

Table Instructions: Enter the table with a joist span and cantilever length within the joist span limits based on the joist option, then read the maximum allowable box beam span.

JOIST SPAN LIMITS

| Joist option | 1 5/8" | | 1 5/8", every other joist doubled | | 1 5/8", all doubled | | 2" | | 2", every other joist doubled | | 2", all doubled | |
|---|--------|-----|-----------------------------------|-----|---------------------|-----|-----|-----|-------------------------------|-----|-----------------|-----|
| | 12" | 16" | 12" | 16" | 12" | 16" | 12" | 16" | 12" | 16" | 12" | 16" |
| Joist Spacing O.C. | 12" | 16" | 12" | 16" | 12" | 16" | 12" | 16" | 12" | 16" | 12" | 16" |
| Maximum Joist Span (Ledger To Box Beam) | 10' | 9' | 12' | 10' | 14' | 12' | 15' | 14' | 17' | 16' | 19' | 17' |
| Maximum Cantilever Length | 3' | 2' | 3' | 3' | 4' | 4' | 5' | 4' | 6' | 5' | 6' | 6' |

MAXIMUM BOX BEAM SPAN (SINGLE BOX BEAM BETWEEN POSTS)

| | | JOIST SPAN (LEDGER TO BOX BEAM) (FEET) | | | | | | | | | | | | | | | | | | | |
|--------------------------|---------|--|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | 3' - 0" | 4' - 0" | 5' - 0" | 6' - 0" | 7' - 0" | 8' - 0" | 9' - 0" | 10' - 0" | 11' - 0" | 12' - 0" | 13' - 0" | 14' - 0" | 15' - 0" | 16' - 0" | 17' - 0" | 18' - 0" | 19' - 0" | 20' - 0" | 21' - 0" | 22' - 0" |
| CANTILEVER LENGTH (FEET) | 0' - 0" | 16' - 2" | 14' - 8" | 13' - 7" | 12' - 10" | 12' - 2" | 11' - 7" | 11' - 2" | 10' - 8" | 10' - 2" | 9' - 9" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | | | |
| | 0' - 6" | 14' - 8" | 13' - 7" | 12' - 10" | 12' - 2" | 11' - 7" | 11' - 2" | 10' - 8" | 10' - 2" | 9' - 9" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | | | |
| | 1' - 0" | 13' - 7" | 12' - 10" | 12' - 2" | 11' - 7" | 11' - 2" | 10' - 8" | 10' - 2" | 9' - 9" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | | | |
| | 1' - 6" | 12' - 10" | 12' - 2" | 11' - 7" | 11' - 2" | 10' - 8" | 10' - 2" | 9' - 9" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | 7' - 2" | | | |
| | 2' - 0" | 12' - 2" | 11' - 7" | 11' - 2" | 10' - 8" | 10' - 2" | 9' - 9" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | 7' - 2" | 7' - 0" | | | |
| | 2' - 6" | 11' - 7" | 11' - 2" | 10' - 8" | 10' - 2" | 9' - 9" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | 7' - 2" | 7' - 0" | 6' - 11" | | | |
| | 3' - 0" | 11' - 2" | 10' - 8" | 10' - 2" | 9' - 9" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | 7' - 2" | 7' - 0" | 6' - 11" | 6' - 9" | | | |
| | 3' - 6" | 10' - 8" | 10' - 2" | 9' - 9" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | 7' - 2" | 7' - 0" | 6' - 11" | 6' - 9" | 6' - 7" | | | |
| | 4' - 0" | 10' - 2" | 9' - 9" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | 7' - 2" | 7' - 0" | 6' - 11" | 6' - 9" | 6' - 7" | 6' - 6" | | | |
| | 4' - 6" | 9' - 9" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | 7' - 2" | 7' - 0" | 6' - 11" | 6' - 9" | 6' - 7" | 6' - 6" | 6' - 4" | | | |
| | 5' - 0" | 9' - 4" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | 7' - 2" | 7' - 0" | 6' - 11" | 6' - 9" | 6' - 7" | 6' - 6" | 6' - 4" | 6' - 3" | | | |
| | 5' - 6" | 9' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | 7' - 2" | 7' - 0" | 6' - 11" | 6' - 9" | 6' - 7" | 6' - 6" | 6' - 4" | 6' - 3" | 6' - 2" | | | |
| | 6' - 0" | 8' - 9" | 8' - 5" | 8' - 2" | 7' - 11" | 7' - 9" | 7' - 7" | 7' - 4" | 7' - 2" | 7' - 0" | 6' - 11" | 6' - 9" | 6' - 7" | 6' - 6" | 6' - 4" | 6' - 3" | 6' - 2" | 6' - 1" | | | |

MAXIMUM BOX BEAM SPAN (DOUBLE BOX BEAM BETWEEN POSTS)

| | | JOIST SPAN (LEDGER TO BOX BEAM) (FEET) | | | | | | | | | | | | | | | | | | | |
|--------------------------|---------|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|
| | | 3' - 0" | 4' - 0" | 5' - 0" | 6' - 0" | 7' - 0" | 8' - 0" | 9' - 0" | 10' - 0" | 11' - 0" | 12' - 0" | 13' - 0" | 14' - 0" | 15' - 0" | 16' - 0" | 17' - 0" | 18' - 0" | 19' - 0" | 20' - 0" | 21' - 0" | 22' - 0" |
| CANTILEVER LENGTH (FEET) | 0' - 0" | 20' - 4" | 18' - 6" | 17' - 2" | 16' - 2" | 15' - 4" | 14' - 8" | 14' - 1" | 13' - 7" | 13' - 2" | 12' - 10" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | | | |
| | 0' - 6" | 18' - 6" | 17' - 2" | 16' - 2" | 15' - 4" | 14' - 8" | 14' - 1" | 13' - 7" | 13' - 2" | 12' - 10" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | | | |
| | 1' - 0" | 17' - 2" | 16' - 2" | 15' - 4" | 14' - 8" | 14' - 1" | 13' - 7" | 13' - 2" | 12' - 10" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | | | |
| | 1' - 6" | 16' - 2" | 15' - 4" | 14' - 8" | 14' - 1" | 13' - 7" | 13' - 2" | 12' - 10" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | 10' - 2" | | | |
| | 2' - 0" | 15' - 4" | 14' - 8" | 14' - 1" | 13' - 7" | 13' - 2" | 12' - 10" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | 10' - 2" | 9' - 11" | | | |
| | 2' - 6" | 14' - 8" | 14' - 1" | 13' - 7" | 13' - 2" | 12' - 10" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | 10' - 2" | 9' - 11" | 9' - 8" | | | |
| | 3' - 0" | 14' - 1" | 13' - 7" | 13' - 2" | 12' - 10" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | 10' - 2" | 9' - 11" | 9' - 8" | 9' - 6" | | | |
| | 3' - 6" | 13' - 7" | 13' - 2" | 12' - 10" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | 10' - 2" | 9' - 11" | 9' - 8" | 9' - 6" | 9' - 4" | | | |
| | 4' - 0" | 13' - 2" | 12' - 10" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | 10' - 2" | 9' - 11" | 9' - 8" | 9' - 6" | 9' - 4" | 9' - 2" | | | |
| | 4' - 6" | 12' - 10" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | 10' - 2" | 9' - 11" | 9' - 8" | 9' - 6" | 9' - 4" | 9' - 2" | 9' - 0" | | | |
| | 5' - 0" | 12' - 5" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | 10' - 2" | 9' - 11" | 9' - 8" | 9' - 6" | 9' - 4" | 9' - 2" | 9' - 0" | 8' - 10" | | | |
| | 5' - 6" | 12' - 2" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | 10' - 2" | 9' - 11" | 9' - 8" | 9' - 6" | 9' - 4" | 9' - 2" | 9' - 0" | 8' - 10" | 8' - 8" | | | |
| | 6' - 0" | 11' - 10" | 11' - 7" | 11' - 5" | 11' - 2" | 10' - 11" | 10' - 8" | 10' - 4" | 10' - 2" | 9' - 11" | 9' - 8" | 9' - 6" | 9' - 4" | 9' - 2" | 9' - 0" | 8' - 10" | 8' - 8" | 8' - 6" | | | |

NOTES:

- All loads and load combinations are determined using ASCE 7-05. DL=Dead Load, LL=Live Load, SL=Snow Load. When LL<SL, the total load (TL) is 1.2DL+1.6SL+0.5LL, otherwise TL=1.2DL+1.6LL+0.5SL.
- Loads used to produce the tables above are as follows: DL=10psf, LL=40psf, SL=50psf.
- Deflection limits for joists are determined using IBC-2009 Section R505, Steel Floor Framing. Joists - Live load deflection is limited to L/480, total deflection is limited to L/240, where L is the span length. Box Beams - Live load deflection is limited to L/360, total deflection is limited to L/240, where L is the span length.
- Grey areas in tables indicate instances where the joists do not backspan twice the cantilever distance or where the maximum joist span is exceeded.
- Grey areas are established based on 12 in. O.C. joist capacity.
- A partial list of section properties for each member is provided in the Trex Elevations Deck Framing / Inspection Details Table.
- Joist and box beam capacity are determined with AISI-S100-07 (LRFD).
8. 1 5/8" joist and 2" joist yield stress is assumed as 33ksi and 50 ksi respectively.
- Box beam yield stress is assumed as 50ksi.
- If a box beam is supported by more than two posts, then its span selected above should be multiplied by 0.85 for a single box beam and 0.90 for a double box beam.
- If a box beam is provided as an intermediate joist support, then its span selected above or modified by Note 10 should be multiplied by 0.60 for a "dropped" box beam and 0.70 for a "flush" box beam.
- This span chart should not be used for decks located in a hurricane zone (in hurricane zones table E125, E150, or E200 should be used).