



## TOWNSHIP OF NORTHAMPTON

55 Township Road  
Richboro, PA 18954

Building - Code Enforcement Department

Phone: 215-355-3883 Fax: 215-357-3650

### **DECK REQUIREMENTS**

(Revised: April 6, 2023)

**Design Criteria is to be per IRC 2018, as amended.**

**(60 P.S.F. live load/10 P.S.F. dead load/115 mph - 3 second gust wind load)**

Three (3) sets of architectural plans, fully-dimensional with specifications, drawn to scale, are required. Plans are to include a footing plan, framing plan, complete section(s) of the deck, stairs, guardrail, and handrail details, sections of deck guardrail detail, and a finished deck plan view.

A 34" – 38" minimum/maximum heights graspable handrail, vertically from the stair tread noses mounted to the stair guardrails, is to be provided on all stairs with four (4) or more risers. Provide a cross-section with dimensions of proposed handrails. Handrail brackets should be approximately 30" apart. Handrails, when circular, are to be 1 ¼" minimum to 2" maximum diameter; Type II handrails to be maximum 2 ¾" across; and be returned to the posts at the top and bottom.

A 36" high guardrail is to be provided around all decks and floor surfaces greater than 30" above grade. All balusters or guards are to have their spacing less than four inches apart. Do not countersink bolt heads on rail posts or beams. 4" X 4" guardrail posts are not permitted to be notched for attachment to the deck. Guardrail posts are required to be bolted, not nailed or screwed, to the deck joists/rim board with blocking/backers, tension ties (as shown on pages 8 and 9), and two (2) half-inch H.D.G. bolts, with washers on both sides. Carriage bolt washers behind the head are to have the washer with a square hole in it.

The space between the risers, treads, and the bottom of the stair guardrail is limited to a maximum 6" diameter.

Treads are required to be 9" minimum measured horizontally nose to nose. Show on details. Maximum nose is 1 ¼", ¾" minimum.

Risers are required to be a maximum of 8 ¼" and all are to be equal within tolerances permitted by the Code. Risers are required to be closed to less than a 4" space except for stairs with a total rise of 30" or less. Show on details.

All components of the deck (posts, beams, joists, flooring, guardrails, balusters, and stairs) must show the type/grade of lumber to be used. (Ex., Southern Yellow Pine, No. 2, pressure-treated for ground contact. For buried posts, labeled UC4B or UC4C is required.)

Cuts in pressure-treated lumber is to be field-treated in accordance with AWPA-M4. Cantilevered decks are to have blocking one size smaller than joists over the beam. Specify that all bolts, nails, and screws are to be hot-dipped galvanized, meeting ASTM A-153 standards, or stainless steel, or manufacturer-approved for pressure-treated contact.

Decks 5' or more above grade measured from the deck floor are to have 6" X 6" posts, minimum. Show deck height on plans. Posts are required to be anchored to the piers with post base anchors and bolts, ABA44Z/ABA66Z, ABE44Z/ABE66Z Z max rated, or PA44ETZ/PA66ETZ, or equal anchorage.

All decks with spas, roofs, and enclosures; second-story decks; and decks over 5' high are required to have signed and sealed details, plans, and specifications by a design professional responsible for the design of the project. All design loads are to be indicated on the plans.

Decks attached to trusses or engineered joists are required to have signed and sealed plans/specifications by a registered design professional responsible for the design of the project. All design loads are to be indicated on the plans.

Additional sections, details, and specifications will be required for complex, multi-level, angular decks.

**We reserve the right to require any deck plan or component detail to be signed and sealed by a registered design professional responsible for its design.** Any material other than ACQ/copper azole or better, pressure-treated lumber, or cedar shall have a current ICC-ES, NER, ICBO research report or evaluation service report on that product. All requirements contained in the report must be complied with, and all plans and specifications are required to be signed and sealed by a registered design professional responsible for the design of the project. Products without an ICC-ES, NER or ICBO report shall have structural calculations prepared by a registered design professional, along with complete details and specifications shown on the signed and sealed plans. All calculations are to include a safety factor of 3.0.

**Sway bracing** is required on decks over 5' high above grade measured from the deck floor. Sway bracing may be required on lower decks depending on construction/conditions determined in the field.

**Decks are not permitted to be attached to cantilevers.** Install a beam row out from the cantilever. Piers within 5' of the foundation basement wall are required to be 8' deep from the bottom of the siding or top of the foundation wall. This is the fill area of a house, except at walk-out basements.

Where the positive connection to the building cannot be verified, or, where there are issues of attaching to, an additional beam row will be required 1' – 3' from the house.



## Joists

The end/side joists at the end of the ledger are to be supported by a joist hanger. There is a new model for this purpose, "LUCZ" by Simpson Strong-Tie Company, or USP J6261F/J62101F-TZ. SEE details below.

Joists are required to be secured to the beam with tie downs. The model number for this purpose is H2.5AZ hold down ties by Simpson Strong-Tie Company, or RT3ATZ by USP Co.

Connectors indicated in this handout are by Simpson Strong-Tie Company. Connectors by USP may be substituted as long as the model numbers end in "TZ" for triple galvanized coating when in contact with ACQ pressure-treated lumber.

### LUCZ Concealed Flange Joist Hanger

Our first concealed flange joist hanger for 2x lumber combines appearance and performance. The LUCZ's concealed flange design provides cleaner lines for visible applications such as second story decks and patio covers. It also creates a narrower hanger that allows joists to be installed flush with the end of a ledger or header where typical face-mount hangers will not perform.



Simpson Strong-Tie Company, Inc.

[www.strongtie.com](http://www.strongtie.com)

1-800-999-5099

Products referenced (in Zmax coating).

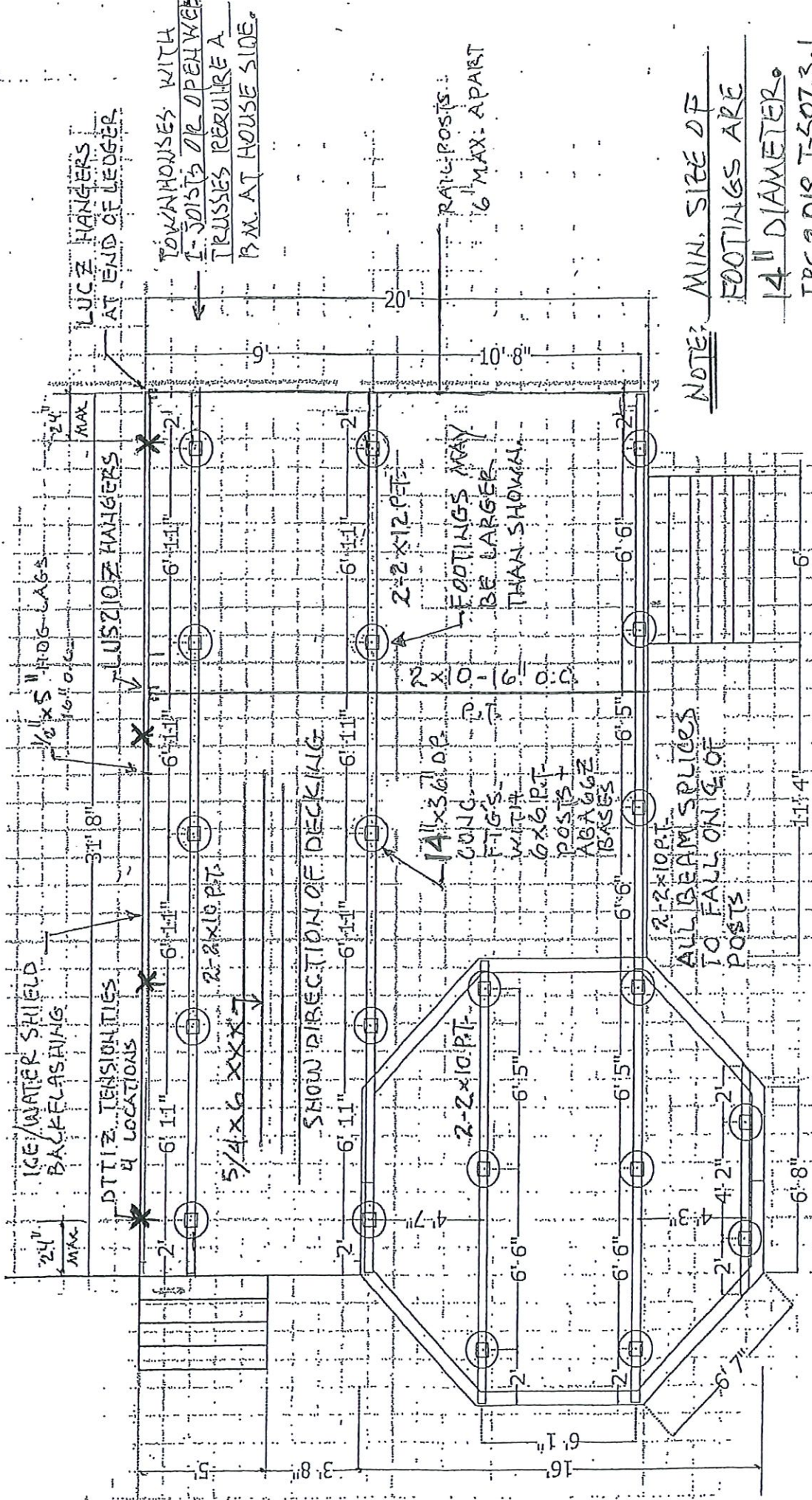
USP Structural Connectors

[www.usp.connectors.com](http://www.usp.connectors.com)

1-800-328-5934

Products referenced (in triple zinc (TZ) coating).

# SHOW HOUSE JOIST TYPE / RIM BO.



FOOTING / FRAMING PLAN



PROVIDE RESEARCH REPORTS FOR RAIL AND DECKING

COMPOSITE DECKING AND RAIL SYSTEM OVER P.T. FRAMING

LESS THAN 4" SPACING  
4x4 P.T. POSTS 6' MAX. APART

CONT. DECK FLASHING

SHOW TYPE OF EXISTING JOISTS, + RIM BD.

JOIST HANGERS SECURED TO CONT. LEDGER BD.

1/2" x 5" H.O.G. LAG BOLTS - 16" O.C.

PROVIDE BACK FLASHING BETWEEN HOUSE AND LEDGER, LAPPED UNDER HOUSE WRAP.

CONTRACTOR TO VERIFY 2X FRAMING AT ALL LEDGER LAG LOCATIONS

SOLID BLOCKS

DTT2Z

CONT. 2X10 RIM BOARD

4x4 P.T. RAIL POSTS SECURED TO FRAMING WITH (2) 1/2" Ø HEX. CARRIAGE BOLTS. DO NOT NOTCH POSTS. ADD 2X10 BACKERS AS REQUIRED.

~~NO NOT COUNTERSINK HEADS~~

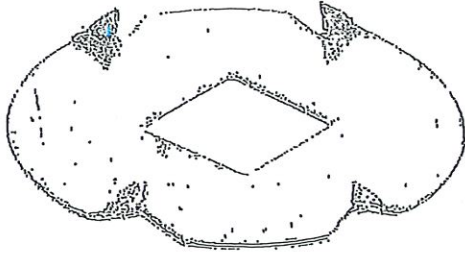
HURRICANE CLIP AT EACH JOIST, TYP.

NOTCH TOP OF POST 3" DEEP BY 9/16" TALL TO RECEIVE GIRDER AND ATTACH WITH (2) 1/2" GALV. CARRIAGE BOLTS. (TYP. AT EACH POST LOCATION).

PAVER PATIO BY OTHERS

P.T. 6X6 POST W/ SIMPSON BASE CONNECTORS AND J-BOLT ANCHORED TO CONC. FOOTING AS PER PLANS. (ABAG66Z)

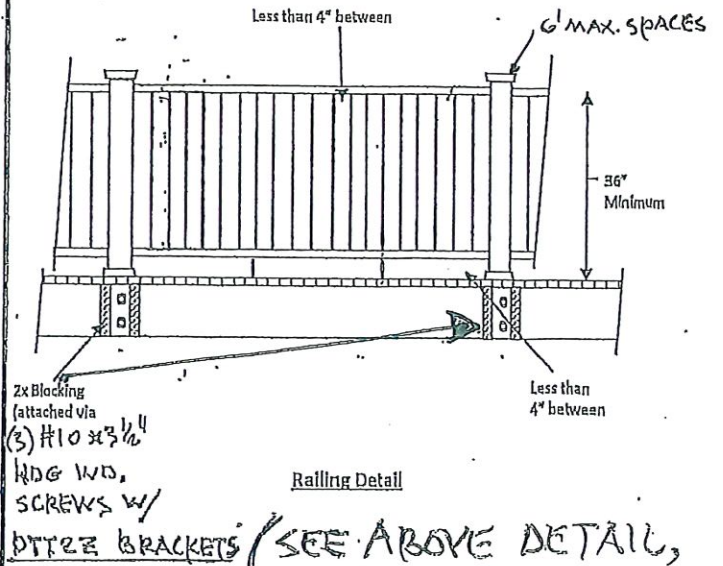
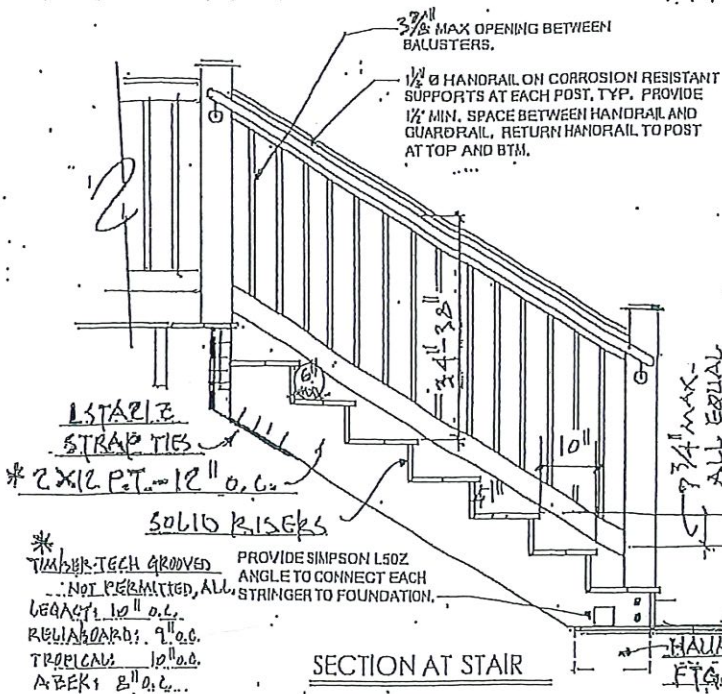
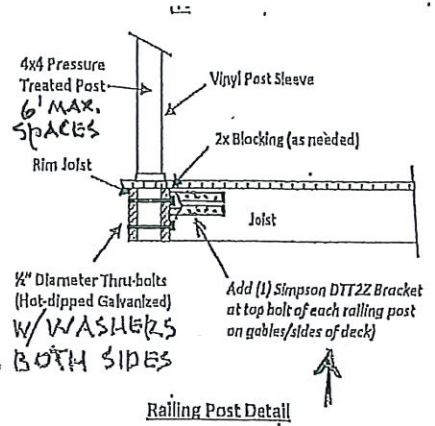
WALL SECTION



THIS TYPE TO BE USED WITH CARRIAGE BOLTS

**NOTES:**

- All structural material to be Pressure Treated (CA .14, UC4A) SYP
- All fasteners to be Hot-dipped Galvanized or equivalent for outdoor use
- NOTE: Details not to scale



(SEE ABOVE DETAIL, AND PG'S. 9, 10 FOR DETAILS)

Lateral load connections are required for decks; two or four are required for each deck, depending on the type/model used. They have to be installed a maximum of 24" from each end of the deck, and where 4 are required, the other 2 are to be spaced approximately equal.

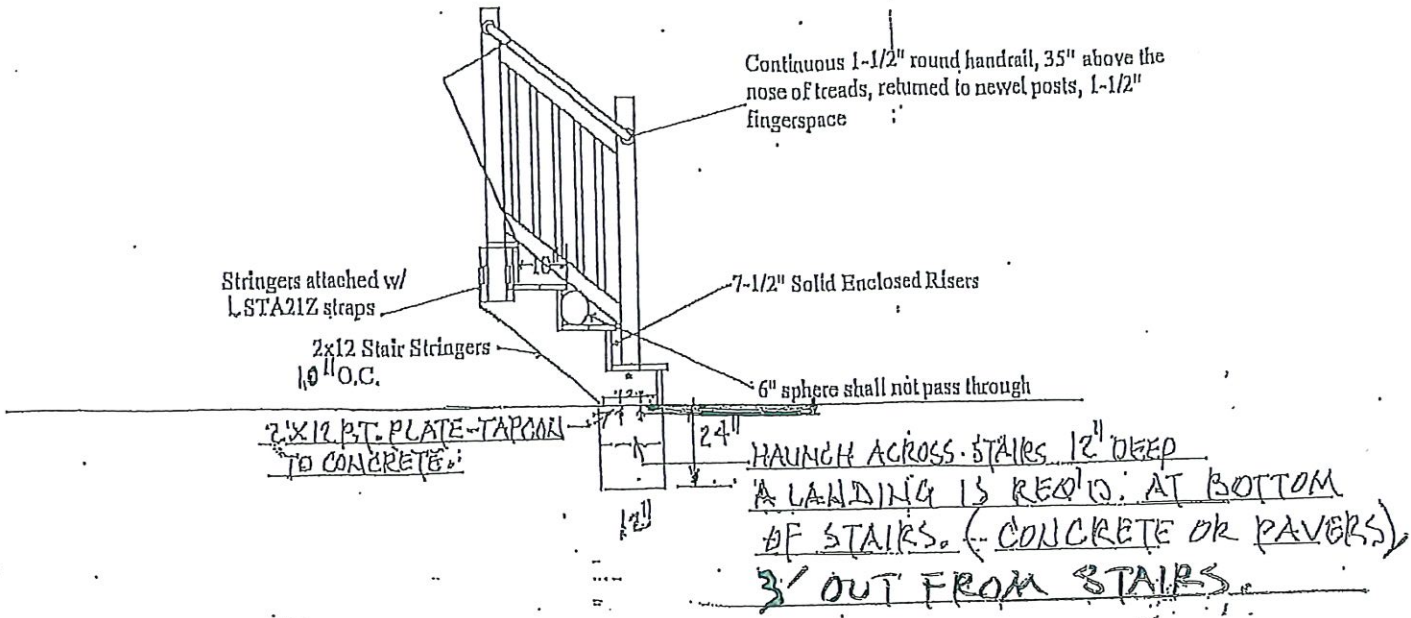
Tension ties are required to be attached to the sill plate, top plate, studs, header, or floor joists, as required by the manufacturer, not into the rim board of the house.

Provide specifications, details, and locations on plans.



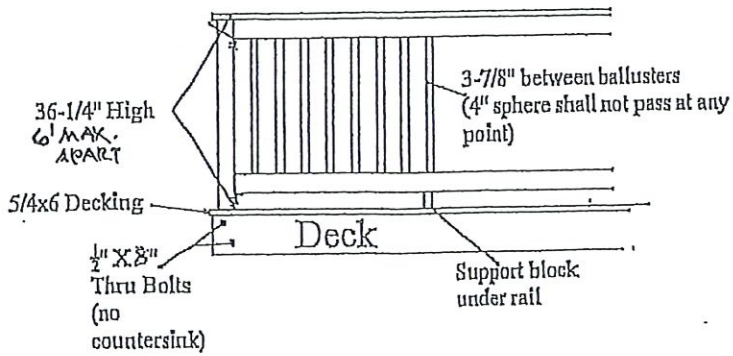
# Stair and Stair Railing Detail

Steps from side of deck to Grade

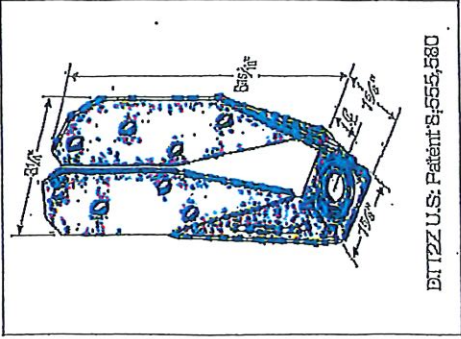


## Rail Detail

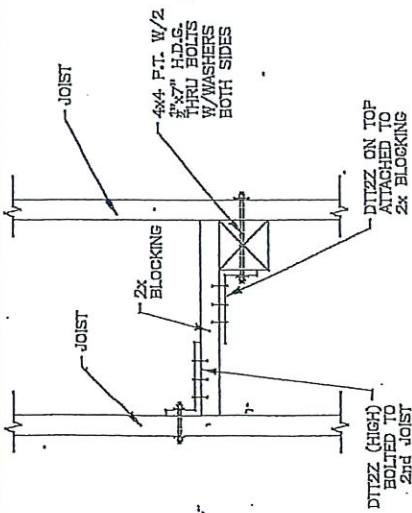
Note: Rails shall be able to withstand 200 pounds along the top of rail in any direction



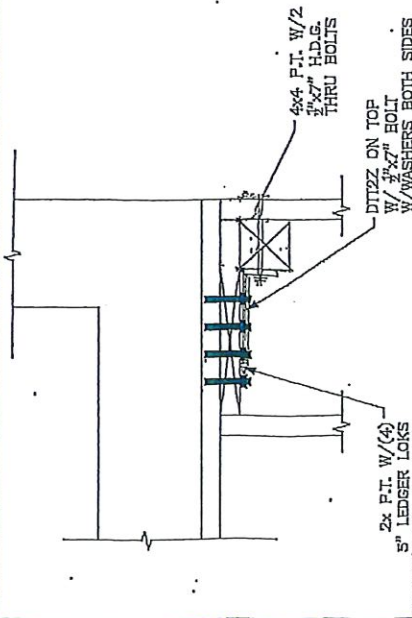
**RAIL POST DETAILS**



BITZZ U.S. Patent 8-555,580

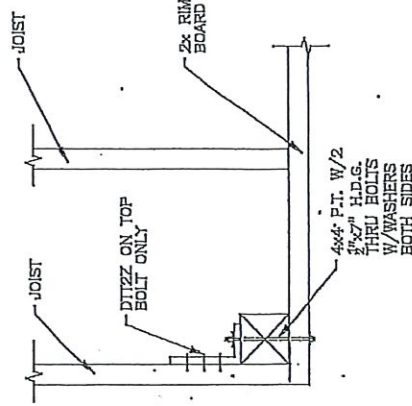


RAIL POST DETAIL ON SIDES OF DECK  
N.T.S.

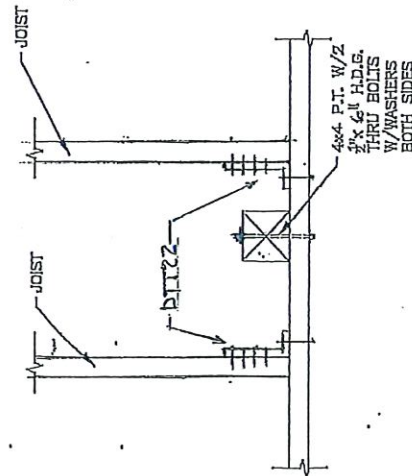


RAIL POST DETAIL AT HOUSE  
N.T.S.

NOTES:  
1. NO COUNTER SINKING BOLT HEADS OR WASHERS



RAIL POST DETAIL AT CORNERS OR WHERE 4x4 IS NEXT TO A JOIST  
N.T.S.



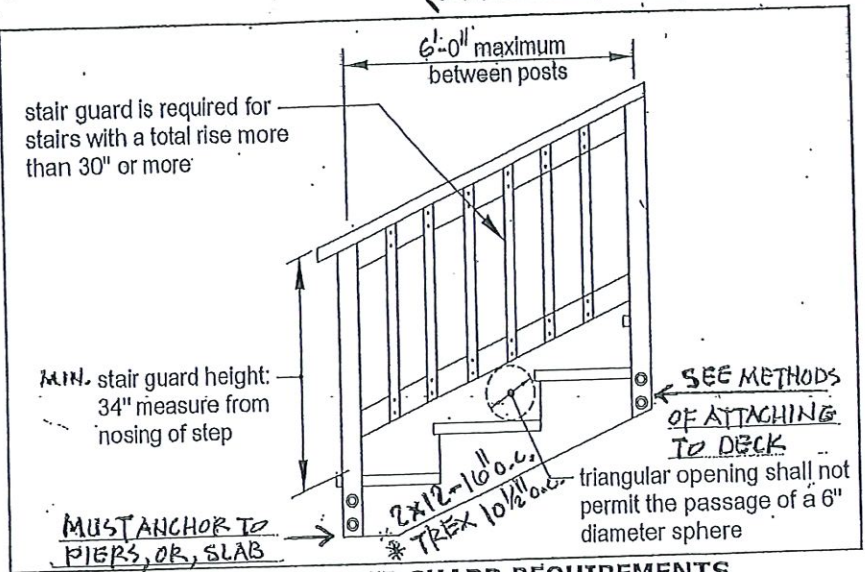
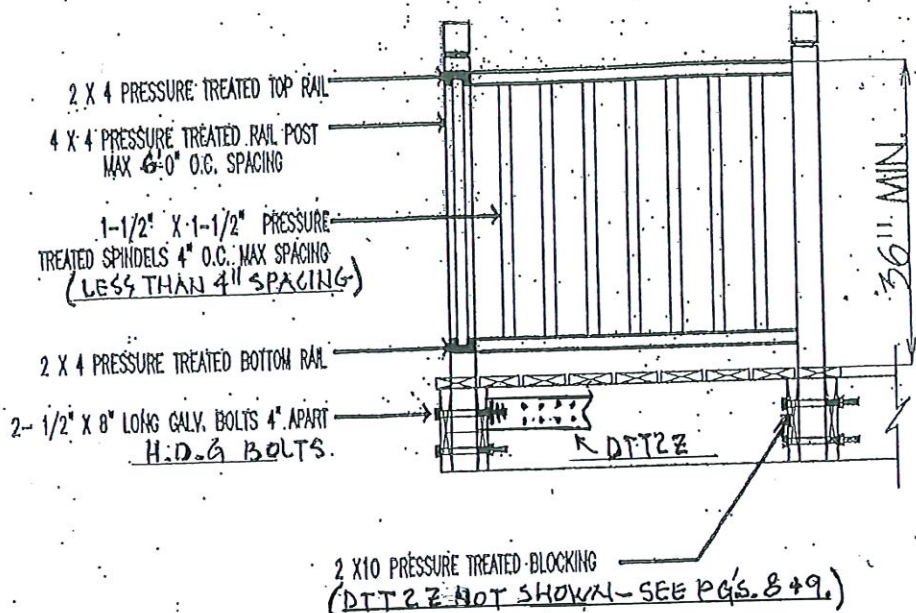
RAIL POST DETAIL AT SIDE FACING REAR  
N.T.S.



THIS TYPE TO BE USED WITH CARRIAGE BOLTS

- NOTES:
- All equipment to be Pressure Treated (C.A., U.C.M) S.P.
  - All fasteners to be Hot-Dipped Galvanized or equivalent per manufacturer's instructions.



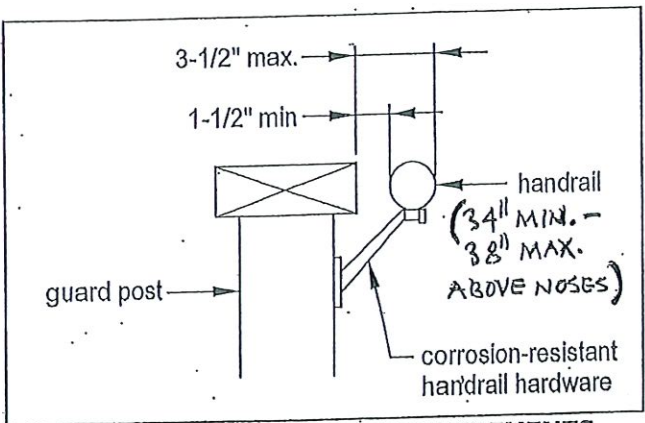


\* STRINGER SPACING VARIES WITH COMPOSITE TREAD MANUFACTURER.

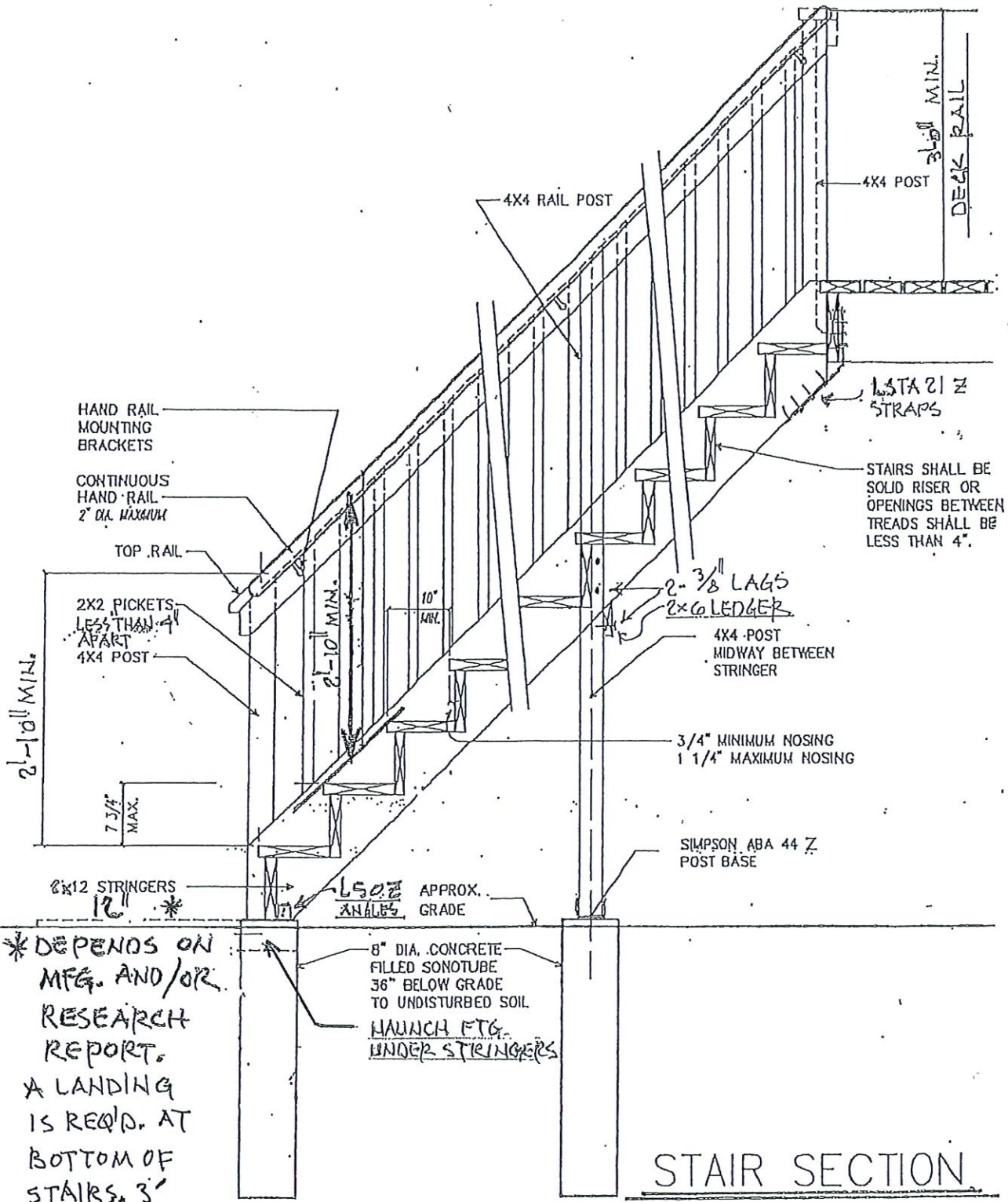
**STAIR GUARD REQUIREMENTS**

**STAIR HANDRAIL REQUIREMENTS**

All stairs with 4 or more risers shall have a handrail on one side. Handrails shall be graspable and shall be composed of decay-resistant and/or corrosion resistant material. The hand grip portion, if circular, shall be between 1-1/4" and 2-1/4" in diameter. Shapes other than circular shall have a perimeter dimension between 4" and 6-1/4" with a maximum cross sectional dimension of 2-1/4". All shapes shall have a smooth surface with no sharp corners. Handrails shall run continuously from a point directly over the lowest riser to a point directly over the highest riser and shall return to the guard at each end. Handrails may be interrupted by guard posts only at a turn in the stair LANDING.



**HANDRAIL REQUIREMENTS**

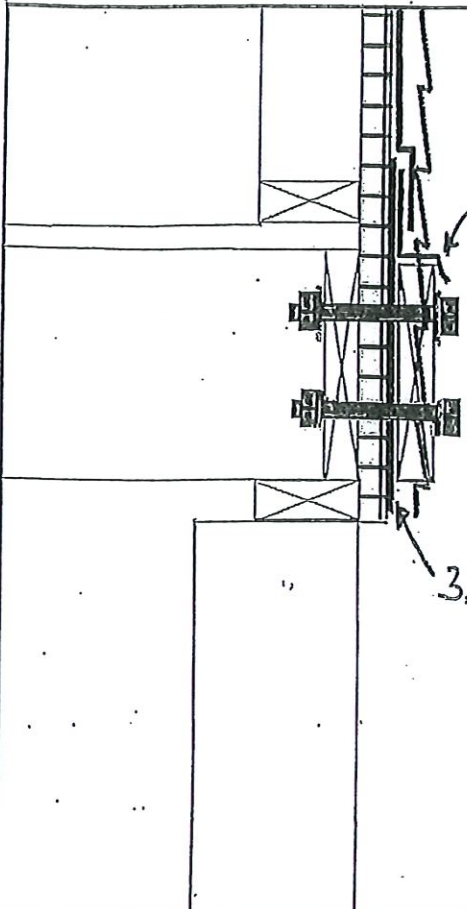


\*DEPENDS ON MFG. AND/OR RESEARCH REPORT. A LANDING IS REQ'D. AT BOTTOM OF STAIRS, 3' OUT FROM STAIRS.

STAIR SECTION



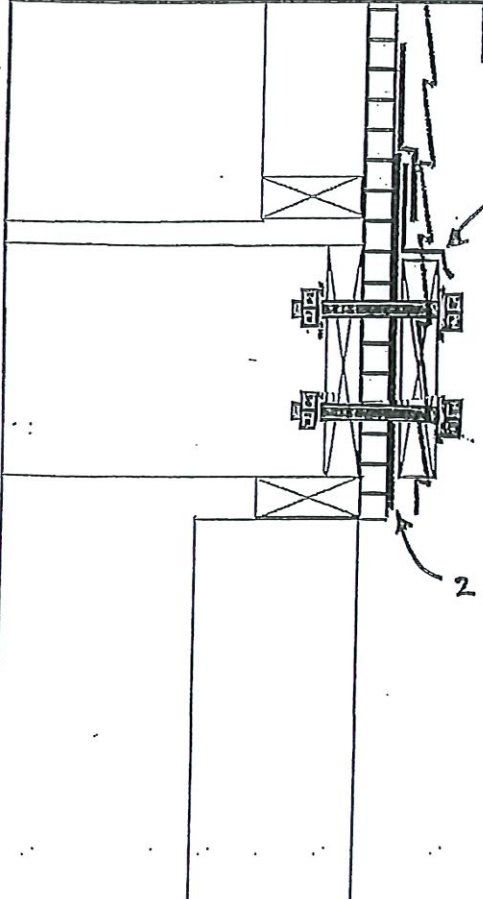
# Residential Decks - Ledger Flashing



The diagram shows a cross-section of a wall and deck ledger assembly. From top to bottom, it shows siding, building paper, a cap flashing strip, back flashing strips, a ledger board, and another cap flashing strip. Arrows labeled 1 through 5 point to the respective components.

**With Building Paper on Wall**

1. Remove siding
2. Cut building paper
3. Insert back flashing
  - Provides capillary break,
  - shingled under building paper  
(ICE/WATER SHIELD)
4. Install Ledger Board
5. Install cap flashing
  - Extends behind building paper  
(H.D.G., COPPER. NO ALUM.)



The diagram shows a cross-section of a wall and deck ledger assembly without building paper. It shows siding, a cap flashing strip, back flashing strips, a ledger board, and another cap flashing strip. Arrows labeled 1 through 5 point to the respective components.

**With NO Building Paper on Wall**

1. Remove siding
2. Insert back flashing
  - Provides capillary break,
  - shingled under building paper  
(ICE/WATER SHIELD)
3. Install ledger board
4. Install cap flashing
  - (H.D.G., COPPER - NO ALUM.)
5. Install strip of self adhesive flashing (counter flashing) to seal cap flashing

VARIOUS METHODS USED FOR FASTENING STRINGERS AT TOP AND BOTTOM

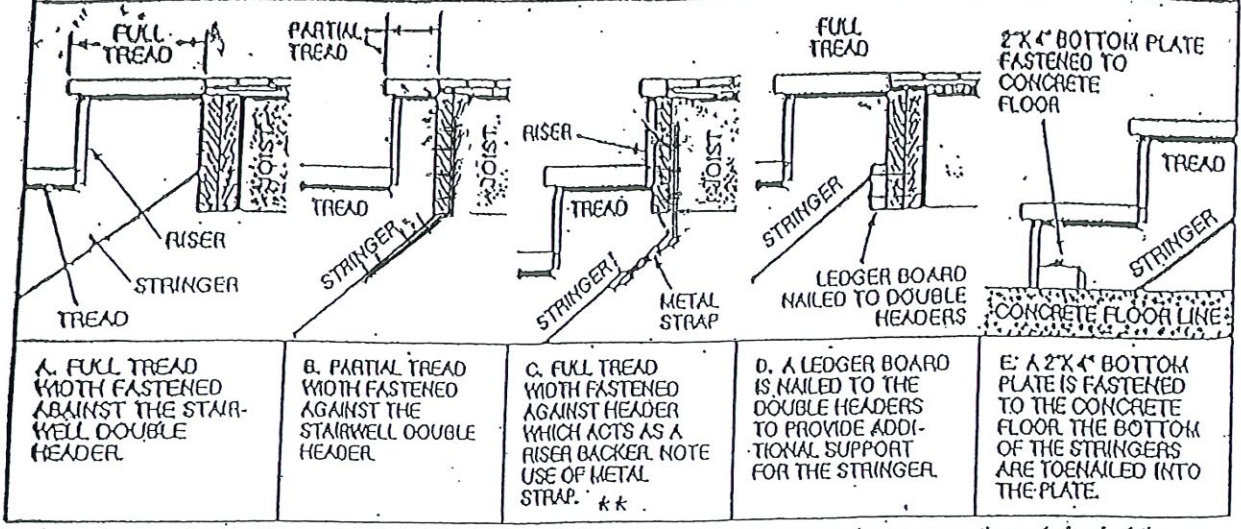


Figure 63-16. Some methods of fastening stair stringers. Fastening must be secure since stringers carry the main load of the stairway.

++ METAL STRAPS TO BE: SIMPSON MSTA24Z

or - ST22Z - or APPROVED EQUAL

NAILED WITH 10P HDG NAILS -

MEETING ASTM - A153 STANDARDS



**70410**

**HOT-DIPPED GALVANIZED FLASHING**  
 10" x 10"  
 Nom. Gauge .010"  
 TAPAJUNTAS GALVANIZADO  
 POR INMERSION EN CALIENTE  
 DE 10" x 10"  
 CALIBRE NOMINAL: 0.010"



**CAUTION**  
 SHARP EDGES  
**PRECAUCION**  
 BORDES FILOSOS

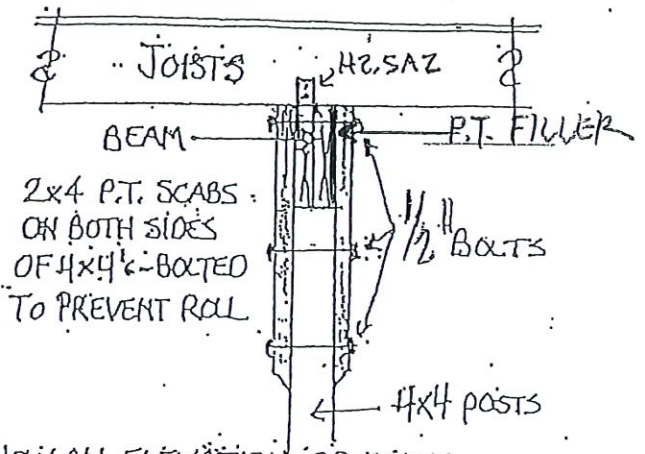
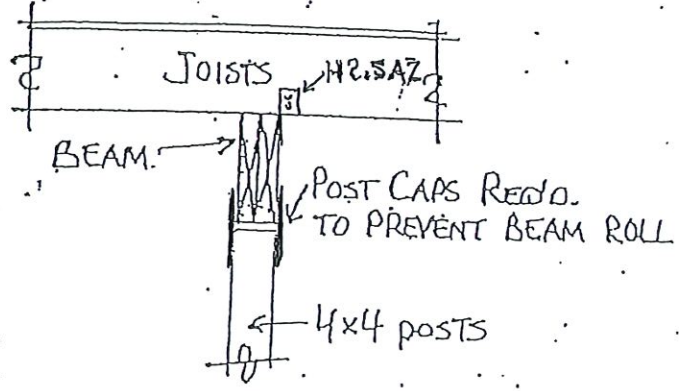
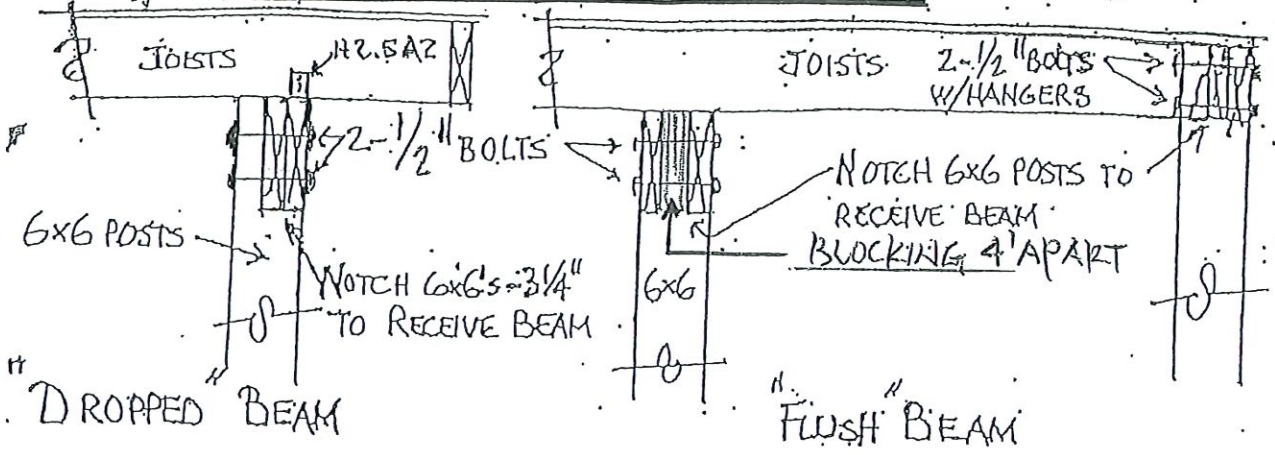
USE WITH ACQ PRESSURE TREATED LUMBER. USE ASPHALT FELT PAPER BETWEEN WOOD/METAL CONTACTS:  
 UTILICELO CON MADERA TRATADA A PRESION ACQ (COBRE ALCALINO CUATERNARIO).  
 UTILICE PAPEL DE FIELTRO ASFALTICO EN LAS UNIONES ENTRE MADERA Y METAL.

MADE IN U.S.A.  
HECHO EN EE.UU.

49821170410



# TYPICAL POST-BEAM CONNECTIONS



SWAY BRACING FOR DECKS OVER 5' HIGH. SHOW ON ELEVATION DRAWING.

