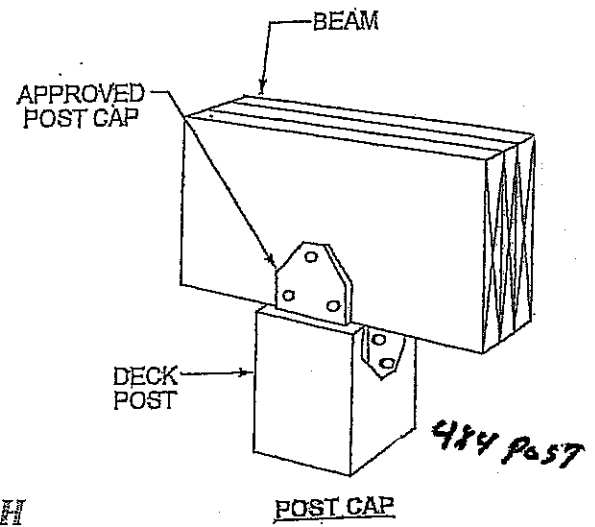


## DECK REQUIREMENTS

- DRAWING SHOWING SIZE OF DECK (2 SETS OF DRAWINGS)
  - SHOWING STEPS WITH 9" RUN, 8 ¼ " MAX RISE AND HANDRAIL
  - SHOWING GUARDRAIL BALUSTERS; OPENING NOT WIDER THAN 4"
  - POSTS SIZE, DEPTH AND DISTANCE BETWEEN
  - JOIST - SIZE AND SPACING
  - DECK BOARDS - SIZE
  - SIZE OF CARRIER IF USING ONE
- DRAWING MUST ALSO SHOW LOCATION OF HOUSE ON LOT AND THE DECK LOCATION IN RELATION TO ALL LOT LINES (DISTANCE FROM)
- DECKS BEING BUILT IN MOBILE HOME PARKS MUST HAVE APPROVAL LETTER FROM MANAGEMENT

### NOTE:

- ALL BEAMS MUST BE NOTCHED INTO POST
- IF USING A 4X4 POST THEN A POST CAP IS REQUIRED FOR THE POST TO BEAM CONNECTION
- WILL THE DECK BE CONNECTED TO A CANTILEVER OR THE HOUSE?



VILLAGE OF GOODRICH

7338 S STATE ROAD ~ PO BOX 276 ~ GOODRICH, MI 48438 ~ P 810.636.2570 ~ F 810.636.8886

**DECK/PORCH PERMIT APPLICATION**

HOMEOWNER INFORMATION

DATE OF APPLICATION \_\_\_\_\_

HOMEOWNER \_\_\_\_\_

ADDRESS OF PROJECT \_\_\_\_\_

PHONE # \_\_\_\_\_

EMAIL ADDRESS \_\_\_\_\_

ADDRESS OF HOMEOWNER IF OTHER THAN ABOVE \_\_\_\_\_

CONTRACTOR INFORMATION

COMPANY NAME \_\_\_\_\_

CONTACT \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE # \_\_\_\_\_

EMAIL ADDRESS \_\_\_\_\_

SIZE OF DECK \_\_\_\_\_

(ALL BEAMS MUST BE NOTCHED INTO POST IF USING A 4X4 POST THAN A POST CAP IS REQUIRED FOR THE POST TO BEAM CONNECTION)

WILL THE DECK BE CONNECTED TO A CANTILEVER OF THE HOUSE \_\_\_\_\_

COVERED \_\_\_\_\_ ENCLOSED \_\_\_\_\_ OPEN \_\_\_\_\_

IS THE DECK THE FRONT \_\_\_\_\_ BACK \_\_\_\_\_

SET BACK FROM LOT LINES: FRONT \_\_\_\_\_ SIDE \_\_\_\_\_ REAR \_\_\_\_\_

---

**BUILDING DEPARTMENT ONLY**

INSPECTOR'S APPROVAL \_\_\_\_\_ DATE \_\_\_\_\_

CONFIRMATION OF SQUARE FOOTAGE \_\_\_\_\_

Resolution 2022-12

**VILLAGE OF GOODRICH BUILDING PERMIT FEES**

A. **DWELLING**

**House**

*First Floor* \$90 per square foot

*Second Floor* \$80 per square foot

**Garage** \$35 per square foot

**Porch** \$30 per square foot

Any said costs for construction over \$350,000 will be based on the permit fee plus \$3.00 per 1,000 square feet.

B. **ADDITIONS**

1. \$370.00 + \$.10 per square foot

Any residential addition to a dwelling (including: bedroom, bathroom, family room etc.)

2. \$220.00 + \$.10 per square foot

Any residential addition to a dwelling/parcel (including: detached/attached garages, porches, decks etc.)

C. **REMODELING** (minimum permit fee \$225.00)

Where building permits are required for construction that do not involve an addition to, or expansion, of outside walls of the structure, or an increase in the occupied space, or when the construction is less than \$10,000.00.

Any said costs for construction over \$10,000.01 will be based on the minimum permit fee plus \$3.00 per each additional \$1,000.

D. **SHEDS** No building permit is required for a shed under 200 square feet but requires authorization from the Village Zoning Administrator.

E. **ACCESSARY BUILDINGS** \$235.00 + .10 per square foot

F. **SWIMMING POOLS**

Above Ground \$150.00 flat fee

In Ground \$225.00 flat fee

G. **FENCES**

No building permit required for fencing 6 feet and under but requires authorization from the Village Administrator.

H. **COMMERCIAL AND INDUSTRIAL BUILDING PERMIT FEES**

Commercial up to \$500,000.00 \$450.00 + .0050 x building cost \$500,000.01 and over

\$450.00 + .0035 x building cost

*PLUS* Plan review up to \$500,000.00 (min \$200.00) .0013 x building cost

*PLUS* Plan review over \$500,000.01 (min \$650.00) .0015 x building cost

I. **MOVING OF STRUCTURES**

Pre-moving application fee and site plan \$150.00  
(Building permit and bonds as required)

J. **DEMOLITION OF STRUCTURE**

|                            |  |
|----------------------------|--|
| Sheds, Garages & Accessory | \$60.00  |
| One & Two Family Homes     | \$150.00 + \$5.00 per 1,000 square feet or part there of |
| Commercial                 | \$150.00 + \$5.00 per 1,000 square feet or part there of |

K. **SIGN PERMITS**

MUST RECEIVE APPROVAL BY THE VILLAGE ADIMINISTRATOR  
PRIOR TO RECEIVING A PERMIT  
Permanent Sign \$70.00 PLUS \$75.00 staking inspection if needed

**\*\*PERMIT FEE SHALL BE DOUBLED IF SIGN IS ERECTED PRIOR TO ISSUANCEOF PERMIT\*\***

**ALLOWABLE TEMPORARY SIGN (SANDWICH BOARD) MUST RECEIVE  
APPROVAL FROM THE VILLAGE ADMINISTRATOR**

L. **RE-INSPECTIONS** \$75.00 PER INSPECTION

If a building inspection is requested and, in the opinion of the Building Inspector, the work is found to be either unacceptable or not ready for such inspection a re-inspection fee shall be paid to the Village of Goodrich before any such re-inspection is made.

M. **REMOVAL OF STOP WORK ORDER** \$120.00

N. **CULVERT INSPECTIONS** \$15.00  
(excluding M-15 and Green Road) ISSUED BY THE DEPARTMENT OF PUBLIC WORKS

O. **TEMPORARY LIVING QUARTERS** (One [1] year maximum)  
\$65.00 Permit Fee – Issued only under special circumstances.

P. **ROOF PERMIT** \$75.00 A ladder must be provided for inspector.  
If no ladder is present an additional \$75.00 inspection fee will be assessed.


Q. **PERMIT RENEWAL** \$55 (One [1] year)

YEAS: 5  
NAYS: 0  
ABSENT: 0

**RESOLUTION DECLARED ADOPTED**

*I, Sheri Wilkerson, the duly appointed Administrator and Clerk of the Village of Goodrich, do hereby CERTIFY that the foregoing is a true and accurate copy of Resolution 2022-12 that was adopted by the Village of Goodrich Council, Genesee County, Michigan at a regular meeting held June 13, 2022, the original of which is on file in my office and available to the public.*

Village of Goodrich Council

  
Sheri Wilkerson, Administrator/Clerk

Resolution Number: 2022-12  
Presented: July 11, 2022  
Adopted: July 11, 2022

Residential Building Permit Fees (Effective 7-11-22)

Village of Goodrich

| Cost<br>In (000) | Permit<br>Cost |
|------------------|----------------|
| 1                | \$95           |
| 2                | \$100          |
| 3                | \$106          |
| 4                | \$111          |
| 5                | \$167          |
| 6                | \$173          |
| 7                | \$178          |
| 8                | \$184          |
| 9                | \$189          |
| 10               | \$195          |
| 11               | \$201          |
| 12               | \$206          |
| 13               | \$212          |
| 14               | \$217          |
| 15               | \$223          |
| 16               | \$229          |
| 17               | \$233          |
| 18               | \$238          |
| 19               | \$242          |
| 20               | \$247          |
| 21               | \$352          |
| 22               | \$356          |
| 23               | \$361          |
| 24               | \$365          |
| 25               | \$370          |
| 26               | \$375          |
| 27               | \$379          |
| 28               | \$384          |
| 29               | \$388          |
| 30               | \$393          |
| 31               | \$398          |
| 32               | \$402          |
| 33               | \$407          |
| 34               | \$411          |
| 35               | \$416          |
| 36               | \$421          |
| 37               | \$425          |
| 38               | \$430          |
| 39               | \$434          |
| 40               | \$439          |
| 41               | \$444          |
| 42               | \$448          |
| 43               | \$453          |
| 44               | \$457          |
| 45               | \$462          |
| 46               | \$467          |
| 47               | \$471          |
| 48               | \$476          |
| 49               | \$480          |
| 50               | \$485          |
| 51               | \$490          |
| 52               | \$494          |
| 53               | \$499          |
| 54               | \$503          |
| 55               | \$508          |
| 56               | \$513          |
| 57               | \$517          |
| 58               | \$522          |
| 59               | \$526          |
| 60               | \$531          |
| 61               | \$532          |
| 62               | \$536          |
| 63               | \$541          |
| 64               | \$546          |
| 65               | \$551          |
| 66               | \$555          |
| 67               | \$560          |
| 68               | \$565          |
| 69               | \$569          |
| 70               | \$574          |

| Cost<br>In (000) | Permit<br>Cost |
|------------------|----------------|
| 71               | \$ 579         |
| 72               | \$ 583         |
| 73               | \$ 588         |
| 74               | \$ 593         |
| 75               | \$ 598         |
| 76               | \$ 602         |
| 77               | \$ 607         |
| 78               | \$ 612         |
| 79               | \$ 616         |
| 80               | \$ 621         |
| 81               | \$ 626         |
| 82               | \$ 630         |
| 83               | \$ 635         |
| 84               | \$ 640         |
| 85               | \$ 645         |
| 86               | \$ 649         |
| 87               | \$ 654         |
| 88               | \$ 659         |
| 89               | \$ 663         |
| 90               | \$ 668         |
| 91               | \$ 673         |
| 92               | \$ 677         |
| 93               | \$ 682         |
| 94               | \$ 687         |
| 95               | \$ 692         |
| 96               | \$ 696         |
| 97               | \$ 702         |
| 98               | \$ 706         |
| 99               | \$ 710         |
| 100              | \$ 725         |
| 101              | \$ 1,430       |
| 102              | \$ 1,435       |
| 103              | \$ 1,439       |
| 104              | \$ 1,444       |
| 105              | \$ 1,449       |
| 106              | \$ 1,454       |
| 107              | \$ 1,459       |
| 108              | \$ 1,463       |
| 109              | \$ 1,468       |
| 110              | \$ 1,473       |
| 111              | \$ 1,478       |
| 112              | \$ 1,483       |
| 113              | \$ 1,487       |
| 114              | \$ 1,492       |
| 115              | \$ 1,497       |
| 116              | \$ 1,502       |
| 117              | \$ 1,507       |
| 118              | \$ 1,511       |
| 119              | \$ 1,516       |
| 120              | \$ 1,521       |
| 121              | \$ 1,538       |
| 122              | \$ 1,543       |
| 123              | \$ 1,548       |
| 124              | \$ 1,553       |
| 125              | \$ 1,558       |
| 126              | \$ 1,562       |
| 127              | \$ 1,567       |
| 128              | \$ 1,572       |
| 129              | \$ 1,577       |
| 130              | \$ 1,582       |
| 131              | \$ 1,587       |
| 132              | \$ 1,592       |
| 133              | \$ 1,597       |
| 134              | \$ 1,602       |
| 135              | \$ 1,607       |
| 136              | \$ 1,611       |
| 137              | \$ 1,616       |
| 138              | \$ 1,621       |
| 139              | \$ 1,626       |
| 140              | \$ 1,631       |

| Cost<br>In (000) | Permit<br>Cost |
|------------------|----------------|
| 141              | \$1,636        |
| 142              | \$1,641        |
| 143              | \$1,646        |
| 144              | \$1,651        |
| 145              | \$1,656        |
| 146              | \$1,660        |
| 147              | \$1,665        |
| 148              | \$1,670        |
| 149              | \$1,675        |
| 150              | \$1,680        |
| 151              | \$1,685        |
| 152              | \$1,690        |
| 153              | \$1,695        |
| 154              | \$1,700        |
| 155              | \$1,705        |
| 156              | \$1,709        |
| 157              | \$1,714        |
| 158              | \$1,719        |
| 159              | \$1,724        |
| 160              | \$1,729        |
| 161              | \$1,734        |
| 162              | \$1,739        |
| 163              | \$1,744        |
| 164              | \$1,749        |
| 165              | \$1,754        |
| 166              | \$1,758        |
| 167              | \$1,763        |
| 168              | \$1,768        |
| 169              | \$1,773        |
| 170              | \$1,778        |
| 171              | \$1,783        |
| 172              | \$1,788        |
| 173              | \$1,793        |
| 174              | \$1,798        |
| 175              | \$1,803        |
| 176              | \$1,807        |
| 177              | \$1,812        |
| 178              | \$1,817        |
| 179              | \$1,822        |
| 180              | \$1,827        |
| 181              | \$1,832        |
| 182              | \$1,837        |
| 183              | \$1,842        |
| 184              | \$1,847        |
| 185              | \$1,852        |
| 186              | \$1,856        |
| 187              | \$1,861        |
| 188              | \$1,866        |
| 189              | \$1,871        |
| 190              | \$1,876        |
| 191              | \$1,881        |
| 192              | \$1,886        |
| 193              | \$1,891        |
| 194              | \$1,896        |
| 195              | \$1,901        |
| 196              | \$1,905        |
| 197              | \$1,910        |
| 198              | \$1,915        |
| 199              | \$1,920        |
| 200              | \$1,925        |
| 201              | \$1,930        |
| 202              | \$1,935        |
| 203              | \$1,940        |
| 204              | \$1,945        |
| 205              | \$1,950        |
| 206              | \$1,954        |
| 207              | \$1,959        |
| 208              | \$1,964        |
| 209              | \$1,969        |
| 210              | \$1,974        |

| Cost<br>In (000) | Permit<br>Cost |
|------------------|----------------|
| 211              | \$2,000        |
| 212              | \$2,005        |
| 213              | \$2,010        |
| 214              | \$2,015        |
| 215              | \$2,020        |
| 216              | \$2,025        |
| 217              | \$2,030        |
| 218              | \$2,035        |
| 219              | \$2,040        |
| 220              | \$2,045        |
| 221              | \$2,050        |
| 222              | \$2,055        |
| 223              | \$2,060        |
| 224              | \$2,065        |
| 225              | \$2,070        |
| 226              | \$2,075        |
| 227              | \$2,080        |
| 228              | \$2,085        |
| 229              | \$2,090        |
| 230              | \$2,095        |
| 231              | \$2,100        |
| 232              | \$2,105        |
| 233              | \$2,110        |
| 234              | \$2,115        |
| 235              | \$2,120        |
| 236              | \$2,125        |
| 237              | \$2,130        |
| 238              | \$2,135        |
| 239              | \$2,140        |
| 240              | \$2,145        |
| 241              | \$2,150        |
| 242              | \$2,155        |
| 243              | \$2,160        |
| 244              | \$2,165        |
| 245              | \$2,170        |
| 246              | \$2,175        |
| 247              | \$2,180        |
| 248              | \$2,185        |
| 249              | \$2,190        |
| 250              | \$2,195        |
| 251              | \$2,200        |
| 252              | \$2,205        |
| 253              | \$2,210        |
| 254              | \$2,215        |
| 255              | \$2,220        |
| 256              | \$2,225        |
| 257              | \$2,230        |
| 258              | \$2,235        |
| 259              | \$2,240        |
| 260              | \$2,245        |
| 261              | \$2,250        |
| 262              | \$2,255        |
| 263              | \$2,260        |
| 264              | \$2,265        |
| 265              | \$2,270        |
| 266              | \$2,275        |
| 267              | \$2,280        |
| 268              | \$2,285        |
| 269              | \$2,290        |
| 270              | \$2,295        |
| 271              | \$2,300        |
| 272              | \$2,305        |
| 273              | \$2,310        |
| 274              | \$2,315        |
| 275              | \$2,320        |
| 276              | \$2,325        |
| 277              | \$2,330        |
| 278              | \$2,335        |
| 279              | \$2,340        |
| 280              | \$2,345        |

| Cost<br>In (000) | Permit<br>Cost |
|------------------|----------------|
| 281              | \$ 2,350       |
| 282              | \$ 2,355       |
| 283              | \$ 2,360       |
| 284              | \$ 2,365       |
| 285              | \$ 2,370       |
| 286              | \$ 2,375       |
| 287              | \$ 2,380       |
| 288              | \$ 2,385       |
| 289              | \$ 2,390       |
| 290              | \$ 2,395       |
| 291              | \$ 2,400       |
| 292              | \$ 2,405       |
| 293              | \$ 2,410       |
| 294              | \$ 2,415       |
| 295              | \$ 2,420       |
| 296              | \$ 2,425       |
| 297              | \$ 2,430       |
| 298              | \$ 2,435       |
| 299              | \$ 2,440       |
| 300              | \$ 2,445       |
| 301              | \$ 2,450       |
| 302              | \$ 2,455       |
| 303              | \$ 2,460       |
| 304              | \$ 2,465       |
| 305              | \$ 2,470       |
| 306              | \$ 2,475       |
| 307              | \$ 2,480       |
| 308              | \$ 2,485       |
| 309              | \$ 2,490       |
| 310              | \$ 2,495       |
| 311              | \$ 2,500       |
| 312              | \$ 2,505       |
| 313              | \$ 2,510       |
| 314              | \$ 2,515       |
| 315              | \$ 2,520       |
| 316              | \$ 2,525       |
| 317              | \$ 2,530       |
| 318              | \$ 2,535       |
| 319              | \$ 2,540       |
| 320              | \$ 2,545       |
| 321              | \$ 2,550       |
| 322              | \$ 2,555       |
| 323              | \$ 2,560       |
| 324              | \$ 2,565       |
| 325              | \$ 2,570       |
| 326              | \$ 2,575       |
| 327              | \$ 2,580       |
| 328              | \$ 2,585       |
| 329              | \$ 2,590       |
| 330              | \$ 2,595       |
| 331              | \$ 2,600       |
| 332              | \$ 2,605       |
| 333              | \$ 2,610       |
| 334              | \$ 2,615       |
| 335              | \$ 2,620       |
| 336              | \$ 2,625       |
| 337              | \$ 2,630       |
| 338              | \$ 2,635       |
| 339              | \$ 2,640       |
| 340              | \$ 2,645       |
| 341              | \$ 2,650       |
| 342              | \$ 2,655       |
| 343              | \$ 2,660       |
| 344              | \$ 2,665       |
| 345              | \$ 2,670       |
| 346              | \$ 2,675       |
| 347              | \$ 2,680       |
| 348              | \$ 2,685       |
| 349              | \$ 2,690       |
| 350              | \$ 2,695       |

**Example**

House 1st floor                      1200 sq ft x \$90 = 108,000

---

House 2nd floor                      500 sq ft x \$80 = 40,000

---

Garage                                      400 sq ft x \$35 = 14,000

---

Porch                                      60 sq ft x \$30 = 1,800

---

Add totals 108,000 + 40,000 + 14,000 + 1,800

**Grand Total = 163,800**

Round up from 163,800 to 164,000

Find COST LINE 164 and the permit amount will be \$1,749

**ADDENDUM  
CONTRACTOR'S INFORMATION**

THIS INFORMATION IS STRICTLY FOR THE CONTRACTOR,  
PLEASE DO NOT INCLUDE ANY HOMEOWNER INFORMATION.

Business Name:

---

Owners Name:

---

Address:

---

---

Contracting Companies Business Phone Number:

Business: \_\_\_\_\_ Cell: \_\_\_\_\_

After Hours Contact Person and Cell Number:

---

Superintendent Name & Cell Number:

---

Builders License Number:

---

Federal Employer ID Number or Reason for Exemption:

---

Workers Comp Insurance Carrier or Reason for Exemption:

---

MESC Employer Number or Reason for Exemption:

---

\*\*\*WE MUST HAVE A COPY OF YOUR CURRENT BUILDERS LICENSE\*\*\*

# DTT

## Deck Tension Ties

DTT tension ties are safe, cost-effective connectors designed to meet or exceed code requirements for deck construction. These versatile DTT connectors are also load rated as a holdown for light-duty shearwalls and braced-wall panel applications.

For new construction or to make an existing current deck code-compliant, the DTT1Z can be used as a tension-tie to satisfy the 2015 IRC provision for a 750 lb. lateral load connection to the house at four locations per deck. This code detail permits the lateral connection from the deck joists to be made to top plates, studs, or headers within the supporting structure, which eliminates the need to access to the floor joists inside the home. The DTT1Z is available in a kit (DTT1Z-KT) that includes (4) DTT1Z connectors, (4) Strong-Drive® SDWH Timber-Hex HDG screws and (28) SD #9 x 1½" screws.

The DTT1Z fastens to the narrow or wide face of a single 2x with Simpson Strong-Tie® Strong-Drive® SD Connector screws or nails and accepts a ½" machine bolt, anchor bolt, or lag screw (washer required) or can be installed with the Strong-Drive SDWH Timber-Hex HDG screw with an Integral washer.

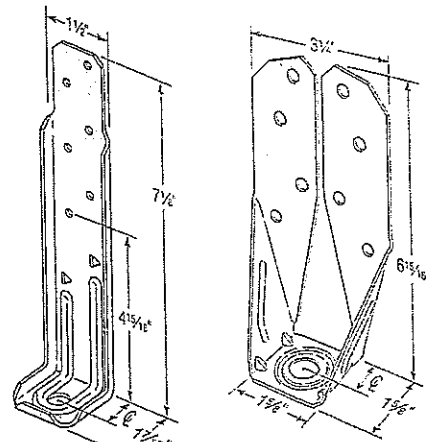
The DTT2 can be used to satisfy the IRC provision for a 1,500 lb. lateral load connection at two locations per deck. Additionally, the DTT2 has been tested and evaluated in deck guardrail post applications to resist the code-specified lateral forces at the top of railing assemblies. The DTT2 is also available with longer 2½" Strong-Drive SDS Heavy-Duty Connector screws (model DTT2Z-SDS2.5) to achieve higher loads when needed. The DTT2 fastens easily to the wide face of a single or double 2x using Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screws (included) and accepts a ½"-diameter machine bolt or anchor bolt.

For guard post installations using Strong-Drive SDWS Timber screws, see T-F-SDWSGRD.

**Material:** 14 gauge  
**Finish:** DTT1Z/DTT2Z -- ZMAX® coating; DTT2SS -- Stainless steel; see Corrosion Information, pp. 15-18  
**Installation:**

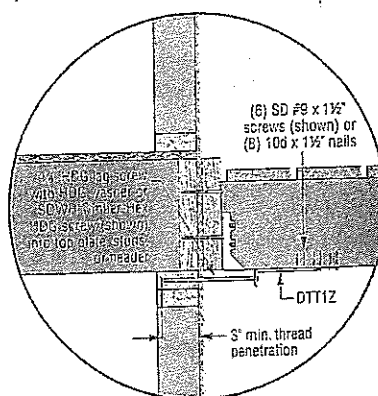
- Use all specified fasteners; see General Notes
- A standard cut washer (included for DTT2) must be installed between the nut and the seat
- Simpson Strong-Tie Strong-Drive SDS Heavy-Duty Connector screws install best with a low-speed high-torque drill with a ½" hex head driver (Model DB6H1.75)
- Strong-Drive SD Connector screws install with a ¼" hex head driver (Model DB6H)
- Strong-Drive SDWH Timber-Hex HDG screws install with a ⅜" hex head driver (Model DB6H1.75)

**Codes:** See p. 14 for Code Reference Key Chart

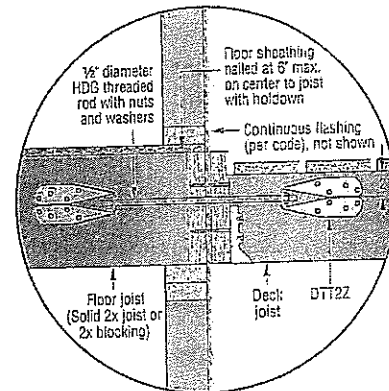


**DTT1Z**  
U.S. Patent Pending

**DTT2Z**  
U.S. Patent 8,555,580



**Typical DTT1Z Deck-to-House Lateral Load Connection**  
For more information on lateral load connections, see technical bulletin T-C-DECKLAT at strongtie.com



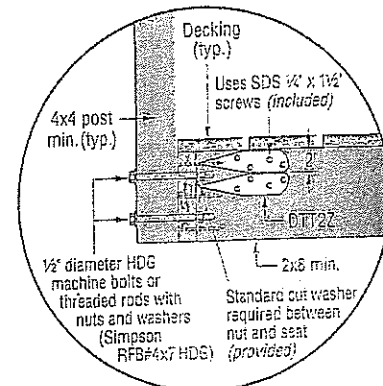
**Typical DTT2Z Deck-to-House Lateral Load Connection**  
For more information on lateral load connections, see technical bulletin T-C-DECKLAT at strongtie.com

These products are available with additional corrosion protection. For more information, see p. 16.

These products are approved for installation with the Strong-Drive® SD Connector screw. See pp. 39-40 for more information.

| Model No.    | G   | Anchor Diameter         | Fasteners        | Min. Wood Member Thickness (in.) | Allowable Tension Loads |                  | Code Ref.  |
|--------------|-----|-------------------------|------------------|----------------------------------|-------------------------|------------------|------------|
|              |     |                         |                  |                                  | DF/SP (160)             | SPF/HF (160)     |            |
| DTT1Z        | ½"  | ⅜" or SDWH <sup>®</sup> | (6) SD #9 x 1½"  | 1½"                              | 840                     | 840              | P2, FL     |
|              |     |                         | (6) 10d x 1½"    |                                  | 910                     | 640 <sup>2</sup> |            |
|              |     |                         | (8) 10d x 1½"    |                                  | 910                     | 650              |            |
| DTT2Z/DTT2SS | 1½" | ½"                      | (8) ¼" x 1½" SDS | 1½"                              | 1,825                   | 1,800            | 16, L8, FL |
|              |     |                         |                  | 3"                               | 2,145                   | 1,835            |            |
| DTT2Z-SDS2.5 | 1½" | ½"                      | (8) ¼" x 2½" SDS | 3"                               | 2,145                   | 2,105            |            |

1. Allowable loads have been increased for wind or earthquake loading with no further increase allowed.
2. DTT1Z installations with allowable loads below 750 lb. do not satisfy the 2015 IRC requirements for deck-to-house lateral load connections.
3. The Strong-Drive® SDWH Timber-Hex HDG screw with a minimum of 3" of thread penetration into dry lumber has an allowable withdrawal load (160) of 1,360 lb. into SP, 1225 lb. into DF and 1,020 lb. into SPF/HF.
4. Load values are valid if the product is flush with the end of the framing member or installed away from the end.
5. The guardrail post illustration above addresses an outward force on the guardrail. An additional DTT2Z can be added at the lower bolt to address an inward force.
6. A ½" HDG round washer is required when using a lag screw.



**DTT2Z Installed as a Lateral Connector for a Deck Guardrail Post**  
For more information on guardrail post connections, see technical bulletin T-C-GRDRLPST at strongtie.com

Decks and Fences

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6" SPHERE  
UNABLE  
TO PASS  
THROUGH  
OPENING

34" MIN.

< 4" TYP.

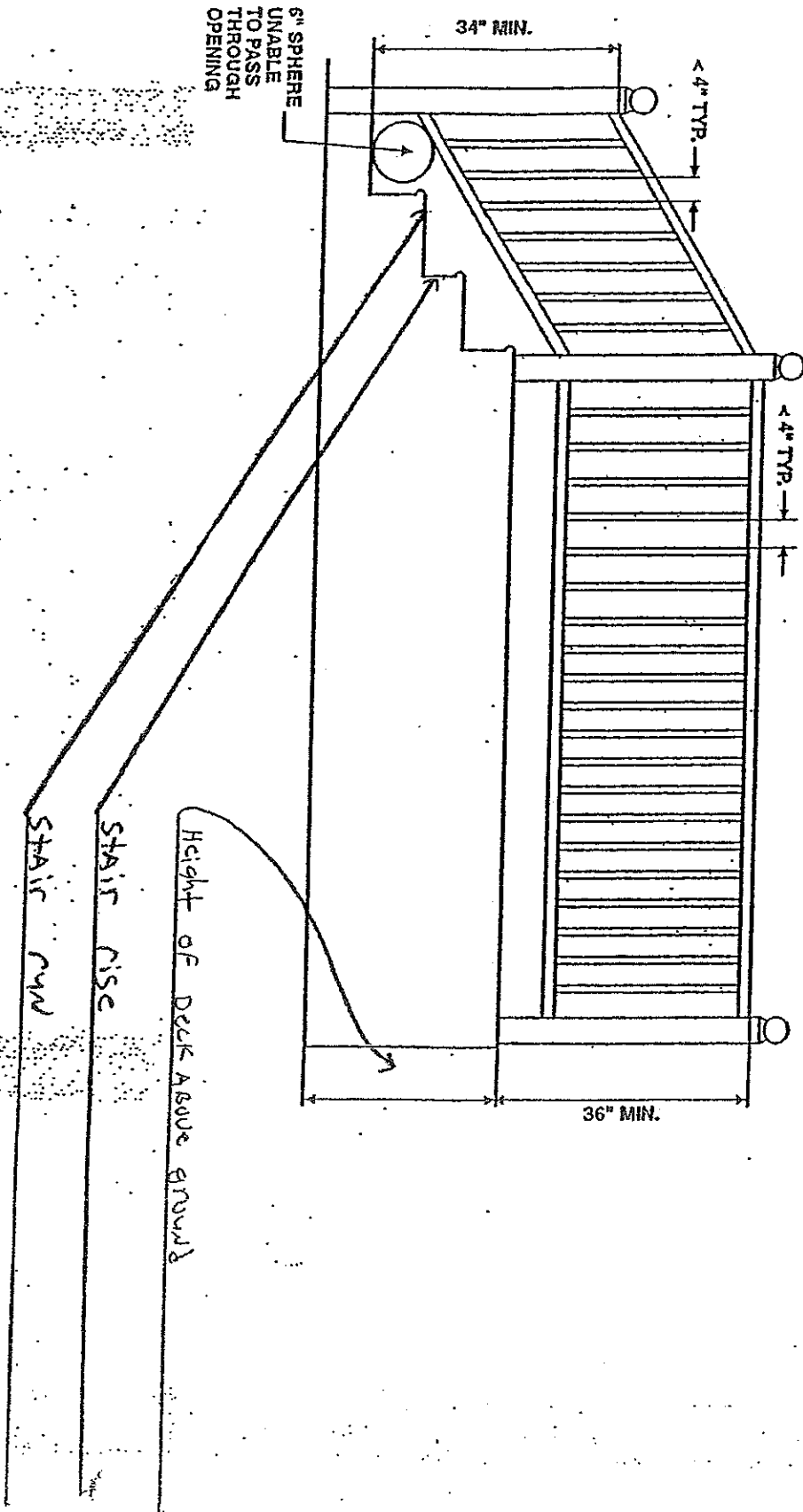
< 4" TYP.

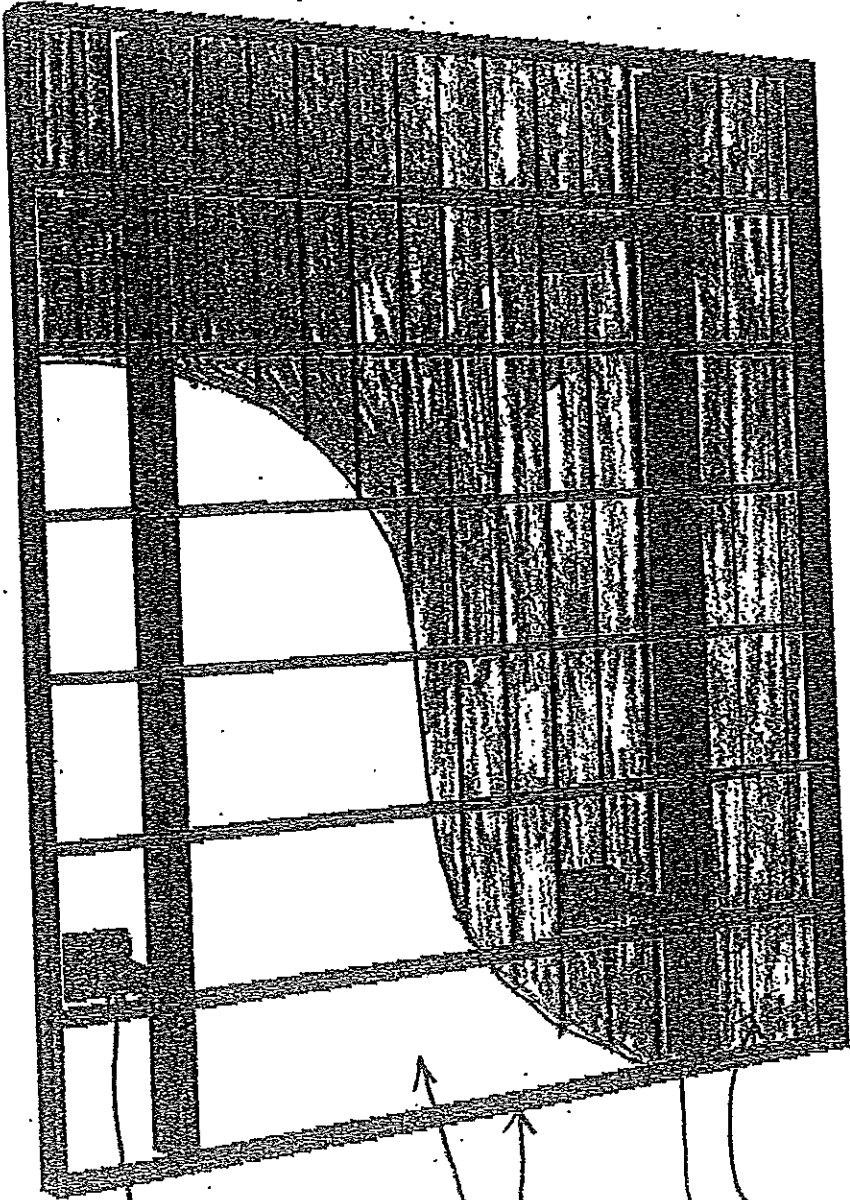
36" MIN.

STAIR RUN

STAIR RISE

Height of Deck Above Ground





Footings

Posts

Joist Spacing

Joist

Beam

Decking

## Section R507 Exterior Decks

### R507.1 Decks

Wood-framed decks shall be in accordance with this section or Section R301 for materials and conditions not prescribed herein. 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.

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. For 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 Table R301.5 acting on the cantilevered portion of the deck.

### R507.2 Deck Ledger Connection to Band Joist

Deck ledger connections to band joists shall be in accordance with this section, Tables R507.2 and R507.2.1, and Figures R507.2.1(1) and R507.2.1(2). For other grades, species, connection details and loading conditions, deck ledger connections shall be designed in accordance with Section R301.

TABLE R507.2

DECK LEDGER CONNECTION TO BAND JOIST<sup>a,b</sup>

(Deck live load = 40 psf, deck dead load = 10 psf, snow loads ≤ 40 psf)

| CONNECTION DETAILS  | 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' |
|   | On-center spacing of fasteners |            |             |              |              |              |              |
| <sup>1</sup> / <sub>2</sub> -inch <u>diameter</u> lag screw with <sup>1</sup> / <sub>2</sub> -inch maximum sheathing <sup>c,d</sup> | 30                             | 23         | 18          | 15           | 13           | 11           | 10           |
| <sup>1</sup> / <sub>2</sub> -inch <u>diameter</u> bolt with <sup>1</sup> / <sub>2</sub> -inch maximum sheathing <sup>d</sup>        | 36                             | 36         | 34          | 29           | 24           | 21           | 19           |
| <sup>1</sup> / <sub>2</sub> -inch <u>diameter</u> bolt with 1-inch maximum sheathing <sup>e</sup>                                   | 36                             | 36         | 29          | 24           | 21           | 18           | 16           |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

1. Ledgers shall be flashed in accordance with Section R703.8 to prevent water from contacting the house band joist.
2. Snow load shall not be assumed to act concurrently with live load.
3. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
4. Sheathing shall be wood structural panel or solid sawn lumber.
5. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to <sup>1</sup>/<sub>2</sub>-inch thickness of stacked washers shall be permitted to substitute for up to <sup>1</sup>/<sub>2</sub> inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

### R507.2.1 Ledger Details

Deck ledgers installed in accordance with [Section R507.2](#) shall be a minimum 2-inch by 8-inch (51 mm by 203 mm) nominal, pressure-preservative-treated southern pine, incised pressure-preservative-treated Hem-fir, or approved, naturally durable, No. 2 grade or better lumber. Deck ledgers installed in accordance with [Section R507.2](#) shall not support concentrated loads from beams or girders. Deck ledgers shall not be supported on stone or masonry veneer.

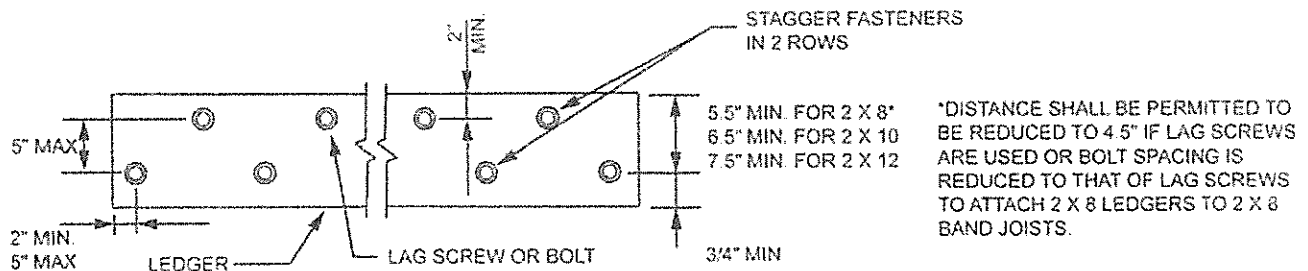
**TABLE 507.2.1**

**PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS  
MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS**

|                         | TOP EDGE              | BOTTOM EDGE | ENDS                  | ROW SPACING               |
|-------------------------|-----------------------|-------------|-----------------------|---------------------------|
| Ledger <sup>a</sup>     | 2 inches <sup>d</sup> | 3/4 inch    | 2 inches <sup>b</sup> | 1 5/8 inches <sup>b</sup> |
| Band Joist <sup>c</sup> | 3/4 inch              | 2 inches    | 2 inches <sup>b</sup> | 1 5/8 inches <sup>b</sup> |

For SI: 1 inch = 25.4 mm.

1. 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).
2. Maximum 5 inches.
3. For engineered rim joists, the manufacturer's recommendations shall govern.
4. 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).



For SI: 1 inch = 25.4 mm. **FIGURE R507.2.1(1)**

**PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS** SR 408.30523

### R507.2.2 Band Joist Details

Band joists attached by a ledger in accordance with [Section R507.2](#) shall be a minimum 2-inch-nominal (51 mm), solid-sawn, spruce-pine-fir lumber or a minimum 1-inch by 9 1/2-inch (25 mm x 241 mm) dimensional, Douglas fir, laminated veneer lumber. Band joists attached by a ledger in accordance with [Section R507.2](#) shall be fully supported by a wall or sill plate below.

### R507.2.3 Ledger to Band Joist Fastener Details

Fasteners used in deck ledger connections in accordance with [Table R507.2](#) shall be hot-dipped galvanized or stainless steel and shall be installed in accordance with [Table R507.2.1](#) and [Figures R507.2.1\(1\)](#) and [R507.2.1\(2\)](#).

### R507.2.4 Flashing

An approved corrosion resistant flashing as required by [Section R703.8](#) shall be installed above the attached ledger as shown in [Figure R507.2.1\(2\)](#) or as approved.

R408.30523a

### **R507.3 Plastic Composite Deck Boards, Stair Treads, Guards, or Handrails**

Plastic composite exterior deck boards, stair treads, guards and handrails shall comply with the requirements of ASTM D7032 and the requirements of Section 507.3.

#### **R507.3.1 Labeling**

Plastic composite deck boards and stair treads, or their packaging, shall bear a label that indicates compliance to ASTM D7032 and includes the allowable load and maximum allowable span determined in accordance with ASTM D7032. Plastic or composite handrails and guards, or their packaging, shall bear a label that indicates compliance to ASTM D7032 and includes the maximum allowable span determined in accordance with ASTM D7032.

#### **R507.3.2 Flame Spread Index**

Plastic composite deck boards, stair treads, guards, and handrails shall exhibit a flame spread index not exceeding 200 when tested in accordance with ASTM E84 or UL 723 with the test specimen remaining in place during the test.

**Exception:** Plastic composites determined to be noncombustible.

#### **R507.3.3 Decay Resistance**

Plastic composite deck boards, stair treads, guards and handrails containing wood, cellulosic or other biodegradable materials shall be decay resistant in accordance with ASTM D7032.

#### **R507.3.4 Termite Resistance**

Where required by Section 318, plastic composite deck boards, stair treads, guards and handrails containing wood, cellulosic or other biodegradable materials shall be termite resistant in accordance with ASTM D7032.

#### **R507.3.5 Installation of Plastic Composites**

Plastic composite deck boards, stair treads, guards and handrails shall be installed in accordance with this code and the manufacturer's instructions.

### **R507.4 Decking**

Maximum allowable spacing for joists supporting decking shall be in accordance with Table R507.4. Wood decking shall be attached to each supporting member with not less than (2) 8d threaded nails or (2) No. 8 wood screws.

**TABLE R507.4**

**MAXIMUM JOIST SPACING**

| MATERIAL TYPE AND NOMINAL SIZE                 | MAXIMUM ON-CENTER JOIST SPACING          |  |
|--|--|--|
|  | Perpendicular to joist                   | Diagonal to joist <sup>a</sup>           |
| 1 <sup>1</sup> / <sub>4</sub> -inch-thick wood | 16 inches                                | 12 inches                                |
| 2-inch-thick wood                              | 24 inches                                | 16 inches                                |
| <u>Plastic composite</u>                       | In accordance with <u>Section R507.3</u> | In accordance with <u>Section R507.3</u> |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.01745 rad.

1. Maximum angle of 45 degrees from perpendicular for wood deck boards

## R507.5 Deck Joists

Maximum allowable spans for wood deck joists, as shown in Figure R507.5, shall be in accordance with Table R507.5. Deck joists shall be permitted to cantilever not greater than one-fourth of the actual, adjacent joist span.

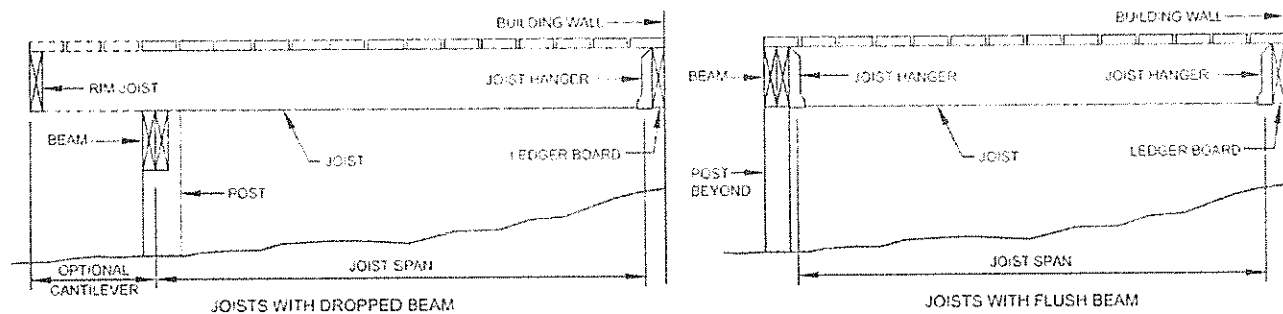
**TABLE R507.5**

**DECK JOIST SPANS FOR COMMON LUMBER SPECIES<sup>f</sup> (ft. - in.)**

| SPECIES <sup>a</sup>   | SIZE   | SPACING OF DECK JOISTS WITH NO CANTILEVER <sup>b</sup><br>(inches) |       |       | SPACING OF DECK JOISTS WITH CANTILEVERS <sup>c</sup><br>(inches) |      |       |
|--|--------|--|-------|-------|--|------|-------|
|  |        | 12   | 16    | 24    | 12   | 16   | 24    |
| Southern pine  | 2 X 6  | 9-11   | 9-0   | 7-7   | 6-8  | 6-8  | 6-8   |
|  | 2 X 8  | 13-1   | 11-10 | 9-8   | 10-1   | 10-1 | 9-8   |
|  | 2 X 10 | 16-2   | 14-0  | 11-5  | 14-6   | 14-0 | 11-5  |
|  | 2 X 12 | 18-0   | 16-6  | 13-6  | 18-0   | 16-6 | 13-6  |
|  | 2 X 6  | 9-6  | 8-8   | 7-2   | 6-3  | 6-3  | 6-3   |
| Douglas fir-larch <sup>d</sup> ,<br>hem-fir <sup>d</sup><br>spruce-pine-fir <sup>d</sup> | 2 X 8  | 12-6   | 11-1  | 9-1   | 9-5  | 9-5  | 9-1   |
|  | 2 X 10 | 15-8   | 13-7  | 11-1  | 13-7   | 13-7 | 11-1  |
|  | 2 X 12 | 18-0   | 15-9  | 12-10 | 18-0   | 15-9 | 12-10 |
| Redwood,<br>western cedars<br>ponderosa<br>pine <sup>e</sup> ,<br>red pine <sup>e</sup>  | 2 X 6  | 8-10   | 8-0   | 7-0   | 5-7  | 5-7  | 5-7   |
|  | 2 X 8  | 11-8   | 10-7  | 8-8   | 8-6  | 8-6  | 8-6   |
|  | 2 X 10 | 14-11  | 13-0  | 10-7  | 12-3   | 12-3 | 10-7  |
|  | 2 X 12 | 17-5   | 15-1  | 12-4  | 16-5   | 15-1 | 12-4  |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

1. No. 2 grade with wet service factor.
2. Ground snow load, live load = 40 psf, dead load = 10 psf,  $L/\Delta = 360$ .
3. Ground snow load, live load = 40 psf, dead load = 10 psf,  $L/\Delta = 360$  at main span,  $L/\Delta = 180$  at cantilever with a 220-pound point load applied to end.
4. Includes incising factor.
5. Northern species with no incising factor
6. Cantilevered spans not exceeding the nominal depth of the joist are permitted.



**FIGURE R507.5**  
TYPICAL DECK JOIST SPANS

### R507.5.1 Lateral Restraint at Supports

Joist ends and bearing locations shall be provided with lateral restraint to prevent rotation. Where lateral restraint is provided by joist hangers or blocking between joists, their depth shall equal not less than 60 percent of the joist depth. Where lateral restraint is provided by rim joists, they shall be secured to the end of each joist with not less than (3) 10d (3-inch X 0.128-inch) nails or (3) No. 10 x 3-inch (76 mm) long wood screws.

### R507.6 Deck Beams

Maximum allowable spans for wood deck beams, as shown in Figure R507.6, shall be in accordance with Table R507.6. Beam plies shall be fastened with two rows of 10d (3-inch x 0.128-inch) nails minimum at 16 inches (406 mm) on center along each edge. Beams shall be permitted to cantilever at each end up to one-fourth of the actual beam span. Splices of multispan beams shall be located at interior post locations.

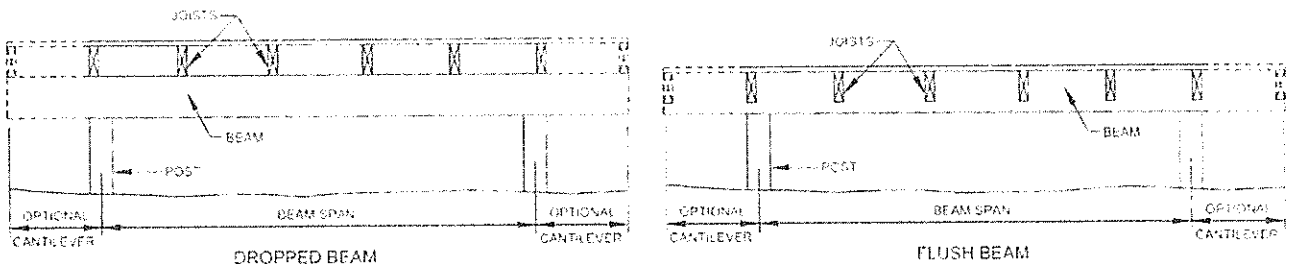
**TABLE R507.6**  
DECK BEAM SPAN LENGTHS<sup>a, b</sup> (ft. - in.)

| SPECIES <sup>c</sup>                                       | SIZE <sup>d</sup>  | DECK JOIST SPAN LESS THAN OR EQUAL TO:<br>(feet) |      |       |      |      |      |      |  |
|--|--------------------|--|------|-------|------|------|------|------|--|
|  |                    | 6  | 8    | 10    | 12   | 14   | 16   | 18   |  |
| Southern pine  | 2-2 X 6            | 6-11   | 5-11 | 5-4   | 4-10 | 4-6  | 4-3  | 4-0  |  |
|  | 2-2 X 8            | 8-9  | 7-7  | 6-9   | 6-2  | 5-9  | 5-4  | 5-0  |  |
|  | 2-2 X 10           | 10-4   | 9-0  | 8-0   | 7-4  | 6-9  | 6-4  | 6-0  |  |
|  | 2-2 X 12           | 12-2   | 10-7 | 9-5   | 8-7  | 8-0  | 7-6  | 7-0  |  |
|  | 3-2 X 6            | 8-2  | 7-5  | 6-8   | 6-1  | 5-8  | 5-3  | 5-0  |  |
|  | 3-2 X 8            | 10-10  | 9-6  | 8-6   | 7-9  | 7-2  | 6-8  | 6-4  |  |
|  | 3-2 X 10           | 13-0   | 11-3 | 10-0  | 9-2  | 8-6  | 7-11 | 7-6  |  |
|  | 3-2 X 12           | 15-3   | 13-3 | 11-10 | 10-9 | 10-0 | 9-4  | 8-10 |  |
| Douglas fir-larch <sup>e</sup> ,<br>hem-fir <sup>e</sup> , | 3 X 6 or 2-2 x 6   | 5-5  | 4-8  | 4-2   | 3-10 | 3-6  | 3-1  | 2-9  |  |
|  | 3 X 8 or 2-2 x 8   | 6-10   | 5-11 | 5-4   | 4-10 | 4-6  | 4-1  | 3-8  |  |
| spruce-pine-fir <sup>e</sup> ,<br>redwood,                 | 3 X 10 or 2-2 x 10 | 8-4  | 7-3  | 6-6   | 5-11 | 5-6  | 5-1  | 4-8  |  |
|  | 3 X 12 or 2-2 x 12 | 9-8  | 8-5  | 7-6   | 6-10 | 6-4  | 5-11 | 5-7  |  |
| western cedars,  | 4 X 6              | 6-5  | 5-6  | 4-11  | 4-6  | 4-2  | 3-11 | 3-8  |  |
| ponderosa pine <sup>f</sup> ,                              | 4 X 8              | 8-5  | 7-3  | 6-6   | 5-11 | 5-6  | 5-2  | 4-10 |  |
| red pine <sup>f</sup>                                      | 4 X 10             | 9-11   | 8-7  | 7-8   | 7-0  | 6-6  | 6-1  | 5-8  |  |

|          |       |      |      |      |      |     |      |
|----------|-------|------|------|------|------|-----|------|
| 4 X 12   | 11-5  | 9-11 | 8-10 | 8-1  | 7-6  | 7-0 | 6-7  |
| 3-2 X 6  | 7-4   | 6-8  | 6-0  | 5-6  | 5-1  | 4-9 | 4-6  |
| 3-2 X 8  | 9-8   | 8-6  | 7-7  | 6-11 | 6-5  | 6-0 | 5-8  |
| 3-2 X 10 | 12-0  | 10-5 | 9-4  | 8-6  | 7-10 | 7-4 | 6-11 |
| 3-2 X 12 | 13-11 | 12-1 | 10-9 | 9-10 | 9-1  | 8-6 | 8-1  |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

1. Ground snow load, live load= 40 psf, dead load= 10 psf,  $L/\Delta = 360$  at main span,  $L/\Delta = 180$  at cantilever with a 220-pound point load applied at the end.
2. Beams supporting deck joists from one side only.
3. No. 2 grade, wet service factor.
4. Beam depth shall be greater than or equal to depth of joists with a flush beam condition.
5. Includes incising factor.
6. Northern species. Incising factor not included.



**FIGURE R507.6**  
TYPICAL DECK BEAM SPANS

### R507.7 Deck Joist and Deck Beam Bearing

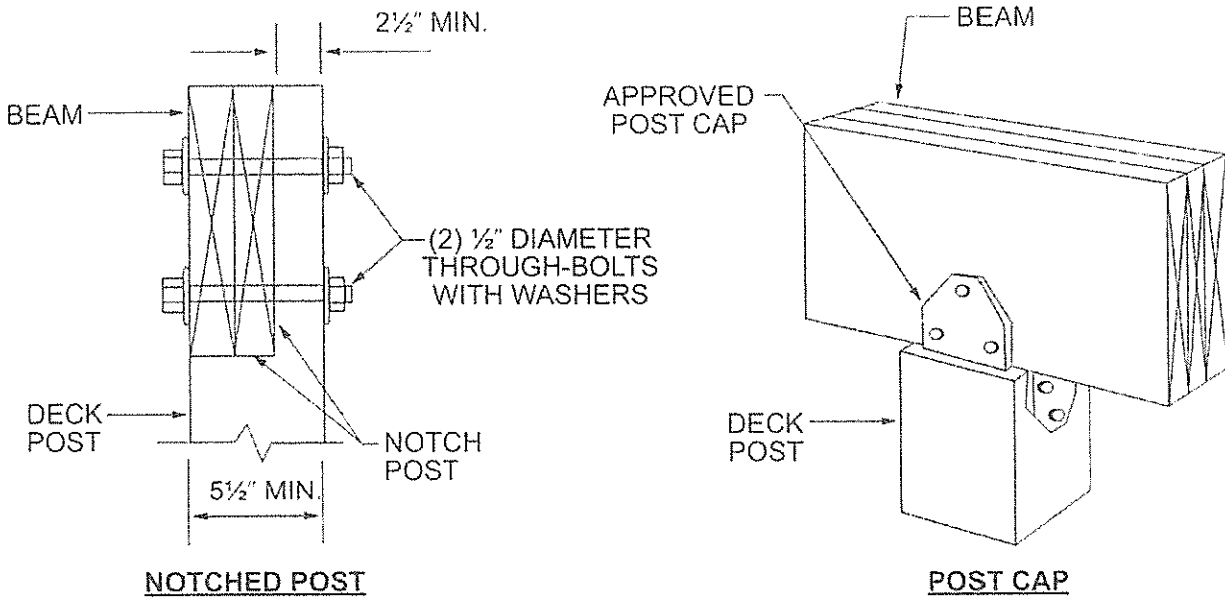
The ends of each joist and beam shall have not less than 1½ inches (38 mm) of bearing on wood or metal and not less than 3 inches (76 mm) on concrete or masonry for the entire width of the beam. Joist framing into the side of a ledger board or beam shall be supported by approved joist hangers. Joists bearing on a beam shall be connected to the beam to resist lateral displacement.

#### R507.7.1 Deck Post to Deck Beam

Deck beams shall be attached to deck posts in accordance with Figure R507.7.1 or by other equivalent means capable to resist lateral displacement. Manufactured post-to-beam connectors shall be sized for the post and beam sizes. All bolts shall have washers under the head and nut.

**Exception:** Where deck beams bear directly on footings in accordance with Section R507.8.1.





For SI: 1 inch= 25.4 mm. **FIGURE R507.7.1**  
DECK BEAM TO DECK POST

**R507.8 Deck Posts**

For single-level wood-framed decks with beams sized in accordance with [Table R507.6](#), deck post size shall be in accordance with [Table R507.8](#).

**TABLE R507.8**  
**DECK POST HEIGHT<sup>a</sup>**

DECK POST SIZE MAXIMUM HEIGHT<sup>a</sup>

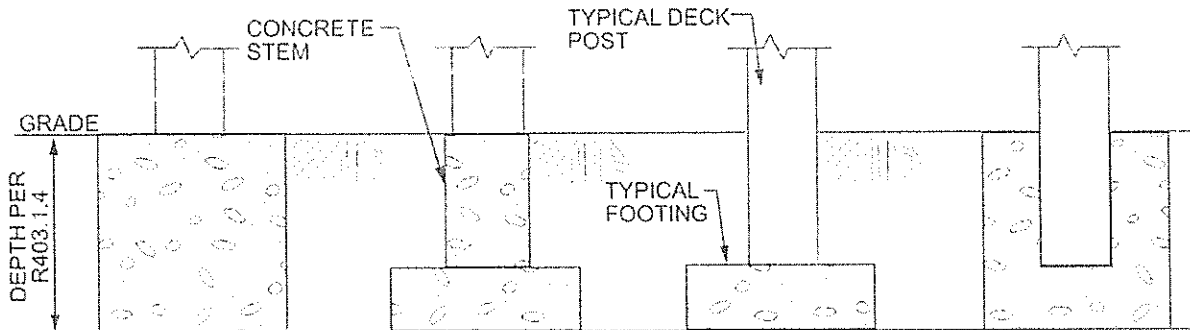
|       |     |
|-------|-----|
| 4 X 4 | 8'  |
| 4 X 6 | 8'  |
| 6 X 6 | 14' |

For SI: 1 foot = 304.8 mm.

1. Measured to the underside of the beam.

**R507.8.1 Deck Post to Deck Footing**

Posts shall bear on footings in accordance with [Section R403](#) and [Figure R507.8.1](#). Posts shall be restrained to prevent lateral displacement at the bottom support. Such lateral restraint shall be provided by manufactured connectors installed in accordance with [Section R507](#) and the manufacturers' instructions or a minimum post embedment of 12 inches (305 mm) in surrounding soils or concrete piers.



**FIGURE R507.8.1**  
TYPICAL DECK POSTS TO DECK FOOTINGS

**IT IS THE  
RESPONSIBILITY OF  
THE APPLICANT TO  
RESEARCH DEED  
RESTRICTIONS AND  
ASSOCIATION RULES!**



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