



# BUILDING STRENGTH™

BRIDGE DECK  
HANDBOOK

CONCRETE  
CONSTRUCTION  
PRODUCTS









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## Safety

Dayton Superior Bridge Deck forming accessories are intended only for use by trained, qualified and experienced workers. Misuse or lack of supervision and/or inspection can contribute to accidents resulting in property damage, serious personal injury or deaths. If through experience and use, the user discovers additional or alternative procedures that may seem superior to those shown in this handbook, do not implement them until Dayton Superior has approved the change in writing.

The user of Dayton Superior products must evaluate the product application, determine the appropriate safety factor, calculate the applied loads and control all field conditions to prevent application of loads in excess of the products' safe working loads. The ultimate values shown in this handbook are approximate values based on averaged test results. For safety, the listed safe working load should never be exceeded for any product.

Dayton Superior strives to ensure that every product it manufactures and sells meets or exceeds applicable production and safety requirements. However, the performance of a product can be greatly affected by the manner in which the product is used. It is imperative that the user be instructed in the proper installation and use of the products displayed in this handbook prior to job application.

The American Concrete Institute (ACI) publications, Formwork for Concrete (ACI SP-4) and Guide to Formwork for Concrete, as reported by ACI Committee 347 are excellent reference materials for general formwork design, planning, materials, accessories, loading and pressure information as well as design tables and much more. These publications are available from:

American Concrete Institute  
38800 Country Club Drive  
Farmington Hills, MI 48331  
Phone: 248-848-3700  
Website: [www.concrete.org](http://www.concrete.org)

For additional safety information, the user is advised to consult the *Department of Labor Occupational Safety and Health Administration (OSHA) Act, Part 1910 and 1926*. Available from:

U.S. Department of Labor  
Occupational Safety and Health Administration  
200 Constitution Avenue, NW  
Washington, DC 20210  
Website: [www.osha.gov](http://www.osha.gov)



## Safety Factors

Product production runs are constantly sampled and tested to assure the user a high standard of quality. Samples are tested in Dayton Superior test facilities or at independent testing laboratories. The safe working loads listed in this handbook were determined from the results of testing programs as well as other sources. The safety factor applied to a particular product is a variable dependent on the degree of hazard or risk involved in the application of the product and the job site conditions, which can often increase the degree of risk. Concentrated loads, such as construction materials stacked on the formwork, non-symmetrical placement of concrete, uplift, impact of machine delivered concrete, use of motorized carts and extreme formwork height, are examples that produce high risk factors. The user must adjust the safety factor used with the product accordingly to accommodate these risks.

### Minimum Safety Factors (ACI Committee 347)

Accessory	Factor of Safety	Type of Construction
Form Hanger	2	All applications
Form Anchor	2	Formwork supporting form weight and concrete pressure ONLY
	3	Formwork supporting weight of forms, concrete, construction live loads and impact.

Dayton Superior publishes the safe working loads and the associated minimum safety factors of its products and strongly advises the user not to compromise a products safe working load. When there are unusual job conditions, such as those mentioned above, the user must reduce the products safe working load by increasing the safety factor.

## Safe Working Loads

The following formula should be used in situations requiring the application of a larger factor of safety than that published:

$$\frac{\text{Published Safe Working Load} \times \text{Published Factor of Safety}}{\text{New Factor of Safety}} = \text{New Safe Working Load}$$

- All safe working loads shown in this handbook have been established with the following factors considered:
- All safe working loads shown in this handbook are based on the item being new or in “as new” condition. The safe working load is considered the greatest load that should be applied to a product.
- All hangers are manufactured for a specific width and thickness of beam flange. They are to be used only on a flange with the width and thickness for which they were manufactured.
- Hangers must be correctly positioned on top of the beam so that the Coil Bolts or Coil Rods are the proper distance from the edge of the beam flange.
- 90° hangers are produced so there is 1/8" clearance between the bolt and the beam flange.
- 15° hangers are produced so there is 1/8" clearance between the bolt and the beam flange.
- 45° hangers are produced so they are set back onto the beam 1/8" from the edge of the beam flange.
- All hangers are to have full bearing under the end section.
- Improper positioning of the hanger can seriously compromise the hanger’s safe working load.
- Hangers should be symmetrically arranged on the supporting beam or girder. Concrete placement should be properly sequenced to minimize twisting or rotation of hangers.
- Coil nuts must have full bearing on hanger end sections. Use caution to ensure that the hangers and related hardware are not subjected to side loading.
- All coil bolts, coil rods and related hardware shall be of proper length, diameter and capacity.
- All coil bolts and coil rods must fully penetrate and extend through the Coil Nuts a minimum of one bolt diameter.
- All anticipated loads, to be applied to a hanger and bridge overhang bracket, are to be calculated by a qualified person. Refer to *ACI 347—Guide to Formwork for Concrete*.
- When hangers and related items are electro-plated or hot-dip zinc galvanized, they must be properly baked to relieve hydrogen embrittlement. Failure to do so may result in a drastic reduction of the product’s safe working load.
- Extreme caution must be used when field welding. Welding may reduce material integrity and result in product failure.
- Dayton Superior recommends the use of a certified welder with a good working knowledge of materials, heat treatment and welding procedures.
- As Dayton Superior is not able to control field conditions or workmanship, Dayton Superior DOES NOT guarantee any product that has been altered after leaving the factory.
- Impact wrenches are not to be used to tighten coil bolts or coil rods that are part of the bridge deck forming system.



## Shop or Field Modification

Field welding or other modifications may compromise a product's safe working load value and result in hazardous situations.

Knowledge of materials, heat and welding procedures is necessary for proper welding. If field welding is required, it is recommended that the user consult their local welding supply dealer for assistance in determining proper welding procedures.

Do not weld to a casting unless approved by a licensed metallurgical engineer. Welding to an iron casting can produce carbides and cause extreme brittleness to develop which could destroy most of the casting's load carrying value.

As Dayton Superior cannot control either the workmanship or the conditions under which welding and/or other modifications are performed, Dayton Superior cannot be responsible for any product altered by others.



## Considerations When Using Bridge Deck Accessories

Dayton Superior recommends that an interlock type hanger, such as a C60 Type 4A Pres-Steel Hanger, be used to support a bridge overhang bracket when a finishing machine is to ride on the overhang formwork.

The user shall install the overhang bracket, hanger and form materials in such a manner that the supporting coil bolt or coil rod makes a  $45^\circ \pm 5^\circ$  angle with the top surface of the exterior bridge beam.

A qualified person, such as a formwork engineer, contractor or other competent person in charge of formwork and design must accurately calculate the hanger and overhang bracket spacing so that the applied load is equal to or less than the safe working load of the overhang system.

To meet the design load requirements specified by various Department of Transportation (DOT), Dayton Superior recommends the following minimums be used when calculating loads applied to interior hangers, exterior hangers and bridge overhang brackets:

- **Interior Design Loads:** Use 160 pounds per cubic foot when determining the dead load of the concrete and forms plus an additional 50 pounds per square foot for any expected live loads.
- **Exterior Design Loads:** Use 160 pounds per cubic foot when determining the dead load of the concrete and forms, 50 pounds per square foot for any expected live loads, a 75 pound per lineal foot load applied at the edge of the overhang plus the appropriate wheel weights of any finishing machine that will be supported by the exterior hangers and overhang brackets.



## Dayton Superior Technical Assistance

In situations where a bridge contractor does not have a qualified person on staff to calculate hanger and bracket spacing, Dayton Superior's Technical Assistance personnel are trained to provide such service. Additionally, they are able to provide bridge deck accessory take-offs and detailed drawings to the users of Dayton Superior bridge deck products. These services are provided at a nominal charge.



## Safety Concerns

For safety, bridge deck accessories must be properly used and maintained. The user is advised that incorrect utilization of bridge deck formwork accessories, insufficient bolt penetration through a coil nut, or altering a product in any way can result in premature failure and expose workers to unsafe conditions. Reusable bridge deck forming accessories such as coil bolts, coil rods, etc., are subject to wear, misuse, overloading, corrosion, deformation, alteration and other factors that may affect safe working loads.

It is the responsibility of the user to inspect reusable accessories for wear and/or misuse and to discard them if wear or misuse is detected. Dayton Superior recommends that all users of Dayton Superior reusable bridge deck forming products establish a quality control program to monitor and inspect their bridge deck forming accessories. The frequency of inspections is best determined by the user and is dependent on the type of product use, frequency of use, duration of use and the environmental conditions during use.

Do not straighten bent forming accessories – discard them. Discard any reusable forming accessory that has been subjected to 70% or more of its ultimate load. Such items may have exceeded the yield value of the material and may have become brittle and hard.

## Product Interchangeability

The construction industry does not have national standards for the manufacture of items such as coil threaded products and bridge deck forming accessories. A product supplied by other manufacturers may look similar to a Dayton Superior product, but may not have the same capacity and/or dimensions as those supplied by Dayton Superior.

Since bridge deck accessories are designed to work as a system, Dayton Superior strongly discourages efforts to interchange products supplied by other manufacturers with components supplied by Dayton Superior. When used improperly or with products supplied by other manufacturers, Dayton Superior products or systems may be rendered unsafe.



## Joist Spacing Charts

The spacing of the joists which support the plywood sheathing of concrete formwork, is a function of the type and thickness of plywood selected. In addition, the number of joists supporting each piece of plywood and the direction the face grain runs in relation to the joists, determines the center-to-center joist spacing.

As an aid to the bridge contractor, joist centers have been calculated using standard engineering principles that check the maximum joist spacing based on plywood bending, deflection and the rolling shear (shear in the plane of the plywood plies). Once the various centers have been calculated, the safe joist spacing is arranged in tables.

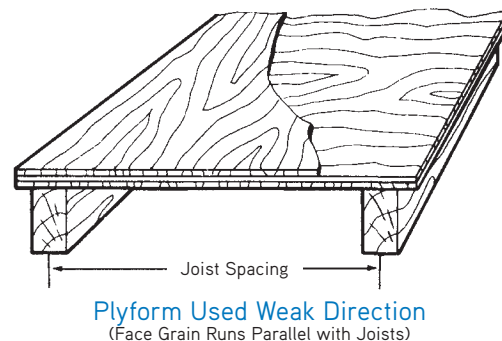
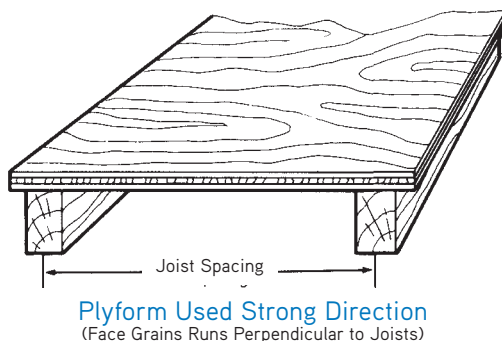
For concrete formwork, virtually any exterior plywood can be used, as all exterior plywood is produced using waterproof glue. However, the plywood industry produces special plywood called *Plyform*®, which is created especially for use as concrete formwork. *Plyform* is a proprietary product name and is used for specific products, which bear the trademark of the APA – The Engineered Wood Association.

The section properties, as well as the allowable stresses shown below, which were used to develop the safe joist spacing charts is based on information taken from the 2004 Edition of the Concrete Forming Design/Construction Guide published by APA – The Engineered Wood Association.

- Modulus of elasticity =  $E = 1,430,000$  psi
  - Allowable bending stress =  $F_b = 1,330$  psi
  - Allowable rolling shear stress =  $F_s = 72$  psi
- } Class II Values

When APA Plyform is used, the spacing listed in the charts may be used with Plyform Class I, Class II or Structural I or equivalent plywood. For additional information on plywood, the user may contact the following:

APA — The Engineered Wood Association  
7011 South 19th  
Tacoma, WA 98466  
Phone: 253-565-6600  
Website: [www.apawood.org](http://www.apawood.org)



## How to Use Charts — Joist Spacing Charts

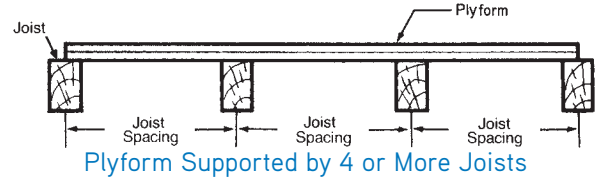
Select the proper chart to use. Determine concrete thickness, the desired face grain direction and Plyform thickness, where the concrete thickness row intersects with the Plyform thickness column will be the maximum safe joist centers.

The user should be aware, that a section of plywood will bend and deflect less when supported by 4 or more joists than it will when supported by 2 or 3 joists.

### Safe Joist Spacing Plyform Supported by 4 or more Joists

Concrete Thickness	Design Load	Face Grain Runs Perpendicular to Joists (Strong Direction)			Face Grain Runs Parallel to Joists (Weak Direction)		
		5/8"	23/32"	3/4"	5/8"	23/32"	3/4"
6"	130.0 psf	19"	21"	22"	14"	15"	17"
8"	156.7 psf	18"	20"	20"	13"	14"	16"
10"	183.3 psf	17"	19"	19"	12"	14"	15"
12"	210.0 psf	16"	18"	18"	11"	13"	14"
14"	236.7 psf	15"	17"	17"	11"	13"	14"
16"	263.3 psf	14"	16"	16"	10"	12"	13"
18"	290.0 psf	14"	15"	16"	10"	11"	13"
20"	316.7 psf	13"	14"	15"	9"	11"	12"

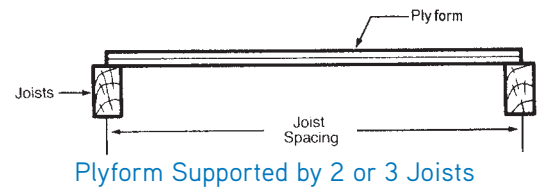
**Note:** Deflection is limited to 1/360 of span but no more than 1/16".



### Safe Joist Spacing Plyform Supported by 2 or 3 Joists

Concrete Thickness	Design Load	Face Grain Runs Perpendicular to Joists (Strong Direction)			Face Grain Runs Parallel with Joists (Weak Direction)		
		5/8"	23/32"	3/4"	5/8"	23/32"	3/4"
6"	130.0 psf	15"	17"	18"	13"	12"	14"
8"	156.7 psf	14"	16"	16"	12"	12"	13"
10"	183.3 psf	14"	15"	16"	11"	11"	12"
12"	210.0 psf	13"	14"	15"	10"	11"	11"
14"	236.7 psf	12"	14"	14"	9"	10"	11"
16"	263.3 psf	12"	13"	14"	9"	10"	11"
18"	290.0 psf	12"	13"	13"	9"	9"	10"
20"	316.7 psf	11"	13"	13"	8"	9"	10"

**Note:** Deflection is limited to 1/360 of span but no more than 1/16".





## Ledger Spacing Charts

The center-to-center spacing of ledgers used to support joists, is a function of the species, grade and size of joist lumber selected for use, as well as the joist centers and number of ledgers used in supporting each length of joist. Over the years, almost every species, grade and size of lumber has been used for joists and ledgers in concrete formwork. Today, only certain lumber species, grades and sizes are commonly used.

Nominal lumber sizes are used in the joist and ledger descriptions, but calculations are based on lumber finished on all four sides (S4S). Ledger centers are calculated by checking joist bending, deflection and horizontal shear. Once the ledger centers are determined, the joist centers and ledger spacing are arranged in tables.

The adjusted stresses shown below, are used in all joist and ledger calculations and are based on the use of Southern Pine, Grade #2 or equivalent strength lumber:

$E$  = Modulus of elasticity = 1,400,000 psi

$F_b$  = Allowable bending stress (including adjustment factors) varies with size of joist and ledgers = 1,581 psi for 2x4, 1,438 psi for 2x6, 1,330 psi for 2x8, 1,150 psi for 2x10, 1,078 psi for 2x12, 1,739 psi for 4x2, 1,581 psi for 4x4 and 1,581 for 6x2

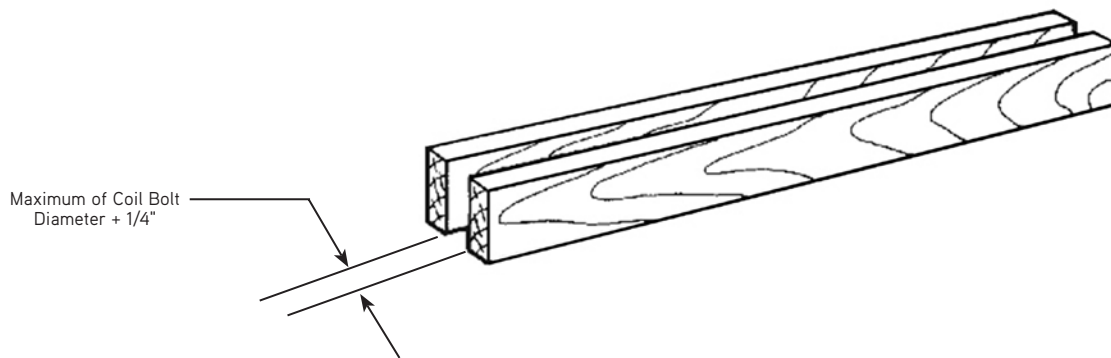
$F_s$  = Allowable shear stress = 219 psi (which assumes no splits or shakes in the lumber).

This data is taken from the 2015 Edition of *ANSI/AF&PA NDS-2015 National Design Specification for Wood Construction (NDS) its Commentary and Supplement: Design Values for Wood Construction*. For those interested, this design information is available from:

American Forest and Paper Association  
American Wood Council  
1111 Nineteenth Street, NW  
Suite 800  
Washington, DC 20036  
Phone: 1-800-878-8878 or 202-463-2700  
Website: [www.afandpa.org](http://www.afandpa.org)

## Double Ledgers

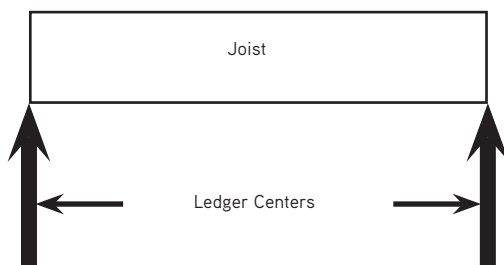
The maximum spacing between double ledgers should no more than 1/4" greater than the nominal diameter of the coil bolt or coil rod being used. When more space is allowed between the ledgers, the ledgers may crush or the flat washers may deflect and bend causing the formwork to fail.



## How to Use Charts — Single Span Joists

Determine joist centers, concrete thickness and the desired joist size, where the concrete thickness row intersects with the joist size column will be the maximum safe ledger centers.

Dayton Superior does not recommend using ledgers spaced at greater than 96" on center due to the reduction in the formwork redundancy that may occur.



Maximum Ledger Centers

Joist Centers	Concrete Thickness	2x4 Joists	2x6 Joists	2x8 Joists	4x2 Joists	4x4 Joists	6x2 Joists
9-5/8"	6"	63"	90"	110"	36"	79"	42"
	8"	59"	86"	105"	34"	75"	39"
	10"	56"	80"	101"	32"	72"	37"
	12"	53"	75"	98"	30"	70"	35"
	14"	50"	71"	93"	29"	69"	34"
	16"	48"	67"	89"	28"	66"	33"
	18"	45"	64"	84"	27"	64"	32"
	20"	43"	61"	81"	26"	62"	31"
12"	6"	58"	85"	104"	33"	75"	39"
	8"	56"	78"	100"	31"	71"	36"
	10"	51"	73"	95"	30"	69"	34"
	12"	48"	67"	89"	28"	66"	33"
	14"	45"	63"	84"	27"	63"	32"
	16"	43"	60"	79"	26"	61"	30"
	18"	41"	57"	76"	25"	59"	29"
	20"	39"	55"	72"	24"	58"	28"
16"	6"	53"	74"	97"	30"	70"	27"
	8"	48"	67"	89"	28"	66"	26"
	10"	44"	62"	82"	27"	63"	25"
	12"	41"	58"	77"	26"	60"	31"
	14"	39"	55"	72"	25"	58"	29"
	16"	37"	52"	69"	24"	56"	27"
	18"	35"	50"	65"	23"	54"	26"
	20"	34"	47"	63"	22"	51"	25"
24"	6"	43"	60"	80"	26"	61"	31"
	8"	39"	55"	73"	25"	58"	29"
	10"	36"	51"	67"	23"	55"	27"
	12"	34"	48"	63"	22"	52"	26"
	14"	32"	45"	59"	21"	49"	25"
	16"	30"	43"	56"	20"	46"	24"
	18"	29"	41"	53"	19"	44"	23"
	20"	27"	39"	51"	18"	42"	22"

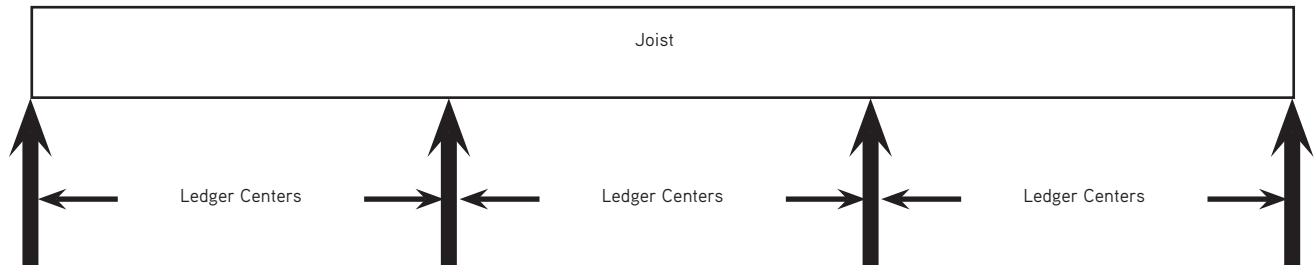
**NOTE:** Maximum deflection is clear span / 270 or no more than 1/4"



## How to Use Charts — Three or More Span Joists

Select the proper chart to use. Determine joist centers, concrete thickness and the desired joist size, where the concrete thickness row intersects with the joist size column will be the maximum safe ledger centers.

Dayton Superior does not recommend using ledgers spaced at greater than 96" on center due to the reduction in the formwork redundancy that may occur.



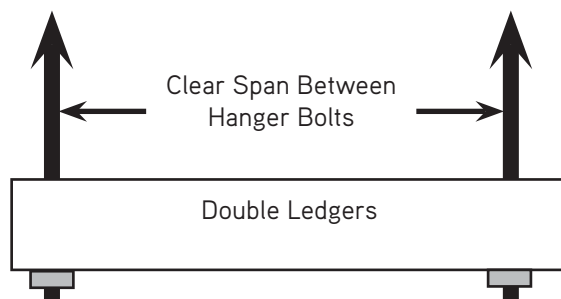
Maximum Ledger Centers

Joist Centers	Concrete Thickness	2x4 Joists	2x6 Joists	2x8 Joists	4x2 Joists	4x4 Joists	6x2 Joists
9-5/8"	6"	75"	105"	129"	44"	93"	51"
	8"	59"	86"	105"	34"	75"	39"
	10"	56"	82"	101"	32"	72"	37"
	12"	53"	79"	98"	30"	70"	35"
	14"	50"	74"	93"	29"	68"	34"
	16"	48"	70"	88"	28"	66"	33"
	18"	45"	67"	84"	27"	64"	32"
	20"	43"	64"	81"	26"	62"	31"
12"	6"	68"	99"	79"	41"	88"	46"
	8"	55"	81"	76"	31"	71"	36"
	10"	51"	76"	72"	30"	69"	34"
	12"	48"	71"	109"	28"	66"	33"
	14"	45"	66"	89"	27"	63"	32"
	16"	43"	63"	82"	26"	61"	30"
	18"	41"	60"	77"	25"	59"	29"
	20"	39"	57"	72"	24"	58"	28"
16"	6"	59"	87"	109"	37"	81"	43"
	8"	48"	71"	89"	28"	66"	33"
	10"	44"	65"	82"	27"	63"	31"
	12"	41"	61"	77"	26"	60"	30"
	14"	39"	58"	72"	25"	58"	29"
	16"	37"	55"	69"	24"	56"	28"
	18"	35"	52"	65"	23"	54"	27"
	20"	34"	50"	63"	22"	51"	26"
24"	6"	45"	71"	89"	32"	73"	37"
	8"	39"	58"	73"	25"	58"	29"
	10"	36"	53"	67"	23"	55"	27"
	12"	34"	50"	63"	22"	52"	26"
	14"	32"	47"	59"	21"	49"	25"
	16"	30"	45"	56"	20"	46"	23"
	18"	29"	42"	53"	19"	44"	22"
	20"	27"	41"	51"	18"	42"	21"

**NOTE:** Maximum deflection is clear span / 270 or no more than 1/4"

## How to Use Charts — Clear Span Between Hanger Bolts

Determine ledger centers, concrete thickness and the desired ledger size, where the concrete thickness row intersects with the ledger size column will be the maximum safe clear span between hanger bolts.



Maximum Clear Span Between Hanger Bolts

Ledger Centers	Concrete Thickness	Double 2x4 Ledgers	Double 2x6 Ledgers	Double 2x8 Ledgers	Double 2x10 Ledgers	Double 2x12 Ledgers
24" Ledger Center	6"	58"	85"	104"	125"	145"
	8"	55"	81"	100"	120"	133"
	10"	51"	76"	95"	115"	133"
	12"	48"	71"	89"	108"	125"
	14"	45"	66"	84"	102"	118"
	16"	43"	63"	79"	96"	112"
	18"	41"	60"	76"	92"	107"
	20"	39"	57"	72"	88"	102"
27-3/8" Ledger Center	6"	56"	82"	101"	121"	140"
	8"	52"	77"	96"	116"	134"
	10"	48"	71"	89"	108"	125"
	12"	45"	66"	83"	101"	117"
	14"	42"	62"	78"	95"	110"
	16"	40"	59"	74"	90"	105"
	18"	38"	56"	71"	86"	100"
	20"	36"	54"	68"	82"	95"
32" Ledger Center	6"	53"	78"	97"	117"	135"
	8"	48"	71"	89"	108"	126"
	10"	44"	65"	82"	100"	116"
	12"	41"	61"	77"	94"	108"
	14"	39"	58"	72"	88"	102"
	16"	37"	55"	69"	84"	97"
	18"	35"	52"	65"	80"	92"
	20"	34"	50"	63"	76"	88"

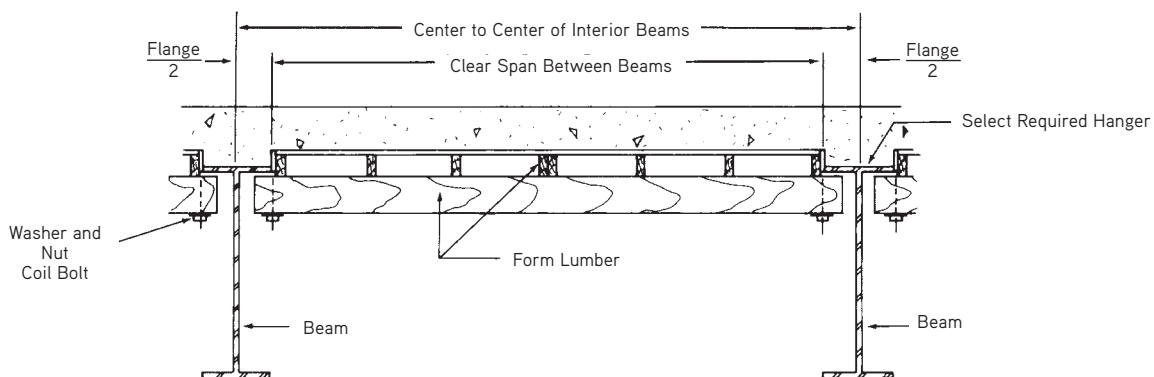


## Maximum Clear Span Between Hanger Bolts

Ledger Centers	Concrete Thickness	Double 2x4 Ledgers	Double 2x6 Ledgers	Double 2x8 Ledgers	Double 2x10 Ledgers	Double 2x12 Ledgers
38-3/8" Ledger Center	6"	48"	71"	89"	109"	126"
	8"	44"	65"	81"	99"	115"
	10"	40"	60"	75"	91"	106"
	12"	38"	56"	70"	85"	99"
	14"	36"	53"	66"	80"	93"
	16"	34"	50"	63"	76"	88"
	18"	32"	47"	60"	73"	84"
	20"	31"	45"	57"	70"	81"
48" Ledger Center	6"	43"	63"	80"	97"	113"
	8"	39"	58"	73"	88"	102"
	10"	36"	53"	67"	82"	95"
	12"	34"	50"	63"	76"	89"
	14"	32"	47"	59"	72"	83"
	16"	30"	45"	56"	68"	79"
	18"	29"	42"	53"	65"	75"
	20"	27"	41"	51"	62"	72"
64" Ledger Center	6"	37"	55"	69"	84"	97"
	8"	34"	50"	63"	77"	89"
	10"	31"	46"	58"	71"	82"
	12"	29"	43"	54"	66"	77"
	14"	28"	41"	51"	62"	72"
	16"	26"	39"	49"	59"	68"
	18"	25"	37"	46"	56"	65"
	20"	24"	35"	44"	54"	62"
96" Ledger Center	6"	30"	45"	56"	69"	80"
	8"	28"	41"	51"	63"	72"
	10"	26"	38"	47"	58"	67"
	12"	24"	35"	44"	54"	63"
	14"	22"	33"	42"	51"	59"
	16"	21"	32"	40"	48"	56"
	18"	20"	30"	38"	46"	53"
	20"	19"	29"	36"	44"	51"

**NOTE:** Maximum deflection is clear span / 270 or no more than 1/4"

## Interior Hanger Spacing Charts



The following charts list the maximum safe hanger spacing for various types of hangers produced by Dayton Superior. When the clear span on a project is not an even foot, the next larger clear span from the chart should be used.

The charts are based on the following formula:

$$\text{Maximum Hanger Spacing (Limited at 8'-0" Maximum Centers)} = \frac{\text{SWL per Side of Hanger}}{\text{Design Load, PSF} \times \frac{\text{Clear Span, Feet}}{2}}$$

### 2,375 lbs. per Side Hanger Safe Working Load

Design Load PSF	Slab Thickness	Clear Span Between Beams									
		3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
		Maximum Interior Hanger Spacing									
130.0	6"	8'-0"	8'-0"	7'-3"	6'-0"	5'-0"	4'-6"	4'-0"	3'-6"	3'-3"	3'-0"
156.7	8"	8'-0"	7'-6"	6'-0"	5'-0"	4'-3"	3'-9"	3'-3"	3'-0"	2'-9"	2'-6"
183.3	10"	8'-0"	6'-3"	5'-0"	4'-3"	3'-6"	3'-0"	2'-9"	2'-6"	2'-3"	2'-0"
210.0	12"	7'-6"	5'-6"	4'-6"	3'-9"	3'-0"	2'-9"	2'-6"	2'-3"	2'-0"	1'-9"
236.7	14"	6'-6"	5'-0"	4'-0"	3'-3"	2'-9"	2'-6"	2'-0"	2'-0"	1'-9"	1'-6"
263.3	16"	6'-0"	4'-6"	3'-6"	3'-0"	2'-6"	2'-3"	2'-0"	1'-9"	1'-6"	1'-6"
290.0	18"	5'-3"	4'-0"	3'-3"	2'-6"	2'-3"	2'-0"	1'-9"	1'-6"	1'-3"	1'-3"
316.7	20"	4'-9"	3'-6"	2'-9"	2'-3"	2'-0"	1'-9"	1'-6"	1'-3"	1'-3"	1'-0"

### 2,500 lbs. per Side Hanger Safe Working Load

Design Load PSF	Slab Thickness	Clear Span Between Beams									
		3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
		Maximum Interior Hanger Spacing									
130.0	6"	8'-0"	8'-0"	7'-6"	6'-3"	5'-3"	4'-9"	4'-3"	3'-9"	3'-3"	3'-0"
156.7	8"	8'-0"	7'-9"	6'-3"	5'-3"	4'-6"	3'-9"	3'-6"	3'-0"	2'-9"	2'-6"
183.3	10"	8'-0"	6'-9"	5'-3"	4'-6"	3'-9"	3'-3"	3'-0"	2'-6"	2'-3"	2'-3"
210.0	12"	7'-9"	5'-9"	4'-9"	3'-9"	3'-3"	2'-9"	2'-6"	2'-3"	2'-0"	1'-9"
236.7	14"	7'-0"	5'-3"	4'-0"	3'-6"	3'-0"	2'-6"	2'-3"	2'-0"	1'-9"	1'-9"
263.3	16"	6'-3"	4'-6"	3'-9"	3'-0"	2'-6"	2'-3"	2'-0"	1'-9"	1'-6"	1'-6"
290.0	18"	5'-6"	4'-3"	3'-3"	2'-9"	2'-3"	2'-0"	1'-9"	1'-6"	1'-6"	1'-3"
316.7	20"	5'-3"	3'-9"	3'-0"	2'-6"	2'-3"	1'-9"	1'-9"	1'-6"	1'-3"	1'-3"

## Interior Hanger Spacing Charts *Continued*

### 3,000 lbs. per Side Hanger Safe Working Load

Design Load PSF	Slab Thickness	Clear Span Between Beams									
		3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
		Maximum Interior Hanger Spacing									
130.0	6"	8'-0"	8'-0"	8'-0"	7'-6"	6'-6"	5'-9"	5'-0"	4'-6"	4'-0"	3'-9"
156.7	8"	8'-0"	8'-0"	7'-6"	6'-3"	5'-3"	4'-9"	4'-3"	3'-9"	3'-3"	3'-0"
183.3	10"	8'-0"	8'-0"	6'-6"	5'-3"	4'-6"	4'-0"	3'-6"	3'-3"	2'-9"	2'-6"
210.0	12"	8'-0"	7'-0"	5'-6"	4'-9"	4'-0"	3'-6"	3'-0"	2'-9"	2'-6"	2'-3"
236.7	14"	8'-0"	6'-3"	5'-0"	4'-0"	3'-6"	3'-0"	2'-9"	2'-6"	2'-3"	2'-0"
263.3	16"	7'-6"	5'-6"	4'-6"	3'-9"	3'-3"	2'-9"	2'-6"	2'-3"	2'-0"	1'-9"
290.0	18"	6'-9"	5'-0"	4'-0"	3'-3"	2'-9"	2'-6"	2'-3"	2'-0"	1'-9"	1'-6"
316.7	20"	6'-3"	4'-6"	3'-9"	3'-0"	2'-6"	2'-3"	2'-0"	1'-9"	1'-6"	1'-6"

### 3,500 lbs. per Side Hanger Safe Working Load

Design Load PSF	Slab Thickness	Clear Span Between Beams									
		3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
		Maximum Interior Hanger Spacing									
130.0	6"	8'-0"	8'-0"	8'-0"	8'-0"	7'-6"	6'-6"	5'-9"	5'-3"	4'-9"	4'-3"
156.7	8"	8'-0"	8'-0"	8'-0"	7'-3"	6'-3"	5'-6"	4'-9"	4'-3"	4'-0"	3'-6"
183.3	10"	8'-0"	8'-0"	7'-6"	6'-3"	5'-3"	4'-9"	4'-0"	3'-9"	3'-3"	3'-0"
210.0	12"	8'-0"	8'-0"	6'-6"	5'-6"	4'-9"	4'-0"	3'-6"	3'-3"	3'-0"	2'-9"
236.7	14"	8'-0"	7'-3"	5'-9"	4'-9"	4'-0"	3'-6"	3'-3"	2'-9"	2'-6"	2'-3"
263.3	16"	8'-0"	6'-6"	5'-3"	4'-3"	3'-9"	3'-3"	2'-9"	2'-6"	2'-3"	2'-0"
290.0	18"	8'-0"	6'-0"	4'-9"	4'-0"	3'-3"	3'-0"	2'-6"	2'-3"	2'-0"	2'-0"
316.7	20"	7'-3"	5'-6"	4'-3"	3'-6"	3'-0"	2'-9"	2'-3"	2'-0"	2'-0"	1'-9"

### 4,500 lbs. per Side Hanger Safe Working Load

Design Load PSF	Slab Thickness	Clear Span Between Beams									
		3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
		Maximum Interior Hanger Spacing									
130.0	6"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-6"	6'-9"	6'-3"	5'-9"
156.7	8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-0"	6'-3"	5'-6"	5'-0"	4'-9"
183.3	10"	8'-0"	8'-0"	8'-0"	8'-0"	7'-0"	6'-0"	5'-3"	4'-9"	4'-3"	4'-0"
210.0	12"	8'-0"	8'-0"	8'-0"	7'-0"	6'-0"	5'-3"	4'-9"	4'-3"	3'-9"	3'-6"
236.7	14"	8'-0"	8'-0"	7'-6"	6'-3"	5'-3"	4'-9"	4'-0"	3'-9"	3'-3"	3'-0"
263.3	16"	8'-0"	8'-0"	6'-9"	5'-6"	4'-9"	4'-3"	3'-9"	3'-3"	3'-0"	2'-9"
290.0	18"	8'-0"	7'-9"	6'-0"	5'-0"	4'-3"	3'-9"	3'-3"	3'-0"	2'-9"	2'-6"
316.7	20"	8'-0"	7'-0"	5'-6"	4'-6"	4'-0"	3'-6"	3'-0"	2'-9"	2'-6"	2'-3"

Interior Hanger Spacing Charts *Continued*

6,000 lbs. per Side Hanger Safe Working Load

Design Load PSF	Slab Thickness	Clear Span Between Beams									
		3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
		Maximum Interior Hanger Spacing									
130.0	6"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-6"
156.7	8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-6"	6'-9"	6'-3"
183.3	10"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-3"	6'-6"	5'-9"	5'-3"
210.0	12"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-0"	6'-3"	5'-6"	5'-0"	4'-9"
236.7	14"	8'-0"	8'-0"	8'-0"	8'-0"	7'-0"	6'-3"	5'-6"	5'-0"	4'-4"	4'-0"
263.3	16"	8'-0"	8'-0"	8'-0"	7'-6"	6'-6"	5'-6"	5'-0"	4'-6"	4'-0"	3'-9"
290.0	18"	8'-0"	8'-0"	8'-0"	6'-9"	5'-9"	5'-0"	4'-6"	4'-0"	3'-9"	3'-3"
316.7	20"	8'-0"	8'-0"	7'-6"	6'-3"	5'-3"	4'-6"	4'-0"	3'-9"	3'-3"	3'-0"

8,000 lbs. per Side Hanger Safe Working Load

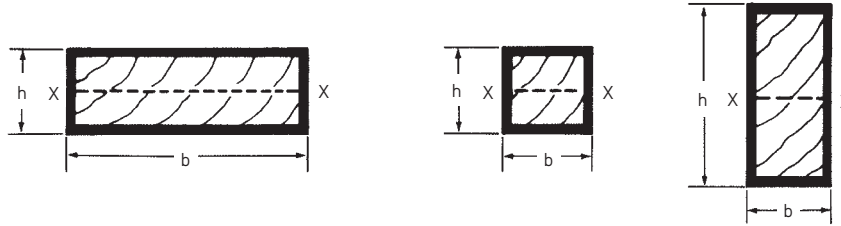
Design Load PSF	Slab Thickness	Clear Span Between Beams									
		3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
		Maximum Interior Hanger Spacing									
130.0	6"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
156.7	8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
183.3	10"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-9"	7'-3"
210.0	12"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-6"	6'-9"	6'-3"
236.7	14"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-6"	6'-9"	6'-0"	5'-6"
263.3	16"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-6"	6'-9"	6'-0"	5'-6"	5'-0"
290.0	18"	8'-0"	8'-0"	8'-0"	8'-0"	7'-9"	6'-9"	6'-0"	5'-6"	5'-0"	4'-6"
316.7	20"	8'-0"	8'-0"	8'-0"	8'-0"	7'-0"	6'-3"	5'-6"	5'-0"	4'-6"	4'-0"

11,300 lbs. per Side Hanger Safe Working Load

Design Load PSF	Slab Thickness	Clear Span Between Beams									
		3'-0"	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
		Maximum Interior Hanger Spacing									
130.0	6"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
156.7	8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
183.3	10"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
210.0	12"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"
236.7	14"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-9"
263.3	16"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-9"	7'-0"
290.0	18"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-9"	7'-0"	6'-3"
316.7	20"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	7'-9"	7'-0"	6'-3"	5'-9"



## Technical Data — Lumber



X—X = Neutral Axis  
Lumber Properties

Nominal Size in Inches $b \times h$	American Standard Sizes in Inches $b \times h$ S4S* 19% Max. Moisture	Area of section $A = bh$ , sq. in.		Moment or Inertia, in <sup>4</sup> $I = \frac{bh^3}{12}$		Section Modulus, in <sup>3</sup> $S = \frac{bh^2}{6}$		Board Feet per Linear Foot of Piece
		Rough	S4S	Rough	S4S	Rough	S4S	
4x1	3-1/2 x 3/4	3.17	2.62	0.20	0.12	0.46	0.33	1/3
6x1	5-1/2 x 3/4	4.92	4.12	0.31	0.19	0.72	0.52	1/2
8x1	7-1/4 x 3/4	6.45	5.44	0.41	0.25	0.94	0.68	2/3
10x1	9-1/4 x 3/4	8.20	6.94	0.52	0.32	1.20	0.87	5/8
12x1	11-1/4 x 3/4	9.95	8.44	0.63	0.39	1.45	1.05	1
4x2	3-1/2 x 1-1/2	5.89	5.25	1.30	0.98	1.60	1.31	2/3
6x2	5-1/2 x 1-1/2	9.14	8.25	2.01	1.55	2.48	2.06	1
8x2	7-1/4 x 1-1/2	11.98	10.87	2.64	2.04	3.25	2.72	1 1/2
10x2	9-1/4 x 1-1/2	15.23	13.87	3.35	2.60	4.13	3.47	12/3
12x2	11-1/4 x 1-1/2	18.48	16.87	4.07	3.16	5.01	4.21	2
2x4	1-1/2 x 3-1/2	5.89	5.25	6.45	5.36	3.56	3.06	2/3
2x6	1-1/2 x 5-1/2	9.14	8.25	24.10	20.80	8.57	7.56	1
2x8	1-1/2 x 7-1/4	11.98	10.87	54.32	47.63	14.73	13.14	1 1/3
2x10	1-1/2 x 9-1/4	15.23	13.87	111.58	98.93	23.80	21.39	12/3
2x12	1-1/2 x 11-1/4	18.48	16.87	199.31	177.97	35.04	31.64	2
3x4	2-1/2 x 3-1/2	9.25	8.75	10.42	8.93	5.75	5.10	1
3x6	2-1/2 x 5-1/2	14.77	13.75	38.93	34.66	13.84	12.60	1 1/2
3x8	2-1/2 x 7-1/4	19.36	18.12	87.74	79.39	23.80	21.90	2
3x10	2-1/2 x 9-1/4	24.61	23.12	180.24	164.89	38.45	35.65	2 1/2
3x12	2-1/2 x 11-1/4	29.86	28.12	321.96	296.63	56.61	52.73	3
4x4	3-1/2 x 3-1/2	13.14	12.25	14.39	12.50	7.94	7.15	1 1/3
4x6	3-1/2 x 5-1/2	20.39	19.25	53.76	48.53	19.12	17.65	2
4x8	3-1/2 x 7-1/4	26.73	25.38	121.17	111.15	32.86	30.66	2 2/3
4x10	3-1/2 x 9-1/4	33.98	32.38	248.91	230.84	53.10	49.91	3 1/3
6x3	5-1/2 x 2-1/2	14.77	13.75	8.48	7.16	6.46	5.73	1 1/2
6x4	5-1/2 x 3-1/2	20.39	19.25	22.33	19.65	12.32	11.23	2
6x6	5-1/2 x 5-1/2	31.64	30.25	83.43	76.26	29.66	27.73	3
6x8	5-1/2 x 7-1/2	42.89	41.25	207.81	193.36	54.51	51.56	4
8x8	7-1/2 x 7-1/2	58.14	56.25	281.69	263.67	73.89	70.31	5 1/3

\*Rough dry sizes are 1/8" larger, both dimensions.

Properties of American Standard Board, Plank Dimension and Timber Sizes Commonly used for Formwork Construction.

Based on data supplied by the National Forest Products Association.

## Representative Working Stress Values (PSI) for Lumber at 19% Moisture Content, Continuing or Prolonged Reuse

Lumber Species and Grade	Properties				
	Extreme Fiber Bending	Compression I to Grain	Compression II to Grain	Horizontal Shear	Modules of Elasticity
REDWOOD					
Range, all grades	225-2025	425-650	475-2250	160	800,000-1,400,000
No. 2, 4x4 and smaller	1385	650	1425		1,200,000
Constr., 4x4 and smaller	825	425	925		900,000
DOUGLAS FIR-LARCH					
Range, all grades	275-2250	625	900-2550	190	1,300,000-1,900,000
No. 2, 4x4 and smaller	1350	625	2025		1,600,000
Constr., 4x4 and smaller	1000	625	1650		1,500,000
SPRUCE-PINE-FIR					
Range, all grades	275-1875	425	750-2100	140	1,100,000-1,500,000
No. 2, 4x4 and smaller	1310	425	1725		1,400,000
Constr., 4x4 and smaller	1000	425	1400		1,300,000
HEM-FIR					
Range, all grades	250-2100	405	850-2250	150	1,100,000-1,600,000
No. 2, 4x4 and smaller	1275	405	1950		1,300,000
Constr., 4x4 and smaller	975	405	1550		1,300,000
SOUTHERN PINE					
Range, all grades	275-2050	565	950-1800	180	1,100,000-1,600,000
No. 2, 4x4 and smaller	1300	565	1650		1,400,000
Constr., 4x4 and smaller	1000	565	1700		1,300,000
ADJUSTMENT FOR MOISTURE CONTENT					
GREATER THAN 19%: Use percentage shown (also applies to wood used wet)	85%**	67%	80%	97%*	90%
INCREASE FOR LOAD DURATION OF 7					
DAYS OR LESS	25%	0%	25%	25%	0%

**Note:** Derived from National Design Specifications for Wood Construction.

Horizontal Shear Stress adjustment assumes members have no splits checks or shakes.

\* When  $(F_b)(C_F) \leq 1150$  psi,  $C_M=1.0$

\*\* When  $(F_c)(C_F) \leq 750$  psi,  $C_M=1.0$

## Formulas Used to Calculate Safe Support Spacings of Joists and Ledgers

To Check	for Single Span Beam	for Two-Span Beam	for Three or More Span Beam
$\triangle_{max} = \ell/360$	$\ell = 1.37 \sqrt[3]{\frac{EI}{W}}$	$\ell = 1.83 \sqrt[3]{\frac{EI}{W}}$	$\ell = 1.69 \sqrt[3]{\frac{EI}{W}}$
$\triangle_{max} = \ell/270$	$\ell = 1.51 \sqrt[3]{\frac{EI}{W}}$	$\ell = 2.02 \sqrt[3]{\frac{EI}{W}}$	$\ell = 1.86 \sqrt[3]{\frac{EI}{W}}$
$\triangle_{max} = 1/16$ in.	$\ell = 2.75 \sqrt[4]{\frac{EI}{W}}$	$\ell = 3.43 \sqrt[4]{\frac{EI}{W}}$	$\ell = 3.23 \sqrt[4]{\frac{EI}{W}}$
$\triangle_{max} = 1/8$ in.	$\ell = 3.27 \sqrt[4]{\frac{EI}{W}}$	$\ell = 4.08 \sqrt[4]{\frac{EI}{W}}$	$\ell = 3.84 \sqrt[4]{\frac{EI}{W}}$
$\triangle_{max} = 1/4$ in.	$\ell = 3.90 \sqrt[4]{\frac{EI}{W}}$	$\ell = 4.85 \sqrt[4]{\frac{EI}{W}}$	$\ell = 4.57 \sqrt[4]{\frac{EI}{W}}$
BENDING	$\ell = 9.80 \sqrt{\frac{fS}{W}}$	$\ell = 9.80 \sqrt{\frac{fS}{W}}$	$\ell = 10.95 \sqrt{\frac{fS}{W}}$
HORIZONTAL SHEAR	$\ell = \frac{16Hbh}{W} + 2h$	$\ell = \frac{192Hbh}{15W} + 2h$	$\ell = \frac{40Hbh}{3W} + 2h$

$\ell$  = safe spacing of supports, in.

$h$  = depth of section, in.

$I$  = moment of inertia, in.<sup>4</sup>

$\triangle$  = deflection, in.

$w$  = load, lbs. per linear ft.

$E$  = modulus of elasticity, psi

$b$  = width of section, in.

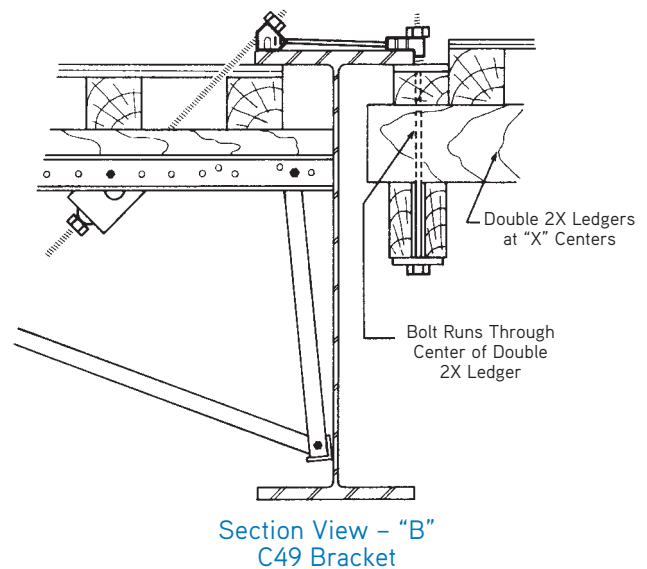
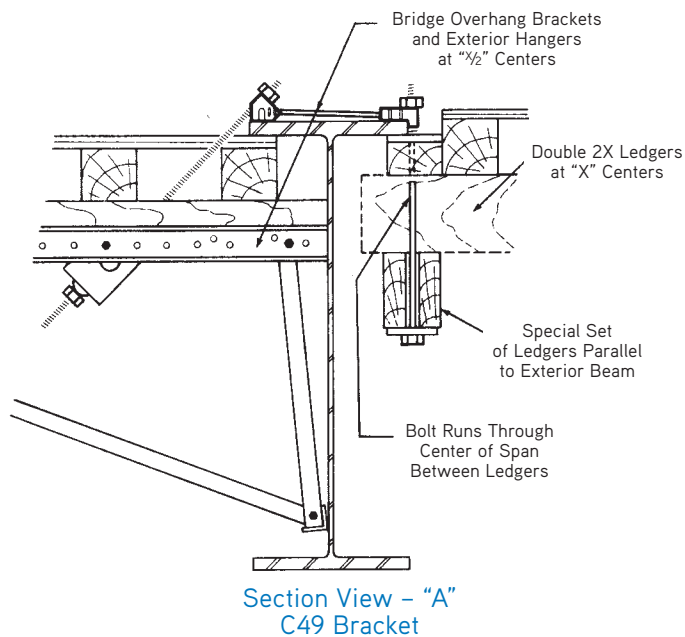
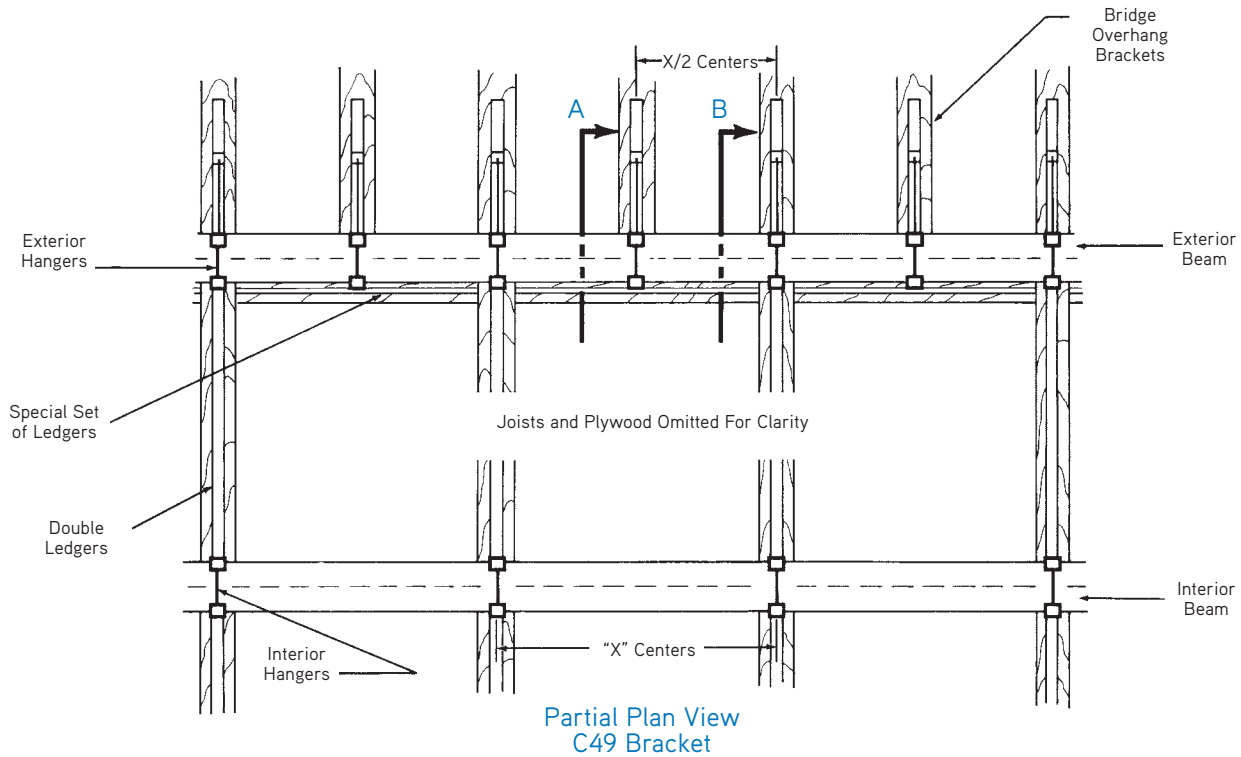
$S$  = section modulus, in.<sup>3</sup>

$f$  = extreme fiber stress, psi

$H$  = horizontal shear stress, psi

## Exterior Hangers Spaced at Different Centers than Interior Hangers

These sketches illustrate one method of supporting the bridge deck formwork when exterior hangers are to be spaced at different centers from the interior hangers.



## Welding Half Hangers

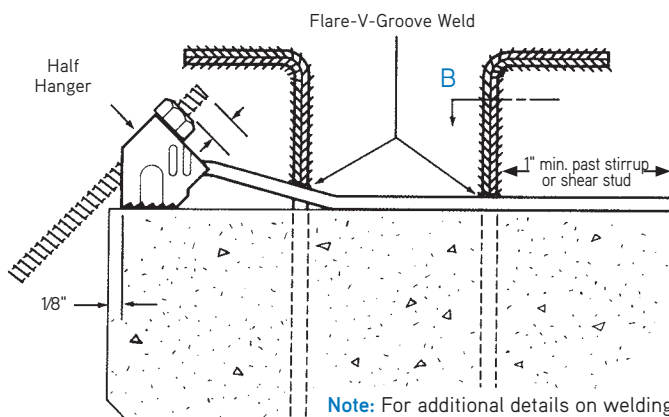
Several styles of Half Hangers are manufactured by Dayton Superior for use in special cases requiring one-sided forming. Half Hangers may generally be welded to structural steel beams or rebar stirrups, however, preheat and other quality control procedures may be required in order to develop a sound weld. It is recommended that the user contact his local welding supply dealer for assistance in determining the required welding procedures.

**Warning:** Since welding may alter the wire strut or rebar stirrup, the charts shown below should only be used as a general guide in determining the approximate strength of the welded connection. Field tests should be performed on installed Half Hangers so that actual safe working loads may be established, since actual safe working loads may be less than the maximum safe working loads shown in this handbook. Failure to perform field tests may result in premature and unexpected failures.

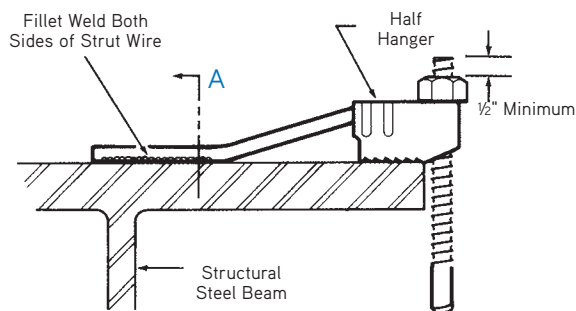
h Fillet Weld Size	Safe Working Load per Linear Inch of Weld
1/8"	1,500 lbs.
3/16"	2,300 lbs.
1/4"	3,100 lbs.
5/16"	3,900 lbs.
3/8"	4,700 lbs.
7/16"	5,500 lbs.

**Note:** Place half the required length of weld on each side of the strut wire. Minimum length of weld is 4h. The user should add 1/4" to the weld length for starting and stopping the arc. SWL provides a factor of safety of approximately 2 to 1.

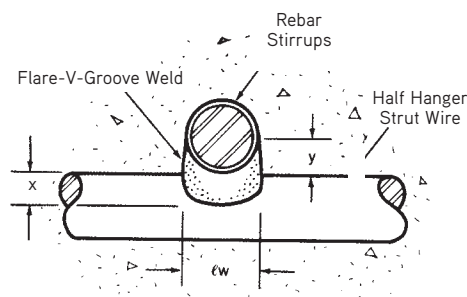
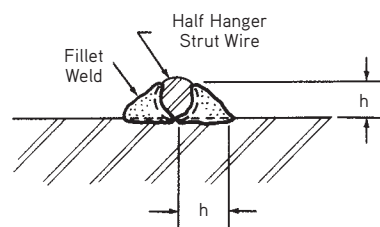
### Safe Working Load Per Weld



**Note:** For additional details on welding Pres-Steel Hangers to Rebar stirrups, contact Dayton Superior Technical Assistance.



Section A



Section B

Rebar Stirrup Size	Weld length $\ell_w$	Y Minimum	.375" Diameter Strut (x = 3/16" Min.)		.440" Diameter Strut (x = 7/32" Min.)	
			Grade 40 Stirrup	Grade 60 Stirrup	Grade 40 Stirrup	Grade 60 Stirrup
#4	1/2"	1/4"	1,350 lbs.	1,800 lbs.	1,600 lbs.	2,100 lbs.
#5	5/8"	5/16"	1,700 lbs.	2,200 lbs.	2,000 lbs.	2,600 lbs.
#6	3/4"	3/8"	2,050 lbs.	2,650 lbs.	2,400 lbs.	3,100 lbs.

**Note:** Values are based on the use of E70 series electrodes for welding to Grade 40 stirrups and E90 series Electrodes for Grade 60 stirrups. S.W.L. provides a factor of safety of approximately 2 to 1.

**Reference:** *Structural Welding Code — Reinforcing Steel*, American Welding Society, Miami, Florida *Standard Specifications for Highway Bridges*, American Association of State Highway and Transportation Officials, Washington, D.C. and *P.C.I. Design Handbook*, 6th Edition, Chicago, IL.



## Century Hanger Series

### Purpose of the product

Dayton Superior Series of Century Hanger overhang bracket hangers are designed for high load capacities up to 18 kips and are available in three distinct configurations. They are custom fabricated from plate steel, to construct all possible bridge design formwork support needs. In addition to providing superior capacity, the Century Hanger Series of bridge overhang bracket hangers offer unlimited tube angles giving Engineers design flexibility that has not been available in the market until now.



Century Hanger C110



Century Hanger C120



Century Hanger C130

### Optimal Use of Century Hanger Series

Today longer, larger bridges are being designed requiring temporary formwork systems to withstand greater loads. Two questions commonly brought out first are; what is the load capacity and safe working load of the product. The Century Hanger Series of bridge overhang bracket hangers achieves higher load capacity at a 2:1 safety working load. The chart below outlines when to consider Century Hangers over Pres-Steel Hangers. The two columns on the left (in white) provides an interchange between Century Hanger type to Pres-Steel Hanger type, once you have determined the hanger type required, match your project load capacity requirements in the chart to determine if Century Hangers are required.

### When to Use the Pres-Steel Hanger Series or Century Hanger Series

Series	Hanger Types	Load Capacity				
		Standard Load Capacities	≤ 6,000	≤ 9,000	≤ 12,000	≤ 18,000
C110	C24 Type 1 C24 Type 2 C24 Type 3 C24 Type 4AS C24 Type 4AC C24 Type 4AP C24 Type 4PR C24 Type 4APR	Pres-Steel Series	Century Hanger series			
C120	C60 Type 1 C60 Type 1A C64 Type 4A C64 Type 4AN C64 Type 9AN C60 Type 6A C62 Type 2A C62 Type 6A C62 Type 4A C60 Type 7A C62 Type 7A C60 Type 8A Std C60 Type 8A Hvy					
C130	C60 Type 9A C63 Type 4AB C63 Type 1AB C68 Type 4AB C68 Type 9AB					

## How To Use Century Hangers

The Century Series line of bridge overhang bracket hangers are designed to be installed using the same methods employed when installing Pres-Steel Hangers. The same requirements apply as they do with pre-steel hangers, the user of Dayton Superior products must evaluate the product application, determine the appropriate safety factor, calculate the applied loads and control all field conditions to prevent application of loads exceeds the products' safe working loads. In situations where the bridge contractor does not have a qualified person on staff to calculate hanger and bracket spacing, Dayton Superior's Technical Assistance Personnel are trained to provide such service. Additionally, they provide bridge deck accessory take-offs and detailed drawings to the users of Dayton Superior bridge deck products. These services are provided at a nominal charge.

## Key Ordering Considerations

When preparing to order Century Hangers there are several pieces of information you will need to provide. Tube angle, haunch height, flange width, flange thickness (steel beam), diameter of the coil rod your design requires as well as the type and quantity of coil nuts (see figure 6 for coil nut details).

## Protective Coatings and Materials

If protective coating are required they must be specified when ordering. Century Hangers can be ordered epoxy coated, hot dipped galvanized or made from stainless steel.

## C110 Century Style

Use a C110 Century Hangers Series when stay-in-place decking is used on exterior of a bridge. Common tubing angle configurations are 15°, 45° and 75° with a required setback call out when designing. When using a 90° century hanger a 1/8" setback spacing from edge of flange to coil rod is required. Required parameters are capacity, flange width, tube angle and coating over steel. Optional haunch heights can be applied to your hangers.

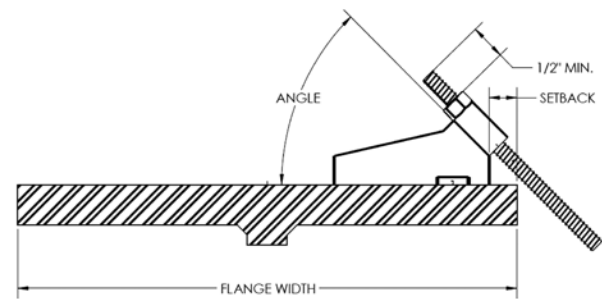


Figure 1

## C120 Century Style

Use a C120 Century Hanger Series when stay-in-place metal decking is used and welding to the steel girder is prohibited. Setbacks are applied when tubing angle is used at 15°, 45°, and 75°. C120 hangers can be designed with different angles for either side of hanger. C120s can support interior bay and exterior decking formwork with maintaining various haunch heights. Required parameters are capacity, tube angle A and B, flange width, and coating to hanger.

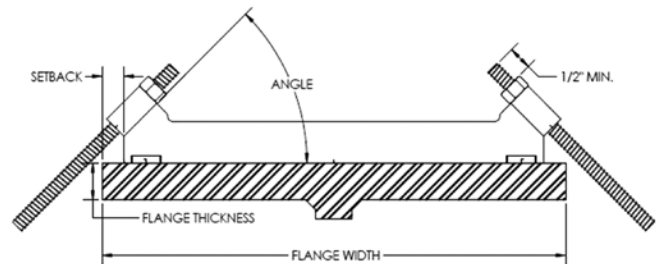


Figure 2

## C130 Century Style

C130 Century Hanger Series, a ideal half hanger for supporting formwork. The 45° configuration is intended to be used with either the C49 or C89 Bridge Overhang Bracket. "C" hanger wraps around the beam flange for a strong stable bridge overhang bracket connection. Required parameters are beam flange, tube angle, flange width, flange thickness and coating to hanger.

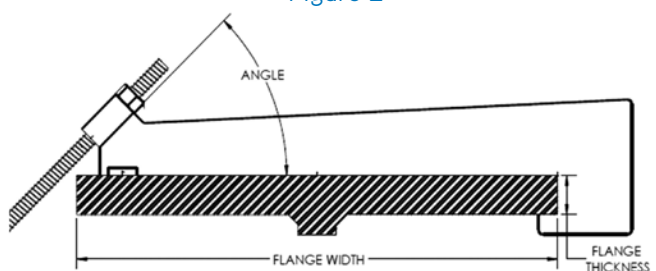

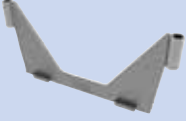



Figure 3

## Bridge Overhang System Safe Working Load Charts

The charts below provide information to determine the appropriate products to meet load capacity requirements.

Century Hanger Series	Rod Diameter	Rod tensile Strength (psi)	Safe Working Load (lbs)	Required Parameters	Optional Parameters
C110 	1/2"	55,000	6,000	Capacity Tube Angle HDG / E-Galv / Plain	Haunch Max 16"
			9,000		
	3/4"	80,000	12,000		
			18,000		
C120 	1/2"	55,000	6,000	Capacity Tube 1 Angle Tube 2 Angle Flange Width HDG / E-Galv / Plain	Haunch 1 Haunch 2 Max 16"
			9,000		
	3/4"	80,000	12,000		
			18,000		
C130 	1/2"	55,000	6,000	Capacity Tube Angle Flange Width Flange Thickness HDG / E-Galv / Plain	Haunch Max 16"
			9,000		
	3/4"	80,000	12,000		
			18,000		

NOTES: Tube angle configurations: 0°, 15°, 45°, 75°, or 90°. See product engineering for more custom parameters

Figure 4

## Safe Working Loads

Coil Rods and Coil Nuts are important considerations when designing formwork support, Coil Rod and Coil Nut Safe Working Loads are a key part of the design.

Tension Safe Working Loads
1/2" Diameter Coil Rod = 9,000 lbs.
3/4" Diameter Coil Rod = 18,000 lbs.
Based on 2:1 safety factor

Figure 5

Coil Rod Diameter	Safe Working Load (lbs) 2:1 Safety factor (amount) Coil Nut Type			
	(1) B13	(2) B13	(1) B13H	(1) B25
1/2"	6,000	9,000	—	9,000
3/4"	—	19,000	11,300	18,000

Figure 6

### To Order:

Specify: (1) Quantity (2) Flange width if applicable, (3) Flange thickness if applicable, (4) Tube angle, (5) Capacity, (6) HDG or E-Galvanize or Plain, (7) Haunch 1 if applicable, (7) Haunch 2 if applicable.

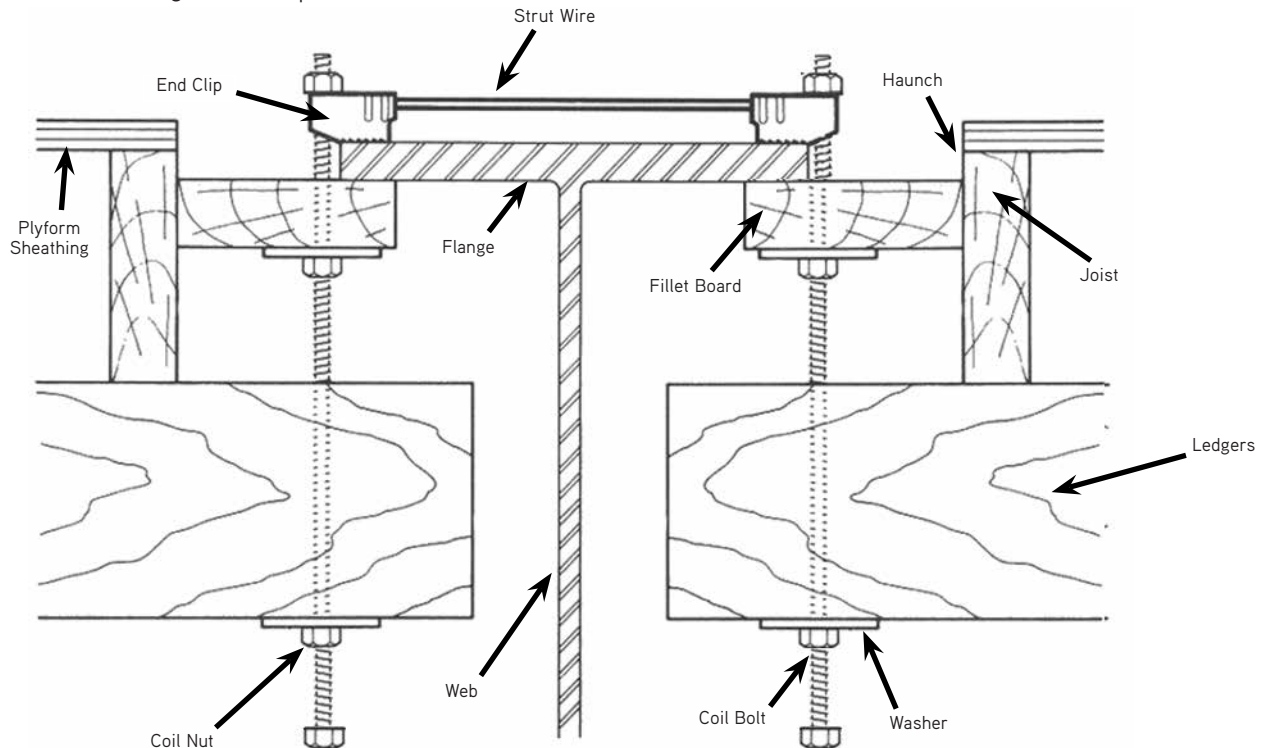
## Application of Interior Hangers

Interior bridge deck hangers are typically fabricated using two heavy duty sheet metal end clips that have been electrically resistance welded to an appropriate sized wire or formed metal connecting strut. In most cases, the end clips used on interior hangers locate two coil bolts, one on each side of the bridge beam, at 90° to the top surface of the beam. These hangers can be used on rolled structural steel beams, fabricated steel plate girders or precast/prestressed concrete girders.

On occasion, there is a need for an interior half hanger that may be welded to the top flange of a steel beam, attached to the shear studs on a steel beam or the rebar shear connectors on concrete girders. However, most DOT specifications prohibit any type of field welding to flanges in tension zones, restricting welding to compression zones only. When this restriction is encountered, several types of clip-on hangers are available for use.

Hangers are placed at predetermined locations on top of the interior bay beams and support the formwork, as well as all construction materials and workers during the installation phase of the formwork construction process. Once the formwork has been completed and concrete is placed, the interior hangers support the weight of the freshly placed concrete. After the concrete reaches a specified strength, hangers no longer serve a purpose and the coil bolts and washers can be removed allowing the formwork to be removed.

All interior hangers are identified by the shape of the end section used in the manufacture of the hanger. Unless otherwise noted, all end sections are designed to accept a 1/2" diameter coil bolt or coil rod.



Typical Section View at Interior Beams



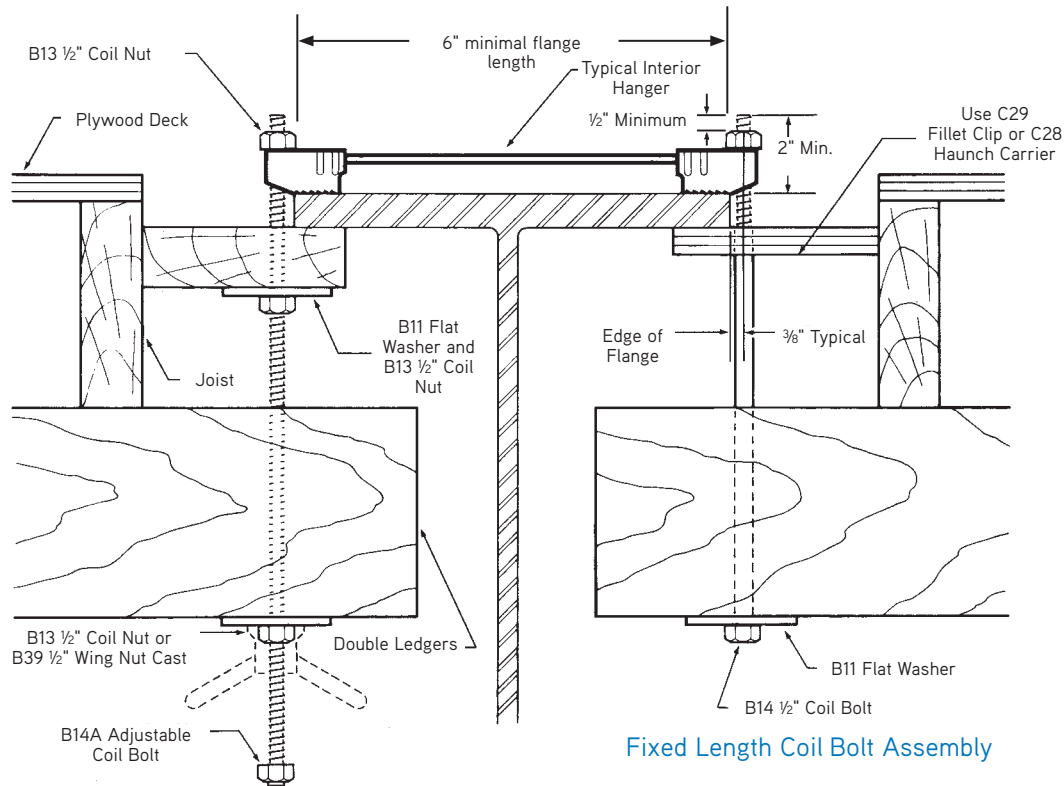
## C60 Type 1 Pres-Steel Hanger

When a bridge deck is designed with a fillet that extends a short distance away from the edge of the beam, as shown in the sketch below, this hanger is often selected for use. The hanger is designed to allow 1/8" maximum clearance between the edge of the beam and the supporting 1/2" diameter coil bolts.

To adjust the bridge deck forming to grade, all the user has to do is turn the coil nuts, which will raise or lower the formwork as needed. When adjusting the formwork to grade, care must be taken to ensure that the thread penetration does not become less than 1/2" when measured from the top of the coil nut.

To avoid decreasing the safe working of the hanger, full bearing of the end clips is required. Hangers must be equally loaded on both sides to prevent formwork from tipping.

As the flanges of bridge beams often vary in width, it is essential to check the exact width of the flanges prior to ordering hangers.



Adjustable Coil Bolt Assembly

Fixed Length Coil Bolt Assembly

Safe Working Load  
3,500 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

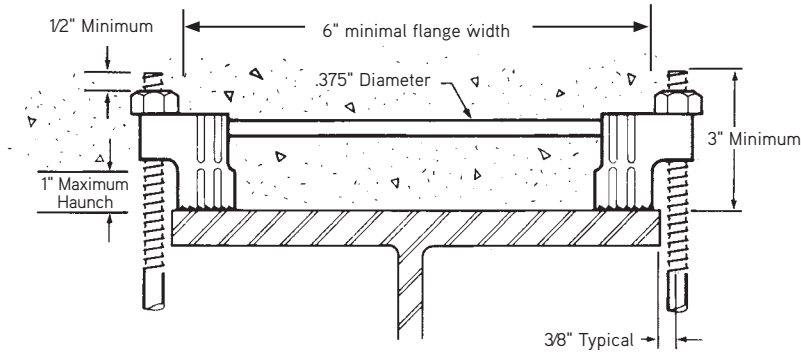
To Order:

Specify: (1) quantity, (2) name, (3) flange width.

Example:

759 pcs. C60 Type 1 Pres-Steel Hanger for 16" Flange.

## C60 Type 2 Pres-Steel Hanger



The Type 2 hanger is similar to the Type 1 hanger, except it is designed to be used where the deck has up to a 1" haunch. 1/8" maximum clearance between the edge of the beam and the 1/2" diameter coil bolts. To avoid decreasing the safe working load of the hanger, full bearing of the end clips is required. Hangers must be equally loaded on both sides to prevent formwork from tipping.

Safe Working Load  
2,375 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

To Order:

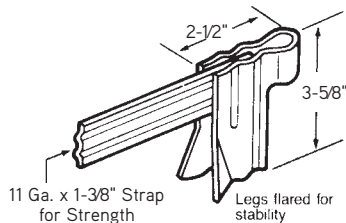
Specify: (1) quantity, (2) name, (3) flange width.

Example:

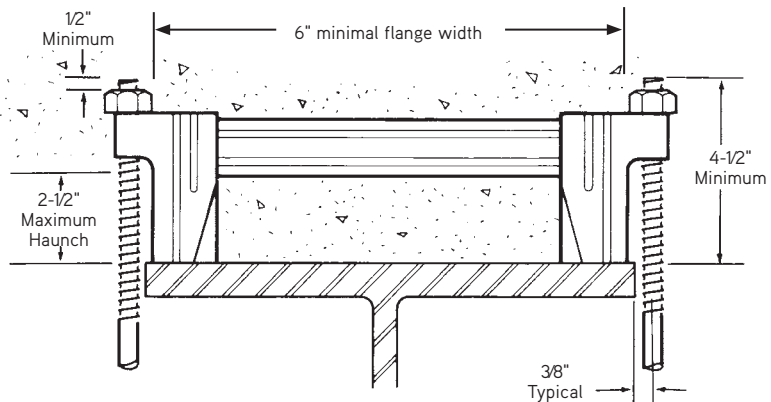
750 pcs. C60 Type 2 Pres-Steel Hanger for 12" Flange.

## C60 Type 3 Pres-Steel Hanger

Designed for a 2-1/2" maximum haunch. Uses a corrugated strap to connect the end clips, which are bent outward to provide stability under load. 1/8" maximum clearance between the edge of the beam and the 1/2" diameter coil bolts.



Leg Detail



Safe Working Load  
2,500 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

To Order:

Specify: (1) quantity, (2) name, (3) flange width.

Example:

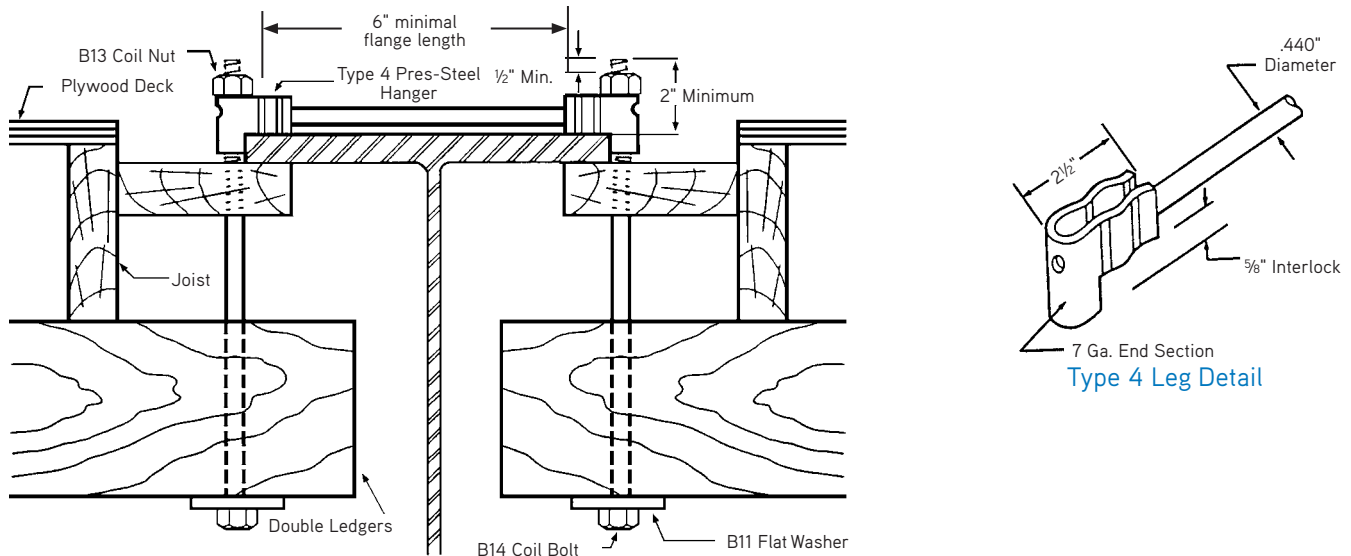
570 pcs. C60 Type 3 Pres-Steel Hanger for 18" Flange.

## C60 Type 4 Pres-Steel Hanger

The C60 Type 4 Pres-Steel Hanger is a heavy duty hanger designed to be used when there is a fillet next to the beam flange. The hanger is manufactured using two 90° end sections that are electrically resistance welded to a 0.440" diameter wire strut. The end clips accept 1/2" diameter coil rod and/or bolts which along with the coil nuts and washers support the interior formwork loads.

Due to the Interlock design of this hanger, it is very important that the user is aware of the exact flange widths prior to ordering hangers. Once on the jobsite, if the flange width is too wide, not allowing the hanger to be positioned on the flange as shown below, the hanger may be used with the Interlock ends pointing up instead of down.

The Interlock portion of the End Clip provides a reaction point that aids in reducing bending of the support bolts when hangers are used on extremely wide flanges.



Safe Working Load  
6,000 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

To Order:

Specify: (1) quantity, (2) name, (3) flange width.

Example:

1,234 pcs. C60 Type 4 Pres-Steel Hanger for 12" flange

## C60 Type 5 Pres-Steel Hanger

This hanger is exactly like the Type 4 hanger except it does not have the Interlock style end clips

Use with two 1/2" diameter coil rod and/or bolts which along with the coil nuts and washers support the interior formwork loads. Minimal flange length for C60 are 6'.

Safe Working Load  
6,000 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

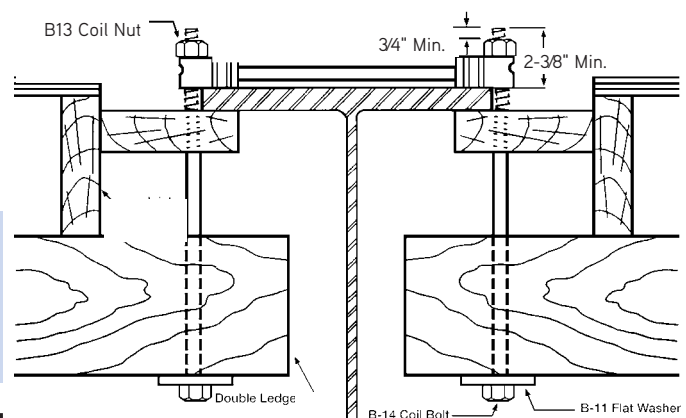
**WARNING:** Hangers must be equally loaded on both sides.

To Order:

Specify: (1) quantity, (2) name, (3) flange width.

Example:

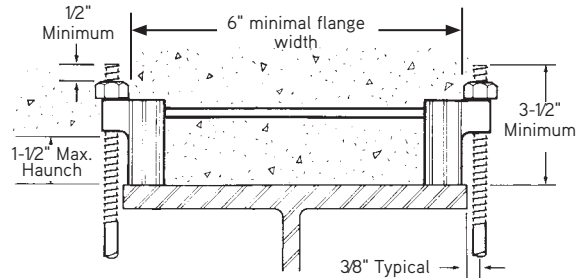
1,640 pcs. C60 Type 5 Pres-Steel Hanger for 15" flange.



## C60 Type 7 Pres-Steel Hanger

The C60 Type 7 Pres-Steel Hanger is similar to the standard Type 1 hanger but has the capacity to accommodate haunch heights up to 1-1/2".

**Note:** The C60 Type 7 Pres-Steel Hanger is designed to be used with full bearing under the end sections. It is essential to check the exact beam width dimensions before ordering.



Safe Working Load  
2,375 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

To Order:

Specify: (1) quantity, (2) name, (3) flange width.

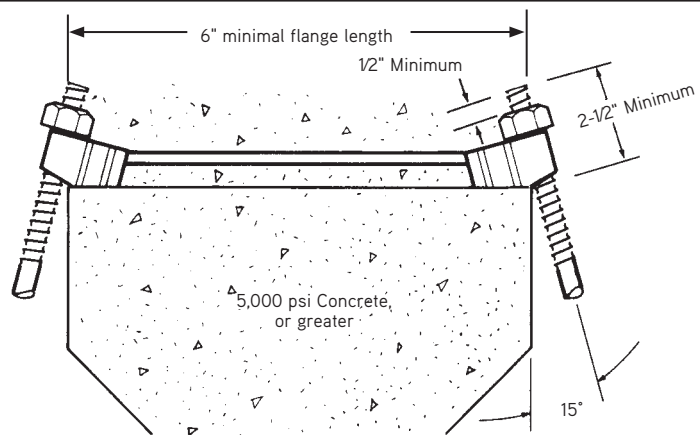
Example:

1,000 pcs. C60 Type 7 Pres-Steel Hanger, for 18" flange.

## C60 Type 8 Pres-Steel Hanger

The Type 8 Press-Steel hanger is similar to the standard Type 1 except the two end clips are designed to angle the 1/2" diameter bolts at 15° from vertical. It is available in two different versions, a standard version or a heavy version. The standard version uses a 0.375" diameter wire to connect the end clips while the heavy version uses a 0.440" diameter wire.

This hanger design offers the bridge contractor an advantage on certain concrete girders, as it allows additional clearance below the formwork to support ledgers. A B42 Batter Washer is recommended for use beneath the ledgers, which will allow for proper bearing of the head of the 1/2" diameter coil bolt.



Safe Working Load

Standard Version = 4,500 lbs. per Side

Heavy Version = 6,000 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

To Order:

Specify: (1) quantity, (2) name, (3) flange width.

Example:

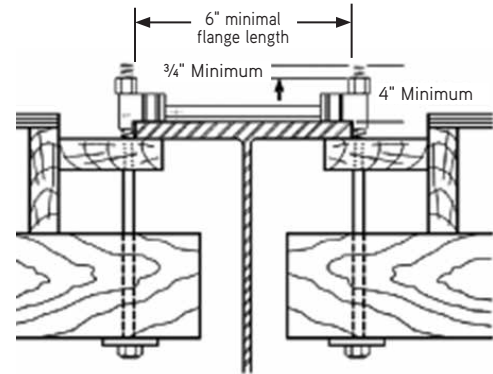
1,640 pcs. C60 Type 8 Pres-Steel Hanger for 18" flange.



## C60 Type 9 Pres-Steel Hanger

The Type 9 Press-Steel hanger is designed especially to support heavy forming loads using 3/4" diameter coil bolts or coil rods. The hanger is fabricated using a 3/4" diameter rod connecting two 90° end clips that have been formed from 3/16" thick material.

In order to achieve the rated safe working load of 11,300 lbs. per side, 3/4" diameter B13H Heavy Coil Nuts that measure 1-1/4" across flats are required. If the hanger is used with standard 3/4" diameter B13 Coil Nuts, the safe working load will be reduced to 8,000 lbs. per side.



### Safe Working Load

11,300 lbs. per Side with 3/4" B13-H Coil Nuts  
SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

### To Order:

Specify: (1) quantity, (2) name, (3) flange width.

### Example:

600 pcs. C60 Type 9 Pres-Steel Hanger for 24" flange.

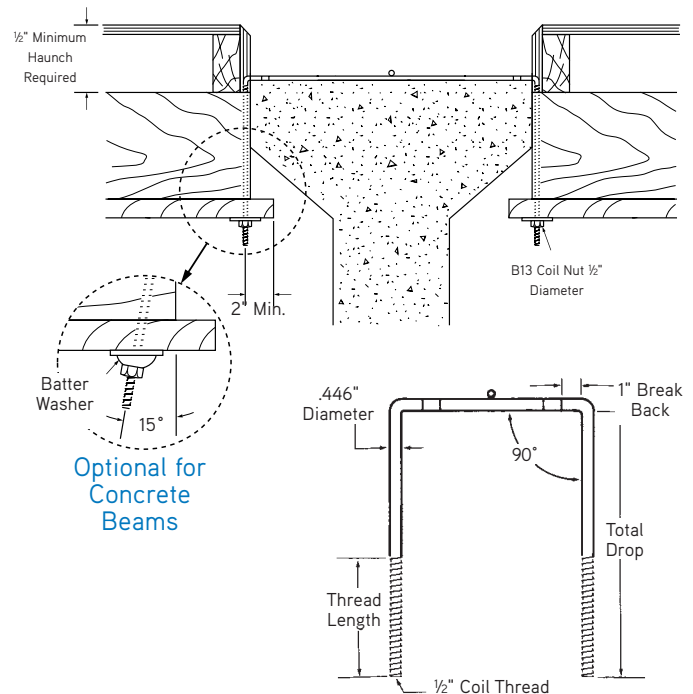
## C41 Coil Rod Hanger

This hanger provides a simple, yet strong method of suspending formwork from interior bridge beams. The formwork is adjusted to grade, after the ledgers are installed, by the worker reaching under the ledgers and adjusting the coil nut — raising or lowering the ledgers as required.

Once the formwork has been stripped, a length of pipe is placed over the extended leg and rotated back and forth until it breaks at the provided break back.

Hangers are fabricated 1/2" wider than the flange width specified. A 1" break back is standard.

When used on steel beams or girders, legs formed at 90° to the top flange are recommended. For concrete girders or box beams, legs formed at 15° to vertical are suggested.



### Safe Working Load

4,500 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

### To Order:

Specify: (1) quantity, (2) name, (3) flange width, (4) total drop, (5) length of thread, (6) bend angle

### Example:

900 pcs. C41 Coil Rod Hanger, 12" flange, 18" total drop, 8" of thread and a 15 degree angle.

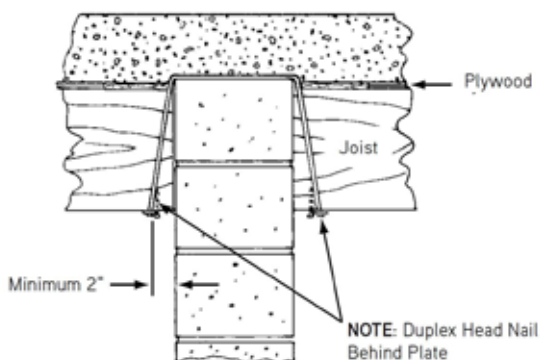
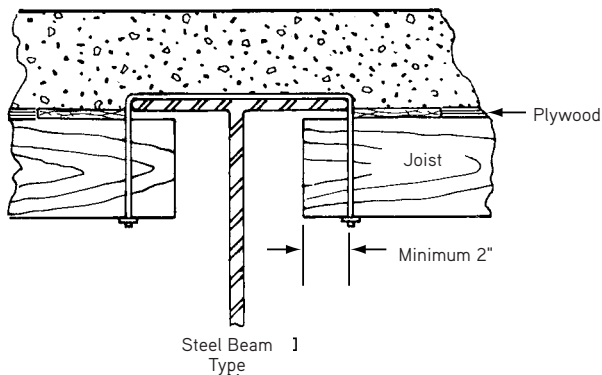
## C13 Plate Saddle Hanger

Dayton Superior C13 Plate Saddle Hanger is primarily used with steel beam construction but can be used effectively on precast beams and concrete block walls. No working parts or adjustments are required. Just hang the hanger over a beam, insert the joists over the plates and lay plywood. The bearing plates are 1/2" wide and are fixed in position by swaging the wire. Standard plates are available for 2x4 and 4x4 SAS dressed lumber. C13 hangers are available with any drop dimension and any beam width over 2" and with heavy duty 4 gauge wire. C13 hangers are recommended for use with lumber joists only and should not be utilized to support metal joists.

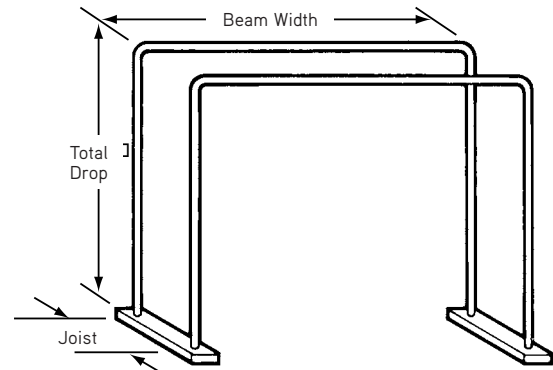
Joist lumber should extend past the hanger bearing support a minimum of 2".

**Warning:** Hanger must be equally loaded on both sides to prevent unequal loading and resulting rotation of the hanger.

**Special Application:** This application requires care to ensure adequate lumber bearing on the hanger. Use duplex head nail behind the hanger plate to prevent the joist from slipping off of the hanger plate. Continuous inspection, before and during concrete placement, is required.



Special Application



C13 Plate Saddle Hanger

Recommended for use with lumber joists only.

**1,500 lbs. for C13**  
Safe Working Load per side

SWL provides a factor of safety of approximately 2 to 1.

### To Order:

Specify: (1) quantity, (2) name, (3) flange width, (4) drop, (5) joist lumber.

### Example:

1,200 pcs. C13 Plate Saddle Hanger, standard 12" flange width, 8-1/4" drop, 2x lumber.

## C13A All-Wire Saddle Hanger

Dayton Superior C13A All-Wire Saddle Hanger is formed from a single wire and butt-welded over the flange area. Wire sizes, working loads and applications are similar to the C13 hanger, above. The C13A hanger is recommended for lumber joists only. Do not utilize for metals joists. See warning note below.

**Warning:** Soft wood joists will crush in the area of the wire, even under light loads. Tests show that the wood will crush approximately 1/8" at 300 pounds per side; approximately 1/4" at 500 pounds each side and up to 3/4" at 1,000 pounds each side.

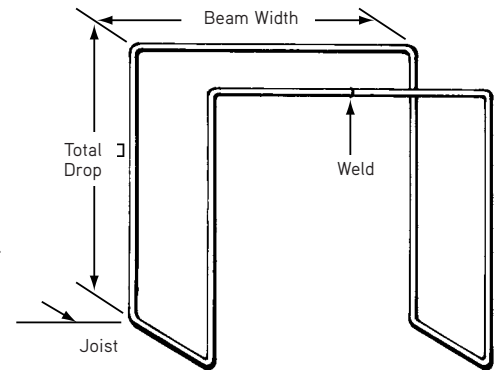
**Warning:** Hangers must be equally loaded, on both sides of the beam, to prevent rotation of the hanger.

### To Order:

Specify: (1) quantity, (2) name, (3) wire size, (4) width, (5) drop, (6) joist lumber.

### Example:

800 pcs. C13A All-Wire Saddle Hanger,  
4 ga., 12" width, 8-1/4" drop, for 4" x 8" joist.



C13A All-Wire Saddle Hanger

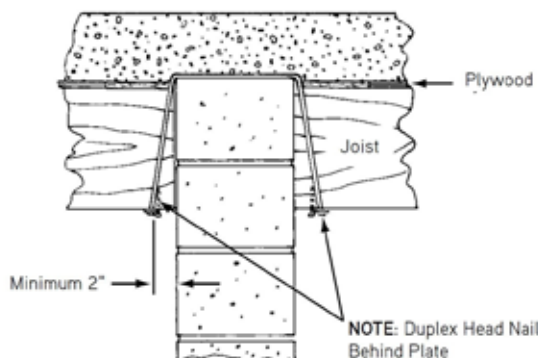
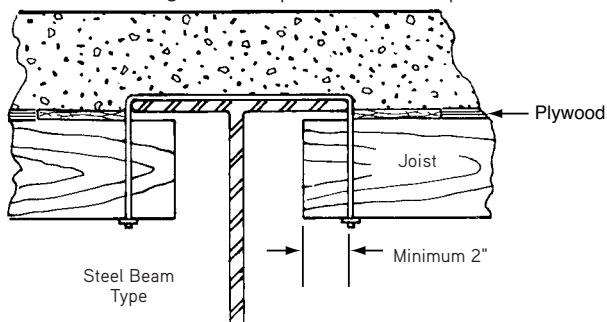
Recommended for use with lumber joists only.

## C14 Channel Hanger

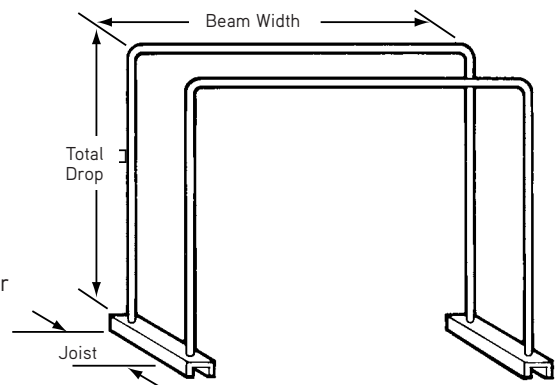
Dayton Superior C14 Channel Hanger is similar to the C13 hanger with the exception of channels instead of plates to support the wood joists. The channels increase the safe working load on the hanger and help reduce crushing of the wood. Soft wood joists may crush up to 3/16" at safe working loads.

**Warning:** Hanger must be equally loaded, on both sides of the beam, to prevent hanger rotation.

**Special Application:** This application requires care to ensure adequate lumber bearing on the hanger. Use duplex head nail behind the hanger plate to prevent the joist from slipping off of the hanger plate. Continuous inspection, before and during concrete placement, is required..



Special Application



C14 Channel Hanger

2,250 lbs. per side  
Safe Working Loads

### To Order:

Specify: (1) quantity, (2) name, (3) width, (4) drop, (5) joist lumber.

### Example:

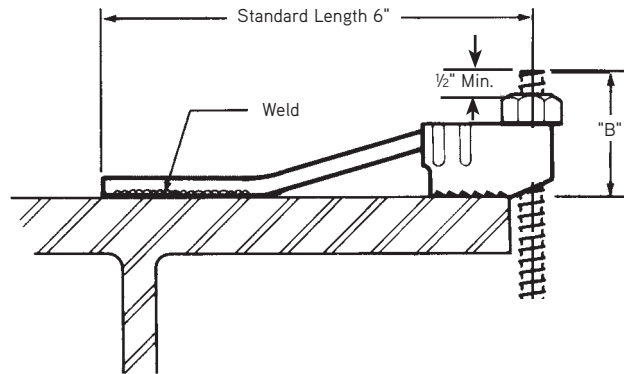
800 pcs. C14A All-Wire Saddle Hanger,  
12" width, 8-1/4" drop, for 4" x 8" joist.

SWL provides a factor of safety of approximately 2 to 1.

## C24 Type S Pres-Steel Steel Beam Half Hangers

C24 Type S Pres-Steel Steel Beam Half Hangers are produced using a single 1/2" end clip welded to a formed wire strut and are used where conditions prevent the use of regular interior hangers. All of the C24 Interior Half Hangers utilize a 90° end clip except for the Type 8-S Half Hanger which use a 15° end clip.

Type S Half Hangers are designed for use on steel beams. The standard Type S Half Hanger uses a wire strut that measure 6" from the centerline of the bolt to the end of the strut.



Typical Steel Beam Application

## C24 Type C Pres-Steel Concrete Beam Half Hangers

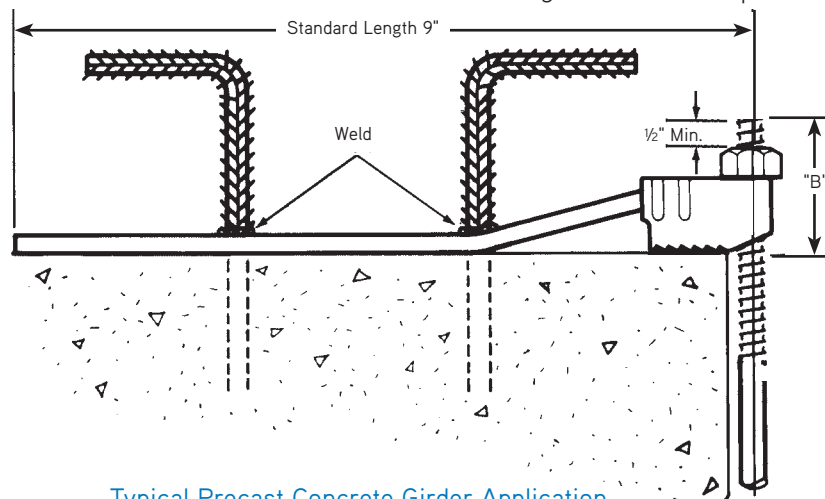
The Type C Pres-Steel Half Hanger used on concrete beams are the same as the above Half Hangers with the exception that the standard wire strut is 9" long.

These concrete beam half hangers are designed to be welded to the rebar shear connectors that extend from the top surface of a precast concrete girder.

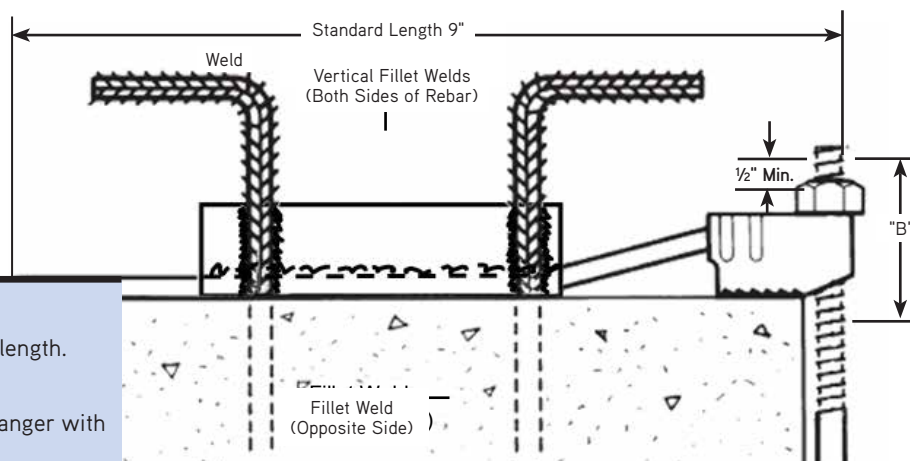
More weld and hanger capacity can be achieved by welding a suitably sized steel plate to the rebar shear connectors, using four vertical fillet welds, to weld the plate to the shear connectors. Then weld the strut wire to the steel plate. May be applied to steel beams by welding to the shear connector studs.

This application is shown in the Special Precast Concrete Girder Application to the right.

Please see the General and Technical Section of this handbook for additional information on field welding of half hangers.



Typical Precast Concrete Girder Application



Special Precast Concrete Girder Application

### To Order:

Specify: (1) quantity, (2) name, (3) strut length.

### Example:

57 pcs. C24 Type 8-C Pres-Steel Half Hanger with 12" long strut.

**Notes:** Safe working load provides a factor of safety of approximately 2 to 1.

Coil bolt or coil rod must penetrate through the coil nut a minimum of 1/2".

"B" dimension is distance from top of girder to top of coil rod (see previous page for diagram).

When used on concrete beams, the safe working load shown is based on a minimum concrete flange thickness of 5" and the normal weight concrete having reached a minimum compressive strength of 5,000 psi.

For hangers used on concrete beams with conditions not meeting above requirements please contact Dayton Superior Technical Assistance.

Longer length strut wire is available on request.

## C24 Pres-Steel Half Hangers

Proper welding procedures must be used when welding half hangers, as field welding may limit the safe working load of a hanger to less than the maximum SWL listed. Field tests should be conducted to establish the actual safe working load of the hanger.

Hanger	Image	Capacity (SWL)	Application	Interior/Exterior	Haunch Min/Max	Bracket Compatibility
C24 TYPE 1-C		3,000 LBS	Concrete	Interior	-	Any
C24 TYPE 1-AC		3,500 LBS	Steel	Interior	-	Any
C24 TYPE 1-S		3,000 LBS	Steel	Interior	-	Any
C24 TYPE 1-AS		3,500 LBS	Steel	Interior	-	Any
C24 TYPE 1-PR		3,000 LBS	Concrete	Interior	-	Any
C24 TYPE 3S		2,000 LBS	Steel	Interior	2.5" Max	Any
C24 TYPE 4-C		6,000 LBS	Steel	Interior	-	Any
C24 TYPE 4-AC		6,000 LBS	Steel	Interior	-	Any
C24 TYPE 4-S		6,000 LBS	Steel	Interior	-	Any
C24 TYPE 4-AS		6,000 LBS	Steel	Interior	-	Any
C24 TYPE 4-AP		3,300 LBS	Concrete	Exterior	-	Any
C24 TYPE 4-APR		6,000 LBS	Concrete	Interior	-	Any
C24 TYPE 4-PR		6,000 LBS	Concrete	Interior	-	Any
C24 TYPE 7-C		2,375 LBS	Concrete	Interior	1.5" Max	Any
C24 TYPE 7-S		2,375 LBS	Steel	Interior	1.5" Max	Any
C24 TYPE 8-C		3,000 LBS	Concrete	Interior	-	Any
C24 TYPE 8-S		3,000 LBS	Steel	Interior	-	Any
C24 TYPE 9-APR		11,000 LBS	Concrete	Exterior	-	C89



## C24 Precast Half Hanger

Precast half hangers were developed for use in wide precast concrete girders. They are currently used in all types of precast concrete bridge girders and beams.

Half hangers are installed by the precaster during the girder production process at predetermined centers provided by the bridge contractor.

Care must be exercised by the precaster to install these hangers so there will be a 1/8" clearance between the edge of the beam and the 1/2" coil bolt.

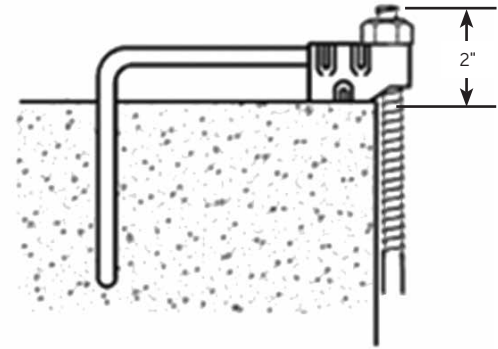
The half hangers must be positioned so the end clip will bear on the top surface of the beam. Failure to properly install these half hangers can result in a reduction in the hangers safe working load.

Type 1-PR and Type 4-PR are used when a fillet is required next to the beam.

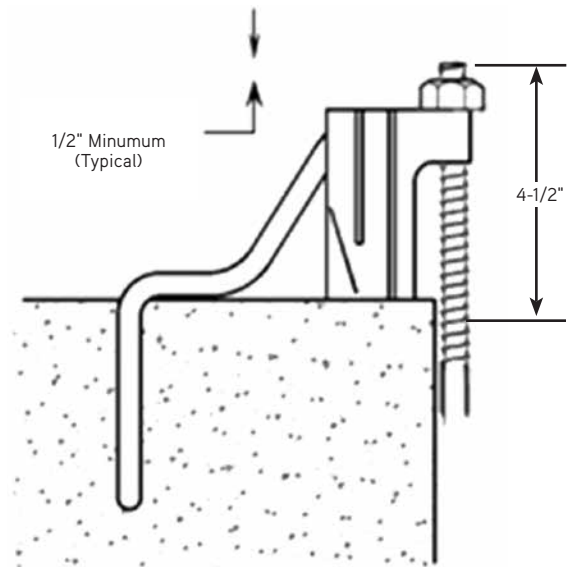
The Type 3-PR Half hanger is used with a maximum of 2-1/2" haunch.

When additional clearance is required beneath the ledgers for the supporting hardware, the Type 8-PR Half hanger will support the coil rod at a 15° angle off of vertical.

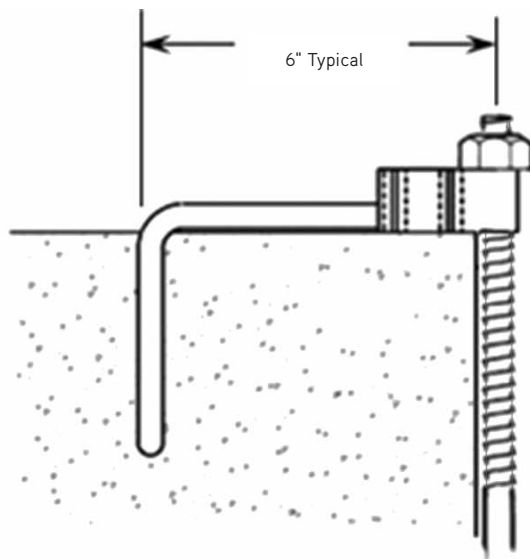
SWL provides approximately a 2 to 1 factor of safety when hangers are installed in a beam having a concrete flange thickness of 5" and the normal weight concrete having achieved a minimum compressive strength or 5,000 psi.



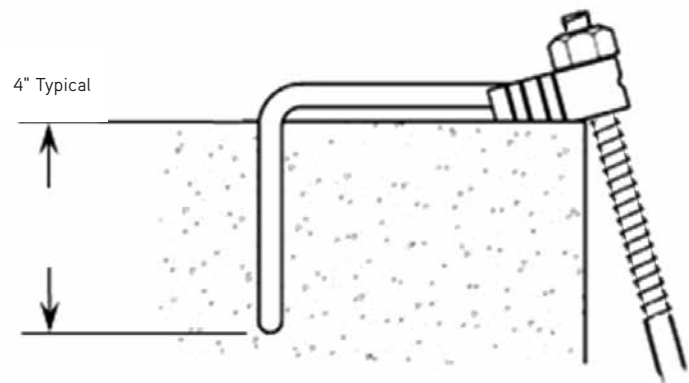
C24 Type 1-PR Precast Half Hanger  
3,000 lbs. SWL



C24 Type 3-PR Precast Half Hanger  
2,000 lbs. SWL



C24 Type 4-PR Precast Half Hanger  
6,000 lbs. SWL



C24 Type 8-PR Precast Half Hanger  
6,000 lbs. SWL

## C25 Pres-Steel Adjustable Half Hanger

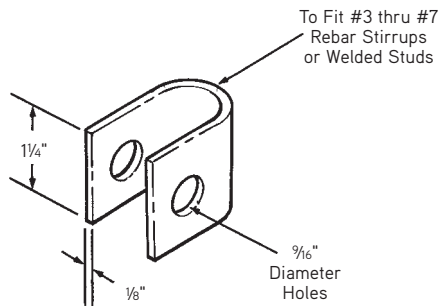
The C25 Pres-Steel Adjustable Half Hanger is available in three types:

- Type 1 Hanger – 90° end clip
- Type 2 Hanger – 90° end clip with 1" haunch
- Type 7 Hanger – 90° end clip with 1-1/2" haunch
- Type 8 Hanger – 15° end clip

Each half hanger consists of a 1/2" end clip welded to a length of 1/2" diameter Coil Rod, Stirrup Clips and 1/2" Coil Nuts.

These half hangers are used to support interior deck formwork when one-sided forming is required and welding to the shear connectors or flange is not permitted by the DOT.

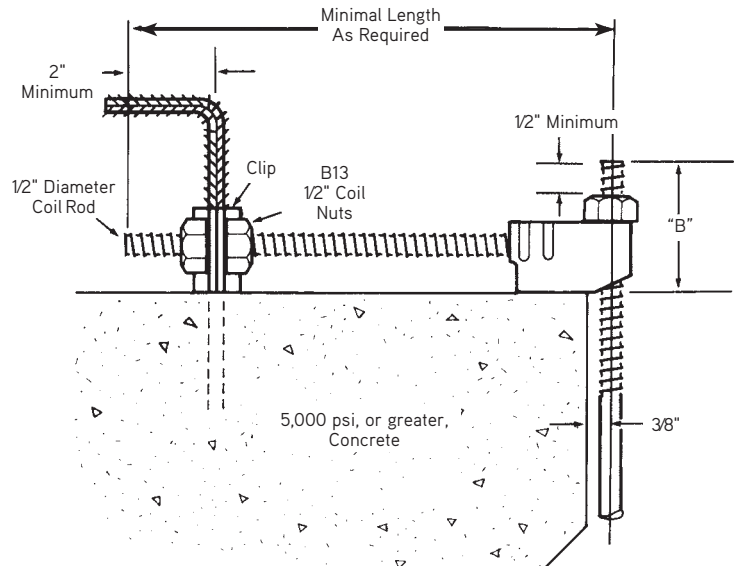
Stirrup Clips are available in #3, #4, #5, #6 and #7 rebar sizes or 3/8", 1/2", 5/8", 3/4" and 7/8" stud diameters as required.



Stirrup Clip Detail

To Order:  
Specify: (1) quantity, (2) name, (3) type, (4) Length, (5) number of clips and (6) clip size.

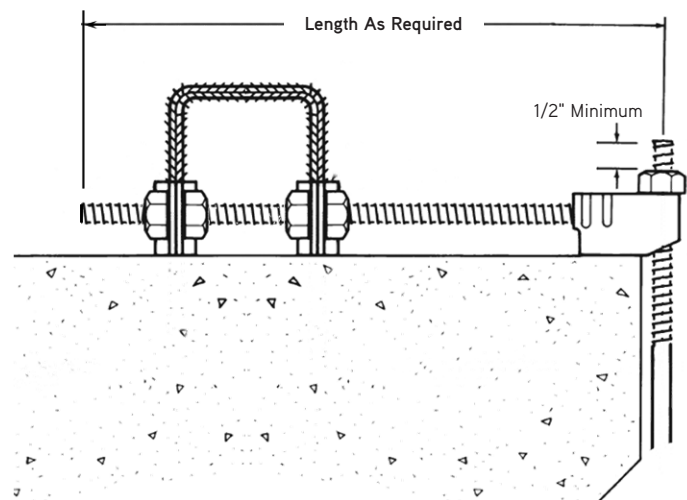
Example:  
125 pcs. C25 Type 2 Pres-Steel Adjustable Half Hanger, 12" long with 2 clips for #6 Rebar.



Type 1 Hanger with One Clip








### SAFETY NOTE:

In order to develop the safe working loads listed, two Coil Nuts must compress each Stirrup Clip securely to the rebar stirrup or shear stud. Failure to accomplish a secure connection will greatly reduce the safe working load of the hanger.



Type 1 Hanger with Two Clips

## C25 Pres-Steel Adjustable Half Hanger

Hanger	Image	Capacity (SWL)	Application	Interior/Exterior	Haunch Min/Max	Bracket Compatibility
C25 TYPE 1		3,000 LBS 1-CLIP 3,000 LBS 2-CLIPS	STEEL & CONCRETE 5,000 PSI MIN	Interior	-	Any
C25 TYPE 1A		3,000 LBS 1-CLIP 3,000 LBS 2-CLIPS	STEEL & CONCRETE 5,000 PSI MIN	Exterior	-	C49
C25 TYPE 2		2,000 LBS 1-CLIP 2,375 LBS 2-CLIPS	STEEL & CONCRETE 5,000 PSI MIN	Interior	1" Max	Any
C25 TYPE 7		2,000 LBS 1-CLIP 2,375 LBS 2-CLIPS	STEEL & CONCRETE 5,000 PSI MIN	Interior	1.5" Max	Any
C25 TYPE 8		2,000 LBS 1-CLIP 3,000 LBS 2-CLIPS	STEEL & CONCRETE 5,000 PSI MIN	Interior	-	Any
C25 HD 45°		6,000 LBS 2-CLIPS	STEEL & CONCRETE 5,000 PSI MIN	Exterior	-	C49
C25 HD 90°		6,000 LBS 2-CLIPS	STEEL & CONCRETE 5,000 PSI MIN	Interior	-	Any

## C68 90° Type 4-B Ty-Down Half Hanger

This is an excellent hanger for applications requiring a heavy duty interior half hanger. Normally supplied hot dipped galvanized after fabrication as a portion of the hanger will normally not be encased in the concrete deck leaving the exposed portion to rapidly corrode if not protected with a heavy zinc coating.

This hanger is rated with a safe working load of 6,000 lbs. and is designed to work with 1/2" diameter coil bolt.

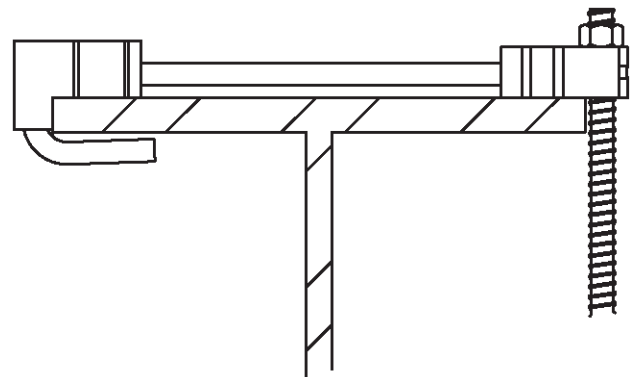
SWL provides approximately a 2 to 1 factor of safety.

### To Order:

Specify: (1) quantity, (2) name, (3) type, (4) Length, (5) flange thickness and (6) finish.

### Example:

175 pcs. C68 Type 4 Ty-Down Half Hanger, for 14" flange width x 1-1/8" thick, HDG.



## C68 90° Type 4-B Ty-Down Half Hanger & C63 Pres-Steel Hook Half Hanger

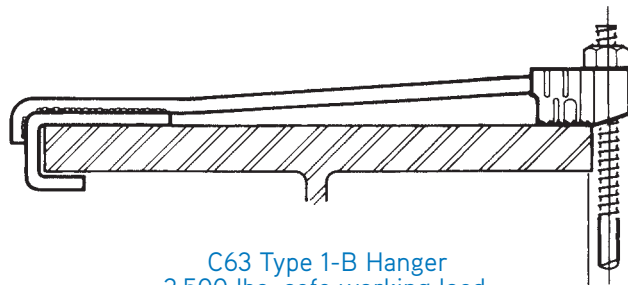
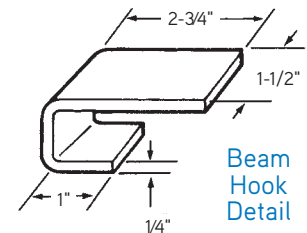
Hanger	Image	Capacity (SWL)	Application	Interior/Exterior	Haunch Min/Max	Bracket Compatibility
C68 TYPE 4B		6,000 LBS	STEEL	Interior	-	Any
C68 TYPE 4AB		6,000 LBS	STEEL	Exterior	-	C49
C63 TYPE 4AB 1/2" COIL ROD						

### C63 Pres-Steel Hook Half Hanger

Several types of hook half hangers are available for use with metal or prestressed concrete stay-in-place interior deck forms. The beam hook is designed to slip over the edge of a steel beam having a minimum flange thickness of 1/2".

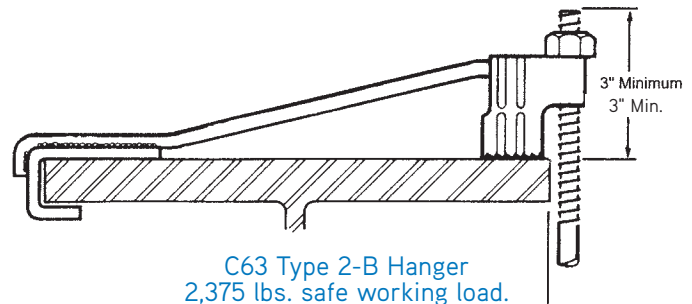
These half hangers are manufactured using a 90° end clip that accepts a 1/2" diameter coil bolt. The end clip is electrically resistance welded to a wire strut which is formed and welded to a steel beam hook, providing 180° reinforcement to the hook for increased safety.

SWL's provides approximately a 2 to 1 factor of safety.



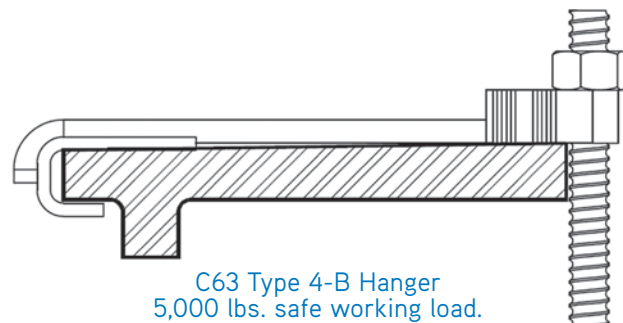
**C63 Type 1-B Hanger**  
3,500 lbs. safe working load.

Designed to form a bridge deck having a fillet next to the beam.



**C63 Type 2-B Hanger**  
2,375 lbs. safe working load.

Designed To accommodate haunch heights of up to 1".



**C63 Type 4-B Hanger**  
5,000 lbs. safe working load.

Heavy duty half hanger designed for use to form a bridge deck having a fillet next to the beam.

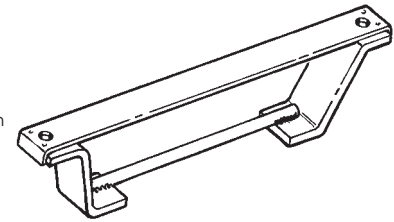
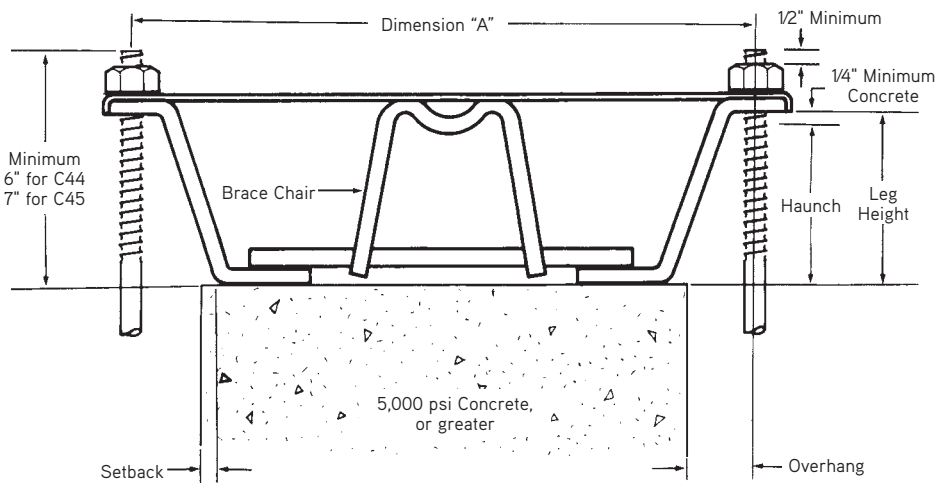
#### To Order:

Specify: (1) quantity, (2) name, (3) type, (4) flange width, (5) flange thickness.

#### Example:

175 pcs. C63 Type 2 Pres-Steel Hook Half Hanger, for 18" flange width x 1-1/4" thick.

## C44 and C45 Con-Beam Hanger



Typical Con-Beam Hanger

C44 and C45 Con-Beam Hanger

Type	Overhang	Setback	Haunch	Leg Height
C44	3/8"	1-1/4"	4"	4-1/4"
C44	5/8"	1"	3-1/4"	4-1/4"
C44	7/8"	3/4"	2-1/8"	4-1/4"
C44	1-1/8"	1/2"	1"	4-1/4"
C44	1-3/8"	1/4"	0"	4-1/4"
C45	3/8"	1-1/2"	5"	5-1/4"
C45	5/8"	1-1/4"	4-1/8"	5-1/4"
C45	7/8"	1"	3-1/8"	5-1/4"
C45	1-1/8"	3/4"	2"	5-1/4"
C45	1-3/8"	1/2"	1"	5-1/4"
C45	1-5/8"	1/4"	0"	5-1/4"

**Note:** Dimension "A" is equal to 2 times the overhang plus flange width.

The C44 and C45 Con-Beam Hanger is designed to provide coverage of various haunch heights up to 5" and numerous overhang conditions. The top plate of the hanger is fabricated from steel strap and is reinforced with a brace chair on wider hangers. C44 and C45 hangers are designed for use with 1/2" Coil Bolts or Coil Rods only.

**Con-Beam Hangers are designed for supporting interior formwork only. Do not use for suspending overhang form loads.**

Safe Working Load  
3,000 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

To Order:

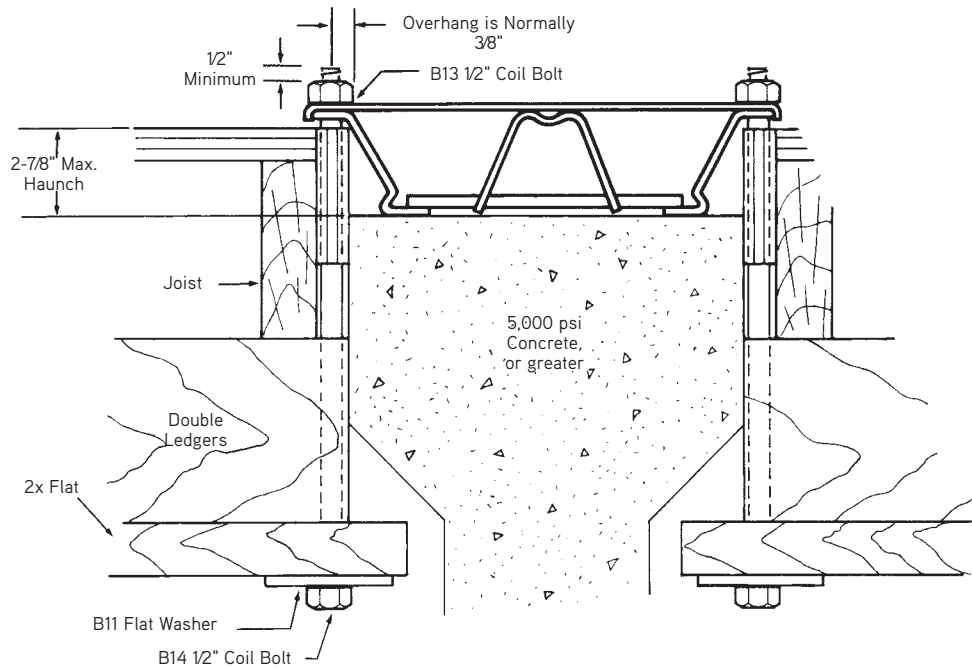
Specify: (1) quantity, (2) name, (3) dimension "A", (4) flange width.

Example:

750 pcs. C44 Con-Beam Hanger, 15-3/4" A dimension for 15" flange.



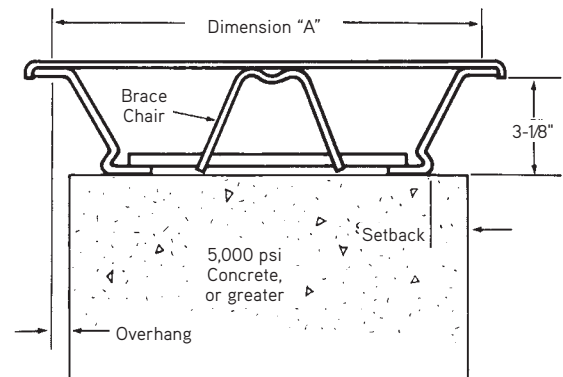
## C46 Con-Beam Hanger



C46 Con-Beam Hanger

Haunch	Overhang	Setback
2-7/8"	3/8"	1"
2-1/2"	5/8"	3/4"
2"	7/8"	1/2"
1-5/8"	1"	3/8"

**Note:** Dimension "A" is equal to 2 times the overhang plus flange width.



The C46 Con-Beam Hanger is designed to provide coverage of various haunch heights up to 2-7/8" and numerous overhang conditions. The top plate of the hanger is fabricated from steel strap and is reinforced with a brace chair on wider hangers. C46 hangers are designed for use with 1/2" Coil Bolts or Coil Rods only.

**Con-Beam Hangers are designed for supporting interior formwork only. Do not use for suspending overhang form loads.**

Safe Working Load  
3,000 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

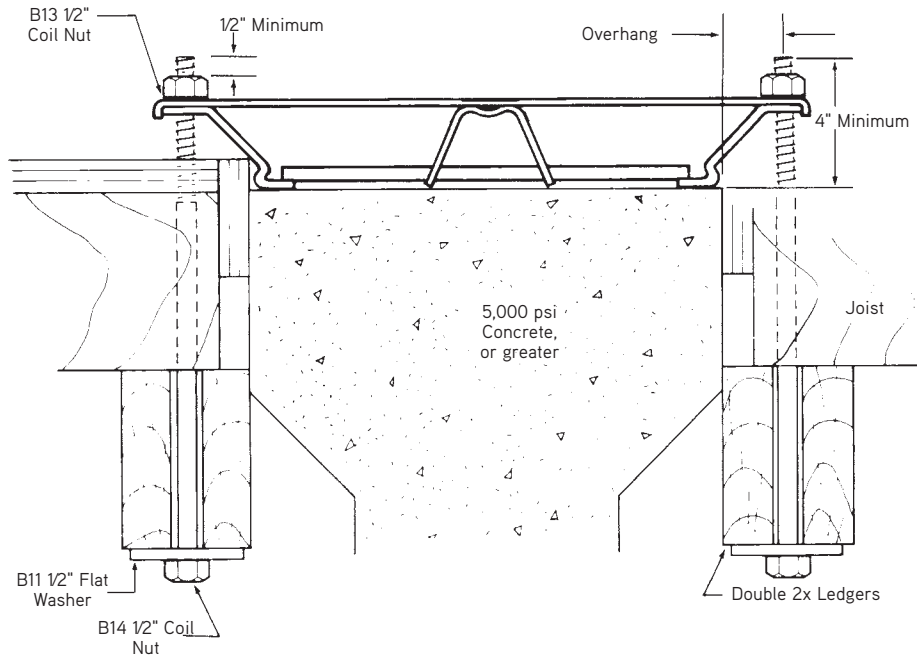
To Order:

Specify: (1) quantity, (2) name, (3) dimension "A", (4) flange width.

Example:

750 pcs. C46 Con-Beam Hanger, 22" A dimension for 20" flange.

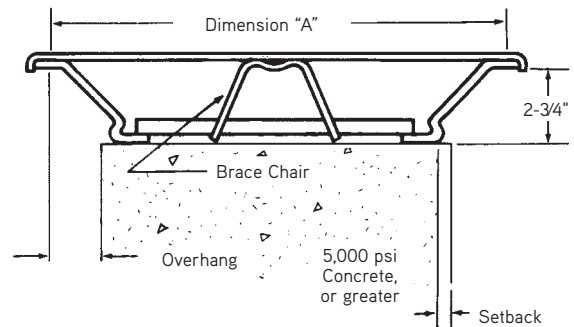
## C47 Con-Beam Hanger



C46 Con-Beam Hanger

Haunch	Overhang	Setback
2-1/2"	3/8"	1-5/8"
2-1/4"	1/2"	1-1/2"
2"	3/4"	1-1/4"
1-3/4"	1"	1"
1-1/2"	1-1/4"	3/4"
1-1/4"	1-1/2"	1/2"
1-1/8"	1-3/4"	1/4"

**Note:** Dimension "A" is equal to 2 times the overhang plus flange width.



The C47 Con-Beam Hanger is designed to provide coverage of various haunch heights up to 2 1/2" and overhang conditions up to 1-3/4" away from the beam side. The top plate of the hanger is fabricated from steel strap and is reinforced with a brace chair on wider hangers. C47 hangers are designed for use with 1/2" Coil Bolts or Coil Rods only.

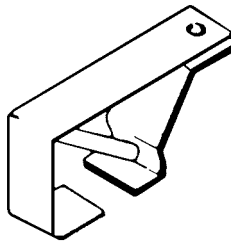
**Con-Beam Hangers are designed for supporting interior formwork only. Do not use for suspending overhang form loads.**

Safe Working Load  
2,000 lbs. per Side  
SWL provides a factor of safety of approximately 2 to 1.  
**WARNING:** Hangers must be equally loaded on both sides.

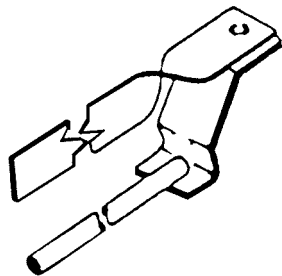
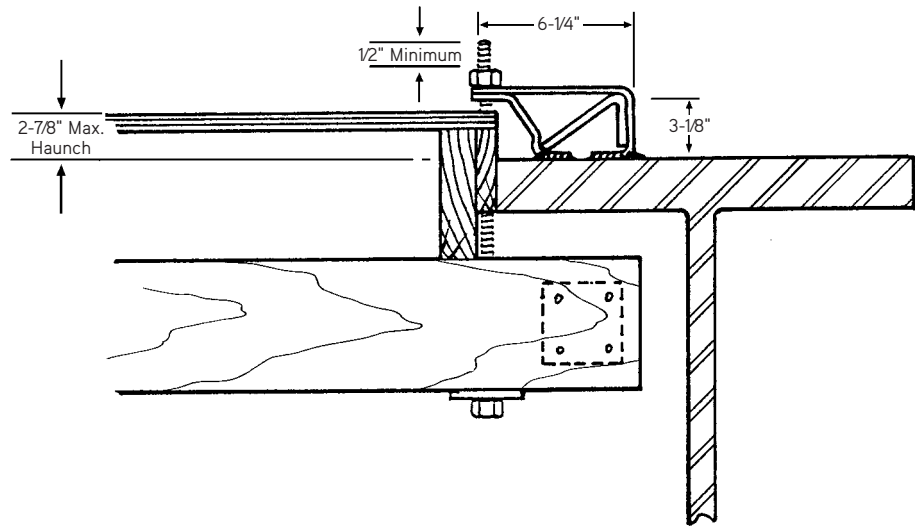
To Order:  
Specify: (1) quantity, (2) name, (3) dimension "A", (4) flange width.

Example:  
750 pcs. C47 Con-Beam Hanger, 15 1/2" A dimension for 12" flange.

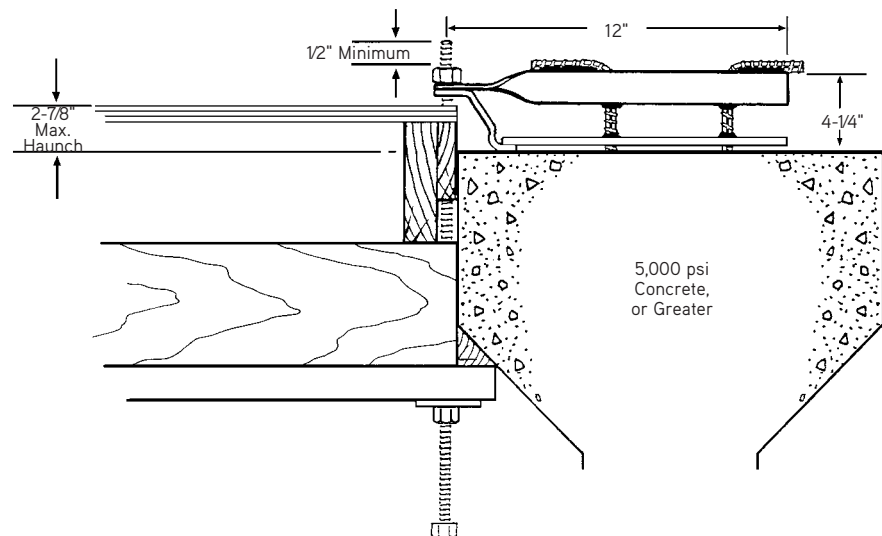
## C46H and C46TH Con-Beam Half Hanger



**C46H**  
Con-Beam Half  
Hanger



**C46TH**  
Con-Beam Half  
Hanger



The C46H and C46TH Half Hangers are designed to be used where conditions prevent the use of standard Con-Beam Hangers. The C46H hanger is designed so it can be welded to the top surface of a structural steel bridge beam. It is 6-1/4" from centerline of the bolt hole to the end of the hanger and has an overall height of 3-1/2".

The C46TH hanger comes in a standard length of 12" and has an overall height of 4-1/4". The hanger is designed to be welded to the stirrups of a precast concrete bridge beam.

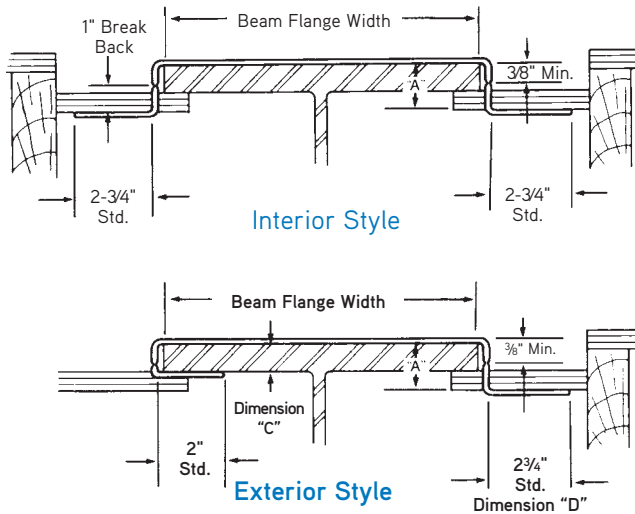
**Caution:** Care must be exercised when welding hangers. Field welding may alter the strength of the wire strut and may limit the hanger to a much lower safe working load than that shown in the chart. Field tests should be conducted to verify actual safe working loads. See related note on welding in the General and Technical Information Section.

Safe Working Load  
3,000 lbs. per Side  
SWL provides a factor of safety of approximately 2 to 1.

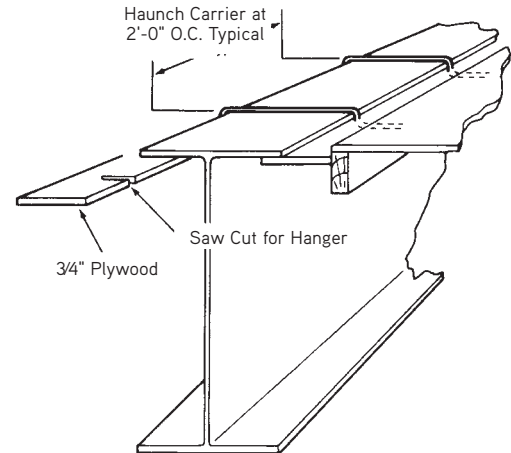
To Order:  
Specify: (1) quantity, (2) name.

Example:  
750 pcs. C46H Con-Beam Half Hanger.

## C28 Haunch Carrier



"A" = Flange Thickness + Plywood Thickness Less 1/8" for Tightness (1-1/8" = Minimum "A")



The C28 Haunch Carrier is used to support haunch or filler strips to simplify framing, erection and stripping. The C28 Haunch Carrier is available for interior and exterior forming configurations and is equipped with a standard 1" breakback capability similar to Snap Ties.

Do not weld haunch carrier to beam. Do not stand on trim strips supported only by the Haunch Carrier.

Safe Working Load  
100 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

### To Order:

Specify: (1) quantity, (2) name, (3) types, (4) beam width, (5) "A" and "C" (Exterior only) dimensions, (6) break back.

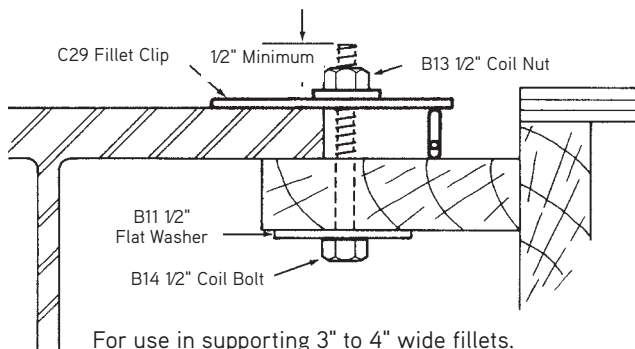
### Example:

500 pcs. C28 Haunch Carrier, Exterior Type, 12" beam width, "A" = 1-3/8" "C" = 3/4", Break Back 1".

## C29 Fillet Clip

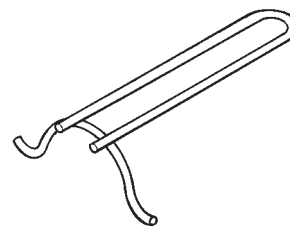
The C29 Fillet Clip is used to support haunch or filler strips by bolting through the form with a 1/2" Coil Bolt (not included). The C29 clip is available for flange thickness of 3/4" or greater and can be special ordered with plastic protected legs, if required.

Do not stand on trim strips supported only by the fillet clips.

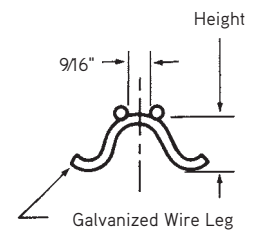


Safe Working Load  
350 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.



C29 Fillet Clip



Fillet Clip Detail

### To Order:

Specify: (1) quantity, (2) name.

### Example:

200 pcs. C29 Fillet Clips.

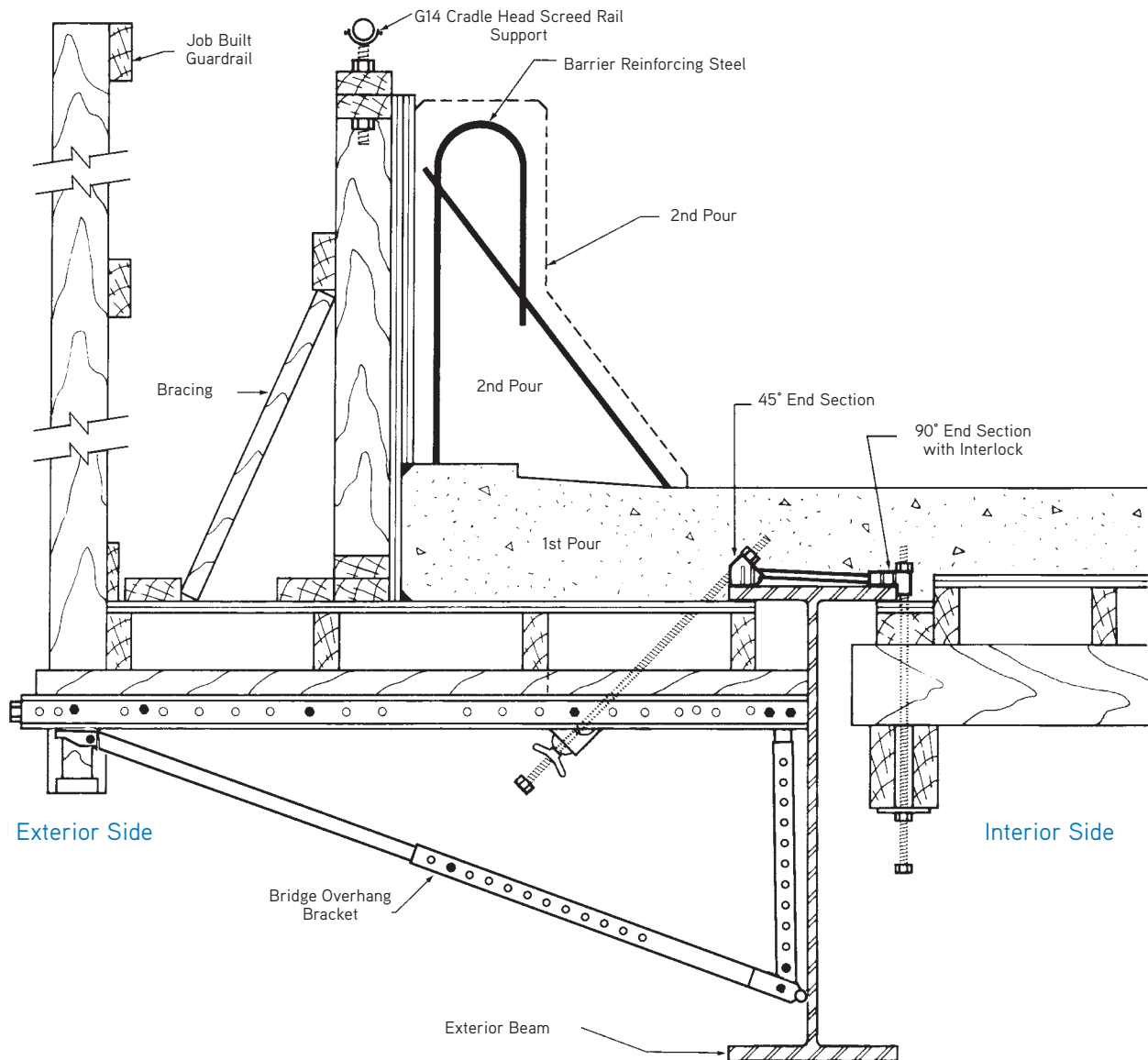
## Application of Exterior Hangers

Exterior hangers generally utilize two different types of end clips, a 90° end to support the interior formwork and a 45° end to support the overhang forming on the exterior side. Dayton Superior offers several exterior hangers that are especially designed to support bridge deck formwork loads, consisting of a live load, dead load, formwork load and usually on the exterior overhang a concrete conveyor and/or a finishing machine load.

Occasionally, 45° half hangers may be required, especially for use in situations where prestressed concrete or steel stay-in-place forms are used to form the interior bays of a bridge deck.

Exterior bridge deck hangers are designed for use on rolled structural steel beams, fabricated steel plate girders or precast/prestressed concrete girders. Hangers are designed to be used with full bearing under the end clips. **It is essential to check the exact beam width and flange thickness dimensions before ordering.**

See Interior Hangers section for Century Hanger Series used as exterior hangers.



Typical Section View at Exterior Beams

For safety reasons, a qualified person must accurately calculate the loads induced into an overhang bracket and exterior hanger. Calculated loads must be equal to or less than the hanger safe working load as well as the overhang bracket's safe working load. The user is encouraged to contact the closest Dayton Superior Technical Assistance for assistance if they are not qualified to determine the applied loads and the resulting hanger and overhang bracket spacing.



## C60 Type 1-A Pres-Steel Hanger

Hanger	Image	Capacity (SWL)	Application	Interior/Exterior	Haunch Min/Max	Bracket Compatibility
C60 TYPE 1		3,500 LBS/ PER SIDE	STEEL & CONCRETE	Interior	-	Any
C60 TYPE 1A		3,500 LBS/ PER SIDE	STEEL & CONCRETE	Interior	-	Any
C60 TYPE 1-4A		3,500 LBS/ PER SIDE 1,000 LBS SUP. ARM	STEEL & CONCRETE	Exterior	-	C49
C60 TYPE 2		2,375 LBS/ PER SIDE	STEEL & CONCRETE	Interior	-	Any
C60 TYPE 2A		2,375 LBS/ PER SIDE	STEEL & CONCRETE	Exterior	2.5" Max	C49
C60 TYPE 3		2,500 LBS/ PER SIDE	STEEL & CONCRETE	Interior	2.5" Max	Any
C60 TYPE 4		6,000 LBS/ PER SIDE	STEEL & CONCRETE	Interior	-	Any
C60 TYPE 4A		6,000 LBS/ PER SIDE	STEEL & CONCRETE	Exterior	-	C49
C60 TYPE 5		6,000 LBS/ PER SIDE	STEEL & CONCRETE	Interior	-	Any
C60 TYPE 6A		11,300 LBS/ PER SIDE	STEEL	Exterior	-	C89
C60 TYPE 7		2,375 LBS/ PER SIDE	STEEL & CONCRETE	Interior	1.5" Max	Any
C60 TYPE 7A		2,375 LBS/ PER SIDE	STEEL & CONCRETE	Exterior	1.5" Max	C49
C60 TYPE 8		4,500 LBS STD/ 6,000 LBS HVY	CONCRETE 5,000 PSI MIN	Interior	-	Any
C60 TYPE 8A		4,500 LBS STD/ 6,000 LBS HVY	CONCRETE 5,000 PSI MIN	Exterior	-	C49
C60 TYPE 9		11,300 LBS/ PER SIDE	STEEL	Interior	-	Any
C60 TYPE 9A		11,300 LBS/ PER SIDE	STEEL	Exterior	-	C89

## C60 Type 1-A Pres-Steel Hanger

The Type 1-A Pres-Steel Hangers are especially designed to be used when there is a fillet, on the interior side of the beam. This hanger consists of a 90° end clip and 45° end clip electrically resistance welded to a single 0.375" diameter wire strut.

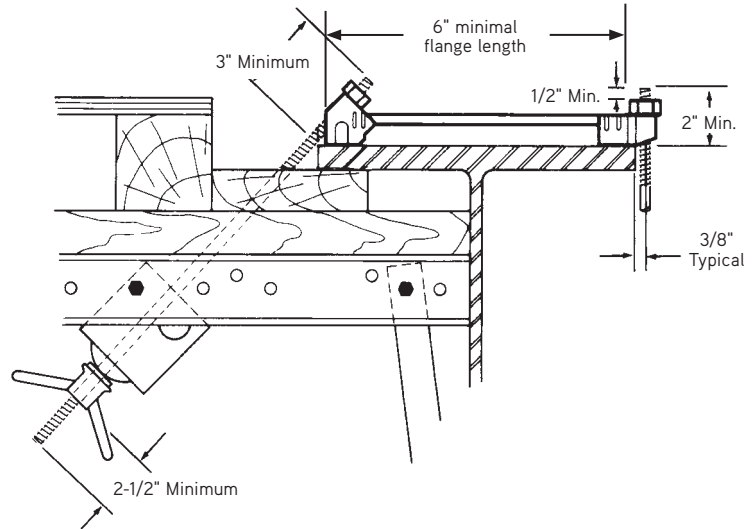
Both end clips are designed to work with 1/2" diameter coil bolts or coil rods. The design allows installation and adjustment from the top of the formwork.

### SAFETY NOTE:

This hanger should be used to support overhang brackets only when the weight of concrete finishing machine and/or conveyor machine is supported directly on the exterior bridge beam.

Safe Working Load  
3,500 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.



### To Order:

Specify: (1) quantity, (2) name, (3) flange width.

### Example:

750 pcs. C60 Type 1-A Pres-Steel Hanger for 12" flange.

## C60 Type 2-A Pres-Steel Hanger

The Type 2-A hanger is similar in design to the Type 1-A hanger above, except it is designed to provide a 1" haunch relief on the interior side.

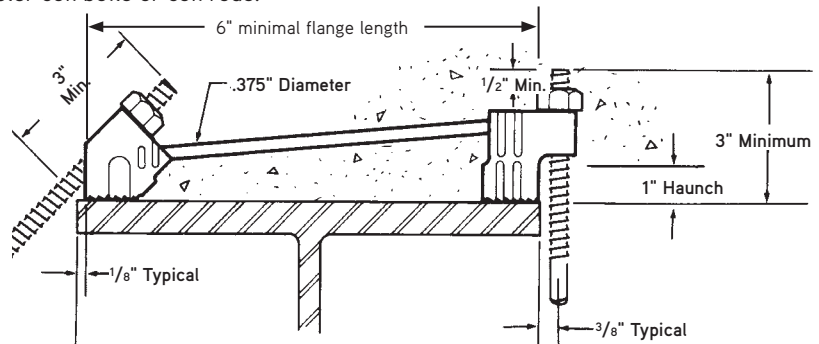
Both end clips are designed to work with 1/2" diameter coil bolts or coil rods.

### SAFETY NOTE:

This hanger should be used to support overhang brackets only when the weight of concrete finishing machine and/or conveyor machine is supported directly on the exterior bridge beam.

Safe Working Load  
2,375 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.



### To Order:

Specify: (1) quantity, (2) name, (3) flange width.

### Example:

1,250 pcs. C60 Type 2-A Pres-Steel Hanger for 24" flange.

## C62 Type 6-A Pres-Steel Hanger

This is an excellent hanger to use when a higher haunch is required on the interior side of the exterior beam and a finishing and/or concrete conveyor is to be supported on the exterior overhang formwork. Designed to work with a haunch height of up to 2-1/2".

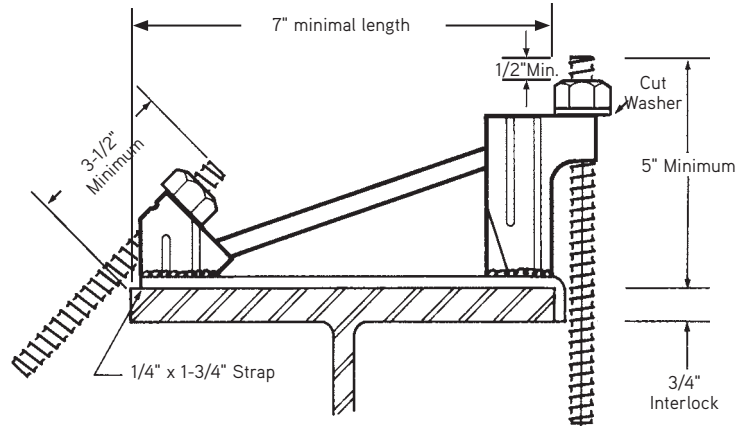
End clips accept 1/2" diameter coil rod or coil bolts.

### SAFETY NOTE:

To develop the safe working load of this hanger requires the use of a 1/2" E-7 Cut Washer be used between the top of the 90° end clip and the 1/2" Coil Nut.

Safe Working Load  
4,000 lbs. on 45° Side  
2,800 lbs on 90° Side

SWL provides a factor of safety of approximately 2 to 1.



### To Order:

Specify: (1) quantity, (2) name, (3) flange width.

### Example:

25 pcs. C62 Type 6-A Pres-Steel Hanger for 16" flange.

## C60 Type 7-A Pres-Steel Hanger

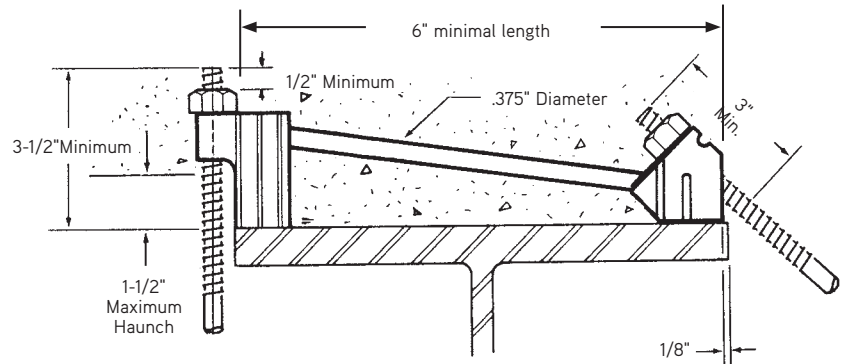
The Type 7-A hanger is similar to the Type 1-A but can accommodate haunch heights up to 1-1/2". Use with 1/2" diameter coil rod or bolts.

### SAFETY NOTE:

This hanger should be used to support overhang brackets only when the weight of concrete finishing machine and/or conveyor machine is supported directly on the exterior bridge beam.

Safe Working Load  
2,375 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.



### To Order:

Specify: (1) quantity, (2) name, (3) flange width.

### Example:

1,850 pcs. C60 Type 7-A Pres-Steel Hanger for 12" flange.

## C60 Type 8-A Pres-Steel Hanger

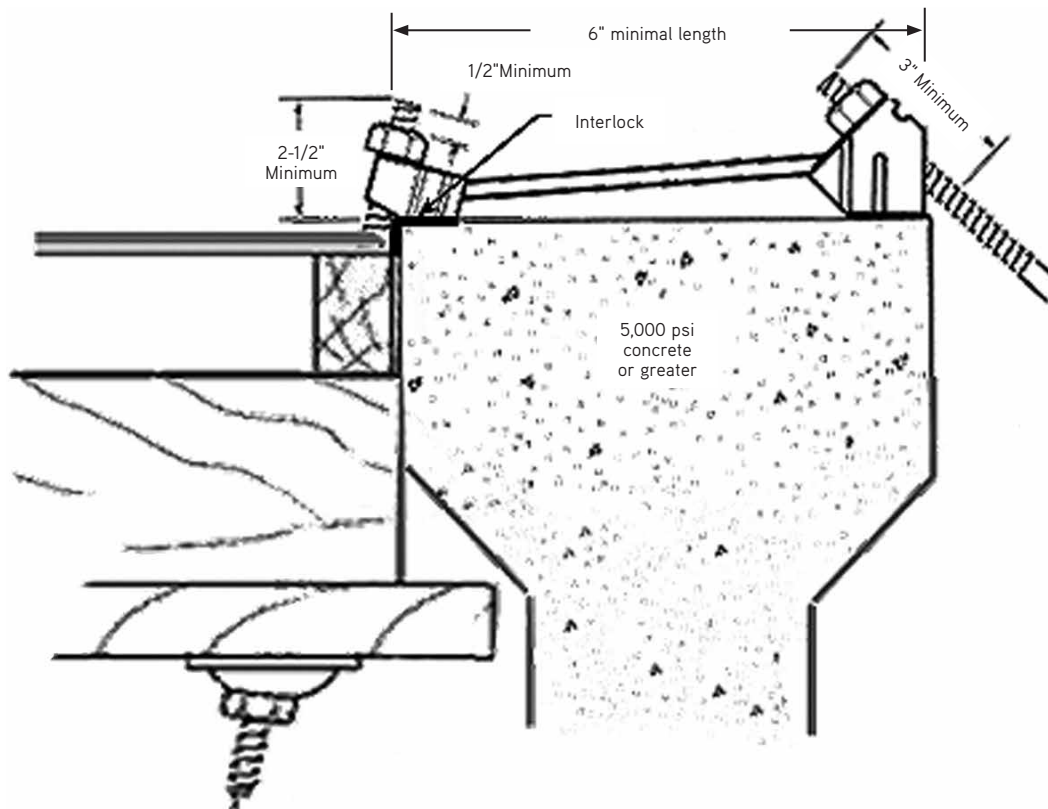
The Type 8-A hanger consists of a 15° end clip and a 45° end clip, both designed to accept 1/2" diameter coil rods or bolts. The 15° end supports the interior formwork while the 45° end supports the overhang bracket and the exterior formwork.

Available in two styles, standard and heavy, with the heavy unit having a higher safe working load.

Typically used on precast/prestressed concrete beams and girders as the 15° interior end clip allows additional clearance below the formwork to support the ledgers. A B42 Batter Washer is recommended for use beneath the ledgers, to allow for proper bearing of the head of the 1/2" diameter coil bolt.

The 15° end clip has a separate interlock welded to it, which resists the lateral loads induced into the hanger due to the overhang bracket loads.

As with other types of pres-steel hangers, installation and adjustment to grade is from the top of the beams.



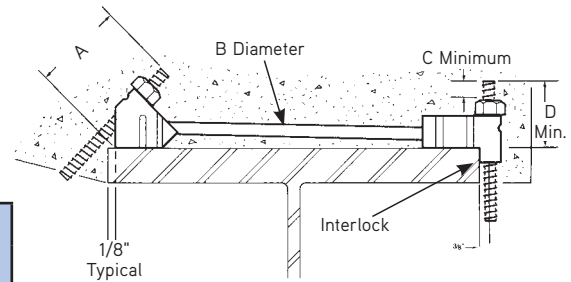
Safe Working Load  
4,500 lbs. per Side - Standard  
6,000 lbs. per Side - Heavy  
SWL provides a factor of safety of approximately 2 to 1.

To Order:  
Specify: (1) quantity, (2) name, (3) flange width.  
Example:  
275 pcs. C60 Type 8-A Pres-Steel Hanger for 12" flange.

## C60 Type 4-A Pres-Steel Hanger

The Type 4-A Pres-Steel Hanger is fabricated with a 90° interlock type end clip and a 45° end clip, both of which are electric resistance welded to a 0.440" diameter wire strut. Both end clips are designed to accept 1/2" diameter coil bolts and/or coil rods and nuts.

The 90° end has an interlock end clip which resist lateral forces from the loads applied at the 45° end.



Type	Safe Working Load	Bolt Diameter		A	B	C	D
		45° End	90° End				
4-A	6,000 lbs. per Side	1/2"	1/2"	3"	.440"	1/2"	2"

SWL. provides a factor of safety of approximately 2 to 1.

To Order:

Specify: (1) quantity, (2) name, (3) flange width.

Example:

150 pcs. C60 Type 9-A Pres-Steel Hanger for 18" flange.

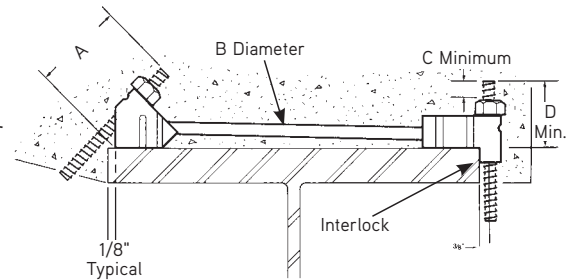
## C60 Type 9-A Pres-Steel Hanger

The type 9-A Pres-Steel Hanger is fabricated with a 90° interlock type end clip and a 45° end clip, both of which are electric resistance welded to a 0.750" diameter wire strut. Both end clips are designed to accept 3/4" diameter coil bolts and/or coil rods using B13H (Heavy Hex) nut.

Type 9-A hanger is similar to the 4-A, except it is fabricated from 3/4" diameter strut wire and heavier end clips designed to accept 3/4" diameter coil rod.

The Type 9-A hanger is intended for use with the C89L Heavy Duty Bridge Overhang Brackets, which requires the use of a 3/4" diameter coil bolt.

The 90° end has an interlock end clip which resist lateral forces from the loads applied at the 45° end.



**SAFETY NOTE:** 11,300 lbs. per side with B13H Coil Nuts  
SWL provides a factor of safety of approximately 2 to 1.

**WARNING:** Hangers must be equally loaded on both sides.

To develop the safe working load of the Type 9-A requires the use of 3/4" B13H (Heavy Hex) Coil Nuts or two 3/4" B13 Coil Nuts with a 3/4" E7 Cut Washer.

To Order:

Specify: (1) quantity, (2) name, (3) flange width.

Example:

600 pcs. C60 Type 9 Pres-Steel Hanger for 24" flange.

Type	Safe Working Load	Bolt Diameter		A	B	C	D
		45° End	90° End				
9-A	11,300 lbs. per Side	3/4"	3/4"	4-1/2"	.750"	3/4"	3-1/2"

SWL. provides a factor of safety of approximately 2 to 1.



## C67 Tie Bar Beam Clip Pre-Stress Hanger

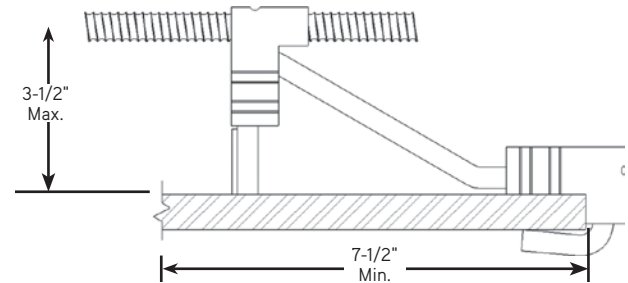
C67 Tie Bar Beam Clip Pre-stress Hanger is an ideal half hanger for supporting overhang formwork over stay-in-place decking. These half hangers are fabricated with the strut wire formed into a "J" shape so it engages the edge of the flange. A 90° interlock end clip is welded to the strut wire to provide increase capacity. This hanger is furnished with a 90° end clip that accepts a 1/2" diameter coil rod or bolt. Other sizes and configurations available. Contact technical service for assistance.

### To Order:

Specify: (1) quantity, (2) name, (3) flange width, (4) anti-tip plate, if needed.

### Example:

150 pcs. C67 Tie bar Beam Clip Pres-Steel Hanger, 1.00 Flange Thickness.



Hanger Safe Working Load  
2,500 lbs. at 2 to 1 factor of safety.

Exterior Hangers

## C67 Tie Bar Beam Clip Pre-Stress Hanger

Hanger	Image	Capacity (SWL)	Application	Interior/Exterior	Haunch Min/Max	Bracket Compatibility	PCN
C67 TYPE-1		2,500 LBS	STEEL	EXTERIOR	3.5" MAX		43438
C67 TYPE-2		2,500 LBS	STEEL	EXTERIOR	3.125" MAX		0.75 - 43439 1.00 - 43440 1.25 - 43445 1.50 - 43441 1.75 - 43446 2.00 - 43442 2.25 - 43447 2.50 - 43443 2.75 - 43448 3.00 - 43444
C67 TYPE-3		2,000 LBS	STEEL	EXTERIOR	3.125" MAX		43600
C67 TYPE-4		1,500 LBS	STEEL	EXTERIOR	6" MAX 4" MIN		-

## C68 Type 4-AB Pres-Steel Ty-Down Half Hanger

The C68 is an ideal half hanger for supporting overhang formwork when stay-in-place metal decking is used on the interior bays of a bridge deck.

These half hangers are fabricated with the strut wire formed into a "J" shape so it engages the edge of the flange. A 90° interlock end clip is welded to the strut wire to provide increased capacity.

The Type 4-AB half hanger is furnished with a 45° end clip that accepts a 1/2" diameter coil rod or bolt.

### To Order:

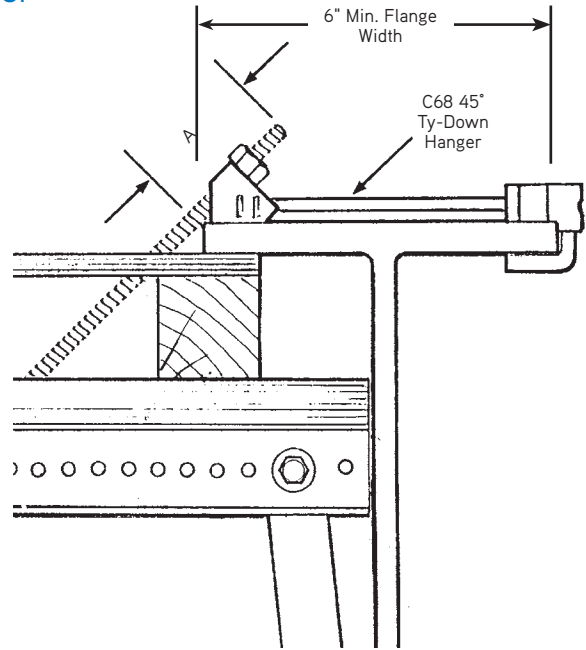
Specify: (1) quantity, (2) name, (3) flange width, (4) flange thickness.

### Example:

150 pcs. 4-AB Pres-Steel Ty-Down Half Hanger for 18" wide x 1-1/2" thick flange.

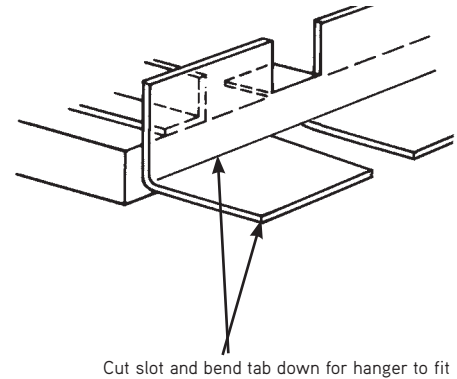
Type	Safe Working Load	Bolt Diameter	A
4-AB	6,000 lbs.	1/2"	3"

S.W.L. provides a factor of safety of approximately 2 to 1.



## Metal Deck Application

**NOTE:** Metal decking materials shown as example only. Actual application may vary.



## C41 Type 4-A Coil Rod Hanger

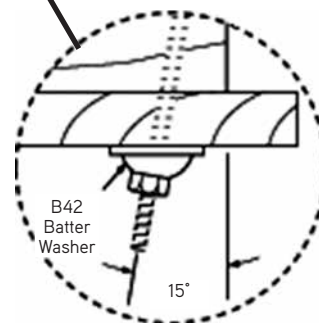
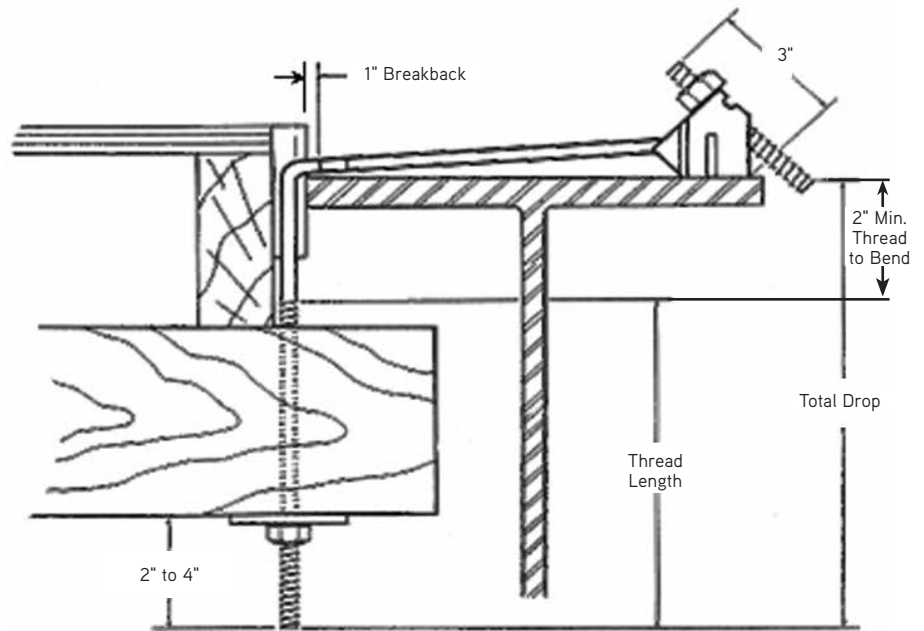
This hanger is fabricated with a 45° end clip electrically resistance welded to the end of a 0.444" diameter wire strut that is bent an angle. The opposite end is threaded with a length of 1/2" coil threads. The user must specify the required length of threads.

The threaded end of the hanger supports the interior formwork while the 45° end clip supports the overhang bracket and the applied formwork loads. When used on steel beams or girders, legs formed at 90° to the top flange are recommended. For concrete girders or box beams, legs formed at 15° to vertical are suggested.

The interior formwork is adjusted to grade, after the ledgers are installed, by the worker reaching under the ledgers and adjusting the coil nut — raising or lowering the ledgers as required.

Designed to accommodate haunch heights of 1/2" or greater and comes equipped with a 1" breakback.

After the deck has been placed and the formwork has been stripped, a length of pipe is placed over the exposed end of the hanger, rotated back and forth until the end "breaks off" at the breakback.



Optional for Concrete Beams

Safe Working Load  
4,500 lbs. per Side

SWL provides a factor of safety of approximately 2 to 1.

### To Order:

Specify: (1) quantity, (2) name, (3) flange width, (4) total drop, (5) thread length.

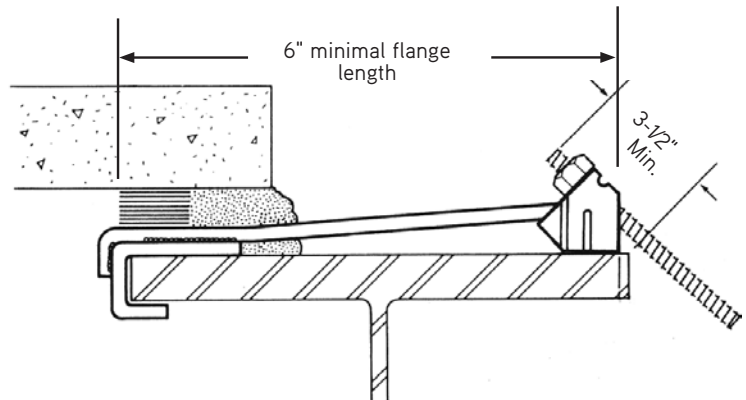
### Example:

500 pcs. C41 Type 4-A Coil Rod Hanger for 12" flange, with 14" total drop, provide 8" thread.

## C63 Type 4-AB Pres-Steel Hook Half Hanger

Used when one-sided forming is required and field welding to the beam is prohibited. Can be furnished electroplated or hot dip galvanized after fabrication for corrosion resistance, if specified.

Type 4-AB hanger is designed for use with 1/2" diameter coil bolts. Manufactured using a 45° end clip welded to formed wire strut. The interior end of the wire strut is wrapped-around and welded to a 1/4" thick steel beam clamp. The wrapped-around wire strut reinforces and strengthens the beam clamp which slips over the flange of a steel beam anchoring the hanger.



### To Order:

Specify: (1) quantity, (2) name, (3) flange width, (4) flange thickness and (5) finish.

### Example:

205 pcs. C63 Type 4-AB Pres-Steel Half Hanger, for 12" wire x 1" thick flange, HDG.

Safe Working Load  
5,000 lbs. for 4-AB  
At 2 to 1 factor of safety

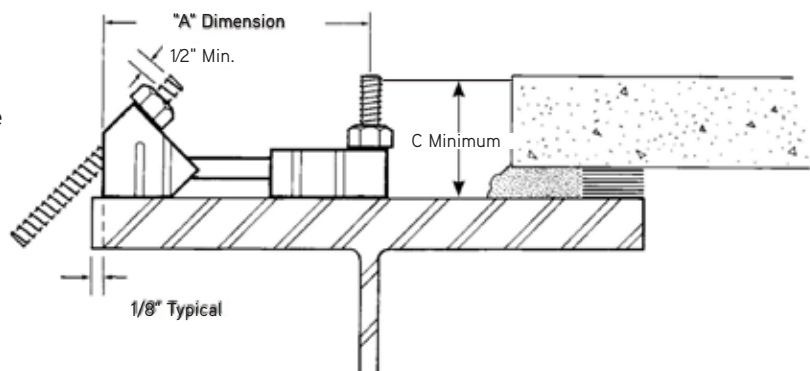
## C64 Type 4-A and 4-AN Pres-Steel Half Hanger

This type of hanger works extremely well on bridge rehab projects, bridge widening jobs and other similar projects where only exterior formwork support is required. This hanger can also be used on concrete girders with 6" minimum flange thickness on Type 4-A and 4-AN hangers.

The actual safe working load of these hangers is highly dependent on the size of the headed shear stud, as well as the strength of the weld between the stud and the beam flange. The safe working load is based on the use of a properly welded 3/4" diameter stud with a minimum tensile strength of 55,000 psi.

The Type 4-A and 4-AN use a 1/2" diameter coil bolt. The Type 9-AN is similar with the exception that it uses a 3/4" diameter coil bolt.

C64 type 9-AN comes with 3" x 3" x 1/4" bearing plate beneath the end clip.



### To Order:

Specify: (1) quantity, (2) name, (3) "A" dimension.

### Example:

100 pcs. C64 Type 4-AN Pres-Steel Half Hanger, "A" = 8".

Type	Maximum Safe Working Load	Bolt Diameter		A Min.	B	C
		45° End	90° End			
4-A	6,000 lbs.	1/2"	1/2"	6"	.440"	2"
4-AN	6,000 lbs.	1/2"	3/4"	6"	.440"	2"

SWL of hanger provides a factor of safety of approximately 2 to 1.

### SAFETY NOTE:

The safe working load of the Type 9-A hanger requires 3/4" B13H (Heavy Hex) Coil Nuts.

## C64 Type 9-AN Heavy Duty Pres-Steel Hanger

The type 9-AN Pres-Steel Hanger is Fabricated with a 90° interlock type end clip and a 45° end clip, welded to a 0.750" diameter wire strut. Both end clips are designed to accept 3/4" diameter coil bolts and/or coil rods and must be used in conjunction with B13H Heavy Hex Coil Nuts (Product Code 45702).

The Type 9-AN Pres-Steel Hanger is intended for use with the C89L Heavy Duty Bridge Overhang Brackets, which requires the use of a 3/4" diameter coil bolt.

C64 Type 9-AN comes with a 3"x3"x1/4" Bearing Plate beneath the end clip.

The actual Safe Working Load of these hangers is highly dependent on the size of the headed shear stud and the strength of the weld between the stud and the beam flange. The Safe Working Load is based on the use of a properly welded 3/4" diameter stud with a minimum tensile strength of 80,000 psi.

### SAFETY NOTE:

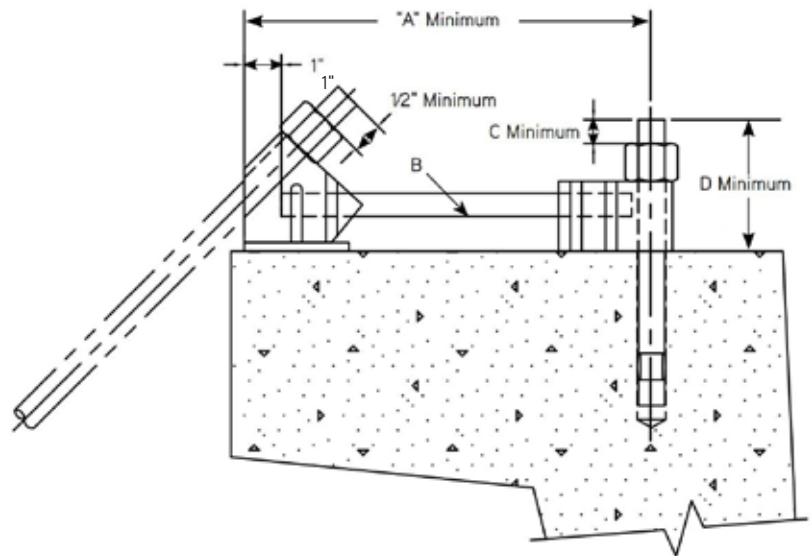
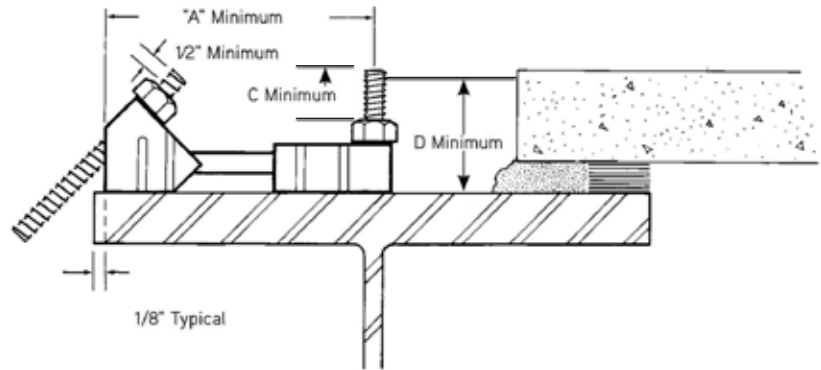
The Safe Working Load of the C64 Type 9-AN Hanger requires use of 3/4" B13H (Heavy Hex) Coil Nuts (Product Code 45702).

### To Order:

Specify: (1) quantity, (2) name, (3) "A" Dimension.

### Example:

600 pcs. C64 Type 9 Pres-Steel Hanger for 24" "A" Dimension.



Type	Maximum Safe Working Load (lbs per side)	Bolt Diameter		A.	B	C	D
		45° End	90° End				
9-AN	11,300.	3/4"	3/4"	8" Min.	3/4"	3/4"	3-1/2"

SWL of hanger provides a Safety factor of approximately 2:1.

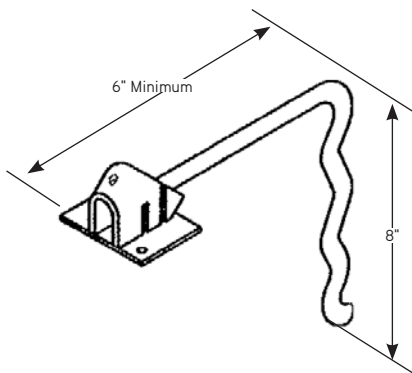
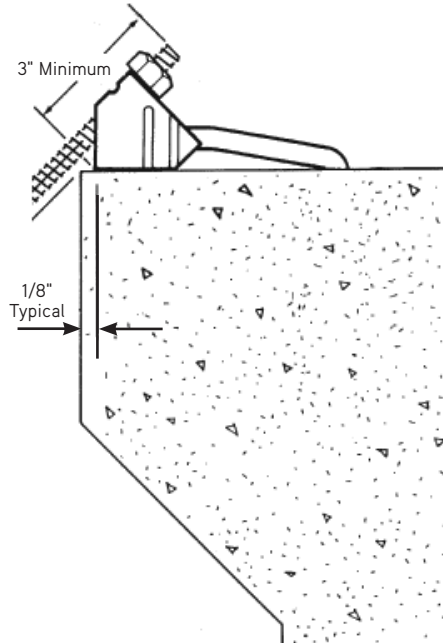
## C24 Type 4-AP, 4-APR and 9 APR Pres-Steel Precast Half Hanger

The Dayton Superior C24 Pres-Steel Precast Half Hangers are available in three styles and capacities and are designed to be cast into the top portion of a precast/prestressed concrete girder. At the bridge site, these hangers are used to support the bridge overhang bracket, formwork, live load and dead load as well as the weight of a bridge deck finishing machine and/or concrete conveyor.

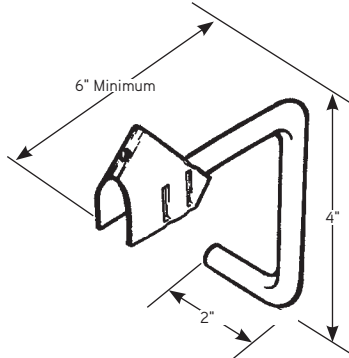
The bridge contractor must be certain of his bridge overhang bracket spacing before advising the precaster of the centers at which to install these hangers.

Install the C24 half hangers into the concrete maintaining the proper 1/8" setback from the edge of the girder. After the end of the strut wire is pushed into the fresh concrete, slightly vibrate the surrounding concrete so the strut wire is completely and solidly embedded into the concrete. The legs of the end clip must rest solidly on the top surface of the concrete.

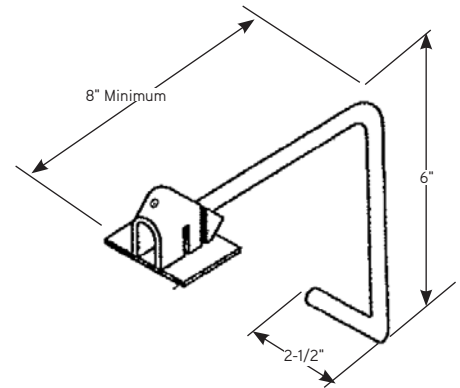
An optional Bearing Plate can be welded beneath the end clip on Type 4-AP and 4-APR half hangers which will aid in spreading the hanger load to a wider area of concrete. Bearing Plates are generally required on half hangers used in girders having a flange thickness less than 5". For hanger modifications required for use with a flange thickness less than 5", please contact Technical Assistance. A Bearing Plate is standard on Type 9-APR half hangers.



**Type 4-AP**  
(For 1/2" diameter coil bolt)



**Type 4-APR**  
(For 1/2" diameter coil bolt)



**Type 9-APR**  
(For 3/4" diameter coil bolt)

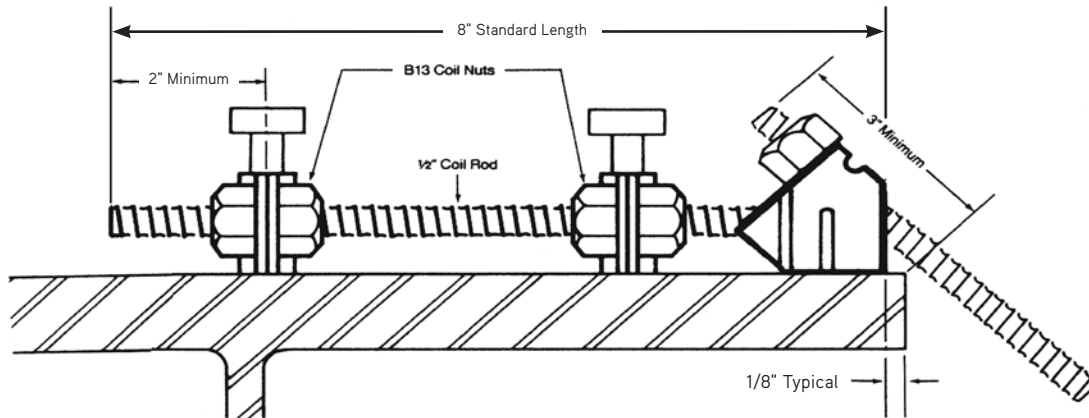
Safe Working Load  
3,300 lbs. for 4-AP  
6,000 lbs. for 4-APR  
11,300 lbs. for 9-APR  
SWL provides a factor of safety of approximately 2 to 1.

**SAFETY NOTE:**  
11,300 lbs. per side with B13H Coil Nuts  
SWL provides a factor of safety of approximately 2 to 1.

To Order:  
Specify: (1) quantity, (2) name, (3) type, (4) strut length.  
Example:  
715 C24 Type 4-APR Pres-Steel Precast Half Hanger.



## C25 45° Adjustable Half Hanger



This adjustable half hanger consists of a 45° end clip welded to a length of 1/2" diameter coil rod, two stirrup clips and five 1/2" coil nuts. The standard length is 8". Other lengths, additional stirrup clips and coil nuts are available on request.

These half hangers are used to support overhang brackets for exterior deck formwork where one-sided forming is required, welding is not permitted and rebar or headed stud shear connectors are available to connect the hanger to.

Stirrup clips are available in #3 thru #8 rebar sizes or 3/8", 1/2", 5/8", 3/4", and 7/8" stud diameters as required.

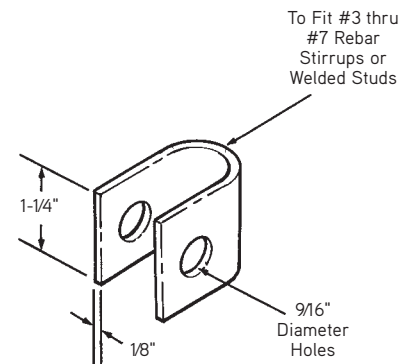
End clip accepts a 1/2" diameter coil bolt or coil rod.

### SAFETY NOTE:

In order to develop the safe working load, two coil nuts must compress each stirrup clip securely to the rebar stirrup or shear stud. Failure to accomplish a secure connection will greatly reduce the safe working load of the hanger.

Safe Working Load  
3,000 lbs. with 2 Clips

SWL provides a factor of safety of approximately 2 to 1.



Clip Detail

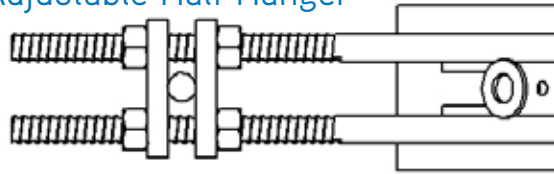
### To Order:

Specify: (1) quantity, (2) name, (3) type, (4) length, (5) number of clips and (6) clip size.

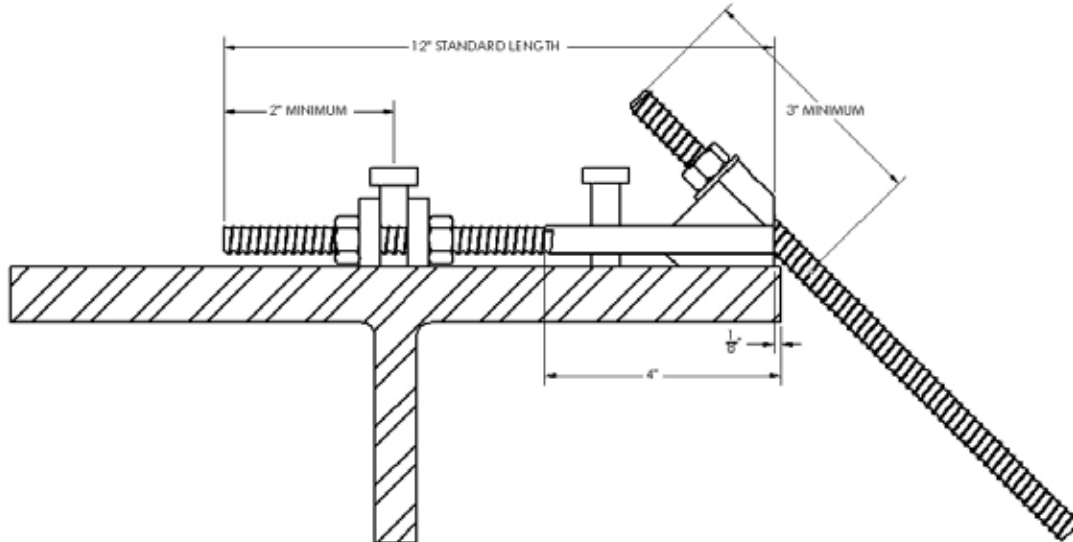
### Example:

125 pcs. C25 Pres-Steel Adjustable Half Hanger, 18" long with 3 clips for #6 Rebar.

## C25 45° Heavy Duty Adjustable Half Hanger



Top View without B13 and Coil Rod at 45°



This adjustable half hanger consists of a 45° end clip welded to two 1/2" diameter coil rods, two connection bars and five 1/2" coil nuts. The standard length is 12". Other lengths are available on request.

These half hangers are used to support overhang brackets for exterior deck formwork where one-sided forming is required, welding is not permitted and rebar or headed stud shear connectors are available to connect the hanger to.

Safe Working Load  
6,000 lbs.

SWL provides a factor of safety of approximately 2 to 1.

To Order:

Specify: (1) quantity, (2) name, (3) type, (4) length, (5) number of connection bars.

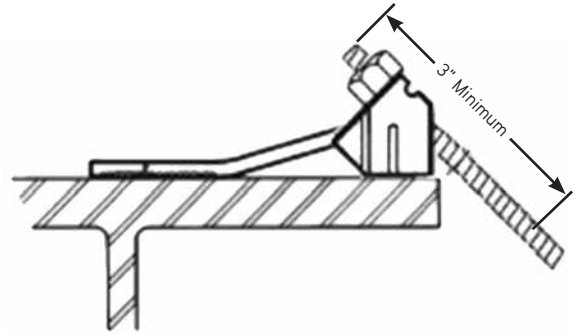
Example:

125 pcs. C25 Heavy Duty Adjustable Half Hanger, 12" long with 2 connection bars.

## C24 Pres-Steel Steel Beam Half Hangers

C24 Pres-Steel Steel Beam Half Hangers are produced using a single end clip welded to a formed wire strut and are used where conditions prevent the use of regular exterior hangers.

Type S Half Hangers are designed for use on steel beams. The standard Type S Half Hanger uses a wire strut that measure 6" from the center line of the bolt to the end of the strut.



Typical Steel Beam Application

## C24 Pres-Steel Concrete Beam Half Hanger

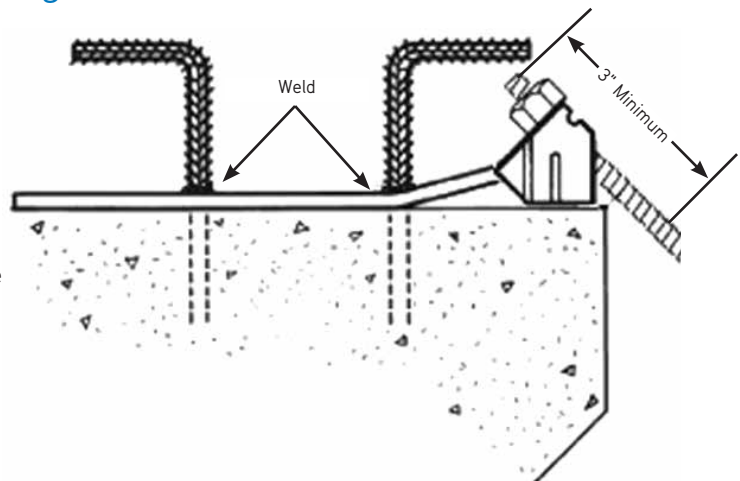
The Type C Pres-Steel Half Hanger used on concrete beams are the same as the above Half Hangers with the exception of the standard wire strut length.

These concrete beam half hangers are designed to be welded to the rebar shear connectors that extend from the top surface of a precast concrete girder.

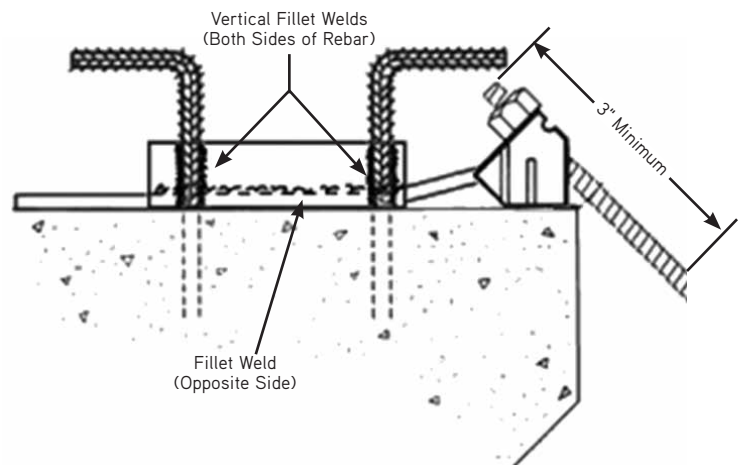
More weld and hanger capacity can be achieved by welding a suitably sized steel plate to the rebar shear connectors, using four vertical fillet welds, to weld the plate to the share connectors. Then weld the strut wire to the steel plate. May be applied to steel beams by welding to the shear connector studs.

This application is shown in the Special Precast Concrete Girder Application to the right.

Please see the General and Technical Section of this handbook for additional information on field welding of half hangers.



Typical Precast Concrete Girder Application



Special Precast Concrete Girder Application

## C24 Pres-Steel Half Hanger

C24 45° Pres-Steel Half Hangers are manufactured with a single 1/2" end section welded to a jogged wire strut and are used where conditions prevent the use of standard double-ended hangers.



Standard Style AC hangers measure 12" from the center line of the bolt to the end of the strut. This style hanger is designed to be welded to the rebar stirrups of precast concrete bridge beams.

Standard Style AS hangers measure 6" from the center line of the bolt to the end of the strut. These hangers are designed to be welded to the top surface of steel girders.

Lengths other than standard are available. Contact Dayton Superior for additional information.

**Caution:** Care must be exercised when welding hangers. Field welding may alter the strength of the wire strut and may limit the hanger to a much lower safe working load than that shown in the chart. Field tests should be conducted to verify actual safe working loads. See related notes on welding in the General and Technical Information Section

Proper welding procedures must be used when welding half hangers, as field welding may limit the safe working load of a hanger to less than the maximum SWL listed. Field tests should be conducted to establish the actual safe working load of the hanger.

Hanger Type	Hanger Shape	Standard Length	Maximum SWL
1-AC		12"	3,500 lbs.
1-AS		6"	3,500 lbs.
4-AC		12"	6,000 lbs.
4-AS		6"	6,000 lbs.

### Notes:

- Safe working load provides a factor of safety of approximately 2 to 1.
- Coil bolt or coil rod must penetrate through the coil nut a minimum of one bolt diameter.
- When used on concrete beams, the safe working load shown is based on normal weight concrete having reached a minimum compressive strength of 5,000 psi.
- Requires a minimum concrete flange thickness of 5".
- For hangers used on concrete beams with conditions not meeting above requirements please contact Dayton Superior Technical Service.
- Longer length strut wire is available on request.

**To Order:**  
Specify: (1) quantity, (2) name, (3) strut length.

**Example:**  
75 pcs. C24 Type 1-AC  
Pres-Steel Half Hanger,  
with 18" long strut.

## C60 Type 1-4A Combination Pres-Steel Hanger with Supplemental 90° Leg Pres-Steel Half Hanger

Special overhang conditions may require the use of a 90° bolt to support the back end of a bridge overhang bracket. When this situation is encountered the C60 Type 4-A Pres-Steel Hanger may be ordered with a supplemental 90° end clip and strut wire electrically resistance welded to the main support hanger as shown in the sketch.

Supplemental 90° Leg is available on most Pres-Steel Hangers. Contact Technical Service for assistance.



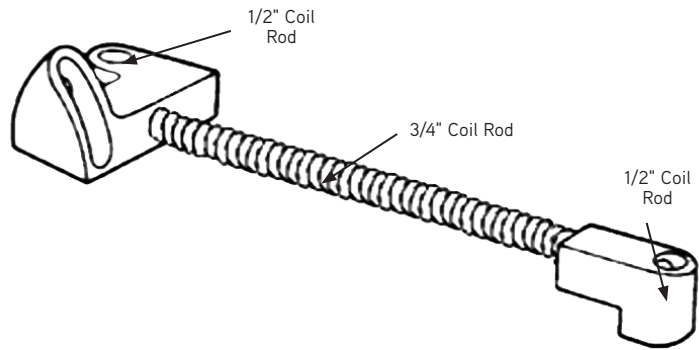
SWL of Supplemental 90° End is 1,000 lbs. with an approximate factor of safety of 2 to 1.

## C61 Combination Exterior Hanger

Ideal hanger to have on-hand to minimize down time from hanger shortages, unexpected beam sizes and etc. Hanger consists of three individual parts, a 90° Interior End Section with an integral interlock, a length of 3/4" diameter coil rod and a Combination Exterior End Section.

The 3/4" diameter coil rod and the two End Sections are assembled in the field to make up a complete hanger. The length of the 3/4" diameter coil rod that connects the two End Sections is equal to the beam's flange width

The Combination End Section is used with a 1/2" diameter coil rod/bolt that can be used at any angle from 5° to 45°. In addition, this End Section is also designed to accept a 1/2" diameter coil rod/bolt installed at 90° to the top of the flange.



## C61 Combination Interior Hanger

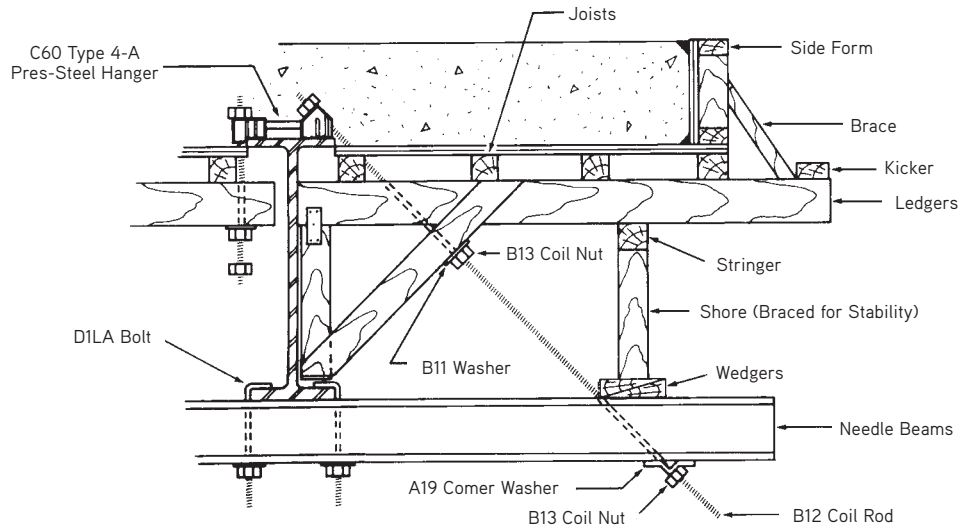
Two of the above 90° End Sections and a length of 3/4" diameter coil rod may be used to field assembly a 90° interior hanger.

End Section	Angle	Safe Working Load
Exterior	5° to 45°	6,000 lbs.
Exterior	90°	3,000 lbs.
Interior	90°	6,000 lbs.



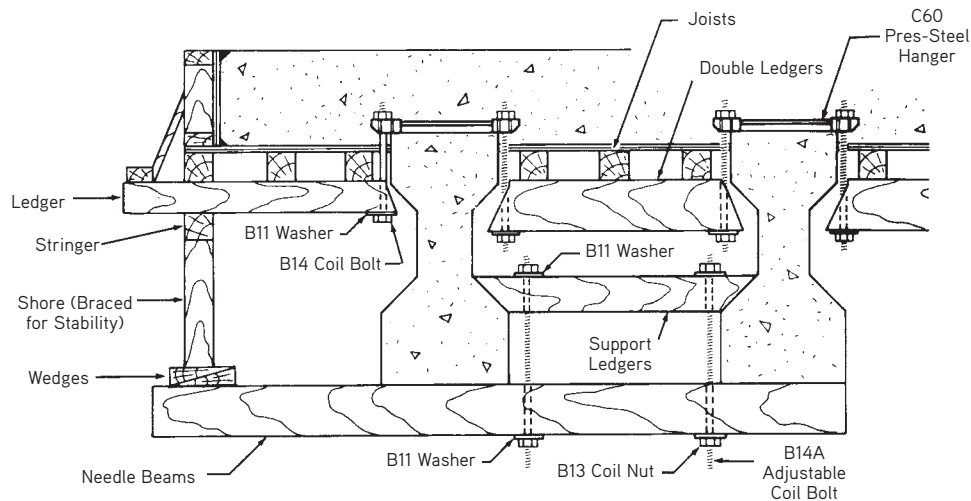
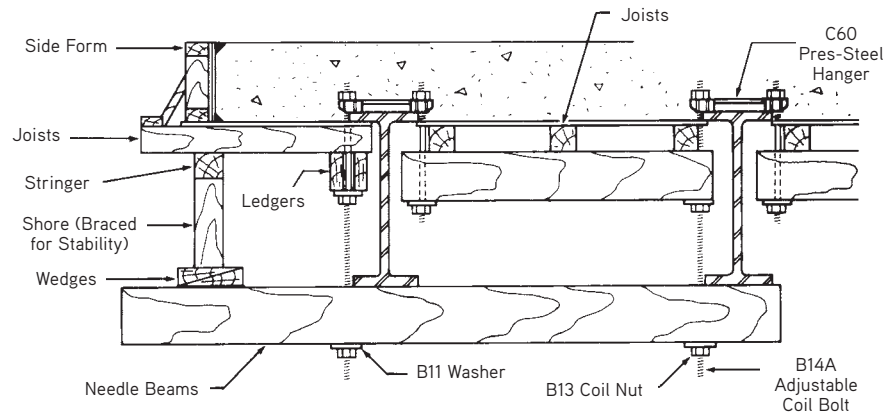
Shown below are several ideas for supporting the overhang formwork when the bridge design will not allow the use of conventional bridge overhang brackets.

## Wide Overhang on a Shallow Steel Beam



## Short Overhang on a Shallow Steel Beam

## Short Overhang on a Shallow Concrete Beam



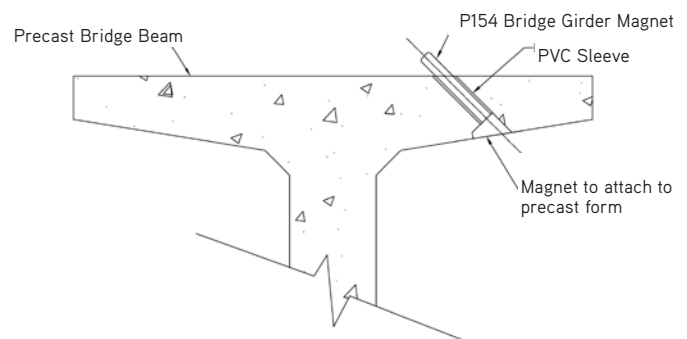


## P154 Bridge Girder Magnet

The P154 Bridge Girder Magnet provides an easy method for precasters to form a void for the coil rod used to hang bridge overhang brackets. The magnet is designed to be used for AASHTO Type V and Type VI Bulb-Tee Girders.

### PRODUCT FEATURES AND BENEFITS

- Magnet is reusable and eliminates the need for bridge hangers or drilling the precast beam.
- Magnet provides a strong connection with the precast form to provide precise placement of PVC sleeves.
- Magnet is fabricated to provide a void that is compatible with C49 and C89 type overhang brackets.
- Magnet attraction only on bottom of magnet.
- Shaft of magnet is 1" diameter to allow compatibility with standard PVC pipe.
- Base of magnet is molded with urethane material to provide a uniform void in the bottom of bridge girders and to eliminate any patch work required by precaster.



## C90 Clamp for Falsework

### PRODUCT DESCRIPTION:

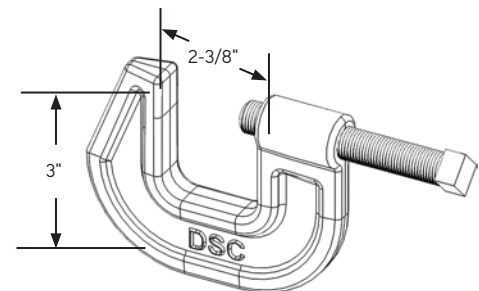
The C90 Clamp is designed as a longitudinal holding device for components in a falsework assembly. They are typically used to clamp angle iron to the bottom flange of a steel beam as a way to mount it on timber or other temporary supporting elements.

### PRODUCT FEATURES AND BENEFITS:

The C90 Clamp is an engineered product that is manufactured from Forged Alloy Steel. It meets or exceeds all requirements for the clamp listed in California Office of Structure Construction, Falsework Memo No. 4 and 5.

### PRODUCT SPECIFICATIONS:

- Rated Clamping force of up to 10 tons
- Proof tested to 52 kips for over 2.5:1 Factor of Safety at full rated load
- Made with 3/4-10 NC Grade 8 Bolt with Cup Point Hardened to Rc 45-53.
- Clamping Force (lbs) = 80 x Bolt Torque (ft-lbs)
- Rated Bolt Torque is 250 ft-lbs (650 ft-lbs max)
- Its use should be restricted to beams with non-sloping flanges or flat angles and plates.
- Holding force is dependent on the actual friction coefficient of the surfaces being clamped.



## C49, C49C, C49D, C49S and C49JR Bridge Overhang Bracket

Dayton Superior offers the bridge contractor four different versions of the C49 Bridge Overhang Bracket, which allows for maximum adjustability to meet the varied bridge overhang forming requirements on both structural steel and precast/prestressed concrete beams. The C49 is the most versatile overhang bracket available and is used for general conditions.

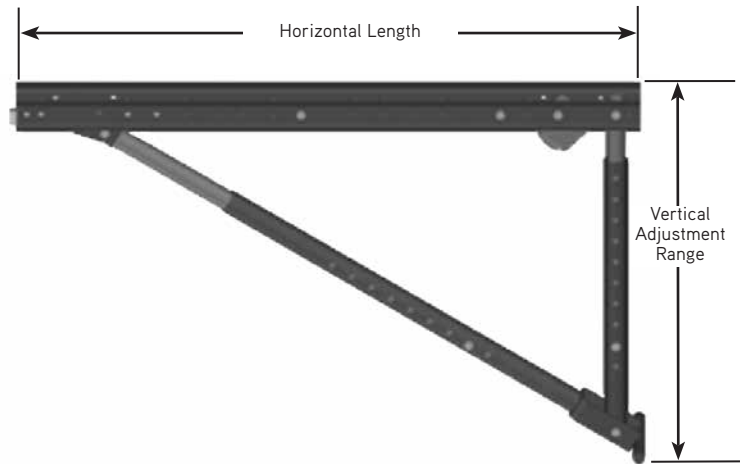
The C49C (Century Series) Bridge Overhang Bracket is a heavy duty version of the standard C49, with an increased SWL or 7,500 lbs. at a 2 to 1 safety factor in the diagonal member

The C49D version is used on deep beams. The C49D bracket is identical to the C49 bracket, except it uses longer bottom diagonal and vertical legs.

The C49S bracket is a field modified C49. The C49 is modified by removing the inner vertical leg. Using only the outer vertical leg, the bracket can be adjusted to a minimum vertical height of 14". This bracket is ideal for use on shallow steel or concrete beams.

The C49JR is a small bracket used in situations where the horizontal member of the standard C49 Overhang Bracket is too long, due to limited space between twin bridges.

The adjusting nut at the outboard end of the bracket is used to adjust the bracket to grade.



Bracket Type	Vertical Adjustment Range	Horizontal Length	Weight
C49	30" - 50"	54"	46
C49C	30" - 50"	54"	48
C49D	50" - 70"	54"	50
C49S	14" - 26"	54"	42
C49JR	16" - 28"	27"	29

Each of these brackets offer the bridge contractor, the ability to easily and quickly preset the brackets to size and shape on the ground, as required for each specific overhang requirement. The adjusting nut and the wide range of adjustability built into the brackets vertical and diagonal legs allow a bracket to be adjusted to fit almost any standard bridge overhang.

Both the vertical and diagonal legs have adjustment holes spaced at 2" increments which allows the legs to be adjusted so the diagonal leg will transfer the construction load to near the bottom flange, which aids in resisting web deflection and bending.

The C54 Extender, C52, C52P and C53 Guardrail Receptacles, and C51 Wall Plate Assemblies add to the versatility of the C49 overhang brackets.

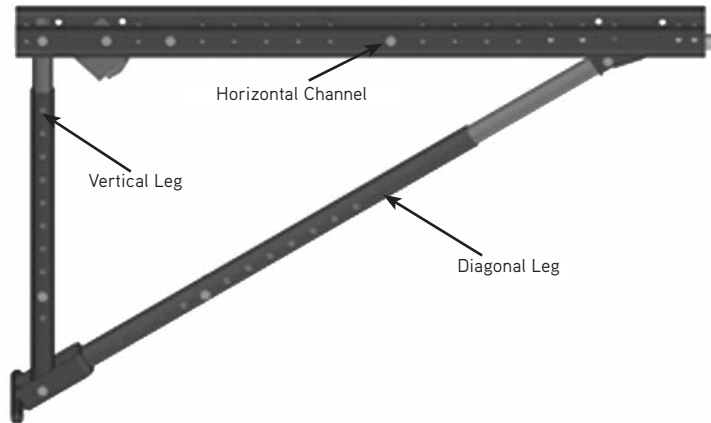
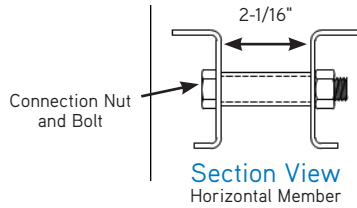
### SAFETY NOTE:

Overhang brackets should be adjusted to proper grade during the normal "dry run" operation.

DO NOT attempt an upward adjustment during the concrete pouring operation. Lowering the bracket is permissible during the concrete pour.

## Type C49, C49D, C49S and C49JR Bridge Overhang Bracket

The diagonal leg of all versions of the C49 Bridge Overhang Bracket have a SWL of 3,750 lbs based on an approximate factor of safety of 2 to 1.



### Horizontal Channels

The horizontal channels are fabricated from back to back, unequal leg, 54" long, channel sections using 12 gauge HRP&O, high strength, low alloy steel ASTM A-570 Grade 50 standards. This material has a minimum yield strength of 50 ksi and a minimum ultimate tensile strength of 65 ksi.

As shown in the section view above, 3/4" O.D. tubing is placed over 1/2" diameter bolts to provide a 2-1/16" space between the two steel channel sections of the bracket's horizontal member.

### Vertical and Diagonal Leg

Vertical and diagonal legs are fabricated from electric resistance welded carbon steel tubing, Type #1 A.W.H.R. (as welded hot-rolled steel), Grade 1010 per ASTM A-513 standards. The bracket's four leg members along with their outside diameter and wall thickness are listed in the chart.

Part	Outside Diameter	Wall Thickness
Outer Vertical Leg	1-7/8"	0.083"
Inner Vertical Leg	1-5/8"	0.120"
Outer Diagonal Leg	1-7/8"	0.083"
Inner Diagonal Leg	1-5/8"	0.120"

### Connection Bolts and Nuts

Connection bolts and nuts are galvanized 1/2"-13 NC threaded meeting ASTM Standard A-449 or SAE Standard J-429 Grade 5.

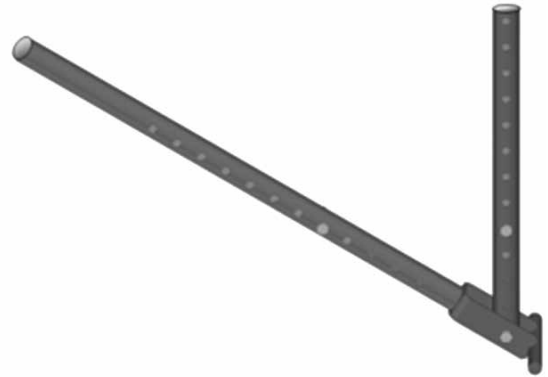
### Section Properties

Horizontal Member	C54 Overhang Bracket Extender
Total Section Modulus (S) = 0.537 in. <sup>3</sup>	Section Modulus (S) = 0.231in. <sup>3</sup>
Moment of Inertia (I) = 0.799 in. <sup>4</sup>	Moment of Inertia (I) = 0.310 in. <sup>4</sup>
Area (A) = 0.888 in. <sup>2</sup>	Area (A) = 0.438 in. <sup>2</sup>

## C59D Conversion Kit

A C49 Bridge Overhang Bracket is quickly and easily converted to the deeper C49D Bridge Overhang Bracket by using this conversion kit.

1. Simply remove each of the adjusting bolts from the vertical and diagonal legs,
2. Remove the lower legs,
3. Slide on the conversion kit legs and
4. Adjust the legs to length and reinstall the two adjusting bolts.

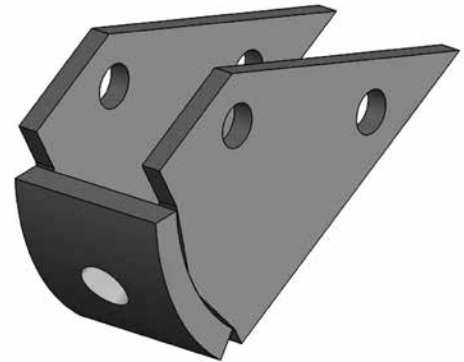


## Bolt Holder

The Bolt Holder is supplied as part of every C49, C49C, C49D, C49S, and C49JR Bridge Overhang Bracket and is designed to accept a 1/2" diameter coil threaded bolt or coil rod. This 1/2" diameter coil bolt is the load carrying device that transfers loads from the overhang bracket to the 45° exterior hanger.

The Bolt Holder must be moved from each specific project's situation so the 1/2" diameter load carrying bolt is as close to a 45° angle with the top of the beam's flange as possible. The half oval face of the Bolt Holder allows the load carrying bolt to vary slightly from an exact 45° angle, yet still maintain the proper bearing with the coil nut.

The Bolt Holder can only be located at certain locations along the horizontal member of the bracket, based on the holes that have been factory punched in the side of the horizontal channels. On the C49, C49S and C49C brackets, the Bolt Holder can be installed at "A" dimensions of 7-1/8", 9-5/8", 12-1/8", 14-5/8", 17-1/8", 19-5/8" and 22-1/8" from the inboard or beam end of the bracket. On the C49JR Bracket, the Bolt Holder can be located at "A" dimensions of 7-1/8", 9-5/8", 12-1/8", and 14-5/8".



### SAFETY NOTE:

Do not drill out a C49 Bolt Holder to accept a larger diameter bolt as this could, on a later use, allow the head of a 1/2" diameter bolt to pull through the larger diameter hole.

To Order:  
Specify: (1) quantity, (2) name.

Example:  
600 pcs., C60 Type 9 Pres-Steel Hanger for 24" flange.

## C52 2x4 Guard Rail Receptacle and C54 Bridge Overhang Bracket Extender

The C52 Guard Rail Receptacle is designed to allow the easy installation of an OSHA required lumber guard rail post on the exterior formwork of a bridge deck.

The C52 receptacle bolts securely to either the C49 Bridge Overhang bracket and/or C54 extender and accepts 2x4 guard rail posts. Each C52 receptacle ships with two 1/2"-13 NCx3" long (ASTM A325 or SAE 429 Grade 5) electrogalvanized bolts and nuts which are used to attach the guard rail receptacle to the horizontal member of a C49, C49C, C49D, C49S or C49JR Bridge Overhang Bracket.

The C54 Bridge Overhang Bracket Extender attaches to one side of the outboard end of the overhang bracket's horizontal member to extend the usable working surface of the bracket. The C54 Extender and C52 Guard Rail Receptacle are used when the overhang formwork is required to extend beyond the end of the horizontal member of the bridge overhang bracket. The extender is used to support walkway loads only. Follow spacing requirements as outlined by OSHA and other local agencies. One C54 Extender per bracket is required and fits all C49 style brackets.

Each C54 Bridge Overhang Bracket Extender ships with two 1/2"-13 NC x 1" long (ASTM A325 or SAE 429 Grade 5) electro-galvanized bolts and nuts which are used to attach the C52 receptacle to the C54 extender. The 1/2"-13 NC x 3" long bolts (shipped with the C52 receptacle) are used to attach the extender to the horizontal member of the bridge overhang bracket.



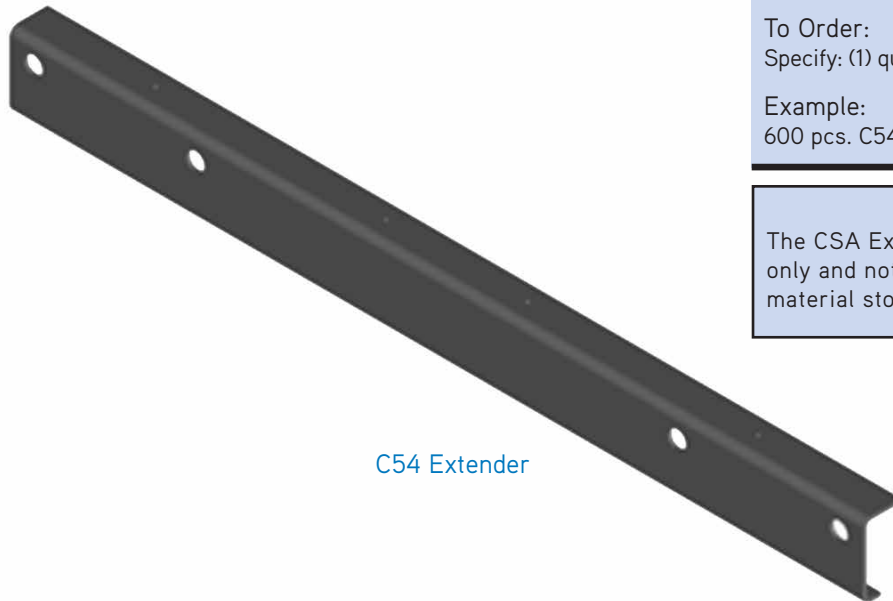
C52 Guard Rail Receptacle

To Order:  
Specify: (1) quantity, (2) name.

Example:  
600 pcs. C54 Bridge Overhang Bracket Extender.

### SAFETY NOTE:

The CSA Extender is for supporting walkway loads only and not intended for concrete, screed or material storage loads.



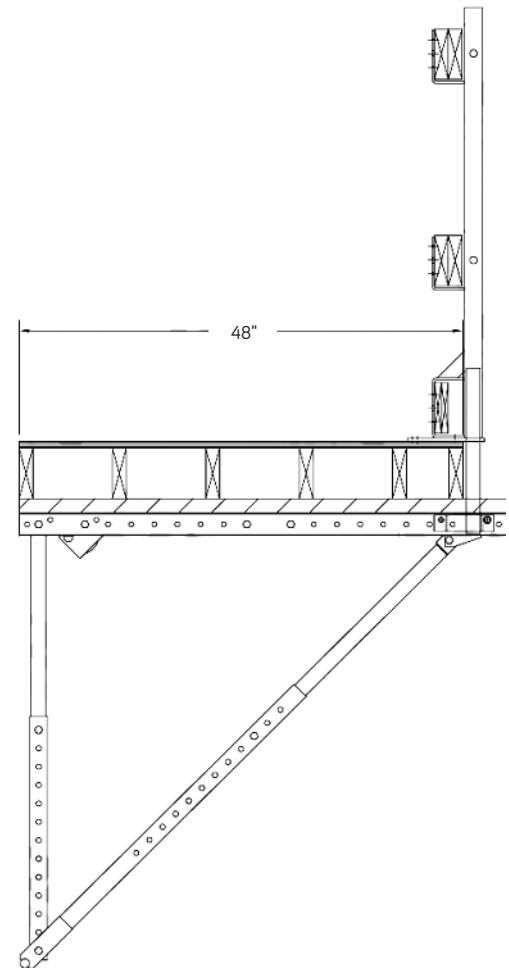
C54 Extender

## C52P Guard Rail Speed Bracket Assembly

The C52P Guard Rail Speed Bracket Assembly is designed for fast and easy attachment to the C49 Bridge Overhang Bracket and C54 Bridge Overhang Exterior Bracket Extender. The C52P's Speed Bracket bolts securely to the C49 Bridge Overhang Bracket and provides a base to simply install the Guard Rail Post. The Guard Rail Post has a nail down feature to prevent uplift. The C52P is compatible with lumber or cable railings. The Guard Rail Assembly weighs a conveniently light 15.6 lbs.

**NOTE:** C52P Guard Rail Speed Bracket Assembly meets all OSHA requirements.

**WARNING:** Guard Rail Speed Bracket Assembly must be secured to deck with proper fasteners to ensure complete safety.



C52P Guard Rail Speed Bracket Assembly

To Order:

Specify: (1) quantity, (2) name.

Example:

150 pcs. C52P Guard Rail Speed Bracket Assembly.

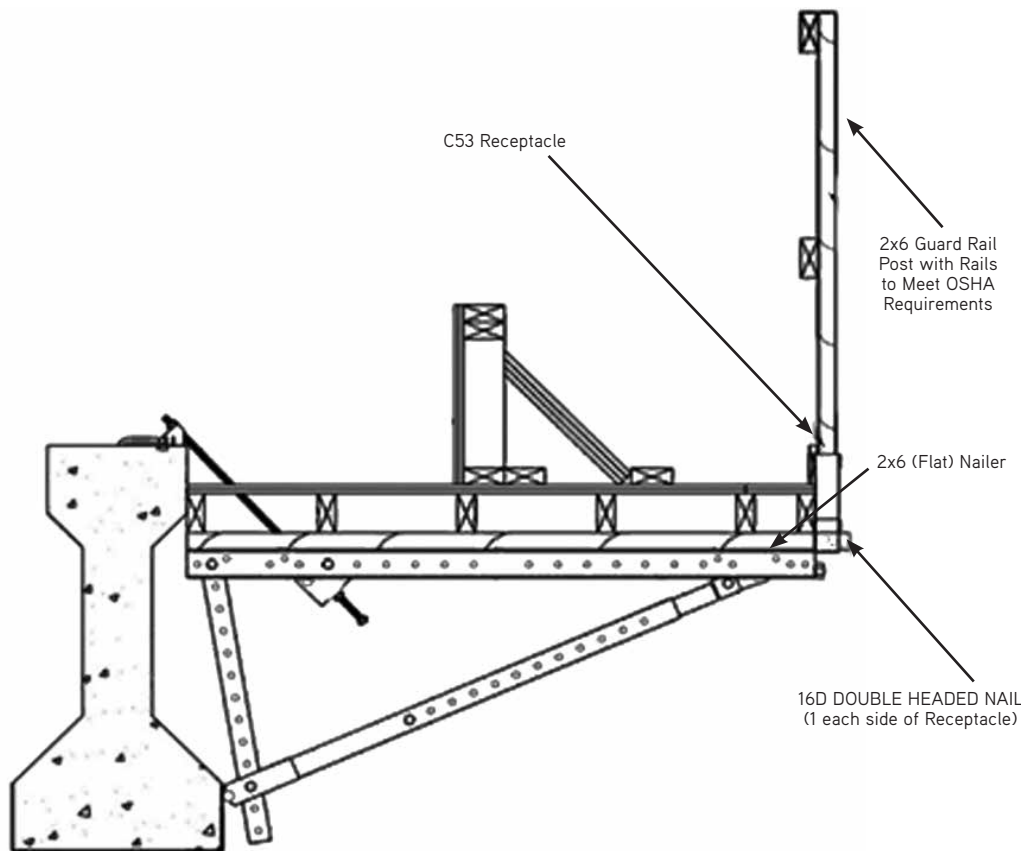


## C53 2x6 Guard Rail Receptacle

The C53 Guard Rail Receptacle is designed to allow the easy installation of an OSHA required guard rail post on the exterior formwork of a bridge deck.

The C53 receptacle slips over the end of the 2x6 (flat) nailer that is attached to and extends beyond the end of a bridge overhang bracket's horizontal member. The C53 receptacle is nailed to the 2x6 flat nailer, using two 16d double headed nails, one on each side, in the provided hole.

This receptacle readily accepts a 2x6 guard rail post.



**Typical Section Through Overhang**  
Actual Overhang Conditions May Vary

To Order:  
Specify: (1) quantity, (2) name.  
  
Example:  
600 pcs. C53 Bridge Guard Rail Receptacle.

## Selected OSHA Safety Regulations

For complete information see [WWW.OSHA.GOV](http://WWW.OSHA.GOV)

### 1926.501(b)(2)(ii)

Each employee on a walking/working surface 6 feet or more above a lower level where leading edges are under construction, but who is not engaged in the leading edge work, shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system. If a guardrail system is chosen to provide the fall protection, and a controlled access zone has already been established for leading edge work, the control line may be used in lieu of a guardrail along the edge that parallels the leading edge. The standard requires guardrail systems and components to be designed and built to meet the requirements of 1926.502(b)(3), (4), and (5).

This Appendix serves as a non-mandatory guideline to assist employers in complying with these requirements. An employer may use these guidelines.

### 1926.501(b)(2)(i)

However, the guidelines do not provide all the information necessary to build a complete system, and the employer is still responsible for designing and assembling these components in such a way that the completed system will meet the requirements of 1926.502(b)(3), (4), and (5). Components for which no specific guidelines are given in this Appendix (e.g., joints, base connections, components made with other materials, and components with other dimensions) must also be designed and constructed in such a way that the completed system meets the requirements of 1926.502.

(1) For wood railings: Wood components shall be minimum 1,500 lb-ft/in (2) fiber (stress grade) construction grade lumber; the posts shall be at least 2x4 lumber spaced not more than 8 feet apart on centers; the top rail shall be at least 2x4 lumber, the intermediate rail shall be at least 1x6. All lumber dimensions are nominal sizes as provided by the American Softwood Lumber Standards.

### 1926.502(b) "Guardrail systems"

Guardrail systems and their use shall comply with the following provisions:

#### 1926.502(b)(1)

Top edge height of top rails, or equivalent guardrail system members, shall be 42" plus or minus 3" above the walking/working level. When conditions warrant, the height of the top edge may exceed the 45" height, provided the guardrail system meets all other criteria of this paragraph.

#### 1926.502(b)(3)

Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 pounds applied within 2" of the top edge, in any outward or downward direction, at any point along the top edge. Guardrail systems shall be so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.

#### 1926.502(b)(7)

The ends of all top rails and midrails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard.

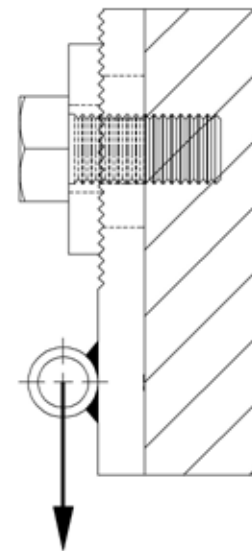
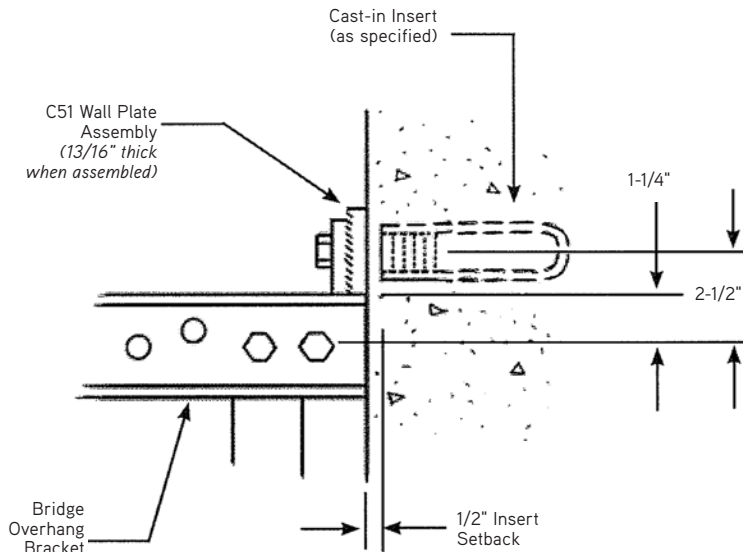
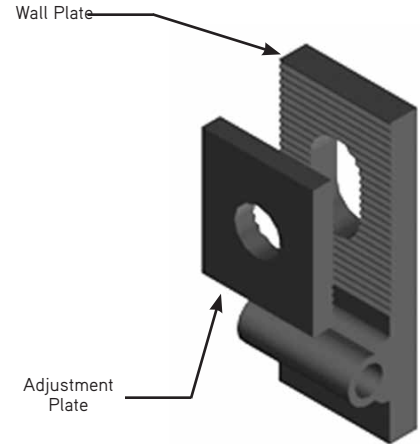
## C51 Wall Plate Assembly

The C51 Wall Plate Assembly is an optional device that allows direct attachment of either a C49, C49D or C49JR Bridge Overhang Bracket to an insert that has been cast into a precast concrete bridge beam. The C51 assembly consists of two parts, the Wall Plate and the Washer. Both parts are manufactured with machined grooved surface on their face that allows for 13/16" vertical adjustment of the bracket.

To attach the Wall Plate to a bracket, remove the rear 1/2" NC bolt, nut and spacer tube from the horizontal member of the bridge overhang and replace the spacer with the C51 Wall Plate. Reuse the 1/2" NC bolt and nut to complete the installation of the wall plate to the bracket.

The C51 assembly, depending on type of insert used, is designed to accept either a 3/4"-10 NC or 3/4" - 4-1/2 coil threaded bolt to fasten the Wall Plate Assembly to the insert.

When ready to remove the bridge overhang bracket and C51 Wall Plate Assembly for reuse, it is easiest to remove the 1/2" NC bolt freeing the bracket from the Wall Plate assembly, remove the bracket and then unbolt and remove the Wall Plate Assembly from the face of the precast member.



To Order:  
Specify: (1) quantity, (2) name.

Example:  
155 pcs. C51 Wall Plate Assembly.

**SAFETY NOTE:**  
Do not use CSI Wall Plate without the Adjustment Plate.

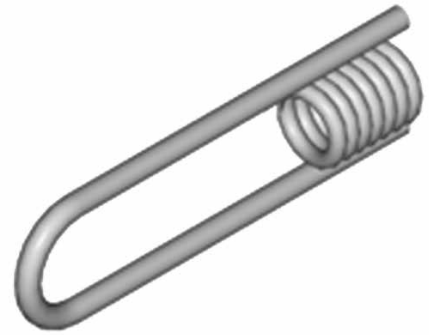
Wall Plate Safe Working Load  
9,000 lbs. at 2 to 1 factor of safety.

## B16 Coil Loop Insert, 3/4" x 6"

Although simple in design and fabrication, the 3/4" diameter x 6" long B16 Coil Loop Insert is highly efficient for use in attaching the C49 Bridge Overhang Brackets to a precast concrete box beam. The B16 Insert is made using a single looped wire welded to a 3/4" diameter helix coil.

A 3/4" diameter B14 Coil Bolt is used along with our C51 Wall Plate Assembly as the connection between the bracket and the concrete.

To obtain the required load carrying capacity, the 3/4" coil bolt must extend at least 2-1/4" beyond the end of strut wire. A torque of 100 lb.ft. should be used to properly tighten the coil bolt.



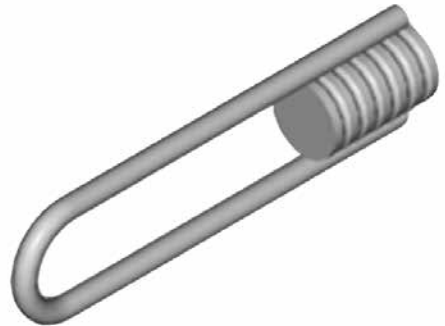
## F64 Ferrule Loop Insert, 3/4" x 6-1/8"

The 3/4" x 6-1/8" F64 Ferrule Loop Insert is produced using a closed bottom ferrule that has been electrically resistance welded to a loop of wire. This makes for a strong, yet economical insert for use in attaching bridge overhang brackets to a precast concrete bridge beam.

A 3/4"-10 NC threaded bolt is used along with our C51 Wall Plate Assembly as the connection between the bracket and the concrete.

To obtain the required load carrying capacity, the 3/4"-10 NC threaded bolt must extend into the ferrule at least 3/4". A torque of 65 lb.ft. should be used to properly tighten the NC bolt.

If an attachment bolt "bottoms out" before it becomes securely tightened against the Wall Plate or Adapter Plate, remove the bolt and use sufficient 3/4" diameter cut washers under the head of the bolt so that the bolt can be properly secured. Minimum embedment into the insert shall be 3/4".



### SAFETY NOTE:

Failure to use the proper type or length of bolt, to engage the coil or ferrule, or properly tighten the bolt may result in an unexpected failure causing property damage, personal injury or death

### To Order:

Specify: (1) quantity, (2) name, (3) size.

### Example:

500 pcs., B16 Coil Loop Insert 3/4" x 6".

## Bearcat™ Bolt - Multi-Use & Single-Use

The Dayton Superior Bearcat™ Bolt is a high strength drill-in screw anchor. This anchor utilizes a pre-drilled hole and self-taps into the concrete, creating a mechanical connection between the concrete and the anchor threads. The primary use of the Bearcat Anchor Bolt is for anchoring tilt-up wall braces to floor slabs during panel erection. Additional uses include lift brackets/plates as well as permanent or temporary fixation of racking, rails, guards, etc.

### Advantages

- High capacity to maximize brace system
- Compatible with 3/4" drilled holes
- Quick and clear installation
- Works in a wide variety of applications
- Better bite into concrete
- No spinning or slipping in hole

In-Concrete, Multi-Use Ultimate Capacity <sup>1,2,3,6</sup>							
Screw Anchor Size	Concrete Thickness	Minimum Concrete Compressive Strength (psi)					
		2500		4000		6000	
		Tension <sup>4</sup> (lbs.)	Shear <sup>4</sup> (lbs.)	Tension <sup>4</sup> (lbs.)	Shear <sup>4</sup> (lbs.)	Tension <sup>4</sup> (lbs.)	Shear <sup>4</sup> (lbs.)
5" Bearcat Bolt	4"	5,766	7,327	7,298	9,268	8,936	11,351
	5"	6,689	10,872	8,459	13,752	10,356	16,843
	6"	8,098	11,909	10,250	15,064	12,126	18,449
	7"	8,098	12,765	10,250	16,147	12,126	19,776
	8" and up	8,098	12,765	10,250	16,147	12,126	19,776
7" Bearcat Bolt	6"	11,035	16,621	13,955	21,024	17,095	23,390
	7"	13,655	20,414	17,270	23,390	21,155	23,390
	8"	15,540	21,823	19,660	23,390	23,260	23,390
	9"	15,540	23,147	19,660	23,390	23,260	23,390
	10" and up	15,540	23,390	19,660	23,390	23,260	23,390

<sup>1</sup>A minimum recommended safety factor of 2.0 should be applied to these ultimate (nominal) capacities. Check project requirements or local jurisdictions. <sup>2</sup>Linear interpolation of embedment depths and concrete strengths are not permitted. <sup>3</sup>Tension testing was conducted in 4,900 psi concrete. <sup>4</sup>Shear values were obtained through ACI 318-19, Chapter 17 Calculations. <sup>5</sup>Refer to the Tilt-Up Concrete Association's Guide for Temporary Wind Bracing of Tilt-Up Concrete Panels During Construction for more information. <sup>6</sup>Capacities were obtained through testing of anchors that passed the diameter requirements of the reusability gauge.

Temporary Tilt-Up Bracing Applications <sup>5</sup>							
In-Concrete, Single-Use Ultimate Capacity <sup>1,2,3</sup>							
Screw Anchor Size	Concrete Thickness	Minimum Concrete Compressive Strength (psi)					
		2500		4000		6000	
		Tension <sup>4</sup> (lbs.)	Shear <sup>4</sup> (lbs.)	Tension <sup>4</sup> (lbs.)	Shear <sup>4</sup> (lbs.)	Tension <sup>4</sup> (lbs.)	Shear <sup>4</sup> (lbs.)
5" Bearcat Bolt	4"	8,317	7,327	10,520	9,268	12,884	11,351
	5"	10,376	10,872	13,125	13,752	16,074	16,843
	6"	12,012	11,909	15,194	15,064	18,609	18,449
	7"	12,012	12,765	15,194	16,147	18,609	19,776
	8" and up	12,012	12,765	15,194	16,147	18,609	19,776
7" Bearcat Bolt	6"	13,298	16,621	16,821	21,024	20,601	23,390
	7"	18,363	20,414	23,228	23,390	28,448	23,390
	8"	20,374	21,823	25,772	23,390	31,564	23,390
	9"	20,374	23,147	25,772	23,390	31,564	23,390
	10" and up	20,374	23,390	25,772	23,390	31,564	23,390

<sup>1</sup>A minimum recommended safety factor of 2.0 should be applied to these ultimate (nominal) capacities. Check project requirements or local jurisdictions. <sup>2</sup>Linear interpolation of embedment depths and concrete strengths are not permitted. <sup>3</sup>Tension testing was conducted in 4,900 psi concrete. <sup>4</sup>Shear values were obtained through ACI 318-19, Chapter 17 Calculations. <sup>5</sup>Refer to the Tilt-Up Concrete Association's Guide for Temporary Wind Bracing of Tilt-Up Concrete Panels During Construction for more information.

Multi-Use & Single-Use Bearcat Bolt Setting Detail		
	5" Bearcat Bolt	7" Bearcat Bolt
Maximum Mounting Plate Thickness <sup>1</sup>	1"	
Minimum Mounting Plate Hole Diameter	15/16"	
Total Shank Length	5.25	7.25"
Nominal Full Embedment <sup>1</sup>	4.25"	6.25"
Minimum Edge Distance	12"	15"
Over-drill Depth <sup>2</sup>	0.50"	
Nominal Drill Bit Diameter	3/4"	
Socket/Hex-head Size	1-1/8"	
Installation Torque <sup>3</sup>	200 ft.-lbs.	

<sup>1</sup>Ultimate capacities were obtained using a 1" plate thickness. Thicker plates will reduce the capacity. <sup>2</sup>Over-drill depth is assuming full anchor embedment in the panel. With panels thinner than the nominal full embedment, the anchor will protrude through the back of the panel. Reference the loading chart for thin panel capacities. <sup>3</sup>Over torquing can damage the anchor and/or reduce the capacities.

- **Multi-use bolt** can be used multiple times\* with use of wear gauge
- **Single-use bolt** eliminates the need to restock used bolts

*\*results may vary*



Multi-Use Bearcat Bolt

Testing per ACI 355.2-19 and ACI 193 has been completed on the Single-Use Bearcat Bolt through a third party independent laboratory. Updated Tables for single-use, multi-use, and temporary tilt-up applications are shown below and can be found with the TDS for the respective products.

Industry standard ACI 355.2-19 testing in both cracked and uncracked will allow specifying engineers and users to verify specific performance capacity through ACI 318-19 Chapter 17 calculations. This testing also includes data for seismic applications to allow for even greater application range.

With this testing, the Bearcat Bolt can be used with greater confidence and has qualified acceptance in a variety of applications, including: tilt-up bracing, seismic anchoring and bracing, formwork, variety of permanent connections, sill plates, racking/shelving, hand/guardrails, and many more!



Single-Use Bearcat Bolt

The following parameters are the result of third-party testing in accordance with ACI 355.2-19 and ACI 193.

Installation Parameters <sup>2,3</sup>					
Characteristic	Symbol	Units	5" Bearcat	7" Bearcat	12" Bearcat
Outside Diameter	d <sub>o</sub>	in.	0.75	0.75	0.75
		mm.	19.1	19.1	19.1
Nominal Embedment Depth	h <sub>nom</sub>	in.	4.25	6.25	11.25
		mm.	108	159	286
Effective Embedment Depth	h <sub>ef</sub>	in.	3.33	5.03	9.28
		mm.	85	128	236
Minimum Hole Depth	h <sub>hole</sub>	in.	4.75	6.75	11.75
		mm.	121	171	298
Maximum Installation Torque	T <sub>inst,max</sub>	ft•lb <sub>f</sub>	305	305	305
		N•m	414	414	414
Maximum Impact Driver Installation Torque	T <sub>impact,max</sub>	ft•lb <sub>f</sub>	305	305	305
		N•m	414	414	414
Minimum Concrete Thickness	h <sub>min</sub>	in.	6	8	16
		mm.	152	203	406
Critical Edge Distance	C <sub>ac</sub>	in.	10	18	22
		mm.	254	457	559
Minimum Edge Distance and Spacing	C <sub>min</sub>	in.	3.25	2.25	1.75
		mm.	83	57	44
	S <sub>min</sub>	in.	3	3	3
		mm.	76	76	76
Steel Strength <sup>2,3</sup>					
Characteristic	Symbol	Units	5" Bearcat	7" Bearcat	12" Bearcat
Outside Diameter	d <sub>o</sub>	in.	0.75	0.75	0.75
		mm.	19.1	19.1	19.1
Nominal Embedment Depth	h <sub>nom</sub>	in.	4.25	6.25	11.25
		mm.	108	159	286
Effective Steel Stress Area	A <sub>se</sub>	in <sup>2</sup>	0.407	0.407	0.4072
		mm <sup>2</sup>	262.7	262.7	262.7
Minimum specified ultimate strength	f <sub>u</sub>	psi.	125,000		
		N/mm2	862		
Minimum specified yield strength	f <sub>y</sub>	psi.	100,000		
		N/mm2	689		
Steel Strength in tension	N <sub>sa</sub>	lb.	40,715		
		kN	181.1		
Steel Strength in shear	V <sub>sa</sub>	lb.	23,390		
		kN	104.04		
Steel Strength in shear, siesmic	V <sub>sa,eq</sub>	lb.	17,100		
		kN	76.06		

Design Strength <sup>2,3</sup>					
Characteristic	Symbol	Units	5" Bearcat	7" Bearcat	12" Bearcat
Outside Diameter	d <sub>o</sub>	in.	0.75	0.75	0.75
		mm.	19.1	19.1	19.1
Nominal Embedment Depth	h <sub>nom</sub>	in.	4.25	6.25	11.25
		mm.	108	159	286
Pullout Strength uncracked concrete	N <sub>p,uncr</sub>	lb.	-	-	30618
		kN	-	-	136.2
Pullout Strength cracked concrete	N <sub>p,cr</sub>	lb.	-	-	20538
		kN	-	-	91.36
Pullout Strength cracked concrete, siesmic	N <sub>eq</sub>	lb.	-	-	20538
		kN	-	-	91.36
Category Name	1,2,or 3	-	1	1	1
Effective Factor for uncracked concrete	k <sub>uncr</sub>	-	27	27	24
Effective Factor for cracked concrete	k <sub>cr</sub>	-	21	21	17
Modification factor for absence of cracks	Ψ <sub>c,N</sub>	-	1.29	1.29	1.49
Pryout Factor	k <sub>cp</sub>	-	1	1	1
Axial Stiffness in service load range in uncracked concrete	β <sub>uncr</sub>	lb/inch	368,466	514,973	172,701
		N/mm	64,528	90,186	30,245
Coefficient of variation for axial stiffness in service load range in uncracked concrete	v <sub>uncr</sub>	%	39	34	34
Axial Stiffness in service load range in uncracked concrete	β <sub>cr</sub>	lb/inch	320,755	288,714	162,700
		N/mm	56,173	50,562	28,500
Coefficient of variation for axial stiffness in service load range in uncracked concrete	v <sub>cr</sub>	%	79	23	21
Normalization Exponent, Unracked Concrete	n	-	0.5 <sup>1</sup>	0.5 <sup>1</sup>	0.45 <sup>1</sup>
Normalization Exponent, Cracked Concrete	n	-	0.5 <sup>1</sup>	0.5 <sup>1</sup>	0.50 <sup>1</sup>
<sup>1</sup> The normalization exponent (n) for the shallow and middle embedment is recommended to be 0.5, as concrete failure mode is shown to control for these sizes. <sup>2</sup> The information presented in this table is to be used in conjunction with the design criteria of ACI 318-19 chapter 17, ACI 318-14 Chapter 17 or ACI 318-11 Appendix D, except as modified below. <sup>3</sup> The strength reduction factor applies when the load combinations from the IBC or ACI 318 are used and the requirements of ACI 318-19 17.5.3, ACI 318-14 17.3.3 or ACI 318-11 D.4.3, as applicable, are met. If the load combinations of ACI 318-11 Appendix C are used, the appropriate strength reduction factor must be determined in accordance with ACI 318-11 D.4.4.					



## T13 Coil-Anchor™ 3/4" Diameter x 4-1/2" Long Application Sequence

1. Drill a 3/4" diameter hole perpendicular to the floor surface with a new carbide tipped drill. Depth of the hole must be a minimum 4". Holes drilled through slabs that are 5" or greater are acceptable.

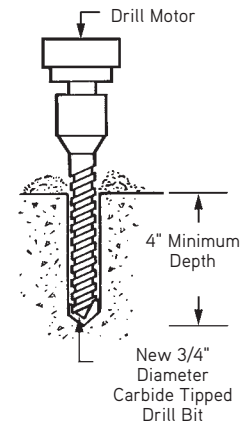
Do not use core bits for T13 anchor holes.

Minimum edge distance for the T13 anchor is 12".

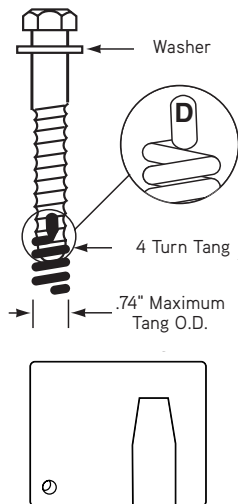
**Warning!** Do not use T13 (4-1/2") anchors in slabs less than 5" thick. The insufficient embedment depth will not allow required load capacity.

Caution must be used when drilling through slabs so that there is no blowout at the bottom of the hole. Tang may not fully engage, greatly reducing SWL; or tang may not engage at all, making the hole unusable.

2. Thoroughly clean the drilled hole.



T13 Coil Anchor Bolt  
Patent #5,006,023  
3/4" Dia. x 4-1/2" Long



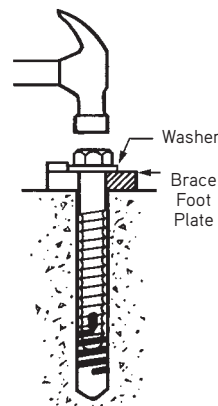
3. Thread the Tang onto the T13 bolt. Finger tight is sufficient, no more than 1-1/2 turn.

**Caution!** Do not attempt to pre-expand the Tang. For proper load capacity, the Tang must not be installed over 1-1/2 turn on the bolt.

**Warning!** Do not attempt to use a standard coil bolt with the T13 Coil-Anchor Tang. The Coil-Anchor Bolt is a tapered bolt and is not interchangeable with standard coil bolts.

### T13G Thread Gauge

**Note:** T13G Thread Gauges are recommended, to check T13 bolt thread wear, when reusing T13 Coil-Anchor Bolts.



4. Insert the T13 anchor through the foot plate of the wall brace and into the properly drilled hole. Drive the bolt down until the cut washer rests on the foot plate.



5. Tighten the T13 anchor with a 3/4" impact wrench, then use a torque wrench to insure correct tightness. Refer to the chart for proper torquing values.

**Warning!** If wind speeds over 35 miles per hour are experienced on the job site, all T13 anchors should be checked with a torque wrench to verify proper torque values are maintained.

6. The Ultimate Load per T13 Coil-Anchor is shown below:

Concrete Thickness	Minimum Concrete Compression Strength (psi)			
	2500		4000	
	Ultimate Tension (lbs.)	Ultimate Shear (lbs.)	Ultimate Tension (lbs.)	Ultimate Shear (lbs.)
5" or Thicker	7200	9200	9100	11600

**Notes:** Notes: A minimum recommended safety factor of 2.0 should be applied to these ultimate (nominal) capacities. A minimum edge distance - 12". A minimum Torque per Anchor - 200 ft lbs.

**Warning:** When using T13 Coil-Anchor Bolts, always clean and lubricate the bolt with T13L Set-Eez. Failure to do so will result in bolt wear, lower than expected load capacity and possible premature failure.

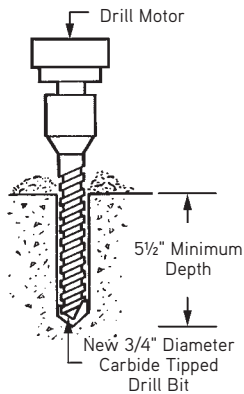
## T13L Set-Eez™ Dry Film Lubricant

T13L Set-Eez Dry Film Lubricant is designed to facilitate the reuse of the T13 Coil-Anchor bolt. The T13L lubricant is available in 6 oz. jars.



To Order:  
Specify: (1) quantity, (2) name.  
Example:  
4 bottles, T13L Set-Eez Dry Film Lubricant.

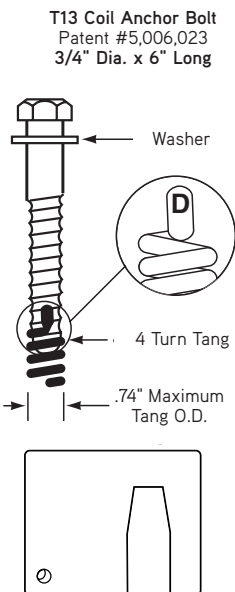
## T13 Coil-Anchor™ 3/4" Diameter x 6" Long Application Sequence



1. Drill a 3/4" diameter hole perpendicular to the floor surface with a new carbide tipped drill. Depth of the hole must be a minimum 5-1/2". Holes drilled through slabs that are 6" or greater are acceptable.  
Do not use core bits for T13 anchor holes.  
Minimum edge distance for the T13 anchor is 12".

**Warning!** Do not use T13 (6") anchors in slabs less than 6" thick. The insufficient embedment depth will not allow required load capacity.

2. Thoroughly clean the drilled hole.



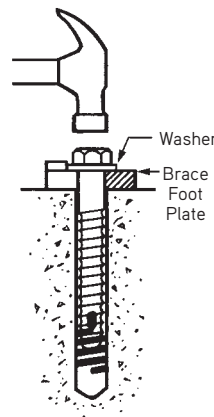
3. Thread the Tang onto the T13 bolt. Finger tight is sufficient, no more than 1-1/2 turn.

**Caution!** Do not attempt to pre-expand the Tang. For proper load capacity, the Tang must not be installed over 1-1/2 turn on the bolt.

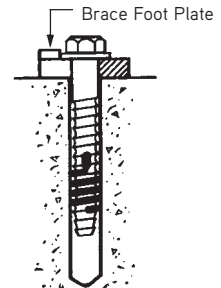
**Warning!** Do not attempt to use a standard coil bolt with the T13 Coil-Anchor Tang. The Coil-Anchor Bolt is a tapered bolt and is not interchangeable with standard coil bolts.

### T13G Thread Gauge

**Note:** T13G Thread Gauges are recommended, to check T13 bolt thread wear, when reusing T13 Coil-Anchor Bolts.



4. Insert the T13 anchor through the foot plate of the wall brace and into the properly drilled hole. Drive the bolt down until the cut washer rests on the foot plate.



5. Tighten the T13 anchor with a 3/4" impact wrench, then use a torque wrench to insure correct tightness. Refer to the chart for proper torquing values.

**Warning!** If wind speeds over 35 miles per hour are experienced on the job site, all T13 anchors should be checked with a torque wrench to verify proper torque values are maintained.

6. The Ultimate Load per T13 Coil-Anchor is shown below:

Concrete Thickness	Minimum Concrete Compression Strength (psi)			
	2500		4000	
	Ultimate Tension (lbs.)	Ultimate Shear (lbs.)	Ultimate Tension (lbs.)	Ultimate Shear (lbs.)
6" or Thicker	10600	11000	13400	14000

**Notes:** Notes: A minimum recommended safety factor of 2.0 should be applied to these ultimate (nominal) capacities. A minimum edge distance - 12". A minimum Torque per Anchor - 200 ft lbs.

**Warning:** When using T13 Coil-Anchor Bolts, always clean and lubricate the bolt with T13L Set-Eez. Failure to do so will result in bolt wear, lower than expected load capacity and possible premature failure.

## Typical Application on Steel Beams

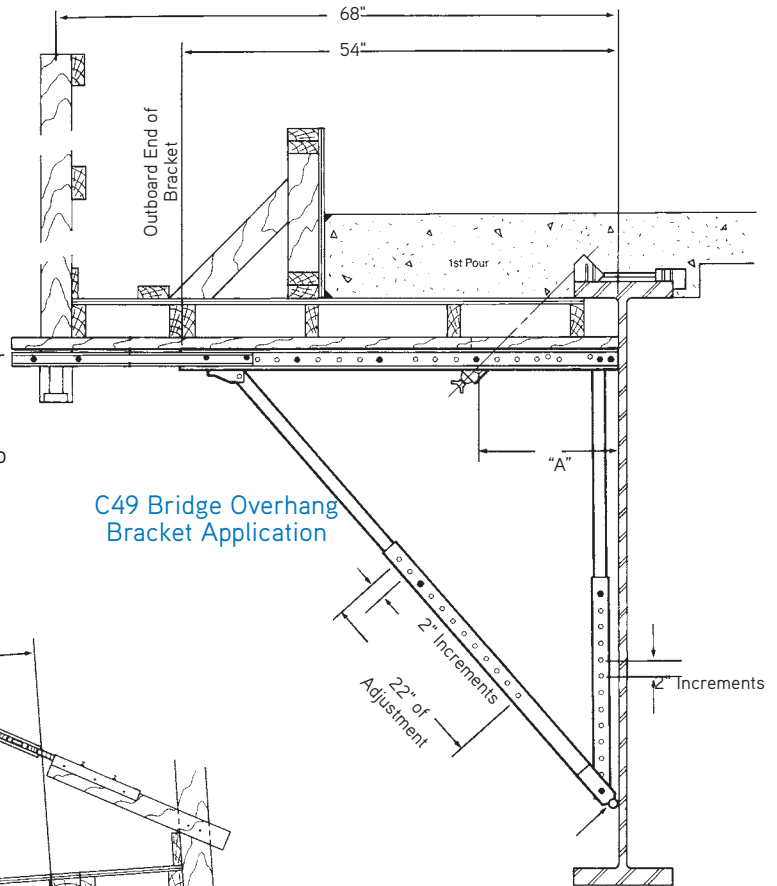
Several DOTs require that when overhang brackets are used on steel beams, the brackets must bear within 6" of the bottom flange. Both the vertical and diagonal legs are adjustable in 2" increments, which allows the bracket to be quickly and easily adjusted so that the applied construction loads are transferred at or near the bottom flange.

Various DOTs have found that moving the loads to the lower flange area greatly reduces the beams tendency to twist and bend under construction loads.

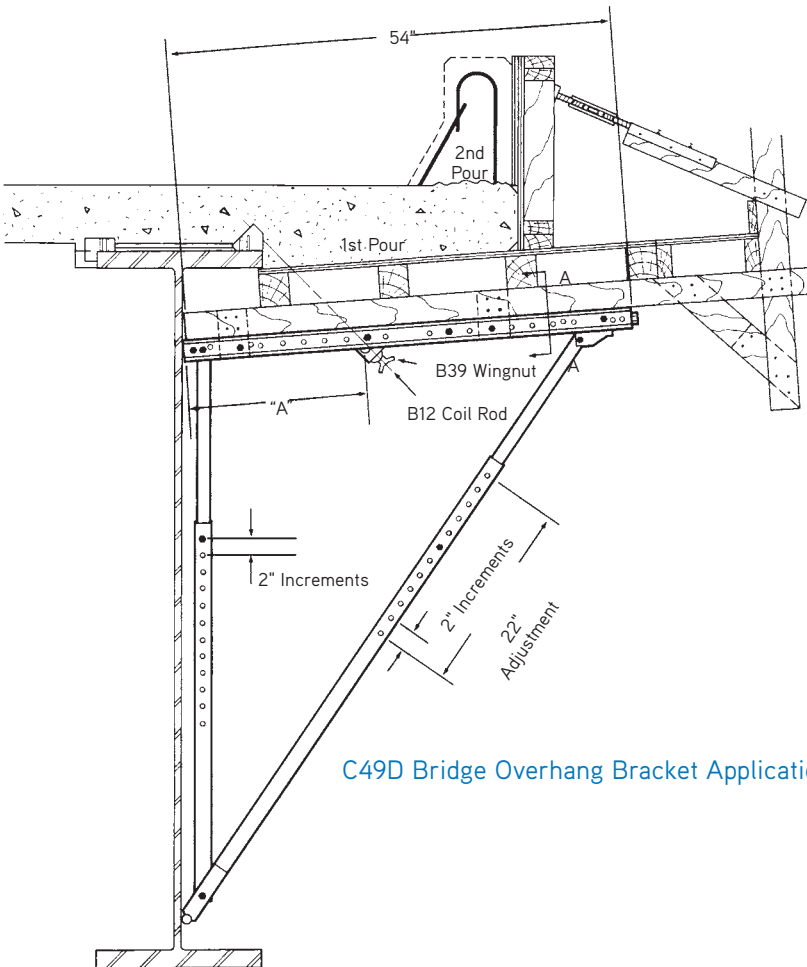
On deeper beams, where the C49 is too short to be used correctly, the C49D overhang bracket is recommended for use.

In situations where the overhang is longer than the horizontal members, double 2x lumber can be "cleated" to the bracket.

Either a flat 2x6 nailed to the horizontal members or double 2x's are considered part of the bracket design and one or the other must be be used at all times.



C49 Bridge Overhang Bracket Application

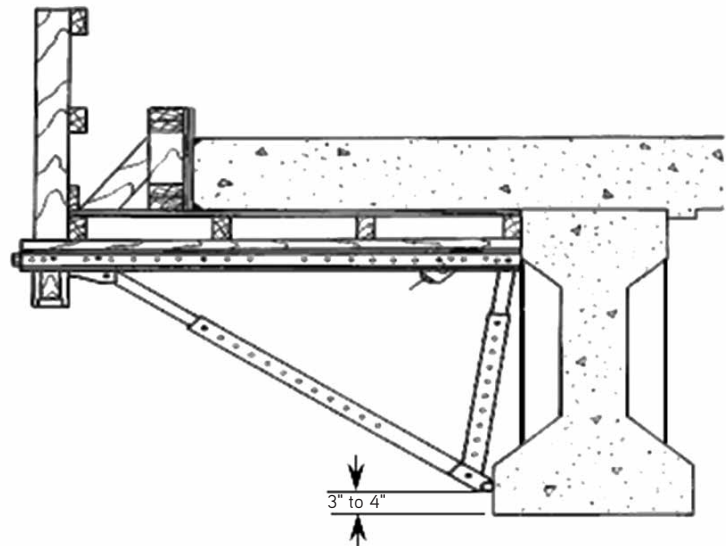


C49D Bridge Overhang Bracket Application

## Typical Application on Concrete Beams

Dayton Superior recommends that brackets bear against the side of the bottom flange on precast concrete girders. This will reduce the number of changes required in setting up the overhang brackets.

Allowing 3" to 4" of clearance between the bottom of the vertical leg and the bottom of the concrete eliminates the chance of the concrete spalling due to the construction loads introduced into the girder from the diagonal leg.

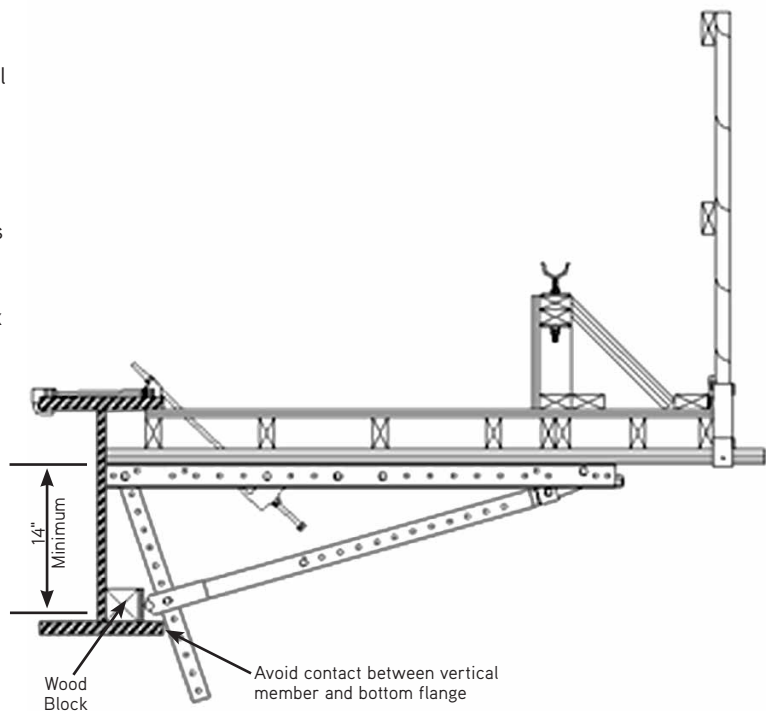


C49 Bridge Overhang Bracket Application

## C49S Field Modified Bridge Overhang Bracket

The C49 Bridge Overhang Bracket is modified in the field by removing the smaller, inner diameter vertical leg and using the larger, outer as the bracket's vertical leg, as shown. In some cases, due to manufacturing tolerances, the rear spacer, nut and bolt must also be removed and set aside for later re-assembly.

Wood blocking is placed on top of the bottom flange, to act as a support for the bracket's diagonal leg. This allows the lower portion of the vertical leg to run "wild" past the beam's bottom flange. C49S Brackets can also be used for shallow concrete girders and box beams.



C49S Bridge Overhang Bracket Application

Actual Overhang Conditions May Vary

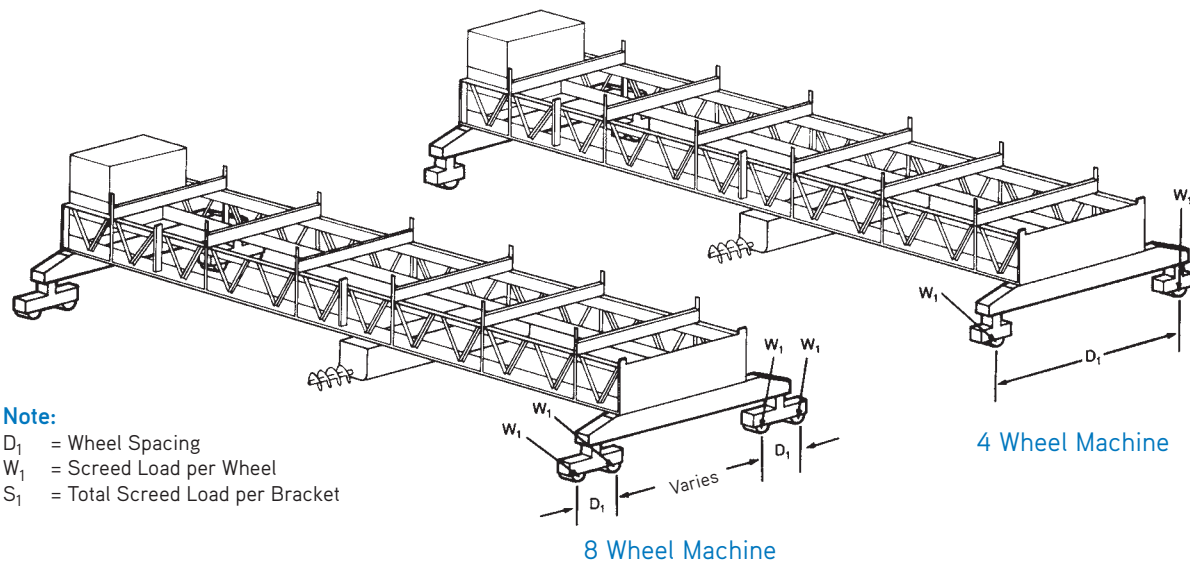
## How to Use Spacing Tables

The Spacing Tables shown on the following pages indicate the maximum hanger and overhang bracket spacings for the various slab thicknesses and screed loads. The type of hanger and overhang bracket required, as well as the proper bracket "A" and "D" dimension, which must be used to safely obtain the spacings shown, are listed.

When Selecting a trial hanger and overhang bracket spacing; and the selected spacing is:

- Equal to or less than  $D_1$ , multiply Wheel Load ( $W_1$ ) by a Screed Load Factor of 1.0;
- Over  $D_1$  and up to  $2D_1$ , multiply Wheel Load ( $W_1$ ) by a Screed Load Factor of 1.5;
- Over  $2D_1$  and up to  $3D_1$ , multiply Wheel Load ( $W_1$ ) by a Screed Load Factor of 1.7;
- Over  $3D_1$  and up to  $4D_1$ , multiply Wheel Load ( $W_1$ ) by a Screed Load Factor of 1.9;
- Greater than  $4D_1$ , multiply Wheel Load ( $W_1$ ) by a Screed Load Factor of 2.3, to determine a close approximation of the total Screed Load ( $S_1$ ) that will be applied to an individual overhang bracket. Use this value or next highest incremental value for the total Screed Load ( $S_1$ ) per bracket when using the spacing tables.

The two basic types of bridge deck finishing/screed machines in use today are illustrated below.



### Example

40" Deep Plate Girder with 1" Thick Flanges  
 3'-0" Overhang  
 8" Thick Overhang Slab (157 PSF)  
 C49 Bridge Overhang Bracket  
 C60 Type 8-A Pres-Steel Hanger, 4,500 lbs.

8 Wheel Screed Machine  
 $D_1 = 1'-6"$   
 $W_1 = 650$  lbs. Wheel Load

As we are using the C49 Overhang Bracket in the above example to support a 3'-0" overhang from a plate girder, the spacing table on page 70 should be used. The correct "D" dimension (30") is determined by subtracting from the girder's 40" depth, both flange thicknesses, the overall thickness of the form lumber plus a clearance allowance of 2" to 6".

For the above example it has been decided to use a trial hanger and bracket spacing of 4'-0". This results in a total screed load ( $S_1$ ) per bracket of 1,105 lbs.

### 4'-0" Trial Spacing

$1.5' D_1 = 2.66$ , which means the Screed Load Factor (SLF) as shown above is 1.7

$S_1 = (W_1)(SLF) = 650 \text{ lbs.} \times 1.7 = 1,105 \text{ lbs.}$

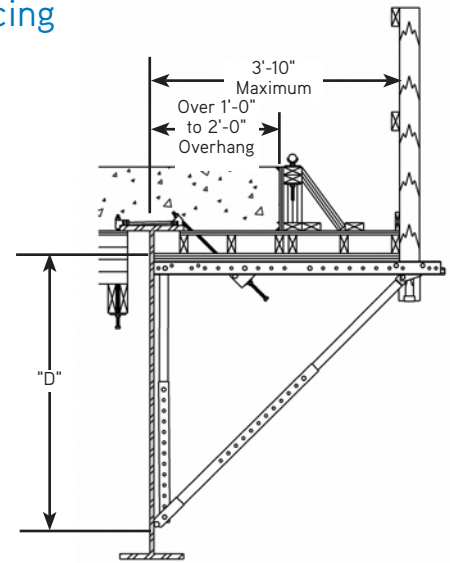
Enter the spacing table at 157 PSF design load (8" slab thickness), "D" = 30" and upper row for a 4,500 lb. Pres-Steel Hanger. Follow this row until it intersects the vertical column having a total screed load ( $S_1$ ) per bracket of 1,250 lbs. The allowable hanger and bracket spacing is 3'-3".

### SAFETY NOTE:

Contact Dayton Superior Technical Assistance for spacing requirements when a finishing machine and a conveyor are both to be used when placing concrete.

## C49 Bridge Overhang Bracket and Exterior Hanger Spacing

Over 1'-0" to 2'-0" Overhangs on Steel Beams or Girders



Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30" to 50"	*	*	*	1'-0"	1'-6"	2'-3"	3'-0"	5'-9"	3,000 to 3,500
			1'-9"	2'-6"	3'-3"	3'-9"	4'-6"	5'-3"	6'-0"	8'-0"	4,500 to 5,000
			4'-9"	5'-6"	6'-0"	6'-9"	7'-6"	8'-0"	8'-0"	8'-0"	6,000
157	8"	30" to 50"	*	*	*	*	1'-6"	2'-0"	2'-9"	5'-3"	3,000 to 3,500
			1'-6"	2'-3"	2'-9"	3'-6"	4'-0"	4'-9"	5'-3"	7'-9"	4,500 to 5,000
			4'-3"	4'-9"	5'-6"	6'-0"	6'-9"	7'-3"	8'-0"	8'-0"	6,000
184	10"	30" to 50"	*	*	*	*	1'-3"	1'-9"	2'-6"	4'-9"	3,000 to 3,500
			1'-6"	2'-0"	2'-6"	3'-0"	3'-9"	4'-3"	4'-9"	7'-0"	4,500 to 5,000
			3'-9"	4'-6"	5'-0"	5'-6"	6'-0"	6'-9"	7'-3"	8'-0"	6,000
210	12"	30" to 50"	*	*	*	*	1'-3"	1'-9"	2'-3"	4'-3"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-9"	3'-3"	4'-0"	4'-6"	6'-6"	4,500 to 5,000
			3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	8'-0"	6,000
237	14"	30" to 50"	*	*	*	*	1'-0"	1'-6"	2'-0"	4'-0"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-6"	3'-0"	3'-6"	4'-0"	6'-0"	4,500 to 5,000
			3'-3"	3'-9"	4'-3"	4'-9"	5'-3"	5'-6"	6'-0"	8'-0"	6,000
264	16"	30" to 50"	*	*	*	*	1'-0"	1'-6"	1'-9"	3'-9"	3,000 to 3,500
			1'-0"	1'-6"	2'-0"	2'-6"	2'-9"	3'-3"	3'-9"	5'-6"	4,500 to 5,000
			3'-0"	3'-6"	3'-9"	4'-3"	4'-9"	5'-3"	5'-9"	7'-6"	6,000
290	18"	30" to 50"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	1'-9"	2'-3"	2'-9"	3'-0"	3'-6"	5'-3"	4,500 to 5,000
			2'-9"	3'-3"	3'-6"	4'-0"	4'-6"	4'-9"	5'-3"	7'-0"	6,000
317	20"	30" to 50"	*	*	*	*	*	1'-3"	1'-6"	3'-3"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	3'-0"	3'-3"	4'-9"	4,500 to 5,000
			2'-6"	3'-0"	3'-3"	3'-9"	4'-3"	4'-6"	5'-0"	6'-6"	6,000

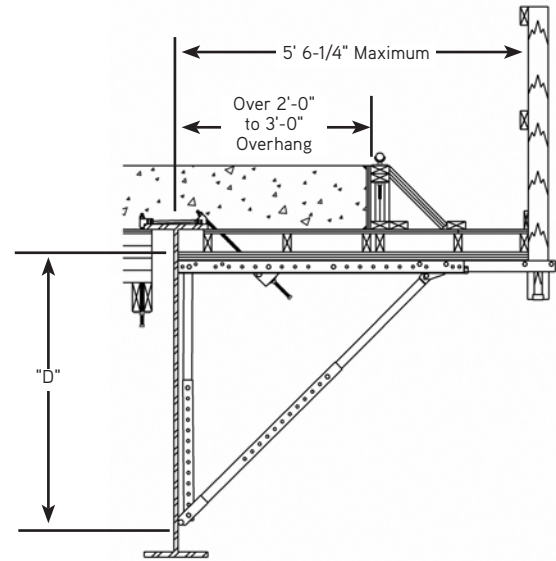
### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.



## C49 Bridge Overhang Bracket and Exterior Hanger Spacing

Over 2'-0" to 3'-0" Overhangs on Steel Beams or Girders



Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30" to 50"	*	*	*	*	1'-0"	1'-6"	2'-0"	4'-0"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-6"	3'-0"	3'-6"	4'-0"	6'-0"	4,500 to 5,000
			3'-3"	3'-9"	4'-3"	4'-6"	5'-0"	5'-6"	6'-0"	8'-0"	6,000
157	8"	30" to 50"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	1'-9"	2'-3"	2'-9"	3'-3"	3'-6"	5'-3"	4,500 to 5,000
			2'-9"	3'-3"	3'-9"	4'-0"	4'-6"	5'-0"	5'-3"	7'-0"	6,000
184	10"	30" to 50"	*	*	*	*	*	1'-3"	1'-6"	3'-0"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	2'-9"	3'-3"	4'-9"	4,500 to 5,000
			2'-6"	3'-0"	3'-3"	3'-9"	4'-0"	4'-6"	4'-9"	6'-3"	6,000
210	12"	30" to 50"	*	*	*	*	*	1'-0"	1'-6"	2'-9"	3,000 to 3,500
			*	1'-3"	1'-6"	1'-9"	2'-3"	2'-6"	3'-0"	4'-3"	4,500 to 5,000
			2'-3"	2'-6"	3'-0"	3'-3"	3'-9"	4'-0"	4'-3"	5'-9"	6,000
237	14"	30" to 50"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-9"	2'-0"	2'-3"	2'-9"	4'-0"	4,500 to 5,000
			2'-0"	2'-6"	2'-9"	3'-0"	3'-3"	3'-9"	4'-0"	5'-3"	6,000
264	16"	30" to 50"	*	*	*	*	*	1'-0"	1'-3"	2'-3"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-3"	2'-6"	3'-6"	4,500 to 5,000
			2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	3'-9"	4'-9"	6,000
290	18"	30" to 50"	*	*	*	*	*	*	1'-0"	2'-3"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	3'-3"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-6"	4'-6"	6,000
317	20"	30" to 50"	*	*	*	*	*	*	1'-0"	2'-0"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	3'-0"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	4'-3"	6,000

### NOTES:

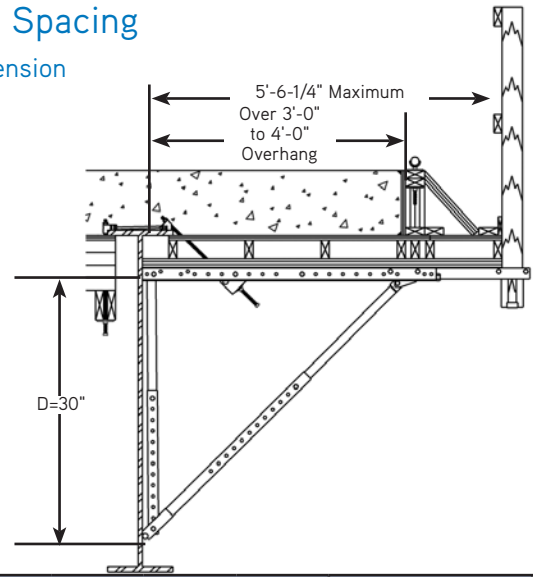
Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.

Always check overhang form lumber to make certain it will span the selected bracket spacing.

For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49 Bridge Overhang Bracket and Exterior Hanger Spacing

Over 3'-0" to 4'-0" Overhangs on Steel Beams or Girders, 30" "D" Dimension



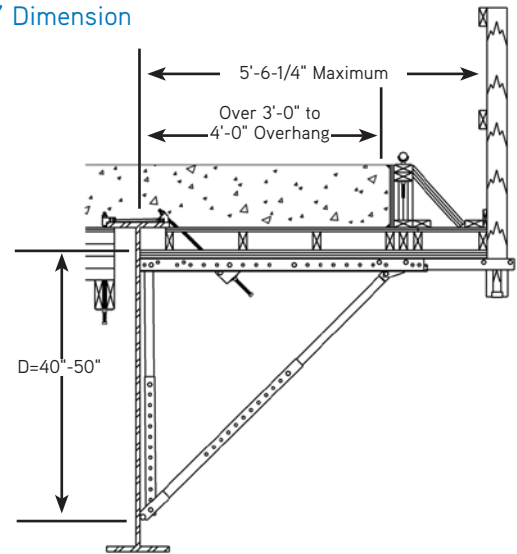
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30"	*	*	*	*	*	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			*	1'-3"	1'-9"	2'-3"	2'-9"	3'-0"	3'-6"	5'-3"	4,500 to 5,000
			*	1'-6"	2'-0"	2'-9"	3'-6"	4'-3"	5'-3"	7'-0"	6,000
157	8"	30"	*	*	*	*	*	1'-0"	1'-6"	3'-0"	3,000 to 3,500
			*	1'-0"	1'-6"	2'-0"	2'-3"	2'-9"	3'-0"	4'-6"	4,500 to 5,000
			*	1'-3"	1'-9"	2'-6"	3'-3"	4'-0"	4'-6"	6'-0"	6,000
184	10"	30"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	*	1'-3"	1'-9"	2'-0"	2'-3"	2'-9"	4'-0"	4,500 to 5,000
			*	1'-0"	1'-6"	2'-3"	3'-0"	3'-6"	4'-0"	5'-3"	6,000
210	12"	30"	*	*	*	*	*	1'-3"	2'-3"	3'-6"	3,000 to 3,500
			*	*	1'-0"	1'-6"	1'-9"	2'-0"	2'-3"	3'-6"	4,500 to 5,000
			*	1'-0"	1'-6"	2'-0"	2'-9"	3'-3"	3'-6"	4'-9"	6,000
237	14"	30"	*	*	*	*	*	1'-0"	2'-0"	3'-6"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	3'-3"	4,500 to 5,000
			*	1'-0"	1'-3"	1'-9"	2'-3"	3'-0"	3'-3"	4'-3"	6,000
264	16"	30"	*	*	*	*	*	1'-0"	1'-9"	3'-6"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-9"	4,500 to 5,000
			*	*	1'-3"	1'-9"	2'-3"	2'-9"	3'-0"	3'-9"	6,000
290	18"	30"	*	*	*	*	*	1'-9"	2'-6"	3'-6"	3,000 to 3,500
			*	*	1'-0"	1'-6"	2'-0"	2'-6"	2'-9"	3'-6"	4,500 to 5,000
			*	*	1'-0"	1'-6"	2'-0"	2'-6"	2'-9"	3'-6"	6,000
317	20"	30"	*	*	*	*	*	1'-6"	2'-6"	3'-6"	3,000 to 3,500
			*	*	1'-0"	1'-6"	1'-9"	2'-3"	2'-6"	3'-3"	4,500 to 5,000
			*	*	1'-0"	1'-6"	1'-9"	2'-3"	2'-6"	3'-3"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49 Bridge Overhang Bracket and Exterior Hanger Spacing

Over 3'-0" to 4'-0" Overhangs on Steel Beams or Girders, 40" to 50" "D" Dimension



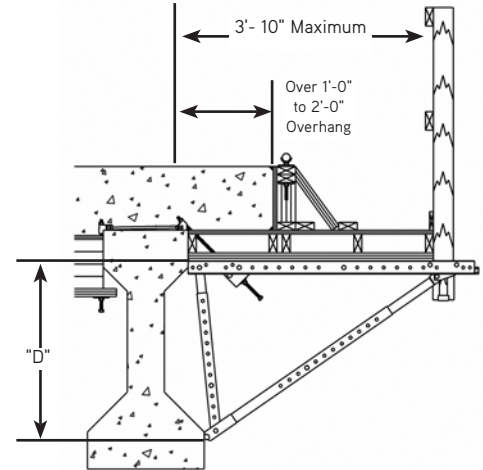
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	40" to 50"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	1'-9"	2'-3"	2'-9"	3'-0"	3'-6"	5'-3"	4,500 to 5,000
			2'-3"	3'-0"	3'-6"	4'-0"	4'-6"	4'-9"	5'-3"	7'-0"	6,000
157	8"	40" to 50"	*	*	*	*	*	1'-0"	1'-6"	3'-0"	3,000 to 3,500
			*	1'-3"	1'-6"	2'-0"	2'-3"	2'-9"	3'-0"	4'-6"	4,500 to 5,000
			2'-0"	2'-9"	3'-0"	3'-6"	3'-9"	4'-3"	4'-6"	6'-0"	6,000
184	10"	40" to 50"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-9"	2'-0"	2'-3"	2'-9"	4'-0"	4,500 to 5,000
			1'-9"	2'-6"	2'-9"	3'-0"	3'-3"	3'-9"	4'-0"	5'-3"	6,000
210	12"	40" to 50"	*	*	*	*	*	1'-3"	2'-3"	3'-6"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	3'-6"	4,500 to 5,000
			1'-9"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	3'-6"	4'-9"	6,000
237	14"	40" to 50"	*	*	*	*	*	1'-0"	2'-0"	3'-3"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	3'-3"	4,500 to 5,000
			1'-6"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	4'-3"	6,000
264	16"	40" to 50"	*	*	*	*	*	1'-0"	1'-9"	2'-9"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-9"	4,500 to 5,000
			1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-9"	6,000
290	18"	40" to 50"	*	*	*	*	*	*	1'-9"	2'-6"	3,000 to 3,500
			*	*	1'-0"	1'-0"	1'-3"	1'-6"	1'-9"	2'-6"	4,500 to 5,000
			1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-6"	6,000
317	20"	40" to 50"	*	*	*	*	*	*	1'-6"	2'-6"	3,000 to 3,500
			*	*	*	1'-0"	1'-3"	1'-6"	1'-6"	2'-6"	4,500 to 5,000
			1'-3"	1'-6"	1'-9"	1'-9"	2'-0"	2'-3"	2'-6"	3'-3"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49 Bridge Overhang Bracket and Exterior Hanger Spacing

Over 1'-0" to 2'-0" Overhangs on Precast/Prestressed Concrete Girders



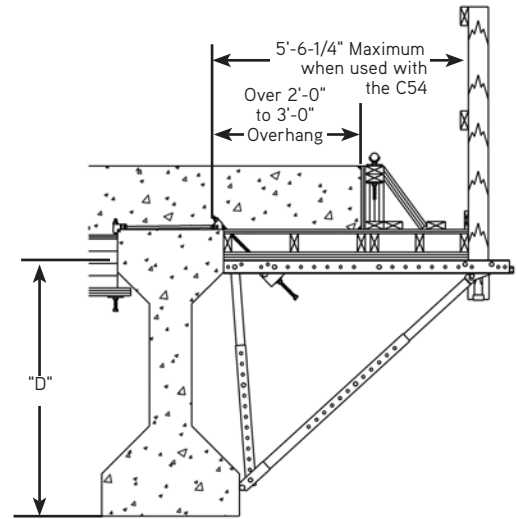
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30" to 50"	*	*	*	*	1'-3"	2'-0"	2'-6"	4'-9"	3,000 to 3,500
			1'-6"	2'-0"	2'-9"	3'-3"	3'-9"	4'-6"	5'-0"	7'-3"	4,500 to 5,000
			4'-0"	4'-6"	5'-3"	5'-9"	6'-3"	7'-0"	7'-6"	8'-0"	6,000
157	8"	30" to 50"	*	*	*	*	1'-3"	1'-9"	2'-3"	4'-3"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-9"	3'-6"	4'-0"	4'-6"	6'-6"	4,500 to 5,000
			3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-9"	8'-0"	6,000
184	10"	30" to 50"	*	*	*	*	1'-0"	1'-6"	2'-0"	3'-9"	3,000 to 3,500
			1'-3"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	5'-9"	4,500 to 5,000
			3'-3"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-9"	6,000
210	12"	30" to 50"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	2'-0"	2'-3"	2'-9"	3'-3"	3'-6"	5'-3"	4,500 to 5,000
			2'-9"	3'-3"	3'-9"	4'-0"	4'-6"	5'-0"	5'-6"	7'-0"	6,000
237	14"	30" to 50"	*	*	*	*	*	1'-3"	1'-9"	3'-3"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	3'-0"	3'-3"	4'-9"	4,500 to 5,000
			2'-6"	3'-0"	3'-6"	3'-9"	4'-3"	4'-6"	5'-0"	6'-6"	6,000
264	16"	30" to 50"	*	*	*	*	*	1'-3"	1'-6"	3'-0"	3,000 to 3,500
			*	1'-3"	1'-6"	2'-0"	2'-3"	2'-9"	3'-0"	4'-6"	4,500 to 5,000
			2'-6"	2'-9"	3'-0"	3'-6"	3'-9"	4'-3"	4'-6"	6'-0"	6,000
290	18"	30" to 50"	*	*	*	*	*	1'-0"	1'-6"	2'-9"	3,000 to 3,500
			*	1'-0"	1'-6"	1'-9"	2'-3"	2'-6"	2'-9"	4'-3"	4,500 to 5,000
			2'-3"	2'-6"	3'-0"	3'-3"	3'-6"	4'-0"	4'-3"	5'-6"	6,000
317	20"	30" to 50"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-9"	2'-0"	2'-3"	2'-6"	3'-9"	4,500 to 5,000
			2'-0"	2'-3"	2'-9"	3'-0"	3'-3"	3'-6"	4'-0"	5'-3"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49 Bridge Overhang Bracket and Exterior Hanger Spacing

Over 2'-0" to 3'-0" Overhangs on Precast/Prestressed Concrete Girders



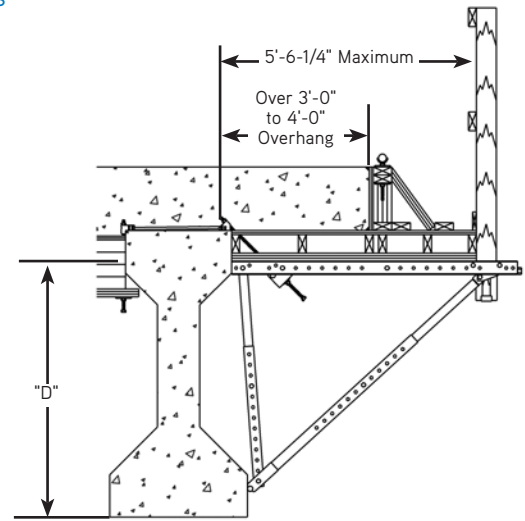
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30" to 50"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	2'-0"	2'-3"	2'-9"	3'-3"	3'-6"	5'-3"	4,500 to 5,000
			2'-3"	2'-9"	3'-6"	4'-0"	4'-6"	5'-0"	5'-3"	7'-0"	6,000
157	8"	30" to 50"	*	*	*	*	*	1'-3"	1'-6"	3'-0"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	2'-9"	3'-3"	4'-6"	4,500 to 5,000
			2'-6"	2'-9"	3'-3"	3'-6"	4'-0"	4'-3"	4'-9"	6'-3"	6,000
184	10"	30" to 50"	*	*	*	*	*	1'-0"	1'-3"	2'-9"	3,000 to 3,500
			*	1'-0"	1'-6"	1'-9"	2'-0"	2'-6"	2'-9"	4'-0"	4,500 to 5,000
			2'-3"	2'-6"	2'-9"	3'-3"	3'-6"	3'-9"	4'-3"	5'-6"	6,000
210	12"	30" to 50"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	2'-0"	2'-3"	2'-6"	3'-9"	4,500 to 5,000
			2'-0"	2'-3"	2'-6"	3'-0"	3'-3"	3'-6"	3'-9"	5'-0"	6,000
237	14"	30" to 50"	*	*	*	*	*	*	1'-0"	2'-3"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	3'-3"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	3'-0"	3'-3"	3'-6"	4'-6"	6,000
264	16"	30" to 50"	*	*	*	*	*	*	1'-0"	2'-0"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	3'-0"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	4'-3"	6,000
290	18"	30" to 50"	*	*	*	*	*	*	1'-0"	1'-9"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-9"	4,500 to 5,000
			1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-9"	6,000
317	20"	30" to 50"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	1'-0"	1'-0"	1'-3"	1'-6"	1'-9"	2'-9"	4,500 to 5,000
			1'-6"	1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-6"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49 Bridge Overhang Bracket and Exterior Hanger Spacing

Over 3'-0" to 4'-0" Overhangs on Precast/Prestressed Concrete Girders



Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30" to 50"	*	*	*	*	*	1'-0"	1'-6"	3'-0"	3,000 to 3,500
			*	*	*	1'-9"	2'-6"	2'-9"	3'-3"	4'-6"	4,500 to 5,000
			*	*	*	1'-9"	2'-6"	3'-0"	3'-9"	6'-9"	6,000
157	8"	30" to 50"	*	*	*	*	*	*	1'-3"	2'-6"	3,000 to 3,500
			*	*	*	1'-6"	2'-0"	2'-3"	2'-9"	4'-0"	4,500 to 5,000
			*	*	*	1'-6"	2'-3"	2'-9"	3'-6"	5'-3"	6,000
184	10"	30" to 50"	*	*	*	*	*	*	1'-3"	2'-3"	3,000 to 3,500
			*	*	*	1'-3"	1'-9"	2'-0"	2'-3"	3'-6"	4,500 to 5,000
			*	*	*	1'-6"	2'-0"	2'-6"	3'-0"	4'-9"	6,000
210	12"	30" to 50"	*	*	*	*	*	*	1'-0"	2'-0"	3,000 to 3,500
			*	*	*	1'-3"	1'-6"	1'-9"	2'-0"	3'-0"	4,500 to 5,000
			*	*	*	1'-3"	1'-9"	2'-3"	2'-9"	4'-3"	6,000
237	14"	30" to 50"	*	*	*	*	*	*	1'-0"	1'-9"	3,000 to 3,500
			*	*	*	1'-0"	1'-6"	1'-9"	1'-9"	2'-9"	4,500 to 5,000
			*	*	*	1'-0"	1'-6"	2'-0"	2'-6"	3'-9"	6,000
264	16"	30" to 50"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-6"	4,500 to 5,000
			*	*	*	1'-0"	1'-6"	1'-9"	2'-3"	3'-6"	6,000
290	18"	30" to 50"	*	*	*	*	*	*	*	1'-6"	3,000 to 3,500
			*	*	*	*	1'-0"	1'-3"	1'-6"	2'-3"	4,500 to 5,000
			*	*	*	1'-0"	1'-3"	1'-9"	2'-0"	3'-0"	6,000
317	20"	30" to 50"	*	*	*	*	*	*	*	1'-3"	3,000 to 3,500
			*	*	*	*	1'-0"	1'-3"	1'-6"	2'-0"	4,500 to 5,000
			*	*	*	*	1'-3"	1'-6"	2'-0"	2'-9"	6,000

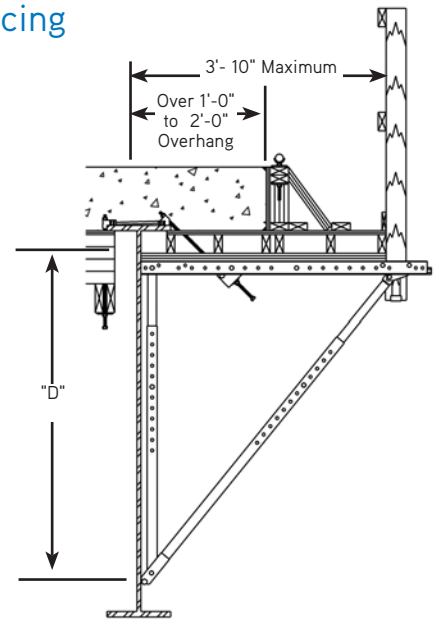
### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.



## C49D Bridge Overhang Bracket and Exterior Hanger Spacing

Over 1'-0" to 2'-0" Overhangs on Steel Beams or Girders



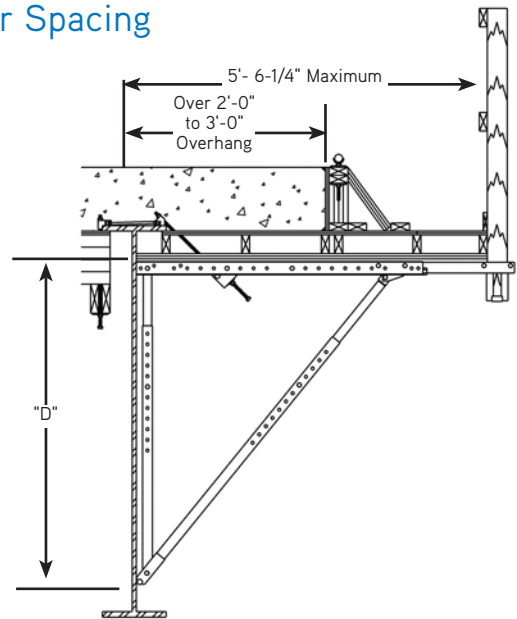
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	50" to 70"	*	*	*	1'-0"	1'-6"	2'-3"	3'-0"	5'-9"	3,000 to 3,500
			1'-9"	2'-6"	3'-3"	3'-9"	4'-6"	5'-3"	6'-0"	8'-0"	4,500 to 5,000
			4'-9"	5'-6"	6'-0"	6'-9"	7'-6"	8'-0"	8'-0"	8'-0"	6,000
157	8"	50" to 70"	*	*	*	*	1'-6"	2'-0"	2'-9"	5'-3"	3,000 to 3,500
			1'-6"	2'-3"	2'-9"	3'-6"	4'-0"	4'-9"	5'-3"	7'-9"	4,500 to 5,000
			4'-3"	4'-9"	5'-6"	6'-0"	6'-9"	7'-3"	8'-0"	8'-0"	6,000
184	10"	50" to 70"	*	*	*	*	1'-3"	1'-9"	2'-6"	4'-9"	3,000 to 3,500
			1'-6"	2'-0"	2'-6"	3'-0"	3'-9"	4'-3"	4'-9"	7'-0"	4,500 to 5,000
			3'-9"	4'-6"	5'-0"	5'-6"	6'-0"	6'-9"	7'-3"	8'-0"	6,000
210	12"	50" to 70"	*	*	*	*	1'-3"	1'-9"	2'-3"	4'-3"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-9"	3'-3"	4'-0"	4'-6"	6'-6"	4,500 to 5,000
			3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	8'-0"	6,000
237	14"	50" to 70"	*	*	*	*	1'-0"	1'-6"	2'-0"	4'-0"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-6"	3'-0"	3'-6"	4'-0"	6'-0"	4,500 to 5,000
			3'-3"	3'-9"	4'-3"	4'-9"	5'-3"	5'-6"	6'-0"	8'-0"	6,000
264	16"	50" to 70"	*	*	*	*	1'-0"	1'-6"	1'-9"	3'-9"	3,000 to 3,500
			1'-0"	1'-6"	2'-0"	2'-6"	2'-9"	3'-3"	3'-9"	5'-6"	4,500 to 5,000
			3'-0"	3'-6"	3'-9"	4'-3"	4'-9"	5'-3"	5'-9"	7'-6"	6,000
290	18"	50" to 70"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	1'-9"	2'-3"	2'-9"	3'-0"	3'-6"	5'-3"	4,500 to 5,000
			2'-9"	3'-3"	3'-6"	4'-0"	4'-6"	4'-9"	5'-3"	7'-0"	6,000
317	20"	50" to 70"	*	*	*	*	*	1'-3"	1'-6"	3'-3"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	3'-0"	3'-3"	4'-9"	4,500 to 5,000
			2'-6"	3'-0"	3'-3"	3'-9"	4'-3"	4'-6"	5'-0"	6'-6"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49D Bridge Overhang Bracket and Exterior Hanger Spacing

Over 2'-0" to 3'-0" Overhangs on Steel Beams or Girders



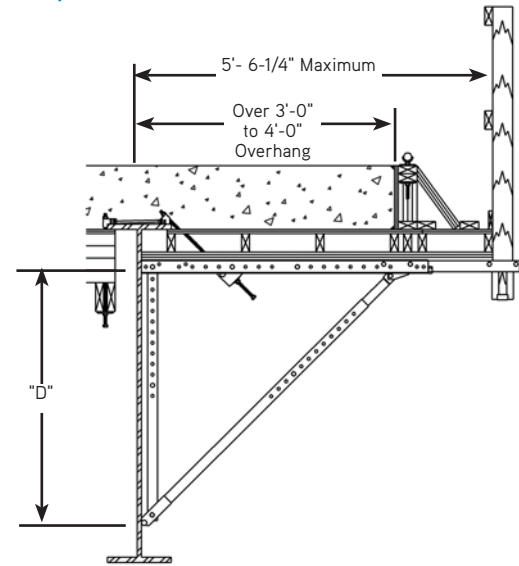
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	50" to 70"	*	*	*	*	1'-0"	1'-6"	2'-0"	4'-0"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-6"	3'-0"	3'-6"	4'-0"	6'-0"	4,500 to 5,000
			3'-3"	3'-9"	4'-3"	4'-6"	5'-0"	5'-6"	6'-0"	8'-0"	6,000
157	8"	50" to 70"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	1'-9"	2'-3"	2'-9"	3'-3"	3'-6"	5'-3"	4,500 to 5,000
			2'-9"	3'-3"	3'-9"	4'-0"	4'-6"	5'-0"	5'-3"	7'-0"	6,000
184	10"	50" to 70"	*	*	*	*	*	1'-3"	1'-6"	3'-0"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	2'-9"	3'-3"	4'-9"	4,500 to 5,000
			2'-6"	3'-0"	3'-3"	3'-9"	4'-0"	4'-6"	4'-9"	6'-3"	6,000
210	12"	50" to 70"	*	*	*	*	*	1'-0"	1'-6"	2'-9"	3,000 to 3,500
			*	1'-3"	1'-6"	1'-9"	2'-3"	2'-6"	3'-0"	4'-3"	4,500 to 5,000
			2'-3"	2'-6"	3'-0"	3'-3"	3'-9"	4'-0"	4'-3"	5'-9"	6,000
237	14"	50" to 70"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-9"	2'-0"	2'-3"	2'-9"	4'-0"	4,500 to 5,000
			2'-0"	2'-6"	2'-9"	3'-0"	3'-3"	3'-9"	4'-0"	5'-3"	6,000
264	16"	50" to 70"	*	*	*	*	*	1'-0"	1'-3"	2'-3"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-3"	2'-6"	3'-6"	4,500 to 5,000
			2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	3'-9"	4'-9"	6,000
290	18"	50" to 70"	*	*	*	*	*	*	1'-0"	2'-3"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	3'-3"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-6"	4'-6"	6,000
317	20"	50" to 70"	*	*	*	*	*	*	1'-0"	2'-0"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	3'-0"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	4'-3"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49D Bridge Overhang Bracket and Exterior Hanger Spacing

Over 3'-0" to 4'-0" Overhangs on Steel Beams or Girders



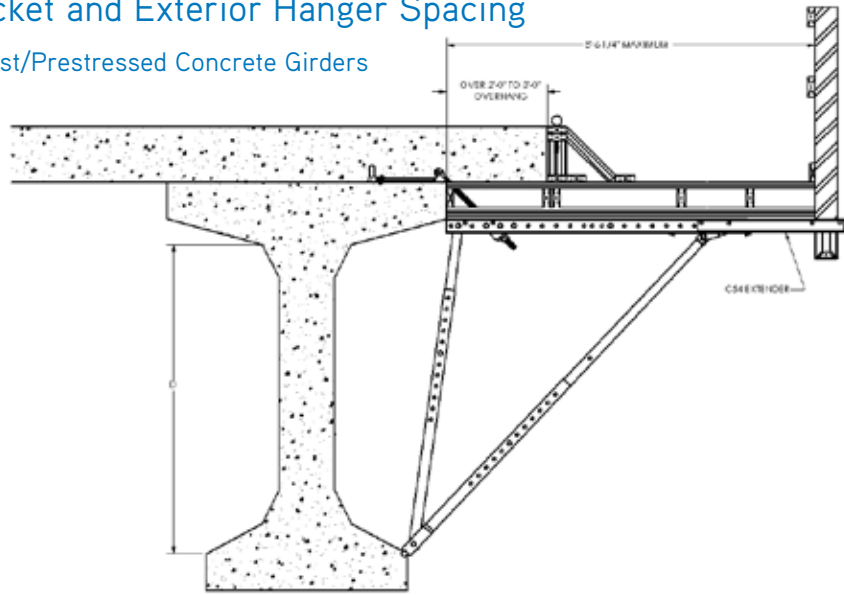
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	50" to 70"	*	*	*	*	*	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	1'-9"	2'-3"	2'-9"	3'-0"	3'-6"	5'-3"	4,500 to 5,000
			2'-9"	3'-3"	3'-6"	4'-0"	4'-6"	4'-9"	5'-3"	7'-0"	6,000
157	8"	50" to 70"	*	*	*	*	*	1'-0"	1'-6"	3'-0"	3,000 to 3,500
			*	1'-3"	1'-6"	2'-0"	2'-3"	2'-9"	3'-0"	4'-6"	4,500 to 5,000
			2'-3"	2'-9"	3'-0"	3'-6"	3'-9"	4'-3"	4'-6"	6'-0"	6,000
184	10"	50" to 70"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-9"	2'-0"	2'-3"	2'-9"	4'-0"	4,500 to 5,000
			2'-0"	2'-6"	2'-9"	3'-0"	3'-6"	3'-9"	4'-0"	5'-3"	6,000
210	12"	50" to 70"	*	*	*	*	*	*	1'-3"	2'-3"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	3'-6"	4,500 to 5,000
			1'-9"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	3'-6"	4'-9"	6,000
237	14"	50" to 70"	*	*	*	*	*	*	1'-0"	2'-0"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	3'-3"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	4'-3"	6,000
264	16"	50" to 70"	*	*	*	*	*	*	1'-0"	1'-9"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-9"	4,500 to 5,000
			1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-9"	6,000
290	18"	50" to 70"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-6"	4,500 to 5,000
			1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-6"	6,000
317	20"	50" to 70"	*	*	*	*	*	*	*	1'-6"	3,000 to 3,500
			*	*	*	1'-0"	1'-3"	1'-6"	1'-6"	2'-6"	4,500 to 5,000
			1'-3"	1'-6"	1'-9"	1'-9"	2'-0"	2'-3"	2'-6"	3'-3"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49D Bridge Overhang Bracket and Exterior Hanger Spacing

Over 1'-0" to 2'-0" Overhangs on Precast/Prestressed Concrete Girders



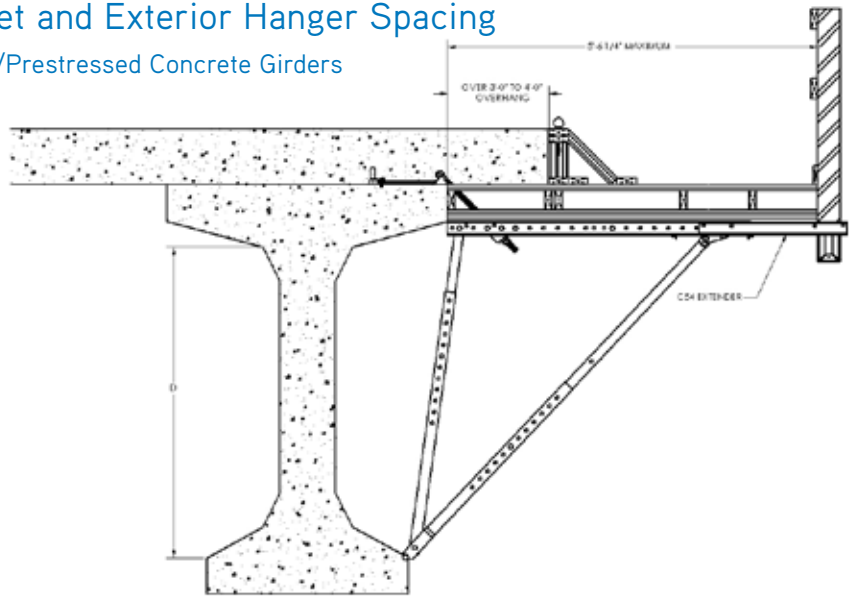
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	50" to 70"	*	*	*	*	1'-3"	2'-0"	2'-6"	4'-9"	3,000 to 3,500
			1'-6"	2'-0"	2'-9"	3'-3"	3'-9"	4'-6"	5'-0"	7'-3"	4,500 to 5,000
			4'-0"	4'-6"	5'-3"	5'-9"	6'-3"	7'-0"	7'-6"	8'-0"	6,000
157	8"	50" to 70"	*	*	*	*	1'-3"	1'-9"	2'-3"	4'-3"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-9"	3'-6"	4'-0"	4'-6"	6'-6"	4,500 to 5,000
			3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-9"	8'-0"	6,000
184	10"	50" to 70"	*	*	*	*	1'-0"	1'-6"	2'-0"	3'-9"	3,000 to 3,500
			1'-3"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	5'-9"	4,500 to 5,000
			3'-3"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-9"	6,000
210	12"	50" to 70"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	2'-0"	2'-3"	2'-9"	3'-3"	3'-6"	5'-3"	4,500 to 5,000
			2'-9"	3'-3"	3'-9"	4'-0"	4'-6"	5'-0"	5'-6"	7'-0"	6,000
237	14"	50" to 70"	*	*	*	*	*	1'-3"	1'-9"	3'-3"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	3'-0"	3'-3"	4'-9"	4,500 to 5,000
			2'-6"	3'-0"	3'-6"	3'-9"	4'-3"	4'-6"	5'-0"	6'-6"	6,000
264	16"	50" to 70"	*	*	*	*	*	1'-3"	1'-6"	3'-0"	3,000 to 3,500
			*	1'-3"	1'-6"	2'-0"	2'-3"	2'-9"	3'-0"	4'-6"	4,500 to 5,000
			2'-6"	2'-9"	3'-0"	3'-6"	3'-9"	4'-3"	4'-6"	6'-0"	6,000
290	18"	50" to 70"	*	*	*	*	*	1'-0"	1'-6"	2'-9"	3,000 to 3,500
			*	1'-0"	1'-6"	1'-9"	2'-3"	2'-6"	2'-9"	4'-3"	4,500 to 5,000
			2'-3"	2'-6"	3'-0"	3'-3"	3'-6"	4'-0"	4'-3"	5'-6"	6,000
317	20"	50" to 70"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-9"	2'-0"	2'-3"	2'-6"	3'-9"	4,500 to 5,000
			2'-0"	2'-3"	2'-9"	3'-0"	3'-3"	3'-6"	4'-0"	5'-3"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49D Bridge Overhang Bracket and Exterior Hanger Spacing

Over 2'-0" to 3'-0" Overhangs on Precast/Prestressed Concrete Girders



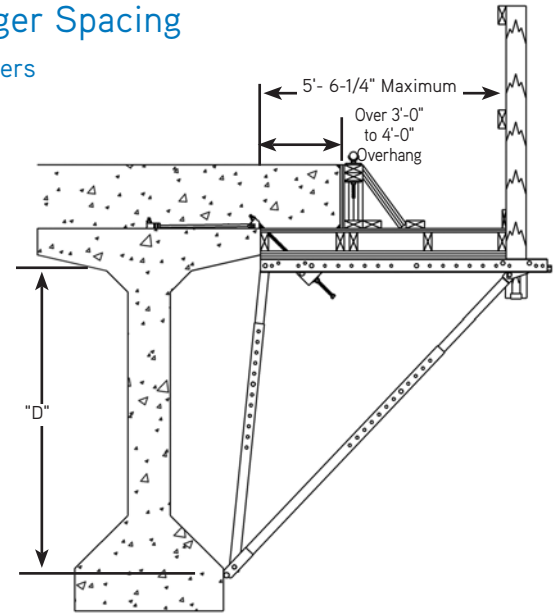
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	50" to 70"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	2'-0"	2'-3"	2'-9"	3'-3"	3'-6"	5'-3"	4,500 to 5,000
			2'-3"	2'-9"	3'-6"	4'-0"	4'-6"	5'-0"	5'-3"	7'-0"	6,000
157	8"	50" to 70"	*	*	*	*	*	1'-3"	1'-6"	3'-0"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	2'-9"	3'-3"	4'-6"	4,500 to 5,000
			2'-6"	2'-9"	3'-3"	3'-6"	4'-0"	4'-3"	4'-9"	6'-3"	6,000
184	10"	50" to 70"	*	*	*	*	*	1'-0"	1'-3"	2'-9"	3,000 to 3,500
			*	1'-0"	1'-6"	1'-9"	2'-0"	2'-6"	2'-9"	4'-0"	4,500 to 5,000
			2'-3"	2'-6"	2'-9"	3'-3"	3'-6"	3'-9"	4'-3"	5'-6"	6,000
210	12"	50" to 70"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	2'-0"	2'-3"	2'-6"	3'-9"	4,500 to 5,000
			2'-0"	2'-3"	2'-6"	3'-0"	3'-3"	3'-6"	3'-9"	5'-0"	6,000
237	14"	50" to 70"	*	*	*	*	*	*	1'-0"	2'-3"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	3'-3"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	3'-0"	3'-3"	3'-6"	4'-6"	6,000
264	16"	50" to 70"	*	*	*	*	*	*	1'-0"	2'-0"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	3'-0"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	4'-3"	6,000
290	18"	50" to 70"	*	*	*	*	*	*	1'-0"	1'-9"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-9"	4,500 to 5,000
			1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-9"	6,000
317	20"	50" to 70"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	1'-0"	1'-0"	1'-3"	1'-6"	1'-9"	2'-9"	4,500 to 5,000
			1'-6"	1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-6"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49D Bridge Overhang Bracket and Exterior Hanger Spacing

Over 3'-0" to 4'-0" Overhangs on Precast/Prestressed Concrete Girders



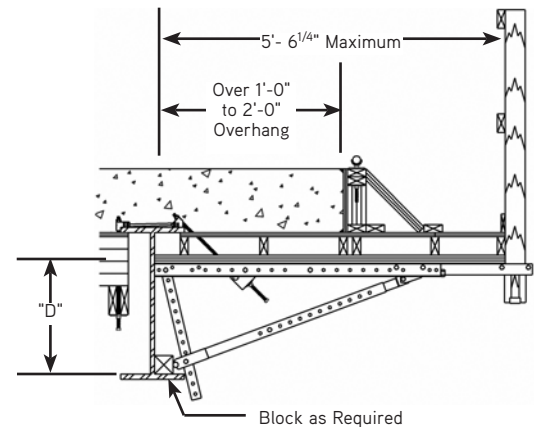
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	50" to 70"	*	*	*	*	*	1'-3"	1'-6"	3'-0"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	2'-9"	3'-3"	4'-6"	4,500 to 5,000
			2'-0"	2'-9"	3'-3"	3'-9"	4'-0"	4'-3"	4'-9"	6'-3"	6,000
157	8"	50" to 70"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	1'-0"	1'-6"	1'-9"	2'-0"	2'-3"	2'-9"	4'-0"	4,500 to 5,000
			2'-0"	2'-6"	2'-9"	3'-0"	3'-6"	3'-9"	4'-0"	5'-3"	6,000
184	10"	50" to 70"	*	*	*	*	*	*	1'-3"	2'-3"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	3'-6"	4,500 to 5,000
			1'-9"	2'-3"	2'-6"	2'-9"	3'-0"	3'-6"	3'-6"	4'-9"	6,000
210	12"	50" to 70"	*	*	*	*	*	*	1'-0"	2'-0"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	3'-0"	4,500 to 5,000
			1'-6"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	4'-3"	6,000
237	14"	50" to 70"	*	*	*	*	*	*	1'-0"	1'-9"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	1'-9"	2'-9"	4,500 to 5,000
			1'-3"	1'-9"	2'-0"	2'-3"	2'-3"	2'-6"	2'-9"	3'-9"	6,000
264	16"	50" to 70"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-6"	4,500 to 5,000
			1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	2'-3"	2'-6"	3'-6"	6,000
290	18"	50" to 70"	*	*	*	*	*	*	*	1'-6"	3,000 to 3,500
			*	*	*	1'-0"	1'-3"	1'-3"	1'-6"	2'-3"	4,500 to 5,000
			1'-0"	1'-6"	1'-6"	1'-9"	2'-0"	2'-3"	2'-3"	3'-0"	6,000
317	20"	50" to 70"	*	*	*	*	*	*	*	1'-3"	3,000 to 3,500
			*	*	*	1'-0"	1'-0"	1'-3"	1'-6"	2'-0"	4,500 to 5,000
			1'-0"	1'-3"	1'-6"	1'-9"	1'-9"	2'-0"	2'-3"	2'-9"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49S Bridge Overhang Bracket and Exterior Hanger Spacing

Over 1'-0" to 2'-0" Overhangs on Steel Beams or Girders



Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	14" to 28"	*	*	*	1'-0"	1'-6"	2'-3"	3'-0"	5'-9"	3,000 to 3,500
			1'-9"	2'-6"	3'-3"	3'-9"	4'-6"	5'-3"	6'-0"	8'-0"	4,500 to 5,000
			4'-9"	5'-6"	6'-0"	6'-9"	7'-6"	8'-0"	8'-0"	8'-0"	6,000
157	8"	14" to 28"	*	*	*	*	1'-6"	2'-0"	2'-9"	5'-3"	3,000 to 3,500
			1'-6"	2'-3"	2'-9"	3'-6"	4'-0"	4'-9"	5'-3"	7'-9"	4,500 to 5,000
			4'-3"	4'-9"	5'-6"	6'-0"	6'-9"	7'-3"	8'-0"	8'-0"	6,000
184	10"	14" to 28"	*	*	*	*	1'-3"	1'-9"	2'-6"	4'-9"	3,000 to 3,500
			1'-6"	2'-0"	2'-6"	3'-0"	3'-9"	4'-3"	4'-9"	7'-0"	4,500 to 5,000
			3'-9"	4'-6"	5'-0"	5'-6"	6'-0"	6'-9"	7'-3"	8'-0"	6,000
210	12"	14" to 28"	*	*	*	*	1'-3"	1'-9"	2'-3"	4'-3"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-9"	3'-3"	4'-0"	4'-6"	6'-6"	4,500 to 5,000
			3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	8'-0"	6,000
237	14"	14" to 28"	*	*	*	*	1'-0"	1'-6"	2'-0"	4'-0"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-6"	3'-0"	3'-6"	4'-0"	6'-0"	4,500 to 5,000
			3'-3"	3'-9"	4'-3"	4'-9"	5'-3"	5'-6"	6'-0"	8'-0"	6,000
264	16"	14" to 28"	*	*	*	*	1'-0"	1'-6"	1'-9"	3'-9"	3,000 to 3,500
			1'-0"	1'-6"	2'-0"	2'-6"	2'-9"	3'-3"	3'-9"	5'-6"	4,500 to 5,000
			3'-0"	3'-6"	3'-9"	4'-3"	4'-9"	5'-3"	5'-9"	7'-6"	6,000
290	18"	14" to 28"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	1'-9"	2'-3"	2'-9"	3'-0"	3'-6"	5'-3"	4,500 to 5,000
			2'-9"	3'-3"	3'-6"	4'-0"	4'-6"	4'-9"	5'-3"	7'-0"	6,000
317	20"	14" to 28"	*	*	*	*	*	1'-3"	1'-6"	3'-3"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	3'-0"	3'-3"	4'-9"	4,500 to 5,000
			2'-6"	3'-0"	3'-3"	3'-9"	4'-3"	4'-6"	5'-0"	6'-6"	6,000

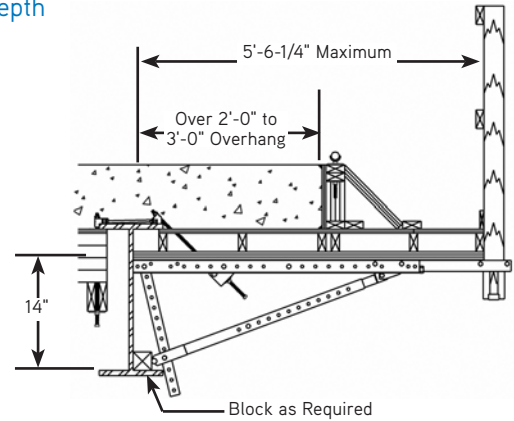
### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.



## C49S Bridge Overhang Bracket and Exterior Hanger Spacing

Over 2'-0" to 3'-0" Overhangs On Steel Beams or Girders, 14" Bracket Depth



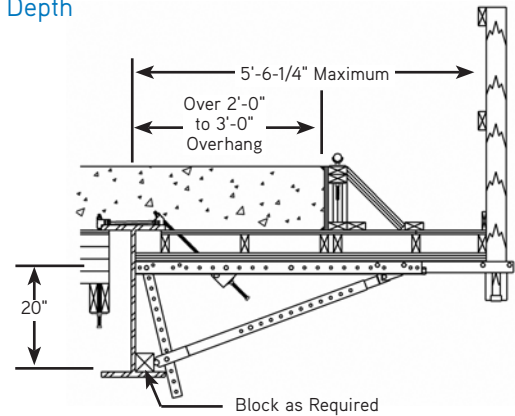
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	14"	*	*	*	*	*	*	1'-0"	3'-6"	3,000 to 3,500
			*	*	*	1'-0"	1'-6"	2'-3"	2'-9"	5'-3"	4,500 to 5,000
			*	*	1'-3"	1'-9"	2'-6"	3'-0"	3'-9"	6'-3"	6,000
157	8"	14"	*	*	*	*	*	*	1'-0"	3'-0"	3,000 to 3,500
			*	*	*	*	1'-6"	2'-0"	2'-6"	4'-9"	4,500 to 5,000
			*	*	1'-0"	1'-9"	2'-3"	2'-9"	3'-6"	5'-9"	6,000
184	10"	14"	*	*	*	*	*	*	*	2'-9"	3,000 to 3,500
			*	*	*	*	1'-3"	1'-9"	2'-3"	4'-3"	4,500 to 5,000
			*	*	1'-0"	1'-6"	2'-0"	2'-6"	3'-3"	5'-3"	6,000
210	12"	14"	*	*	*	*	*	*	*	2'-6"	3,000 to 3,500
			*	*	*	*	1'-3"	1'-6"	2'-0"	3'-9"	4,500 to 5,000
			*	*	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	5'-0"	6,000
237	14"	14"	*	*	*	*	*	*	*	2'-3"	3,000 to 3,500
			*	*	*	*	1'-0"	1'-6"	1'-9"	3'-6"	4,500 to 5,000
			*	*	*	1'-3"	1'-9"	2'-3"	2'-9"	4'-6"	6,000
264	16"	14"	*	*	*	*	*	*	*	2'-0"	3,000 to 3,500
			*	*	*	*	1'-0"	1'-3"	1'-9"	3'-3"	4,500 to 5,000
			*	*	*	1'-3"	1'-9"	2'-0"	2'-6"	4'-3"	6,000
290	18"	14"	*	*	*	*	*	*	*	2'-0"	3,000 to 3,500
			*	*	*	*	*	1'-3"	1'-6"	3'-0"	4,500 to 5,000
			*	*	*	1'-3"	1'-6"	2'-0"	2'-6"	4'-0"	6,000
317	20"	14"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	*	*	*	1'-0"	1'-6"	2'-9"	4,500 to 5,000
			*	*	*	1'-0"	1'-6"	1'-9"	2'-3"	3'-6"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49S Bridge Overhang Bracket and Exterior Hanger Spacing

Over 2'-0" to 3'-0" Overhangs on Steel Beams or Girders — 20" Bracket Depth



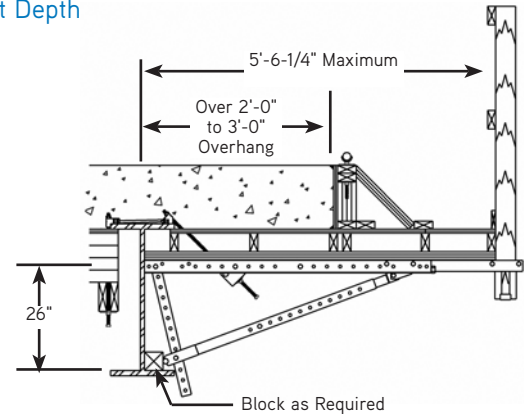
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	20"	*	*	*	*	*	1'-3"	1'-9"	4'-0"	3,000 to 3,500
			*	1'-0"	1'-9"	2'-3"	2'-9"	3'-6"	4'-0"	6'-0"	4,500 to 5,000
			1'-3"	1'-9"	2'-6"	3'-0"	3'-9"	4'-3"	5'-0"	8'-0"	6,000
157	8"	20"	*	*	*	*	*	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			*	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	5'-3"	4,500 to 5,000
			1'-0"	1'-9"	2'-3"	2'-9"	3'-6"	4'-0"	4'-9"	7'-0"	6,000
184	10"	20"	*	*	*	*	*	1'-0"	1'-6"	3'-0"	3,000 to 3,500
			*	*	1'-3"	1'-9"	2'-3"	2'-9"	3'-3"	4'-9"	4,500 to 5,000
			1'-0"	1'-6"	2'-0"	2'-9"	3'-3"	3'-9"	4'-6"	6'-3"	6,000
210	12"	20"	*	*	*	*	*	1'-0"	1'-3"	2'-9"	3,000 to 3,500
			*	*	1'-3"	1'-9"	2'-0"	2'-6"	3'-0"	4'-3"	4,500 to 5,000
			1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	5'-9"	6,000
237	14"	20"	*	*	*	*	*	1'-3"	2'-6"		3,000 to 3,500
			*	*	1'-0"	1'-6"	2'-0"	2'-3"	2'-9"	4'-0"	4,500 to 5,000
			1'-0"	1'-3"	1'-9"	2'-3"	2'-9"	3'-3"	3'-9"	5'-3"	6,000
264	16"	20"	*	*	*	*	*	1'-0"	2'-3"		3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	3'-6"	4,500 to 5,000
			*	1'-3"	1'-9"	2'-3"	2'-6"	3'-0"	3'-6"	4'-9"	6,000
290	18"	20"	*	*	*	*	*	1'-0"	2'-3"		3,000 to 3,500
			*	*	*	1'-3"	1'-6"	1'-9"	2'-3"	3'-3"	4,500 to 5,000
			*	1'-3"	1'-6"	2'-0"	2'-6"	2'-9"	3'-3"	4'-6"	6,000
317	20"	20"	*	*	*	*	*	1'-0"	2'-0"		3,000 to 3,500
			*	*	*	1'-0"	1'-6"	1'-9"	2'-0"	3'-0"	4,500 to 5,000
			*	1'-0"	1'-6"	1'-9"	2'-3"	2'-6"	3'-0"	4'-3"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49S Bridge Overhang Bracket and Exterior Hanger Spacing

Over 2'-0" to 3'-0" Overhangs on Steel Beams or Girders — 26" Bracket Depth



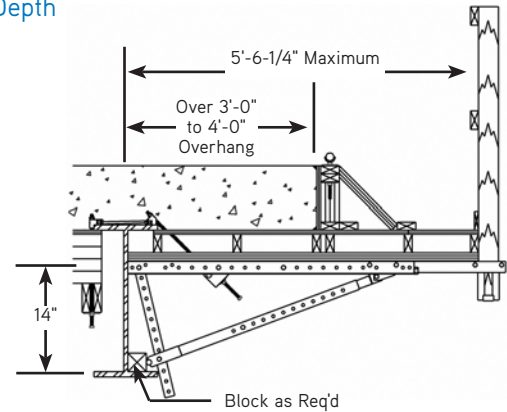
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S1								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
			Bracket "A" Dimension = 8" to 12"								
130	6"	26"	*	*	*	*	1'-0"	1'-6"	2'-0"	4'-0"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-6"	3'-0"	3'-6"	4'-0"	6'-0"	4,500 to 5,000
			3'-3"	3'-9"	4'-3"	4'-6"	5'-0"	5'-6"	6'-0"	8'-0"	6,000
157	8"	26"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	1'-9"	2'-3"	2'-9"	3'-3"	3'-6"	5'-3"	4,500 to 5,000
			2'-9"	3'-3"	3'-9"	4'-0"	4'-6"	5'-0"	5'-3"	7'-0"	6,000
184	10"	26"	*	*	*	*	*	1'-3"	1'-6"	3'-0"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	2'-9"	3'-3"	4'-9"	4,500 to 5,000
			2'-6"	3'-0"	3'-3"	3'-9"	4'-0"	4'-6"	4'-9"	6'-3"	6,000
210	12"	26"	*	*	*	*	*	1'-0"	1'-6"	2'-9"	3,000 to 3,500
			*	1'-3"	1'-6"	1'-9"	2'-3"	2'-6"	3'-0"	4'-3"	4,500 to 5,000
			2'-3"	2'-6"	3'-0"	3'-3"	3'-9"	4'-0"	4'-3"	5'-9"	6,000
237	14"	26"	*	*	*	*	*	1'-0"	1'-3"	2'-6"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-9"	2'-0"	2'-3"	2'-9"	4'-0"	4,500 to 5,000
			2'-0"	2'-6"	2'-9"	3'-0"	3'-3"	3'-9"	4'-0"	5'-3"	6,000
264	16"	26"	*	*	*	*	*	1'-0"	1'-3"	2'-3"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-3"	2'-6"	3'-6"	4,500 to 5,000
			2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	3'-9"	4'-9"	6,000
290	18"	26"	*	*	*	*	*	*	1'-0"	2'-3"	3,000 to 3,500
			*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	3'-3"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-6"	4'-6"	6,000
317	20"	26"	*	*	*	*	*	*	1'-0"	2'-0"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	3'-0"	4,500 to 5,000
			1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	3'-3"	4'-3"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49S Bridge Overhang Bracket and Exterior Hanger Spacing

Over 3'-0" to 4'-0" Overhangs on Steel Beams or Girders — 14" Bracket Depth



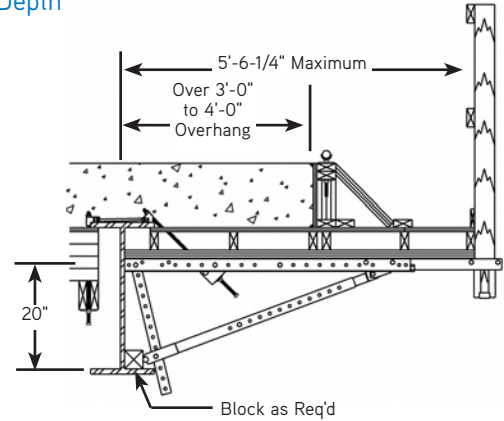
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	14"	*	*	*	*	*	*	*	2'-9"	3,000 to 3,500
			*	*	*	*	*	*	1'-6"	4'-0"	4,500 to 5,000
			*	*	*	*	*	1'-6"	2'-3"	4'-9"	6,000
157	8"	14"	*	*	*	*	*	*	*	2'-3"	3,000 to 3,500
			*	*	*	*	*	*	1'-3"	3'-6"	4,500 to 5,000
			*	*	*	*	*	1'-3"	2'-0"	4'-3"	6,000
184	10"	14"	*	*	*	*	*	*	*	2'-0"	3,000 to 3,500
			*	*	*	*	*	*	1'-3"	3'-3"	4,500 to 5,000
			*	*	*	*	*	1'-3"	1'-9"	3'-9"	6,000
210	12"	14"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	*	*	*	*	1'-0"	2'-9"	4,500 to 5,000
			*	*	*	*	*	1'-0"	1'-6"	3'-6"	6,000
237	14"	14"	*	*	*	*	*	*	*	1'-6"	3,000 to 3,500
			*	*	*	*	*	*	1'-0"	2'-6"	4,500 to 5,000
			*	*	*	*	*	1'-0"	1'-6"	3'-3"	6,000
264	16"	14"	*	*	*	*	*	*	*	1'-6"	3,000 to 3,500
			*	*	*	*	*	*	*	2'-3"	4,500 to 5,000
			*	*	*	*	*	1'-3"	3'-0"	6,000	
290	18"	14"	*	*	*	*	*	*	*	1'-3"	3,000 to 3,500
			*	*	*	*	*	*	*	1'-9"	4,500 to 5,000
			*	*	*	*	*	1'-3"	2'-9"	6,000	
317	20"	14"	*	*	*	*	*	*	*	1'-3"	3,000 to 3,500
			*	*	*	*	*	*	*	1'-9"	4,500 to 5,000
			*	*	*	*	*	1'-0"	2'-6"	6,000	

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49S Bridge Overhang Bracket and Exterior Hanger Spacing

Over 3'-0" to 4'-0" Overhangs on Steel Beams or Girders — 20" Bracket Depth



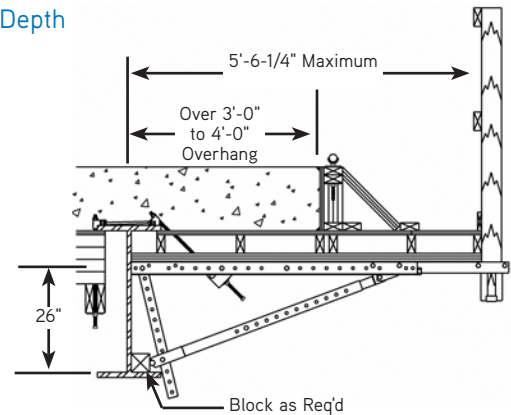
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	20"	*	*	*	*	*	*	*	3'-3"	3,000 to 3,500
			*	*	*	*	1'-3"	1'-9"	2'-6"	5'-0"	4,500 to 5,000
			*	*	*	1'-3"	1'-9"	2'-6"	3'-3"	5'-9"	6,000
157	8"	20"	*	*	*	*	*	*	*	3'-0"	3,000 to 3,500
			*	*	*	*	1'-0"	1'-9"	2'-3"	4'-6"	4,500 to 5,000
			*	*	*	1'-0"	1'-9"	2'-3"	2'-9"	5'-3"	6,000
184	10"	20"	*	*	*	*	*	*	*	2'-6"	3,000 to 3,500
			*	*	*	*	1'-0"	1'-6"	2'-0"	4'-0"	4,500 to 5,000
			*	*	*	1'-0"	1'-6"	2'-0"	2'-6"	4'-9"	6,000
210	12"	20"	*	*	*	*	*	*	*	2'-3"	3,000 to 3,500
			*	*	*	*	*	1'-3"	1'-9"	3'-6"	4,500 to 5,000
			*	*	*	*	1'-3"	1'-9"	2'-3"	4'-3"	6,000
237	14"	20"	*	*	*	*	*	*	*	2'-0"	3,000 to 3,500
			*	*	*	*	*	1'-0"	1'-6"	3'-0"	4,500 to 5,000
			*	*	*	*	1'-3"	1'-6"	2'-0"	3'-9"	6,000
264	16"	20"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	*	*	*	1'-0"	1'-3"	2'-9"	4,500 to 5,000
			*	*	*	*	1'-0"	1'-6"	2'-0"	3'-6"	6,000
290	18"	20"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	*	*	*	*	1'-3"	2'-6"	4,500 to 5,000
			*	*	*	*	1'-0"	1'-6"	1'-9"	3'-3"	6,000
317	20"	20"	*	*	*	*	*	*	*	1'-6"	3,000 to 3,500
			*	*	*	*	*	*	1'-0"	2'-3"	4,500 to 5,000
			*	*	*	*	1'-0"	1'-3"	1'-9"	3'-0"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49S Bridge Overhang Bracket and Exterior Hanger Spacing

Over 3'-0" to 4'-0" Overhangs on Steel Beams or Girders — 26" Bracket Depth



Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>I</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	26"	*	*	*	*	*	*	1'-6"	3'-6"	3,000 to 3,500
			*	*	1'-0"	1'-9"	2'-3"	3'-0"	3'-6"	5'-3"	4,500 to 5,000
			*	*	1'-6"	2'-0"	2'-9"	3'-6"	4'-0"	7'-0"	6,000
157	8"	26"	*	*	*	*	*	*	1'-3"	3'-0"	3,000 to 3,500
			*	*	*	1'-6"	2'-0"	2'-6"	3'-0"	4'-6"	4,500 to 5,000
			*	*	1'-3"	1'-9"	2'-6"	3'-0"	3'-9"	6'-0"	6,000
184	10"	26"	*	*	*	*	*	*	1'-0"	2'-6"	3,000 to 3,500
			*	*	*	1'-3"	1'-9"	2'-3"	2'-9"	4'-0"	4,500 to 5,000
			*	*	1'-0"	1'-9"	2'-3"	2'-9"	3'-3"	5'-3"	6,000
210	12"	26"	*	*	*	*	*	*	1'-0"	2'-3"	3,000 to 3,500
			*	*	*	1'-0"	1'-6"	2'-0"	2'-3"	3'-6"	4,500 to 5,000
			*	*	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	4'-9"	6,000
237	14"	26"	*	*	*	*	*	*	*	2'-0"	3,000 to 3,500
			*	*	*	1'-0"	1'-3"	1'-9"	2'-0"	3'-3"	4,500 to 5,000
			*	*	1'-0"	1'-3"	1'-9"	2'-3"	2'-9"	4'-3"	6,000
264	16"	26"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	*	*	1'-3"	1'-6"	2'-0"	2'-9"	4,500 to 5,000
			*	*	*	1'-3"	1'-9"	2'-0"	2'-6"	3'-9"	6,000
290	18"	26"	*	*	*	*	*	*	*	1'-9"	3,000 to 3,500
			*	*	*	*	1'-0"	1'-6"	1'-9"	2'-6"	4,500 to 5,000
			*	*	*	1'-3"	1'-6"	2'-0"	2'-3"	3'-6"	6,000
317	20"	26"	*	*	*	*	*	*	*	1'-6"	3,000 to 3,500
			*	*	*	*	1'-0"	1'-3"	1'-6"	2'-6"	4,500 to 5,000
			*	*	*	1'-0"	1'-6"	1'-9"	2'-0"	3'-3"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

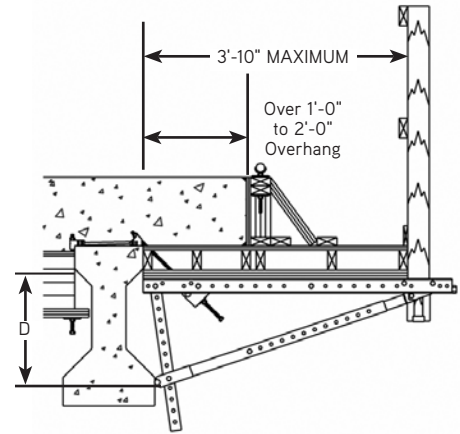
## C49S Bridge Overhang Bracket and Exterior Hanger Spacing

Over 1'-0" To 2'-0" Overhangs on Precast/Prestressed Concrete Girders

### C49S Bracket With Hanger and Concrete Beam Concrete Box Beam

Over 1'-0" to 2'-0" Overhang — Forming 3/4" plywood, 3-1/2" joist and 2x nailer on flat

Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S1								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	14"	*	*	*	*	*	1'-1"	1'-9"	4'-7"	3,000 to 3,500
			*	*	*	*	*	2'-2"	3'-4"	6'-11"	4,500 to 5,000
			*	*	*	*	*	2'-2"	3'-4"	8'-0"	6,000
130	6"	20"	*	*	*	*	1'-4"	1'-11"	2'-6"	4'-9"	3,000 to 3,500
			*	*	2'-0"	3'-2"	3'-9"	4'-4"	4'-10"	7'-1"	4,500 to 5,000
			*	*	2'-0"	3'-3"	4'-5"	5'-8"	6'-10"	8'-0"	6,000
130	6"	26"	*	*	*	*	1'-4"	1'-11"	2'-6"	4'-9"	3,000 to 3,500
			1'-6"	2'-1"	2'-7"	3'-2"	3'-9"	4'-4"	4'-10"	7'-1"	4,500 to 5,000
			2'-9"	4'-0"	5'-0"	5'-7"	6'-1"	6'-8"	7'-3"	8'-0"	6,000
157	8"	14"	*	*	*	*	*	*	1'-7"	4'-2"	3,000 to 3,500
			*	*	*	*	*	2'-0"	3'-1"	6'-4"	4,500 to 5,000
			*	*	*	*	*	2'-0"	3'-1"	7'-7"	6,000
157	8"	20"	*	*	*	*	1'-2"	1'-8"	2'-2"	4'-3"	3,000 to 3,500
			*	*	1'-11"	2'-10"	3'-4"	3'-10"	4'-4"	6'-4"	4,500 to 5,000
			*	*	1'-11"	3'-0"	4'-2"	5'-4"	6'-5"	8'-0"	6,000
157	8"	26"	*	*	*	*	1'-2"	1'-8"	2'-2"	4'-3"	3,000 to 3,500
			1'-4"	1'-10"	2'-4"	2'-10"	3'-4"	3'-10"	4'-4"	6'-4"	4,500 to 5,000
			2'-7"	3'-9"	4'-5"	4'-11"	5'-5"	5'-11"	6'-6"	8'-0"	6,000
183	10"	14"	*	*	*	*	*	*	1'-5"	3'-9"	3,000 to 3,500
			*	*	*	*	*	1'-10"	2'-11"	5'-8"	4,500 to 5,000
			*	*	*	*	*	1'-10"	2'-11"	7'-1"	6,000
183	10"	20"	*	*	*	*	1'-1"	1'-6"	2'-0"	3'-10"	3,000 to 3,500
			*	*	1'-9"	2'-7"	3'-0"	3'-5"	3'-11"	5'-9"	4,500 to 5,000
			*	*	1'-9"	2'-10"	3'-10"	4'-11"	5'-10"	7'-8"	6,000
183	10"	26"	*	*	*	*	1'-1"	1'-6"	2'-0"	3'-10"	3,000 to 3,500
			1'-2"	1'-8"	2'-1"	2'-7"	3'-0"	3'-5"	3'-11"	5'-9"	4,500 to 5,000
			2'-5"	3'-6"	4'-0"	4'-6"	4'-11"	5'-5"	5'-10"	7'-8"	6,000
210	12"	14"	*	*	*	*	*	*	1'-4"	3'-5"	3,000 to 3,500
			*	*	*	*	*	1'-9"	2'-8"	5'-2"	4,500 to 5,000
			*	*	*	*	*	1'-9"	2'-8"	6'-6"	6,000
210	12"	20"	*	*	*	*	1'-0"	1'-5"	1'-10"	3'-6"	3,000 to 3,500
			*	*	1'-8"	2'-4"	2'-9"	3'-2"	3'-7"	5'-3"	4,500 to 5,000
			*	*	1'-8"	2'-7"	3'-7"	4'-7"	5'-4"	7'-0"	6,000
210	12"	26"	*	*	*	*	1'-0"	1'-5"	1'-10"	3'-6"	3,000 to 3,500
			1'-1"	1'-6"	1'-11"	2'-4"	2'-9"	3'-2"	3'-7"	5'-3"	4,500 to 5,000
			2'-3"	3'-3"	3'-8"	4'-1"	4'-6"	4'-11"	5'-4"	7'-0"	6,000
237	14"	14"	*	*	*	*	*	*	1'-2"	3'-1"	3,000 to 3,500
			*	*	*	*	*	1'-7"	2'-6"	4'-8"	4,500 to 5,000
			*	*	*	*	*	1'-7"	2'-6"	5'-11"	6,000
237	14"	20"	*	*	*	*	*	1'-3"	1'-8"	3'-2"	3,000 to 3,500
			*	*	1'-6"	2'-2"	2'-6"	2'-11"	3'-3"	4'-9"	4,500 to 5,000
			*	*	1'-6"	2'-5"	3'-4"	4'-2"	4'-11"	6'-5"	6,000
237	14"	26"	*	*	*	*	*	1'-3"	1'-8"	3'-2"	3,000 to 3,500
			1'-0"	1'-4"	1'-9"	2'-2"	2'-6"	2'-11"	3'-3"	4'-9"	4,500 to 5,000
			2'-1"	3'-0"	3'-4"	3'-9"	4'-1"	4'-6"	4'-11"	6'-5"	6,000
263	16"	14"	*	*	*	*	*	*	1'-1"	2'-9"	3,000 to 3,500
			*	*	*	*	*	1'-5"	2'-3"	4'-2"	4,500 to 5,000
			*	*	*	*	*	1'-5"	2'-3"	5'-4"	6,000
263	16"	20"	*	*	*	*	*	1'-2"	1'-6"	2'-11"	3,000 to 3,500
			*	*	1'-4"	2'-0"	2'-4"	2'-8"	3'-0"	4'-5"	4,500 to 5,000
			*	*	1'-4"	2'-2"	3'-0"	3'-10"	4'-6"	5'-11"	6,000
263	16"	24"	*	*	*	*	*	1'-2"	1'-6"	2'-11"	3,000 to 3,500
			*	1'-3"	1'-7"	2'-0"	2'-4"	2'-8"	3'-0"	4'-5"	4,500 to 5,000
			1'-11"	2'-8"	3'-1"	3'-5"	3'-10"	4'-2"	4'-6"	5'-11"	6,000
290	18"	14"	*	*	*	*	*	*	*	2'-6"	3,000 to 3,500
			*	*	*	*	*	1'-4"	2'-1"	3'-9"	4,500 to 5,000
			*	*	*	*	*	1'-4"	2'-1"	4'-10"	6,000
290	18"	20"	*	*	*	*	*	1'-1"	1'-5"	2'-9"	3,000 to 3,500
			*	*	1'-3"	1'-10"	2'-2"	2'-6"	2'-10"	4'-1"	4,500 to 5,000
			*	*	1'-3"	2'-0"	2'-9"	3'-6"	4'-2"	5'-6"	6,000
290	18"	26"	*	*	*	*	*	1'-1"	1'-5"	2'-9"	3,000 to 3,500
			*	1'-2"	1'-6"	1'-10"	2'-2"	2'-6"	2'-10"	4'-1"	4,500 to 5,000
			1'-9"	2'-6"	2'-11"	3'-3"	3'-6"	3'-10"	4'-2"	5'-6"	6,000
317	20"	14"	*	*	*	*	*	*	*	2'-3"	3,000 to 3,500
			*	*	*	*	*	1'-2"	1'-10"	3'-5"	4,500 to 5,000
			*	*	*	*	*	1'-2"	1'-10"	4'-4"	6,000
317	20"	20"	*	*	*	*	*	1'-0"	1'-4"	2'-7"	3,000 to 3,500
			*	*	1'-2"	1'-8"	2'-0"	2'-4"	2'-7"	3'-10"	4,500 to 5,000
			*	*	1'-2"	1'-10"	2'-6"	3'-2"	3'-10"	5'-2"	6,000
317	20"	26"	*	*	*	*	*	1'-0"	1'-4"	2'-7"	3,000 to 3,500
			*	1'-1"	1'-5"	1'-8"	2'-0"	2'-4"	2'-7"	3'-10"	4,500 to 5,000
			1'-7"	2'-3"	2'-8"	3'-0"	3'-4"	3'-7"	3'-11"	5'-2"	6,000



#### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 pcf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.



## C49S Bridge Overhang Bracket and Exterior Hanger Spacing

Over 2'-0" to 3'-0" Overhangs on Precast/Prestressed Concrete Girders

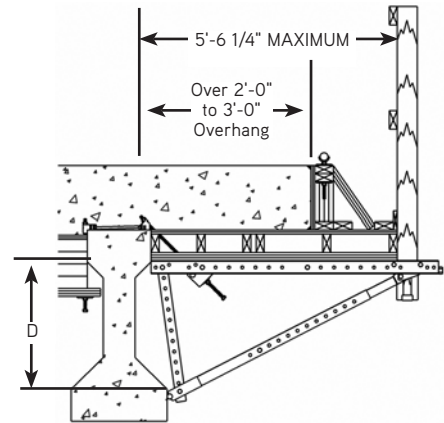
### C49S Bracket With Hanger and Concrete Beam Concrete Box Beam

Overhang 2'-0" to 3'-0" Overhang — Forming 3/4" ply., 3-1/2" joist and 2x nailer on flat

Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S1								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	14"	*	*	*	*	*	*	*	3'-5"	3,000 to 3,500
			*	*	*	*	*	*	*	5'-2"	4,500 to 5,000
			*	*	*	*	*	*	*	5'-3"	6,000
130	6"	20"	*	*	*	*	*	*	1'-4"	4'-0"	3,000 to 3,500
			*	*	*	*	*	2'-0"	3'-2"	6'-0"	4,500 to 5,000
			*	*	*	*	*	2'-0"	3'-2"	7'-11"	6,000
130	6"	26"	*	*	*	*	*	1'-7"	2'-1"	4'-0"	3,000 to 3,500
			*	*	*	1'-9"	3'-0"	3'-8"	4'-1"	6'-0"	4,500 to 5,000
			*	*	*	1'-9"	3'-0"	4'-2"	5'-4"	8'-0"	6,000
157	8"	14"	*	*	*	*	*	*	*	3'-0"	3,000 to 3,500
			*	*	*	*	*	*	*	4'-6"	4,500 to 5,000
			*	*	*	*	*	*	*	4'-8"	6,000
157	8"	20"	*	*	*	*	*	*	1'-2"	3'-6"	3,000 to 3,500
			*	*	*	*	*	1'-9"	2'-10"	5'-3"	4,500 to 5,000
			*	*	*	*	*	1'-9"	2'-10"	7'-0"	6,000
157	8"	26"	*	*	*	*	*	1'-4"	1'-10"	3'-6"	3,000 to 3,500
			*	*	*	1'-7"	2'-8"	3'-2"	3'-7"	5'-3"	4,500 to 5,000
			*	*	*	1'-7"	2'-8"	3'-9"	4'-9"	7'-0"	6,000
183	10"	14"	*	*	*	*	*	*	*	2'-8"	3,000 to 3,500
			*	*	*	*	*	*	*	4'-0"	4,500 to 5,000
			*	*	*	*	*	*	*	4'-2"	6,000
183	10"	20"	*	*	*	*	*	1'-0"	3'-1"	3,000 to 3,500	
			*	*	*	*	*	1'-7"	2'-7"	4'-7"	4,500 to 5,000
			*	*	*	*	*	1'-7"	2'-7"	6'-2"	6,000
183	10"	26"	*	*	*	*	*	1'-2"	1'-7"	3'-1"	3,000 to 3,500
			*	*	*	1'-5"	2'-5"	2'-9"	3'-2"	4'-7"	4,500 to 5,000
			*	*	*	1'-5"	2'-5"	3'-4"	4'-4"	6'-2"	6,000
210	12"	14"	*	*	*	*	*	*	*	2'-4"	3,000 to 3,500
			*	*	*	*	*	*	*	3'-6"	4,500 to 5,000
			*	*	*	*	*	*	*	3'-9"	6,000
210	12"	20"	*	*	*	*	*	*	2'-9"	3,000 to 3,500	
			*	*	*	*	*	1'-5"	2'-4"	4'-1"	4,500 to 5,000
			*	*	*	*	*	1'-5"	2'-4"	5'-6"	6,000
210	12"	26"	*	*	*	*	*	1'-0"	1'-5"	2'-9"	3,000 to 3,500
			*	*	*	1'-4"	2'-2"	2'-6"	2'-10"	4'-1"	4,500 to 5,000
			*	*	*	1'-4"	2'-2"	3'-0"	3'-10"	5'-6"	6,000
237	14"	14"	*	*	*	*	*	*	*	2'-1"	3,000 to 3,500
			*	*	*	*	*	*	*	3'-2"	4,500 to 5,000
			*	*	*	*	*	*	*	3'-5"	6,000
237	14"	20"	*	*	*	*	*	*	*	2'-6"	3,000 to 3,500
			*	*	*	*	*	1'-4"	2'-1"	3'-9"	4,500 to 5,000
			*	*	*	*	*	1'-4"	2'-1"	5'-0"	6,000
237	14"	26"	*	*	*	*	*	*	1'-3"	2'-6"	3,000 to 3,500
			*	*	*	1'-2"	1'-11"	2'-3"	2'-6"	3'-9"	4,500 to 5,000
			*	*	*	1'-2"	1'-11"	2'-9"	3'-6"	5'-0"	6,000
263	16"	14"	*	*	*	*	*	*	*	1'-11"	3,000 to 3,500
			*	*	*	*	*	*	*	2'-10"	4,500 to 5,000
			*	*	*	*	*	*	*	3'-1"	6,000
263	16"	20"	*	*	*	*	*	*	2'-3"	3,000 to 3,500	
			*	*	*	*	*	1'-2"	1'-11"	3'-5"	4,500 to 5,000
			*	*	*	*	*	1'-2"	1'-11"	4'-7"	6,000
263	16"	24"	*	*	*	*	*	*	1'-2"	2'-3"	3,000 to 3,500
			*	*	*	1'-1"	1'-9"	2'-1"	2'-4"	3'-5"	4,500 to 5,000
			*	*	*	1'-1"	1'-9"	2'-6"	3'-2"	4'-7"	6,000
290	18"	14"	*	*	*	*	*	*	*	1'-8"	3,000 to 3,500
			*	*	*	*	*	*	*	2'-7"	4,500 to 5,000
			*	*	*	*	*	*	*	2'-9"	6,000
290	18"	20"	*	*	*	*	*	*	2'-1"	3,000 to 3,500	
			*	*	*	*	*	1'-1"	1'-8"	3'-1"	4,500 to 5,000
			*	*	*	*	*	1'-1"	1'-9"	4'-2"	6,000
290	18"	26"	*	*	*	*	*	1'-1"	2'-1"	3,000 to 3,500	
			*	*	*	1'-7"	1'-11"	2'-2"	3'-1"	4,500 to 5,000	
			*	*	*	1'-7"	2'-3"	2'-11"	4'-2"	6,000	
317	20"	14"	*	*	*	*	*	*	*	1'-6"	3,000 to 3,500
			*	*	*	*	*	*	*	2'-4"	4,500 to 5,000
			*	*	*	*	*	*	*	2'-6"	6,000
317	20"	20"	*	*	*	*	*	*	1'-11"	3,000 to 3,500	
			*	*	*	*	*	1'-0"	1'-6"	2'-10"	4,500 to 5,000
			*	*	*	*	*	1'-0"	1'-7"	3'-10"	6,000
317	20"	26"	*	*	*	*	*	*	1'-11"	3,000 to 3,500	
			*	*	*	1'-5"	1'-9"	2'-0"	2'-11"	4,500 to 5,000	
			*	*	*	1'-5"	2'-0"	2'-7"	3'-10"	6,000	

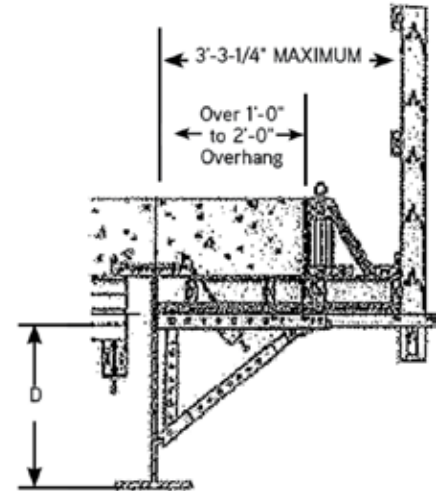
#### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.



## C49JR Bridge Overhang Bracket and Exterior Hanger Spacing

Over 1'-0" To 2'-0" Overhangs on Steel Beams or Girders



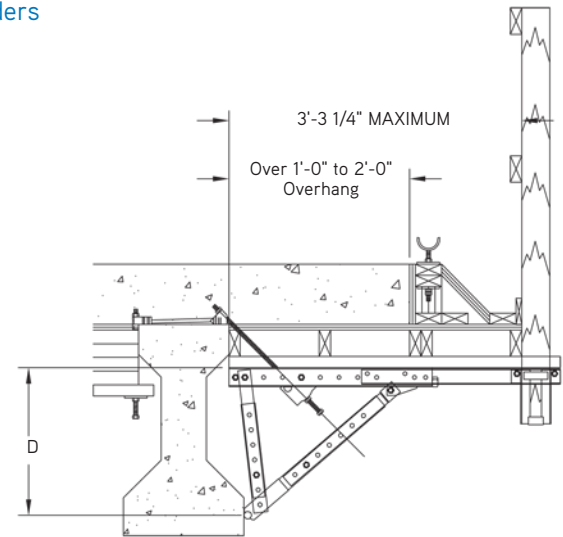
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	16" to 28"	*	*	*	1'-0"	1'-9"	2'-6"	3'-3"	6'-0"	3,000 to 3,500
			1'-9"	2'-9"	3'-6"	4'-3"	4'-9"	5'-6"	6'-0"	8'-0"	4,500 to 5,000
			5'-0"	5'-9"	6'-6"	7'-3"	8'-0"	8'-0"	8'-0"	8'-0"	6,000
157	8"	16" to 28"	*	*	*	*	1'-6"	2'-3"	2'-9"	5'-6"	3,000 to 3,500
			1'-9"	2'-3"	3'-0"	3'-9"	4'-3"	5'-0"	5'-9"	8'-0"	4,500 to 5,000
			4'-6"	5'-0"	5'-9"	6'-6"	7'-3"	7'-6"	8'-0"	8'-0"	6,000
184	10"	16" to 28"	*	*	*	*	1'-3"	2'-0"	2'-6"	5'-0"	3,000 to 3,500
			1'-6"	2'-0"	2'-9"	3'-3"	4'-0"	4'-6"	5'-0"	7'-6"	4,500 to 5,000
			4'-0"	4'-9"	5'-3"	5'-9"	6'-6"	7'-0"	7'-9"	8'-0"	6,000
210	12"	16" to 28"	*	*	*	*	1'-3"	1'-9"	2'-3"	4'-6"	3,000 to 3,500
			1'-3"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-9"	6'-9"	4,500 to 5,000
			3'-6"	4'-3"	4'-9"	5'-3"	6'-0"	6'-6"	7'-0"	8'-0"	6,000
237	14"	16" to 28"	*	*	*	*	1'-0"	1'-6"	2'-0"	4'-3"	3,000 to 3,500
			1'-3"	1'-9"	2'-3"	2'-9"	3'-3"	3'-9"	4'-3"	6'-9"	4,500 to 5,000
			3'-3"	3'-9"	4'-3"	4'-9"	5'-3"	5'-9"	6'-3"	8'-0"	6,000
264	16"	16" to 28"	*	*	*	*	1'-0"	1'-6"	2'-0"	3'-9"	3,000 to 3,500
			1'-3"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	5'-9"	4,500 to 5,000
			3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-3"	5'-9"	7'-9"	6,000
290	18"	16" to 28"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-6"	3,000 to 3,500
			1'-0"	1'-6"	2'-0"	2'-3"	2'-9"	3'-3"	3'-6"	5'-3"	4,500 to 5,000
			2'-9"	3'-3"	3'-9"	4'-3"	4'-6"	5'-0"	5'-6"	7'-3"	6,000
317	20"	16" to 28"	*	*	*	*	*	1'-3"	1'-9"	3'-3"	3,000 to 3,500
			1'-0"	1'-3"	1'-9"	2'-3"	2'-6"	3'-0"	3'-3"	5'-0"	4,500 to 5,000
			2'-9"	3'-0"	3'-6"	3'-9"	4'-3"	4'-9"	5'-0"	6'-9"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49JR Bridge Overhang Bracket and Exterior Hanger Spacing

Over 1'-0" to 2'-0" Overhangs on Precast/Prestressed Concrete Girders



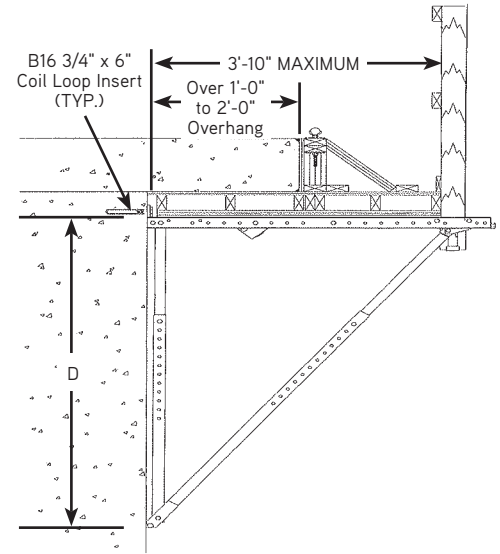
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	16" to 28"	*	*	*	*	1'-0"	2'-0"	2'-9"	5'-3"	3,000 to 3,500
			*	1'-6"	2'-6"	3'-6"	4'-0"	4'-9"	5'-3"	7'-9"	4,500 to 5,000
			*	1'-6"	2'-6"	3'-6"	4'-9"	6'-0"	7'-0"	8'-0"	6,000
157	8"	16" to 28"	*	*	*	*	*	1'-9"	2'-3"	4'-6"	3,000 to 3,500
			*	1'-3"	2'-3"	3'-0"	3'-6"	4'-3"	4'-9"	7'-0"	4,500 to 5,000
			*	1'-6"	2'-3"	3'-3"	4'-3"	5'-6"	6'-6"	8'-0"	6,000
184	10"	16" to 28"	*	*	*	*	*	1'-6"	2'-0"	4'-0"	3,000 to 3,500
			*	1'-3"	1'-9"	2'-6"	3'-3"	3'-9"	4'-3"	6'-3"	4,500 to 5,000
			*	1'-3"	2'-3"	3'-0"	4'-0"	5'-0"	6'-0"	8'-0"	6,000
210	12"	16" to 28"	*	*	*	*	*	1'-3"	2'-0"	3'-9"	3,000 to 3,500
			*	1'-0"	1'-9"	2'-3"	3'-0"	3'-3"	3'-9"	5'-6"	4,500 to 5,000
			*	1'-3"	2'-0"	2'-9"	3'-6"	4'-6"	5'-3"	7'-6"	6,000
237	14"	16" to 28"	*	*	*	*	*	1'-0"	1'-9"	3'-3"	3,000 to 3,500
			*	*	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	5'-0"	4,500 to 5,000
			*	1'-0"	1'-9"	2'-6"	3'-3"	4'-0"	4'-9"	6'-9"	6,000
264	16"	16" to 28"	*	*	*	*	*	1'-0"	1'-6"	3'-0"	3,000 to 3,500
			*	*	1'-3"	1'-9"	2'-3"	2'-9"	3'-3"	4'-9"	4,500 to 5,000
			*	1'-0"	1'-6"	2'-3"	3'-0"	3'-6"	4'-3"	6'-3"	6,000
290	18"	16" to 28"	*	*	*	*	*	*	1'-3"	2'-9"	3,000 to 3,500
			*	*	1'-0"	1'-6"	2'-0"	2'-6"	2'-9"	4'-3"	4,500 to 5,000
			*	1'-0"	1'-6"	2'-0"	2'-9"	3'-3"	3'-9"	5'-9"	6,000
317	20"	16" to 28"	*	*	*	*	*	*	1'-0"	2'-6"	3,000 to 3,500
			*	*	1'-0"	1'-3"	1'-9"	2'-0"	2'-6"	4'-0"	4,500 to 5,000
			*	*	1'-3"	1'-9"	2'-6"	3'-0"	3'-6"	5'-3"	6,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49 / C49D Bridge Overhang Brackets with C51 Wall Plate Assembly

Over 1'-0" To 2'-0" Overhangs on Concrete Walls and Box Beams



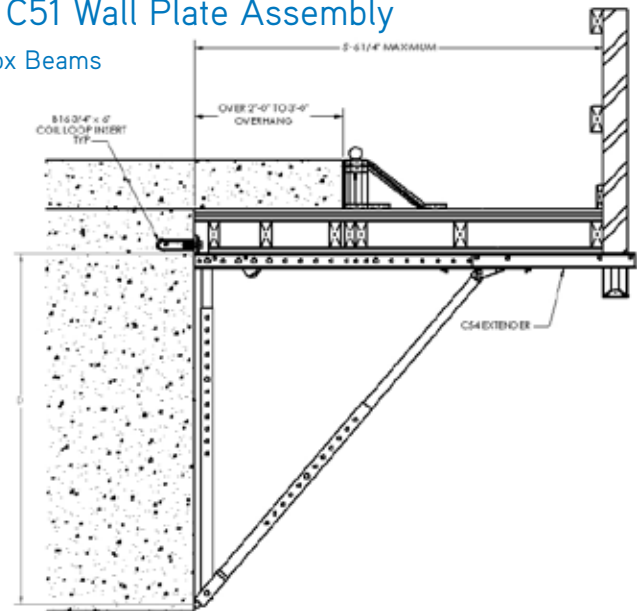
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>							
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.
130	6"	30" to 70"	3'-0"	4'-0"	4'-6"	5'-0"	5'-9"	6'-3"	7'-0"	8'-0"
157	8"	30" to 70"	2'-9"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-3"	8'-0"
184	10"	30" to 70"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	7'-6"
210	12"	30" to 70"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	6'-9"
237	14"	30" to 70"	2'-0"	2'-3"	2'-9"	3'-3"	3'-6"	4'-0"	4'-3"	6'-0"
264	16"	30" to 70"	1'-9"	2'-3"	2'-6"	2'-9"	3'-3"	3'-6"	4'-0"	5'-6"
290	18"	30" to 70"	1'-6"	2'-0"	2'-3"	2'-6"	3'-0"	3'-3"	3'-6"	5'-0"
317	20"	30" to 70"	1'-6"	1'-9"	2'-0"	2'-6"	2'-9"	3'-0"	3'-3"	4'-6"

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49 / C49D Bridge Overhang Brackets with C51 Wall Plate Assembly

Up to Over 2'-0" to 3'-0" Overhangs on Concrete Walls and Box Beams



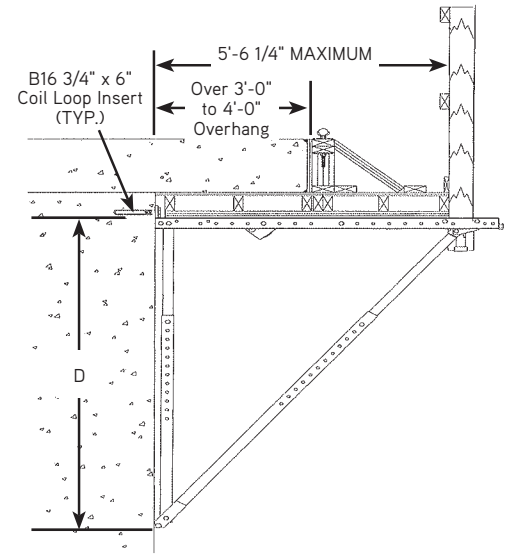
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = Si							
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.
130	6"	30"	*	*	*	*	1'-3"	2'-0"	2'-9"	5'-6"
		40"	1'-0"	1'-6"	2'-3"	2'-9"	3'-3"	4'-0"	4'-6"	6'-9"
		50" to 70"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	6'-9"
157	8"	30"	*	*	*	*	1'-3"	2'-0"	2'-6"	5'-0"
		40"	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	5'-9"
		50" to 70"	1'-9"	2'-3"	2'-9"	3'-3"	3'-6"	4'-0"	4'-3"	5'-9"
183	10"	30"	*	*	*	*	1'-0"	1'-9"	2'-3"	4'-6"
		40"	*	1'-3"	1'-9"	2'-3"	2'-9"	3'-3"	3'-9"	5'-3"
		50" to 70"	1'-6"	2'-0"	2'-6"	2'-9"	3'-3"	3'-6"	3'-9"	5'-3"
210	12"	30"	*	*	*	*	1'-0"	1'-6"	2'-0"	4'-0"
		40"	*	1'-3"	1'-9"	2'-0"	2'-6"	3'-0"	3'-3"	4'-9"
		50" to 70"	1'-6"	2'-0"	2'-3"	2'-6"	3'-0"	3'-3"	3'-6"	4'-9"
237	14"	30"	*	*	*	*	*	1'-3"	1'-9"	3'-9"
		40"	*	1'-0"	1'-6"	2'-0"	2'-3"	2'-9"	3'-0"	4'-3"
		50" to 70"	1'-3"	1'-9"	2'-0"	2'-3"	2'-6"	3'-0"	3'-3"	4'-3"
263	16"	30"	*	*	*	*	*	1'-3"	1'-6"	3'-3"
		40"	*	1'-0"	1'-6"	1'-9"	2'-3"	2'-6"	2'-9"	4'-0"
		50" to 70"	1'-3"	1'-6"	2'-0"	2'-3"	2'-6"	2'-9"	3'-0"	4'-0"
290	18"	30"	*	*	*	*	*	1'-0"	1'-3"	2'-9"
		40"	*	1'-0"	1'-3"	1'-9"	2'-0"	2'-3"	2'-6"	3'-6"
		50" to 70"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	3'-6"
317	20"	30"	*	*	*	*	*	1'-0"	1'-3"	2'-6"
		40"	*	*	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	3'-3"
		50" to 70"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	3'-3"

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49 / C49D Bridge Overhang Brackets with C51 Wall Plate Assembly

Over 3'-0" to 4'-0" Overhangs On Concrete Walls and Box Beams



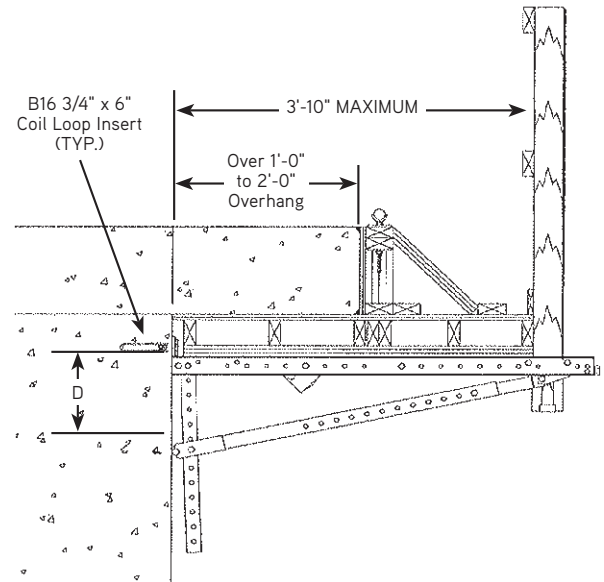
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>							
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.
130	6"	30"	*	*	*	*	*	*	1'-0"	4'-0"
		40"	*	*	*	1'-3"	1'-9"	2'-6"	3'-0"	5'-6"
		50" to 70"	*	*	1'-3"	2'-0"	2'-6"	3'-3"	3'-9"	5'-9"
157	8"	30"	*	*	*	*	*	*	*	3'-6"
		40"	*	*	*	1'-0"	1'-6"	2'-0"	2'-9"	4'-9"
		50" to 70"	*	*	1'-3"	1'-9"	2'-3"	2'-9"	3'-3"	5'-0"
183	10"	30"	*	*	*	*	*	*	*	3'-3"
		40"	*	*	*	*	1'-3"	1'-9"	2'-3"	4'-3"
		50" to 70"	*	*	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	4'-6"
210	12"	30"	*	*	*	*	*	*	*	2'-9"
		40"	*	*	*	*	1'-3"	1'-9"	2'-0"	3'-9"
		50" to 70"	*	*	1'-0"	1'-3"	1'-9"	2'-3"	2'-9"	4'-0"
237	14"	30"	*	*	*	*	*	*	*	2'-6"
		40"	*	*	*	*	1'-0"	1'-6"	2'-0"	3'-6"
		50" to 70"	*	*	*	1'-3"	1'-6"	2'-0"	2'-6"	3'-6"
263	16"	30"	*	*	*	*	*	*	*	2'-3"
		40"	*	*	*	*	1'-0"	1'-3"	1'-9"	3'-0"
		50" to 70"	*	*	*	1'-0"	1'-6"	1'-9"	2'-3"	3'-3"
290	18"	30"	*	*	*	*	*	*	*	2'-0"
		40"	*	*	*	*	*	1'-3"	1'-6"	2'-9"
		50" to 70"	*	*	*	1'-0"	1'-3"	1'-9"	2'-0"	3'-0"
317	20"	30"	*	*	*	*	*	*	*	1'-9"
		40"	*	*	*	*	*	1'-0"	1'-6"	2'-6"
		50" to 70"	*	*	*	1'-0"	1'-3"	1'-6"	1'-9"	2'-9"

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49S Bridge Overhang Brackets with C51 Wall Plate Assembly

Over 1'-0" to 2'-0" Overhangs on Concrete Walls and Box Beams



Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>							
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.
130	6"	14"	*	*	*	*	*	*	*	3'-6"
		20"	*	*	*	*	1'-3"	2'-0"	3'-0"	6'-9"
		26"	1'-9"	2'-9"	3'-6"	4'-3"	5'-0"	5'-6"	6'-3"	8'-0"
157	8"	14"	*	*	*	*	*	*	*	3'-3"
		20"	*	*	*	*	1'-0"	1'-9"	2'-9"	6'-0"
		26"	1'-6"	2'-6"	3'-3"	3'-9"	4'-3"	5'-0"	5'-6"	8'-0"
184	10"	14"	*	*	*	*	*	*	*	2'-9"
		20"	*	*	*	*	1'-0"	1'-6"	2'-3"	5'-3"
		26"	1'-3"	2'-0"	2'-9"	3'-6"	4'-0"	4'-6"	5'-0"	7'-0"
210	12"	14"	*	*	*	*	*	*	*	2'-6"
		20"	*	*	*	*	*	1'-6"	2'-0"	4'-6"
		26"	1'-0"	1'-9"	2'-3"	3'-0"	3'-6"	4'-0"	4'-6"	6'-3"
237	14"	14"	*	*	*	*	*	*	*	2'-3"
		20"	*	*	*	*	*	1'-3"	1'-9"	4'-0"
		26"	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	5'-9"
264	16"	14"	*	*	*	*	*	*	*	2'-0"
		20"	*	*	*	*	*	1'-0"	1'-6"	3'-6"
		26"	*	1'-3"	1'-9"	2'-0"	2'-6"	3'-0"	3'-6"	5'-3"
290	18"	14"	*	*	*	*	*	*	*	1'-9"
		20"	*	*	*	*	*	*	1'-3"	3'-0"
		26"	*	*	1'-3"	1'-9"	2'-3"	2'-6"	3'-0"	4'-6"
317	20"	14"	*	*	*	*	*	*	*	1'-6"
		20"	*	*	*	*	*	*	1'-0"	2'-6"
		26"	*	*	1'-3"	1'-6"	1'-9"	2'-3"	2'-6"	3'-9"

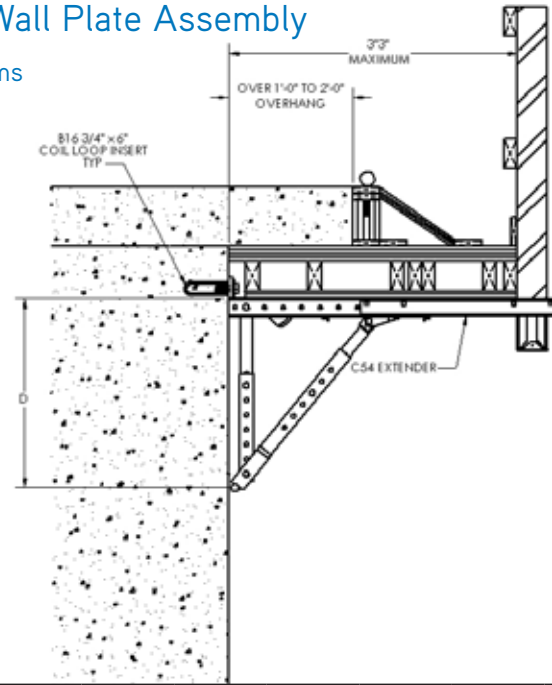
### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.



## C49JR Bridge Overhang Brackets with C51 Wall Plate Assembly

Over 1'-0" to 2'-0" Overhangs on Concrete Walls and Box Beams



Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>							
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.
130	6"	16"	*	*	*	*	*	*	1'-0"	5'-0"
		22"	*	*	*	1'-3"	2'-3"	3'-0"	4'-0"	7'-6"
		28"	*	*	1'-3"	2'-3"	3'-0"	4'-0"	4'-9"	8'-0"
157	8"	16"	*	*	*	*	*	*	1'-0"	4'-6"
		22"	*	*	*	1'-3"	2'-0"	2'-9"	3'-6"	6'-9"
		28"	*	*	1'-3"	2'-0"	2'-9"	3'-6"	4'-6"	7'-6"
184	10"	16"	*	*	*	*	*	*	*	4'-0"
		22"	*	*	*	1'-0"	1'-9"	2'-6"	3'-3"	6'-0"
		28"	*	*	1'-0"	1'-9"	2'-6"	3'-3"	4'-0"	6'-9"
210	12"	16"	*	*	*	*	*	*	*	3'-6"
		22"	*	*	*	1'-0"	1'-6"	2'-9"	3'-0"	5'-6"
		28"	*	*	1'-0"	1'-9"	2'-3"	3'-0"	3'-6"	6'-3"
237	14"	16"	*	*	*	*	*	*	*	3'-0"
		22"	*	*	*	*	1'-6"	2'-0"	2'-9"	5'-0"
		28"	*	*	1'-0"	1'-6"	2'-0"	2'-9"	3'-3"	5'-9"
264	16"	16"	*	*	*	*	*	*	*	2'-6"
		22"	*	*	*	*	1'-3"	1'-9"	2'-3"	4'-3"
		28"	*	*	*	1'-3"	1'-9"	2'-6"	3'-0"	5'-0"
290	18"	16"	*	*	*	*	*	*	*	2'-3"
		22"	*	*	*	*	1'-0"	1'-6"	2'-0"	3'-6"
		28"	*	*	*	1'-3"	1'-9"	2'-3"	2'-9"	4'-9"
317	20"	16"	*	*	*	*	*	*	*	2'-0"
		22"	*	*	*	*	*	1'-3"	1'-6"	3'-0"
		28"	*	*	*	1'-0"	1'-6"	2'-0"	2'-6"	4'-3"

### NOTES:

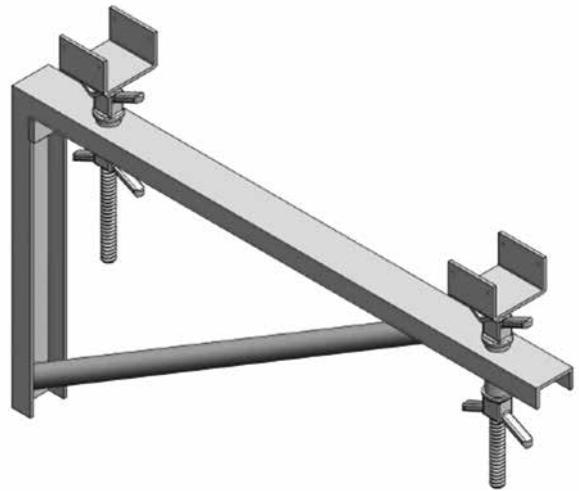
- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49W Bridge Overhang Bracket

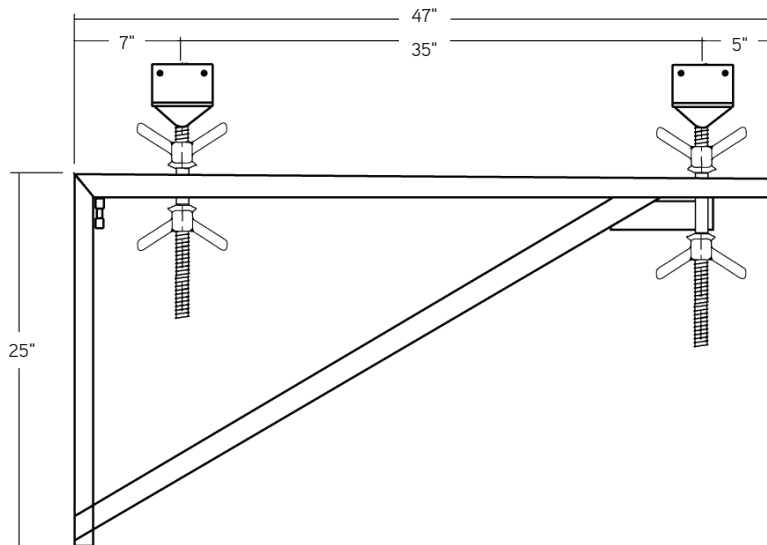
The type C49 W bracket are engineered for west coast bridge construction. Screw jacks extend up to 6" from a steel support frame—stable to resist movement. C49 W meets ANSI specification A 10.9, sections 6.5.1, 6.6.1, 7.2.1 and ACI 347 specification 2.4.

- Rated capacity is 4,000 lbs. with an Anchor Safety Factor (FOS) of 3:1.
- The total load spread between both inner and outer jacks must not exceed 4,000 lbs.
- Maximum load to outer jack must not exceed 1,500 lbs. M
- Maximum load to inner jack must not exceed 3,000 lbs.

To achieve bracket maximum load, concrete anchor and anchor bolt must be capable of supporting a combined Safe Working Load.

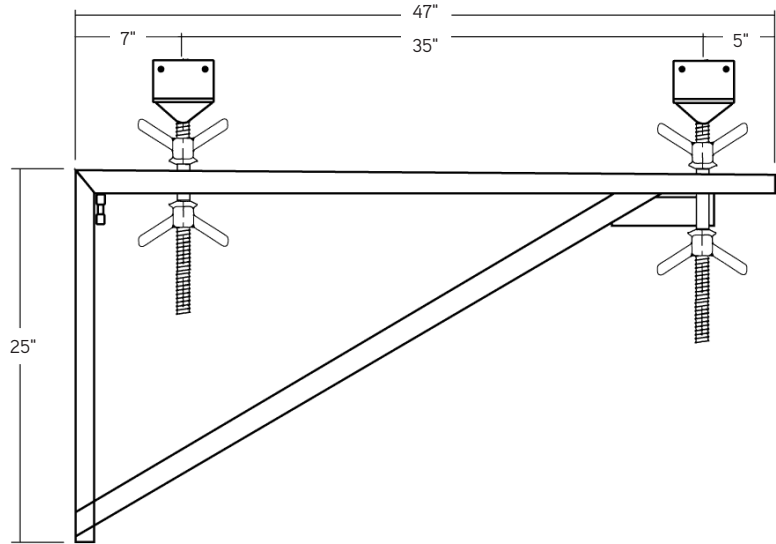


**SAFE WORKING LOAD**  
 SWL Shear = 4,000 lbs.  
 SWL Pull-Out = 3,830 lbs.



## C49W Bridge Overhang Bracket and Exterior Spacing on Concrete Beam

Up to 2'-0" Overhang on 3/4" plywood, 3-1/2" Joist and Double 2x6 Wales



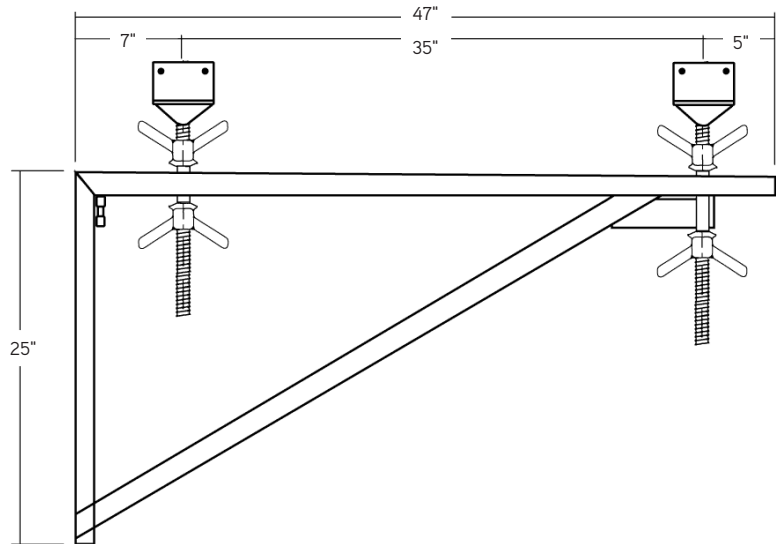
Design Load PSF	Slab Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Insert SWL
			1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	750 lbs.	500 lbs.	250 lbs.	0 lbs.	
			Bracket "A" Dimension = 8" to 12"								
130	6"	25	1'-11"	2'-9"	3'-6"	4'-3"	5'-1"	5'-10"	6'-8"	7'-5"	4,000
143	7"	25	1'-10"	2'-7"	3'-4"	4'-1"	4'-11"	5'-8"	6'-5"	7'-2"	4,000
157	8"	25	1'-10"	2'-6"	3'-3"	4'-0"	4'-8"	5'-5"	6'-2"	6'-10"	4,000
170	9"	25	1'-9"	2'-5"	3'-1"	3'-10"	4'-6"	5'-2"	5'-11"	6'-7"	4,000
183	10"	25	1'-8"	2'-4"	3'-0"	3'-8"	4'-4"	5'-0"	5'-8"	6'-4"	4,000
197	11"	25	1'-7"	2'-3"	2'-10"	3'-6"	4'-1"	4'-9"	5'-5"	6'-0"	4,000
210	12"	25	1'-6"	2'-1"	2'-9"	3'-4"	3'-11"	4'-7"	5'-2"	5'-9"	4,000
223	13"	25	1'-5"	2'-0"	2'-7"	3'-2"	3'-9"	4'-4"	4'-11"	5'-6"	4,000
237	14"	25	1'-5"	1'-11"	2'-6"	3'-1"	3'-7"	4'-2"	4'-9"	5'-3"	4,000
250	15"	25	1'-4"	1'-10"	2'-5"	2'-11"	3'-5"	4'-0"	4'-6"	5'-0"	4,000
263	16"	25	1'-3"	1'-9"	2'-3"	2'-9"	3'-3"	3'-10"	4'-4"	4'-9"	4,000
277	17"	25	1'-2"	1'-8"	2'-2"	2'-8"	3'-2"	3'-7"	4'-1"	4'-5"	4,000
290	18"	25	1'-2"	1'-7"	2'-1"	2'-6"	3'-0"	3'-5"	3'-10"	4'-2"	4,000
303	19"	25	1'-1"	1'-6"	2'-0"	2'-5"	2'-10"	3'-3"	3'-7"	3'-11"	4,000
317	20"	25	1'-0"	1'-5"	1'-10"	2'-4"	2'-9"	3'-1"	3'-5"	3'-9"	4,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area assumed 2'-0" wide.
- Always check overhang form lumber to make sure it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C49W Bridge Overhang Bracket and Exterior Spacing on Concrete Beam

Over 2'-0" to 3'-0" Overhang on 3/4" plywood, 3-1/2" Joist and Double 2x6 Wales



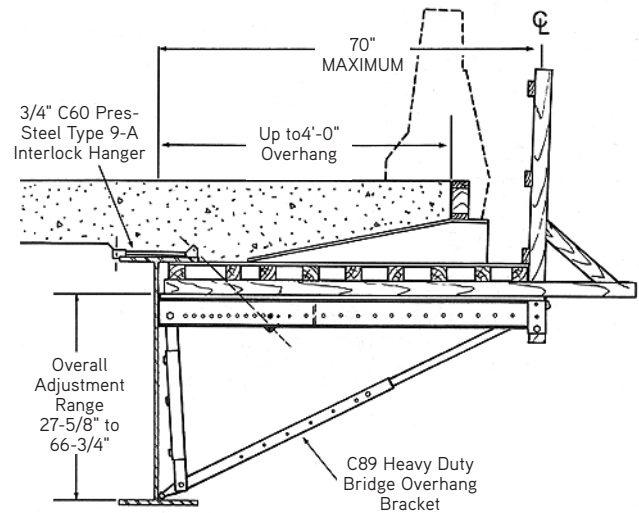
Design Load PSF	Slab Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Insert SWL
			1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	750 lbs.	500 lbs.	250 lbs.	0 lbs.	
			Bracket "A" Dimension = 8" to 12"								
130	6"	25	*	*	*	1'-5"	2'-1"	2'-10"	3'-6"	4'-2"	4,000
143	7"	25	*	*	*	1'-4"	2'-0"	2'-8"	3'-4"	3'-11"	4,000
157	8"	25	*	*	*	1'-4"	1'-11"	2'-6"	3'-2"	3'-9"	4,000
170	9"	25	*	*	*	1'-3"	1'-10"	2'-5"	3'-0"	3'-7"	4,000
183	10"	25	*	*	*	1'-2"	1'-9"	2'-4"	2'-10"	3'-5"	4,000
197	11"	25	*	*	*	1'-2"	1'-8"	2'-2"	2'-9"	3'-3"	4,000
210	12"	25	*	*	*	1'-1"	1'-7"	2'-1"	2'-7"	3'-2"	4,000
223	13"	25	*	*	*	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	4,000
237	14"	25	*	*	*	1'-0"	1'-5"	1'-11"	2'-5"	2'-10"	4,000
250	15"	25	*	*	*	*	1'-5"	1'-10"	2'-4"	2'-9"	4,000
263	16"	25	*	*	*	*	1'-4"	1'-9"	2'-2"	2'-8"	4,000
277	17"	25	*	*	*	*	1'-3"	1'-8"	2'-1"	2'-6"	4,000
290	18"	25	*	*	*	*	1'-3"	1'-7"	2'-0"	2'-5"	4,000
303	19"	25	*	*	*	*	1'-2"	1'-7"	1'-11"	2'-4"	4,000
317	20"	25	*	*	*	*	1'-1"	1'-6"	1'-10"	2'-3"	4,000

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area assumed to be 2'-0" wide.
- Always check overhang form lumber to make sure it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C89 Heavy Duty Bridge Overhang Bracket (72")

Up to 4'-0" Overhangs on Steel Girders



Design Load PSF	Slab Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>						Insert SWL
			1,500 lbs.	1,250 lbs.	750 lbs.	500 lbs.	250 lbs.	0 lbs.	
			Bracket "A" Dimension = 18" to 20"						
125	6"	30"	7'-11"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	7'-11"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	7'-11"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
150	8"	30"	6'-9"	7'-2"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			7'-5"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	6'-9"	7'-2"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	6'-9"	7'-2"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
175	10"	30"	5'-11"	6'-3"	7'-0"	7'-4"	7'-8"	8'-0"	8000
			6'-9"	7'-3"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	6'-0"	6'-3"	7'-0"	7'-4"	7'-8"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	6'-0"	6'-3"	7'-0"	7'-4"	7'-8"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
200	12"	30"	5' 3"	5'-7"	6'-3"	6'-8"	7'-0"	7'-4"	8000
			6'-0"	6'-9"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	5' 3"	5'-7"	6'-3"	6'-8"	7'-0"	7'-4"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	5' 3"	5'-7"	6'-3"	6'-8"	7'-0"	7'-4"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300

### Notes:

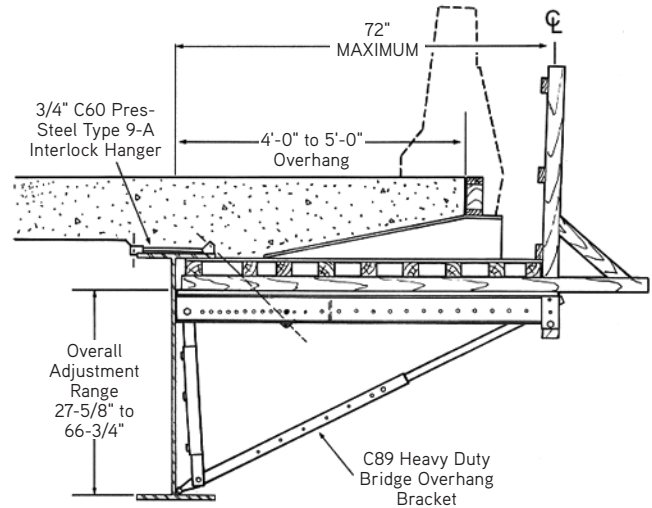
- Design includes 50 PSF live load on walkway area.
- Overhang form lumber must be checked to make sure it will span the selected spacing.

### Warning:

Contact Dayton Superior Technical Assistance for recommended spacings when conditions on your specific project vary from those shown.

## C89 Heavy Duty Bridge Overhang Bracket (72")

Over 4'-0" to 5'-0" Overhangs on Steel Girders



Design Load PSF	Slab Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>						Insert SWL
			1,500 lbs.	1,250 lbs.	750 lbs.	500 lbs.	250 lbs.	0 lbs.	
			Bracket "A" Dimension = 18" to 20"						
125	6"	30"	5'-6"	6'-6"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			5'-6"	6'-6"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	6'-9"	7'-3"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	6'-9"	7'-3"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
150	8"	30"	5'-0"	5'-9"	7'-0"	7'-3"	7'-8"	8'-0"	8000
			5'-0"	5'-9"	7'-4"	8'-0"	8'-0"	8'-0"	11300
		45"	5'-10"	6'-3"	6'-11"	7'-3"	7'-8"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	5'-10"	6'-3"	6'-11"	7'-3"	7'-8"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
175	10"	30"	4'-3"	5'-0"	6'-0"	6'-3"	6'-8"	7'-0"	8000
			4'-3"	5'-0"	6'-6"	7'-3"	8'-0"	8'-0"	11300
		45"	5'-1"	5'-4"	6'-0"	6'-4"	6'-8"	7'-0"	8000
			7'-6"	7'-9"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	5'-1"	5'-4"	6'-0"	6'-4"	6'-8"	7'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
200	12"	30"	3'-9"	4'-6"	5'-3"	5'-7"	5'-10"	6'-2"	8000
			3'-9"	4'-6"	5'-9"	6'-5"	7'-1"	7'-9"	11300
		45"	4'-5"	4'-9"	5'-3"	5'-7"	5'-10"	6'-2"	8000
			6'-9"	7'-4"	7'-10"	8'-0"	8'-0"	8'-0"	11300
		60"	4'-5"	4'-8"	5'-3"	5'-7"	5'-10"	6'-2"	8000
			7'-0"	7'-4"	7'-10"	8'-0"	8'-0"	8'-0"	11300

### Notes:

Design includes 50 PSF live load on walkway area.

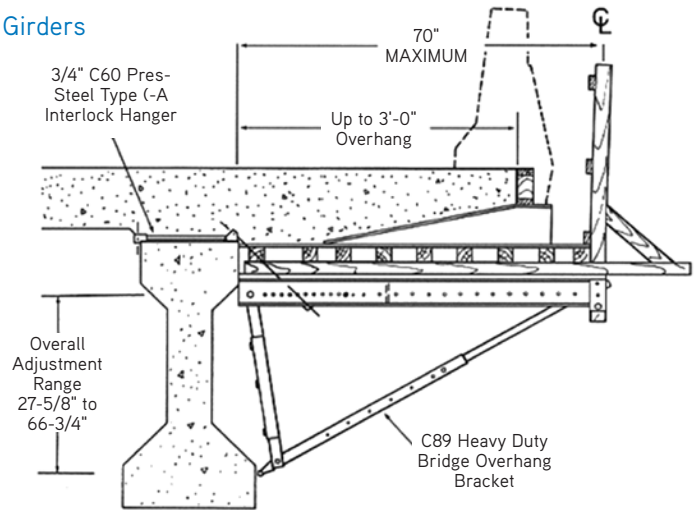
Overhang form lumber must be checked to make sure it will span the selected spacing.

### Warning:

Contact Dayton Superior Technical Assistance for recommended spacings when conditions on your specific project vary from those shown.

## C89 Heavy Duty Bridge Overhang Bracket (72")

Up to 3'-0" Overhangs on Precast/Prestressed Concrete Girders



Bridge Overhang Brackets

Design Load PSF	Slab Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>						Insert SWL
			1,500 lbs.	1,250 lbs.	750 lbs.	500 lbs.	250 lbs.	0 lbs.	
			Bracket "A" Dimension = 12" to 16"						
125	6"	30"	7'-8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	7'-8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	7'-8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
150	8"	30"	6'-8"	7'-1"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	6'-8"	7'-1"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	6'-8"	7'-1"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
175	10"	30"	6'-0"	6'-4"	7'-1"	7'-5"	7'-10"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	6'-0"	6'-4"	7'-1"	7'-5"	7'-10"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	6'-0"	6'-4"	7'-1"	7'-5"	7'-10"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
200	12"	30"	5' 4"	5'-8"	6'-4"	6'-8"	7'-0"	7'-4"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	5' 4"	5'-8"	6'-4"	6'-8"	7'-0"	7'-4"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	5' 4"	5'-8"	6'-4"	6'-8"	7'-0"	7'-4"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300

**Notes:**

- Design includes 50 PSF live load on walkway area.
- Overhang form lumber must be checked to make sure it will span the selected spacing.

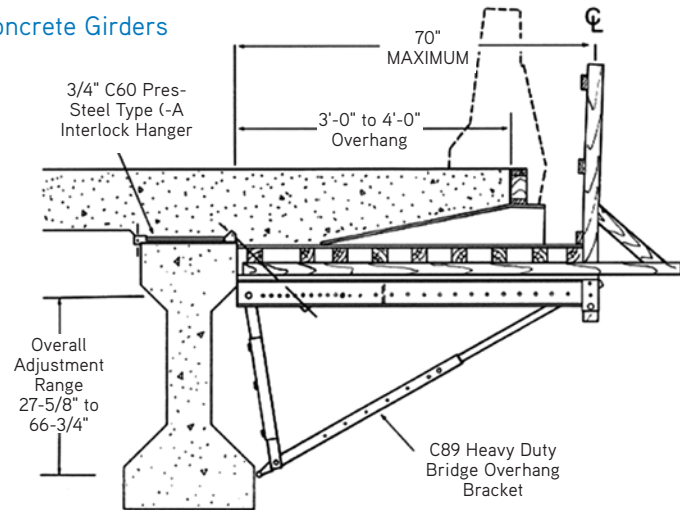
**Warning:**

Contact Dayton Superior Technical Assistance for recommended spacings when conditions on your specific project vary from those shown.



## C89 Heavy Duty Bridge Overhang Bracket (72")

Over 3'-0" to 4'-0" Overhangs on Precast/Prestressed Concrete Girders



Design Load PSF	Slab Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>						Insert SWL
			1,500 lbs.	1,250 lbs.	750 lbs.	500 lbs.	250 lbs.	0 lbs.	
			Bracket "A" Dimension = 12" to 16"						
125	6"	30"	6'-9"	7'-2"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	6'-9"	7'-2"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	6'-9"	7'-2"	8'-0"	8'-0"	8'-0"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
150	8"	30"	5'-9"	6'-3"	6'-10"	7'-3"	7'-7"	7'-11"	8000
			7'-8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	5'-9"	6'-3"	6'-10"	7'-3"	7'-7"	7'-11"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	5'-9"	6'-3"	6'-10"	7'-3"	7'-7"	7'-11"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
175	10"	30"	5'-0"	5'-4"	6'-0"	6'-3"	6'-7"	6'-11"	8000
			6'-9"	7'-6"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	5'-0"	5'-4"	6'-0"	6'-3"	6'-7"	6'-11"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	5'-0"	5'-4"	6'-0"	6'-3"	6'-7"	6'-11"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
200	12"	30"	4'-6"	4'-9"	5'-3"	5'-7"	5'-10"	6'-2"	8000
			6'-1"	6'-8"	7'-11"	8'-0"	8'-0"	8'-0"	11300
		45"	4'-6"	4'-9"	5'-3"	5'-7"	5'-10"	6'-2"	8000
			7'-3"	7'-7"	7'-11"	8'-0"	8'-0"	8'-0"	11300
		60"	4'-6"	4'-9"	5'-3"	5'-7"	5'-10"	6'-2"	8000
			7'-3"	7'-7"	7'-11"	8'-0"	8'-0"	8'-0"	11300

### Notes:

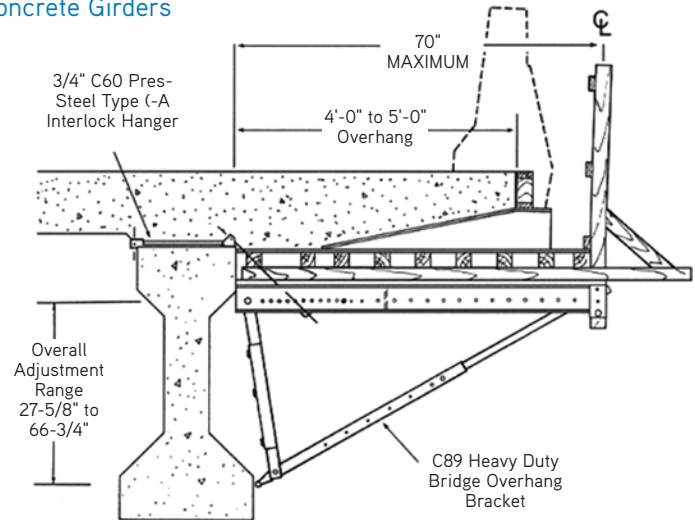
- Design includes 50 PSF live load on walkway area.
- Overhang form lumber must be checked to make sure it will span the selected spacing.

### Warning:

Contact Dayton Superior Technical Assistance for recommended spacings when conditions on your specific project vary from those shown.

## C89 Heavy Duty Bridge Overhang Bracket (72")

Over 4'-0" to 5'-0" Overhangs on Precast/Prestressed Concrete Girders



Design Load PSF	Slab Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>1</sub>						Insert SWL
			1,500 lbs.	1,250 lbs.	750 lbs.	500 lbs.	250 lbs.	0 lbs.	
			Bracket "A" Dimension = 12" to 16"						
125	6"	30"	4'-8"	5'-5"	7'-0"	7'-4"	7'-8"	8'-0"	8000
			4'-8"	5'-5"	7'-0"	7'-9"	8'-0"	8'-0"	11300
		45"	5'-11"	6'-3"	7'-0"	7'-4"	7'-8"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	5'-11"	6'-3"	7'-0"	7'-4"	7'-8"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
150	8"	30"	4'-0"	4'-8"	5'-11"	6'-2"	6'-6"	6'-10"	8000
			4'-0"	4'-8"	6'-0"	6'-9"	7'-5"	8'-0"	11300
		45"	5'-0"	5'-4"	5'-11'	6'-2"	6'-6"	6'-10"	8000
			7'-4"	8'-0"	8'-0'	8'-0"	8'-0"	8'-0"	11300
		60"	5'-0"	5'-4"	5'-11'	6'-4"	6'-6"	6'-10"	8090
			7'-10"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
175	10"	30"	3'-6"	4'-1"	5'-1"	5'-5"	5'-8"	5'-11"	8000
			3'-6"	4'-1"	5'-4"	5'-11"	6'-8"	7'-1"	11300
		45"	4'-4"	4'-7"	5'-1"	5'-5"	5'-8"	5'-11"	8000
			6'-5"	7'-1"	7'-7"	7'-10"	8'-0"	8'-0"	11300
		60"	4'-4"	4'-7"	5'-1"	5'-5"	5'-8"	5'-11"	8000
			6'-9"	7'-1"	7'-7"	7'-10"	8'-0"	8'-0"	11300
200	12"	30"	3'-1"	3'-8"	4'-6"	4'-9"	5'-0"	5'-3"	8000
			3'-1"	3'-8"	4'-8"	5'-3"	5'-9"	6'-3"	11300
		45"	3'-10"	4'-1"	4'-6' '	4'-9"	5'-0"	5'-8"	8000
			5'-9"	6'-3"	6'-8"	6'-11"	7'-2"	7'-5"	11300
		60"	3'-10"	4'-1"	4'-6' '	4'-9"	5'-0"	5'-3"	8000
			6'-0"	6'-8"	6'-8"	6'-11"	7'-2"	7'-5"	11300

### Notes:

- Design includes 50 PSF live load on walkway area.
- Overhang form lumber must be checked to make sure it will span the selected spacing.

### Warning:

Contact Dayton Superior Technical Assistance for recommended spacings when conditions on your specific project vary from those shown.

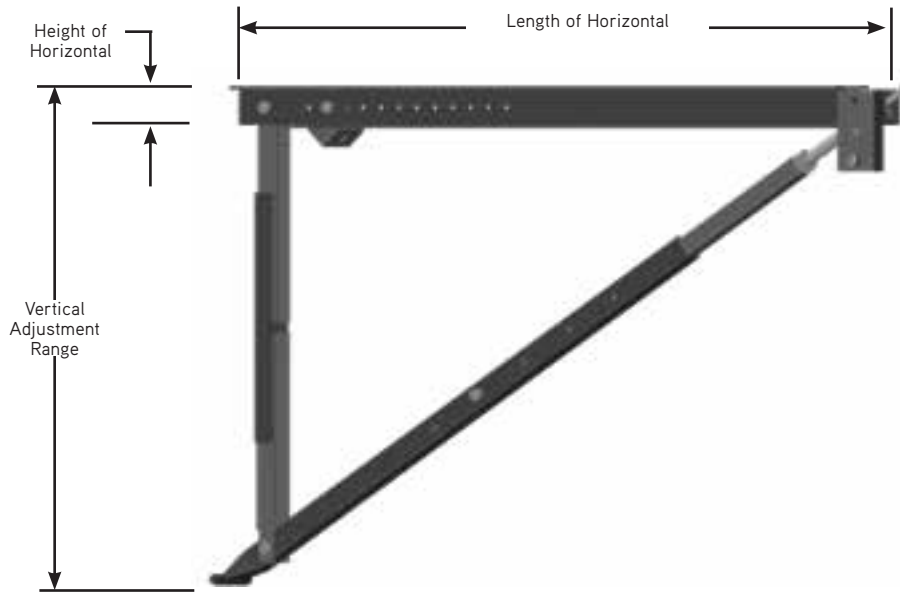
## Bridge Overhang Bracket Type C89L

The C89L can be utilized on either steel or concrete girders using the appropriate 3/4" exterior hanger.

These brackets are fabricated with nail holes in the top of the horizontal member for securing the required lumber nailer to the bracket. Either a 6x2 or an 8x2 lumber member may be used as the nailer.

A guardrail receptacle, which allows for attaching a 2x4 guard rail post, is built into the outboard end of the bracket's horizontal member. The bracket can be easily and quickly preset on the ground and then set in place as needed. An outboard adjustment nut controls the vertical movement of the outboard end of the bracket to accommodate setting the overhang formwork to final grade.

The C89L Heavy Duty Bridge Overhang Bracket is designed for maximum adjustment and strength to meet the varied overhang forming requirements of the various State D.O.T.



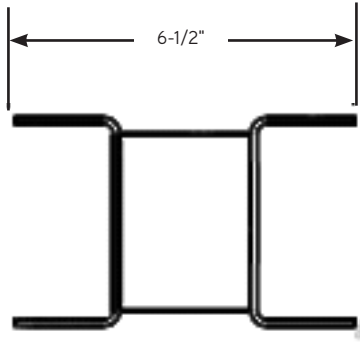
Bracket Type	Length of Horizontal	Height of Horizontal	Range of Vertical Adjustment	Weight (lbs)
C89L	90"	6"	30" to 68"	159

Overhang brackets are usually adjusted to proper grade during the normal "dry run" operation. Typically, the overhang forms are set 1/4" to 3/8" above finished grade to compensate for dead load deflection.

### SAFETY NOTE:

DO NOT attempt an upward adjustment of the bracket during the concrete pouring operation. Lowering the bracket is permissible during the concrete pour.

## Bridge Overhang Bracket Type C89L



Section View  
Horizontal Member



The Product Code for the Bridge Overhang Bracket Type C89L is 1000123, and it weighs 159 lbs.

### Horizontal Channels

The horizontal member is fabricated from two back-to-back channels using 10 gauge carbon steel plate meeting the requirements of ASTM 1011, Grade 50 Class 1. This material has a minimum yield strength of 50 ksi and a minimum tensile strength of 65 ksi. The horizontal member of the C89L is 6" deep x 90" long.

### Vertical Leg

The vertical leg is made up of three channels, each channel is fabricated from 10 gauge carbon steel plate meeting the requirements of ASTM A1011, Grade 50 Class 1 having a minimum yield strength of 50 ksi and a minimum tensile strength of 65 ksi.

Part	Channel Leg	Channel Base
Vertical Leg Top Channel	2-1/4"	2-1/4"
Vertical Leg Extension Channel	1-15/16"	3-1/8"
Vertical Leg Bottom Channel	2-3/16"	2-13/16"

### Diagonal Leg

Square carbon steel tubing is used to fabricate the diagonal leg. The lower portion uses 2-1/2" and the upper portion uses 2" tubing. Both meet ASTM A500, Grade B requirements with a yield strength of 42 ksi and a ultimate tensile strength of 58 ksi. The diagonal leg of the C89L bracket has a SWL of 6,000 lbs. based on an approximate factor of safety of 2 to 1.

### Connection Bolts and Nuts

Connection bolts and nuts are Dayton Superior 3/4" diameter B14 Coil Bolts and two B13 Coil Nuts.

### C89L Horizontal Member Section Properties:

Section Modulus (S) = 4.438in<sup>3</sup>

Moment of Inertia (I) = 12.604 in<sup>4</sup>

Area (A) = 2.438 in<sup>2</sup>

## C89L Bolt Holder

The bolt holder used in the C89L brackets is designed to accept a 3/4" coil threaded bolt or coil rod and is the load carrying device that transfers the load from the overhang bracket to the 45° exterior bridge deck hanger.

The bolt holder can only be located at certain locations along the horizontal member of the bracket, based on the holes that have been factory punched in the side of the horizontal channels. These holes start at 2" from the inboard or beam end of the bracket and continue at 4", 6", 8", 10", 12", 14", 16", 18", 20", 22", 24" and 26" from the end of the bracket.

The Bolt Holder must be moved, for each specific project's situation, so the 3/4" diameter load carrying bolt is as close to a 45° angle with the top of the beam's flange as possible.

A bolt holder is shipped with each bracket.

## Adjusting to Grade

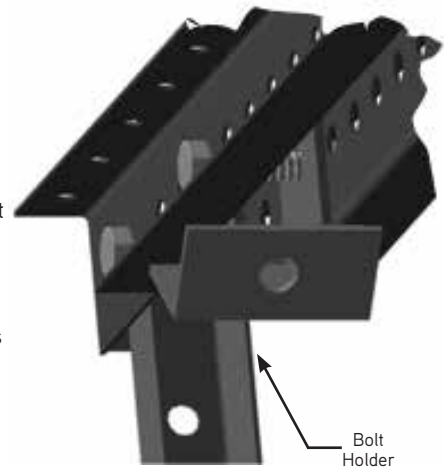
The "fine adjusting" screw at the end of the horizontal member allows the bracket to be easily adjusted to grade prior to loading.

To adjust the bracket, use a wrench on the 3/4"-10 UNC Heavy Hex Nut to raise or lower the bracket as needed.

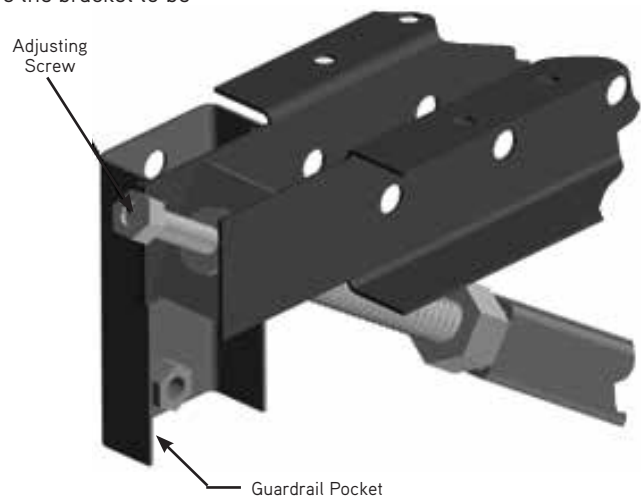
## Guardrail Pocket

The build-in guardrail pocket is designed to accept a 2x4 guard rail post.

Please refer to the C49 Bridge Overhang Bracket section of this handbook for information on the OSHA requirements for guardrails.



Bolt Holder

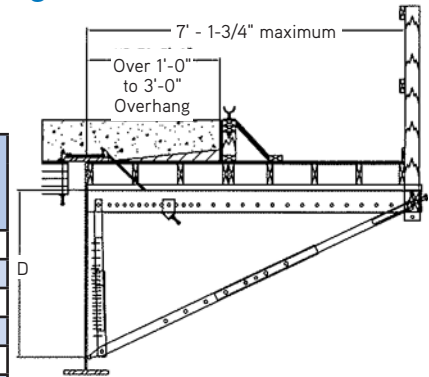


Adjusting Screw

Guardrail Pocket

## C89L Bridge Overhang Bracket and Exterior Hanger Spacing

Over 1'-0" to 3'-0" Overhangs on Steel Beams or Girders



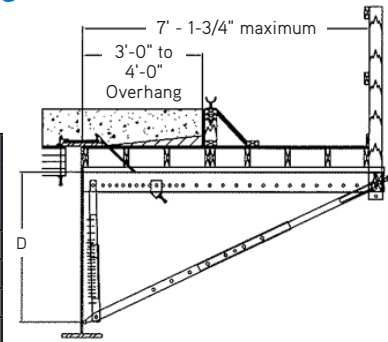
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S:								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30"	4'-7"	5'-5"	5'-11"	6'-4"	6'-9"	7'-2"	7'-7"	8'-0"	8000
			4'-7"	5'-5"	6'-4"	7'-2"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		45"	5'-2"	5'-6"	5'-11"	6'-4"	6'-9"	7'-2"	7'-7"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	5'-2"	5'-6"	5'-11"	6'-4"	6'-9"	7'-2"	7'-7"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
157	8"	30"	4'-5"	5'-3"	5'-4"	5'-9"	6'-1"	6'-6"	6'-10"	8'-0"	8000
			4'-5"	5'-3"	6'-1"	6'-11"	7'-9"	8'-0"	8'-0"	8'-0"	11300
		45"	4'-7"	5'-0"	5'-4"	5'-9"	6'-1"	6'-6"	6'-10"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	4'-7"	5'-0"	5'-4"	5'-9"	6'-1"	6'-6"	6'-10"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
184	10"	30"	4'-2"	4'-6"	4'-10"	5'-3"	5'-7"	5'-11"	6'-3"	7'-7"	8000
			4'-3"	5'-1"	5'-10"	6'-8"	7'-6"	8'-0"	8'-0"	8'-0"	11300
		45"	4'-2"	4'-6"	4'-10"	5'-3"	5'-7"	5'-11"	6'-3"	7'-7"	8000
			7'-4"	7'-8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	4'-2"	4'-6"	4'-10"	5'-3"	5'-7"	5'-11"	6'-3"	7'-7"	8000
			7'-4"	7'-8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
210	12"	30"	3'-10"	4'-2"	4'-6"	4'-9"	5'-1"	5'-5"	5'-8"	6'-11"	8000
			4'-1"	4'-10"	5'-7"	6'-4"	7'-2"	7'-11"	8'-0"	8'-0"	11300
		45"	3'-10"	4'-2"	4'-6"	4'-9"	5'-1"	5'-5"	5'-8"	6'-11"	8000
			6'-9"	7'-0"	7'-4"	7'-8"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	3'-10"	4'-2"	4'-6"	4'-9"	5'-1"	5'-5"	5'-8"	6'-11"	8000
			6'-9"	7'-0"	7'-4"	7'-8"	8'-0"	8'-0"	8'-0"	8'-0"	11300
237	14"	30"	3'-7"	3'-10"	4'-2"	4'-5"	4'-8"	5'-0"	5'-3"	6'-5"	8000
			3'-10"	4'-7"	5'-4"	6'-1"	6'-9"	7'-6"	7'-11"	8'-0"	11300
		45"	3'-7"	3'-10"	4'-2"	4'-5"	4'-8"	5'-0"	5'-3"	6'-5"	8000
			6'-3"	6'-6"	6'-9"	7'-1"	7'-4"	7'-8"	7'-11"	8'-0"	11300
		60"	3'-7"	3'-10"	4'-2"	4'-5"	4'-8"	5'-0"	5'-3"	6'-5"	8000
			6'-3"	6'-6"	6'-9"	7'-1"	7'-4"	7'-8"	7'-11"	8'-0"	11300
264	16"	30"	3'-4"	3'-7"	3'-10"	4'-1"	4'-4"	4'-8"	4'-11"	5'-11"	8000
			3'-8"	4'-4"	5'-0"	5'-8"	6'-5"	7'-1"	7'-4"	8'-0"	11300
		45"	3'-4"	3'-7"	3'-10"	4'-1"	4'-4"	4'-8"	4'-11"	5'-11"	8000
			5'-9"	6'-0"	6'-4"	6'-7"	6'-10"	7'-1"	7'-4"	8'-0"	11300
		60"	3'-4"	3'-7"	3'-10"	4'-1"	4'-4"	4'-8"	4'-11"	5'-11"	8000
			5'-9"	6'-0"	6'-4"	6'-7"	6'-10"	7'-1"	7'-4"	8'-0"	11300
290	18"	30"	3'-1"	3'-4"	3'-7"	3'-10"	4'-1"	4'-4"	4'-7"	5'-7"	8000
			3'-5"	4'-1"	4'-8"	5'-4"	6'-0"	6'-8"	6'-11"	7'-10"	11300
		45"	3'-1"	3'-4"	3'-7"	3'-10"	4'-1"	4'-4"	4'-7"	5'-7"	8000
			5'-5"	5'-8"	5'-11"	6'-2"	6'-5"	6'-8"	6'-11"	7'-10"	11300
		60"	3'-1"	3'-4"	3'-7"	3'-10"	4'-1"	4'-4"	4'-7"	5'-7"	8000
			5'-5"	5'-8"	5'-11"	6'-2"	6'-5"	6'-8"	6'-11"	7'-10"	11300
317	20"	30"	2'-11"	3'-1"	3'-4"	3'-7"	3'-10"	4'-1"	4'-3"	5'-3"	8000
			3'-2"	3'-10"	4'-5"	5'-0"	5'-7"	6'-3"	6'-5"	7'-5"	11300
		45"	2'-11"	3'-1"	3'-4"	3'-7"	3'-10"	4'-1"	4'-3"	5'-3"	8000
			5'-1"	5'-3"	5'-6"	5'-9"	6'-0"	6'-3"	6'-5"	7'-5"	11300
		60"	2'-11"	3'-1"	3'-4"	3'-7"	3'-10"	4'-1"	4'-3"	5'-3"	8000
			5'-1"	5'-3"	5'-6"	5'-9"	6'-0"	6'-3"	6'-5"	7'-5"	11300

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C89L Bridge Overhang Bracket and Exterior Hanger Spacing

Over 3'-0" To 4'-0" Overhangs on Steel Beams or Girders



Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screw Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30"	1'-6"	2'-5"	3'-4"	4'-3"	5'-2"	6'-1"	6'-8"	8'-0"	8000
			1'-6"	2'-5"	3'-4"	4'-3"	5'-2"	6'-1"	7'-0"	8'-0"	11300
		45"	4'-6"	4'-11"	5'-3"	5'-7"	6'-0"	6'-4"	6'-8"	8'-0"	8000
			6'-9"	7'-8"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	4'-6"	4'-11"	5'-3"	5'-7"	6'-0"	6'-4"	6'-8"	8'-0"	8000
			7'-11"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
157	8"	30"	1'-5"	2'-3"	3'-2"	4'-0"	4'-10"	5'-7"	5'-11"	7'-2"	8000
			1'-5"	2'-3"	3'-2"	4'-0"	4'-10"	5'-8"	6'-6"	8'-0"	11300
		45"	4'-0"	4'-4"	4'-7"	4'-11"	5'-3"	5'-7"	5'-11"	7'-2"	8000
			6'-4"	7'-2"	7'-7"	7'-11"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	4'-0"	4'-4"	4'-7"	4'-11"	5'-3"	5'-7"	5'-11"	7'-2"	8000
			7'-0"	7'-3"	7'-7"	7'-11"	8'-0"	8'-0"	8'-0"	8'-0"	11300
184	10"	30"	1'-4"	2'-1"	2'-11"	3'-8"	4'-6"	5'-0"	5'-3"	6'-5"	8000
			1'-4"	2'-1"	2'-11"	3'-8"	4'-6"	5'-3"	6'-1"	8'-0"	11300
		45"	3'-7"	3'-10"	4'-2"	4'-5"	4'-8"	5'-0"	5'-3"	6'-5"	8000
			5'-11"	6'-6"	6'-9"	7'-1"	7'-4"	7'-8"	7'-11"	8'-0"	11300
		60"	3'-7"	3'-10"	4'-2"	4'-5"	4'-8"	5'-0"	5'-3"	6'-5"	8000
			6'-3"	6'-6"	6'-9"	7'-1"	7'-4"	7'-8"	7'-11"	8'-0"	11300
210	12"	30"	1'-3"	2'-0"	2'-8"	3'-5"	4'-2"	4'-6"	4'-9"	5'-9"	8000
			1'-3"	2'-0"	2'-8"	3'-5"	4'-2"	4'-11"	5'-8"	8'-0"	11300
		45"	3'-3"	3'-6"	3'-9"	4'-0"	4'-3"	4'-6"	4'-9"	5'-9"	8000
			5'-6"	5'-10"	6'-2"	6'-5"	6'-8"	6'-11"	7'-2"	8'-0"	11300
		60"	3'-3"	3'-6"	3'-9"	4'-0"	4'-3"	4'-6"	4'-9"	5'-9"	8000
			5'-7"	5'-10"	6'-2"	6'-5"	6'-8"	6'-11"	7'-2"	8'-0"	11300
237	14"	30"	1'-2"	1'-10"	2'-6"	3'-2"	3'-10"	4'-1"	4'-4"	5'-3"	8000
			1'-2"	1'-10"	2'-6"	3'-2"	3'-11"	4'-7"	5'-3"	7'-6"	11300
		45"	2'-11"	3'-2"	3'-5"	3'-8"	3'-10"	4'-1"	4'-4"	5'-3"	8000
			5'-1"	5'-4"	5'-7"	5'-10"	6'-1"	6'-4"	6'-6"	7'-6"	11300
		60"	2'-11"	3'-2"	3'-5"	3'-8"	3'-10"	4'-1"	4'-4"	5'-3"	8000
			5'-1"	5'-4"	5'-7"	5'-10"	6'-1"	6'-4"	6'-6"	7'-6"	11300
264	16"	30"	1'-1"	1'-8"	2'-4"	3'-0"	3'-7"	3'-9"	4'-0"	4'-10"	8000
			1'-1"	1'-8"	2'-4"	3'-0"	3'-7"	4'-3"	4'-11"	6'-10"	11300
		45"	2'-8"	2'-11"	3'-1"	3'-4"	3'-7"	3'-9"	4'-0"	4'-10"	8000
			4'-8"	4'-11"	5'-2"	5'-4"	5'-7"	5'-9"	6'-0"	6'-10"	11300
		60"	2'-8"	2'-11"	3'-1"	3'-4"	3'-7"	3'-9"	4'-0"	4'-10"	8000
			4'-8"	4'-11"	5'-2"	5'-4"	5'-7"	5'-9"	6'-0"	6'-10"	11300
290	18"	30"	1'-0"	1'-7"	2'-2"	2'-9"	3'-3"	3'-6"	3'-8"	4'-6"	8000
			1'-0"	1'-7"	2'-2"	2'-9"	3'-4"	3'-11"	4'-6"	6'-4"	11300
		45"	2'-6"	2'-8"	2'-11"	3'-1"	3'-3"	3'-6"	3'-8"	4'-6"	8000
			4'-4"	4'-7"	4'-9"	4'-11"	5'-2"	5'-4"	5'-7"	6'-4"	11300
		60"	2'-6"	2'-8"	2'-11"	3'-1"	3'-3"	3'-6"	3'-8"	4'-6"	8000
			4'-4"	4'-7"	4'-9"	4'-11"	5'-2"	5'-4"	5'-7"	6'-4"	11300
317	20"	30"	*	1'-5"	2'-0"	2'-7"	3'-1"	3'-3"	3'-5"	4'-2"	8000
			*	1'-5"	2'-0"	2'-7"	3'-1"	3'-8"	4'-2"	5'-11"	11300
		45"	2'-4"	2'-6"	2'-8"	2'-10"	3'-1"	3'-3"	3'-5"	4'-2"	8000
			4'-1"	4'-3"	4'-5"	4'-7"	4'-9"	5'-0"	5'-2"	5'-11"	11300
		60"	2'-4"	2'-6"	2'-8"	2'-10"	3'-1"	3'-3"	3'-5"	4'-2"	8000
			4'-1"	4'-3"	4'-5"	4'-7"	4'-9"	5'-0"	5'-2"	5'-11"	11300

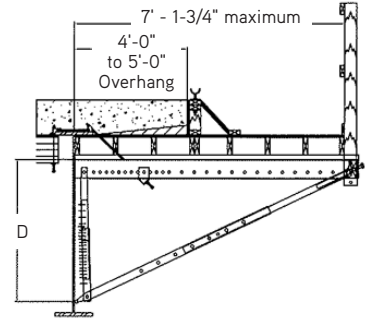
### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.



## C89L Bridge Overhang Bracket and Exterior Hanger Spacing

Over 4'-0" To 5'-0" Overhangs on Steel Beams or Girders



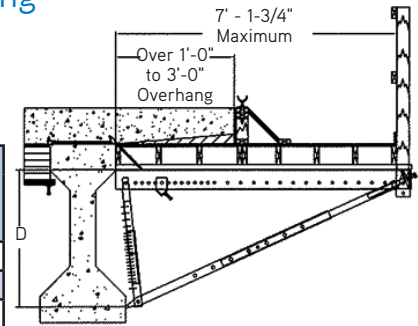
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30"	*	*	1'-3"	2'-2"	3'-1"	3'-11"	4'-10"	7'-4"	8000
			*	*	1'-3"	2'-2"	3'-1"	3'-11"	4'-10"	8'-0"	11300
		45"	3'-8"	4'-5"	4'-8"	5'-0"	5'-4"	5'-8"	6'-0"	7'-4"	8000
			3'-8"	4'-7"	5'-5"	6'-4"	7'-3"	8'-0"	8'-0"	8'-0"	11300
		60"	4'-1"	4'-5"	4'-8"	5'-0"	5'-4"	5'-8"	6'-0"	7'-4"	8000
			7'-1"	7'-5"	7'-9"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
157	8"	30"	*	*	1'-2"	1'-11"	2'-9"	3'-7"	4'-4"	6'-4"	8000
			*	*	1'-2"	1'-11"	2'-9"	3'-7"	4'-4"	7'-7"	11300
		45"	3'-4"	3'-9"	4'-1"	4'-4"	4'-8"	4'-11"	5'-2"	6'-4"	8000
			3'-4"	4'-1"	4'-11"	5'-8"	6'-6"	7'-4"	7'-10"	8'-0"	11300
		60"	3'-6"	3'-9"	4'-1"	4'-4"	4'-8"	4'-11"	5'-2"	6'-4"	8000
			6'-1"	6'-5"	6'-8"	7'-0"	7'-3"	7'-6"	7'-10"	8'-0"	11300
184	10"	30"	*	*	1'-1"	1'-9"	2'-6"	3'-3"	3'-11"	5'-7"	8000
			*	*	1'-1"	1'-9"	2'-6"	3'-3"	3'-11"	6'-10"	11300
		45"	3'-0"	3'-4"	3'-7"	3'-10"	4'-1"	4'-4"	4'-7"	5'-7"	8000
			3'-0"	3'-9"	4'-5"	5'-2"	5'-11"	6'-7"	6'-11"	7'-10"	11300
		60"	3'-1"	3'-4"	3'-7"	3'-10"	4'-1"	4'-4"	4'-7"	5'-7"	8000
			5'-5"	5'-8"	5'-11"	6'-2"	6'-5"	6'-8"	6'-11"	7'-10"	11300
210	12"	30"	*	*	*	1'-7"	2'-3"	2'-11"	3'-7"	5'-0"	8000
			*	*	*	1'-7"	2'-3"	2'-11"	3'-7"	6'-3"	11300
		45"	2'-9"	3'-0"	3'-2"	3'-5"	3'-8"	3'-10"	4'-1"	5'-0"	8000
			2'-9"	3'-4"	4'-0"	4'-8"	5'-4"	5'-11"	6'-2"	7'-0"	11300
		60"	2'-9"	3'-0"	3'-2"	3'-5"	3'-8"	3'-10"	4'-1"	5'-0"	8000
			4'-10"	5'-0"	5'-3"	5'-6"	5'-8"	5'-11"	6'-2"	7'-0"	11300
237	14"	30"	*	*	*	1'-6"	2'-1"	2'-8"	3'-3"	4'-6"	8000
			*	*	*	1'-6"	2'-1"	2'-8"	3'-3"	5'-8"	11300
		45"	2'-6"	2'-8"	2'-11"	3'-1"	3'-3"	3'-6"	3'-8"	4'-6"	8000
			2'-6"	3'-1"	3'-8"	4'-3"	4'-11"	5'-4"	5'-7"	6'-4"	11300
		60"	2'-6"	2'-8"	2'-11"	3'-1"	3'-3"	3'-6"	3'-8"	4'-6"	8000
			4'-4"	4'-7"	4'-9"	4'-11"	5'-2"	5'-4"	5'-7"	6'-4"	11300
264	16"	30"	*	*	*	1'-4"	1'-11"	2'-5"	3'-0"	4'-1"	8000
			*	*	*	1'-4"	1'-11"	2'-5"	3'-0"	5'-3"	11300
		45"	2'-3"	2'-5"	2'-8"	2'-10"	3'-0"	3'-2"	3'-4"	4'-1"	8000
			2'-3"	2'-10"	3'-5"	3'-11"	4'-6"	4'-11"	5'-1"	5'-9"	11300
		60"	2'-3"	2'-5"	2'-8"	2'-10"	3'-0"	3'-2"	3'-4"	4'-1"	8000
			4'-0"	4'-2"	4'-4"	4'-6"	4'-8"	4'-11"	5'-1"	5'-9"	11300
290	18"	30"	*	*	*	1'-3"	1'-9"	2'-3"	2'-9"	3'-9"	8000
			*	*	*	1'-3"	1'-9"	2'-3"	2'-9"	4'-10"	11300
		45"	2'-1"	2'-3"	2'-5"	2'-7"	2'-9"	2'-11"	3'-1"	3'-9"	8000
			2'-1"	2'-7"	3'-1"	3'-7"	4'-1"	4'-6"	4'-8"	5'-4"	11300
		60"	2'-1"	2'-3"	2'-5"	2'-7"	2'-9"	2'-11"	3'-1"	3'-9"	8000
			3'-8"	3'-10"	4'-0"	4'-2"	4'-4"	4'-6"	4'-8"	5'-4"	11300
317	20"	30"	*	*	*	1'-2"	1'-7"	2'-1"	2'-6"	3'-6"	8000
			*	*	*	1'-2"	1'-7"	2'-1"	2'-6"	4'-5"	11300
		45"	1'-11"	2'-1"	2'-3"	2'-5"	2'-6"	2'-8"	2'-10"	3'-6"	8000
			1'-11"	2'-5"	2'-10"	3'-4"	3'-10"	4'-2"	4'-4"	4'-11"	11300
		60"	1'-11"	2'-1"	2'-3"	2'-5"	2'-6"	2'-8"	2'-10"	3'-6"	8000
			3'-4"	3'-6"	3'-8"	3'-10"	4'-0"	4'-2"	4'-4"	4'-11"	11300

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make certain it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C89L Bridge Overhang Bracket and Exterior Hanger Spacing

Over 1'-0" to 3'-0" Overhangs on Precast/Prestressed Concrete Girders



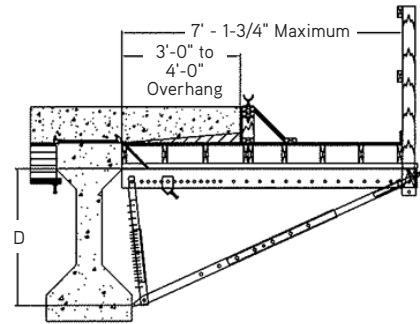
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30"	3'-7"	4'-3"	5'-0"	5'-8"	6'-1"	6'-6"	6'-10"	8'-0"	8000
			3'-7"	4'-3"	5'-0"	5'-8"	6'-4"	7'-0"	7'-8"	8'-0"	11300
		45"	4'-8"	5'-0"	5'-4"	5'-9"	6'-1"	6'-6"	6'-10"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	4'-8"	5'-0"	5'-4"	5'-9"	6'-1"	6'-6"	6'-10"	8'-0"	8000
			8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
157	8"	30"	3'-5"	4'-1"	4'-9"	5'-2"	5'-6"	5'-9"	6'-1"	7'-5"	8000
			3'-5"	4'-1"	4'-9"	5'-5"	6'-1"	6'-9"	7'-4"	8'-0"	11300
		45"	4'-2"	4'-6"	4'-10"	5'-2"	5'-6"	5'-9"	6'-1"	7'-5"	8000
			7'-3"	7'-7"	7'-11"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	4'-2"	4'-6"	4'-10"	5'-2"	5'-6"	5'-9"	6'-1"	7'-5"	8000
			7'-3"	7'-7"	7'-11"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
184	10"	30"	3'-3"	3'-11"	4'-4"	4'-8"	4'-11"	5'-3"	5'-6"	6'-9"	8000
			3'-3"	3'-11"	4'-6"	5'-2"	5'-9"	6'-5"	7'-0"	8'-0"	11300
		45"	3'-9"	4'-0"	4'-4"	4'-8"	4'-11"	5'-3"	5'-6"	6'-9"	8000
			6'-6"	6'-10"	7'-2"	7'-5"	7'-9"	8'-0"	8'-0"	8'-0"	11300
		60"	3'-9"	4'-0"	4'-4"	4'-8"	4'-11"	5'-3"	5'-6"	6'-9"	8000
			6'-6"	6'-10"	7'-2"	7'-5"	7'-9"	8'-0"	8'-0"	8'-0"	11300
210	12"	30"	3'-1"	3'-8"	3'-11"	4'-3"	4'-6"	4'-9"	5'-1"	6'-2"	8000
			3'-1"	3'-8"	4'-3"	4'-11"	5'-6"	6'-1"	6'-8"	8'-0"	11300
		45"	3'-5"	3'-8"	3'-11"	4'-3"	4'-6"	4'-9"	5'-1"	6'-2"	8000
			5'-11"	6'-3"	6'-6"	6'-9"	7'-1"	7'-4"	7'-7"	8'-0"	11300
		60"	3'-5"	3'-8"	3'-11"	4'-3"	4'-6"	4'-9"	5'-1"	6'-2"	8000
			5'-11"	6'-3"	6'-6"	6'-9"	7'-1"	7'-4"	7'-7"	8'-0"	11300
237	14"	30"	2'-11"	3'-5"	3'-8"	3'-11"	4'-2"	4'-5"	4'-8"	5'-8"	8000
			2'-11"	3'-6"	4'-1"	4'-7"	5'-2"	5'-9"	6'-3"	8'-0"	11300
		45"	3'-2"	3'-5"	3'-8"	3'-11"	4'-2"	4'-5"	4'-8"	5'-8"	8000
			5'-6"	5'-9"	6'-0"	6'-3"	6'-6"	6'-9"	7'-0"	8'-0"	11300
		60"	3'-2"	3'-5"	3'-8"	3'-11"	4'-2"	4'-5"	4'-8"	5'-8"	8000
			5'-6"	5'-9"	6'-0"	6'-3"	6'-6"	6'-9"	7'-0"	8'-0"	11300
264	16"	30"	2'-9"	3'-2"	3'-4"	3'-7"	3'-10"	4'-1"	4'-3"	5'-3"	8000
			2'-9"	3'-4"	3'-10"	4'-4"	4'-10"	5'-5"	5'-11"	7'-5"	11300
		45"	2'-11"	3'-2"	3'-4"	3'-7"	3'-10"	4'-1"	4'-3"	5'-3"	8000
			5'-1"	5'-4"	5'-6"	5'-9"	6'-0"	6'-3"	6'-5"	7'-5"	11300
		60"	2'-11"	3'-2"	3'-4"	3'-7"	3'-10"	4'-1"	4'-3"	5'-3"	8000
			5'-1"	5'-4"	5'-6"	5'-9"	6'-0"	6'-3"	6'-5"	7'-5"	11300
290	18"	30"	2'-7"	2'-11"	3'-1"	3'-4"	3'-7"	3'-9"	4'-0"	4'-10"	8000
			2'-7"	3'-1"	3'-7"	4'-1"	4'-7"	5'-1"	5'-7"	6'-10"	11300
		45"	2'-8"	2'-11"	3'-1"	3'-4"	3'-7"	3'-9"	4'-0"	4'-10"	8000
			4'-9"	4'-11"	5'-2"	5'-4"	5'-7"	5'-9"	6'-0"	6'-10"	11300
		60"	2'-8"	2'-11"	3'-1"	3'-4"	3'-7"	3'-9"	4'-0"	4'-10"	8000
			4'-9"	4'-11"	5'-2"	5'-4"	5'-7"	5'-9"	6'-0"	6'-10"	11300
317	20"	30"	2'-5"	2'-9"	2'-11"	3'-1"	3'-4"	3'-6"	3'-9"	4'-6"	8000
			2'-5"	2'-11"	3'-4"	3'-10"	4'-3"	4'-9"	5'-3"	6'-5"	11300
		45"	2'-6"	2'-9"	2'-11"	3'-1"	3'-4"	3'-6"	3'-9"	4'-6"	8000
			4'-5"	4'-7"	4'-10"	5'-0"	5'-3"	5'-5"	5'-7"	6'-5"	11300
		60"	2'-6"	2'-9"	2'-11"	3'-1"	3'-4"	3'-6"	3'-9"	4'-6"	8000
			4'-5"	4'-7"	4'-10"	5'-0"	5'-3"	5'-5"	5'-7"	6'-5"	11300

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make sure it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C89L Bridge Overhang Bracket and Exterior Hanger Spacing

Over 3'-0" to 4'-0" Overhangs on Precast/Prestressed Concrete Girders



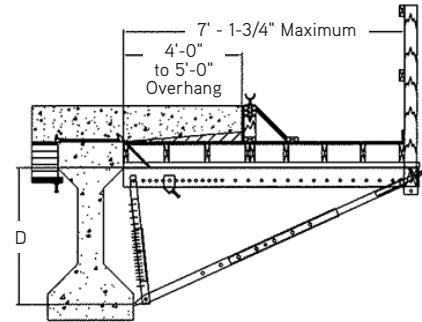
Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30"	1'-3"	1'-11"	2'-8"	3'-5"	4'-2"	4'-10"	5'-7"	7'-5"	8000
			1'-3"	1'-11"	2'-8"	3'-5"	4'-2"	4'-10"	5'-7"	8'-0"	11300
		45"	4'-2"	4'-6"	4'-10"	5'-2"	5'-6"	5'-9"	6'-1"	7'-5"	8000
			5'-5"	6'-2"	6'-11"	7'-7"	8'-0"	8'-0"	8'-0"	8'-0"	11300
		60"	4'-2"	4'-6"	4'-10"	5'-2"	5'-6"	5'-9"	6'-1"	7'-5"	8000
			7'-3"	7'-7"	7'-11"	8'-0"	8'-0"	8'-0"	8'-0"	8'-0"	11300
157	8"	30"	1'-1"	1'-10"	2'-6"	3'-2"	3'-10"	4'-6"	5'-2"	6'-6"	8000
			1'-1"	1'-10"	2'-6"	3'-2"	3'-10"	4'-6"	5'-2"	7'-10"	11300
		45"	3'-7"	3'-11"	4'-2"	4'-6"	4'-9"	5'-1"	5'-4"	6'-6"	8000
			5'-0"	5'-8"	6'-4"	7'-0"	7'-6"	7'-9"	8'-0"	8'-0"	11300
		60"	3'-7"	3'-11"	4'-2"	4'-6"	4'-9"	5'-1"	5'-4"	6'-6"	8000
			6'-4"	6'-7"	6'-11"	7'-2"	7'-6"	7'-9"	8'-0"	8'-0"	11300
184	10"	30"	1'-0"	1'-8"	2'-3"	2'-11"	3'-6"	4'-2"	4'-9"	5'-10"	8000
			1'-0"	1'-8"	2'-3"	2'-11"	3'-6"	4'-2"	4'-9"	7'-3"	11300
		45"	3'-3"	3'-6"	3'-9"	4'-0"	4'-3"	4'-6"	4'-9"	5'-10"	8000
			4'-8"	5'-3"	5'-11"	6'-5"	6'-8"	6'-11"	7'-2"	8'-0"	11300
		60"	3'-3"	3'-6"	3'-9"	4'-0"	4'-3"	4'-6"	4'-9"	5'-10"	8000
			5'-7"	5'-11"	6'-2"	6'-5"	6'-8"	6'-11"	7'-2"	8'-0"	11300
210	12"	30"	*	1'-6"	2'-1"	2'-8"	3'-3"	3'-10"	4'-3"	5'-3"	8000
			*	1'-6"	2'-1"	2'-8"	3'-3"	3'-10"	4'-5"	6'-9"	11300
		45"	2'-11"	3'-2"	3'-4"	3'-7"	3'-10"	4'-1"	4'-3"	5'-3"	8000
			4'-3"	4'-10"	5'-5"	5'-9"	6'-0"	6'-3"	6'-5"	7'-5"	11300
		60"	2'-11"	3'-2"	3'-4"	3'-7"	3'-10"	4'-1"	4'-3"	5'-3"	8000
			5'-1"	5'-4"	5'-6"	5'-9"	6'-0"	6'-3"	6'-5"	7'-5"	11300
237	14"	30"	*	1'-5"	1'-11"	2'-6"	3'-0"	3'-7"	3'-11"	4'-9"	8000
			*	1'-5"	1'-11"	2'-6"	3'-0"	3'-7"	4'-1"	6'-3"	11300
		45"	2'-8"	2'-10"	3'-1"	3'-3"	3'-6"	3'-8"	3'-11"	4'-9"	8000
			4'-0"	4'-6"	5'-0"	5'-3"	5'-5"	5'-8"	5'-10"	6'-9"	11300
		60"	2'-8"	2'-10"	3'-1"	3'-3"	3'-6"	3'-8"	3'-11"	4'-9"	8000
			4'-7"	4'-10"	5'-0"	5'-3"	5'-5"	5'-8"	5'-10"	6'-9"	11300
264	16"	30"	*	1'-4"	1'-10"	2'-4"	2'-10"	3'-4"	3'-7"	4'-4"	8000
			*	1'-4"	1'-10"	2'-4"	2'-10"	3'-4"	3'-10"	5'-9"	11300
		45"	2'-5"	2'-7"	2'-10"	3'-0"	3'-2"	3'-5"	3'-7"	4'-4"	8000
			3'-8"	4'-2"	4'-7"	4'-10"	5'-0"	5'-2"	5'-5"	6'-2"	11300
		60"	2'-5"	2'-7"	2'-10"	3'-0"	3'-2"	3'-5"	3'-7"	4'-4"	8000
			4'-3"	4'-5"	4'-7"	4'-10"	5'-0"	5'-2"	5'-5"	6'-2"	11300
290	18"	30"	*	1'-3"	1'-8"	2'-2"	2'-7"	3'-1"	3'-4"	4'-0"	8000
			*	1'-3"	1'-8"	2'-2"	2'-7"	3'-1"	3'-6"	5'-4"	11300
		45"	2'-3"	2'-5"	2'-7"	2'-9"	2'-11"	3'-1"	3'-4"	4'-0"	8000
			3'-5"	3'-11"	4'-3"	4'-5"	4'-7"	4'-9"	5'-0"	5'-8"	11300
		60"	2'-3"	2'-5"	2'-7"	2'-9"	2'-11"	3'-1"	3'-4"	4'-0"	8000
			3'-11"	4'-1"	4'-3"	4'-5"	4'-7"	4'-9"	5'-0"	5'-8"	11300
317	20"	30"	*	1'-2"	1'-7"	2'-0"	2'-5"	2'-10"	3'-1"	3'-9"	8000
			*	1'-2"	1'-7"	2'-0"	2'-5"	2'-10"	3'-3"	5'-0"	11300
		45"	2'-1"	2'-3"	2'-5"	2'-7"	2'-9"	2'-11"	3'-1"	3'-9"	8000
			3'-2"	3'-7"	3'-11"	4'-1"	4'-3"	4'-5"	4'-7"	5'-3"	11300
		60"	2'-1"	2'-3"	2'-5"	2'-7"	2'-9"	2'-11"	3'-1"	3'-9"	8000
			3'-7"	3'-9"	3'-11"	4'-1"	4'-3"	4'-5"	4'-7"	5'-3"	11300

### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make sure it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## C89L Bridge Overhang Bracket and Exterior Hanger Spacing

Over 4'-0" to 5'-0" Overhangs on Precast/Prestressed Concrete Girders



Design Load PSF	Maximum Overhang Thickness	Bracket "D" Dimension	Screed Load Per Bracket = S <sub>i</sub>								Hanger SWL Range (lbs.)
			2,500 lbs.	2,250 lbs.	2,000 lbs.	1,750 lbs.	1,500 lbs.	1,250 lbs.	1,000 lbs.	0 lbs.	
130	6"	30"	*	*	1'-1"	1'-9"	2'-6"	3'-3"	3'-11"	6'-8"	8000
			*	*	1'-1"	1'-9"	2'-6"	3'-3"	3'-11"	6'-10"	11300
		45"	3'-0"	3'-8"	4'-4"	4'-8"	4'-11"	5'-3"	5'-6"	6'-9"	8000
			3'-0"	3'-8"	4'-5"	5'-2"	5'-11"	6'-7"	7'-4"	8'-0"	11300
		60"	3'-9"	4'-0"	4'-4"	4'-8"	4'-11"	5'-3"	5'-6"	6'-9"	8000
			5'-10"	6'-6"	7'-2"	7'-5"	7'-9"	8'-0"	8'-0"	8'-0"	11300
157	8"	30"	*	*	*	1'-7"	2'-3"	2'-11"	3'-6"	5'-10"	8000
			*	*	*	1'-7"	2'-3"	2'-11"	3'-6"	6'-1"	11300
		45"	2'-8"	3'-4"	3'-9"	4'-0"	4'-3"	4'-6"	4'-9"	5'-10"	8000
			2'-8"	3'-4"	4'-0"	4'-7"	5'-3"	5'-11"	6'-7"	8'-0"	11300
		60"	3'-3"	3'-6"	3'-9"	4'-0"	4'-3"	4'-6"	4'-9"	5'-10"	8000
			5'-2"	5'-10"	6'-2"	6'-5"	6'-8"	6'-11"	7'-2"	8'-0"	11300
184	10"	30"	*	*	*	1'-5"	2'-0"	2'-7"	3'-2"	5'-1"	8000
			*	*	*	1'-5"	2'-0"	2'-7"	3'-2"	5'-6"	11300
		45"	2'-5"	3'-0"	3'-3"	3'-6"	3'-9"	3'-11"	4'-2"	5'-1"	8000
			2'-5"	3'-0"	3'-7"	4'-2"	4'-9"	5'-4"	5'-11"	7'-2"	11300
		60"	2'-10"	3'-1"	3'-3"	3'-6"	3'-9"	3'-11"	4'-2"	5'-1"	8000
			4'-8"	5'-2"	5'-5"	5'-7"	5'-10"	6'-1"	6'-4"	7'-2"	11300
210	12"	30"	*	*	*	1'-3"	1'-10"	2'-4"	2'-11"	4'-6"	8000
			*	*	*	1'-3"	1'-10"	2'-4"	2'-11"	5'-0"	11300
		45"	2'-2"	2'-9"	2'-11"	3'-1"	3'-4"	3'-6"	3'-9"	4'-6"	8000
			2'-2"	2'-9"	3'-3"	3'-9"	4'-4"	4'-10"	5'-4"	6'-5"	11300
		60"	2'-6"	2'-9"	2'-11"	3'-1"	3'-4"	3'-6"	3'-9"	4'-6"	8000
			4'-3"	4'-7"	4'-10"	5'-0"	5'-3"	5'-5"	5'-7"	6'-5"	11300
237	14"	30"	*	*	*	1'-2"	1'-8"	2'-2"	2'-8"	4'-1"	8000
			*	*	*	1'-2"	1'-8"	2'-2"	2'-8"	4'-7"	11300
		45"	2'-0"	2'-5"	2'-8"	2'-10"	3'-0"	3'-2"	3'-4"	4'-1"	8000
			2'-0"	2'-6"	2'-11"	3'-5"	3'-11"	4'-5"	4'-11"	5'-10"	11300
		60"	2'-3"	2'-5"	2'-8"	2'-10"	3'-0"	3'-2"	3'-4"	4'-1"	8000
			3'-10"	4'-2"	4'-4"	4'-6"	4'-8"	4'-11"	5'-1"	5'-10"	11300
264	16"	30"	*	*	*	1'-1"	1'-6"	2'-0"	2'-5"	3'-9"	8000
			*	*	*	1'-1"	1'-6"	2'-0"	2'-5"	4'-2"	11300
		45"	1'-10"	2'-3"	2'-5"	2'-7"	2'-9"	2'-11"	3'-1"	3'-9"	8000
			1'-10"	2'-3"	2'-8"	3'-2"	3'-7"	4'-0"	4'-6"	5'-3"	11300
		60"	2'-1"	2'-3"	2'-5"	2'-7"	2'-9"	2'-11"	3'-1"	3'-9"	8000
			3'-6"	3'-9"	3'-11"	4'-1"	4'-3"	4'-5"	4'-7"	5'-3"	11300
290	18"	30"	*	*	*	1'-0"	1'-5"	1'-10"	2'-3"	3'-5"	8000
			*	*	*	1'-0"	1'-5"	1'-10"	2'-3"	3'-10"	11300
		45"	1'-8"	2'-0"	2'-2"	2'-4"	2'-6"	2'-8"	2'-10"	3'-5"	8000
			1'-8"	2'-1"	2'-6"	2'-11"	3'-4"	3'-9"	4'-2"	4'-10"	11300
		60"	1'-11"	2'-0"	2'-2"	2'-4"	2'-6"	2'-8"	2'-10"	3'-5"	8000
			3'-3"	3'-6"	3'-7"	3'-9"	3'-11"	4'-1"	4'-3"	4'-10"	11300
317	20"	30"	*	*	*	*	1'-3"	1'-8"	2'-0"	3'-1"	8000
			*	*	*	*	1'-3"	1'-8"	2'-0"	3'-7"	11300
		45"	1'-6"	1'-11"	2'-0"	2'-2"	2'-4"	2'-5"	2'-7"	3'-2"	8000
			1'-6"	1'-11"	2'-4"	2'-8"	3'-1"	3'-5"	3'-10"	4'-6"	11300
		60"	1'-9"	1'-11"	2'-0"	2'-2"	2'-4"	2'-5"	2'-7"	3'-2"	8000
			3'-0"	3'-2"	3'-4"	3'-6"	3'-8"	3'-9"	3'-11"	4'-6"	11300

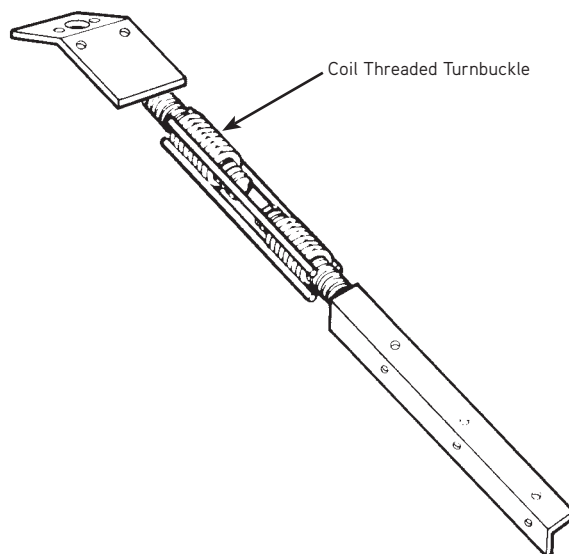
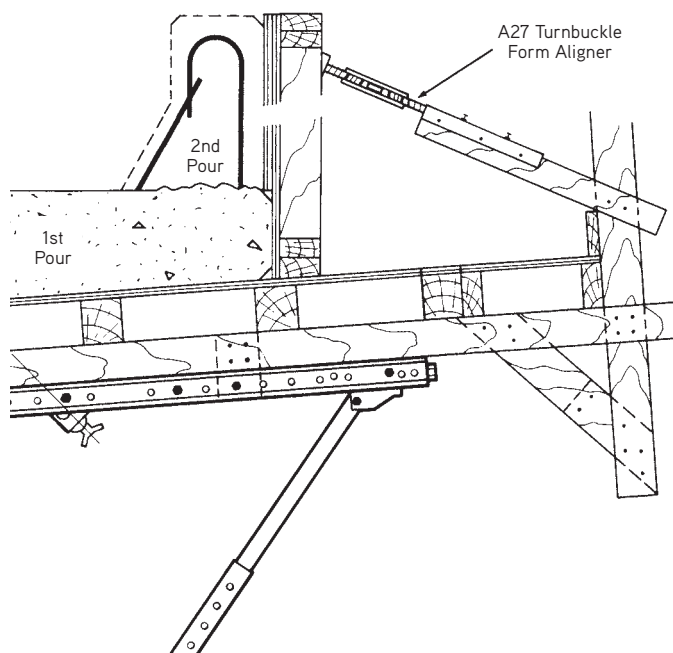
### NOTES:

- Design load calculations for the above bracket spacings are based on a dead load of 160 pcf for the concrete and formwork, a live load of 50 psf for workers, moveable equipment and materials, plus a 75 plf vertical load applied at the outside edge of the deck overhang. A 50 psf live load is also applied to the walkway area.
- Always check overhang form lumber to make sure it will span the selected bracket spacing.
- For a nominal charge, Dayton Superior Technical Assistance will calculate a recommended bracket spacing when conditions on your specific project vary from those shown.

## A27 Turnbuckle Form Aligner

The A27 Turnbuckle Form Aligner consists of a 1-1/2" x 1-1/2" x 20" angle welded to a 1" diameter turnbuckle assembly. The self-cleaning coil thread offers quick adjustment for plumbing and aligning formwork. Minimum overall length of the aligner is 37". Maximum extended overall length is 40".

Nail holes in the angle allow the unit to be affixed to a length of 2x4 or 2x6 to extend the effective length of the aligner. The nailing plate is furnished with nail holes for attaching to the form and also has a 15/16" hole. The safe working load of the form aligner is limited by the lumber and nailing procedures.



To Order:  
Specify: (1) quantity, (2) name.

Example:  
75 pcs., A27 Turnbuckle Form Liner.

### SAFETY NOTE:

A27 Turnbuckle Form Aligner is not designed for use as bracing resisting wind loads.

## B12 Continuous Coil Threaded Rod

B12 Continuous Coil Threaded Rod is manufactured from high strength cold rolled steel and is available in precut lengths or in 12' lengths for field cutting. Use for supporting interior formwork, overhang brackets and exterior formwork.



Diameter	Tension SWL	Cross Section area
1/2"	9,000 lbs.	0.1385 sq. in.
3/4"	18,000 lbs.	0.3098 sq. in.

SWL provides a factor of safety of approximately 2 to 1.

### SAFETY NOTE:

The user should be aware that there are no industry standards for coil threads and the user should not use coil threaded products supplied by others with a Dayton Superior coil threaded product.

### To Order:

Specify: (1) quantity, (2) name, (3) diameter.

### Example:

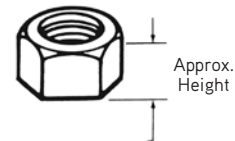
75 pcs., B12 Coil Rod, 1/2" diameter.

## B13 Coil Nut and B25 Heavy Coil Nut

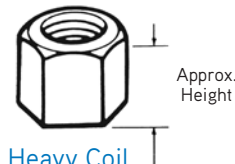
The B13 Coil Nut and B25 Heavy Coil Nut are manufactured with coil thread and are used in conjunction with other coil threaded products to support bridge deck formwork.

B13 and B25 Coil Nut Selection Chart

Coil Nut Type	Dia.	Approx. Height	Safe Working Load Tension (lbs.)	
			Using One B13 Nut	Using Two B13 Nuts or One B25 Heavy Nut
B13	1/2"	7/16"	6,000	9,000
B25	1/2"	1-3/16"	—	9,000
B13	3/4"	5/8"	9,000	18,000
B25	3/4"	1-3/16"	—	18,000



B13 Standard Coil Nut



B25 Heavy Coil Nut

### To Order:

Specify: (1) quantity, (2) name, (3) bolt diameter.

### Example:

200 pcs., B13 Coil Nut, 3/4".

S.W.L. provides a factor of safety of approximately 2 to 1.

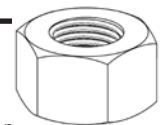
## B13H Coil Nut

The B13H Coil Nuts are manufactured with coil thread and are used in conjunction with other coil threaded products to support bridge deck formwork. In order to achieve the rated safe working load of 11,300 lbs. per side, 3/4" diameter rod. Heavy coil nut measures 1-1/4" across flats are required.

C60 Type 9, 9A, 9AN and C89L Overhang bracket require a B13H Coil Nut.

Coil Nut Type	Dia.	Approx. Height	Width Across Flats	Safe Working Load (lbs)
B13H	3/4"	3/4"	1-1/4"	12,000

S.W.L. provides a factor of safety of approximately 2 to 1.



### SAFE WORKING LOAD

11,300 lbs per side with 3/4" B13H Coil Nuts SWL provides a factor of safety of approximately 2 to 1. WARNING: Hangers must be equally loaded on both sides.

### To Order:

Specify: (1) quantity, (2) name, (3) bolt diameter.

### Example:

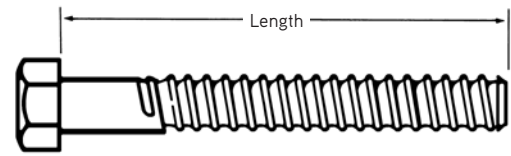
200 pcs., B13H Coil Nut, 3/4".

## B14 Coil Bolt and B14A Adjustable Coil Bolt

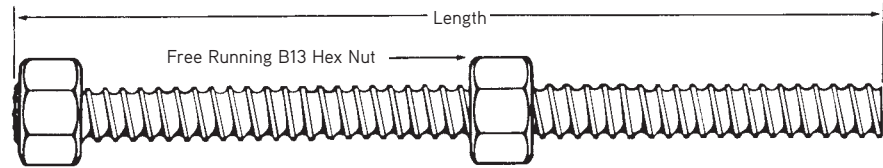
The B14 Coil Bolt has an integral forged head and is available in 1/2" and 3/4" diameters and lengths as required. The B14 is used with interior and exterior hangers to suspend bridge deck formwork.

The B14A Adjustable Coil Bolt consists of a length of coil rod with a welded head (Coil Nut) and a free-running Coil Nut. The B14A is available in 1/2" and 3/4" diameters and in 12", 16", 18", 20" and 24" standard lengths. Custom lengths are available on request.

B14A Adjustable Coil Bolts are especially recommended for use with bridge deck formwork, as one B14A Adjustable Coil bolt can take the place of several different lengths of B14 Coil bolts. This is accomplished by adjusting the free running nut to compensate for changes in the needed "form grip".



B14 Coil Bolt



B14A Adjustable Coil Bolt

To Order:

Specify: (1) quantity, (2) name, (3) diameter, (4) length.

Example:

150 pcs., B14A Adjustable Coil Bolt, 1/2" diameter x 24" long.

Type	Diameter	Head Type	Length	Tension SWL	Type Nut on Opposite End	Minimum Coil Penetration
B14	1/2"	Forged	6" and over	9,000 lbs.	(2) B13	2"
B14A	1/2"	Welded	All	6,000 lbs.	(1) B13	2"
B14	3/4"	Forged	All	20,050 lbs.	(2) B13	2"
B14A	3/4"	Welded	All	9,000 lbs.	(1) B13	2-1/4"
B14A	3/4"	Welded	All	18,000 lbs.	(1) B25	2-1/4"

SWL listed provides a factor of safety of approximately 2 to 1.

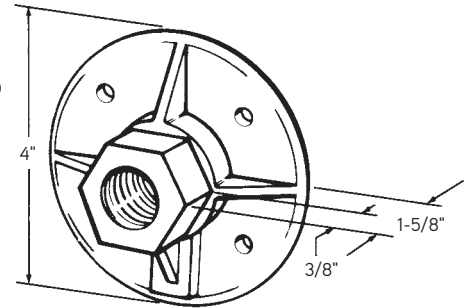


## B27 Coil Nut Washer

The B27 Coil Nut Washer is a uniquely designed, one-piece ductile casting that combines the advantages of a washer and nut into one part. Nail holes are provided to secure the washer to lumber forms, when needed.

Available in 1/2" and 3/4" coil thread diameters. Distance across flats of the nut portion is 1-3/8" for both diameters.

Safe working load for the 1/2" diameter is 4,500 lbs. and 9,000 lbs. for the 3/4" diameter. SWL provides for approximately a 2 to 1 factor of safety.



## B39 Coil Wing Nut

The B39 Wing Nut is available in 1/2" and 3/4" coil thread diameters for use hanging bridge deck form work.

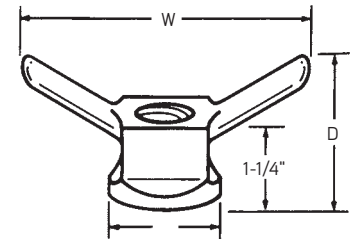
Ideal for use with bridge formwork, as a sharp "blow" from a hammer will loosen the wing nut sufficiently, allowing removal of the wing nut by hand. Eliminates the need to use a wrench when in an awkward working position beneath the formwork.

Diameter	D	W	SWL
1/2"	2-3/8"	5"	9,000 lbs.
3/4"	2-5/8"	5-3/4"	18,000 lbs.

SWL provides a factor of safety of approximately 2 to 1.

### SAFETY NOTE:

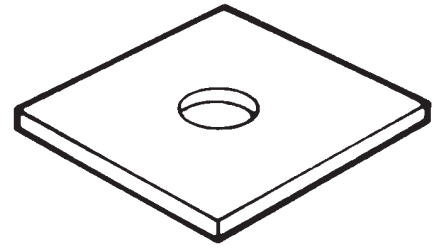
There are no industry standards for coil threads and the user should not use coil threaded products supplied by others with a Dayton Superior coil threaded product.



## B11 Flat Washer

Flat washers are fabricated from 1/4" or 3/8" thick flat steel plate and are available in the sizes shown in the chart.

For best results, the washer should be positioned so that the washer's length runs parallel to the walers and the gap between the walers does not exceed the bolt diameter plus 1/4".



Type	Bolt Diameter	Safe Working Load	Sizes
B11 Standard	1/2"	6,750 lbs.	3" x 4" x 1/4"
B11 Heavy	1/2"	8,750 lbs.	4" x 5" x 1/4"
B11 Standard	3/4"	6,750 lbs.	4" x 5" x 1/4"
B11 Heavy	3/4"	14,000 lbs.	5" x 5" x 3/8"
B11 Standard	1"	18,500 lbs.	5" x 5" x 1/2"
B11 Heavy	1"	38,000 lbs.	7" x 7" x 3/4"
B11 Standard	1-1/4"	22,750 lbs.	5" x 5" x 1/2"
B11 Heavy	1-1/4"	50,750 lbs.	7" x 7" x 3/4"
B11 Standard	1-1/2"	26,250 lbs.	5" x 5" x 3/4"
B11 Heavy	1-1/2"	41,500 lbs.	7" x 7" x 3/4"

SWL provides a factor of safety of approximately 2 to 1.

**To Order:**  
Specify: (1) quantity, (2) name, (3) diameter, (4) type, (5) size.

**Example:**  
150 pcs., B11 Flat washer, 1/2" Heavy, 4"x4"x1/4".

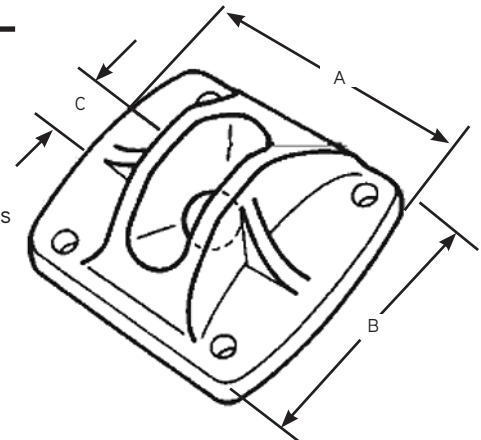
## B42 Batter Washer

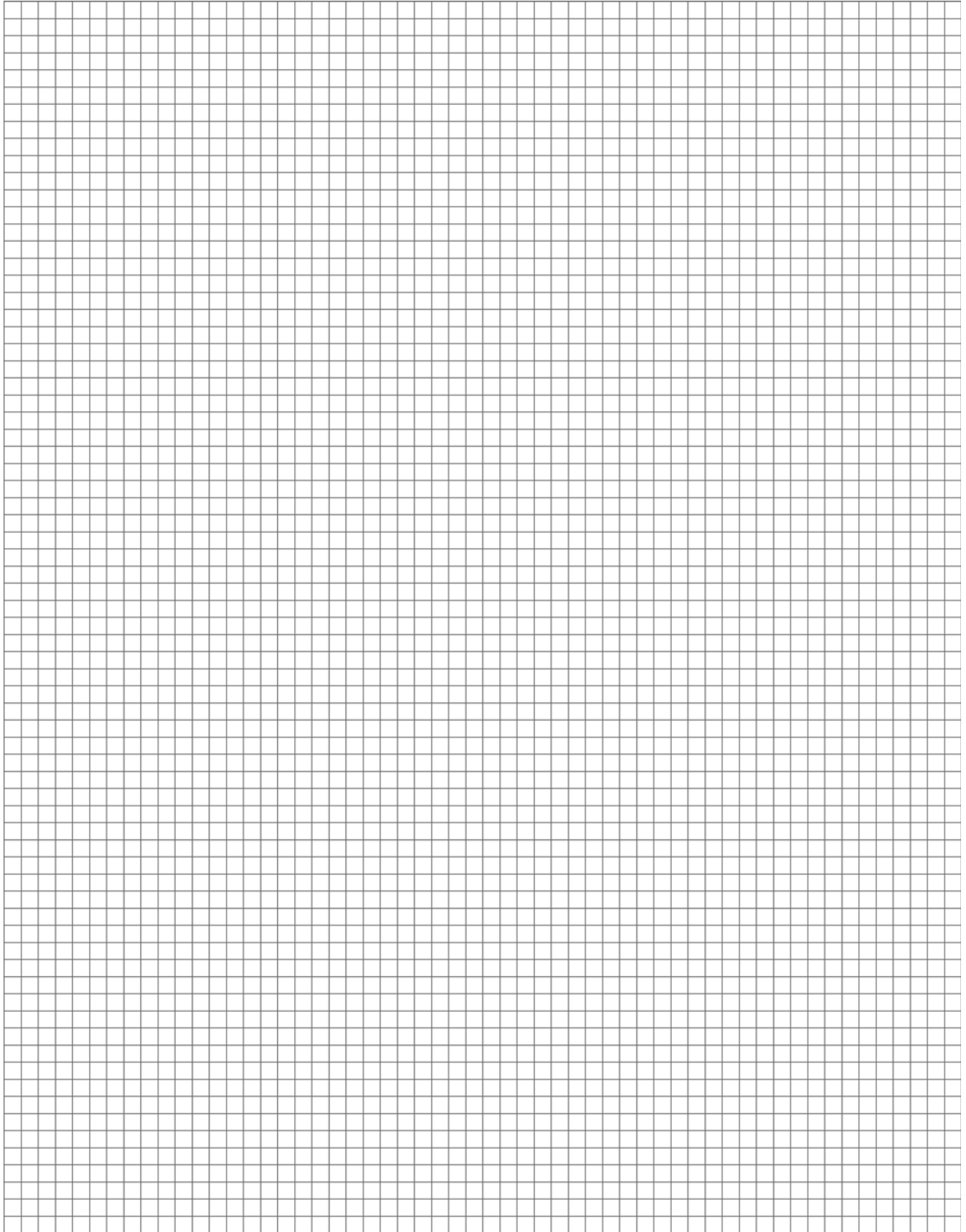
The B42 Batter Washer is available for use with 1/2" and 3/4" coil bolts.

The B42 washer is designed to swing freely to any desired angle up to 45° which allows for proper bearing of a bolt head.

Nail holes are provided to secure the washer to lumber ledgers. Multiple raised ridges or "lumber grips" are designed on the underside of the washer, which with the nails work to prevent washer slippage under angular loading conditions.

Diameter	A	B	C	SWL
1/2"	3-7/8"	3-1/2"	1"	9,000 lbs.
3/4"	4-3/4"	4-3/4"	1-1/2"	18,000 lbs.





## Bar Supports for Reinforcing Steel

Dayton Superior manufactures a complete line of wire and plastic bar supports for use in supporting reinforcing steel. Dayton Superior bar supports are shipped in convenient cartons, bundles or skids and are clearly identified by size.

### Bar Support Spacing

When the project plans do not specify a spacing for bar supports, Dayton Superior recommends the following:

#### Condition A:

When using continuous bar supports (SB and CHC) to support both the bottom and top mat of reinforcing steel:

Dimension "A" equals 1'-0" maximum and dimension "B" equals 4'-0" maximum.

#### Condition B:

When using continuous bar supports (SB) to support the bottom mat and individual chairs (HC) supporting the top mat of reinforcing steel

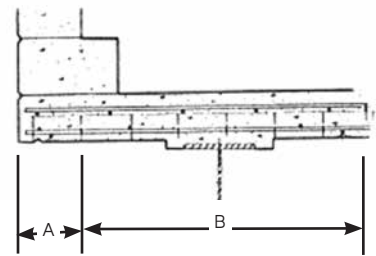
Dimension "A" equals 1'-0" maximum and dimension "B" equals 4'-0" maximum.

#### Condition C:

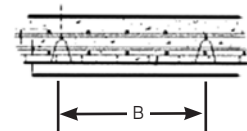
When using continuous bar supports (SB) to support the bottom mat and an upper bar support (SBU or CHC) to support the top mat of rebar:

Dimension "A" equals 9" maximum and dimension "B" equals 3'-0" maximum.

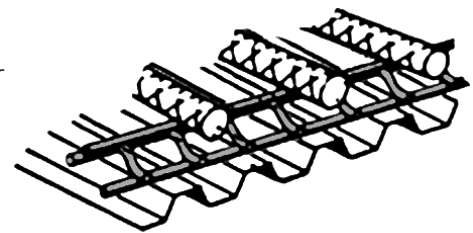
For metal decking, it is recommended to use an SBU or CHCU to span across the decking.



Overhang of Bridge



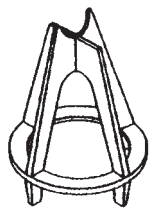
Interior of Bridge



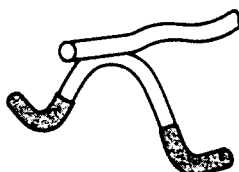
Metal Decking

### Corrosion Protection

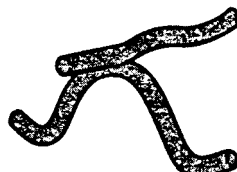
Bar supports are available as all plastic or from wire that is either bright basic, plastic dipped, epoxy coated, plastic tipped or stainless steel tipped to meet the various corrosion protection specified by the state DOT.



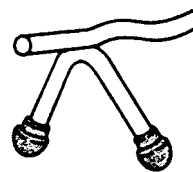
All Plastic



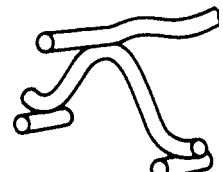
Plastic Dipped



Epoxy-Coated



Plastic Tipped



SS Tipped

## Aztec® E-Z Chair® - PEZ

### APPLICATION:

Single Mat-Rebar or Wire Mesh, Bottom Layer Double Mat Rebar or Wire Mesh, Tilt-Wall, Side-Form Spacer

### HEIGHT:

From 3/4" to 6" in 1/4" increments

### FEATURES:

- Standard "Concrete Gray" color (custom colors available-inquire)
- Minimal surface contact
- Designed for maximum aggregate flow and concrete consolidation
- High load capacity
- Fits up to #8 rebar



## Aztec® Straddle Chair - PSC

### APPLICATION:

Single Mat-Rebar or Wire Mesh, Bottom Layer Double Mat-Rebar or Wire Mesh, Tilt Wall, Side-Form Spacer

### HEIGHT:

From 4" to 7-3/4"

### FEATURES:

- Fits rebar #3 to #11
- Minimal footprint with staple down feature
- With 2 sizes per chair
- Straddles lower rebar mat



## Aztec® Castle Chair™ - PCC

### APPLICATION:

On-Grade, Single Mat Rebar or Wire Mesh, Bottom Layer Double Mat Rebar or Wire Mesh, Precast, Tilt-Wall, Insulated "Sandwich" Panels

### HEIGHT:

From 1-1/2" to 6-1/4" (1/4" increments)

### FEATURES:

- Heavy-duty, stackable design
- Fits up to #8 rebar
- Perfect for use on insulating foam or nonpenetrable vapor barriers
- Most stable on-grade chair available
- Each chair comes in two height combinations reducing inventory

Square Base



Round Base



## Aztec® EZ Connect™ PSB

### APPLICATION:

Provides a continuous, strong and stable support for spacing rebar in a variety of applications.

### HEIGHT:

From 3/4" to 3"

### FEATURES:

- EZ Connect end design allows for a fast and secure connection
- Non-corrosive material
- Heights range from 3/4" to 3"
- Available in 2.5', 5' and 10' lengths
- Newly modeled support bed holds rebar in place



## Aztec® StrongBack SBU™ Slab Bolster Upper - PSBU

### APPLICATION:

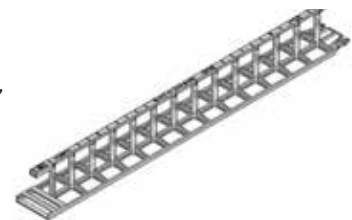
Supports top layer in Double Mat application, Rebar or Wire Mesh, Slabs, Heavy Duty On-Grade, Corrugated Decking, Side-Form Spacer-below-grade applications only

### HEIGHT:

From 1" to 5" (1/4" increments)

### FEATURES:

- Designed for use with Epoxy-Coated/FRP/Stainless Steel/Galvanized rebar
- For use in corrosive environments
- Spans corrugations in elevated deck applications
- Special packaging available in 5' or 10' sections, bundled and palletized
- Suitable for use on Vapor Barriers or Insulating Foam
- No overlap required
- Manufactured in 30" lengths in standard boxes
- Strong as metal SBU



## Bar Chair - BC

### APPLICATION:

To support wide spaced light steel in slab or deck construction.

Available in plain, galvanized, plastic dip, plastic tip or epoxy coated finish.

### HEIGHT:

3/4" to 2", in 1/4" increments

### FEATURES:

- Formed cradle to place wire mesh or reinforcing bar.
- Foot designed to set on most forming surfaces.



## Individual High Chair - HC

### APPLICATION:

To support reinforcing bar or wire mesh during concrete placement in Flat Slab, Tilt Wall Panel, Elevated Slabs, Precast Panels projects, to maintain proper concrete coverage.

### HEIGHT:

Available in heights of 2" to 15" in increments of 1/4". Chairs over 12" require cross bracing or lacing of legs.

### FEATURES:

- Formed cradle for placing reinforcing bar.
- Designed to resist deformation under construction loading.
- Wide leg span to allow chair to straddle lower bars.
- Foot designed for use on multiple forming surfaces. Plastic Dipped and Plastic Tipped chairs designed for exposed conditions, i.e. Tilt Wall Panels.



## Slab Booster - SB

### APPLICATION:

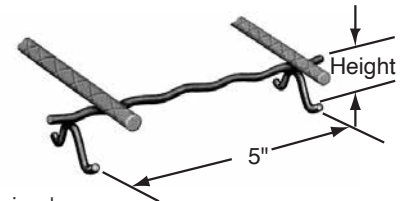
To support lower slab steel, on continuous 5ft long top wire.

### HEIGHT:

3/4" to 3", in 1/2" increments.

### FEATURES:

- Corrugations on top wire are space on 1" centers to serve as guides for spacing reinforcing bars.
- Available in plain, galvanized, plastic dip, plastic tip or epoxy coated finish



## Slab Booster Upper - SBU

### APPLICATION:

To support one layer of steel above another and space them to required distance. May also be used to support steel on soft material form surface, such as carton forms or fill material.

### HEIGHT:

3/4" to 3", in 1/2" increments.

### FEATURES:

- Some sizes are available with corrugated top wire to serve a guide for spacing reinforcing steel.
- Available in plain, galvanized, stainless steel or epoxy coated.
- 5' lengths standard. Other lengths available as special order.



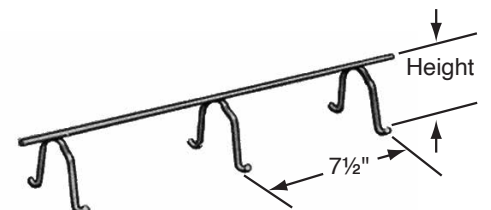
## Continuous High Chair - CHC

### APPLICATION:

- Support upper slab steel from slab form surface.
- Substitutes for individual chair supports.

### NOTE:

Available in 10' lengths on special order basis.



## Premium Tie Wire - WTW

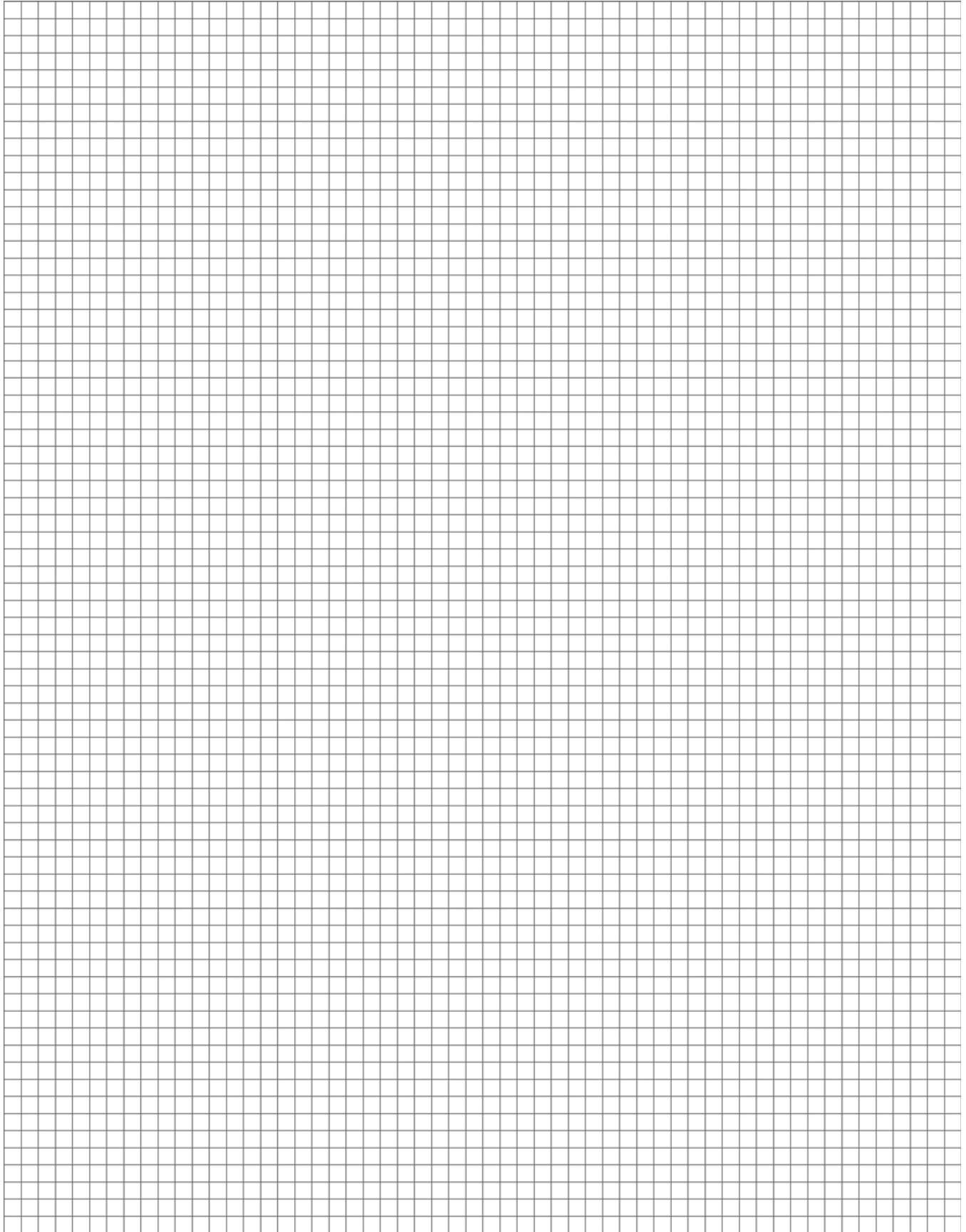
### APPLICATION:

The WTW Premium Tie Wire is used to create a tie wire connection at rebar intersections.

### FEATURES:

- Soft, annealed composition
- Clean, smooth finish
- Square wound





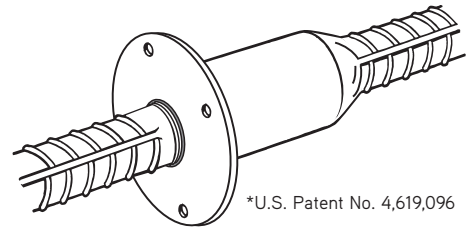


## Dowel Bar Splicing System

This system is a two-piece system consisting of male and female threaded rebars that have been upset on the threaded end. Available in reinforcing bar sizes #4 through #11 meeting ASTM A 615 Grade 60 requirements in plain or epoxy finishes.

The manufacturing process ensures that no reduction occurs in the cross-sectional area of the projects specified rebar. It also allows the complete splice to achieve 160% of the rebars 60,000 psi yield strength and develop the full ultimate strength of the specified rebar.

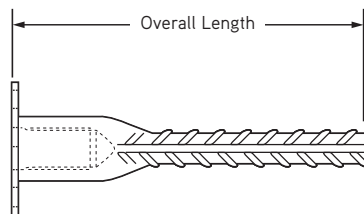
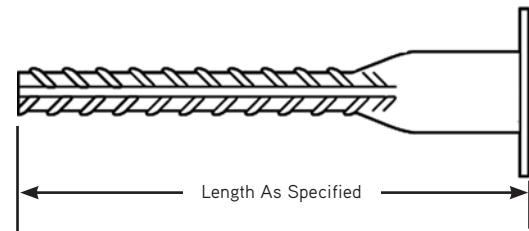
The Dowel-Bar Splicer System offers the contractor many advantages, including eliminating drilling of holes in the forms so rebars can pass through, eliminating any rebar protruding from the concrete and greatly reduces injuries from rebar protruding from the concrete.



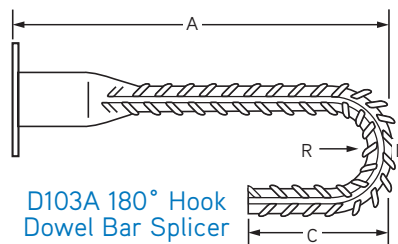
## Dowel Bar Splicer

The Dowel Bar Splicer can be furnished straight, with a 90° or 180° hooked end or double-ended. The splicer can also be special-ordered with a reduced diameter washer flange or with the washer flange clipped (in more than one direction, if required) to provide adequate concrete cover or to avoid interference.

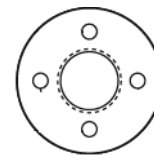
The Double-Ended Dowel Bar Splicer can be used to establish a direct load path through a concrete section, thus avoiding multiple hooked rebar and eliminating rebar congestion. The doubled-ended unit can be configured in a "U" shape for special applications.



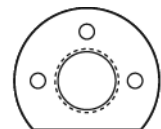
D101A Straight Dowel Bar Splicer



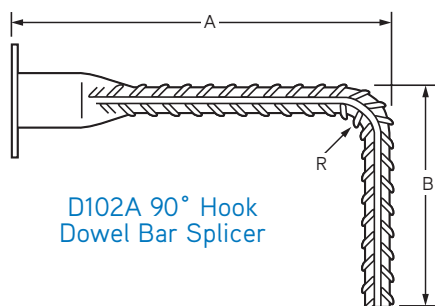
D103A 180° Hook Dowel Bar Splicer



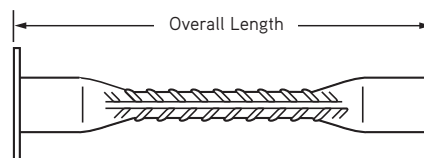
Standard Flange



Clipped Flange



D102A 90° Hook Dowel Bar Splicer



D104A Double-Ended Dowel Bar Splicer

### To Order:

Specify (1) quantity, (2) name, (3) rebar number, which is the same number as on project plans, (4) A, B and C dimensions as required, (5) finish.

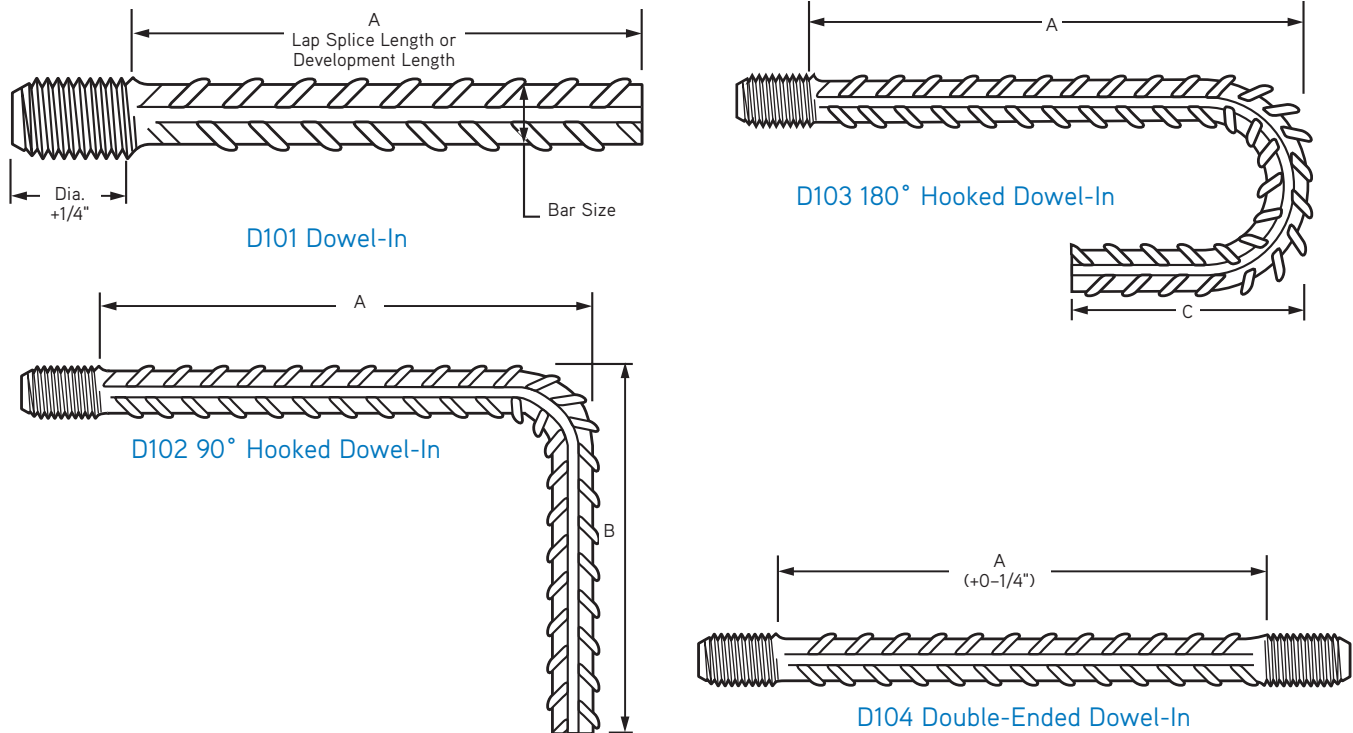
### Example:

800 pcs. DA 101A Straight Dowel Bar Splicer, #4 x 36" long, Epoxy Coated.

## Dowel Bar Splicer Dowel-In

The Dowel-In is the male portion of the Dowel Bar Splicer System and is also available straight, with a 90° or 180° hooked end or double-ended.

For complete information on the Dowel Bar Splicing System, see the *Rebar Splicing Handbook* online.



## D50 DBR Coupler System

The D50 DBR Coupler System is comprised of three parts, a coupler and two lengths of threaded rebar. The coupler is fabricated from high quality steel satisfying ASTM A-108. DBR Couplers accommodate rebar sizes #4 through #11 and have an internal positive stop to ensure proper thread engagement.

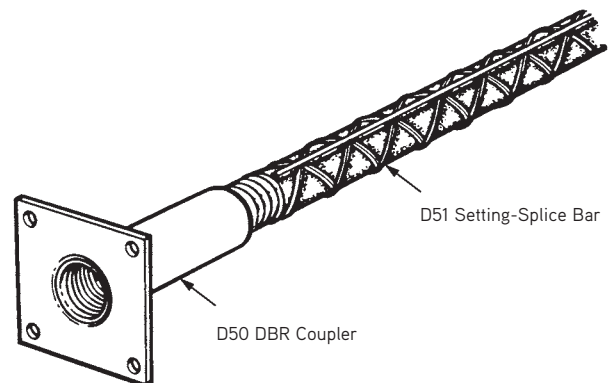
Due to the threads being cut into the rebar, the user must up-size one bar number from that specified on the projects plans.

This rebar splicing system is designed to meet codes requiring the rebar splice to develop 125% of the specified rebar's yield strength.

The Setting-Splice Bars are available as:

- D51 DBR Straight Bar threaded on one end,
- D52 DBR 90° Hook Bar threaded on one end,
- D53 DBR 180° Hook bar threaded on one end,
- D54 DBR Straight Bar threaded on both ends.

For complete information on the D50 DBR Coupler System, see the *Rebar Splicing Handbook* online.



## D250 Bar Lock® Coupler

The Bar Lock Coupler provides a quick, cost effective method for use when rehabbing a bridge, as they allow the users to connect an existing rebar to a new rebar. Couplers are available in three styles – S/CA, L and the XL Series, and may be used with plain or deformed bars in sizes #4 –to #18.

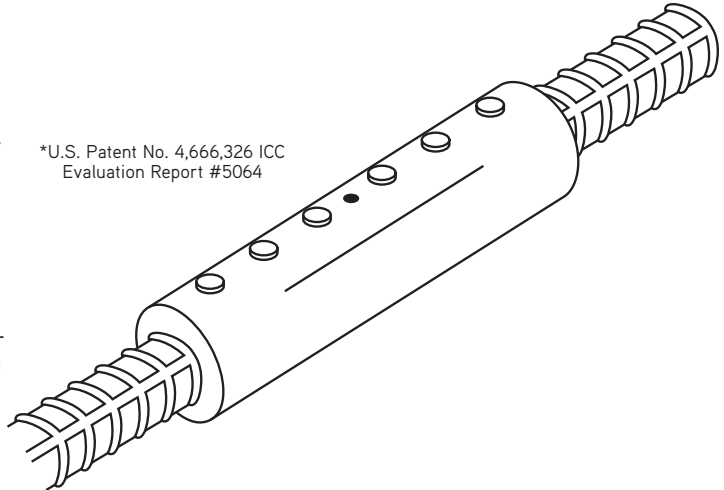
When using the Bar Lock S/CA-Series Coupler to connect two rebars, the splice will 125% Fy of grade 60 rebar for type 1 splice requirements.

When using the Bar Lock L-Series Coupler to connect two rebars, the splice will develop 100% Fu of grade 60 rebar for type 2 splice requirements. The XL-Series coupler will meet 100% Fu of grade 75 and 80 rebar for type 2 requirements.

Bar-Lock Couplers are covered under IAPMO Report ER-319 and approved for use by most state DOTs.

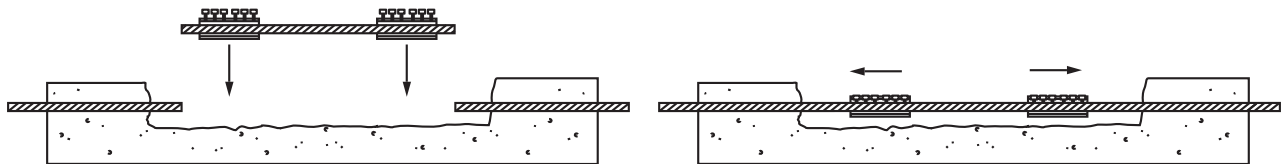
For complete information and installation instructions on the D250 Bar Lock Coupler, see the Dayton Superior *Rebar Splicing Handbook* online.

\*U.S. Patent No. 4,666,326 ICC  
Evaluation Report #5064

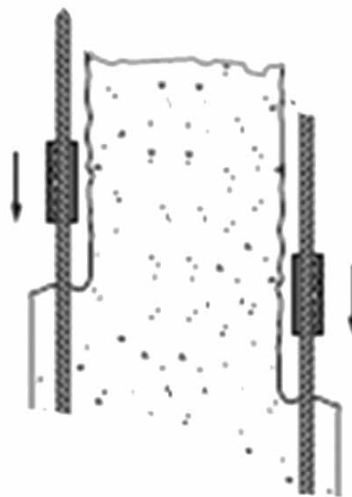


Typical Completed Splice

## Replacement of Corroded Bridge Reinforcing Steel



Typical Bridge Deck Repair



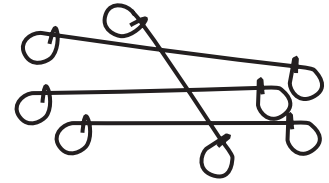
Typical Pier Repair

## D42 Bag Ties

The D42 Bag Ties are 16 gauge annealed loop-ended wire ties used for tying rebar and many other non-construction items such as bags and carpet rolls. Bag ties are stocked in 4", 5", 6", 7", 8", 10" and 12" lengths. Other lengths and gauges are available on special order. 4" through 8" bag ties are packaged in coils of 1,000 pieces, five coils per bag. 10" and 12" bag ties are packaged 2,500 pieces per bag.

**To Order:**  
Specify (1) quantity (sold by bag and/or skid only), (2) name, (3) length.

**Example:**  
5 bags, D42 Bag Ties, 6" long.



D42 Bag Ties

## PC110 Impalement Safety Cap

- Protects workers from protruding rebar
- Impalement protection
- One size fits #3 [10mm] through #11 [36mm] rebar
- Approved for flat stakes (3/8" x 1.5") and round stakes (5/8" to 7/8")
- Safety orange color
- Fully tested and approved (OSHA #C1730-AG)
- Meets Cal OSHA max. drop test requirements
- Complies with Cal OSHA, Section 1712



PC110 Impalement Safety Cap

## D46 Tie Wire

The D46 Tie Wire is 16 gauge, black annealed wire used to tie reinforcing steel. This soft, pliable wire is available in 3.5 pound coils with 385 feet of wire in each coil. Packaged twenty coils per carton and 48 cartons per skid.

**To Order:**  
Specify (1) quantity (sold by carton and/or skid only), (2) name.

**Example:**  
5 cartons, D46 Tie Wire.



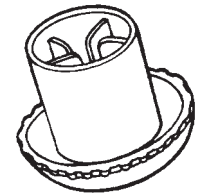
D46 Tie Wire

## D48 Sure-Guard® Rebar Protective Cap

The D48 Sure-Guard Rebar Protective Caps have been developed to protect workmen from the hazards of protruding rebar. The D48 cap is available in all rebar sizes, and packaged in bags of 50.

**To Order:**  
Specify (1) quantity, (2) name, (3) bar size.

**Example:**  
600, D48 Sure-Guard Rebar Protective Caps for #6 rebar.



D48 Sure-Guard Rebar Protector

## G1 Pipe Holder

Dayton Superior's G1 Pipe Holder is designed to be used with 1/2" or 3/4" screed chairs to support pipe screed bars.



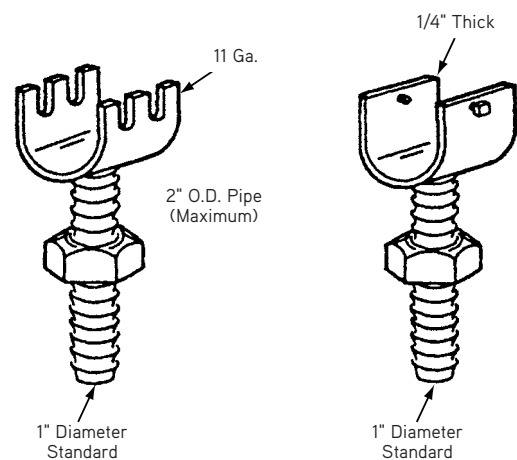
G1 Pipe Holder

## G14 Heavy Duty Screed Holders

The G14 Heavy Duty Screed Holders consist of a rolled steel plate welded to a length of 1" diameter coil rod. This screed holder is used with a free-fit screed base to support screed pipe of various sizes.

The "open style" is fabricated from 11 gauge steel and is limited to 2" O.D. or smaller, pipe. The "closed style" is fabricated from 1/4" steel and is fitted with two 5/16" diameter set screws.

The closed style holder can accommodate screed pipe up to 3" O.D. Both styles are available in 4-1/4", 6-3/4" and 9-3/4" lengths with one Coil Nut included with each holder.

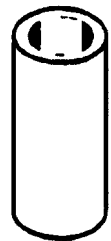


G14 Heavy Duty Screed Holders

## G15 Heavy Duty Screed Support

The G15 Heavy Duty Screed Support is available in 1" and 1-1/4" diameters in 3", 4" and 6" heights. They are welded to a steel beam to provide a receptacle for a screed holder to support the screed pipe.

Vertical adjustment is accomplished by turning the jam nut on the Screed holder.



G15 Heavy Duty Screed Support

## G16 Heavy Duty Screed Chair Base

The G16 Heavy Duty Screed Chair Base is a rigid support designed for heavy vibratory screed applications. Available in two styles, 1" or 1-1/4" coil and 1" or 1-1/4" free-fit.

Standard heights are 4-1/2", 5-1/2", 7-1/2" and 10".

The G16 with interlocking legs will have a Safe Working Load in compression of 1,500 lbs at a 2 to 1 factor for safety, with a maximum 1/10" deflection.



G16 Heavy Duty Screed Chair Base  
Coil Style With Interlocking Legs

45° Adjustable Half Hanger .....	53	C61 .....	57
45° Heavy Duty Adjustable Half Hanger .....	54	C62 .....	44
90° Type 4B Ty-Down Half Hanger .....	34, 35	C63 .....	35, 50
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	<h1>WARNING</h1>
	<p><b>Improper Use of Bridge Deck Accessories May Cause Property Damage, Serious Injury or Death</b></p> <p>Read, understand and follow the information and instructions in this publication before using any of the Dayton Superior concrete accessories displayed herein. When in doubt about the proper use or installation of any Dayton Superior concrete accessory, immediately contact the nearest Dayton Superior Service Center or Technical Service for clarification.</p>

## Definitions

- Dead load is the actual weight of the concrete plus the weight of the formwork per square foot of form contact area.
- Design load is the combined weight, per square foot of form contact area, of dead load and live load.
- Factor of safety is a term denoting the theoretical reserve capability of a product. It is determined by dividing the ultimate load by the safe working load. This is expressed as a ratio: for example 2 to 1.
- Form anchor is a device used to secure formwork to previously placed concrete of adequate strength.
- Form hanger is a device used to suspend formwork from structural steel beams, fabricated steel girders, precast concrete girders or other members.
- Impact load is a dynamic load such as the loads resulting from the motion of machinery, dumping of concrete or similar moving forces. An impact load may have an effective loading several times the design load.
- Live load is a load imposed during the construction process, such as material storage, workers and equipment.
- Safe working load is the maximum load that should be applied to a product.
- Ultimate load is the average load at which a product will no longer support a load or will fail.





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