

Residential Code of Ohio Section 502 Attachment (Selected Excerpts from 2013 RCO)

502.2.2 Decks. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting.

502.2.2.1 Deck ledger connection to band joist. For decks... the connection between a deck ledger... and a 2-inch nominal lumber band joist bearing on a sill plate or wall plate shall be constructed with ½-inch lag... bolts with washers in accordance with Table 502.2.2.1.

502.2.2.1.1 Placement of lag screws or bolts in deck ledgers. The lag screws or bolts shall be placed 2 inches in from the bottom or top of the deck ledgers and between 2 and 5 inches in from the ends. The lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger.

502.2.2.2 Alternate deck ledger connections. Deck ledger connections not conforming to Table 502.2.2.1 shall be designed in accordance with accepted engineering practice.

502.2.2.3 Deck lateral load connection. The lateral load connection required by Section 502.2.2 shall be permitted to be in accordance with Figure 502.2.2.3 (See Below). Hold-down tension devices shall be installed in not less than two locations per deck, and each device shall have an allowable stress design capacity of not less than 1500 pounds.

TABLE 502.2.2.1
FASTENER SPACING FOR A SOUTHERN PINE OR HEM-FIR DECK LEDGER
AND A 2-INCH NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST^{c, f, g}
 (Deck live load = 40 psf, deck dead load = 10 psf)

JOIST SPAN	6' and less	6' 1" to 8'	8' 1" to 10'	10' 1" to 12'	12' 1" to 14'	14' 1" to 16'	16' 1" to 18'
Connection details	On-center spacing of fasteners^{d, e}						
½ inch diameter lag screw with 15/32 inch maximum sheathing ^a	30	23	18	15	13	11	10
½ inch diameter bolt with 15/32 inch maximum sheathing	36	36	34	29	24	21	19
½ inch diameter bolt with 15/32 inch maximum sheathing and ½ inch stacked washers ^{b, h}	36	36	29	24	21	18	16

- a. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- b. The maximum gap between the face of the ledger board and face of the wall sheathing shall be ½".
- c. Ledgers shall be flashed to prevent water from contacting the house band joist.
- d. Lag screws and bolts shall be staggered in accordance with Section 502.2.2.1.1.
- e. Deck ledger shall be minimum 2x8 pressure-preservative-treated No.2 grade lumber, or other approved material.
- f. When solid-sawn pressure-preservative-treated deck ledgers are attached to a minimum 1 inch thick engineered wood product the ledger attachment shall be designed in accordance with accepted engineering practice.

**** Alternate Deck Ledger Connections**

Using screws LISTED for the specific JOIST HANGER to attach the joist to the ledger board is an acceptable engineering practice.

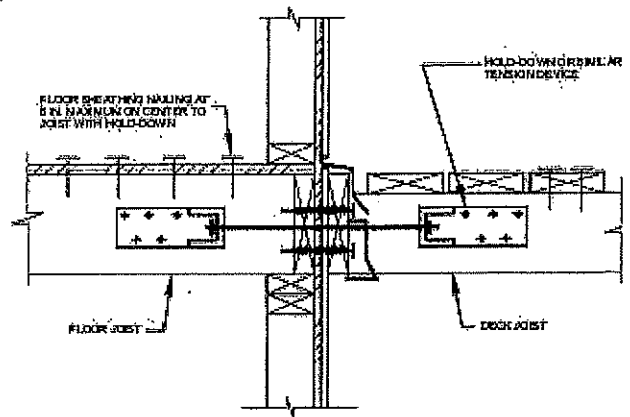


FIGURE 502.2.2.3
DECK ATTACHMENT FOR LATERAL LOADS

City of Trenton

DECK & PATIO GUIDELINES

1. Requirements for Deck or Patio Permit:
 - Submit a complete Building & Zoning Permit Application.
 - Provide plot drawing with actual size and location of the deck/patio on property.

2. For Decks:
 - Provide two (2) copies of the deck construction drawings with the following information:
 - Height of deck
 - Floor joist size and spacing
 - Post depth and spacing (posts must be set at least 36" below grade)
 - Height of handrail and spacing of spindles
 - Stair measurements
 - A cut away drawing from bottom of the footer to the top of the railing

3. Applicant will either be alerted to pick up permit or submit missing information to the Building Department.

4. Applicant will be contacted with approval or rejection of project submittal after the Zoning & Building Reviews are complete.

Residential Deck Drawings

General Notes

1. All lumber shall be pressure treated for exterior use. All metal fasteners & hangers shall be G185 galvanized, stainless steel or otherwise compatible with the wood treatment. All bolts shall be 1/2" diameter, minimum.
2. All beams, joists, posts and decking shall be No. 2 Southern Pine, or better.
3. All beam splices and top rails shall occur at a post or otherwise on adequate bearing.
4. All footings shall be cast-in-place concrete with a min. 2500 psi compressive strength.
5. Guards are required at all areas where the deck/porch floor is greater than 30" above grade at any point.
6. Required guards shall be 36" tall (min.) and be constructed such that a 4" diameter object will not pass through.
7. Guard post spacing shall not exceed 6 ft. on center.
8. Required guards & handrails at stairs shall range from 34" to 38" vertically above the stair nosings.
9. Handrail ends, at the top and bottom, shall terminate into a post or be returned to a wall.
10. On stairs with closed risers, treads shall have a projected nosing ranging from 3/4" to 1-1/4". All treads and risers shall be equal.
11. The deck/porch floor shall be within 8-1/4" of the top of the door threshold.
12. Live Load Deflection: Joists & Beams- L/360
Guards- L/240
13. Design Loads: Floor Live Load - 40 lbs./sf (min.)
Wind Speed - 90 mph
Soil Bearing Pressure - 3000 lbs./sf
14. Guards shall be designed for a 200 lb. concentrated load placed along the top rail in any direction, at any point.
15. This deck/porch is not designed for hot-tub or spa loading.
16. All exterior stairs & associated landings shall be illuminated.
17. Post size is based on the height of the deck floor above finished grade (at the highest point):
0' to 8' high: 4x4, 4x6, 6x6
8' to 10' high: 4x6, 6x6
10' and up: 6x6 (required for multi-level decks too)
18. All separated beams shall receive full depth solid blocking at 24" on center, maximum spacing.
19. The actual field construction shall match the approved plans. All field changes and/or deviations require an Engineering Change approval.

Framing/Footing Table

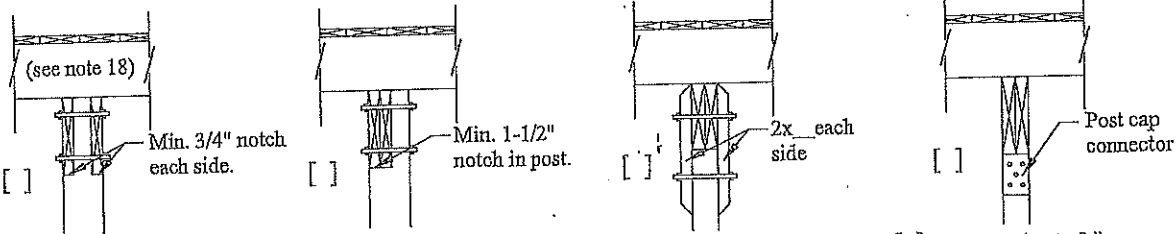
[1] Choose one floor joist size with the associated span, [2] Choose one floor beam size. Entire row applies.

Floor Joists ^a			Floor Beams ^b			Footing Size				1/2" Ledger Board Bolts
Choose Joist Size	Lumber Size (nominal)	Max. Span [A] (feet)	Choose One Row	Lumber Size (nominal)	Max. Span [B] (feet)	Single-Span Floor Joists		Multi-Span Floor Joists		Spacing (inches)
						min. dia. [C] (inches)	min. thick [D] (inches)	min. dia. [C] (inches)	min. thick [D] (inches)	
[]	2 x 6	8	[]	(2) 2 x 6	5	12	6	15	8	24
			[]	(2) 2 x 8	7	13	7	19	10	24
			[]	(2) 2 x 10	9	15	8	23	12	24
			[]	(2) 2 x 12	11	17	9	24	12	24
[]	2 x 8	10	[]	(2) 2 x 8	7	14	7	20	10	16
			[]	(2) 2 x 10	9	17	9	24	12	16
			[]	(2) 2 x 12	10	18	9	25	13	16
[]	2 x 10	13	[]	(2) 2 x 10	8	17	9	24	12	16
			[]	(2) 2 x 12	9	18	9	26	13	16
[]	2 x 12	16	[]	(2) 2 x 12	8	20	10	28	14	12

- a. Choose one joist size and corresponding maximum span. All joists are spaced a maximum of 16" oc.
b. Choose one floor beam (entire row) that corresponds with the size of joist chosen.

Beam to Post Connection Options

[3] Choose one beam to post connection option. [4] Choose one post size based on the height of the deck.



- | | | | |
|---|---|---|---|
| <input type="checkbox"/> 4x4 posts (up to 8')
<input type="checkbox"/> 4x6 posts (up to 10')
<input type="checkbox"/> 6x6 posts req'd over 10') | <input type="checkbox"/> 4x4 posts (up to 8')
<input type="checkbox"/> 4x6 posts (up to 10')
<input type="checkbox"/> 6x6 posts req'd over 10') | <input type="checkbox"/> 4x4 posts (up to 8')
<input type="checkbox"/> 4x6 posts (up to 10')
<input type="checkbox"/> 6x6 posts req'd over 10') | <input type="checkbox"/> 4x4 posts (up to 8')
<input type="checkbox"/> 4x6 posts (up to 10')
<input type="checkbox"/> 6x6 posts req'd over 10') |
|---|---|---|---|

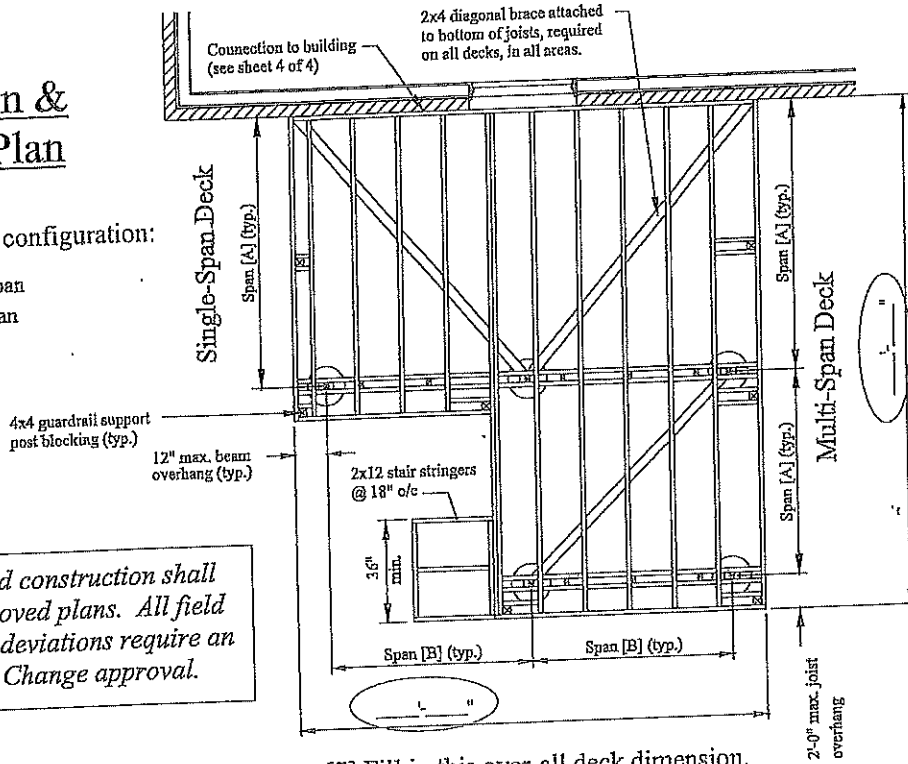
Property Owner:	Designer:	Contractor:	Application No.
Name: _____	Name: _____	Name: _____	Sheet No. 1 of 4 Residential Deck Drawings
Address: _____	Address: _____	Address: _____	
Phone: _____	Phone: _____	Phone: _____	

Foundation & Framing Plan

[5] Choose one span configuration:

- Single-Span
- Multi-Span

The actual field construction shall match the approved plans. All field changes and/or deviations require an Engineering Change approval.

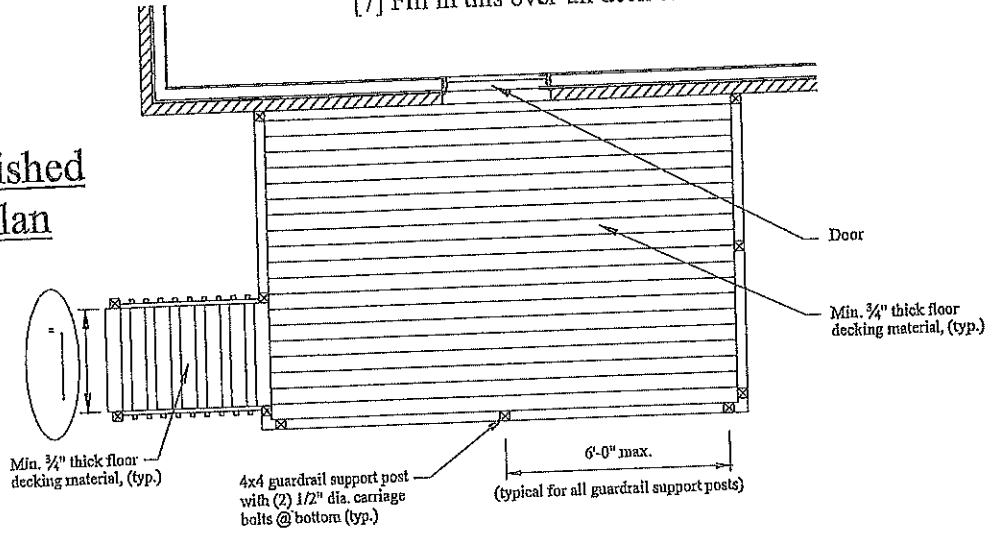


[6] Fill in this over-all deck dimension.

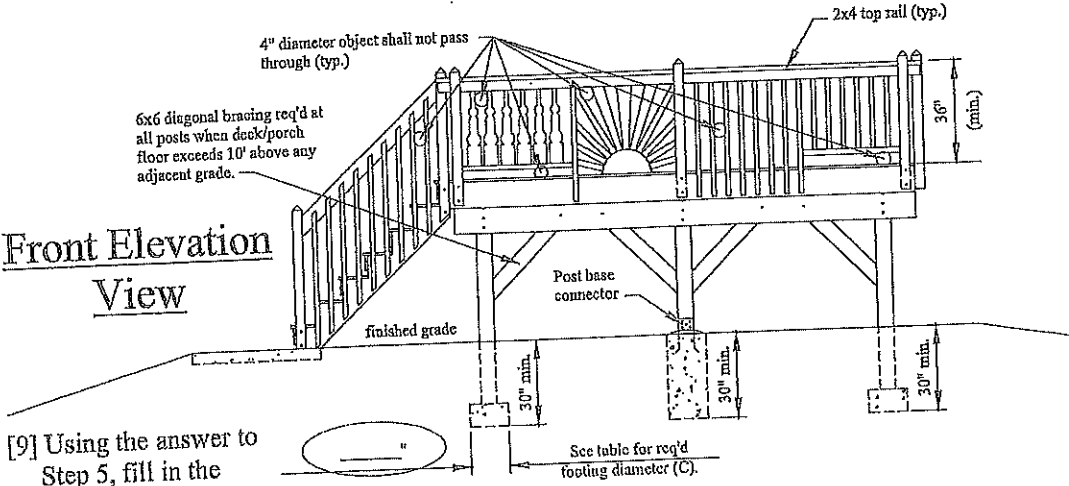
[7] Fill in this over-all deck dimension.

Deck Finished Floor Plan

[8] Fill in the stair width in inches (36" min.).



Front Elevation View



[9] Using the answer to Step 5, fill in the footing diameter in inches.

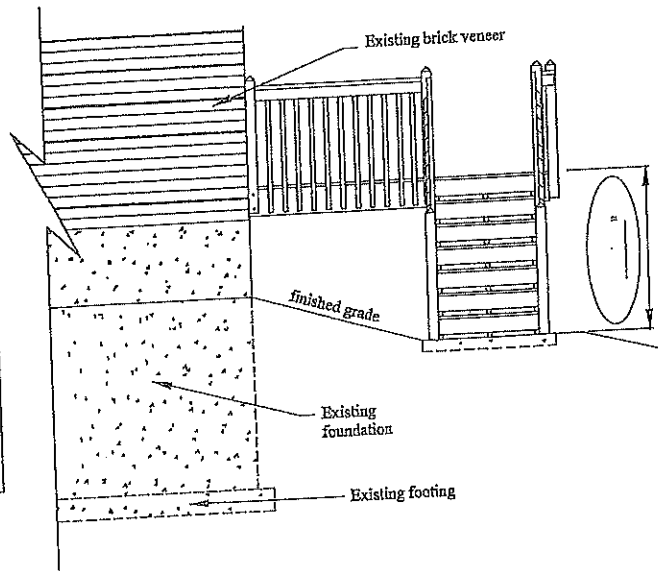
[10] Choose a footing option:

- Post attached to top of concrete footing
- Post on top of buried concrete footing

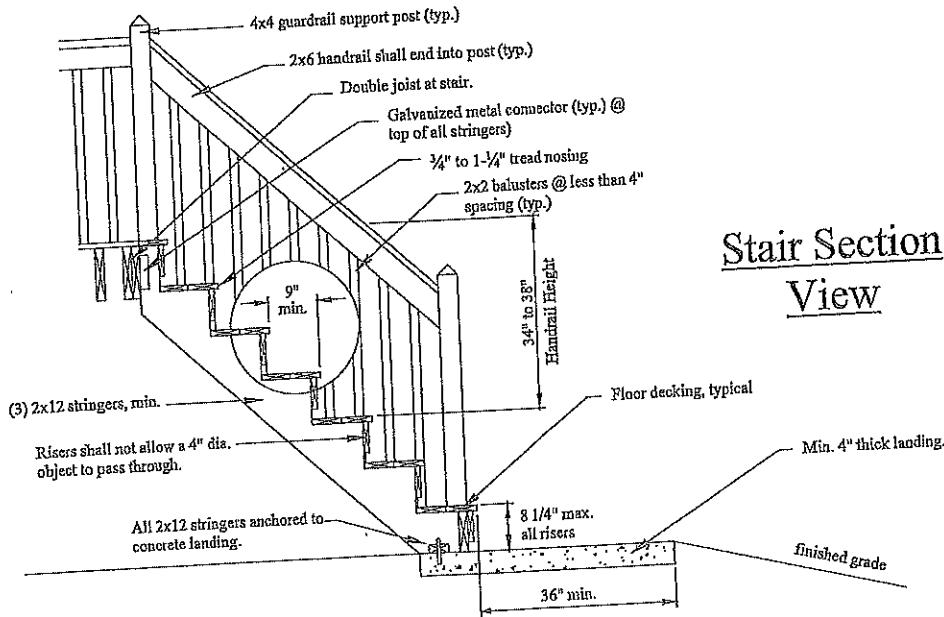
Application No.
Sheet No.
2 of 4
Residential Deck Drawings

Left Side Elevation View

The actual field construction shall match the approved plans. All field changes and/or deviations require an Engineering Change approval.

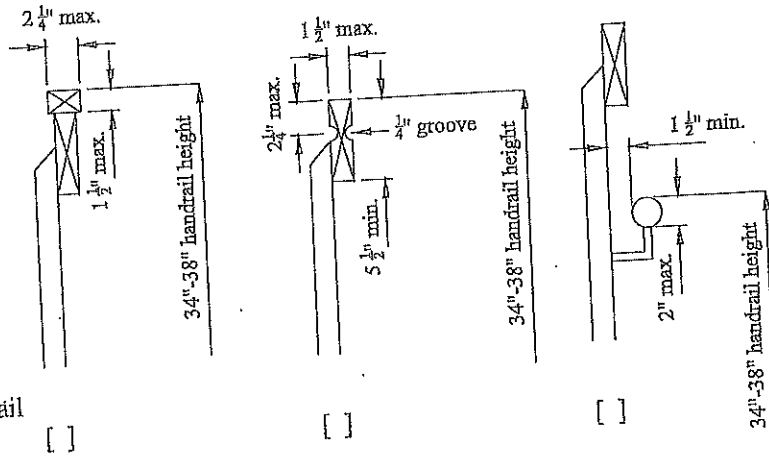


[11] Fill in the highest point above grade in inches.



Stair Section View

Handrail Sections



[12] Choose a handrail grip style:

[]

[]

[]

Application No.

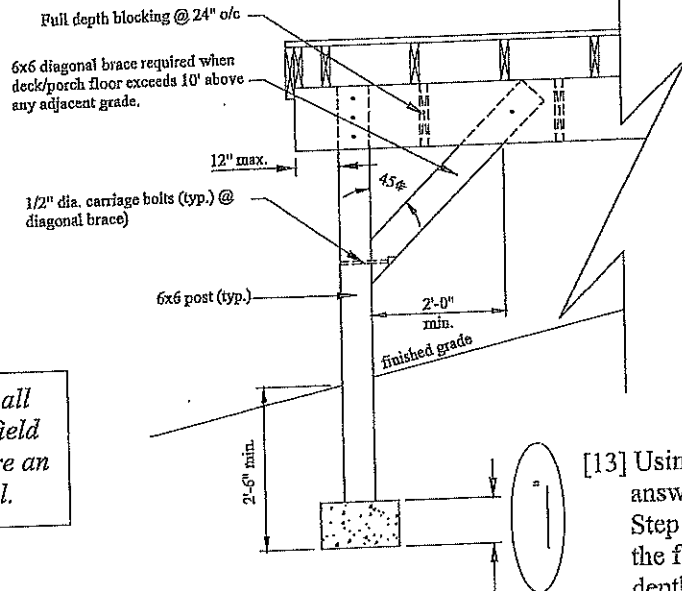
Sheet No.

3 of 4

Residential Deck Drawings

Post & Beam Detail

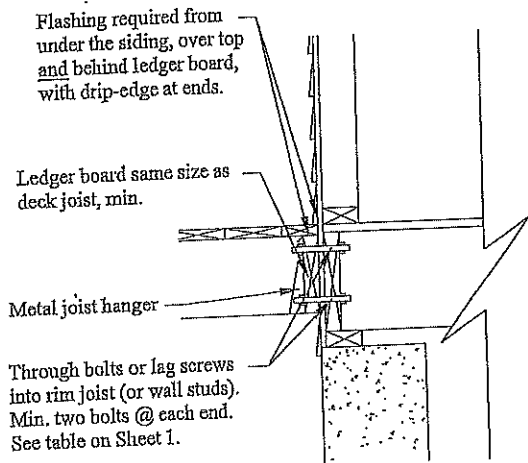
The actual field construction shall match the approved plans. All field changes and/or deviations require an Engineering Change approval.



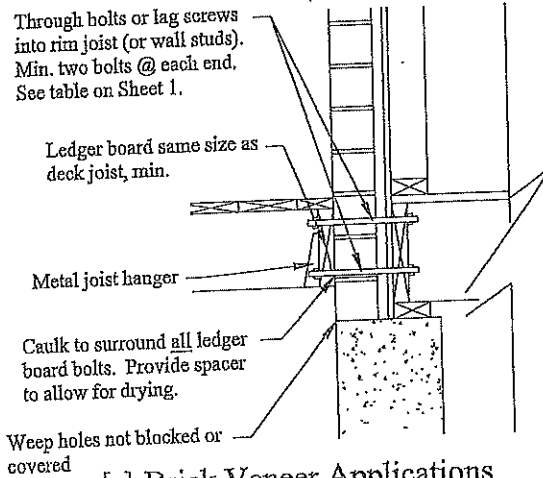
[13] Using the answer from Step 5, fill in the footing depth in inches.

Ledger Board Details

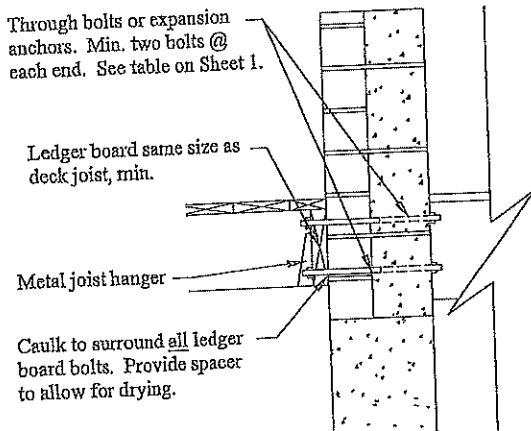
[14] Choose the ledger board detail that applies.



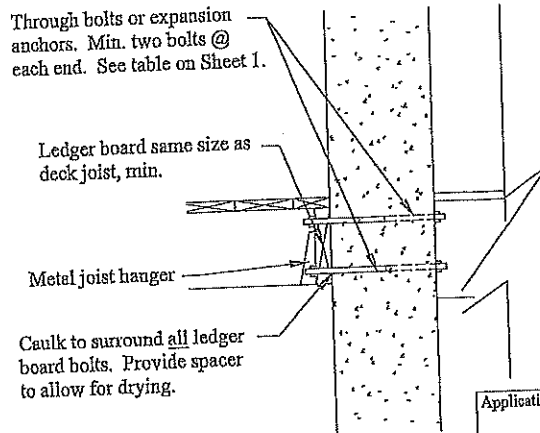
Siding Applications



Brick Veneer Applications



Brick/Block Applications



Concrete Applications

Application No.
Sheet No.
4 of 4
Residential Deck Drawings