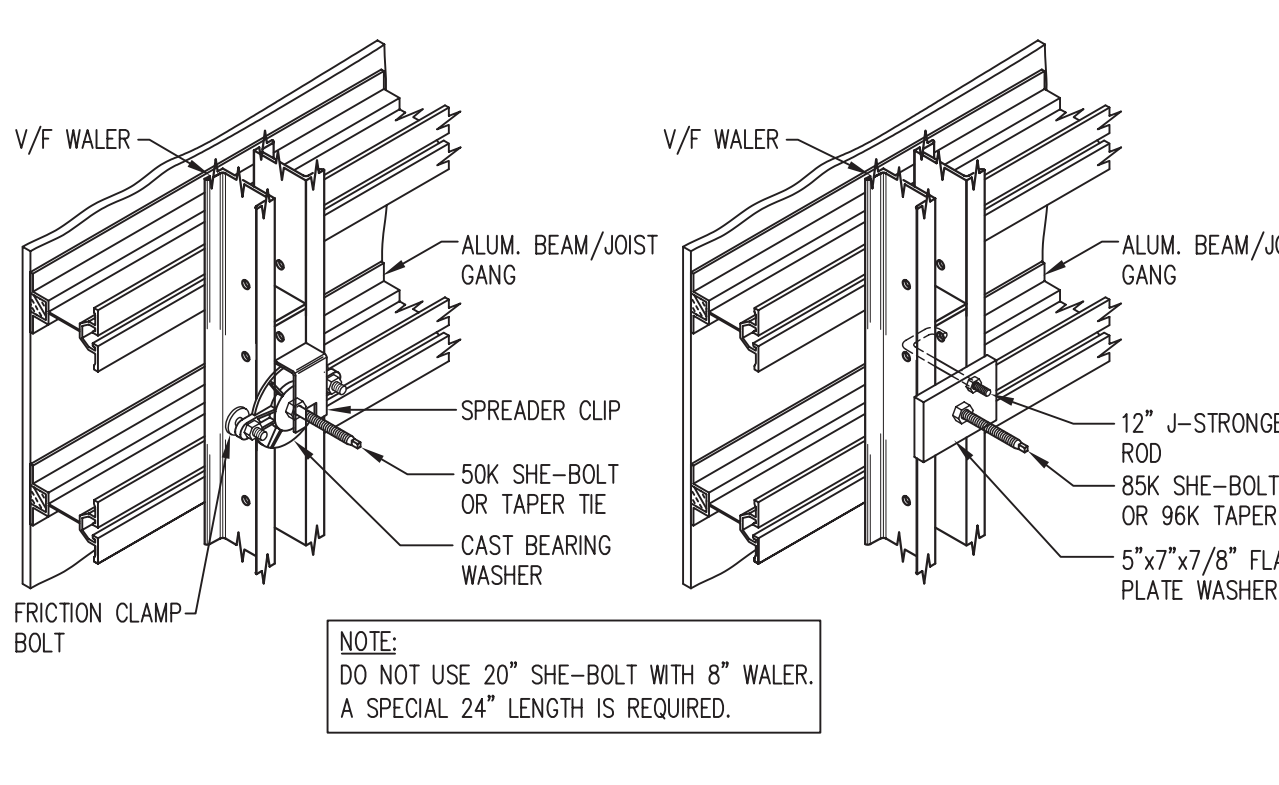
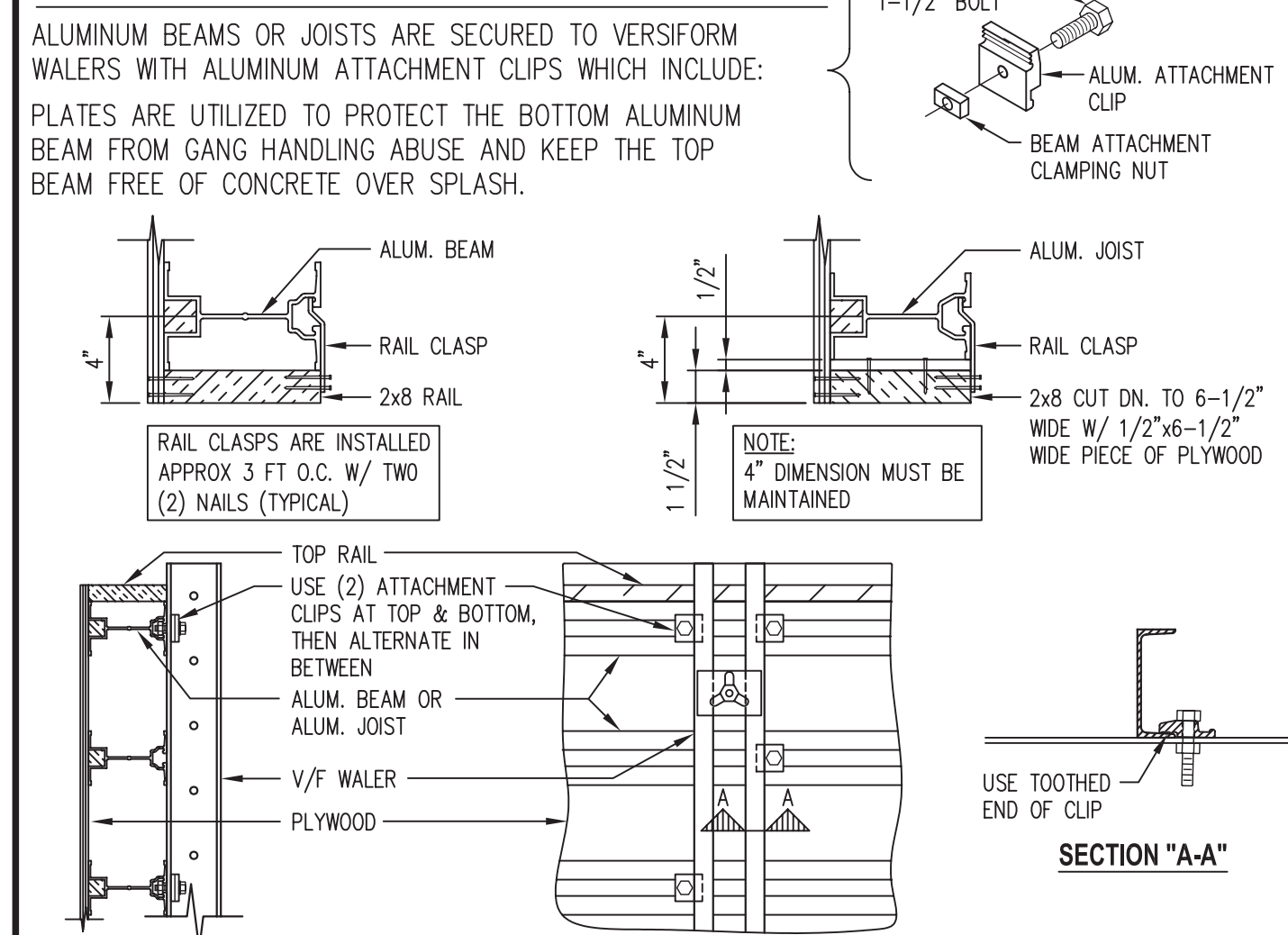
CAUTION: SYMONS PIPE FORM ALIGNERS ARE INTENDED TO POSITION FORMS STRAIGHT AND PLUMB, AND ARE NOT INTENDED TO RESIST ANY LATERAL LOADS THAT MAY BE APPLIED TO THE FORMING SYSTEM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADEQUATELY BRACE FORMS TO SUPPORT ALL LATERAL LOADS ASSOCIATED WITH WIND, ECCENTRIC LOADS, ETC. THE MATERIALS, QUANTITIES, LOCATION AND METHODS OF ATTACHMENT AND ANCHORAGE OF THE BRACING DESIGN SHOULD BE BASED ON JOB-SITE CONDITIONS AND APPLICABLE INDUSTRY STANDARDS.

## TRANSITION AND EXTENSION BRACKETS

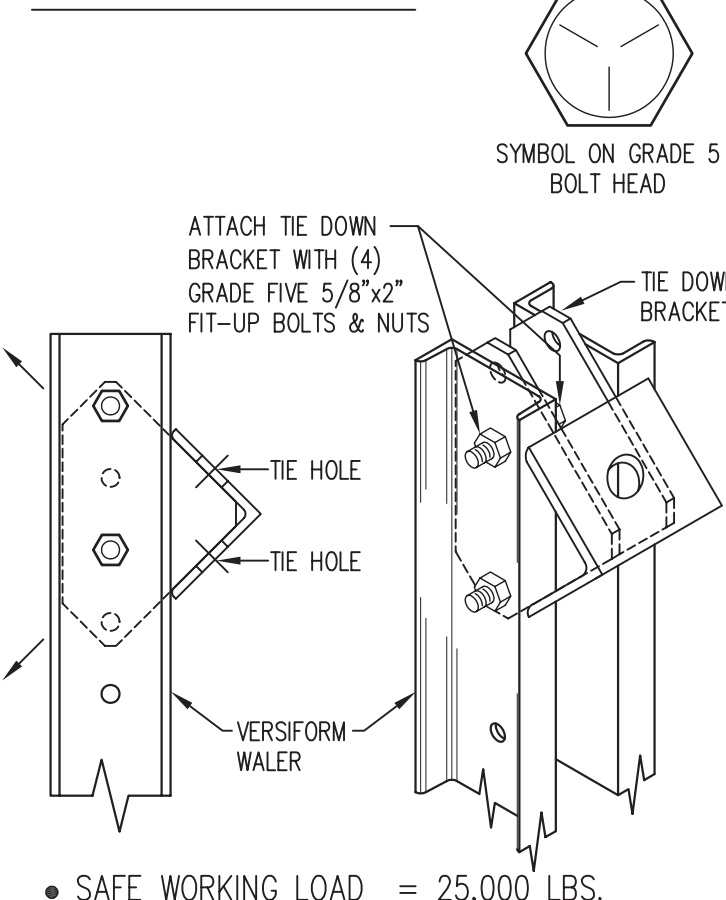


NOTE: DO NOT EXCEED DISTANCE SHOWN ON LAYOUT DRAWINGS. THE CONNECTIONS SHOWN DO NOT RESIST MOMENT.

## TYPICAL ALUMINUM TO WALER CONNECTIONS

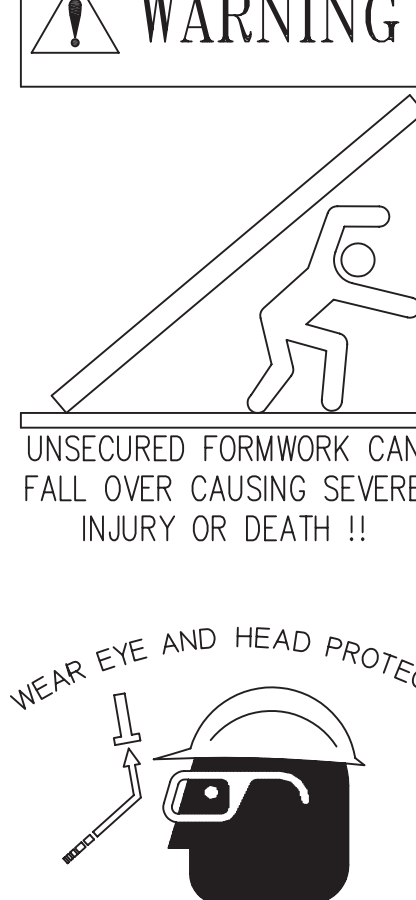


## TIE DOWN BRACKET



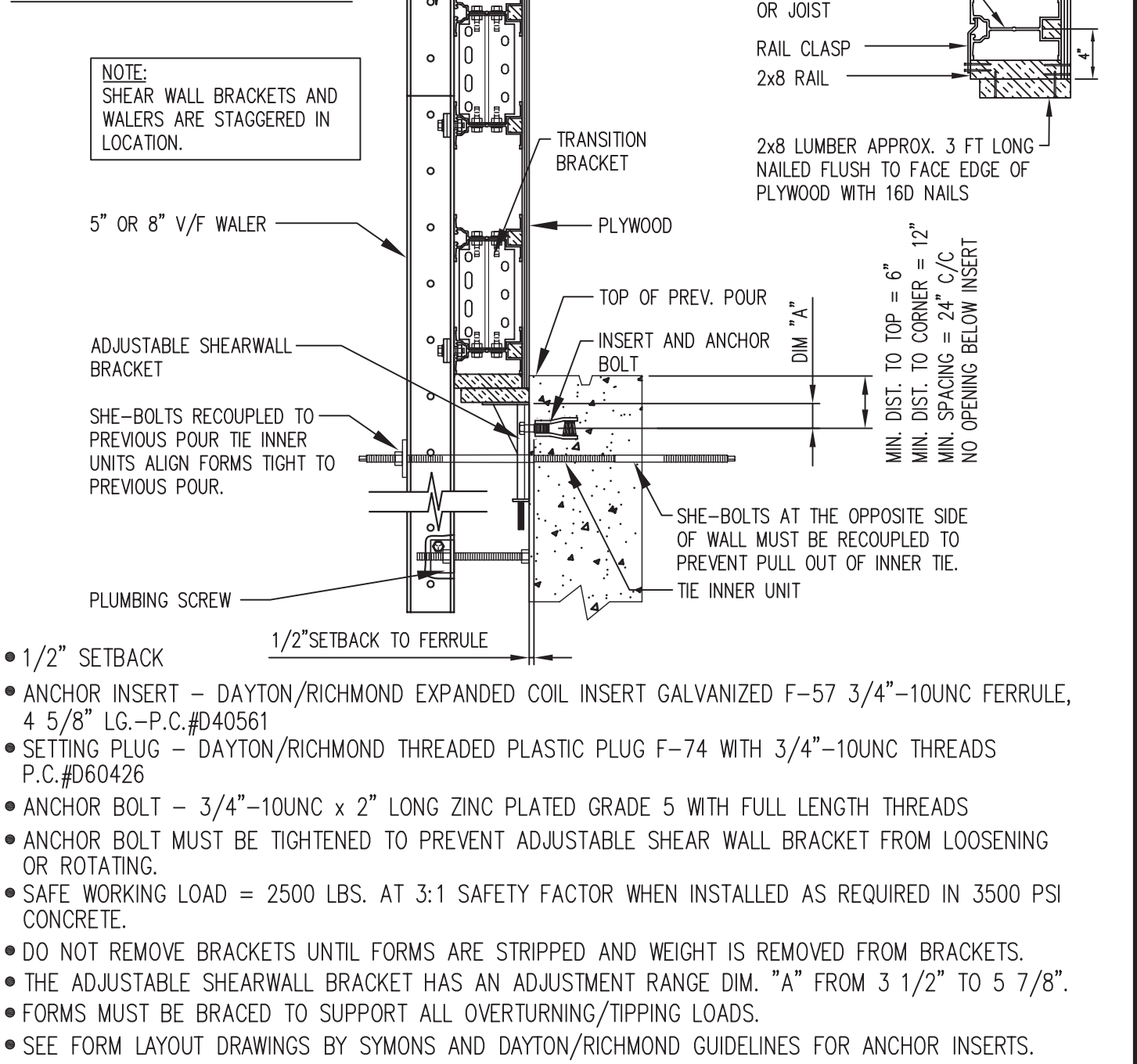
• SAFE WORKING LOAD = 25,000 LBS.

## WARNING



UNSECURED FORMWORK CAN FALL OVER CAUSING SEVERE INJURY OR DEATH !!  
WEAR EYE AND HEAD PROTECTION

## SHEARWALL BRACKET



NOTE: SHEAR WALL BRACKETS AND WALERS ARE STAGGERED IN LOCATION.

- 1/2" SETBACK
- ANCHOR INSERT - DAYTON/RICHMOND EXPANDED COIL INSERT GALVANIZED F-57 3/4"-10UNC FERRULE, 4 5/8" LG.-P.C.#040561
- SETTING PLUG - DAYTON/RICHMOND THREADED PLASTIC PLUG F-74 WITH 3/4"-10UNC THREADS P.C.#060426
- ANCHOR BOLT - 3/4"-10UNC x 2" LONG ZINC PLATED GRADE 5 WITH FULL LENGTH THREADS
- ANCHOR BOLT MUST BE TIGHTENED TO PREVENT ADJUSTABLE SHEAR WALL BRACKET FROM LOOSENING OR ROTATING.
- SAFE WORKING LOAD = 2500 LBS. AT 3:1 SAFETY FACTOR WHEN INSTALLED AS REQUIRED IN 3500 PSI CONCRETE.
- DO NOT REMOVE BRACKETS UNTIL FORMS ARE STRIPPED AND WEIGHT IS REMOVED FROM BRACKETS.
- THE ADJUSTABLE SHEARWALL BRACKET HAS AN ADJUSTMENT RANGE DIM. "A" FROM 3 1/2" TO 5 7/8".
- FORMS MUST BE BRACED TO SUPPORT ALL OVERTURNING/TIPPING LOADS.
- SEE FORM LAYOUT DRAWINGS BY SYMONS AND DAYTON/RICHMOND GUIDELINES FOR ANCHOR INSERTS.

## BRACING IMPORTANT:

- 1.) BRACING MUST BE IN PLACE WHILE SETTING FORMWORK AND REMAIN IN PLACE UNTIL FORMS ARE STRIPPED.
  - 2.) CONTRACTOR IS TO INSURE THAT FORMWORK IS PROPERLY BRACED AND STABILIZED AGAINST WIND AND OTHER EXTERNAL FORCES.
- STRIPPING AND REMOVAL OF GANG FORMS
- 1.) ATTACH THE CRANE RIGGING TO THE LIFTING BRACKETS AND SLOWLY TAKE UP THE SLACK IN THE RIGGING.
  - 2.) SAFELY REMOVE ALL TIES, BRACES, AND ALIGNERS.
  - 3.) BREAK THE BOND BETWEEN THE CONCRETE AND THE FORMS. DO NOT USE THE CRANE TO BREAK THE BOND.
  - 4.) MOVE THE GANG FORM TO THE NEXT LOCATION.
  - 5.) FULLY BRACE AND SECURE THE FORM BEFORE REMOVING CRANE RIGGING.
- SYMONS RECOMMENDS GLOVES, HARDHATS, SAFETY SHOES, AND SAFETY GLASSES BE WORN DURING ALL FORMING AND POURING OPERATIONS.

IMPORTANT: SEE SYMONS APPLICATION DRAWINGS, APPLICATION GUIDES, AND SAFETY SHEETS FOR ADDITIONAL IMPORTANT INFORMATION, INCLUDING GENERAL NOTES AND LOCAL BRANCH CONTACT INFORMATION.

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## AL. JOIST & BEAM GANG SAFETY APPLICATIONS

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JOB		
LOCATION		
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