

THE FOLLOWING INFORMATION MUST BE SUBMITTED WHEN APPLYING FOR A DECK PERMIT

I. Site Plan; two copies indicating the following information:

- A. Lot size with metes and bounds and north arrow.
- B. Size and location of proposed structure.
- C. Setback lines, right-of-ways and any easements.
- D. Distances to other structures.

II. Construction details; two copies indicating the following information:

A. Top Views

- 1. Footing size, locations and spacing.
- 2. Post size and locations.
- 3. Method of attachment o other structures.
- 4. Size, span and location of any beams.
- 5. Size, spacing, direction and spans of floor joists and bridging.
- 6. Size, type and direction of decking.
- 7. Exterior dimensions.
- 8. Type, grade and species of lumber.
- 9. Location of any stairs.

B. Side and front elevations indicating the following information:

- 1. Footing size, locations and spacing
- 2. Post size, locations and spacing.
- 3. Beam size and locations.
- 4. Method of attachment to existing structures.
- 5. Dimensions from grade to deck floor.
- 6. Guardrail details.
- 7. Stair locations and details.
- 8. Any cantilevers or overhangs.
- 9. Wind or diagonal bracing (will be reviewed on an individual basis).

(There are samples attached for your information. If you have any questions, please call.)

TOWNSHIP OF WEST BRADFORD DESIGN STANDARDS FOR WOOD DECKS, BALCONIES, PORCHES, LANDINGS AND STAIRS

EXTERIOR DECKS, PORCHES,
BALCONIES & LANDINGS
60 lbs Per sq. ft. L. load
10 lbs Per sq. ft. D. load
70 lbs Per sq. ft. Total load

HANDRAILS & GUARDRAILS

200 lbs Concentrated load at any point in any direction.
Guardrail in fill components – 50 lbs Per sq. ft.
STAIRS – 40 lbs Per sq. ft.

LUMBER - All wood shall be pressure treated or naturally resistant heartwood of redwood, black walnut, black locust or cedar. All cuts, notches or bored holes shall be retreated in accordance with the manufacturer. Fasteners shall be of hot-dipped galvanized or stainless steel, silicon bronze or copper metal.

MAXIMUM CANTILEVER OF JOISTS AND BEAMS – 2' (24")

Decks with cantilevered framing members, connections to exterior walls or other framing members shall be designed and constructed to resist uplift resulting from the full live load specified in the code acting on the cantilevered portion of the deck. Where decks are attached to primary structures the attachment shall be visible for inspection or the deck shall be self-supporting.

FOOTINGS - All footings shall extend a minimum of 36" below grade level and shall bear on undisturbed soil or prepared fill approved by a geo-technical engineer. The sides and bottoms of all footings shall be smooth and straight. The size of the footings shall be determined by the size of the deck but in NO case shall the footings be less than 12" in diameter. ALL footings shall be a minimum of 8" thickness.

Whenever the product of the deck width times the clear span between posts exceeds 66 and is less than 105, footings shall be minimum 15" in diameter when more than two posts are required.

Whenever there are more than two posts required, the minimum size of the circular concrete footings shall be 18" whenever the product of the deck width times the clear span between posts exceeds 105 and is less than 150.

When the product of the deck width times the clear span between posts exceeds 150 or a roof, walls, hot tub or spa are constructed on the deck, the services of a professional engineer or registered architect shall be obtained to design the structure. A seal and signature are required on the plans.

GUARDRAILS - Deck, porches, balconies and landings greater than 30" above grade or floor level shall be protected at the open sides with guardrails not less than 36" in height with ornamental spindles spaced so that a 4" object cannot pass through.

Guardrails at the open sides of stairs shall be not less than 34" in height measured from the leading edge of the treads. The maximum permitted opening in the guardrail shall be less than $4 \frac{3}{8}$ " except where the triangle is formed by the bottom of the guardrail and the stair riser and tread which shall not permit the passage of a 6" object.

HANDRAILS - Handrails shall have either a circular cross section with a diameter of $1 \frac{1}{4}$ " to $2 \frac{5}{8}$ ", or a noncircular cross section with a perimeter dimension of at least 4" but not more than $6 \frac{1}{4}$ " and a largest cross-section dimension not exceeding $2 \frac{1}{4}$ ". Edges shall have a minimum radius of $\frac{1}{8}$ ". Handrails are required when 4 or more risers 34" – 38" in height. SEE CODE TEXT FOR TYPE II HANDRAILS.

LANDINGS - Landings shall be a minimum of 3'x3' and not more than 8-1/4" below the threshold at the exterior of doors. Refer to Code Text.

SUPPORT POSTS - When deck is greater than 4'-0" above grade level, 6"x6" posts are required.

STAIRS - Minimum 36" clear width with maximum $8 \frac{1}{4}$ " risers and minimum 9" treads. Open risers are permitted provided opening is less than 4". A minimum 1" to maximum 1-1/4" nosing is required on all stairs having closed risers.

THIS IS A SUMMARY ONLY – REFER TO UNIFORM CONSTRUCTION CODE FOR COMPLETE DESIGN CRITERIA.

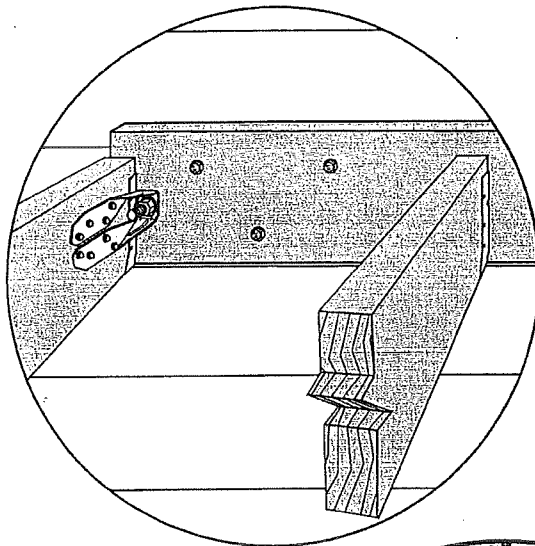
Lateral Load Connection

For decks that are partially supported by an adjacent structure, the connection between the deck and that structure is vital. A bolted or screwed ledger-to-rim board connection is suitable to support gravity loads, however in some cases the building codes require a connection that is able to resist higher lateral loads. In these situations tension ties are typically called out to tie the joists of the deck directly to the joists of the structure.

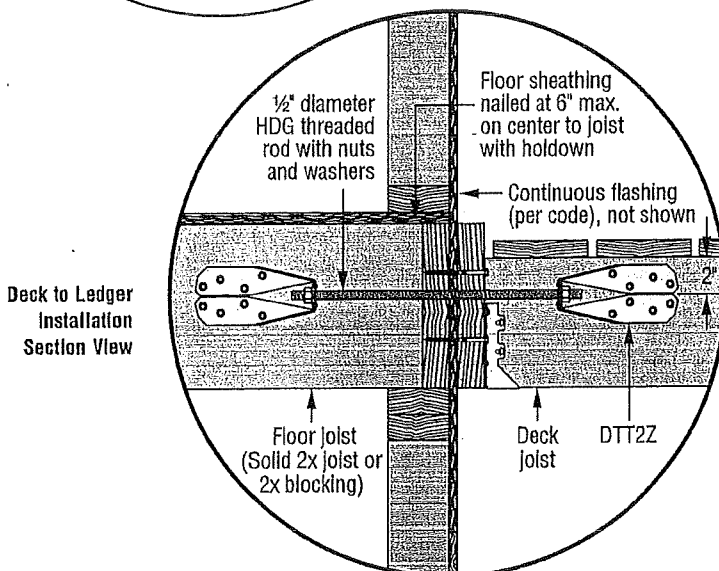
The Simpson Strong-Tie® DTT2Z Deck Tension Tie complies with new IRC requirements for laterally tying the deck to the house. The DTT2Z fastens easily to the joist using Simpson Strong-Tie® Strong Drive® screws (included).



The DTT2Z Deck Tension Tie is a multi-purpose connector ideal for lateral load and deck-post connections. It features a ZMAX® coating for added corrosion resistance.



Deck to Ledger Installation Detail



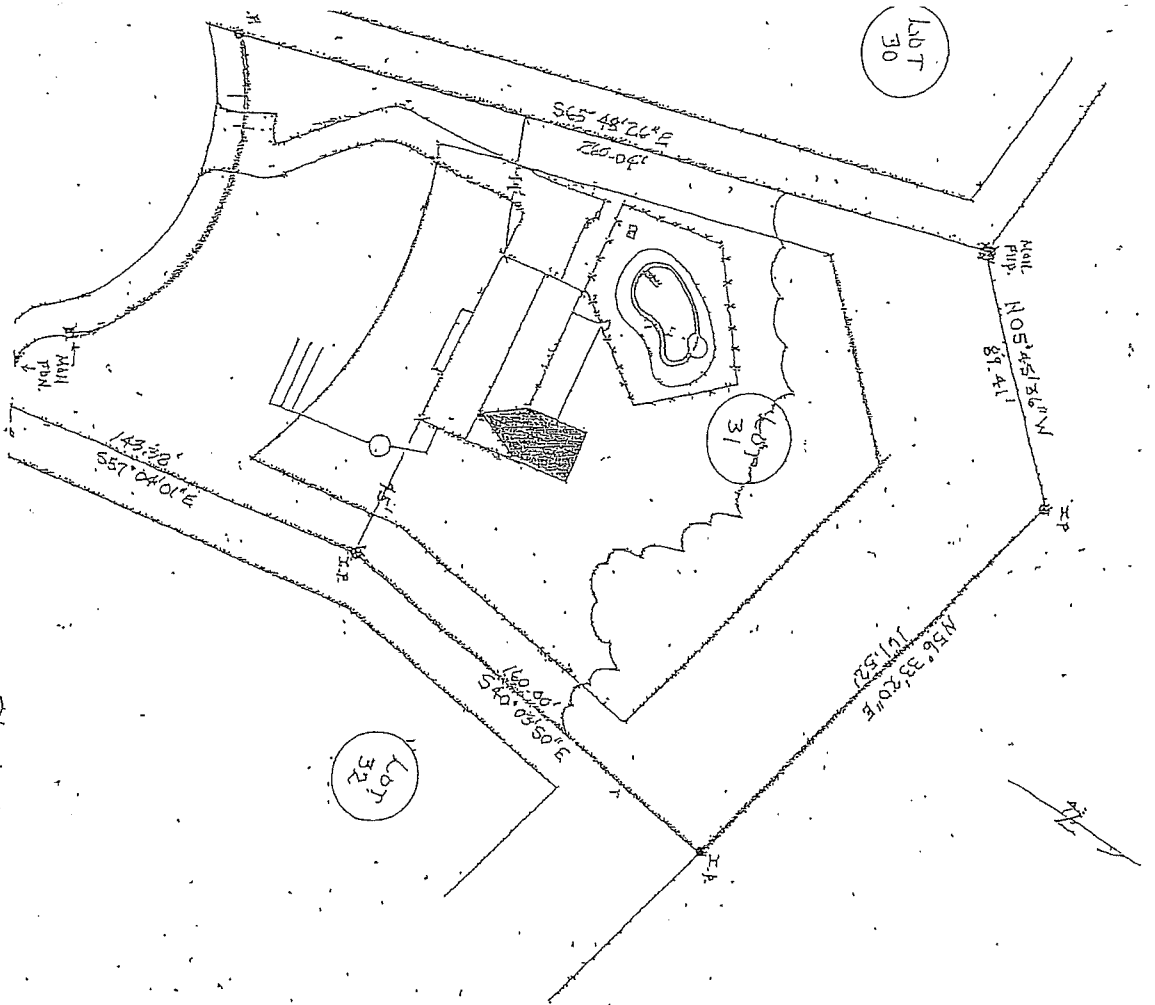
Deck to Ledger Installation Section View

Code Requirements

- ✓ The lateral load connection required by Section R502.2.2 shall be permitted to be in accordance with Figure R502.2.2.3. Hold-down tension devices shall be provided in not less than two locations per deck, and each device shall have an allowable stress capacity of not less than 1500 lbs.

IRC 2009 Section R502.2.2.3

Selection of products based upon performance and/or suitability for a specific application should be made by a qualified professional. Simpson Strong-Tie recommends that deck designs be approved by the local building department before construction begins.

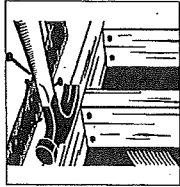


ZONING DATA			
R-1 ZONING District			
Lot Size -	49,657 sqft or 1.14 Acres		
Setbacks			
Front -	15'	Existing	15'
Side -	15'	Existing	15'
Rear -	15'	Existing	15'
Maximum Impervious Coverage	12%		
<u>Existing</u>			
Dwelling -	1920		
Driveway -	2110		
Pool -	1230		
Patio -	250		
	Total		
	6810 sqft or 12 1/2%		
<u>Proposed</u>			
Addition	500		
* SCALE = 1" = 30'			

SAMPLE ONLY
NOT FOR SUBMISSION

J. DOE Property
ADDITION PLAN

1234 ABCD STREET
YOURTOWN, PA 19000
TAX # 50-0-00-0000



STRUCTURAL ELEMENTS

Detailed working drawings must be submitted with the application. The following pages provide guidelines for determining the size of structural elements. The checklist on page two identifies the details which should be included on the drawings to assure an accurate submission. Any questions should be referred to the Department of Planning and Code Administration.

Decks constructed according to this handout are not approved for future hot tub installations.

■ DECK FRAMING

MAXIMUM SPANS FOR DECK JOISTS

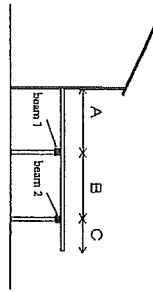
Joist Size (inches)	Joist Spacing (inches)		
	12"	16"	24"
2 x 6	9' - 3"	8' - 0"	6' - 6"
2 x 8	12' - 3"	10' - 7"	8' - 8"
2 x 10	15' - 7"	13' - 6"	11' - 0"
2 x 12	18' - 0"	16' - 5"	13' - 5"

Note: (1) Above table is based on 60 pounds per square foot live load plus 10 pounds per square foot dead load.
(2) Lumber grade is Southern Pine No. 2 or better, 1 percent moisture content.

Maximum Joist Cantilever

If joists are at maximum span, use 3:1 ratio to determine allowable cantilever, i.e., for every 3 feet out from the house, the cantilever length is 1 foot. The maximum cantilever cannot exceed 4 feet.

2. Double Beam Deck



BEAM 1

To find beam loading (L) for beam 1, add the distances A (house to center of beam 1) and B (beam 1 to beam 2) and divide by 2.

$$L = \left(\frac{\text{beam loading} \times A}{\text{house to beam}} + \frac{\text{beam to beam}}{B} \right) \div 2$$

Example: If A = 6 feet and B = 8 feet, then beam loading L = 7.
 $(6 + 8) \div 2 = 7$

To find beam spacing refer to BEAM LOADING AND POST SPACING table.

Examples: If plans call for a 2 - 2 x 8 beam, and L = 7, then post spacing is a maximum of 6 feet.
 If the beam is 2 - 2 x 10, and L = 7, then post spacing is a maximum of 8 feet.

BEAM 2

To find beam loading (L) for beam 2, divide the distance B (beam 1 to beam 2) by 2 and add the length of the cantilever (C).

$$L = \left(\frac{\text{beam loading} \times B}{\text{beam to beam}} \div 2 \right) + \frac{\text{cantilever}}{C}$$

Example: If B = 8 feet and C = 2 feet, then beam loading L = 6.
 $(8 \div 2) + 2 = 6$

To find post spacing refer to BEAM LOADING AND POST SPACING table.

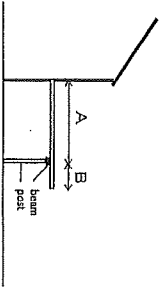
Examples: If plans call for a 2 - 2 x 8 beam, and L = 6, then the post spacing for beam B is a maximum of 7 feet.
 If the beam is 2 - 2 x 10, and L = 6, then post spacing for beam B is a maximum of 9 feet.

BEAM LOADING AND POST SPACING

[illegible]

TO DETERMINE BEAM LOADING AND POST SPACING

1. Single Beam Deck



To find beam loading (L) for a single beam deck, divide the distance A (house to middle of beam) by 2 and add the length of the cantilever.

$$L_{\text{beam loading}} = \left(\frac{A}{\text{house to beam}} \div 2 \right) + \frac{B}{\text{candlever}}$$

Example: If $A = 10$ feet and $B = 2$ feet, then $L = 7$.
 $(10 \div 2) + 2 = 7$

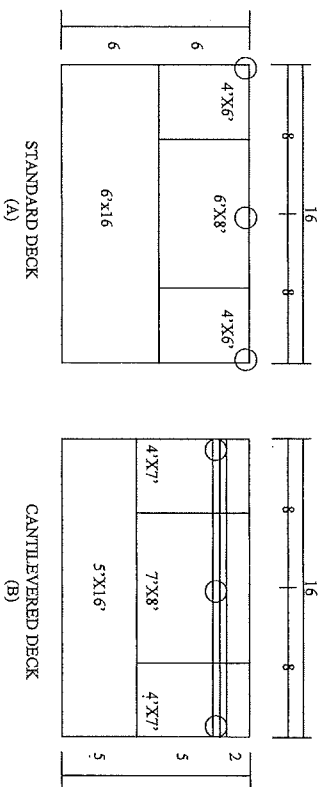
To find post spacing refer to BEAM LOADING AND POST SPACING table.

Example: If plans call for 2 - 2 x 10 beam, and $L = 7$, then the post spacing is a maximum of 8 feet.

DECK FOOTINGS

Deck footings are figured by a simple calculation. First you must figure out how much of the deck each footing is carrying (aka tributary area). Each footing must carry half of the total area between footings and the house and half the area between the footings themselves.

In example A, half of the load is carried by the house. The other half of the deck is then divided among the footings with half of the area going to each footing.



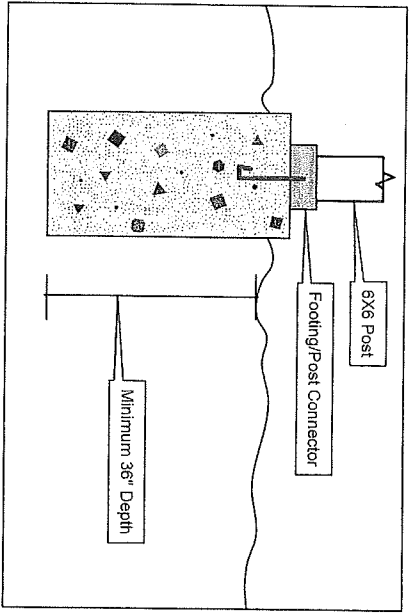
Example B shows a cantilevered deck. The loads are figured the same except the cantilevered area is added to the normal half distance between house and beam. In this case the footings are carrying half the distance to the house, (5') plus 2' cantilever for a total of 7' tributary load. The remaining area is then divided between footings.

Township Ordinance requires the deck be designed to support 60lbs/sq. ft. Once you have figured the area to be supported by each footing, multiply that number by 60. In example A, the center footing carries half the load between the house and the footings (6'), and half the load between the footings (4'+4'=8'). If you take 6' x 8' x 60 psf you find that the center footing needs to support 2880 pounds.

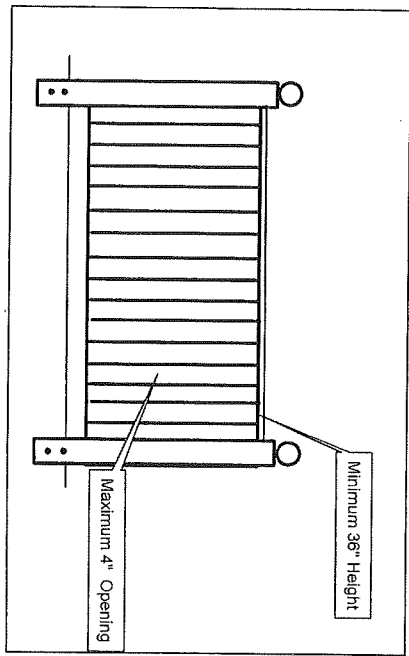
The center footing in example B would carry half the load from the beam to the house(5') plus the cantilever(2') and half the load between footings (8'). You would take 7' x 8' x 60 psf for a load of 3360 pounds on this footing.

Diameter	8"	10"	12"	14"	16"	18"	20"	22"
Pounds Supported	595	848	1142	1477	1953	2272	2731	3508

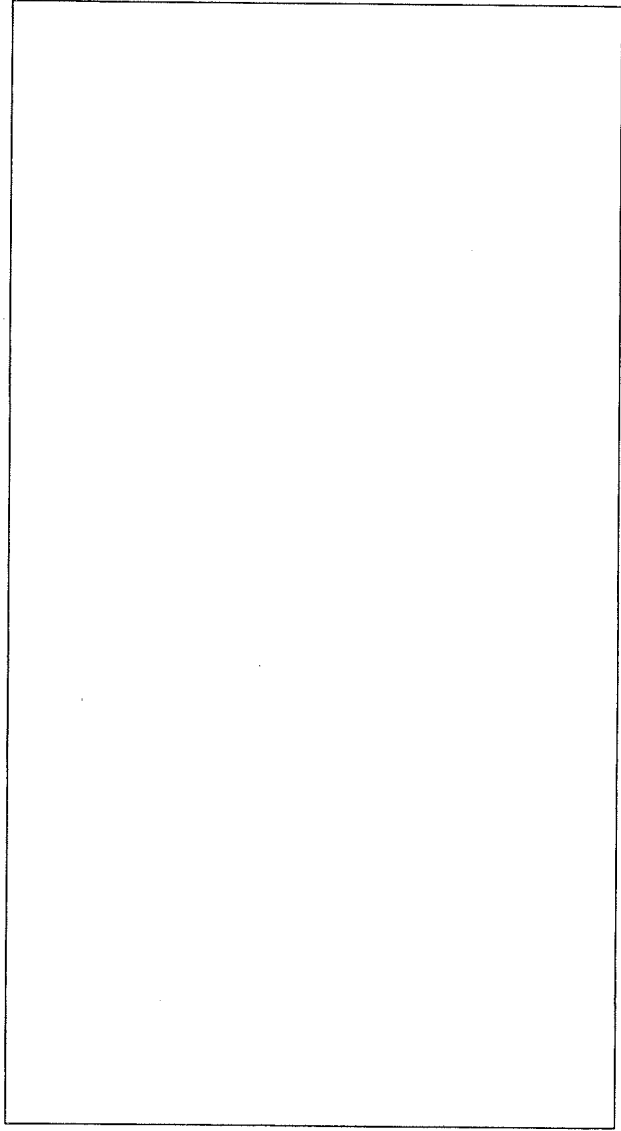
* Never round down



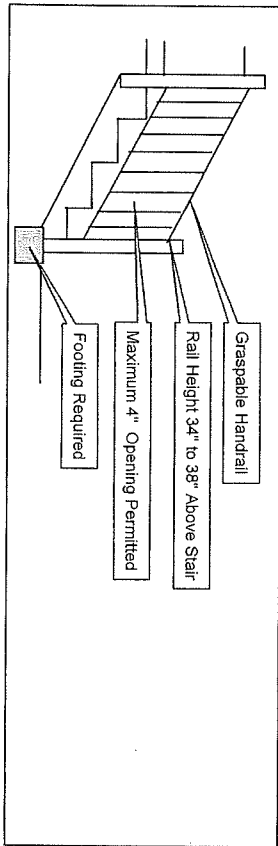
Footings Detail



Railings/Guard Detail



Framing Detail



Deck Plans

Instructions: Use this sheet to draw deck details after completing structural elements packet. This information is based on the requirements of the 2009 Residential Code as well as township admendments.

Design Criteria

Deck Dimension _____

Beam Size _____

Joist Size _____

Post Size _____

Footer Size _____