

This typical deck design package may be used by homeowners wishing to build a single-level deck on their single-family residence. This package simplifies the permitting process within the City of Winchester.

(Deck Design Affidavit on reverse must be signed. A copy must be kept on jobsite)

Project Name: \_\_\_\_\_

Address: \_\_\_\_\_

Deck Size Requested: \_\_\_\_\_ wide by \_\_\_\_\_ deep

Rough Drawing of Deck (please show size of deck and stairs if applicable):

Structure to which deck is attached

Depth

2" x \_\_\_\_\_ @ \_\_\_\_\_ O.C

FLOOR JOISTS

Width

Please indicate footer and beam locations on this drawing (overhead view).  
**Height from ground to deck surface:** \_\_\_\_\_

**Deck Design Affidavit**

In lieu of submitted, approved plans, I \_\_\_\_\_ (printed name) do hereby affirm and guarantee that the above referenced deck will be constructed in accordance and compliance with the 2018 Virginia Residential Code and the City of Winchester requirements. I understand that by signing this affidavit, I am completely responsible for complying with all requirements, known or unknown, and will complete the construction in accordance with applicable standards and law. I also understand this simplified process is for **Single-Level Residential Decks Only**. I understand that all construction is subject to field inspection for compliance.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## Typical Deck Design Package

Please determine and mark your joist spacing (the distance between the joists) and confirm the dimensional lumber required for the span of your new deck using the chart below, based on the dimensional lumber required for that span. For example, a 2x8 southern pine pressure-treated joist will span 13'-1" if spaced 12" on center

**TABLE 2: MAXIMUM JOIST SPAN LENGTH**

	Joist Spacing (inches on center)	Joist Size	Allowable Span	Allowable Overhang <sup>1</sup>
<input type="checkbox"/>	12	<input type="checkbox"/> 2x6	9'-11"	1'-3"
		<input type="checkbox"/> 2x8	13'-1"	2'-1"
		<input type="checkbox"/> 2x10	16'-2"	3'-4"
		<input type="checkbox"/> 2x12	18'-0"	4'-6"
<input type="checkbox"/>	16	<input type="checkbox"/> 2x6	9'-0"	1'-4"
		<input type="checkbox"/> 2x8	11'-10"	2'-3"
		<input type="checkbox"/> 2x10	14'-0"	3'-6"
		<input type="checkbox"/> 2x12	16'-6"	4'-2"
<input type="checkbox"/>	24	<input type="checkbox"/> 2x6	7'-7"	1'-6"
		<input type="checkbox"/> 2x8	9'-8"	2'-5"
		<input type="checkbox"/> 2x10	11'-5"	2'-10"
		<input type="checkbox"/> 2x12	13'-6"	3'-4"

<sup>1</sup> Overhang dimension shall not exceed one-fourth of the actual joist span.

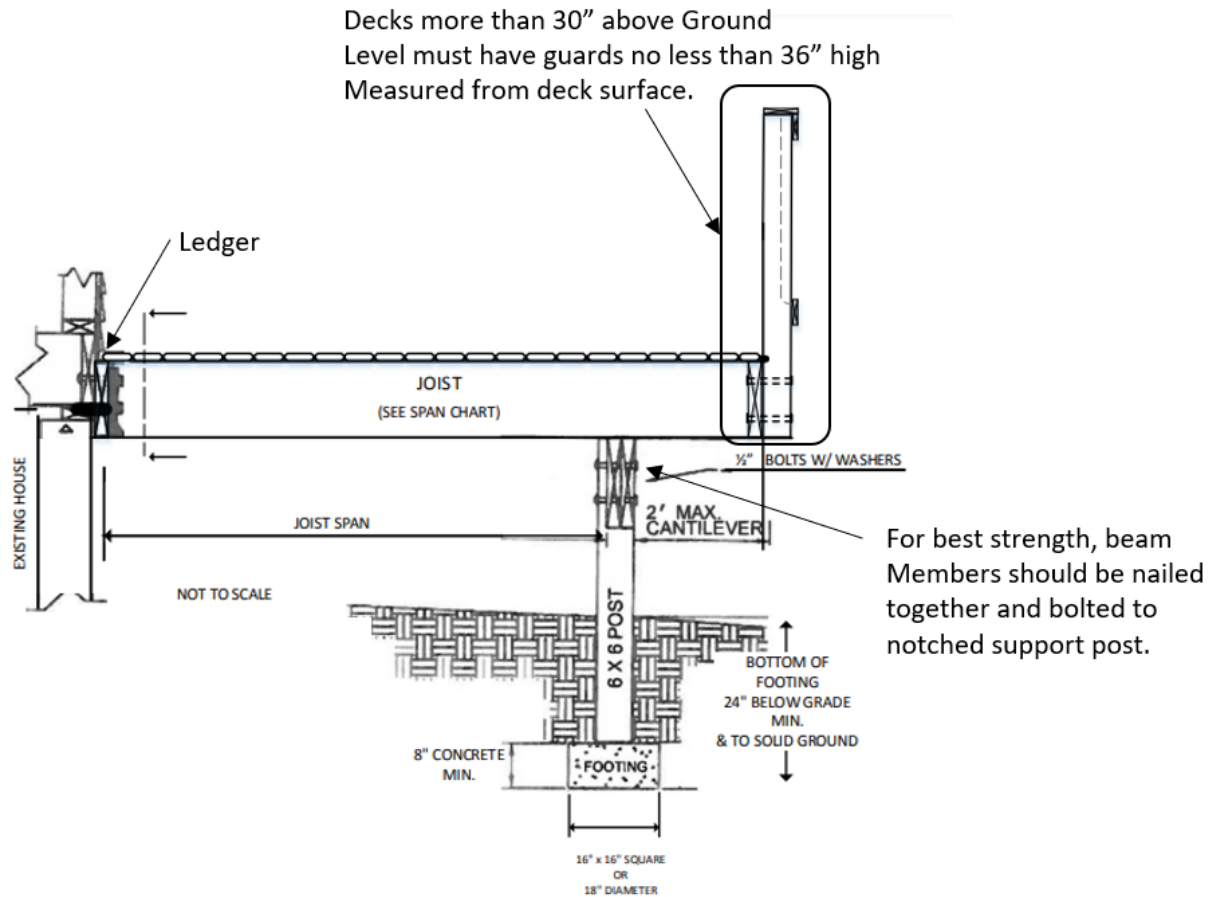
\*Span is the length of the joist between supporting members, typically from ledger to beam.

Based on your joist span, next determine the size of beam required to carry the load of the deck. Beams can be flush (joists attached to sides of beam) or dropped beam (joists sitting on top of beam).

Beam Influence Width (ft) less than or equal to:	Longest Beam Span Length (feet), less than or equal to:						
	6	8	10	12	14	16	18
2	(2)2x6	(2)2x6	(2)2x8, (3)2x6	(2)2x8	(2)2x10, (3)2x8	(2)2x12	(3)2x10
3	(2)2x6	(2)2x6	(2)2x8	(2)2x10, (3)2x8	(2)2x12, (3)2x10	(3)2x10	(3)2x12
4	(2)2x6	(2)2x8, (3)2x6	(2)2x10, (3)2x8	(2)2x12, (3)2x10	(3)2x10	(3)2x12	
5	(2)2x6	(2)2x8, (3)2x6	(2)2x12, (3)2x8	(3)2x10	(3)2x12		
6	(2)2x8, (3)2x6	(2)2x10, (3)2x8	(2)2x12, (3)2x10	(3)2x12			
7	(2)2x8, (3)2x6	(2)2x10, (3)2x8	(3)2x10	(3)2x12			
8	(2)2x8, (3)2x6	(2)2x12, (3)2x8	(3)2x12				
9	(2)2x10, (3)2x6	(2)2x12, (3)2x10	(3)2x12				
10	(2)2x10, (3)2x8	(3)2x10	(3)2x12				
11	(2)2x10, (3)2x8	(3)2x10					
12	(2)2x10, (3)2x8	(3)2x10					
13	(2)2x12, (3)2x8	(3)2x12					
14	(2)2x12, (3)2x8	(3)2x12					
15	(2)2x12, (3)2x8	(3)2x12					
16	(2)2x12, (3)2x10	(3)2x12					
17	(2)2x12, (3)2x10	(3)2x12					
18	(3)2x10						

<sup>1</sup> Design conditions which fall within the shaded cells are prohibited.

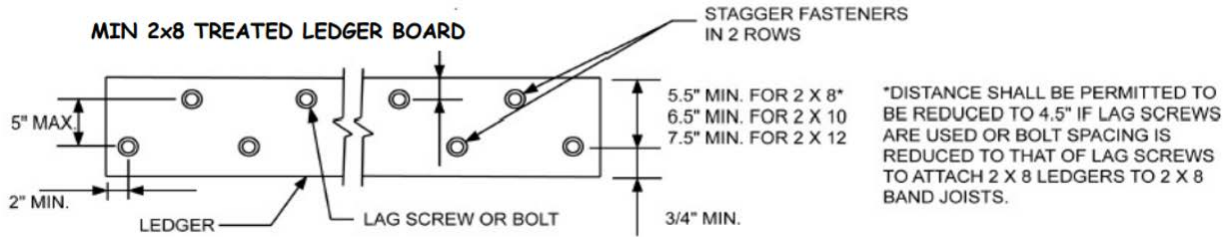
Typical Deck Detail Cross-Section (side view, dropped beam)



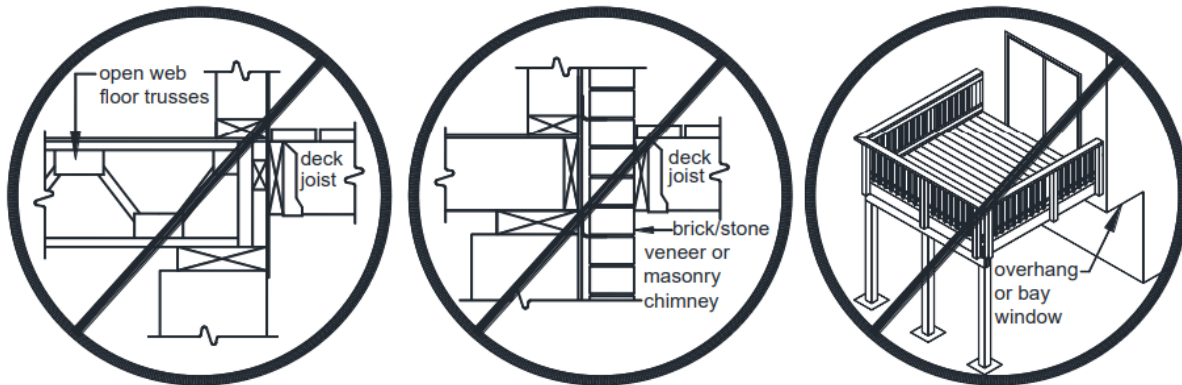
Ledger Details (see detail below)

- Ledgers should be the same size as joist material, but not less than 2x8
- Must be bolted to "structural members" of the existing home (not sheathing or floor truss ribbons). See bolting detail on next page.
- Acceptable methods are lag-screw with washer, square/hex head through-bolts with washers and nuts, and "Ledger-Lok" fasteners or similar approved products

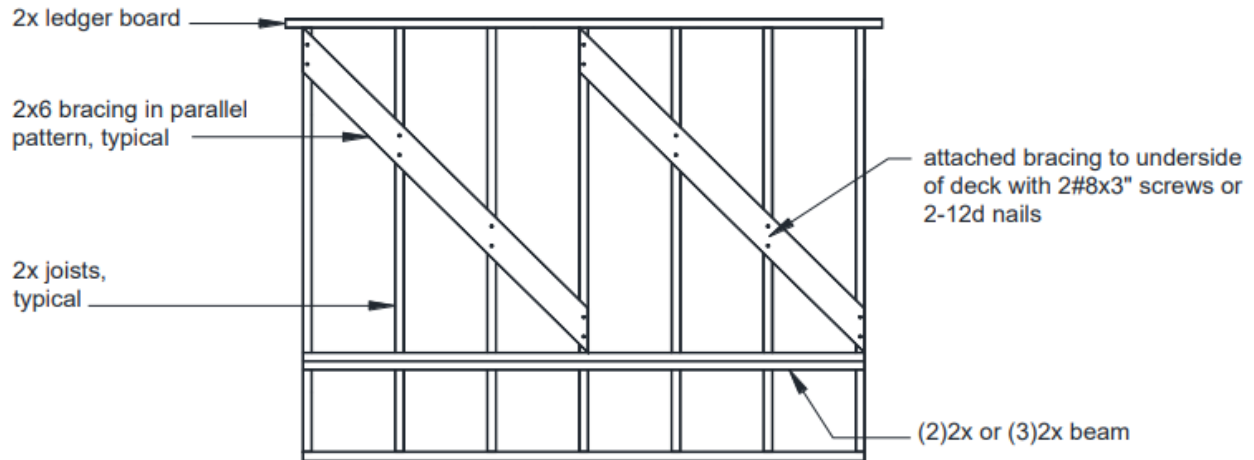
- Ledgers CANNOT be attached to existing house cantilevers, chimney extensions, floor truss ribbons, or any condition where the house framing members cannot be verified. In this case, the deck must be free-standing



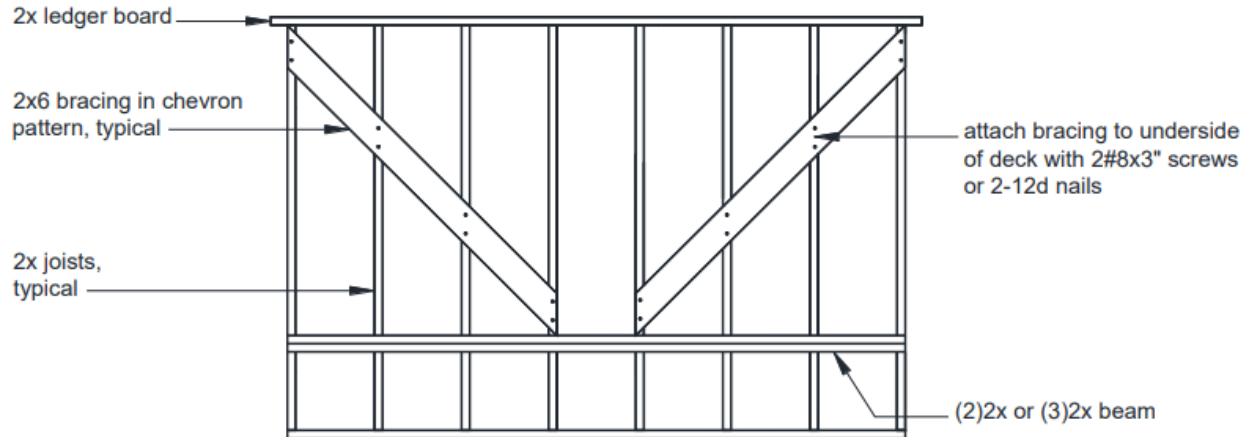
Prohibited Ledger Attachment



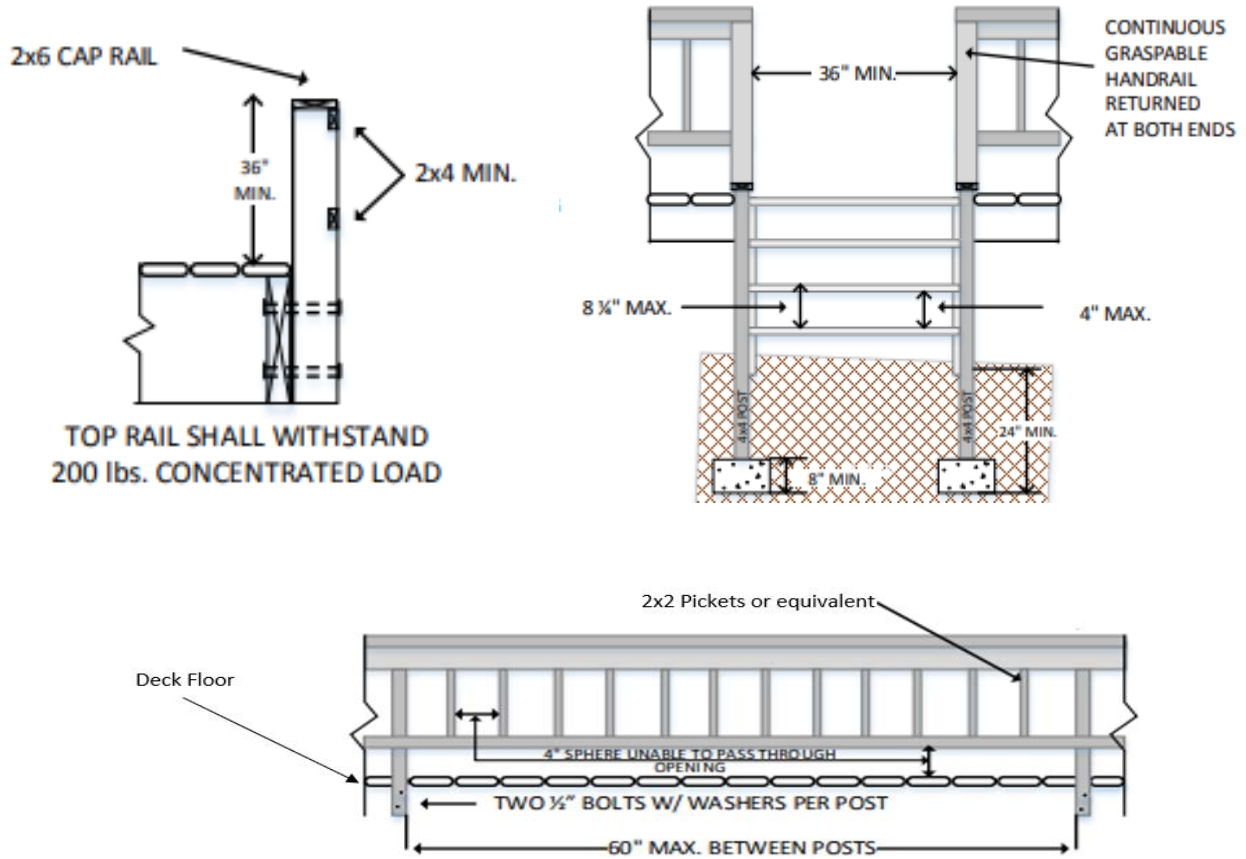
Horizontal Bracing is required for deck posts more than 2'-6" tall (below joists)

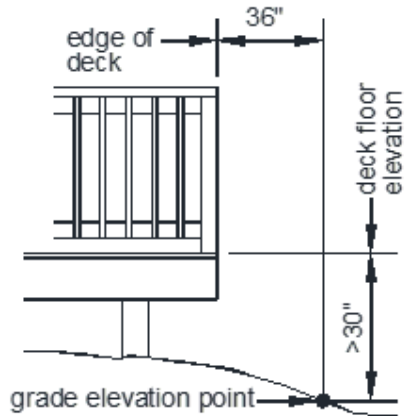


\*\*\*or\*\*\*



Guard Railing (detail)





\*Guardrails are required when deck height exceeds 30"

#### Decking

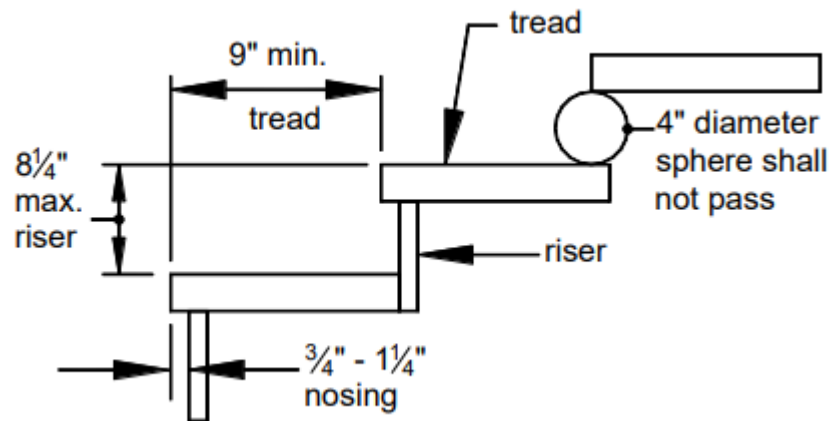
- Decking shall be installed perpendicular with joists or at an angle up to 45 degrees to joists
- Wood decking can be 2x material, "five quarter" board, or composite decking
- If wood is installed wet, place wood decking with no space between so that after drying an 1/8" gap will be created
- Composite decking should be installed per manufacturer's instructions

**Note:**

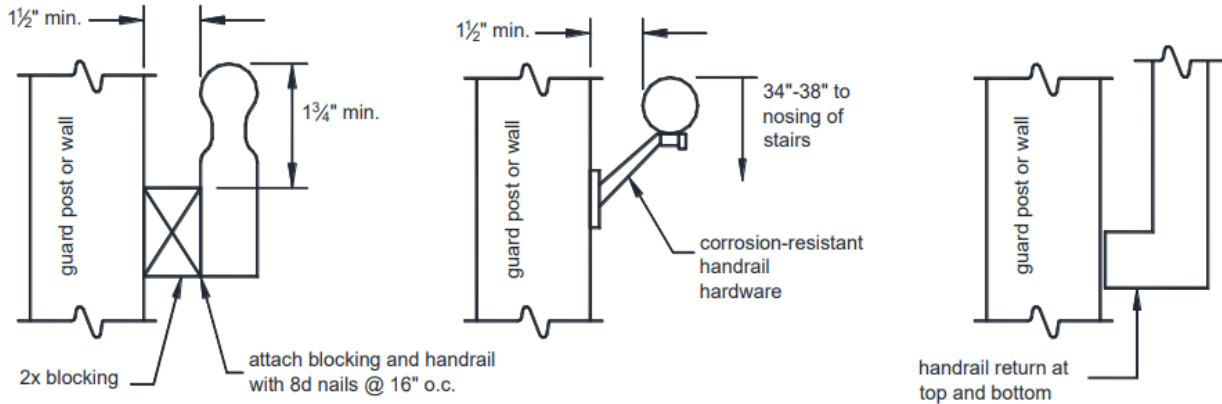
If you are using wood 5/4" boards for decking diagonally, the maximum spacing for joists is 12" on-center, not 16" on-center



Stairs



- Minimum stairway width is 36"
- Stair geometry may not deviate between the smallest step and the largest step by more than 3/8"
- Stair stringers shall have a maximum spacing of 18" on-center (3 for a 36" stairwell, 4 for 48", etc.)
- Minimum tread depth is 9" and must be equivalent to decking material. Note some composite materials will not span 18" (see manufacturer's recommendations)
- Riser height shall not exceed 8 1/4"
- Riser can be open or closed, or partially closed, but must not allow more than 4" opening at each tread
- Handrails are required on one side of a 36" stairway containing 4 or more risers (see below) and must be returned to guardrail on each end



#### Hardware

- Joist hangers are required to accommodate 60% of the joist depth
- Joist to beam connection strap(s) are required at each joist
- Post to beam connector(s) is required at each post (if not notched and bolted)
- All fasteners are to be corrosion-resistant

#### Next Steps

- Complete this package
- Return to the Inspections Department
- Apply for your permit
- Pay your fees and receive your permit
- Build your deck!

#### Required Inspections

- Footer Inspections – required after digging, but before installation of concrete
- Framing – posts, beams, joists (before decking) for decks less than 48" from ground level. This inspection is NOT required if the finished deck is more than 48" above ground level
- Final Inspection – All items are completed, and the deck is ready for use (must be inspected prior to use)

### Final Checklist

- This packet must be available for field inspection(s)
- All design/build requirements are confirmed by field inspection
- All wood is to be preservative-treated
- Fasteners and connectors are to be corrosion-resistant (nails, screws, hangers, straps, etc.)
- Posts should be minimum 4x4 lumber for decks up to 8’ high, 6x6 lumber is recommended for all posts
- Beam plies should only have splices centered over posts (multiple plies)
- All connectors should be nailed/screwed in each opening per manufacturer’s instructions
- Cantilevers shall not exceed (if using other woods, consult VRC for maximum cantilever):

SPECIES <sup>a</sup>	SIZE	ALLOWABLE JOIST SPAN <sup>b</sup>			MAXIMUM CANTILEVER <sup>c, f</sup>		
		SPACING OF DECK JOISTS (inches)			SPACING OF DECK JOISTS WITH CANTILEVERS <sup>c</sup> (inches)		
		12	16	24	12	16	24
Southern pine	2 x 6	9-11	9-0	7-7	1-3	1-4	1-6
	2 x 8	13-1	11-10	9-8	2-1	2-3	2-5
	2 x 10	16-2	14-0	11-5	3-4	3-6	2-10
	2 x 12	18-0	16-6	13-6	4-6	4-2	3-4

- Ledger board attachment must be visible for field inspection
- These typical details are not to be used for decks supporting hot tubs, roofs, gazebos, or decks that are not attached to the house
- No attaching ledger boards to existing home cantilevers
- Guardrails are required to be no less than 36” high from deck surface
- Guardrails on stairways are required to be no less than 34” but no more than 38” measured from the stair nose
- Pickets/Balusters shall have a spacing of no more than 4” on level surfaces, and 4 3/8” on stairways
- Continuous handrails are required on one side of all stairways
- Completed deck will conform with the 2018 Virginia Residential Code
- Deck Affidavit signed
- Packet delivered to Zoning and Inspections
- Pay fees and pick up permit