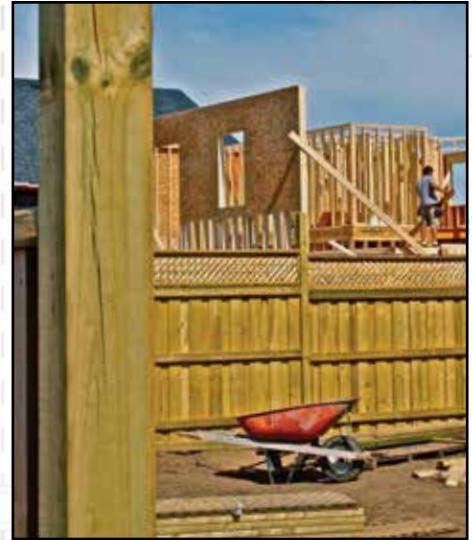




Pro Solutions Designed to Fit into Every Project Plan.



For more information, please visit the specialty website listed:



www.grkfasteners.com



www.redheadanchoring.com



www.tapcon.com



www.ramset.com

BACKER-ON. ROCK-ON.

www.backeronrockon.com



www.teksscrews.com

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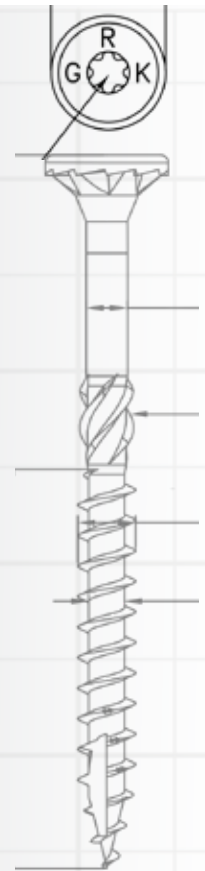


GRK's R4™ self-countersinking screw has a patented underhead with saw-blade like cutting teeth and six self-contained cutting pockets. Together they act similar to a circular saw-blade, transporting the drill dust away from the edge of the screw hole while cutting a perfectly clean hole into even the most brittle materials without cracking any surface treatment.

This design enhances the R4™'s versatility by allowing the fastener to countersink into even the hardest woods. The head of the screw closes the hole off with precision, leaving no damaged fibers around the head.

R4™ screws 3-1/8" and longer have a four threaded CEE Thread. This enlarges the screw hole for the non-threaded portion of the fastener, allowing the wood to settle easily. It increases the screw's drawing strength and reduces the friction on the screw shank that lowers the driving torque.

GRK
FASTENERS™








R4™ MULTI-PURPOSE FRAMING & DECKING SCREWS

Faster Drive for Improved Productivity



AC257 Treated Lumber Approved

- **Fast Bite Tip:** Eliminates pre-drilling and provides a fast start for one-step installation.
- **W-Cut™:** Low torque, faster drive.
- **Precision Fit:** Reduces wobble between R4 screws and GRK bits for improved productivity.
- **Star Drive:** Zero stripping, with 6 points of contact.
- **Optimized Thread Length:** Improves clamping force for increased drawing power.
- **CEE Thread:** Enlarges hole to reduce splitting.
- **Cutting Teeth:** Cuts wood fiber & provides flush seating.
- **GRK Head Markings:** Easy identification of genuine GRK screws.
- **ESR-3201 Approved** for structural applications.
- **Climatek™ Coating is AC257 code approved** for use in treated lumber.
- For interior / exterior use in; wood, plastic, cement fiber board, particle board, sheet metal, wood decking and melamine.
- Also available in **PHEINOX™** 305 and 316 grade Stainless Steel.

| | U.S. (Std.) Size (Dia. x Length) | Bulk Part No. | Bulk Box Qty. | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak MC Qty. / Screw Qty. (per EA) |
|--|-------------------------------------|------------------|------------------|---------------------|----------------------|-----------------------|---|
|  T-15 | #6 x 1-1/4" | 00051† | 13,000 | | | | |
| | #8 x 1-1/4" | | | 01069† | 1,300 | 02069† | 20 / 100 |
|  T-15 | #8 x 1-1/2" | 00073† | 6,500 | 01073† | 1,000 | 02073† | 20 / 100 |
| | #8 x 1-3/4" | | | 01075† | 925 | 02075† | 20 / 100 |
| | #8 x 2" | 00077 | 4,500 | 01077 | 850 | 02077 | 20 / 100 |
| | #8 x 2-1/2" | 00079 | 3,500 | 01079 | 650 | 02079 | 20 / 100 |
| | | | | | | | |
|  T-25 | #9 x 1-1/4" | 00091† | 8,000 | | | | |
| | #9 x 1-1/2" | 00095† | 5,200 | 01095† | 820 | 02095† | 20 / 100 |
| | #9 x 1-3/4" | 00097† | 4,500 | | | | |
| | #9 x 2" | 00099 | 3,700 | 01099 | 690 | 103099 | 4 / 110 |
| | #9 x 2-1/2" | 00101 | 2,900 | 01101 | 575 | 103101 | 4 / 100 |
| | #9 x 2-3/4" | 00103 | 2,000 | 01103 | 480 | 02103 | 10 / 100 |
| | #9 x 3-1/8" | 00105 | 1,900 | 01105 | 425 | 103105 | 4 / 80 |
|  T-25 | #10 x 2" | 00131 | 3,200 | | | | |
| | #10 x 2-1/2" | 00133 | 2,500 | 01133 | 470 | 103133 | 4 / 80 |
| | #10 x 2-3/4" | 00135 | 2,000 | | | | |
| | #10 x 3-1/8" | 00137 | 1,500 | 01137 | 350 | 103137 | 4 / 70 |
| | #10 x 3-1/2" | 00139 | 1,200 | 01139 | 300 | 02139 | 10 / 50 |
| | #10 x 4" | 00141 | 1,000 | 01141 | 270 | 103141 | 4 / 50 |
| | #10 x 4-3/4" | 00143 | 800 | 01143 | 230 | 02143 | 10 / 50 |
|  T-25 | #12/14 x 5-5/8" | 00173 | 600 | | | 96089 | 4 / 50 |
| | #12/14 x 6-3/8" | 00177 | 1,000 | | | 02177 | 9 / 50 |
| | #12/14 x 8" | 00181 | 500 | | | 02181 | 9 / 50 |

| R4™ CONTRACTOR PACKS (XL BUCKETS) | | |
|-------------------------------------|---------------|----------|
| U.S. (std.) | Pt. No. | Quantity |
| #9 x 2" | 120990 | 990 |
| #9 x 2-1/2" | 121010 | 900 |
| #9 x 3-1/8" | 121050 | 720 |
| #10 x 3-1/8" | 95200 | 630 |
| #10 x 4" | 121410 | 450 |



Some sizes available in **PHENOX™** hardened Stainless Steel; refer to Section 5. 2" bit included in Pro-Paks. 1" bit w/Handy-Paks. *Does not come with the Zip-Tip™ feature. †Does not have the added CEE-THREAD™ feature.
NOTE: Pro-Paks need to be ordered in multiples of two.

GRK's RSS™ screw is made of specially hardened steel to provide you with high tensile, torque and shear strength. The sharp threads and points bite instantly into the material (including hardwood), reducing the splitting effect due to smaller shanks.

RSS™ screws that are 3-1/8" and longer have CEE Threads which enlarge the screw hole for the non-threaded portion of the fastener, allowing the wood to settle easily and increases the screw's drawing strength. The CEE Thread also reduces the friction on the screw shank which can result in lowering the driving torque and the likelihood of splitting the wood. This is why the RSS™ screw is an efficient lag screw alternative.

Our round head with built-in shield (washer type head) has no sharp edges like conventional lag screws. The added shoulder (nominal diameter) underneath the washer has the ability to center the RSS™ screw in pre-drilled hardware like hinges and connector plates.

RSS™ JTS - Used for joists and trusses

GRK
FASTENERS™



RSS™ RUGGED STRUCTURAL SCREWS

Easy to Install Lag Alternative



AC257 Treated
Lumber Approved



- **Recessed Star Drive:** Zero Stripping, with 6 points of contact
- **CEE Thread:** Enlarges hole to reduce splitting
- **W-Cut™:** Low torque, faster drive
- **Zip-Tip™:** No pre-drilling, faster penetration
- **Washer Head:** for immense holding power
- **Cutting Pockets:** provide a clean hole and reduces splitting, and bore with precision.
- **ESR-2442 Approved** for structural application.
- **Case Hardened Steel:** for high tensile, torque and shear strength.
- **Climatek™ Coating is AC257** code approved for use in treated lumber.
- For interior / exterior use in; carrying beams, ledger boards, stair rails, deck posts, playground equipment and other professional applications.
- Also available in **PHEINOX™** 305 and 316 grade Stainless Steel.



T-25

| U.S. (Std.) Size (Dia. x Length) | Bulk Part No. | Bulk Box Qty. | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak MC Qty. / Screw Qty. (per EA) |
|-------------------------------------|------------------|------------------|---------------------|----------------------|-----------------------|---|
| #10 x 2-1/2" | 10133† | 1,000 | | | 12133† | 10 / 50 |
| #10 x 3-1/8" | 10137 | 800 | 11137 | 236 | 12137 | 10 / 50 |



T-25

| | | | | | | |
|---------------|----------------|-------|--|--|----------------|---------|
| 1/4" x 1-1/2" | 10151*† | 1,000 | | | 12151*† | 20 / 50 |
| 1/4" x 2" | 10155*† | 800 | | | 12155*† | 10 / 50 |
| 1/4" x 2-1/2" | 10157† | 700 | | | | |
| 1/4" x 3-1/8" | 10161 | 500 | | | 12161 | 10 / 50 |



T-30

| | | | | | | |
|----------------|---------------|-----|--|--|---------------|---------|
| 5/16" x 2-1/2" | 10217† | 600 | | | 12217† | 9 / 100 |
| 5/16" x 2-3/4" | 10219† | 500 | | | 12219† | 2 / 100 |
| 5/16" x 3-1/8" | 10221 | 500 | | | 12221 | 2 / 100 |
| 5/16" x 3-1/2" | 10223 | 500 | | | 12223 | 2 / 100 |
| 5/16" x 4" | 10225 | 400 | | | 12225 | 2 / 100 |
| 5/16" x 5-1/8" | 10231 | 300 | | | 12231 | 9 / 50 |
| 5/16" x 6" | 10235 | 300 | | | 12235 | 9 / 50 |



T-40

| | | | | | | |
|----------------|--------------|-----|--|--|--------------|--------|
| 3/8" x 3-1/8" | 10273 | 400 | | | | |
| 3/8" x 4" | 10275 | 400 | | | 12275 | 9 / 50 |
| 3/8" x 6" | 10281 | 300 | | | 12281 | 2 / 50 |
| 3/8" x 7-1/4" | 10285 | 200 | | | 12285 | 2 / 50 |
| 3/8" x 8" | 10287 | 300 | | | 12287 | 2 / 50 |
| 3/8" x 10" | 10293 | 300 | | | 12293 | 2 / 50 |
| 3/8" x 12" | 10299 | 300 | | | 12299 | 2 / 50 |
| 3/8" x 14-1/8" | | | | | 12307 | 2 / 50 |
| 3/8" x 16" | 10311 | 100 | | | 12311 | 2 / 50 |

RSS™ JTS - JOIST AND TRUSS SCREW



T-25

| | | | | | | |
|---------------|--------------|-----|--|--|--------------|--------|
| 1/4" x 5" | | | | | 93735 | 9 / 50 |
| 1/4" x 6-3/4" | 91743 | 300 | | | 93743 | 9 / 50 |

RSS™ MINI HANDY-PAK

| U.S. (std.) | Pt. No. | MC Qty./ Screw Qty. |
|----------------|--------------|---------------------|
| 5/16" x 3-1/8" | 14221 | 10 / 25 |
| 5/16" x 4" | 14225 | 10 / 25 |
| 5/16" x 5-1/8" | 14231 | 10 / 20 |
| 5/16" x 6" | 14235 | 10 / 20 |

RSS™ INDIVIDUALLY TAGGED

| U.S. (std.) | Pt. No. | Qty./ Ctn. |
|----------------|--------------|------------|
| 5/16" x 3-1/8" | 96001 | 1/50 |
| 5/16" x 4" | 96005 | 1/50 |
| 5/16" x 5-1/8" | 96010 | 1/50 |
| 5/16" x 6" | 96015 | 1/40 |
| 3/8" x 8" | 96020 | 1/25 |
| 3/8" x 10" | 96025 | 1/25 |
| 3/8" x 12" | 96030 | 1/20 |

Some sizes available in **PHEINOX™** hardened Stainless Steel; refer to Section 5.
NOTE: Pro-Paks need to be ordered in multiples of two. *Does not come with the Zip-Tip™ feature.
 †Does not have the added CEE-THREAD™ feature. 2" bit included in Pro-Paks. 1" bit with Handy-Paks.

GRK's Trim™ Head screws are an excellent choice for most fine carpentry applications, as well as window extension jambs, joining cabinets and more. Our Trim™ Head screws have the smallest screw head available; with screw lengths from 1-1/4" (30 mm) to 5" (125 mm).

Most material splitting is prevented because of the Trim™ Head screw's exceptionally small head and the W-Cut thread design.

Fin/Trim™ screws are also available in white finish to blend in with white wooden trim boards.






FIN/TRIM™ FINISHING TRIM HEAD SCREWS

Install Right the First Time



AC257 Treated Lumber Approved

- **Recessed Star Drive:** Zero Stripping, with 6 points of contact.
- **Trim Head:** for a clean finished look.
- **W-Cut™:** Low torque, faster drive.
- **Zip-Tip™:** No pre-drilling, faster penetration.
- **ESR-3201 Approved** for structural application.
- **Case Hardened Steel:** for high tensile, torque and shear strength.
- **Climatek™ Coating is AC257** code approved for use in treated lumber.
- For interior / exterior use.
- Available in **Climatek™** or white finish.
- Also available in **PHEINOX™** 305 and 316 grade Stainless Steel.

| | U.S. (Std.) Size (Dia. x Length) | Bulk Part No. | Bulk Box Qty. | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak MC Qty. / Screw Qty. (per EA) |
|---|-------------------------------------|------------------|------------------|---------------------|----------------------|-----------------------|---|
|  T-10 | #8 x 1-1/4" | | | | | 17720 | 20 / 100 |
| | #8 x 1-1/2" | 15724 | 6,500 | 16724 | 915 | 17724 | 20 / 100 |
| | #8 x 2" | 15728 | 4,500 | 16728 | 725 | 17728 | 20 / 100 |
| | #8 x 2-1/2" | 15730 | 3,500 | 16730 | 605 | 17730 | 20 / 100 |
| | #8 x 2-3/4" | | | | | 17732 | 20 / 100 |
| | #8 x 3-1/8" | 15734 | 2,500 | 16734 | 514 | 17734 | 10 / 100 |
|  T-15 | #9 x 4" | 15760 | 1,000 | | | 17760 | 10 / 50 |
| | #9 x 5" | 15766 | 800 | | | 17766 | 10 / 50 |
| WHITE FIN / TRIM™ | | | | | | | |
|  T-10 | #8 x 2" | | | 16828 | 605 | 17828 | 20 / 100 |
| | #8 x 2-1/2" | | | 16830 | 505 | 17830 | 20 / 100 |

Some sizes available in **PHEINOX™** hardened Stainless Steel; refer to Section 5

NOTE: Pro-Paks need to be ordered in multiples of two. 2" bit included in Pro-Paks. 1" bit with Handy-Paks.

**Excellent for all of
your trimwork and fine
carpentry finishing.**

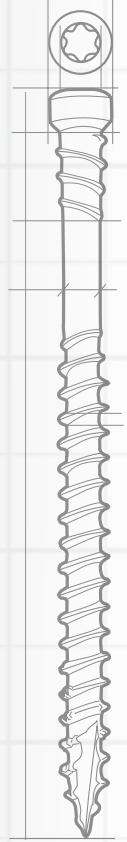


GRK has modified its innovative FIN/Trim™ Head screw to include reverse threading under the head of the fastener. This technology makes the RT Composite™ Trim Screw ideal for use in composite and cellular PVC trim.

Based on extensive tests, GRK has found that the reverse thread helps the screw head disappear beneath the surface of the classic wood composite material, reducing or eliminating the dimple that sometimes appears when using the FIN/Trim™ screw.

The reverse thread feature is available in RT Composite™ screws from 2" to 3-1/8" in length in both regular Climatek™ coating and in white Climatek™ coated finish to blend in with popular white exterior composite and cellular PVC trim.

GRK
FASTENERS™



RT COMPOSITE™ EXTERIOR TRIM SCREWS

Install Right the First Time






- **Recessed Star Drive:** Zero Stripping, with 6 points of contact.
- **Reverse Threads** eliminate mushrooming.
- **Trim Head:** for a clean finished look.
- **W-Cut™:** Low torque, faster drive.
- **Zip-Tip™:** No pre-drilling, faster penetration.
- **ESR-3201 Approved** for structural application.
- **Case Hardened Steel:** for high tensile, torque and shear strength.
- **Climatek™ Coating is AC257** code approved for use in treated lumber.
- For interior / exterior use in; exterior PVC trim (Azek,™ Klear,™ Koma™), no pre-drilling is necessary. Climatek™ coated screws work well with CAMO system.
- Available in **Climatek™** or white Climatek™ coated finish.
- Also available in **PHEINOX™** 305 and 316 grade Stainless Steel.



**AC257 Treated
Lumber Approved**



| | U.S. (Std.) Size (Dia. x Length) | Bulk Part No. | Bulk Box Qty. | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak MC Qty. / Screw Qty. (per EA) |
|---|-------------------------------------|------------------|------------------|---------------------|----------------------|-----------------------|---|
|  T-10 | #8 x 2" | | | 16077 | 725 | 17077 | 20 / 100 |
| | #8 x 2-1/2" | 15079 | 3,500 | 16079 | 605 | 17079 | 20 / 100 |
| | #8 x 3-1/8" | 15083 | 2,500 | 16083 | 514 | 17083 | 10 / 100 |
|  T-15 | #9 x 2-1/2" | 15101 | 2,900 | 16101 | 408 | | |
| | #9 x 3-1/8" | 15105 | 1,900 | 16105 | 348 | | |
| WHITE RT COMPOSITE™ | | | | | | | |
|  T-10 | #8 x 2" | | | 16628 | 605 | 17628 | 20 / 100 |
| | #8 x 2-1/2" | | | 16630 | 505 | 17630 | 20 / 100 |
| | #8 x 2-3/4" | | | | | 17632 | 20 / 100 |
| | #8 x 3-1/8" | | | | | 17634 | 10 / 100 |

Some sizes available in **PHEINOX™** hardened Stainless Steel; refer to Section 5.

NOTE: Pro-Paks need to be ordered in multiples of two. 2" bit included in Pro-Paks. 1" bit with Handy-Paks.

Supreme Drawing Power
is perfect for trimwork and
deck construction.





305 STAINLESS STEEL
Corrosion Resistance for Harsh Environments



316 STAINLESS STEEL
Marine Grade Protection for Superior Corrosion Resistance

PHEINOX™ STAINLESS STEEL SCREWS

PHEINOX™ 305 Stainless Steel screws are corrosion and stain resistant fasteners designed to withstand wet environments. PHEINOX™ 316 Stainless Steel screws are designed for coastal applications. GRK's patented R4, RSS, FIN/TRIM and RT composite screws are available in PHEINOX™ stainless steel.

GRK recommends PHEINOX™ 305 stainless steels screws for applications that require superior corrosion resistance in wet environments such as decks, boardwalks, pools, and hot tubs. PHEINOX™ 305 stainless is also recommended for use with cedar, red-wood and various other wood substrates that have higher acid content as well as for composite deck boards. PHEINOX™ 305 stainless steels screws are recommended for applications located more than 1 mile from the coast.

PHEINOX™ 316 stainless steels screws are recommended for applications exposed to salt water or located within 1 mile of the salt water shoreline.

The Zip-Tip™ feature of the screw allows a faster start and eliminates the need for pre-drilling. Hardened stainless steel provides superior strength and unmatched performance by maximizing torque and increasing bending yield.




AC257 Treated Lumber Approved



Applies to 305 stainless only



| PHEINOX™ 305 | PHEINOX™ 316  |
|---|--|
| <ul style="list-style-type: none"> • For use in cedar, redwood and specialty hardwood • Corrosion resistance for harsh environments • Corrosion resistance for wet environments • Stain resistant in specialty wood | <ul style="list-style-type: none"> • For use within 1 mile of the coast • Marine-Grade protection for Superior corrosion resistance • Superior Corrosion resistance for coastal environments • Stain resistant in specialty wood |

| | U.S. (Std.)Size (Dia.x Length) | Bulk Part No. | Bulk Box Qty. | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak MC Qty. / Screw Qty. (per EA) |
|---|-----------------------------------|------------------|------------------|---------------------|----------------------|-----------------------|---|
| R4™ SCREWS : PHEINOX™ 305 | | | | | | | |
|  T-25 | #10 x 2-1/2" | 25133 | 2,500 | 26133 | 425 | 27133 | 10 / 100 |
| | #10 x 3-1/8" | 25137 | 1,500 | 26137 | 305 | 27137 | 10 / 100 |
| RSS™ SCREWS: PHEINOX™ 305 | | | | | | | |
|  T-30 | 5/16" x 3-1/8" | 30221 | 500 | | | | |
| | 5/16" x 4" | 30225 | 400 | | | 32225 | 2 / 100 |
| | 5/16" x 6" | 30235 | 300 | | | | |
| RT COMPOSITE™ TRIM SCREWS: PHEINOX™ 305 | | | | | | | |
|  T-10 | #8 x 2" | | | 36077 | 600 | | |
| | #8 x 2-1/2" | 35079 | 3,500 | 36079 | 560 | 37079 | 20 / 100 |
|  T-15 | #9 x 2-1/2" | | | 36101 | 365 | | |
| FIN / TRIM™ SCREWS: PHEINOX™ 305 | | | | | | | |
|  T-10 | #8 x 1-1/2" | | | | | 37724 | 20 / 100 |
| | #8 x 2" | | | 36728 | 600 | 37728 | 20 / 100 |
| | #8 x 2-1/2" | | | 36730 | 560 | 37730 | 20 / 100 |
| | #8 x 3-1/8" | | | 36734 | 385 | 37734 | 10 / 100 |
|  T-15 | #9 x 2-1/2" | | | 36752 | 365 | | |
| R4™ SCREWS: PHEINOX™ 316 | | | | | | | |
|  T-25 | #10 x 2-1/2" | | | | | 37133 | 10 / 100 |
| | #10 x 3-1/8" | | | | | 37137 | 10 / 100 |
| FIN / TRIM™ SCREWS: PHEINOX™ 316 | | | | | | | |
|  T-10 | #8 x 2-1/2" | | | | | 47730 | 20 / 100 |

2" bit included in Pro-Paks. 1" bit with Handy-Paks. *Does not come with the Zip-Tip™ feature.
†Does not have the added CEE-THREAD™ feature.



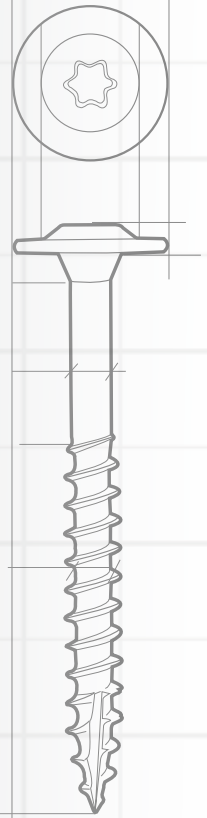
GRK's Cabinet™ screws are designed specifically for use in cabinet construction and installation. Cabinet™ screws are manufactured in a #8 gauge (4 mm) diameter for universal size convenience.

These screws are thin enough to prevent most material splitting, while providing sufficient strength to guarantee a secure installation. The washer head design presses flush against any material surface.

The Cabinet screw can also be used for light duty framing applications where a smaller diameter shank is necessary, yet a need exists for drawing power delivered by the washer head.

White Cabinet Screws match perfectly with white cabinet frames without the need of sticker covers. Specialized Powder Coated heads will not chip while being driven in, allowing for a clean finish. They are ideally suited for a wide variety of interior applications including, closets & garage organizational systems.

GRK
FASTENERS™



LOW PROFILE CABINET™ SCREWS

Quick and Secure Installation



**AC257 Treated
Lumber Approved**

- **Recessed Star Drive:** Zero Stripping, with 6 points of contact.
- **Washer Head:** Creates a flush, clean hold for a strong and secure installation.
- **W-Cut™:** Low torque, faster drive.
- **Zip-Tip™:** No pre-drilling, faster penetration.
- **Case Hardened Steel:** for high tensile, torque and shear strength.
- **Climatek™ Coating is AC257 code approved** for use in treated lumber.
- For interior / exterior use.
- **White Cabinet Screw:** For interior use only.



T-15

| U.S. (Std.)Size (Dia.x Length) | Bulk Part No. | Bulk Box Qty. | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak MC Qty. / Screw Qty. (per EA) |
|-----------------------------------|------------------|------------------|---------------------|----------------------|-----------------------|---|
| #8 x 1" | | | | | 96050* | 6 / 100 |
| #8 x 1-1/4" | 10069 | 4,000 | 11069 | 1085 | 12069 | 20 / 100 |
| #8 x 1-1/2" | 10073 | 3,000 | 11073 | 930 | 12073 | 10 / 100 |
| #8 x 1-3/4" | 10075 | 2,000 | | | 12075 | 10 / 100 |
| #8 x 2" | 10077 | 2,000 | 11077 | 650 | 12077 | 10 / 100 |
| #8 x 2-1/2" | 10079 | 1,500 | 11079 | 563 | 12079 | 10 / 100 |
| #8 x 2-3/4" | | | | | 12081 | 10 / 100 |
| #8 x 3-1/8" | 10083 | 1,000 | 11083 | 400 | 12083 | 10 / 50 |

WHITE LOW PROFILE™ CABINET SCREWS



T-15

| | | | | | | |
|-------------|--|--|--|--|---------------|--------|
| #8 x 1-1/4" | | | | | 120680 | 6 / 80 |
| #8 x 1-1/2" | | | | | 120670 | 6 / 80 |
| #8 x 2-1/2" | | | | | 120660 | 6 / 80 |

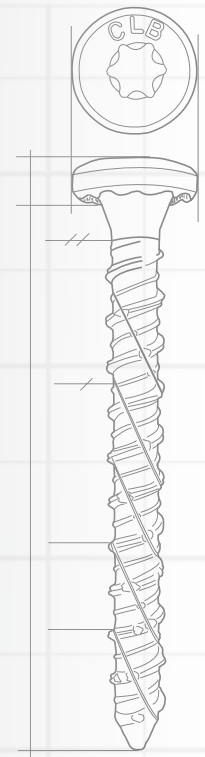
NOTE: Pro-Paks need to be ordered in multiples of two. 2" bit included in Pro-Paks.
*Does not come with the Zip-Tip™ feature.



**Ideal for Cabinets...
and so much more.
Also excellent for a
variety of interior or
exterior jobs.**




Cailburn™ Concrete screws are professionally engineered fasteners with a patented thread design for ease of driving the screw in concrete and similar applications.

- **Recessed Star Drive:** Zero Stripping, with 6 points of contact.
- **Aggressive Heavy duty threads** lock into concrete and can be removed and reinserted without screw damage.
- **Countersinking Bugle Head** locks wood to concrete for complete installation and effective anchoring.
- **Caliburn™ PH** pan head, which is ideal for an exposed finished look including installation of electrical boxes.
- **Caliburn™ XL** washer head design for superior holding power.
- **Climatek™ Coating is AC257** code approved for use in treated lumber.
- Ideal for use in anchoring to concrete or wood to concrete applications including basement framing and sheds.



CALIBURN™ CONCRETE SCREWS

Heavy Duty Concrete and Masonry Fastener

| | U.S. (Std.) Size (Dia. x Length) | Bulk Part No. | Bulk Box Qty. | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak MC Qty. / Screw Qty. (per EA) |
|--|-------------------------------------|------------------|------------------|---------------------|----------------------|-----------------------|---|
|  T-30 | 1/4" x 1-3/4" | 55159 | 1,000 | N/A | N/A | 57153 | 10 / 50 |
| | 1/4" x 2-1/4" | | | | | 57156 | 10 / 50 |
| | 1/4" x 2-3/4" | | | | | 57159 | 10 / 50 |
| | 1/4" x 3-1/2" | | | | | 57163 | 10 / 50 |
| | 1/4" x 5" | | | | | 57171 | 10 / 50 |
| CALIBURN™ PH | | | | | | | |
|  T-30 | 1/4" x 1-3/4" | | | N/A | N/A | 57828 | 10 / 50 |
| | 1/4" x 2-1/4" | | | | | 57831 | 10 / 50 |
| CALIBURN™ XL | | | | | | | |
|  T-40 | 19/64" x 2-3/4" | 55778 | 400 | N/A | N/A | 57774 | 10 / 25 |
| | 19/64" x 3-1/2" | | | | | 57778 | 10 / 25 |
| | 19/64" x 5" | | | | | 57785 | 10 / 25 |

1" bit included in Handy-Paks

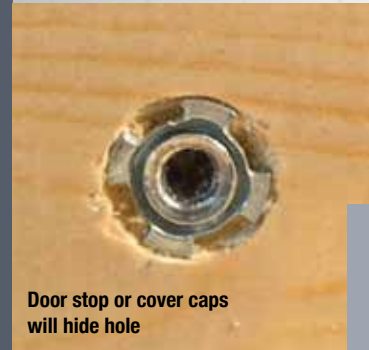
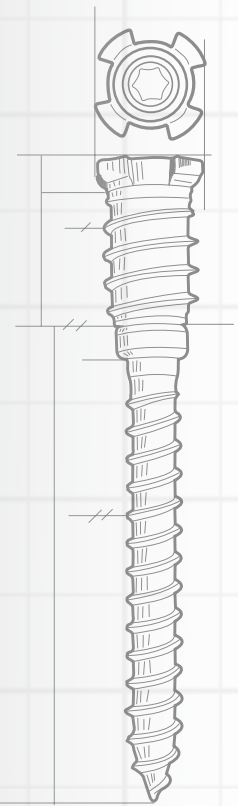


AC257 Treated Lumber Approved

GRK's adjustable Top Star™ shim screw, is in fact a screw within a screw that allows you to install wooden doors or windows without the use of shims.

The quick and easy system reduces labor and allows for hassle free adjustment to ensure plumb installation.

- **Recessed Star Drive:** Zero Stripping, with 6 points of contact
- **4-point 3/8" diameter Threaded Sleeve** provides a secure hold in your wooden frame
- **Micro-Adjustments** allow for an absolutely plumb installation
- **Use with GRK's Top Star™ Crown and T-15 Star bit system.**
- **White Zinc Plated** finish for lasting durability.
- **For Shim Free installation** of wooden doors, windows, insulation, paneling, built-in wall units and cabinets.



TOP STAR™ ADJUSTABLE SHIM SCREWS

For Plumb Installation of Wooden Doors and Windows. No More Shims!

The Complete Top Star™ System Includes:

BIT CROWN THREADED SLEEVE




| U.S. (Std.) Size (Dia. x Length) | Pro-Pak Part No. | Pro-Pak Box Qty. |
|-------------------------------------|---------------------|---------------------|
| 3/8" x 2-1/2" | 20157 | 100 |
| 3/8" x 3-1/8" | 20161 | 100 |

NOTE: Pro-Paks need to be ordered in multiples of two.

The Bit drives the Top Star™ into the material when the Crown and Bit are combined. Using the Bit without the Crown adjusts the distance.

The Threaded Sleeve moves independently from the Top Star™ unless locked by the Crown. When locked, the Top Star™ gets driven into the material.

| CROWN / BIT | Blister-Pak Part No. | Blister-Pak/Qty |
|--|----------------------|-----------------|
|  Includes: (1) Crown / Bit with each | 86465 | 1 |

NOTE: Crown and Star bit system included in each bulk box. 5/16" drill bit not included.

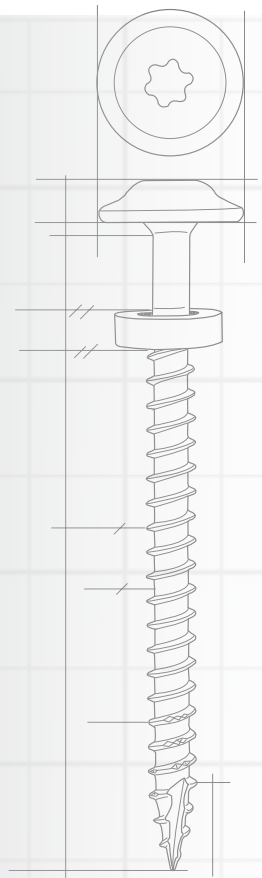
Unlocked, the installed Top Star™ is ready for levelling.



The MSS™ was developed and patented based on the RSS™ model. This screw has an integrated washer-head and is complemented by a rubber washer below the screw head.

This feature also helps protect the washer from prolonged exposure to the sun for long lasting, secure siding installations.

- **White Color, Low Profile Head** produces a clean, finished look which is preferred for moldings, closet organizers and metal siding.
- **Washer Head** increases holding power.
- **Rubber Washer** seals drill hole from the elements.
- **W-Cut™ Thread Design** tiny saw blades reduce torque by cutting through the material.
- **ZIP-TIP™** for easy starts and no pre-drilling.
- For use in interior or exterior applications including metal siding, garage door trim and even closet organizers. Not for use with treated lumber.



MSS™ METAL SIDING SCREWS

Integrated Head Design with Powder Coating Finish

| U.S. (Std.) Size (Dia. x Length) | Bulk Part No. | Bulk Box Qty. | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak MC Qty. / Screw Qty. (per EA) |
|-------------------------------------|------------------|------------------|---------------------|----------------------|-----------------------|---|
| #9 x 1-1/2" | 40090 | 3,000 | | | 44090 | 10 / 100 |



1" bit included in Handy-Paks



Self-tapping screws with integrated washer head, for fastening metal siding to a wooden framed structures.

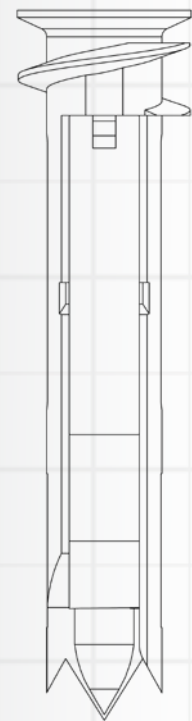
E-Z Anchors® are ideal for hanging accessories, signs, fixtures, and shelving units on drywall. Designed to self-drill flush into drywall for easy and fast installations. No pre-drilling necessary. The threads are formed to provide increased stability and a secure hold.

E-Z Anchor® Twist-N-Lock is designed for light to medium-duty applications. The audible click provides confirmation of the anchor being firmly set. Threads cut deeply to resist pull-out and provide a secure hold.

E-Z Anchor® Stud Solver is designed for light to medium-duty applications. Installs anywhere on a wall, even if you hit a wood stud behind the drywall. Threads cut deeply to resist pull-out and provide a secure hold.

E-Z Anchor® Toggle Lock is designed for heavy-duty drywall applications. The superior 1-piece assembly prevents losing extra pieces behind the wall. The toggle bar swivels easily during assembly to provide a secure hold.

Buildex® Stucco Anchor is designed for light to medium-duty applications in stucco. The zinc plating is designed to be durable in exterior and interior applications. Kits include a drill bit for installation.



E-Z Anchor® Multi-Use Anchors

Heavy Duty Anchors for a Variety of Applications

| U.S. (Std.) Size (Max Load) | Lg. Pack Part No. | Lg. Pack Qty. | Med. Pack Part No. | Med. Pack Qty. | Small Pack Part No. | Small Pack Qty. |
|--|----------------------|------------------|-----------------------|-------------------|------------------------|--------------------|
| E-Z Anchor Twist-N-Lock Anchors | | | | | | |
| 50 lbs. | 25350 | 50 | 25200 | 25 | 11353 | 6 |
| 75 lbs. | 25310 | 50 | 25210 | 20 | 11364 | 4 |
| E-Z Anchor Stud Solver Anchors | | | | | | |
| 40 lbs. | | | 25225 | 25 | 25125 | 4 |
| 50 lbs. | 25316 | 50 | 25216 | 20 | 29503 | 5 |
| E-Z Anchor / E-Z Toggle Lock Anchor | | | | | | |
| 100 lbs. | 25320 | 25 | 25220 | 10 | 10006 | 2 |
| Buildex® Stucco Anchors | | | | | | |
| 3/16" x 1-1/2" Hex Hd | | | 31810 | 25 | 31710 | 4 |
| 3/16" x 1-1/2" Flat Hd | | | 31820 | 25 | 31720 | 4 |
| 1/4" x 2-7/8" | | | 31840 | 25 | 31740 | 4 |

- **No Pre-Drilling:** E-Z Anchor® Screws directly into drywall.
- **Self-Piercing Tip:** Provides smooth drive performance into drywall.
- **Flush Fit:** Installs flush against the wall to prevent items from wobbling.
- **Clean Finish:** Creates a small hole for easy installation, cleanup, and removal.
- **White Zinc Plated** finish for lasting durability.

Warning: Do not use Twist-N-Lock or Stud Solver anchors for ceiling applications. Do not use for mounting televisions. Load ratings are for items hung flush to the wall. Load ratings decrease when hanging items that project from the wall.

For decades, Tapcon products have enabled professionals to get their light to medium-duty concrete anchoring jobs done right the first time, every time. Designed to deliver 30% less torque and 20% more holding power, Tapcon anchors are the #1 choice of professionals.

Tapcon concrete screw anchors are designed to deliver superior holding power in all forms of masonry (concrete, CMU, and brick). The advanced WERCS threadform turns any anchoring job into a fast and easy process.

Offering everything from the anchors needed to fasten any fixture to concrete, to the drill bits that deliver a more precise hole and maximize holding power, to the Tapcon Pro Installation Kit that makes jobs faster and easier, Tapcon provides professionals with all the tools they need for confidence in a job done right.

Tapcon
GENUINE Concrete Screw Anchors



TAPCON® CONCRETE SCREW ANCHORS

Nothing Anchors Like Tapcon



- **Superior Holding Strength** for confidence in a job done right.
- **Corrosion-resistance and long-lasting performance** from the innovative Climaseal blue coating.
- **Advanced WERCS Threadform** reduces the installation torque & allows for use in a wider range of materials.
- **ICC-ES** approved for use in anchoring into concrete (ESR-2202).
- A long-standing reputation for quality, strength and ease of installation from industry professionals.

With over one billion anchors sold, Tapcon concrete anchors deliver the ease of use, superior precision and unparalleled performance that professionals demand.



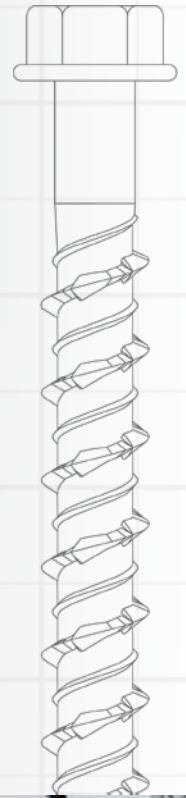
| U.S. (Std.) Size (Dia. x Length) | Bucket Part No. | Bucket Qty. | Lg. Clam Part No. | Lg. Clam Qty. | Med. Pack Part No. | Med. Pack Qty. | Sm. Pack Part No. | Sm. Pack Qty. |
|-------------------------------------|--------------------|----------------|----------------------|------------------|-----------------------|-------------------|----------------------|------------------|
| PHILLIPS HEAD | | | | | | | | |
| 3/16" x 1-1/4" | 24550 | 225 | 24350 | 75 | 24250 | 25 | 24150 | 8 |
| 3/16" x 1-3/4" | 24555 | 225 | 24355 | 75 | 24255 | 25 | 24155 | 8 |
| 3/16" x 2-1/4" | 24560 | 225 | 24360 | 75 | 24260 | 25 | 24160 | 8 |
| 3/16" x 2-3/4" | 24565 | 225 | 24365 | 75 | 24265 | 25 | 24165 | 8 |
| 1/4" x 1-3/4" | | | 24375 | 75 | 24275 | 25 | 24175 | 8 |
| 1/4" x 2-1/4" | | | 24380 | 75 | 24280 | 25 | 24180 | 8 |
| 1/4" x 2-3/4" | 24585 | 150 | 24385 | 75 | 24285 | 25 | 24185 | 8 |
| 1/4" x 3-3/4" | | | 24395 | 75 | 24390 | 25 | | |
| 1/4" x 4" | | | | | 24397 | 25 | | |
| HEX HEAD | | | | | | | | |
| 3/16" x 1-1/4" | | | 24300 | 75 | 24200 | 25 | 24100 | 8 |
| 3/16" x 1-3/4" | | | 24305 | 75 | 24205 | 25 | 24105 | 8 |
| 3/16" x 2-3/4" | | | 24310 | 75 | 24210 | 25 | 24110 | 8 |
| 1/4" x 1-1/4" | 24515 | 225 | 24315 | 75 | 24215 | 25 | 24115 | 8 |
| 1/4" x 1-3/4" | 24520 | 225 | 24320 | 75 | 24220 | 25 | 24120 | 8 |
| 1/4" x 2-1/4" | | | 24325 | 75 | 24225 | 25 | 24125 | 8 |
| 1/4" x 2-3/4" | 24530 | 150 | 24330 | 75 | 24230 | 25 | 24130 | 8 |
| 1/4" x 3-1/4" | | | 24301 | 75 | | | 24101 | 8 |
| 1/4" x 3-3/4" | | | 24340 | 75 | 24335 | 25 | | |
| 1/4" x 4" | | | | | 24345 | 25 | | |
| WHITE ULTRASHIELD TAPCON | | | | | | | | |
| 3/16" x 1-3/4" | | | 24371 | 75 | | | 24171 | 8 |
| 3/16" x 2-1/4" | | | 24372 | 75 | | | 24172 | 8 |
| 3/16" x 2-3/4" | | | 24367 | 75 | | | 24167 | 8 |
| 1/4" x 2-3/4" | | | 24388 | 75 | 24288 | 25 | 24188 | 8 |
| 1/4" x 3-1/4" | | | 24391 | 75 | | | | |
| 1/4" x 3-3/4" | | | 24392 | 75 | | | | |
| 410 STAINLESS STEEL TAPCON | | | | | | | | |
| 3/16" x 1-3/4" | | | | | | | 26155 | 8 |
| 3/16" x 2-3/4" | | | | | | | 26165 | 8 |
| 1/4" x 1-3/4" | | | | | | | 26120 | 8 |
| 1/4" x 2-3/4" | | | | | | | 26130 | 8 |
| MAXI-SET TAPCON | | | | | | | | |
| 1/4" x 2-1/4" | | | 24326 | 50 | | | | |
| 1/4" x 2-1/4" White | | | 24323 | 50 | | | | |
| TAPCON DRILL BITS | | | | | | | | |
| 5/32" x 3-1/2" | | | | | | | 11256 | 1 |
| 5/32" x 4-1/2" | | | | | 11249 | 4 | 11247 | 1 |
| 5/32" x 5-1/2" | | | | | | | 11363 | 1 |
| 3/16" x 3-1/2" | | | | | | | 11257 | 1 |
| 3/16" x 4-1/2" | | | | | 11250 | 4 | 11248 | 1 |
| 3/16" x 5-1/2" | | | | | | | 11362 | 1 |
| 5/32" x 7" SDS | | | | | | | 11492 | 1 |
| 3/16" x 7" SDS | | | | | | | 11491 | 1 |
| 1/4" x 7" SDS | | | | | | | 11493 | 1 |
| 3/8" x 8" SDS | | | | | | | 11494 | 1 |
| 1/2" x 10" SDS | | | | | | | 11495 | 1 |
| TAPCON PRO INSTALLATION KIT | | | | | | | | |
| Tapcon Pro Install Tool | | | | | | | 79012 | 1 |



Ideal for projects that require heavy-duty holding power, Tapcon+ concrete screw anchors are the stronger, faster, and easier masonry anchoring solution. This heavy-duty screw anchor features a high-strength body that's built to resist both high wind and seismic tension and is ICC-ES approved for use in both cracked and un-cracked concrete.

Superior to wedge and sleeve anchors, Tapcon+ installs in less than half the time while delivering 20% more holding power and the flexibility to install closer to the edge of the concrete and closer to one another.

- **ICC-ES Approved** for use in uncracked & cracked concrete and seismic conditions (ESR-3699).
- **Heavy-Duty Holding Power** in all concrete conditions.
- **Flexibility** to install closer to the edge & closer together with confidence.
- A long-standing reputation for quality, strength and ease of installation from industry professionals.



TAPCON[®] CONCRETE SCREW ANCHORS

Stronger. Faster. Easier.

| U.S. (Std.) Size (Dia. x Length) | Pro-Pak Part No. | Pro-Pak Qty. | Handy-Pak Part No. | Handy-Pak Pail Qty. | Part No. | Qty. |
|-------------------------------------|---------------------|-----------------|-----------------------|------------------------|--------------|------|
| 5/16" x 2-1/4" | | | 24292 | 15 | 24192 | 4 |
| 5/16" x 3" | | | 24293 | 15 | 24193 | 4 |
| 3/8" x 3" | 11413 | 10 | | | 50403 | 2 |
| 3/8" x 4" | 11414 | 10 | | | 50404 | 2 |
| 1/2" x 4" | 11420 | 10 | | | 50408 | 2 |
| 1/2" x 6" | 11421 | 10 | | | 50426 | 2 |



ICC-ES ESR-3699
2015 IBC
Compliant



Trubolt Wedge Anchors offer maximum strength and ultimate flexibility making them the PRO choice for heavy-duty anchoring. This wedge anchor features a high-strength body that is built to resist tension and shear loads, and it is code approved for use in uncracked concrete per ICC-ES ESR-2251.

Not only is Trubolt code recognized, but this wedge anchor offers a full line of diameter options and a variety of lengths. Trubolt wedge anchors are also available in both electrogalvanized and hot-dip galvanized finishes to perform in various applications. For additional application versatility, Trubolt wedge anchors are fully threaded to accommodate a greater range of fixture thicknesses. The wedge anchor's stainless steel clip provides extended corrosion resistance to ensure the long term integrity of connections.

- **ICC-ES Approved** for use in uncracked concrete (ICC-ES-ESR-2251).
- **Heavy-Duty Holding Power** in concrete conditions.
- **Fully Threaded Anchor Design** for application versatility.
- **Stainless Steel Clip** provides additional corrosion protection.
- A long-standing reputation for quality, strength and ease of installation from industry professionals.



TRUBOLT® WEDGE ANCHORS

Maximum Strength for Heavy-Duty Concrete Anchoring

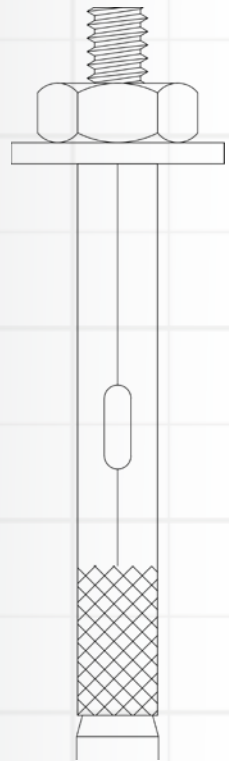
| U.S. (Std.) Size (Dia. x Length) | Pro-Pak Part No. | Pro-Pak Qty. | Handy-Pak Part No. | Handy-Pak Pail Qty. | Poly-Bag Part No. | Poly-Bag Qty. |
|-------------------------------------|---------------------|-----------------|-----------------------|------------------------|----------------------|------------------|
| 1/4" x 2-1/4" | | | 12377 | 25 | 50080 | 1 |
| 3/8" x 2-1/4" | 12367 | 50 | 12015 | 15 | 50081 | 1 |
| 3/8" x 3" | 03014 | 50 | | | 50082 | 1 |
| 3/8" x 3-3/4" | 12370 | 50 | 12016 | 15 | 50083 | 1 |
| 3/8" x 5" | | | 12022 | 15 | 50084 | 1 |
| 1/2" x 2-3/4" | | | | | 50085 | 1 |
| 1/2" x 3-3/4" | 12371 | 25 | 12017 | 10 | 50181 | 1 |
| 1/2" x 4-1/4" | 12372 | 25 | 12020 | 10 | 50086 | 1 |
| 1/2" x 5-1/2" | 12373 | 25 | 12019 | 10 | 50087 | 1 |
| 1/2" x 7" | | | | | 50088 | 1 |
| 5/8" x 5" | 12310 | 10 | | | 50089 | 1 |
| 5/8" x 6" | 03041 | 10 | | | | |
| 5/8" x 7" | 03044 | 10 | | | 51030 | 1 |
| 5/8" x 8-1/2" | | | | | 50305 | 1 |
| 3/4" x 5-1/2" | 02992 | 10 | | | 51001 | 1 |
| HOT-DIPPED GALVANIZED | | | | | | |
| 1/2" x 5-1/2" HDG | | | 12021 | 10 | 50303 | 1 |
| 1/2" x 7" HDG | 12029 | 10 | | | 50307 | 1 |



As the company that invented concrete anchoring technology, Red Head holds a unique place in the history of construction and building. The Red Head brand has become synonymous with the anchoring product category it invented. That's why Red Head can help you get any job done right, from heavy-duty ceiling applications to light duty work in block and brick.

Our sleeve anchor line is our most versatile anchor with the ability to fasten in block, brick, masonry, and solid concrete.

For a lighter duty project, Poly-Set and Hammer-Set are great choices for block, brick and concrete and allow for quick and easy installation. For heavy-duty overhead applications, use our Drop-In anchors. Use the complete family of anchors and SDS bits to ensure precise hole depth and diameter when using our anchors.



RED HEAD® CONCRETE ANCHORS

Versatile Anchoring Solutions for Construction & Building

| U.S. (Std.) Size (Dia. x Length) | Pro-Pak Part No. | Pro-Pak Qty. | Handy-Pak Part No. | Handy-Pak Pail Qty. | Poly-Bag Part No. | Poly-Bag Qty. |
|-------------------------------------|---------------------|-----------------|-----------------------|------------------------|----------------------|------------------|
| SLEEVE ANCHORS | | | | | | |
| 1/4" x 2-1/4" Acorn Hd | | | | | 50122 | 1 |
| 1/4" x 2-1/4" Threshold Hd | | | | | 50123 | 1 |
| 1/4" x 3-1/8" Flat Hd | | | | | 50121 | 1 |
| 5/16" x 1-1/2" Hex Hd | | | | | 50112 | 1 |
| 5/16" x 2-1/2" Hex Hd | | | | | 50113 | 1 |
| 3/8" x 1-7/8" Hex Hd | | | | | 50114 | 1 |
| 3/8" x 3" Hex Hd | 11281 | 50 | 11013 | 15 | 50115 | 1 |
| 1/2" x 2-1/4" Hex Hd | | | | | 50116 | 1 |
| 1/2" x 3" Hex Hd | 11283 | 25 | 11014 | 10 | 50117 | 1 |
| 1/2" x 4" Hex Hd | 11285 | 25 | 11018 | 10 | 50118 | 1 |
| 5/8" x 4-1/4" Hex Hd | | | | | 50119 | 1 |
| 5/8" x 6" Hex Hd | | | | | 50120 | 1 |
| POLY-SET ANCHORS | | | | | | |
| 1-1/4" | | | 35220 | 50 | | |
| 1-7/16" | | | 35225 | 50 | | |
| HAMMER-SET ANCHORS | | | | | | |
| 1/4" x 1" | 35300 | 75 | 35200 | 25 | | |
| 1/4" x 1-1/2" | 35303 | 50 | 35203 | 15 | | |
| 1/4" x 2" | 35305 | 50 | 35205 | 15 | | |
| 1/4" x 3" | 35207 | 25 | | | | |
| DROP-IN ANCHORS | | | | | | |
| 3/8" Anchor | 01891 | 50 | | | 50125 | 1 |
| 1/2" Anchor | | | | | 50126 | 1 |
| 3/8" Setting Tool | | | | | 07499 | 1 |
| 1/2" Setting Tool | | | | | 07501 | 1 |



For jobs requiring versatility, high performance, and efficiency, Red Head's A7+ Concrete Adhesive Anchor is the one anchoring solution that does it all. A7+ takes only 45 minutes to fully cure and can be used in challenging conditions like cold temperatures and water-filled holes. A7+ is also ICC-ES approved for cracked concrete and seismic building code requirements.

A7+ can also be used in any standard medium-duty caulk gun, eliminating the inconvenience of needing a special dispensing tool. Combine the simplicity of dispensing with the quick-curing product, and installation is fast, easy, and doesn't take time away from the rest of the project.

The A7+ concrete adhesive anchoring solution is a high-performing anchor that rivals other products on the market in both price and features. This high performance and efficiency allows for less time on the job and more productivity.

Providing code approved performance and a fast 45 minute cure time, Red Head A7+ is the concrete anchoring adhesive that delivers.

A7+

 **RED HEAD**®



RED HEAD® A7+ ADHESIVE ANCHORS

High Strength Adhesive Anchoring Solution for Harsh Conditions

- **ICC-ES Approved** for use in cracked concrete and seismic conditions (ICC-ES ESR-3903).
- **Quick 45 Minute Cure Time** for fast installation.
- **Easy Dispensing** with a standard caulk gun, eliminating the need for any special tools.
- A successful cure in cold temperatures, as low as 14° F.
- Increased productivity with a successful cure in saturated concrete and water-filled holes.
- A long-standing reputation for quality, strength and ease of installation from industry professionals.



| U.S. (Std.) Size | Part No. | Qty. |
|-------------------|----------|------|
| 9.5 oz. Cartridge | 07111 | 1 |



ICC-ES ESR-3903
2015 IBC
Compliant

Ramset is a leading line of powder actuated tools and fasteners for residential and commercial remodeling. As the developer of the very first powder actuated tool in 1948, Ramset has a history of reliability, innovation, and market-leading performance. Ramset has supplied more than a million tools to professional contractors specialty tradesmen and continues to deliver products that drive jobsite speed. Utilizing the whole line of Ramset tools, powder loads, and fasteners increases jobsite productivity and leads to a job done right.

From tools that display the market leading innovation, like Cobra+ and MasterShot, to the full range of drive pins and powder loads for your applications, you can be sure to find what you need with the Ramset family of products.



RAMSET® TOOLS AND FASTENERS

Powder Actuated Tools for Residential & Commercial Remodeling.

- Powder actuated tools for concrete or steel
- Drives jobsite speed through quick and efficient fastening
- Market leading tool innovations help you get the job done right
- The Powder Actuated Tool choice for PROs



| Item / Tools | Part No. | Qty. |
|---|--------------|------|
| HammerShot .22 Caliber Single-Shot Powder Actuated Tool | 00022 | 1 |
| TriggerShot .22 Caliber Single-Shot Powder Actuated Tool | 40066 | 1 |
| MasterShot .22 Caliber Single-Shot Powder Actuated Tool | 40088 | 1 |
| Cobra+ .27 Caliber Semi-Automatic Powder Actuated Tool | 16942 | 1 |



| U.S. (Std.)Size | Large Box Part No. | Large Box Quantity | Small Clam Part No. | Small Clam Quantity |
|-------------------|--------------------|--------------------|---------------------|---------------------|
| DRIVE PINS | | | | |
| .300 x 1/2" | 06171 | 100 | | |
| .300 x 3/4" | 00747 | 100 | | |
| .300 x 1" | 00759 | 100 | | |
| .300 x 1-1/2" | 00774 | 100 | | |
| .300 x 2" | 00780 | 100 | | |
| .300 x 2-1/2" | 00786 | 100 | 00787 | 25 |
| .300 x 3" | 00794 | 100 | | |

| DRIVE PINS WITH WASHERS | | | | |
|--------------------------------|--------------|-----|--------------|----|
| .300 x 1" | 00797 | 100 | | |
| .300 x 1-1/2" | 00803 | 100 | 00804 | 25 |
| .300 x 1-1/4" | 00800 | 100 | | |
| .300 x 2" | 00806 | 100 | | |
| .300 x 2-1/2" | 00809 | 100 | 00810 | 15 |
| .300 x 3" | 07886 | 100 | 07887 | 15 |

| RAMGUARD DRIVE PINS FOR USE IN TREATED LUMBER | | | | |
|--|--------------|-----|--|--|
| .300 x 2-1/2" | 09167 | 100 | | |
| .300 x 2-1/2" with Washers | 09173 | 100 | | |
| .300 x 3" with Washers | 09176 | 100 | | |

| Caliber | Color | Type | Strip Load Part No. | Qty. | Single Shot Box Pt. # | Single Shot Box Qty. | Single Shot Blister Pt.# | Single Shot Blister Qty. |
|---------|-------|------|---------------------|------|-----------------------|----------------------|--------------------------|--------------------------|
|---------|-------|------|---------------------|------|-----------------------|----------------------|--------------------------|--------------------------|

| POWDER LOADS | | | | | | | | |
|---------------------|--------|--------|--------------|-----|--------------|-----|--------------|----|
| .22 | Brown | Powder | | | 00594 | 100 | | |
| .22 | Green | Powder | | | 00601 | 100 | | |
| .22 | Yellow | Powder | | | 00607 | 100 | 50077 | 25 |
| .27 | Green | Strip | 00652 | 100 | | | | |
| .27 | Yellow | Strip | 00667 | 100 | | | | |
| .27 | Red | Strip | 00682 | 100 | | | | |



Teks® fasteners are the leading choice of self-tapping screws for use in interior/exterior applications; including metal-to-metal, wood-to-metal, and roofing applications. Professionals are able to drill faster with less force even in heavy gauge metal. The self-tapping threads are designed to tap holes while providing superior holding power ensuring strong connections between materials.

Teks® fasteners are offered in sharp and drill points that easily penetrate light to heavy gauge metal and wood. Professionals no longer have to struggle when engaging their work surface.

Teks® fasteners are offered in a wide variety of head styles to meet professionals installation needs. No tool slippage or cam-outs even with old sockets and worn bits. Professionals can drill, tap, and fasten – all in one motion.



Teks®
THE ORIGINAL



TEKS® METAL FASTENERS

Pro Known. Pro Used. Pro Trusted.

- **Drive surface and recess:** Reduces cam-outs to prevent slipping during installation.
- **Drill Points:** Self-drills through light to heavy gauge metal with ease.
- **Sharp Points:** Self-pierces into light gauge metal to start drilling faster.
- **Self-Tapping Threads:** Taps their own threads to provide less effort when fastening into metal.
- **Corrosion Resistant Finish:** Protects the job's appearance with long lasting coating.
- **Neoprene Washer:** Roofing screws feature a neoprene washer that provides a waterproof seal.
- **Reamer Wings:** Winged screws self-drill into wood and engage metal to provide a secure hold.
- **Lath head:** Lath Screws feature a low-profile head for a semi-flush finish for virtually any application.



| U.S. (Std.) Size (Dia.x Length) | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak Ctn. Size/Qty. |
|--|---------------------|----------------------|-----------------------|-----------------------------|
| TEKS® METAL TO METAL SCREWS | | | | |
| HEX WASHER HEAD / DRILL POINT (METAL TO METAL) | | | | |
| 8 x 1/2" | 21322 | 450 | 21308 | S/280 |
| 8 x 3/4" | | | 21312 | S/180 |
| 8 x 1" | | | 21316 | S/170 |
| 10 x 5/8" | | | 21396 | S/170 |
| 10 x 3/4" | | | 21320 | S/150 |
| 10 x 1" | | | 21328 | M/140 |
| 10 x 1-1/2" | | | 21332 | M/90 |
| 12 x 3/4" | | | 21336 | M/120 |
| 12 x 1" | | | 21340 | M/100 |
| 12 x 1-1/2" | | | 21344 | M/80 |
| 12 x 2" | 21348 | M/60 | | |
| 12/14 x 2" | 21820 | M/60 | | |
| 14 x 3/4" | 21349 | S/100 | | |
| 14 x 1" | 21351 | S/60 | | |
| 14 x 1-1/2" | 21352 | M/50 | | |
| 14 x 2-1/2" | 21358 | 120 | 21356 | M/30 |
| HEX WASHER HEAD / SHARP POINT (METAL TO METAL) | | | | |
| 6 x 1/2" | | | 21301 | S/320 |
| 8 x 1-1/2" | | | 21318 | M/85 |
| 10 x 3/4" | | | 21327 | M/150 |
| PAN HEAD / DRILL POINT (METAL TO METAL) | | | | |
| 8 x 1/2" | | | 21360 | S/300 |
| 8 x 3/4" | | | 21364 | S/240 |
| 10 x 3/4" | | | 21372 | S/170 |
| PAN HEAD / SHARP POINT (METAL TO METAL) | | | | |
| 6 x 1/2" | | | 21359 | S/300 |
| PANCAKE HEAD / DRILL POINT (METAL TO METAL) | | | | |
| 10 x 5/8" | | | 21376 | S/190 |
| TEKS® WOOD TO METAL SCREWS | | | | |
| PHILLIPS FLAT HEAD / DRILL POINT W/REAMER WINGS (WOOD TO METAL) | | | | |
| 1/4-20 x 3" | | | 21378 | M/40 |
| 10 x 1-7/16" | 21381 | 300 | 21380 | S/100 |
| 12 x 2-3/4" | 21386 | 200 | 21384 | S/40 |

| U.S. (Std.) Size (Dia.x Length) | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak Ctn. Size/Qty. |
|---|---------------------|----------------------|-----------------------|-----------------------------|
| TEKS® ROOFING SCREWS | | | | |
| HEX WASHER HEAD / SHARP POINT (METAL TO WOOD) | | | | |
| 9 x 1" | 21401 | 360 | 21400 | M/120 |
| 9 x 1-1/2" | 21406 | 400 | 21404 | M/100 |
| 9 x 2-1/2" | | | 21407 | M/60 |
| HEX WASHER HEAD / DRILL POINT (METAL TO METAL) | | | | |
| 12 x 3/4" | | | 21408 | M/90 |
| 12 x 1" | 21418 | 400 | 21412 | M/80 |
| 12 x 1-1/2" | 21422 | 300 | | |
| 12 x 2" | 21427 | 150 | 21416 | M/50 |
| TEKS® LATH SCREWS | | | | |
| MODIFIED TRUSS HEAD / SHARP POINT (METAL TO METAL) | | | | |
| 8 x 1/2" | | | 21500 | S/260 |
| 8 x 3/4" | 21506 | 600 | 21504 | S/200 |
| 8 x 1" | 21510 | 510 | 21508 | S/170 |
| 8 x 1-1/4" | | | 21512 | M/140 |
| 8 x 1-5/8" | | | 21516 | M/120 |
| 8 x 2" | | | 21518 | M/100 |
| 8 x 2-1/2" | | | 21519 | M/80 |
| MODIFIED TRUSS HEAD / DRILL POINT (METAL TO METAL) | | | | |
| 8 x 1/2" | | | 21520 | S/260 |
| 8 x 3/4" | 21525 | 600 | 21524 | S/200 |
| 8 x 1" | 21530 | 510 | 21528 | S/170 |
| 8 x 1-1/4" | | | 21532 | M/140 |
| 8 x 1-5/8" | | | 21536 | M/120 |
| 8 x 2" | | | 21538 | M/100 |
| 8 x 2-1/2" | | | 21540 | M/80 |

Pro-Paks and Handy-Paks must be ordered in eaches but in Master Carton Quantities.



Hex Washer Head



Flat Head



Pan Head



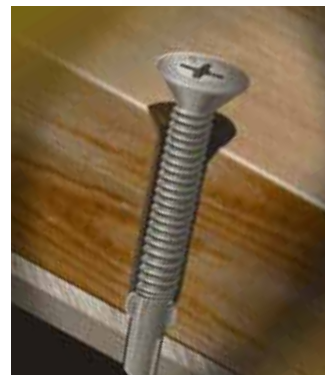
Modified Truss Head



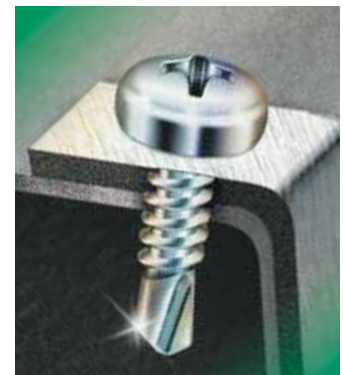
ROOFING SCREWS



LATH SCREWS



WOOD TO METAL SCREWS



METAL TO METAL SCREWS

Backer-On® cement screws are designed for attaching Hardie-Backer® cement board and Rock-On® cement board screws are designed for attaching Durock® cement board to wood or light gauge steel studs. The patented serrated head design countersinks for a flush finish even at angle, providing a smooth surface for tile installation. The T-25 Star Drive recess provides Stikfit™ for one-handed installation. Climacoat corrosion resistant finish prevents rust from bleeding into grout. Making it perfect for use in high moisture areas such as bathrooms and kitchens.

Backer-On® and Rock-On® cement board screws comply with ANSI standards for cement board installation as specified by cement board manufacturers. Cement board manufacturers require ANSI compliance in order to remain eligible for warranty.

- **Serrated head:** Designed to drive flush even at an angle.
- **Star drive with T-25 bit:** provides Stikfit™ for easy one-handed installation and eliminates cam-outs.
- **Hi-Lo / Single Threads:** starts quickly and drives smooth in cement boards.
- **Sharp points:** Offers immediate pick-up and eliminates the need to pre-drill.
- **Climacoat finish:** Corrosion resistant for preventing rust from bleeding into tile.



BACKER-ON® ROCK-ON®

CEMENT BOARD SCREWS

BACKER-ON® / ROCK-ON® Patented Serrated Head for Flush Seating

| U.S. (Std.) Size (Dia. x Length) | Pro-Pak Part No. | Pro-Pak Pail Qty. | Handy-Pak Part No. | Handy-Pak Ctn. Size/Qty. |
|-------------------------------------|---------------------|----------------------|-----------------------|-----------------------------|
| BACKER-ON® SCREWS | | | | |
| #9 x 1-1/4" | 23406 | 750 | 23401 | M/185 |
| #9 x 1-5/8" | 23416 | 575 | 23411 | M/140 |
| #9 x 2-1/4" | | | 23421 | M/100 |
| ROCK-ON® SCREWS | | | | |
| #9 x 1-1/4" | 23306 | 750 | 23301 | M/185 |
| #9 x 1-5/8" | 23316 | 575 | 23311 | M/140 |
| #9 x 2-1/4" | | | 23321 | M/100 |

2" T25 Star Drive bit included in Backer-On and Rock-On handy-paks and Pro-paks.



| BACKER-ON® / ROCK-ON® StikFit Bit | | |
|--|--------------|----------------------------|
| SIZE POINT | PART NO. | CARDED QUANTITY / PER PACK |
| #T-25 2" | 24000 | (2) StikFit Bits |

The T-25 StikFit Bits modified tip eliminates wobble and offers one-handed installation only for Backer-On/Rock-On cement board screws. The bits are made with S2 modified steel for long lasting bit life.

Pro Tip: Standard roofing nails, dry wall screws, and other alternatives to cement board screws are typically not specified by cement board manufacturers and not ANSI compliant.

Star Drive Bits, Crown / Bit



| Bit Size | Bit Color | Fits | Bulk Part No. | Bulk Box Qty. | Carded Part No. | Carded Qty/per pack |
|--------------------|------------------|--|---------------|---------------|-----------------|---------------------|
| T-10 2" T-10 3" | yellow yellow | Trim™ Head #8 | 86419 | 25 | 187419 87421 | 2 2 |
| T-15 2" T-15 3" | red red | R4™ Screw #6 & 8 Trim™ Head #9 Cabinet™ Screw | 86427 | 25 | 187427 87429 | 2 2 |
| T-20 2" | purple | | 86435 | 25 | 187435 | 2 |
| T-25 2" T-25 3" | green green | R4™ #9,10 & 12 RSS™ #10 & 1/4" MSS™ #9 | 86443 | 25 | 187443 87445 | 2 2 |
| T-30 2" T-30 3" | black black | RSS™ Structural Screw 5/16" Caliburn™ & Caliburn PH™ | 86451 | 25 | 187451 87453 | 2 2 |
| T-40 2" | blue | Caliburn XL™ Screws RSS™ Structural Screw 3/8" | 86459 | 25 | 187459 | 2 |
| CROWN / BIT | | | | | | |
| | | TOP STAR™ | | | 86465 | 1 |

High Impact Merchandisers Designed to Drive Sales

Displays are free with qualifying order.

Rolling Rack:

GRK5432 Formerly #89001-GRK
(includes header)

Ideal for secondary placement. Can be moved around retail space. Holds Pro-Paks, Handy-Paks, Blister-Paks and/or open stock in bins.

Universal Display:

GRK# 99900
(includes header)

Ideal for end-cap with large selection of GRK product.



**2ft Tapcon Display
(includes header)**

The premier Tapcon offering consisting of the top-selling Tapcon skus the PRO seeks.



3ft Concrete Anchoring Set:

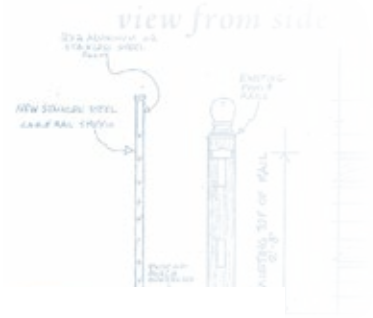
Ideal for in-line placement on existing shelving. Offers complete coverage from light to heavy duty concrete anchoring.



**CBS Rolling Rack
(includes header):**

Holds our top selling cement board screws in convenience and pro packs. Ideal for placement near Durock® and HardieBacker® cement boards.





FASTENER TECHNICAL DATA

RSS™

TABLE 1—RSS™ FASTENER SPECIFICATIONS

| FASTENER DESIGNATION N | LENGTH ¹ (inches) | THREAD LENGTH ² (inches) | MINOR THREAD DIAMETER (inch) | SHANK DIAMETER (inch) | OUTSIDE THREAD DIAMETER (inch) | NOMINAL BENDING YIELD STRENGTH ³ F _{yb} (psi) | ALLOWABLE STEEL STRENGTH | | | | | | | | |
|------------------------------------|---------------------------------|--|------------------------------|-----------------------|--------------------------------|---|--------------------------|-------------|-------|-------|-------|-------|---------|------|------|
| | | | | | | | TENSILE (lbf) | SHEAR (lbf) | | | | | | | |
| RSS 1/4 x 2 1/2" | 2 3/8 | 1 1/2 | 0.152 | 0.169 | 0.236 | 170,400 | 1112 | 754 | | | | | | | |
| | 1/4 x 2 3/4" | 2 3/4 | | | | | | | 1 3/4 | | | | | | |
| | 1/4 x 3 1/8" | 3 1/8 | | | | | | | 2 | | | | | | |
| | 1/4 x 3 1/2" | 3 1/2 | | | | | | | 2 3/8 | | | | | | |
| RSS 5/16 x 2 1/2" | 2 3/8 | 1 1/2 | 0.167 | 0.195 | 0.276 | 190,900 | 1415 | 982 | | | | | | | |
| | 5/16 x 2 3/4" | 2 3/4 | | | | | | | 1 3/4 | | | | | | |
| | 5/16 x 3 1/8" | 3 1/8 | | | | | | | 2 3/8 | | | | | | |
| | 5/16 x 3 1/2" | 3 1/2 | | | | | | | 2 1/2 | | | | | | |
| | 5/16 x 4" | 3 7/8 | | | | | | | 2 3/4 | | | | | | |
| | 5/16 x 5 1/8" | 5 | | | | | | | 3 1/2 | | | | | | |
| RSS 3/8 x 3 1/8" | 3 1/8 | 2 3/8 | 0.191 | 0.219 | 0.313 | 178,000 | 1941 | 1231 | | | | | | | |
| | 3/8 x 4" | 3 7/8 | | | | | | | 2 3/4 | | | | | | |
| | 3/8 x 5 1/8" | 5 1/8 | | | | | | | 3 1/2 | | | | | | |
| | 3/8 x 6" | 5 7/8 | | | | | | | 4 | | | | | | |
| | 3/8 x 7 1/4" | 7 | | | | | | | 4 1/2 | | | | | | |
| | 3/8 x 8" | 7 7/8 | | | | | | | 4 3/8 | | | | | | |
| | 3/8 x 10" | 9 3/4 | | | | | | | 5 | | | | | | |
| | 3/8 x 12" | 11 7/8 | | | | | | | 5 7/8 | | | | | | |
| | 3/8 x 14 1/8" | 14 1/8 | | | | | | | 5 7/8 | | | | | | |
| | 3/8 x 16" | 15 5/8 | | | | | | | 5 3/4 | | | | | | |
| | LPS 1/4 x 8" | 7 7/8 | | | | | | | 2 7/8 | 0.152 | 0.171 | 0.240 | 172,600 | 1051 | 666 |
| | LTF 3/8 x 8" | 7 7/8 | | | | | | | 3 7/8 | 0.191 | 0.219 | 0.311 | 167,600 | 1714 | 1094 |
| 3/8 x 10" | | 9 7/8 | 3 7/8 | | | | | | | | | | | | |
| 3/8 x 12" | | 11 3/4 | 3 7/8 | | | | | | | | | | | | |
| RSS PHEInox 1/4 x 2 1/2" | 2 3/8 | 1 1/2 | 0.152 | 0.169 | 0.236 | 111,400 | 628 | 546 | | | | | | | |
| | 1/4 x 3 1/8" | 3 1/8 | | | | | | | 2 | | | | | | |
| | 5/16 x 2 1/2" | 2 3/8 | | | | | | | 1 5/8 | | | | | | |
| | 5/16 x 3 1/8" | 3 1/8 | | | | | | | 2 3/8 | | | | | | |
| | 5/16 x 4" | 3 7/8 | | | | | | | 2 1/2 | | | | | | |
| | 5/16 x 5 1/8" | 5 1/8 | | | | | | | 3 3/8 | | | | | | |
| JTS 1/4 x 3 3/8" | 3 3/8 | 1 3/8 | 0.152 | 0.171 | 0.240 | 226,300 | 1104 | 769 | | | | | | | |
| | 1/4 x 5" | 5 | | | | | | | 1 5/8 | | | | | | |
| | 1/4 x 6 3/4" | 6 3/4 | | | | | | | 1 1/2 | | | | | | |

For SI: 1 inch = 25.4 mm; 1 psi = 6.9 kPa; 1 lbf = 4.4 N.

¹The length of fasteners is measured from the underside of the head to bottom of the tip. See Figure 1.

²Length of thread includes tip. See Figure 1.

³Bending yield strength determined in accordance with ASTM F1575 using the minor thread diameter.

⁴See Figure 1 for additional dimensional information.

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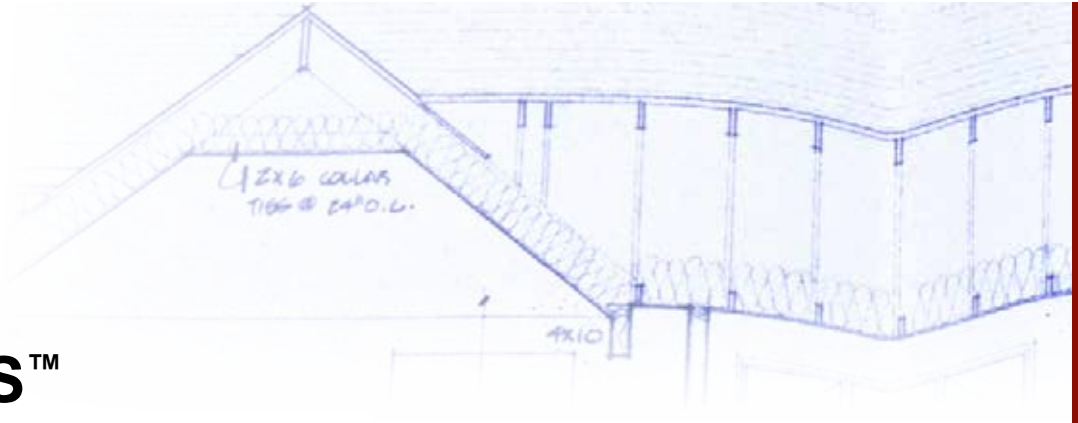


TABLE 2—RSS™ REFERENCE WITHDRAWAL (W) AND PULL-THROUGH (P) DESIGN VALUES¹

| FASTENER DESIGNATION | THREAD LENGTH (inches) | W (lbf/in.) ² | | P (lbf) ³ | | WET SERVICE FACTOR, C _M | |
|----------------------|------------------------|----------------------------|-----------------|----------------------------|-----------------|------------------------------------|------|
| | | For Specific Gravities of: | | For Specific Gravities of: | | | |
| | | 0.42 ≤ G < 0.55 | 0.55 ≤ G < 0.67 | 0.42 ≤ G < 0.55 | 0.55 ≤ G < 0.67 | | |
| RSS | 1/4 x 2 1/2" | 151 | 186 | 165 | 275 | 0.70 | |
| | 1/4 x 2 3/4" | | | | | | |
| | 1/4 x 3 1/8" | | | | | | |
| | 1/4 x 3 1/2" | | | | | | |
| | 5/16 x 2 1/2" | | | | | | |
| | 5/16 x 2 3/4" | | | | | | |
| | 5/16 x 3 1/8" | 165 | 227 | 207 | 418 | | |
| | 5/16 x 3 1/2" | | | | | | |
| | 5/16 x 4" | | | | | | |
| | 5/16 x 5 1/8" | | | | | | |
| | 5/16 x 6" | | | | | | |
| | 3/8 x 3 1/8" | | | | | | 180 |
| | 3/8 x 4" | | | | | | |
| | 3/8 x 5 1/8" | | | | | | |
| | 3/8 x 6" | | | | | | |
| | 3/8 x 7 1/4" | | | | | | |
| | 3/8 x 8" | | | | | | |
| | 3/8 x 10" | | | | | | |
| 3/8 x 12" | | | | | | | |
| 3/8 x 14 1/8" | | | | | | | |
| 3/8 x 16" | | | | | | | |
| LPS | 1/4 x 8" | 2 7/8 | 128 | 201 | 136 | 395 | 0.52 |
| LTF | 3/8 x 8" | 3 7/8 | 163 | 216 | 202 | 373 | 0.70 |
| | 3/8 x 10" | 3 7/8 | | | | | |
| | 3/8 x 12" | 3 7/8 | | | | | |
| PHEInox | 1/4 x 2 1/2" | 1 1/2 | 134 | 187 | 162 | 306 | 0.70 |
| | 1/4 x 3 1/8" | 2 | | | | | |
| | 5/16 x 2 1/2" | 1 5/8 | 136 | 202 | 199 | 254 | |
| | 5/16 x 3 1/8" | 2 1/8 | | | | | |
| | 5/16 x 4" | 2 1/2 | | | | | |
| | 5/16 x 5 1/8" | 3 3/8 | | | | | |
| 5/16 x 6" | 3 7/8 | | | | | | |
| JTS | 1/4 x 3 3/8" | 1 3/8 | 152 | 191 | 154 | 372 | 0.68 |
| | 1/4 x 5" | 1 5/8 | | | | | |
| | 1/4 x 6 3/4" | 1 1/2 | | | | | |

For SI: 1 inch = 25.4 mm; 1 lbf = 4.4 N.

¹Values must be multiplied by all applicable adjustment factors, in accordance with the NDS. When the fasteners are used in wet service conditions, the wet service factors shown in the table are applicable.

²Tabulated reference withdrawal design values are in pounds per inch of thread penetration into the side grain of the main member, and must be multiplied by the thread length embedded in the member in order to get the total withdrawal design value in pounds. Length of CEE threads must not be included in the withdrawal value determination.

³Tabulated pull-through design values are based on a minimum side member thickness of 3/4 inch.

These figures are only offered as a guide and are not reduce by any safety factor.
For safety factor requirements in your area, contact your local building official, architect or engineer.

TABLE 3—RSS™ REFERENCE LATERAL DESIGN VALUES (Z) FOR SINGLE SHEAR (TWO-MEMBER) CONNECTIONS¹
 [For Sawn Lumber with Both Members of Identical Specific Gravity]

| FASTENER DESIGNATION | SIDE MEMBER THICKNESS, t (inches) | FASTENER PENETRATION INTO MAIN MEMBER, p (inches) | REFERENCE LATERAL DESIGN VALUE, Z (lbf) FOR SPECIFIC GRAVITIES OF: | | | | WET SERVICE FACTOR, C _w | |
|----------------------|-----------------------------------|---|--|--|-----------------------------------|--|------------------------------------|-------|
| | | | 0.42 ≤ G < 0.55 | | 0.55 ≤ G < 0.67 | | | |
| | | | Parallel to Grain, Z _∥ | Perpendicular to Grain, Z _⊥ | Parallel to Grain, Z _∥ | Perpendicular to Grain, Z _⊥ | | |
| RSS | 1/4 x 2 1/2" | 3/4 | 153 | 137 | 175 | 175 | 0.70 | |
| | 1/4 x 2 3/4" | 3/4 | | | | | | 2 |
| | 1/4 x 3 1/8" | 3/4 | | | | | | 2 3/8 |
| | 1/4 x 3 1/2" | 3/4 | 2 3/4 | 168 | 133 | 214 | | 178 |
| | 5/16 x 2 1/2" | 3/4 | 1 5/8 | | | | | |
| | 5/16 x 2 3/4" | 3/4 | 2 | | | | | |
| | 5/16 x 3 1/8" | 3/4 | 2 3/8 | 239 | 236 | 333 | | 257 |
| | 5/16 x 3 1/2" | 3/4 | 2 3/4 | | | | | |
| | 5/16 x 4" | 1 1/2 | 2 3/8 | | | | | |
| | 5/16 x 5 1/8" | 1 1/2 | 3 1/2 | 265 | 299 | 472 | | 289 |
| | 5/16 x 6" | 2 | 3 7/8 | | | | | |
| | 3/8 x 3 1/8" | 3/4 | 2 3/8 | | | | | |
| | 3/8 x 4" | 1 1/2 | 2 3/8 | 224 | 205 | 274 | | 264 |
| | 3/8 x 5 1/8" | 1 1/2 | 3 5/8 | | | | | |
| | 3/8 x 6" | 2 | 3 7/8 | | | | | |
| | 3/8 x 7 1/4" | 2 3/4 | 4 1/4 | 423 | 291 | 593 | | 304 |
| 3/8 x 8" | 3 1/2 | 4 3/8 | | | | | | |
| 3/8 x 10" | 3 1/2 | 6 1/4 | | | | | | |
| 3/8 x 12" | 3 1/2 | 8 3/8 | | | | | | |
| 3/8 x 14 1/8" | 3 1/2 | 10 5/8 | | | | | | |
| 3/8 x 16" | 3 1/2 | 12 1/8 | | | | | | |
| LPS | 1/4 x 8" | 5 | 249 | 257 | 358 | 219 | 0.62 | |
| LTF | 3/8 x 8" | 4 | 433 | 315 | 556 | 402 | 0.70 | |
| | 3/8 x 10" | 6 | | | | | | |
| | 3/8 x 12" | 8 | | | | | | |
| PHEInox | 1/4 x 2 1/2" | 3/4 | 162 | 134 | 215 | 185 | 0.70 | |
| | 1/4 x 3 1/8" | 3/4 | | | | | | 2 3/8 |
| | 5/16 x 2 1/2" | 3/4 | 151 | 149 | 181 | 175 | | |
| | 5/16 x 3 1/8" | 3/4 | | | | | | 2 3/8 |
| | 5/16 x 4" | 1 1/2 | 249 | 229 | 337 | 272 | | |
| | 5/16 x 5 1/8" | 1 1/2 | | | | | | 3 5/8 |
| 5/16 x 6" | 2 | 302 | 340 | 449 | 358 | | | |
| JTS | 1/4 x 3 3/8" | 1 3/4 | 157 | 168 | 217 | 217 | 0.70 | |
| | 1/4 x 5" | 1 3/4 | 168 | 221 | 241 | 237 | | |
| | 1/4 x 6 3/4" | 1 3/4 | | | | | | 5 |

For S_E: 1 inch = 25.4 mm ; 1 lbf = 4.4 N.

¹Values must be multiplied by all applicable adjustment factors, in accordance with the NDS. When the fasteners are used in wet service conditions, the wet service factors shown in the table are applicable.

**These figures are only offered as a guide and are not reduce by any safety factor.
 For safety factor requirements in your area, contact your local building official, architect or engineer.**

FASTENER TECHNICAL DATA

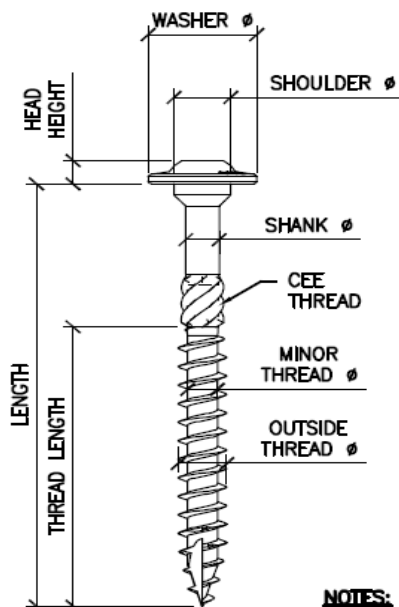
RSS™

TABLE 4 - CONNECTION GEOMETRY

| CONNECTION GEOMETRY / CRITERIA | DIAMETERS ¹ | RSS, LPS, JTS & PHEINOX 1/4" NOMINAL DIAMETER (inches) | RSS & PHEINOX 5/16" NOMINAL DIAMETER (inches) | RSS & LTF 3/8" NOMINAL DIAMETER (inches) |
|---|------------------------|--|---|--|
| Minimum Edge Distance | | | | |
| Loading Parallel to Grain | 8 | 1 1/2 | 1 5/8 | 1 7/8 |
| Loading Perpendicular to grain, Loaded Edge | 8 | 1 1/2 | 1 5/8 | 1 7/8 |
| Loading Perpendicular to grain, Unloaded Edge | 8 | 1 1/2 | 1 5/8 | 1 7/8 |
| Minimum End Distance | | | | |
| Tension Load Parallel to Grain | 15 | 2 5/8 | 3 | 3 3/8 |
| Compression Load Parallel to Grain | 10 | 1 3/4 | 2 | 2 1/4 |
| Load Perpendicular to Grain | 10 | 1 3/4 | 2 | 2 1/4 |
| Spacing (Pitch) Between Fasteners in a Row | | | | |
| Parallel to Grain | 15 | 2 5/8 | 3 | 3 3/8 |
| Perpendicular to Grain | 10 | 1 3/4 | 2 | 2 1/4 |
| Spacing (Gage) Between Rows of Fasteners | | | | |
| In-Line | 5 | 7/8 | 1 | 1 1/8 |
| Staggered | 2.5 | 1/2 | 1/2 | 5/8 |
| Minimum Penetration into Main Member For Single Shear Connections | 6 | 1 1/8 | 1 1/4 | 1 3/8 |

For SI: 1 inch = 25.4 mm

¹ Diameter is the shank diameter as specified in Table 1.



| SCREW TYPE | HEAD STAMP | WASHER Ø ± 0.020 | HEAD HEIGHT ± 0.010 | SHOULDER Ø ± 0.010 | CEE THREAD ² |
|------------------|------------|---------------------|------------------------|-----------------------|-------------------------|
| RSS 1/4 (6.0mm) | | 0.533 | 0.110 | 0.244 | LENGTH ≥ 3/8" |
| RSS 5/16 (7.0mm) | | 0.620 | 0.157 | 0.301 | LENGTH ≥ 3/8" |
| RSS 3/8 (8.0mm) | | 0.689 | 0.181 | 0.364 | LENGTH ≥ 3/8" |
| LTF 3/8 (8.0mm) | | 0.688 | 0.181 | 0.364 | LENGTH ≥ 3/8" |
| LPS 1/4 (6.0mm) | | 0.535 | 0.090 | 0.244 | NO |
| JTS 1/4 (6.3mm) | | 0.534 | 0.090 | 0.244 | LENGTH ≥ 5" |

NOTES:

- SEE TABLE 1 FOR OVERALL LENGTH, THREAD LENGTH, SHANK DIAMETER, OUTSIDE THREAD DIAMETER AND MINOR THREAD DIAMETER.
- CEE THREAD ON SCREWS WITH LENGTHS GREATER THAN OR EQUAL TO THOSE INDICATED. NOT USED FOR CALCULATIONS.

FIGURE 1 – FASTENER DIMENSIONS

FASTENER TECHNICAL DATA

R4™, Trim™



TABLE 1A—CARBON STEEL FASTENER SPECIFICATIONS

| FASTENER DESIGNATION | OVERALL LENGTH ¹ (inches) | THREAD LENGTH ² (inches) | HEAD DIAMETER (inch) | HEAD RECESS | ROOT DIAMETER (inch) | SHANK DIAMETER (inch) | OUTSIDE THREAD DIAMETER (inch) | BENDING YIELD STRENGTH ³ F _y (psi) | ALLOWABLE STEEL STRENGTH | | |
|----------------------|--------------------------------------|-------------------------------------|----------------------|-------------|----------------------|-----------------------|--------------------------------|--|--------------------------|-------------|-----|
| | | | | | | | | | Tensile (lbf) | Shear (lbf) | |
| R4 | 9x2" | 2 | 1 1/4 | 0.329 | Star drive T-25 | 0.112 | 0.128 | 0.173 | 158,800 | 627 | 428 |
| | 9x2 1/2" | 2 1/2 | 1 1/2 | | | | | | | | |
| | 9x2 3/4" | 2 3/4 | 1 5/8 | | | | | | | | |
| | 9x3 1/8" | 3 1/8 | 1 7/8 (2 1/8) | 0.368 | Star drive T-25 | 0.124 | 0.142 | 0.193 | 143,590 | 846 | 542 |
| | 10x2 1/2" | 2 1/2 | 1 7/8 | | | | | | | | |
| | 10x2 3/4" | 2 3/4 | 1 7/8 | | | | | | | | |
| | 10x3 1/4" | 3 1/4 | 1 7/8 (2 1/8) | | | | | | | | |
| | 10x3 1/2" | 3 1/2 | 2 (2 1/8) | | | | | | | | |
| | 10x4" | 3 7/8 | 2 1/8 | | | | | | | | |
| | 10x4 1/4" | 4 1/4 | 3 | 0.439 | Star drive T-25 | 0.148 | 0.171 | 0.234 | 134,280 | 1134 | 655 |
| | 12x4 1/4" | 4 1/4 | 3 | | | | | | | | |
| | 12x5 1/2" | 5 1/2 | 3 | | | | | | | | |
| | 12x6 1/4" | 6 1/4 | 3 | | | | | | | | |
| | 12x7 1/4" | 7 | 3 | | | | | | | | |
| 12x8" | 7 7/8 | 3 | | | | | | | | | |
| 12x10" | 9 1/4 | 3 | | | | | | | | | |
| 12x12" | 11 1/4 | 3 | | | | | | | | | |
| FIN/TRIM | 8x2 1/2" | 2 1/2 | 1 1/2 | 0.197 | Star drive T-10 | 0.100 | 0.111 | 0.156 | 148,410 | 499 | 360 |
| | 8x2 3/4" | 2 3/4 | 1 5/8 | | | | | | | | |
| | 8x3 1/8" | 3 1/8 | 2 1/8 | | | | | | | | |
| | 9x2 1/2" | 2 1/2 | 1 5/8 | 0.230 | Star drive T-15 | 0.112 | 0.128 | 0.175 | 147,280 | 576 | 425 |
| | 9x2 3/4" | 2 3/4 | 1 7/8 | | | | | | | | |
| | 9x3 1/8" | 3 1/8 | 2 1/8 | | | | | | | | |

TABLE 1B—PHEINOX™ FASTENER SPECIFICATIONS

| FASTENER DESIGNATION | OVERALL LENGTH ¹ (inches) | THREAD LENGTH ² (inches) | HEAD DIAMETER (inch) | DRIVER SIZE | ROOT DIAMETER (inch) | SHANK DIAMETER (inch) | OUTSIDE THREAD DIAMETER (inch) | BENDING YIELD STRENGTH ³ F _y (psi) | ALLOWABLE STEEL STRENGTH | | |
|-----------------------|--------------------------------------|-------------------------------------|----------------------|-------------|----------------------|-----------------------|--------------------------------|--|--------------------------|-------------|-----|
| | | | | | | | | | Tensile (lbf) | Shear (lbf) | |
| R4 | 9x2" | 2 | 1 1/4 | 0.329 | Star drive T-25 | 0.112 | 0.128 | 0.173 | 113,340 | 467 | 334 |
| | 10x2 1/2" | 2 1/2 | 1 1/2 | 0.368 | Star drive T-25 | 0.124 | 0.142 | 0.193 | 170,220 | 490 | 424 |
| | 10x2 3/4" | 2 3/4 | 1 5/8 | | | | | | | | |
| | 10x3 1/8" | 3 1/8 | 1 7/8 (2 1/8) | | | | | | | | |
| | 10x4" | 3 7/8 | 2 1/8 | | | | | | | | |
| FIN/TRIM RT COMPOSITE | 8x2 1/2" | 2 1/2 | 1 1/2 | 0.197 | Star drive T-10 | 0.100 | 0.111 | 0.156 | 117,540 | 350 | 267 |
| | 8x2 3/4" | 2 3/4 | 1 5/8 | | | | | | | | |
| | 8x3 1/8" | 3 1/8 | 2 1/8 | | | | | | | | |
| | 9x2 1/2" | 2 1/2 | 1 5/8 | 0.230 | Star drive T-15 | 0.112 | 0.128 | 0.175 | 66,340 | 394 | 319 |
| | 9x2 3/4" | 2 3/4 | 1 7/8 | | | | | | | | |
| | 9x3 1/8" | 3 1/8 | 2 1/8 | | | | | | | | |

For SI: 1 inch = 25.4 mm; 1 psi = 6.9 kPa.

¹Overall length of fastener is measured from the top of the head to bottom of the tip. See Figure 1.

²Length of thread includes tip. Where two thread lengths are shown, the first refers to thread length of screws marked with "GRK" on the fastener head, and the one in parentheses refers to screws which do not have this marking on the head. See detailed illustrations in Figure 1.

³Bending yield strength determined in accordance with ASTM F1575 using the root diameter.

FASTENER TECHNICAL DATA

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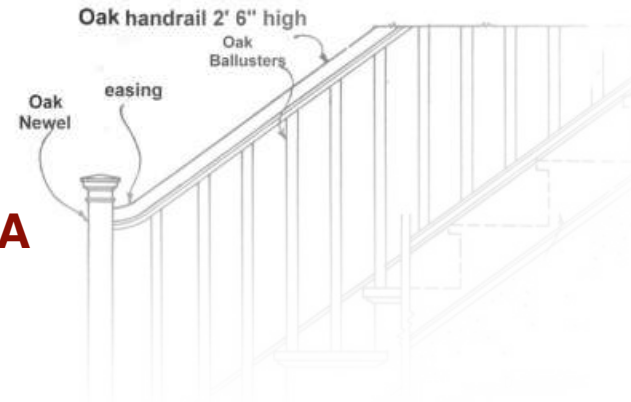


TABLE 2A— REFERENCE WITHDRAWAL DESIGN VALUES (W) FOR CLIMATEK™ COATED FASTENERS^{1,2}

| FASTENER DESIGNATION | THREAD LENGTH ³ (inches) | W (lbf/in.) FOR SPECIFIC GRAVITIES (SG) OF: | | | |
|----------------------|-------------------------------------|---|------------------|------------------|------------------|
| | | SG ≥ 0.67 ⁴ | 0.58 ≥ SG ≥ 0.55 | 0.55 > SG ≥ 0.49 | 0.49 > SG ≥ 0.42 |
| R4 | 9x2" | 179 | 221 | 172 | 124 |
| | 9x2 1/2" | | | | |
| | 9x2 3/4" | | | | |
| | 9x3 1/4" | | | | |
| | 10x2 1/2" | 249 | 228 | 155 | 133 |
| | 10x2 3/4" | | | | |
| | 10x3 1/4" | | | | |
| | 10x3 3/8" | | | | |
| | 10x4" | 255 | 217 | 209 | 141 |
| | 10x4 1/2" | | | | |
| | 12x4 1/2" | | | | |
| | 12x5 1/2" | | | | |
| | 12x6 1/2" | 255 | 217 | 209 | 141 |
| | 12x7 1/2" | | | | |
| 12x8" | | | | | |
| 12x10" | | | | | |
| 12x12" | 255 | 217 | 209 | 141 | |
| 12x14" | | | | | |
| 12x16" | | | | | |
| 12x18" | | | | | |
| FIN/TRIM | 8x2 1/2" | 175 | n/a | n/a | n/a |
| | 8x2 3/4" | | | | |
| | 8x3 1/2" | 221 | n/a | n/a | n/a |
| | 8x3 3/4" | | | | |
| | 9x2 1/2" | 221 | n/a | n/a | n/a |
| | 9x2 3/4" | | | | |
| 9x3 1/2" | 221 | n/a | n/a | n/a | |
| 9x3 3/4" | | | | | |

For S1: 1 inch = 25.4 mm; 1 lbf/in = 175 N/m.

¹Tabulated reference withdrawal design values (W) are in pounds per inch of thread penetration into side grain of main member.
²Values must be multiplied by applicable adjustment factors, in accordance with the NDS, and must be multiplied by the length of thread penetration in the main member, including tip.
³Where two thread lengths are shown, the first refers to thread length of screws marked with "GRK" on the fastener head, and the second refers to screws which do not have this marking on the head.
⁴Pilot holes equal to 70% of the root diameter of the screw are required, and the tabulated values are applicable to connections subject to tension load only, due to differing pilot hole requirements for lateral connections.

TABLE 3A— REFERENCE PULL-THROUGH DESIGN VALUES (P) FOR CLIMATEK™ COATED FASTENERS¹

| FASTENER DESIGNATION | MINIMUM SIDE MEMBER THICKNESS (inch) | P (lbf) FOR SPECIFIC GRAVITIES (SG) OF: | | | |
|----------------------|--------------------------------------|---|------------------|------------------|------------------|
| | | SG ≥ 0.67 ² | 0.58 ≥ SG ≥ 0.55 | 0.55 > SG ≥ 0.49 | 0.49 > SG ≥ 0.42 |
| R4 | 9x2" | 162 | 119 | 107 | 83 |
| | 9x2 1/2" | | | | |
| | 9x2 3/4" | | | | |
| | 9x3 1/4" | | | | |
| | 10x2 1/2" | 275 | 140 | 126 | 103 |
| | 10x2 3/4" | | | | |
| | 10x3 1/4" | | | | |
| | 10x3 3/8" | | | | |
| | 10x4" | 407 | 176 | 171 | 126 |
| | 10x4 1/2" | | | | |
| | 12x4 1/2" | | | | |
| | 12x5 1/2" | | | | |
| | 12x6 1/2" | 407 | 176 | 171 | 126 |
| | 12x7 1/2" | | | | |
| 12x8" | | | | | |
| 12x10" | | | | | |
| 12x12" | 407 | 176 | 171 | 126 | |
| 12x14" | | | | | |
| 12x16" | | | | | |
| 12x18" | | | | | |
| FIN/TRIM | 8x2 1/2" | 61 | n/a | n/a | n/a |
| | 8x2 3/4" | | | | |
| | 8x3 1/2" | 94 | n/a | n/a | n/a |
| | 8x3 3/4" | | | | |
| 9x2 1/2" | 94 | n/a | n/a | n/a | |
| 9x2 3/4" | | | | | |
| 9x3 1/2" | 94 | n/a | n/a | n/a | |
| 9x3 3/4" | | | | | |

For S1: 1 inch = 25.4 mm; 1 lbf = 4.45 N.

¹Values must be multiplied by applicable adjustment factors, in accordance with the NDS.
²Pilot holes equal to 90% of the root diameter of the screw are required, and the tabulated values are applicable to connections subject to tension load only.

TABLE 2B — REFERENCE WITHDRAWAL DESIGN VALUES (W) FOR PHEINOX™ STAINLESS STEEL FASTENERS^{1,2}

| FASTENER DESIGNATION | THREAD LENGTH ³ (inches) | W (lbf/in.) FOR SPECIFIC GRAVITIES (SG) OF: | | | |
|-----------------------|-------------------------------------|---|------------------|------------------|------------------|
| | | SG ≥ 0.67 ⁴ | 0.58 ≥ SG ≥ 0.55 | 0.55 > SG ≥ 0.49 | 0.49 > SG ≥ 0.42 |
| R4 | 9x2" | 213 | 215 | 179 | 125 |
| | 10x2 1/2" | | | | |
| | 10x2 3/4" | 123 | 240 | 193 | 144 |
| | 10x3 1/4" | | | | |
| | 10x4" | | | | |
| FIN/TRIM RT COMPOSITE | 8x2 1/2" | 106 | n/a | n/a | n/a |
| | 8x2 3/4" | | | | |
| | 8x3 1/2" | 115 | n/a | n/a | n/a |
| | 8x3 3/4" | | | | |
| | 9x2 1/2" | 115 | n/a | n/a | n/a |
| | 9x2 3/4" | | | | |
| 9x3 1/2" | 115 | n/a | n/a | n/a | |
| 9x3 3/4" | | | | | |

For S1: 1 inch = 25.4 mm; 1 lbf/in = 175 N/m.

¹Tabulated reference withdrawal design values (W) are in pounds per inch of thread penetration into side grain of main member.
²Values must be multiplied by applicable adjustment factors, in accordance with the NDS, and must be multiplied by the length of thread penetration in the main member, including tip.
³Where two thread lengths are shown, the first refers to thread length of screws marked with "GRK" on the fastener head, and the second refers to screws which do not have this marking on the head.
⁴Pilot holes equal to 70% of the root diameter of the screw are required, and the tabulated values are applicable to connections subject to tension load only, due to differing pilot hole requirements for lateral connections.

TABLE 3B— REFERENCE PULL-THROUGH DESIGN VALUES (P) FOR PHEINOX™ STAINLESS STEEL FASTENERS¹

| FASTENER DESIGNATION | MINIMUM SIDE MEMBER THICKNESS (inch) | P (lbf) FOR SPECIFIC GRAVITIES (SG) OF: | | | |
|-----------------------|--------------------------------------|---|------------------|------------------|------------------|
| | | SG ≥ 0.67 ² | 0.58 ≥ SG ≥ 0.55 | 0.55 > SG ≥ 0.49 | 0.49 > SG ≥ 0.42 |
| R4 | 9x2" | 184 | 119 | 107 | 83 |
| | 10x2 1/2" | | | | |
| | 10x2 3/4" | 220 | 140 | 126 | 103 |
| | 10x3 1/4" | | | | |
| | 10x4" | | | | |
| FIN/TRIM RT COMPOSITE | 8x2 1/2" | 70 | n/a | n/a | n/a |
| | 8x2 3/4" | | | | |
| | 8x3 1/2" | 124 | n/a | n/a | n/a |
| | 8x3 3/4" | | | | |
| | 9x2 1/2" | 124 | n/a | n/a | n/a |
| | 9x2 3/4" | | | | |
| 9x3 1/2" | 124 | n/a | n/a | n/a | |
| 9x3 3/4" | | | | | |

For S1: 1 inch = 25.4 mm; 1 lbf = 4.45 N.

¹Values must be multiplied by applicable adjustment factors, in accordance with the NDS.
²Pilot holes equal to 90% of the root diameter of the screw are required, and the tabulated values are applicable to connections subject to tension load only.



TABLE 4A— REFERENCE LATERAL DESIGN VALUES (Z) FOR WOOD-TO-WOOD CONNECTIONS USING CLIMATEK™ COATED FASTENERS¹

| FASTENER DESIGNATION | SIDE MEMBER THICKNESS (inch) | MINIMUM MAIN MEMBER PENETRATION (inches) | Z (lbf) FOR SPECIFIC GRAVITIES (SG) OF: | | | | |
|----------------------|------------------------------|--|---|------------------|------------------|------------------|-----|
| | | | SG ≥ 0.67 ² | 0.58 ≥ SG ≥ 0.55 | 0.55 > SG ≥ 0.49 | 0.49 > SG ≥ 0.42 | |
| R4 | 9x2" | 3/4 | 1 1/4 | 175 | 103 | 89 | 75 |
| | 9x2 1/2" | | | | | | |
| | 9x2 3/4" | | | | | | |
| | 9x3 1/8" | | | | | | |
| | 10x2 1/2" | 3/4 | 1 3/4 | 203 | 121 | 97 | 95 |
| | 10x2 3/4" | | | | | | |
| | 10x3 1/8" | | | | | | |
| | 10x3 1/2" | | | | | | |
| | 10x4" | 3/4 | 4 | 242 | 122 | 119 | 110 |
| | 10x4 3/4" | | | | | | |
| | 12x4 3/4" | | | | | | |
| | 12x5 5/8" | | | | | | |
| | 12x6 3/8" | | | | | | |
| | 12x7 1/4" | | | | | | |
| 12x8" | | | | | | | |
| 12x10" | | | | | | | |
| 12x12" | | | | | | | |
| FIN/TRIM | 8x2 1/2" | 3/4 | 1 3/4 | 84 | — | — | — |
| | 8x2 3/4" | | | | | | |
| | 8x3 1/8" | | | | | | |
| | 9x2 1/2" | 3/4 | 1 3/4 | 104 | — | — | — |
| | 9x2 3/4" | | | | | | |
| | 9x3 1/8" | | | | | | |

For SI: 1 inch = 25.4 mm; 1 lbf = 4.45 N.

¹Values must be multiplied by applicable adjustment factors, in accordance with the NDS.

²Pilot holes equal to 90% of the root diameter of the screw are required, and the tabulated values are applicable to connections subject to lateral load only, due to differing pilot hole requirements for tension connections.

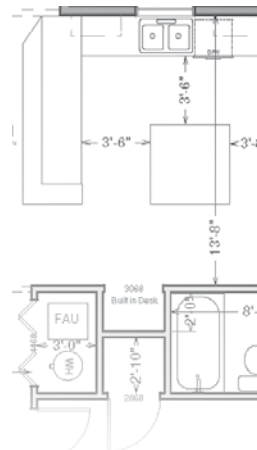
TABLE 4B— REFERENCE LATERAL DESIGN VALUES (Z) FOR WOOD-TO-WOOD CONNECTIONS USING PHEINOX™ STAINLESS STEEL FASTENERS¹

| FASTENER DESIGNATION | SIDE MEMBER THICKNESS (inch) | MINIMUM MAIN MEMBER PENETRATION (inches) | Z (lbf) FOR SPECIFIC GRAVITIES (SG) OF: | | | | |
|----------------------|------------------------------|--|---|------------------|------------------|------------------|-----|
| | | | SG ≥ 0.67 ² | 0.67 > SG ≥ 0.55 | 0.55 > SG ≥ 0.49 | 0.49 > SG ≥ 0.42 | |
| R4 | 9x2" | 3/4 | 1 1/4 | 212 | 128 | 110 | 87 |
| | 10x2 1/2" | 3/4 | 1 3/4 | 235 | 135 | 110 | 102 |
| | 10x2 3/4" | | | | | | |
| | 10x3 1/8" | | | | | | |
| | 10x4" | | | | | | |
| FIN/TRIM | 8x2 1/2" | 3/4 | 1 3/4 | 78 | — | — | — |
| | 8x2 3/4" | | | | | | |
| | 8x3 1/8" | | | | | | |
| | 9x2 1/2" | 3/4 | 1 3/4 | 108 | — | — | — |
| | 9x2 3/4" | | | | | | |
| 9x3 1/8" | | | | | | | |
| RT COMPOSITE | 8x2 1/2" | 3/4 | 1 3/4 | 107 | — | — | — |
| | 8x2 3/4" | | | | | | |
| | 8x3 1/8" | | | | | | |
| | 9x2 1/2" | 3/4 | 1 3/4 | 151 | — | — | — |
| | 9x2 3/4" | | | | | | |
| 9x3 1/8" | | | | | | | |

For SI: 1 inch = 25.4 mm; 1 lbf = 4.45 N.

¹Values must be multiplied by applicable adjustment factors, in accordance with the NDS.

²Pilot holes equal to 90% of the root diameter of the screw are required, and the tabulated values are applicable to connections subject to lateral load only, due to differing pilot hole requirements for tension connections.



R4™, Trim™

TABLE 5—CONNECTION GEOMETRY REQUIREMENTS^{1,2}

| CONDITION | | MINIMUM DISTANCE OR SPACING (inches) | | | |
|------------------------------------|--------------------------------|--------------------------------------|-------------------------------|-------------------------------|-------------------------------|
| | | D = 0.111" | D = 0.128-0.134" | D = 0.142" | D = 0.171" |
| End distance | Loading toward end | 2 | 2 | 2 ¹ / ₈ | 2 ⁵ / ₈ |
| | Loading away from end | 1 ¹ / ₈ | 1 ¹ / ₄ | 1 ³ / ₈ | 1 ³ / ₄ |
| | Loading perpendicular to grain | NA ³ | NA ³ | NA ³ | NA ³ |
| Edge distance | Loading parallel to grain | 1 | 1 | 1 ¹ / ₈ | 1 ³ / ₈ |
| | Loading perpendicular to grain | NA ³ | NA ³ | NA ³ | NA ³ |
| Spacing between fasteners in a row | Loading parallel to grain | 1 ³ / ₄ | 2 | 2 ¹ / ₈ | 2 ⁵ / ₈ |
| | Loading perpendicular to grain | NA ³ | NA ³ | NA ³ | NA ³ |
| Spacing between rows | In-line rows | 5 ⁵ / ₈ | 5 ⁵ / ₈ | 3 ³ / ₄ | 7 ¹ / ₈ |
| | Staggered rows ⁴ | 1 ¹ / ₄ | 3 ³ / ₈ | 3 ³ / ₈ | 3 ³ / ₈ |

For SI: 1 inch = 25.4 mm.

¹End distances, edge distances and screw spacing must be sufficient to prevent splitting of the wood, or as required by this table, whichever is the more restrictive. See Section 4.2.

²The term *D* is the shank diameter, as specified in Table 1.

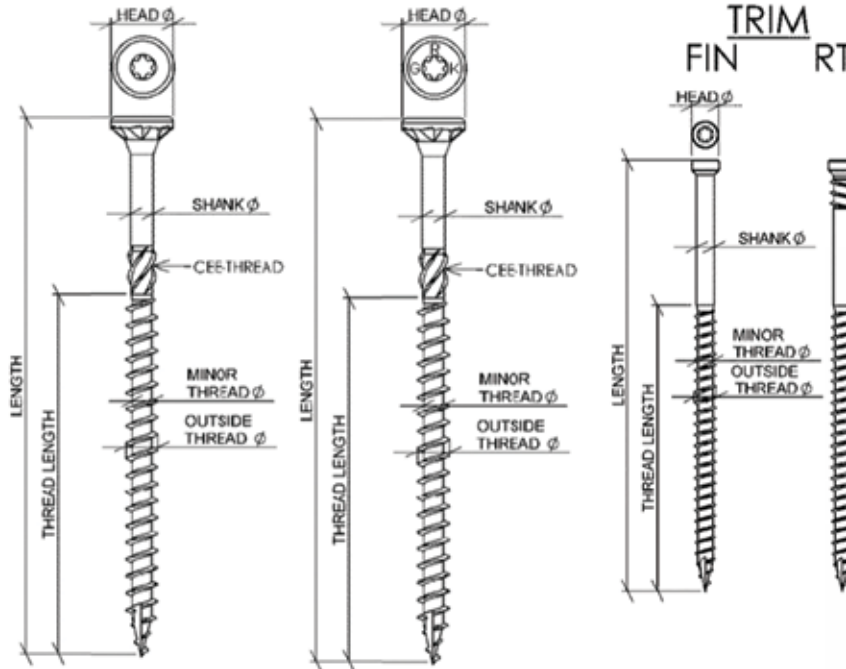
³Loading perpendicular to grain is outside the scope of this evaluation report.

⁴Values for spacing between staggered rows apply where screws in adjacent rows are offset by half of the spacing between screws in a row.

TABLE 6—EXPOSURE CONDITIONS FOR FASTENERS WITH INTENDED USE AND LIMITATIONS OF RECOGNITION

| EXPOSURE CONDITION | TYPICAL APPLICATIONS | RECOGNITION LIMITATIONS |
|--|--------------------------------------|--|
| Corrosion Resistance of Fasteners | | |
| 1 | Treated wood in dry use applications | Limited to use where equilibrium moisture content of the chemically treated wood meets the dry service conditions as described in the NDS. |
| 3 | General construction | Limited to freshwater and chemically treated wood exposure, i.e., no saltwater exposure. |

R4

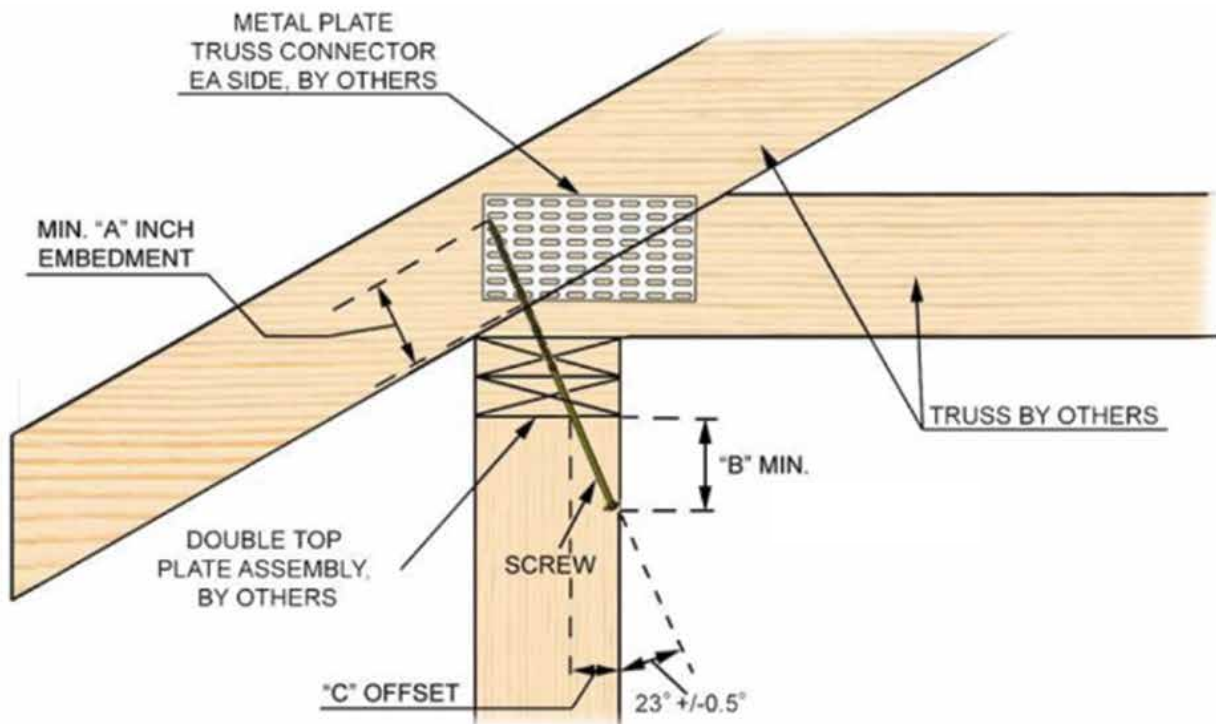


Roof Joist or Roof Truss to Top Plate or Stud Connection

Table 1 Allowable Design Loads for Roof Joist or Roof Truss to Top Plate Connections

| Load Type | Screw Type | Wood Species | | |
|----------------------------------|-----------------|-----------------------|----------------------------|--------------------------|
| | | SP (Southern Pine) | DFL (Douglas Fir Larch) | SPF (Spruce Pine Fir) |
| Allowable Uplift in lbs | Ø3/8 RSS | 1230 | 1017 | 717 |
| Allowable Shear / Lateral in lbs | | 528 | 480 | 393 |
| Allowable Uplift in lbs | # 12 R4 | 873 | 722 | 509 |
| Allowable Shear / Lateral in lbs | | 352 | 322 | 273 |
| Allowable Uplift in lbs | Ø1/4 LPS/RSS | 562 | 465 | 328 |
| Allowable Shear / Lateral in lbs | | 242 | 221 | 188 |

FIGURE 1 Typical Connection Details



Multiple Sawn Lumber & Engineered Wood Beams

Table 1 MFR Lumber G=0.5

| JTS Screw | # of Screw rows | Fastener Spacing in inches | Allowable Face Mounted Loads Per Foot (PLF) | | | | | | | | | | | | | |
|------------|-----------------|----------------------------|---|-----|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | Assembly per Table 3 | | | | | | | | | | | | | |
| | | | A | B | C | D | E | F | | | | | | | | |
| ¼ x 3-3/8" | 2 | 24 | 212 | X | X | X | X | X | X | | | | | | | |
| | 2 | 16 | 318 | | | | | | | | | | | | | |
| | 2 | 12 | 424 | | | | | | | | | | | | | |
| | 3 | 24 | 318 | | | | | | | | | | | | | |
| | 3 | 16 | 477 | | | | | | | | | | | | | |
| ¼ x 5" | 2 | 24 | 212 | X | X | 238 | X | X | | | | | | | | |
| | 2 | 16 | 318 | | | | | | 357 | | | | | | | |
| | 2 | 12 | 424 | | | | | | | 476 | | | | | | |
| | 3 | 24 | 318 | | | | | | | | 357 | | | | | |
| | 3 | 16 | 477 | | | | | | | | | 536 | | | | |
| 3 | 12 | 636 | 714 | | | | | | | | | | | | | |
| ¼ x 6-3/4" | 2 | 24 | | 212 | X | X | 255 | 238 | X | | | | | | | |
| | 2 | 16 | | 318 | | | | | | 383 | | | 357 | | | |
| | 2 | 12 | | 424 | | | | | | | 510 | | | 476 | | |
| | 3 | 24 | | 318 | | | | | | | | 383 | | | 357 | |
| | 3 | 16 | 477 | 575 | | | | | | | | | | | | 536 |
| | 3 | 12 | 636 | | | | | | | | | | | | | |

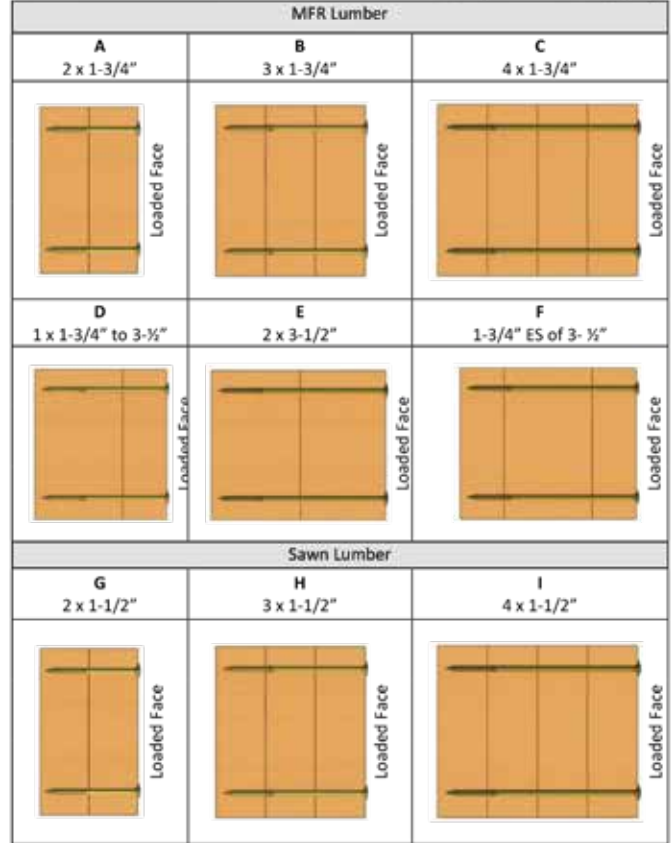
Note: 1. Applied load from joist are assumed to be uniform
2. Fastener capacity is based on fastener spacing, not joist spacing

Table 2 Sawn Lumber with Varying Specific Gravity values

| RSS | # of Screw rows | Fastener Spacing in inches | Allowable Face Mounted Loads Per Foot (PLF) | | | | Assembly per Table 3 |
|------------|-----------------|----------------------------|---|--------------|------------|---|----------------------|
| | | | S.Pine G=0.55 | D.Fir G=0.50 | SPF G=0.42 | | |
| ¼ x 2-3/4" | 2 | 24 | 190 | 165 | 127 | G | |
| | 2 | 16 | 285 | 248 | 191 | | |
| | 2 | 12 | 380 | 330 | 254 | | |
| | 3 | 24 | 285 | 248 | 191 | | |
| | 3 | 16 | 428 | 372 | 286 | | |
| | 3 | 12 | 570 | 495 | 381 | | |
| 5/16 x 4" | 2 | 24 | 257 | 214 | 210 | H | |
| | 2 | 16 | 386 | 321 | 315 | | |
| | 2 | 12 | 514 | 428 | 420 | | |
| | 3 | 24 | 386 | 321 | 315 | | |
| | 3 | 16 | 578 | 482 | 473 | | |
| | 3 | 12 | 771 | 642 | 630 | | |
| 5/16 x 6" | 2 | 24 | 257 | 214 | 210 | I | |
| | 2 | 16 | 386 | 321 | 315 | | |
| | 2 | 12 | 514 | 428 | 420 | | |
| | 3 | 24 | 386 | 321 | 315 | | |
| | 3 | 16 | 578 | 482 | 473 | | |
| | 3 | 12 | 771 | 642 | 630 | | |

Note: 1. Applied load from joist are assumed to be uniform
2. Fastener capacity is based on fastener spacing, not joist spacing

Table 3 Assembly Types (Cutting Plane 'A-A' per Fig.3)

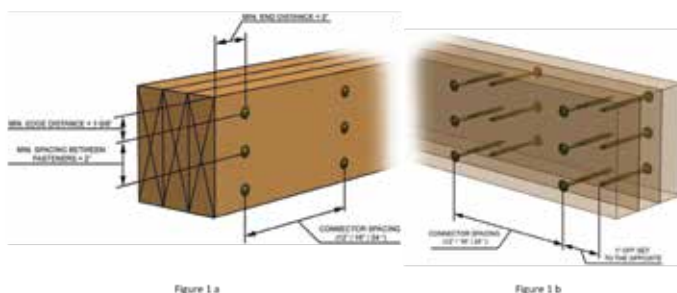


Note: Load should be applied to the face w/the screw head

ABBREVIATIONS:

- D.Fir = Douglas Fir-Larch
- ES = each side
- H. Fir = Hem -Fir
- JTS = Joist and Truss Screw
- MFR = Manufactured structural composite lumber
- PLF = Pounds per linear foot
- RSS = Rugged Structural Screw
- SPF = Spruce-Pine-Fir
- S.Pine = Southern Pine
- tm = Thickness of main member
- ts = Thickness of side member
- TYP = Typical
- o.c. = on center

Minimum Spacing Geometry - perpendicular to grain loading



Multi-Ply Beam with One Face Loaded

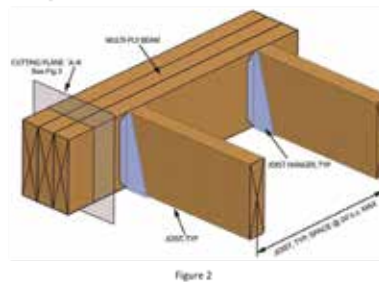


Figure 2

Cutting Plane 'A-A'

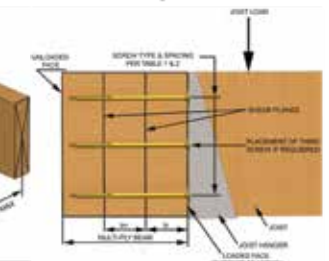
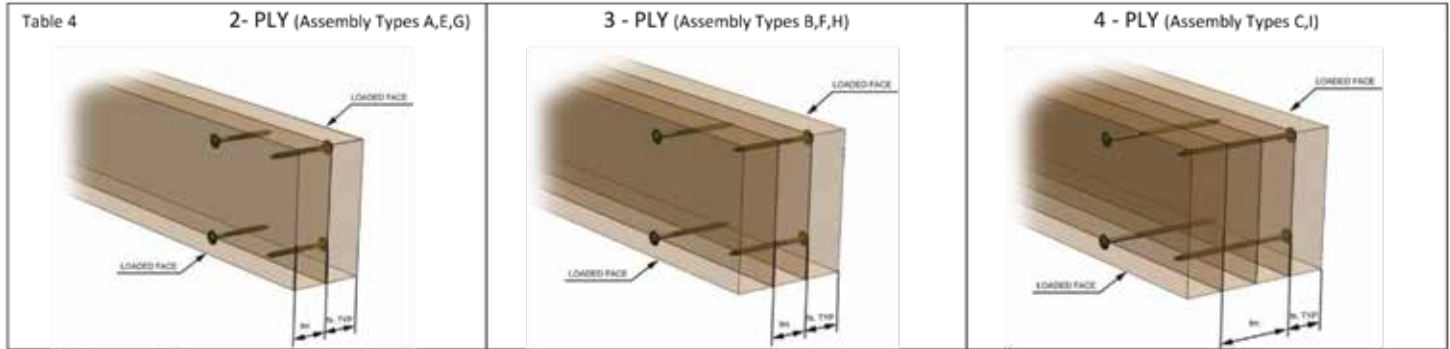


Figure 3

Multi-Ply Beams w/loads on Both Faces



Note: 1. See Tables 1 & 2 for load carrying capacity.
 2. RSS/JTS screws shall be sized to penetrate laminations from both sides.

Multi-Ply Beam Point Load

Table 5 MFR Lumber G=0.5

| JTS Screw | # Screws | Max Point Load to One Side of Member ** | | | | | |
|--------------|----------|---|------|------|------|------|------|
| | | A | B | C | D | E | F |
| 1/4 x 3-3/8" | 4 | 848 | | | | | |
| | 6 | 1272 | | | | | |
| | 8 | 1696 | | | | | |
| 1/4 x 5" | 4 | | 848 | | 952 | | |
| | 6 | | 1272 | | 1428 | | |
| | 8 | | 1696 | | 1904 | | |
| 1/4 x 6-3/4" | 4 | | | 848 | | 1020 | 952 |
| | 6 | | | 1272 | | 1530 | 1428 |
| | 8 | | | 1696 | | 2040 | 1904 |

Table 6 Sawn Lumber with Varying Specific Gravity values

| RSS | # Screws | Max Point Load to One Side of Member ** | | | | Assembly |
|--------------|----------|---|-----------------|---------------|---|----------|
| | | S.Pine G=0.55 | D.Fir G=0.50 | SPF G=0.42 | | |
| 1/4 x 2-3/4" | 4 | 760 | 660 | 508 | G | |
| | 6 | 1140 | 990 | 762 | | |
| | 8 | 1520 | 1320 | 1016 | | |
| 5/16 x 4" | 4 | 1028 | 856 | 840 | H | |
| | 6 | 1542 | 1284 | 1260 | | |
| | 8 | 2056 | 1712 | 1680 | | |
| 5/16 x 6" | 4 | 1028 | 856 | 840 | I | |
| | 6 | 1542 | 1284 | 1260 | | |
| | 8 | 2056 | 1712 | 1680 | | |

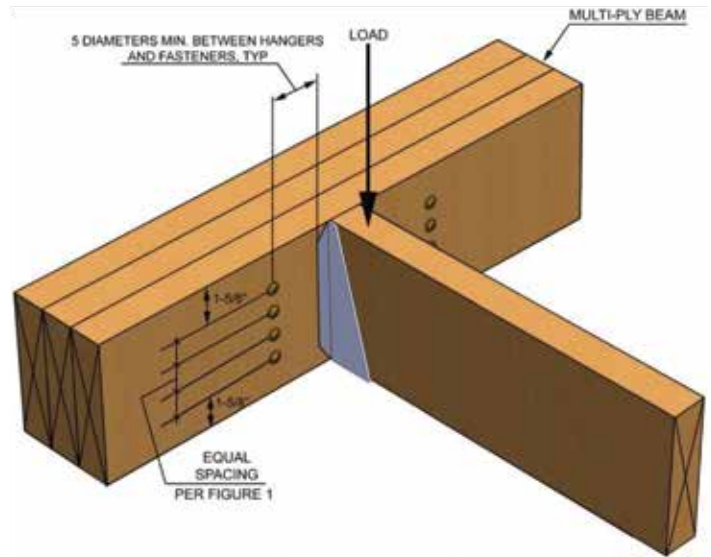


Figure 5

** Note when applying loads on both faces of built up beam, screws determined from table 5 & 6 shall be installed on both sides 1" offset for rows on opposite face.

Multi-Ply Beam Top-Loaded

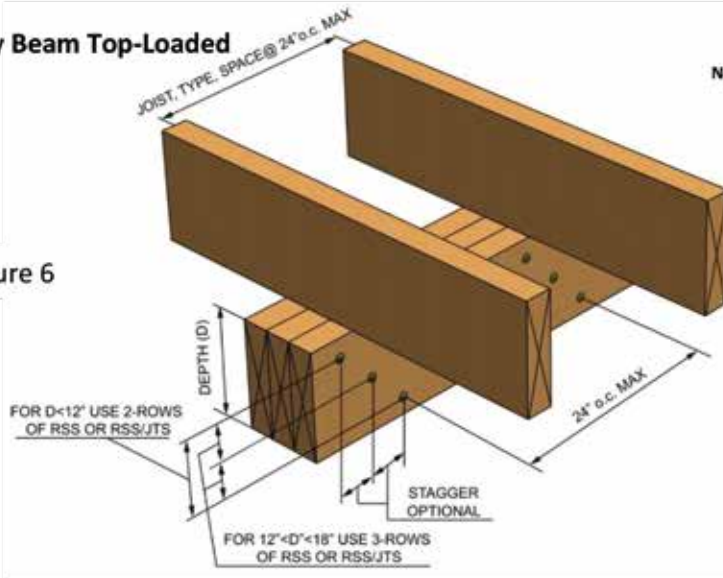


Figure 6

Note: 1. Load must be applied evenly across entire beam width. Otherwise, use connection for side-loaded beams.
 2. RSS/JTS screw shall be sized to penetrate through all plies
 3. For beams with 4 or more plies, install screws on both faces 1" offset between rows on opposite faces.

For ICC Report ESR-2442, please visit:
www.icc-es.org/reports/pdf-files/icc-es/ESR-2442.pdf

Ledger Board: Structural Screw

Table 1

| RSS 5/16 x 4" | | | Joist span | | | | |
|-----------------|---------------------------|------------------------------|-------------------------|------|-------|-------|-------|
| | | | 6 ft | 8 ft | 10 ft | 12 ft | 14 ft |
| Live load (psf) | Wood Species | Screw Shear Capacity (lb/ft) | Screw Spacing in inches | | | | |
| 40 | G= 0.42 / SPF | 182 | 14 | 10 | 8 | 7 | 6 |
| 40 | G = 0.50 / DF-PSL-LVL-LSV | 213 | 17 | 12 | 10 | 8 | 7 |
| 40 | G = 0.55 / SP | 252 | 20 | 15 | 12 | 10 | 8 |
| 60 | G= 0.42 / SPF | 182 | 10 | 7 | 6 | 5 | 4 |
| 60 | G = 0.50 / DF-PSL-LVL-LSV | 213 | 12 | 9 | 7 | 6 | 5 |
| 60 | G = 0.55 / SP | 252 | 14 | 10 | 8 | 7 | 6 |

NOTE: 1. Deck Dead Load = 10 psf

Table 2 (wet-use in- service)

| RSS 5/16 x 4" | | | Joist span | | | | |
|-----------------|---------------------------|------------------------------|---|------|-------|-------|-------|
| | | | 6 ft | 8 ft | 10 ft | 12 ft | 14 ft |
| Live load (psf) | Wood Species | Screw Shear Capacity (lb/ft) | Screw Spacing in inches/ <u>wet-use in- service</u> | | | | |
| 40 | G= 0.42 / SPF | 127 | 10 | 7 | 6 | 5 | 4 |
| 40 | G = 0.50 / DF-PSL-LVL-LSV | 150 | 12 | 9 | 7 | 6 | 5 |
| 40 | G = 0.55 / SP | 176 | 14 | 10 | 8 | 7 | 6 |
| 60 | G= 0.42 / SPF | 127 | 7 | 5 | 4 | 3 | 3 |
| 60 | G = 0.50 / DF-PSL-LVL-LSV | 150 | 8 | 6 | 5 | 4 | 3 |
| 60 | G = 0.55 / SP | 176 | 10 | 7 | 6 | 5 | 4 |

NOTE: 1. Deck Dead Load = 10 psf

Table 3

| PHEINOX RSS 5/16 x 4"(Stainless steel) | | | Joist span | | | | |
|--|---------------------------|------------------------------|-------------------------|------|-------|-------|-------|
| | | | 6 ft | 8 ft | 10 ft | 12 ft | 14 ft |
| Live load (psf) | Wood Species | Screw Shear Capacity (lb/ft) | Screw Spacing in inches | | | | |
| 40 | G= 0.42 / SPF | 151 | 12 | 9 | 7 | 6 | 5 |
| 40 | G = 0.50 / DF-PSL-LVL-LSV | 187 | 14 | 11 | 8 | 7 | 6 |
| 40 | G = 0.55 / SP | 204 | 16 | 12 | 9 | 8 | 6 |
| 60 | G= 0.42 / SPF | 151 | 8 | 6 | 5 | 4 | 3 |
| 60 | G = 0.50 / DF-PSL-LVL-LSV | 187 | 10 | 8 | 6 | 5 | 4 |
| 60 | G = 0.55 / SP | 204 | 11 | 8 | 6 | 5 | 4 |

NOTE: 1. Deck Dead Load = 10 psf

Table 4 (wet-use in- service)

| PHEINOX RSS 5/16 x 4"(Stainless steel) | | | Joist span | | | | |
|--|---------------------------|------------------------------|---|------|-------|-------|-------|
| | | | 6 ft | 8 ft | 10 ft | 12 ft | 14 ft |
| Live load (psf) | Wood Species | Screw Shear Capacity (lb/ft) | Screw Spacing in inches/ <u>wet-use in- service</u> | | | | |
| 40 | G= 0.42 / SPF | 106 | 8 | 6 | 5 | 4 | 3 |
| 40 | G = 0.50 / DF-PSL-LVL-LSV | 131 | 10 | 7 | 6 | 5 | 4 |
| 40 | G = 0.55 / SP | 143 | 11 | 8 | 6 | 5 | 4 |
| 60 | G= 0.42 / SPF | 106 | 6 | 4 | 3 | 3 | 2 |
| 60 | G = 0.50 / DF-PSL-LVL-LSV | 131 | 7 | 5 | 4 | 3 | 3 |
| 60 | G = 0.55 / SP | 143 | 8 | 6 | 4 | 4 | 3 |

NOTE: 1. Deck Dead Load = 10 psf

Table 5 Wood Species Specific Gravities

| Species | Specific Gravity (G) |
|-------------------------------|----------------------|
| Spruce-Pine Fir (SPF) | G = 0.42 |
| Hem-Fir (HF) | G = 0.43 |
| Douglas Fir Larch (DFL) | G = 0.50 |
| Parallel Strand Lumber (PSL) | G = 0.50 |
| Laminated Veneer Lumber (LVL) | G = 0.50 |
| Laminated Strand Lumber (LSL) | G = 0.50 |
| Southern Pine (SP) | G = 0.55 |

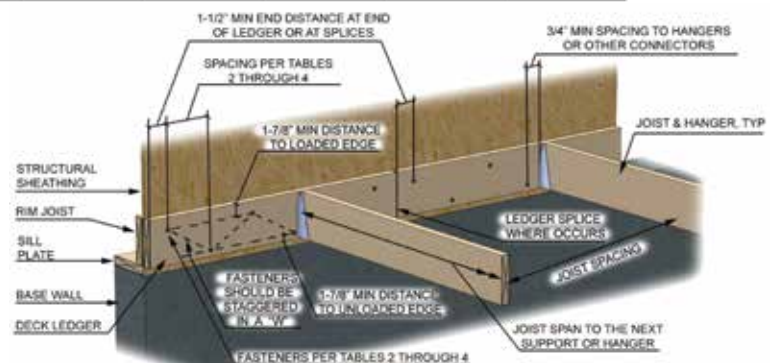


TABLE 2—TENSION STRENGTH DESIGN INFORMATION FOR TAPCON® SCREW ANCHOR¹

| CHARACTERISTIC | SYMBOL ⁵ | UNITS | NOMINAL ANCHOR DIAMETER (inch) ⁴ | |
|--|-------------------------|-----------------|---|--|
| | | | ³ / ₁₆ | ¹ / ₄ |
| Head Style | — | — | Hex Head/ Phillips Head | Hex Head/ Phillips Head |
| Drill bit specification | | in. | ⁵ / ₃₂ Tapcon® Bit | ³ / ₁₆ Tapcon® Bit |
| Anchor category | 1, 2 or 3 | — | 1 | 1 |
| Effective embedment depth | h_{ef} | in. | 1.50 | 1.50 |
| Minimum concrete member thickness | h_{min} | in. | 4 | 4 |
| Critical edge distance | c_{ac} | in. | 4 | 4 |
| Data for Steel Strength in Tension | | | | |
| Minimum specified yield strength | f_y | psi | 100,000 | 100,000 |
| Minimum specified ultimate strength | $f_{uta} (f_{ud})^5$ | psi | 125,000 | 125,000 |
| Effective tensile stress area | A_{se} | in ² | 0.0147 | 0.0241 |
| Steel strength in tension | N_{sa} | lbf | 2,025 | 3,800 |
| Strength reduction factor ϕ for tension, steel failure modes ² | ϕ_{sa} | — | 0.65 | 0.65 |
| Data for Concrete Breakout Strength in Tension | | | | |
| Effectiveness factor -uncracked concrete | k_{unscr} | — | 24 | 24 |
| Modification factor for cracked and uncracked concrete ³ | $\psi_{c,N} (\psi_c)^4$ | — | 1.0 | 1.0 |
| Strength reduction factor ϕ for tension, concrete failure modes, Condition B ³ | ϕ_{cb} | — | 0.65 | 0.65 |
| Data for Pullout Strength in Tension | | | | |
| Pullout strength, uncracked concrete | $N_{p,unscr}$ | lbf | 590 | 795 |
| Strength reduction factor ϕ for tension, pullout failure modes, Condition B ³ | ϕ_p | — | 0.65 | 0.65 |
| Additional Anchor Data | | | | |
| Axial stiffness in service load range in uncracked concrete | β_{unscr} | lbf/in | 317,000 | 467,000 |

For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

TABLE 3—SHEAR STRENGTH DESIGN INFORMATION FOR TAPCON® SCREW ANCHOR¹

| CHARACTERISTIC | SYMBOL ⁵ | UNITS | NOMINAL ANCHOR DIAMETER (inch) ⁴ | |
|--|----------------------|-----------------|---|--|
| | | | ³ / ₁₆ | ¹ / ₄ |
| Head Style | — | — | Hex Head/Phillips Head | Hex Head/Phillips Head |
| Drill bit specification | | in. | ⁵ / ₃₂ Tapcon® Bit | ³ / ₁₆ Tapcon® Bit |
| Anchor category | 1, 2 or 3 | — | 1 | 1 |
| Effective embedment depth | h_{ef} | in. | 1.50 | 1.50 |
| Minimum concrete member thickness | h_{min} | in. | 4 | 4 |
| Critical edge distance | c_{ac} | in. | 4 | 4 |
| Data for Steel Strengths in Shear | | | | |
| Minimum specified yield strength | f_y | psi | 100,000 | 100,000 |
| Minimum specified ultimate strength | $f_{uta} (f_{ud})^4$ | psi | 125,000 | 125,000 |
| Effective shear stress area | A_{se} | in ² | 0.0147 | 0.0241 |
| Steel strength in shear - static | V_{sa} | lbf | 715 | 1,300 |
| Strength reduction factor ϕ for shear, steel failure modes ² | ϕ_{sa} | — | 0.60 | 0.60 |
| Data for Concrete Breakout and Concrete Pryout Strengths in Shear | | | | |
| Nominal Outside diameter (shank) | $d_s (d_o)^4$ | in. | 0.15 | 0.19 |
| Load bearing length of anchor | ℓ_e | — | 1.50 | 1.50 |
| Coefficient for Pryout Strength | κ_{cp} | — | 1.0 | 1.0 |
| Strength reduction factor for shear, concrete breakout ³ | ϕ_{cb} | — | 0.70 | 0.70 |
| Strength reduction factor for shear, pryout ³ | ϕ_{cp} | — | 0.70 | 0.70 |

For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

TABLE 1—INSTALLATION INFORMATION FOR TAPCON+ SCREW ANCHORS

| CHARACTERISTIC | SYMBOL | UNITS | NOMINAL ANCHOR DIAMETER (inch) | | | | | |
|--|-------------------|--------|--------------------------------|-----------------|--------------|--------------|--------------|-------|
| | | | 1/4 | | 3/8 | | 1/2 | |
| Head Style | — | — | Hex Head | | Hex Head | | Hex Head | |
| Nominal Outside diameter (Shank) | d_s, d_o | in. | 0.25 | | 0.38 | | 0.50 | |
| Nominal Outside diameter (threads) | — | in. | 0.33 | | 0.46 | | 0.59 | |
| Drill bit specification | d_{bit} | in. | 1/4 Tapcon+ Bit | 1/4 Tapcon+ Bit | 1/4 ANSI Bit | 3/8 ANSI Bit | 1/2 ANSI Bit | |
| Minimum base plate clearance hole diameter | d_b | in. | Not applicable ² | | 3/8 | 1/2 | 5/8 | |
| Maximum installation torque ⁶ | $T_{inst, max}$ | ft-lbf | Not applicable ⁴ | | 20 | 50 | 70 | |
| Maximum Impact Wrench Torque Rating | $T_{impact, max}$ | ft-lbf | Not applicable ⁴ | | 115 | 200 | 345 | |
| Effective embedment depth | h_{ef} | in. | 1.67 | 1.45 | 1.78 | 1.32 | 2.17 | 3.02 |
| Minimum nominal embedment depth ⁵ | h_{nom} | in. | 2 1/4 | 2 | 2 1/2 | 2 | 3 | 4 |
| Minimum hole depth | h_{hole} | in. | 2 1/2 | 2 1/4 | 2 3/4 | 2 1/4 | 3 1/4 | 4 1/4 |
| Minimum concrete member thickness | h_{min} | in. | 4 | 4 | 4 | 4 | 6 | |
| Critical edge distance | c_{ac} | in. | 2 1/2 | 2 1/2 | 4 1/2 | 3 | 4 | 5 |
| Minimum edge distance | c_{min} | in. | 1 1/2 | 1 1/2 | 1 1/2 | 2 1/2 | 1 3/4 | 2 1/2 |
| Minimum spacing | s_{min} | in. | 3 | 3 | 3 | 3 | 3 1/2 | 3 |

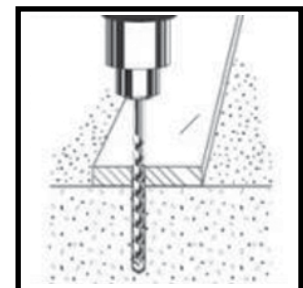
For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.



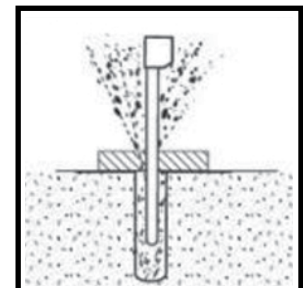
TABLE 2—TENSION STRENGTH DESIGN INFORMATION FOR TAPCON+ SCREW ANCHORS

| CHARACTERISTIC | SYMBOL | UNITS | NOMINAL ANCHOR DIAMETER (inch) | | | | | | |
|--|-------------------------|-----------------|--------------------------------|-----------------|----------------|----------------|----------------|------|------|
| | | | 1/4 | | 3/8 | | 1/2 | | |
| Head Style | — | — | Hex Head | | Hex Head | | Hex Head | | |
| Drill bit specification | | in. | 1/4 Tapcon+ Bit | 1/4 Tapcon+ Bit | 1/4 ANSI Bit | 3/8 ANSI Bit | 1/2 ANSI Bit | | |
| Anchor category | 1, 2 or 3 | — | 1 | 1 | 2 | 1 | 1 | | |
| Effective embedment depth | h_{ef} | in. | 1.45 ¹ | | 1.45 | 1.78 | 1.32 | 2.17 | 3.02 |
| Minimum concrete member thickness | h_{min} | in. | 4 | | 4 | 4 | 4 | 6 | |
| Critical edge distance | c_{ac} | in. | 2 1/2 | | 2 1/2 | 4 1/2 | 3 | 4 | 5 |
| Data for Steel Strength in Tension | | | | | | | | | |
| Minimum specified yield strength | f_y | psi | Not applicable | | 100,000 | 100,000 | 100,000 | | |
| Minimum specified ultimate strength | f_u (f_u^c) | psi | Not applicable | | 125,000 | 125,000 | 125,000 | | |
| Effective tensile stress area | A_{st} | in ² | Not applicable | | 0.0470 | 0.098 | 0.1850 | | |
| Steel strength in tension | N_{st} | lbf | 1,822 ² | | 5,900 | 12,250 | 23,125 | | |
| Strength reduction factor ϕ for tension, steel failure modes ² | ϕ_s | — | 0.65 | | 0.65 | 0.65 | 0.65 | | |
| Data for Concrete Breakout Strength in Tension | | | | | | | | | |
| Effectiveness factor - uncracked concrete | k_{con} | — | 24 | 24 | 27 | 30 | | | |
| Effectiveness factor - cracked concrete | k_{cr} | — | 17 | 17 | 17 | 17 | | | |
| Modification factor for cracked and uncracked concrete ³ | $\psi_{c,1N}(\psi_c)^3$ | — | 1.0 | 1.0 | 1.0 | 1.0 | | | |
| Strength reduction factor ϕ for tension, concrete failure modes, Condition B ¹ | ϕ_b | — | 0.65 | 0.65 | 0.55 | 0.65 | 0.65 | | |
| Data for Pullout Strength in Tension | | | | | | | | | |
| Pullout strength, uncracked concrete | $N_{p,uncr}$ | lbf | 2,107 | 2,107 | See Footnote 4 | See Footnote 4 | | | |
| Pullout strength, cracked concrete | $N_{p,cr}$ | lbf | 857 | 857 | 1,837 | See Footnote 4 | | | |
| Pullout strength for seismic loads | $N_{p,se}$ | lbf | 857 | 857 | 1,677 | See Footnote 4 | | | |
| Strength reduction factor ϕ for tension, pullout failure modes, Condition B ¹ | ϕ_p | — | 0.65 | 0.65 | 0.55 | 0.65 | See Footnote 4 | | |
| Additional Anchor Data | | | | | | | | | |
| Axial stiffness in service load range in uncracked concrete | β_{uncr} | lbf/in | 385,000 | 385,000 | 800,000 | 800,000 | | | |
| Axial stiffness in service load range in cracked concrete | β_{cr} | lbf/in | 225,000 | 225,000 | 365,000 | 365,000 | | | |

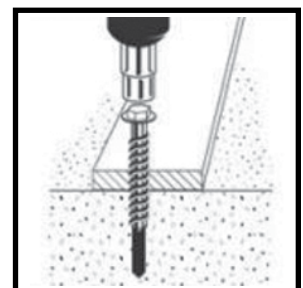
For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.



1



2



3

TABLE 3—SHEAR STRENGTH DESIGN INFORMATION FOR TAPCON+ SCREW ANCHORS

| CHARACTERISTIC | SYMBOL | UNITS | NOMINAL ANCHOR DIAMETER (inch) | | | | | |
|--|----------------------|-----------------|--------------------------------|-----------------|--------------|--------------|--------------|------|
| | | | 1/4 | 1/4 | 3/8 | 1/2 | | |
| Head Style | — | — | | Hex Head | Hex Head | Hex Head | | |
| Drill bit specification | | in. | 1/4 Tapcon+ Bit | 1/4 Tapcon+ Bit | 1/4 ANSI Bit | 3/8 ANSI Bit | 1/2 ANSI Bit | |
| Anchor category | 1, 2 or 3 | — | 1 | 1 | 2 | 1 | 1 | |
| Minimum effective embedment depth | h_{ef} | in. | 1.45 ⁶ | 1.45 | 1.78 | 1.32 | 2.17 | 3.02 |
| Minimum concrete member thickness | h_{min} | in. | 4 | 4 | 4 | 4 | 6 | |
| Critical edge distance | c_{ac} | in. | 2 1/2 | 2 1/2 | 4 1/2 | 3 | 4 | 5 |
| Data for Steel Strengths in Shear | | | | | | | | |
| Minimum specified yield strength | f_y | psi | Not applicable | 100,000 | 100,000 | 100,000 | | |
| Minimum specified ultimate strength | $f_{usa} (f_{ud})^4$ | psi | Not applicable | 125,000 | 125,000 | 125,000 | | |
| Effective shear stress area | A_{se} | in ² | Not applicable | 0.047 | 0.098 | 0.185 | | |
| Steel strength in shear - static | V_{sa} | lbf | 905 ⁷ | 2,045 | 3,621 | 12,610 | | |
| Steel strength in shear - seismic | $V_{sa,eq}$ | | Not applicable ⁵ | 1,350 | 2,920 | 9,300 | | |
| Strength reduction factor ϕ for shear, steel failure modes ² | ϕ_{sa} | — | 0.60 | 0.60 | 0.60 | 0.60 | | |
| Data for Concrete Breakout and Concrete Pryout Strengths in Shear | | | | | | | | |
| Nominal Outside diameter (shank) | $d_s (d_o)^4$ | in. | 0.25 | 0.25 | 0.38 | 0.50 | | |
| Load bearing length of anchor | ℓ_e | — | 1.67 | 1.45 | 1.78 | 1.32 | 2.17 | 3.02 |
| Coefficient for Pryout Strength | κ_{cp} | — | 1.0 | 1.0 | 1.0 | 1.0 | | 2.0 |
| Strength reduction factor for shear, concrete breakout ³ | ϕ_{cb} | — | 0.70 | 0.70 | 0.70 | 0.70 | | |
| Strength reduction factor for shear, pryout ³ | ϕ_{cp} | — | 0.70 | 0.70 | 0.70 | 0.70 | | |

For SI: 1 inch = 25.4 mm, 1 ft-lbf = 1.356 N-m.

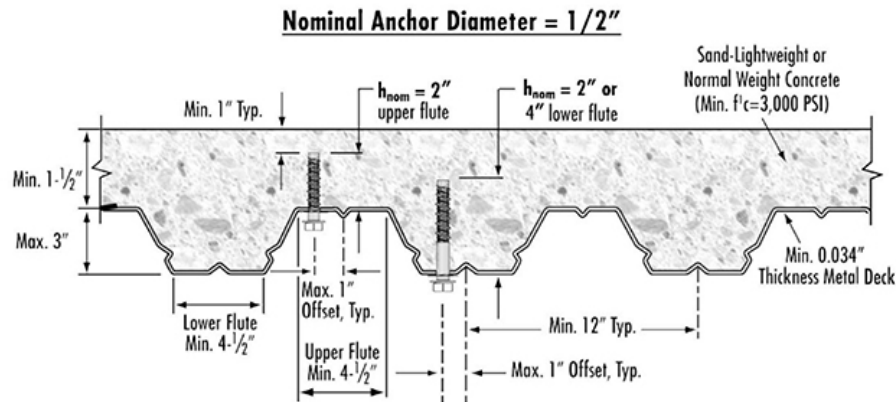


FIGURE 6—TAPCON+ SCREW ANCHOR LOCATED IN THE SOFFIT OF CONCRETE OVER STEEL DECK FLOOR AND ROOF ASSEMBLIES (1 inch = 25.4 mm)

TABLE 2—CONCRETE BREAKOUT DESIGN INFORMATION FOR U.S. CUSTOMARY UNIT THREADED ROD ⁽¹⁾

| CHARACTERISTIC | SYMBOL | UNITS | NOMINAL ROD DIAMETER (inch) | | | | | | |
|---|--------------|---------|-----------------------------------|----------------|-----------------|----------------|----------------|------|----------------|
| | | | $\frac{3}{8}$ | $\frac{1}{2}$ | $\frac{5}{8}$ | $\frac{3}{4}$ | $\frac{7}{8}$ | 1 | $1\frac{1}{4}$ |
| Effectiveness factor for uncracked concrete | k_{uncr} | - | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Effectiveness factor for cracked concrete | k_{cr} | - | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Minimum concrete thickness | h_{min} | in. | $h_{ef} + 1\frac{1}{4}$ | | $h_{ef} + 2d_o$ | | | | |
| Anchor embedment depth - minimum | $h_{ef,min}$ | in. | $2\frac{3}{8}$ | $2\frac{3}{4}$ | $3\frac{1}{8}$ | $3\frac{1}{2}$ | $3\frac{1}{2}$ | 4 | 5 |
| Minimum spacing | s_{min} | in. | $1\frac{5}{16}$ | $1\frac{1}{2}$ | $2\frac{1}{2}$ | 3 | $3\frac{1}{2}$ | 4 | 5 |
| Minimum edge distance | c_{min} | in. | $1\frac{5}{16}$ | $1\frac{1}{2}$ | $2\frac{1}{2}$ | 3 | $3\frac{1}{2}$ | 4 | 5 |
| Critical edge distance | c_{ce} | in. | See Section 4.1.10 of this report | | | | | | |
| Strength reduction factor for tension, concrete failure mode ¹ | ϕ | Cond. B | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| Strength reduction factor for shear, concrete failure mode ¹ | ϕ | Cond. B | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |

For SI: 1 inch = 25.4mm, 1 lbf = 4.45N, 1ft-lbf = 1.356 N-M, 1 psi = 0.006895 MPa.

TABLE 3—RED HEAD EPCON A7+ ADHESIVE ANCHOR BOND STRENGTH DESIGN INFORMATION FOR U.S. CUSTOMARY UNIT THREADED ROD ^(1,4)

| CHARACTERISTIC | SYMBOL | UNITS | NOMINAL ROD DIAMETER (inch) | | | | | | | |
|--------------------------------------|--|------------------|-----------------------------|----------------|-----------------|----------------|-----------------|-------|----------------|-------|
| | | | $\frac{3}{8}$ | $\frac{1}{2}$ | $\frac{5}{8}$ | $\frac{3}{4}$ | $\frac{7}{8}$ | 1 | $1\frac{1}{4}$ | |
| Anchor embedment depth - minimum | h_{ef} | in. | $2\frac{3}{8}$ | $2\frac{3}{4}$ | $3\frac{1}{8}$ | $3\frac{1}{2}$ | $3\frac{1}{2}$ | 4 | 5 | |
| Anchor embedment depth - maximum | h_{ef} | in. | $7\frac{1}{2}$ | 10 | $12\frac{1}{2}$ | 15 | $17\frac{1}{2}$ | 20 | 25 | |
| Temperature Range A ² | Characteristic Bond Strength for Uncracked Concrete | $T_{k,uncr}$ | psi | 1,770 | 1,770 | 1,770 | 1,770 | 1,490 | 1,490 | 1,490 |
| | Characteristic Bond Strength for Cracked Concrete | $T_{k,cr}$ | psi | 1,060 | 790 | 860 | 890 | 695 | 655 | 585 |
| Temperature Range B ³ | Characteristic Bond Strength for Uncracked Concrete | $T_{k,uncr}$ | psi | 1,275 | 1,275 | 1,275 | 1,275 | 1,080 | 1,080 | 1,080 |
| | Characteristic Bond Strength for Cracked Concrete | $T_{k,cr}$ | psi | 765 | 570 | 620 | 640 | 500 | 475 | 420 |
| Continuous Inspection | Strength Reduction Factor - Dry Concrete | $\phi_{dry, ci}$ | - | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| | Strength Reduction Factor - Water-Saturated Concrete | $\phi_{sat, ci}$ | - | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| | Strength Reduction Factor - Water-Filled Holes | $\phi_{wf, ci}$ | - | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| | Strength Reduction Factor - Submerged Concrete | $\phi_{sub, ci}$ | - | 0.65 | 0.55 | 0.55 | 0.65 | 0.65 | 0.55 | 0.65 |
| Periodic Inspection | Strength Reduction Factor - Dry Concrete | $\phi_{dry, pi}$ | - | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.65 |
| | Strength Reduction Factor - Water-Saturated Concrete | $\phi_{sat, pi}$ | - | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| | Strength Reduction Factor - Water-Filled Holes | $\phi_{wf, pi}$ | - | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 |
| | Strength Reduction Factor - Submerged Concrete | $\phi_{sub, pi}$ | - | 0.65 | 0.45 | 0.45 | 0.65 | 0.55 | 0.45 | 0.65 |
| Reduction factor for seismic tension | $\alpha_{N,seis}$ | - | 0.89 | 0.75 | 0.76 | 0.66 | 0.77 | 0.80 | 0.80 | |

For SI: 1 inch = 25.4mm, 1 lbf = 4.45N, 1ft-lbf = 1.356 N-M, 1 psi = 0.006895 MPa.

TABLE 2—ITW RED HEAD TRUBOLT WEDGE ANCHOR INSTALLATION INFORMATION

| | SYMBOL | UNITS | NOMINAL ANCHOR DIAMETER (in.) | | | | | |
|--------------------------------------|------------|----------------|-------------------------------|---------------|----------------|----------------|----------------|----------------|
| | | | 1/4 | | 3/8 | | 1/2 | |
| Anchor outer diameter | d_a | in. (mm) | 0.25 (6.4) | | 0.375 (9.5) | | 0.5 (12.7) | |
| Nominal carbide bit diameter | d_{bit} | in. (mm) | 1/4 | | 3/8 | | 1/2 | |
| Effective embedment depth | h_{ef} | in. (mm) | 1 1/2 (38) | 2 (51) | 1 3/4 (44) | 2 5/8 (67) | 1 7/8 (48) | 3 3/8 (86) |
| Nominal Embedment depth | h_{nom} | in. (mm) | 1 3/4 (44) | 2 1/4 (57) | 2 1/4 (57) | 3 1/8 (79) | 2 1/2 (64) | 4 (102) |
| Minimum hole depth | h_o | in. (mm) | 2 (51) | 2 1/2 (64) | 2 1/2 (64) | 3 3/8 (86) | 2 3/4 (70) | 4 1/4 (108) |
| Minimum concrete member thickness | h_{min} | in. (mm) | 4 (102) | | 4 (102) | 5 (127) | 5 (127) | 6 (152) |
| Critical edge distance | c_{ac} | in. (mm) | 2 5/8 (67) | 3 (76) | 2 5/8 (67) | 5 1/4 (133) | 3 3/4 (95) | 6 3/4 (171) |
| Minimum edge distance | c_{min} | in. (mm) | 1 3/4 (44) | 1 1/2 (38) | 2 1/4 (57) | 2 (51) | 3 3/4 (95) | 3 3/4 (95) |
| Minimum anchor spacing | s_{min} | in. (mm) | 1 3/4 (44) | 1 1/2 (38) | 2 1/4 (57) | 2 (51) | 3 3/4 (95) | 3 3/4 (95) |
| Installation torque | T_{inst} | ft-lb (N-m) | 4 (5) | | 25 (34) | | 55 (75) | |
| Reference (attachment) hole diameter | d_h | in. (mm) | 5/16 (7.9) | | 7/16 (11.1) | | 9/16 (14.3) | |

TABLE 3—ITW TRUBOLT WEDGE ANCHOR DESIGN INFORMATION^{2,3}

| DESIGN INFORMATION | SYMBOL | UNITS | NOMINAL ANCHOR DIAMETER | | | | | |
|--------------------------------------|-------------|------------------------------------|-------------------------|-------------|---------------|--------------|---------------|--------------|
| | | | 1/4 | | 3/8 | | 1/2 | |
| Anchor O.D. | d_a | in. mm | 0.250 6.4 | | 0.375 9.5 | | 0.500 12.7 | |
| Effective min. embedment | h_{ef} | in. mm | 1 1/2 38 | 2 51 | 1 3/4 44 | 2 1/2 67 | 1 1/2 48 | 3 3/8 86 |
| Minimum member thickness | h_{min} | in. mm | 4 102 | | 4 102 | 5 127 | 5 127 | 6 152 |
| Installation Torque | T_{inst} | ft-lb N-m | 4 5 | | 25 34 | | 55 75 | |
| Critical edge distance | c_{ac} | in. mm | 2 5/8 67 | 3 76 | 2 5/8 67 | 5 1/4 133 | 3 3/4 95 | 6 3/4 171 |
| Minimum edge distance | c_{min} | in. mm | 1 3/4 44 | 1 1/2 38 | 2 1/4 57 | 2 51 | 3 3/4 95 | 3 3/4 95 |
| Minimum anchor spacing | s_{min} | in. mm | 1 3/4 44 | 1 1/2 38 | 2 1/4 57 | 2 51 | 3 3/4 95 | 3 3/4 95 |
| Min. hole depth in concrete | h_o | in. mm | 2 51 | 2 1/2 64 | 2 1/2 64 | 3 3/8 86 | 2 3/4 70 | 4 1/4 108 |
| Min. Specified Yield Strength | f_y | ksi N/mm ² | 55,000 379 | | | | | |
| Min. Specified Ultimate Strength | f_u | ksi N/mm ² | 75,000 517 | | | | | |
| Effective tensile stress area | $A_{st,t}$ | in ² mm ² | 0.032 20.5 | | 0.078 50.0 | | 0.142 91.5 | |
| Effective shear stress area | $A_{st,v}$ | in ² mm ² | 0.032 20.5 | | 0.078 50.0 | | 0.142 91.5 | |
| Steel strength in tension | $N_{st,t}$ | lb kN | 2385 10.6 | | 5815 25.9 | | 10645 47.3 | |
| Steel strength in shear | V_{st} | lb kN | 1430 6.4 | | 2975 13.2 | | 4450 19.8 | |
| Pullout strength, uncracked concrete | $N_{cr,pr}$ | lb kN | See Table 4 | | | | | |

TABLE 3—ITW TRUBOLT WEDGE ANCHOR DESIGN INFORMATION^{2,3}

| DESIGN INFORMATION | SYMBOL | UNITS | NOMINAL ANCHOR DIAMETER | | | | | |
|---|----------|----------------|-------------------------|--------------|---------------|---------------|---------------|---------------|
| | | | 1/4 | | 3/8 | | 1/2 | |
| Anchor O.D. | d_a | in. mm | 0.250 6.4 | | 0.375 9.5 | | 0.500 12.7 | |
| Anchor Category | | | 1 | | | | | |
| Effectiveness factor k_{con} , uncracked concrete ³ | | | 24 | | | | | |
| Coefficient for pryout strength | k_{pr} | | 1.0 | 1.0 | 1.0 | 2.0 | 1.0 | 2.0 |
| Axial stiffness in service load range | β | lb/in kN/mm | 14,651 2.6 | 9,385 1.6 | 17,515 3.1 | 26,424 4.6 | 32,483 5.7 | 26,136 4.6 |
| Coefficient of variation for axial stiffness in service load range | | | 34 | 47 | 28 | 45 | 17 | 33 |
| Strength reduction factor for tension, steel failure modes | ϕ | — | 0.75 | | | | | |
| Strength reduction factor for shear, steel failure modes | ϕ | — | 0.65 | | | | | |
| Strength reduction factor for tension, concrete failure modes, Condition B ¹ | ϕ | — | 0.65 | | | | | |
| Strength reduction factor for shear, concrete failure modes, Condition B ¹ | ϕ | — | 0.70 | | | | | |

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 0.006895 MPa. For pound-inch units: 1 mm = 0.03937 inch.

TABLE 4—ITW TRUBOLT WEDGE ANCHOR PULLOUT STRENGTH, $N_{cr,pr}$ ^{1,2}

| NOMINAL ANCHOR DIAMETER (in.) | EFFECTIVE EMBEDMENT DEPTH (in.) | CONCRETE COMPRESSIVE STRENGTH | | | |
|-------------------------------|---------------------------------|-------------------------------|-------------------|-------------------|-------------------|
| | | $f_c = 2,500$ psi | $f_c = 3,000$ psi | $f_c = 4,000$ psi | $f_c = 6,500$ psi |
| 1/4 | 1 1/2 | 1,392 | 1,525 | 1,610 | 1,822 |
| | 2 | 1,706 | 1,869 | 1,947 | 2,151 |
| 3/8 | 1 1/2 | 2,198 | 2,408 | 2,621 | 3,153 |
| | 2 1/2 | 3,469 | 3,800 | 3,936 | 4,275 |
| 1/2 | 1 1/2 | 2,400 | 2,629 | 3,172 | 4,520 |
| | 3 1/2 | 4,168 | 4,520 | 4,520 | 4,520 |

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 0.006895 MPa.

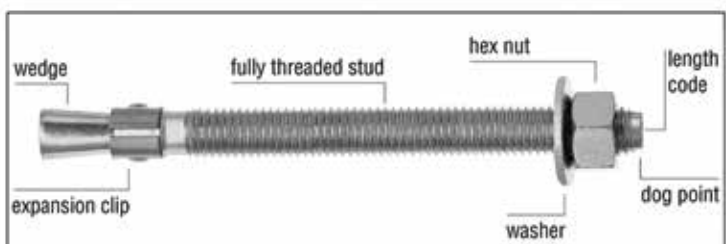
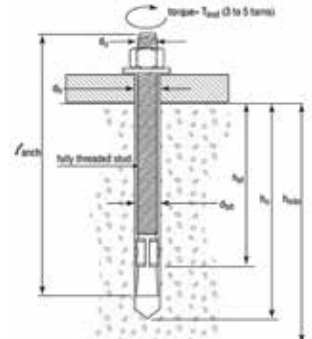


FIGURE 1—ITW RED HEAD TRUBOLT WEDGE ANCHOR





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