



## Model 288 SmartJack™ System

### Crawl Space Stabilizer

The Foundation Supportworks®, Inc. SmartJack™ is a supplemental support system for crawl space applications. The SmartJack™ effectively supports sagging beams and floor joists caused by:

- length of span greater than spanning capability of the members,
- floor load added after construction exceeding design values, and
- weakening of members over time due to high moisture and rot.

The SmartJack™ may also be used as a supplemental column support where an existing column and pier foundation has settled.

### Technical Specifications

**SJ288TP (Top Plate):** 0.25" x 4.00" x 4.00" plate and 1.50" OD x 1.00" ID x 1.375" long confining ring, zinc plated. Plate yield strength = 36 ksi (min.), tensile strength = 58 ksi (min.). Confining ring yield strength = 35 ksi (min.), tensile strength = 60 ksi (min.).

**SJ100ATR (All Thread Rod):** 1.00" diameter x 8" long with welded heavy hex nut, zinc plated. Yield strength = 70 ksi (min.), tensile strength = 85 ksi (min.).

**SJ288TI (Threaded Insert):** 3.00" OD x 1.00" long machined and tapped insert, zinc plated. Yield strength = 56 ksi (min.), tensile strength = 90 ksi (min.).

**SJ288T36, SJ288T60, SJ288T84 (Tube):** 2.88" OD x 0.165" wall x 36", 60", or 84" long field cut to length, triple-coated in-line galvanized. Yield strength = 50 ksi (min.), tensile strength = 55 ksi (min.).

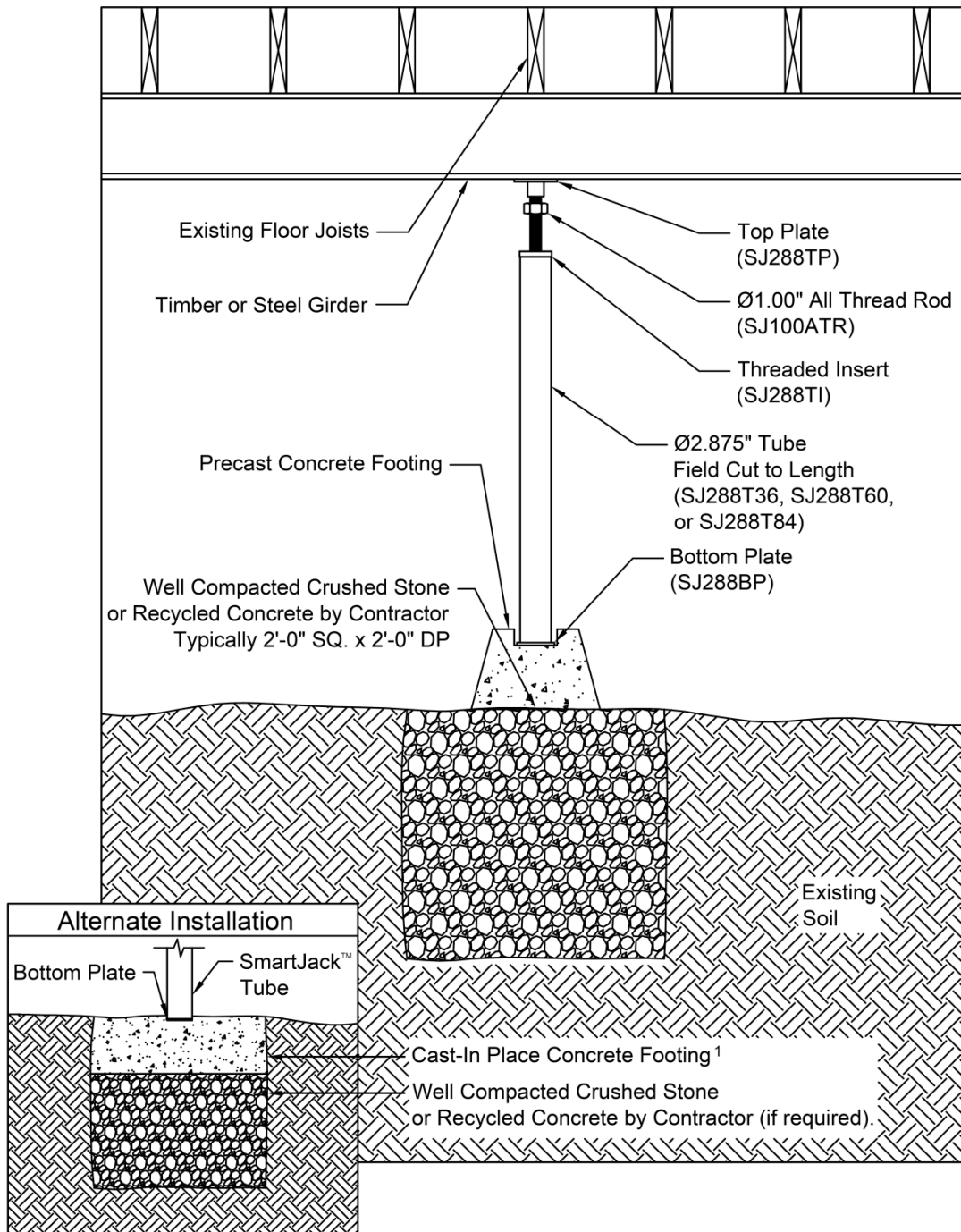
**SJ288BP (Bottom Plate):** 0.25" x 3.50" x 3.50" plate and 2.00" sq. x 0.25" wall x 0.75" long tube, zinc plated. Plate yield strength = 36 ksi (min.), tensile strength = 58 ksi (min.). Tube yield strength = 46 ksi (min.), tensile strength = 58 ksi (min.).

**SJFTG (Precast Concrete Footing):** Typical base dimensions approx. 12" x 12". Exact dimensions vary with manufacturer. Item purchased at local building supply center.

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<sup>1</sup>Note: Concrete footing design (thickness, reinforcement and compressive strength) by others.

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### Allowable Capacity

The allowable system capacity of the assembled 288 SmartJack™ steel components is 18 kips (18,000 pounds).

While the rigidity and strength of the SmartJack™ components benefit installation and overall product stability, the allowable load applied to the SmartJack™ system will nearly always be limited by the bearing capacity of the existing soil. The well-compacted crushed stone or recycled concrete base is a proven method to increase support for the higher bearing pressure condition immediately below the concrete footing, and then to absorb and distribute lower pressures to the existing soils. Should settlement of the SmartJack™ system occur, adjustments are made easily by extending the all-thread rod.

**The SmartJack™ is designed to support axial compression loads only. The SmartJack™ should not be used in applications where the system is intended to resist lateral loads.**

### Corrosion Protection

The tube steel used for the SmartJack™ is manufactured with a triple-layer, in-line galvanized coating. This coating process consists of: (1) a uniform hot-dip zinc galvanizing layer; (2) an intermediate conversion coating to inhibit the formation of white rust and enhance corrosion resistance; and (3) a clear organic top coating to further enhance appearance and durability. The inside of the pier tube also has a zinc-rich coating.

The remaining steel components of the SmartJack™; i.e., SJ288TP, SJ100ATR, SJ288TI, and SJ288BP come standard as zinc-plated in accordance with ASTM B633, "Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel".

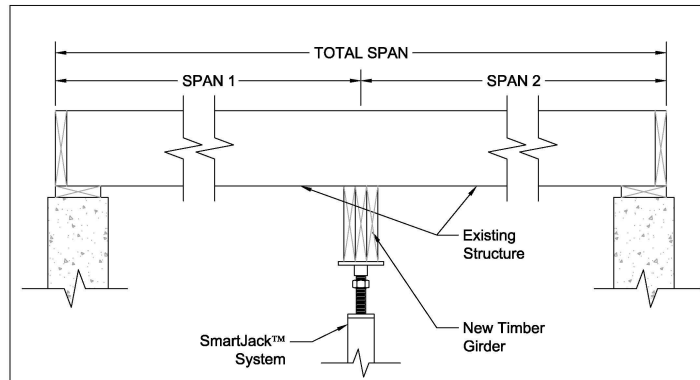
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## Design Guide



**Step 1** - Determine the load which will be supported by the girder in pounds per linear foot:

$$\text{Girder Load (plf)} = (\text{Span 1 (ft)} + \text{Span 2 (ft)}) \times \text{Floor Load (psf)} \div 2$$

**Note 1:** Typical residential wood-framed construction may have an approximate floor load (dead load + live load) = 55 psf

**Note 2:** This equation assumes a floor system which does not support any load bearing walls or columns.

**Step 2** - Determine the load on the SmartJacks™ by multiplying the calculated Girder Load (plf) by the spacing of the SmartJacks™:

$$\text{SmartJack™ Load (lbs)} = \text{Girder Load (plf)} \times \text{SmartJack™ Spacing (ft)}$$

**Step 3** - Verify that the calculated SmartJack™ load is less than the allowable capacity provided by the well-compacted crushed stone base and the bearing soils.

**Note 3:** Without a detailed soil investigation, typical installations should assume no more than 1,500 psf allowable soil bearing pressure. This would equate to an allowable soil capacity of 6,000 lbs for a 2'x2' poured concrete footing or a 2' cube of well-compacted crushed stone. Extremely soft soils may prohibit the use of a crushed stone base or require that a larger poured concrete footing be utilized.

**Step 4** - Size the new girder by entering the table below with both the SmartJack™ Spacing (ft) and the calculated Girder Load (plf). Choose a girder that has an Allowable Load (plf) greater than the calculated Girder Load (plf).

Girder Size	Girder Allowable Load (plf)					SmartJack™ Spacing
	4 ft	5 ft	6 ft	7 ft	8 ft	
(3) – 2x8	1,170	750	520	380	290	
(3) – 2x10	1,760	1,120	780	570	440	
(3) – 2x12	2,360	1,510	1,050	770	590	
(1) – 4 x 6	850	550	380	280	210	
(1) – 6 x 6	1,030	660	460	330	250	

**Note 4:** Table assumes Douglas Fir Larch – No. 2 or better

**Step 5** - If the required girder size is undesirable, adjust spacing of the SmartJacks™ and return to Step 2.

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