Residential Decks

A Building Permit is required if the proposed deck will be attached to the dwelling and/or is 30” (or more) off the ground. You must obtain a building permit prior to starting any construction on your deck. Please review all of the application requirements. Once plan approval has been given and a permit issued, if you decide to make changes to or alter your plan, you must submit changes for approval. An Exterior Site Work Permit (not included in this handout) is required for detached decks and less than 30” off the ground.

To obtain a permit for construction, you will need to submit the following 4 items:

1. Site Plan (example enclosed)
2. Deck Profile (see below)
3. Building Permit Application (enclosed)
4. Deck Drawings

NOTE: If you are in a development with a homeowners’ association, a letter from the Board of Directors approving the deck, or stating the Board does not have to approve construction is required.

Incomplete plans will not be reviewed. Please allow 7-10 business days for review. You will be contacted by the Building inspections Division when the plan has been approved.

DECK PROFILE (refer to enclosed deck diagram to complete this section)

- Dimensions of deck: length _______ width _______
- Footing depth: ______
- Footing size: ______
- Column size: ______
- Size of beam(s): ______
- Post spacing: ______
- Size of joists: ______
- Spacing of joists: ______
- Distance between deck and ground: ______
- Height of guardrail: ______ 36 inch minimum
- Floor System: [ ] 2” x 10” [ ] TJI [ ] Floor Truss
- Size of openings in guardrail:
  1. Distance between balusters: ______ Shall be less than 4 inches
  2. Distance between decking & guardrail bottom: ______ Shall be less than 4 inches
  3. Distance between each guardrail post: ______ Shall be less than 6 feet

If your deck has STAIRS, complete the following:
- Height of the stair riser: ______ 7 3/4” maximum
- Depth of stair treads: ______ 10” minimum
- Height of the handrail: ______ 34-38” minimum

STAIRWAY LIGHTING: Exterior stairways shall be provided with an artificial light source located in the immediate vicinity of the top landing of the stairway.

INSPECTIONS
You must call for a scheduled appointment time. The approved plan must be on site for all inspections. Typically 3 inspections are required:

1. Footings. These will be checked for proper diameter and depth, flare, a flat surface at the base, and no water in the holes.
2. Framing. If your deck surface is 4 feet, or closer, to the ground (grade), you must pass a framing inspection before the decking material may be applied to the deck surface. Structural integrity and proper attachment of all connectors will be inspected.
3. Final. For decks that are 4 feet or greater off the ground (grade), framing and final inspections may be completed together. A final inspection must be completed to be sure that the deck complies with the current Minnesota State Building Code.
City of Coon Rapids  
Building Permit Application  

Job Site Address:  
The Applicant is: _____Owner and Occupant _____Contractor  

Project Valuation: $ (must include material and labor costs)  

Property Owner  
Name:  
Contact Person:  
Address:  
City:  
State:  
Zip:  
Phone:  
Cell:  
Email:  

Contractor  
Name:  
Contact Person:  
Address:  
City:  
State:  
Zip:  
Phone:  
Cell:  
Contractor License#:  
Lead Cert #NAT:  

Residential  
[ ] Mobile Home  [ ] Townhome  [ ] Single Family  [ ] Two-Family  
[ ] New  [ ] Demolish  [ ] Move  [ ] Repair  [ ] Replace  [ ] Remodel  

(Area to be Remodeled)  

Commercial  
[ ] Commercial  [ ] Hospital/Medical  [ ] Hotel/Motel  [ ] Industrial  [ ] Multi-Family  [ ] Public Building  

[ ] New  [ ] Demolish  [ ] Repair  [ ] Replace  [ ] Remodel  

(Area to be Remodeled)  

Required Description of Work:  

Permit becomes void if work does not begin within 180 days or is suspended at any time for over 180 days. Permits issued and Inspections made by the City are a public service and do not constitute any representation, guarantee, or warranty, either implied or expressed, to any person as to the condition of the building or conformance to applicable construction codes. The undersigned acknowledges that this application has been read and that the above is correct and agrees to comply with all the ordinances and laws of the City of Coon Rapids. Periodic and/or a final inspection of this work are required by the Minnesota State Building Code. It is the responsibility of the applicant to call the Coon Rapids Inspections Division at 763-767-6476 to schedule an inspection.  

Applicant's Printed Name  
Applicant's Signature  
Date  

Office Use Only  

Number of Stories  Number of Buildings  Total Sq. Ft.  Height  Length  Width  
Property Zoning  Occupancy Group  Type of Construction  Fire Sprinklers  Yes  No  

Consultation  Foundation/Waterproof  Ice & Water Barrier  Site  Smoke/C.O. Alarms  
Final  Framing  Insulation/VB  Sheathing  Under slab  
Footings  Gypsum Wallboard  Pan Flashing  
Forms for Concrete  House Wrap  Poured Wall  Other  

Fee schedule is online at:  
coonrapidsmn.gov/696/Permit-Fees  
11155 Robinson Dr, Coon Rapids, MN 55433  
763-767-6476 Office, 763-767-6573 Fax, buildinginsp@coonrapidsmn.gov
Use this diagram as a reference to complete the Deck Plan on page 1.

NOTE: FASTENERS, HARDWARE, ETC. ARE REQUIRED TO BE ZMAX, TRIPLE ZINC, STAINLESS, OR HOT DIPPED GALVANIZED.
You may contact Coon Rapids Building Inspections at 763-767-6476 to request a copy of your lot survey. Note: not all properties have a lot survey on file.

**Sample Site Plan**

**INDICATE THE LOCATION & DIMENSIONS OF YOUR PROPOSED DECK ON YOUR LOT SURVEY/SITE PLAN.**

**SHOW ON PLAN**
1. LOT LINES.
2. LOT DIMENSIONS.
3. OWNERS NAME.
4. ADDRESS.
5. DRIVEWAY.
6. POND/LAKE/STREAM.
7. EASEMENTS.
8. POWER SUPPLY.
9. DIMENSIONS TO PROPOSED PROJECT AND ALL OTHER STRUCTURES.
10. SIZE OF NEW STRUCTURE.
11. DIMENSIONS TO LOT LINES.
12. DIMENSIONS TO OTHER BLDGS.
13. INCLUDE YARD SETBACKS AND EASEMENTS ON SIDE, FRONT, AND BACK YARDS.
14. LABEL ALL ADJACENT STREETS.
15. INCLUDE SCALE.

**NOTE:**
If site plan is not complete, the process for review of application will be held up.

Provide 2 copies of a site plan.

**CALL BEFORE YOU DIG!**
Contact Gopher State One-Call for utility locations
651-454-0002
OR
811 from your cell phone

Jack & Jill Smith
3505-89th Ave. NW.

1"=20' SCALE
Setbacks: Decks must be setback 5 feet from the side lot line and 20 feet from the rear lot line for most dwellings. However, some lots have more restrictive setbacks and easements. If a future porch is planned, setbacks may differ. Check with the City Zoning Department at 763-767-6430.

Loads: All decks shall be designed to support a live load (people, furniture, grills, etc.) of 40 lbs per square foot, and a dead load (wood, decking, etc.) of 10 lbs per square foot. R507.2

Cantilevers/Overhanging Joists and Beams: Joists should not overhang beams by more than 2 feet, and beams must not overhang posts by more than 1 foot unless a special design is approved.

Cantilever Support: DECKS CANNOT BE SUPPORTED BY CANTILEVERS extending from the primary structure, or from another deck. Exceptions are granted only if engineering is provided for the capability of the cantilevers to give such support.

Ledger Attachment: Different loads require different attachment. Please refer to the Ledger Attachment Table provided in this hand-out. Girders supporting deck joist shall not be supported on deck ledgers or band joist. R507.2.2

Flashing: All connections between deck and dwelling shall be weatherproof. Any cuts in the exterior finish shall be flashed. Flashing of the ledger at the point of connection to the house is especially critical. R703.1, R703.8

Frost Footings: Footings are required for any deck attached to a dwelling or any other structure that has frost footings. The minimum depth to the base of the footings is 42 inches. The base of a column footing must be flared, or extended, at least 4 inches greater in diameter than the remainder of the column. Cedar posts must be protected against direct contact with the ground, concrete, or moisture. If the materials used for posts are not rated for ground contact, the concrete piers must protrude above grade a minimum of 6 inches.

NOTE - DECKS MUST BE POSITIVELY ANCHORED TO THE PRIMARY STRUCTURE AND DESIGNED FOR BOTH VERTICAL & LATERAL LOADS R507.1

Posts and Beams: Posts must be centered on the concrete pier over the footing and securely fastened to the concrete so as to resist both uplift and lateral displacement. R502.9 Splices in beams must be centered over posts. Beams require 3 - ½ inch diameter Thru-bolts to connect to the posts. Beams setting atop posts must be fully anchored with appropriate fasteners to resist uplift and lateral displacement. Each joist must be connected to the beam with the proper fastening criteria using either nails or “hurricane clips”. BEAM MEMBERS SHOULD BE NAILED TOGETHER ACCORDING TO CODE SPECIFICATIONS. R602.3

Stairs: Minimum width is 36 inches. Maximum riser height is 7 ½ inches. Minimum tread depth is 10 inches. Treads with a depth less than 11 inches must have compliant nosing. Largest tread depth or riser height shall not exceed the smallest by more than 3/8 inch across the run of the stairs. Treads shall be level, (a slope no greater than 2% is permitted). Lighting capable of illuminating the treads and landings is required, shall be located in the immediate vicinity of the top landing, and shall be activated from inside the dwelling. R303.7.1

Handrails: Stairways having 4 or more risers shall have at least 1 handrail. The top of the handrail shall not be less than 34 inches or more than 38 inches above the nosing of the treads. Handrails shall be continuous for the full length of the stairs shall protrude from the adjoining surface by at least 1 ½ inches, but no more than 4 ½ inches, and the ends shall be returned or terminated into posts. Handrails with a circular cross section shall have an outside diameter of not less than 1-1 ½ inches or more than 2 inches. Other handrails may be acceptable. See the specific code language to be sure your handrail does comply. R311.7.8. NOTCHED POSTS WILL NOT BE ACCEPTED.

Guardrails: A guardrail is required on all decks, or any portion of a deck, more than 30 inches above grade or above a lower deck. Deck guardrails must be 36 inches high. Open guardrails on decks must have intermediate rails (balusters) or an ornamental pattern that a 4 inch sphere cannot pass through. Guardrails on stairs cannot have an opening between balusters that a 4 3/8 inch sphere can pass through. R312.1.3 NOTCHED POSTS WILL NOT BE ACCEPTED.

Landings: There shall be a landing at the top and bottom of stairs. Landings must be as wide as the stairs they serve, have a minimum length of 36 inches in direction of travel, and have a slope no steeper than 2% (¼ inch of rise per 1 foot of run). R311.7.6, R311.7.7

Structural Details: Header beams and joists that frame into ledgers or beams shall be supported by approved framing anchors such as joist hangers. Attachment of these framing anchors must be completed according to the manufacturer’s requirements; typically special nails are applied. To be used, these anchors must be approved for use with treated wood.

Nails and Screws: Fasteners, including nuts and washers shall be of stainless steel, hot-dipped, zinc-coated galvanized steel, silicon bronze or copper for attachment to preservative treated wood. Ask your materials supplier for an approved fastener. R317.3. SCREWS CANNOT BE USED TO ATTACH JOIST HANGERS.

Wood Required: All exposed wood must be approved, treated material. Grade stamps and tags must be visible to the inspector and must meet the exposure criteria to which they will be subjected (above ground, ground contact, etc.). R317.1.2 Untreated or landscaping-type materials will be rejected. Cedar and redwood are also approved; however cedar cannot be in direct contact with either soil or concrete. OTHER DECK MATERIALS (composites, plastic, etc.) MUST BE LISTED BY AN APPROVED EVALUATION SERVICE AND APPROVED BY THE BUILDING OFFICIAL. Ask your lumber supplier for help selecting the proper material, or the building department for a list of approved materials.
**LEDGER ATTACHMENT GUIDE**

**TABLE R507.2 FASTENER SPACING FOR A SOUTHERN PINE OR HEM-FIR DECK LEDGER AND A 2-INCH-NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST**

<table>
<thead>
<tr>
<th>JOIST SPAN</th>
<th>6' and less</th>
<th>6'1/2 to 8'11/2</th>
<th>9'1/2 to 10'11/2</th>
<th>11'1/2 to 12'4/5</th>
<th>13'4/5 to 15'1/2</th>
<th>15'1/2 to 16'11/2</th>
<th>17'1/2 to 18'11/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection details</td>
<td>On-center spacing of fasteners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2 inch diameter lag screw with 1/4 inch maximum sheathing</td>
<td>30</td>
<td>23</td>
<td>18</td>
<td>15</td>
<td>13</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>1/2 inch diameter bolt with 1/4 inch maximum sheathing</td>
<td>36</td>
<td>36</td>
<td>34</td>
<td>29</td>
<td>24</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>1/2 inch diameter bolt with 1/4 inch maximum sheathing and 1/2 inch stacked washers</td>
<td>36</td>
<td>36</td>
<td>34</td>
<td>29</td>
<td>24</td>
<td>21</td>
<td>18</td>
</tr>
</tbody>
</table>

For St. 1 inch = 25.4 mm. 1 foot = 304.8 mm. 1 pound per square foot = 0.0479 kPa.

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 the face of the wall sheathing shall be 1/2 inch.
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 R507.2.1.
e. Deck ledger shall be minimum 2 x 8 pressure-preservative-treated No. 2 grade lumber, or other approved materials as established by standard engineering practice.
f. When solid-sawn pressure-preservative-treated deck ledgers are attached to a minimum 1-inch-thick engineered wood product (structural composite lumber, laminated veneer lumber or wood structural panel band joist), the ledger attachment shall be designed in accordance with accepted engineering practice.
g. A minimum 1 x 9 1/2 Douglas Fir laminated veneer lumber rimboard shall be permitted in lieu of the 2-inch nominal band joist.
h. Wood structural panel sheathing, gypsum board sheathing or foam sheathing not exceeding 1 inch in thickness shall be permitted. The maximum distance between the face of the ledger board and the face of the band joist shall be 1 inch.

**RS07.2.1 Placement of lag screws or bolts in deck ledgers and band joists.**
The lag screws or bolts in deck ledgers and band joists shall be placed in accordance with Table R507.2.1 and Figures R507.2.1(1) and R507.2.2(2).

**TABLE S07.2.1 PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS**

| MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS |
|-------------|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|
| Ledger  | 2 inches  | 1/4 inch  | 1/2 inch  | 1 1/2 inches  | 2 inches  | 1 1/2 inches  |
| Band Joist | 1/4 inch | 2 inches  | 2 inches  | 1 1/2 inches  |

For St. 1 inch = 25.4 mm.
a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.2.1(1).
b. Maximum 5 inches.
c. For engineered rim joists, the manufacturer's recommendations shall govern.
d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.2.1(1).