

# busSTRUT Shop Drawing Set

## Express Grid (Large)

### busSTRUT SHOP DRAWING SET (ONLY)

NOT A REPLACEMENT FOR ARCHITECTURAL/ENGINEERING/ ELECTRICAL SPECIFICATIONS. (DEFER TO THEIR DRAWINGS)

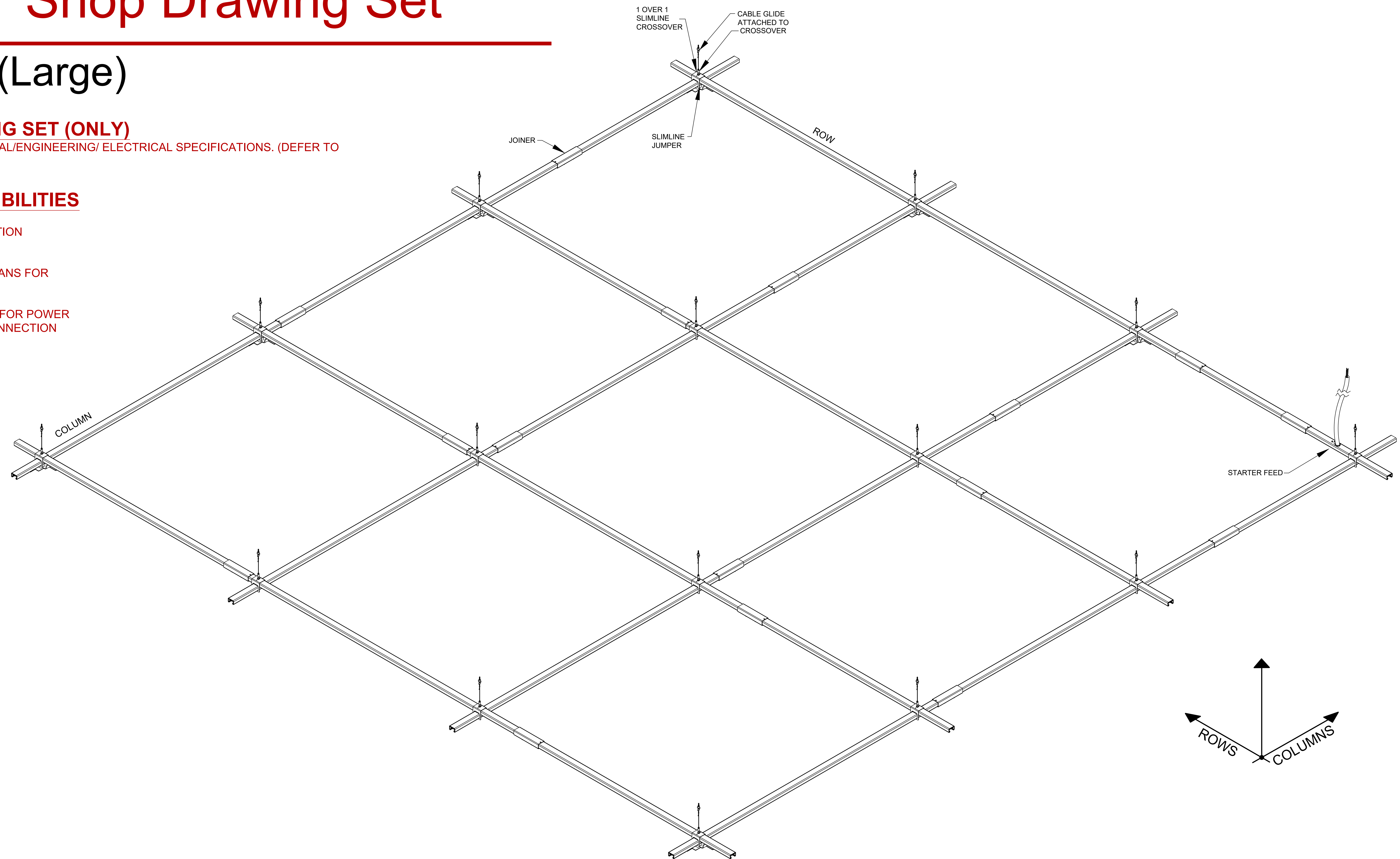
### CONTRACTOR RESPONSIBILITIES

CONTRACTOR IS RESPONSIBLE FOR:

- 1.- FOLLOWING busSTRUT CONFIGURATION MOUNTING POINT RULES.
- 2.- REFERRING TO ARCHITECTURAL PLANS FOR PLACEMENT OF LIGHTS.
- 3.- REFERRING TO ELECTRICAL PLANS FOR POWER DISTRIBUTION AND ELECTRICAL CONNECTION REQUIREMENTS.

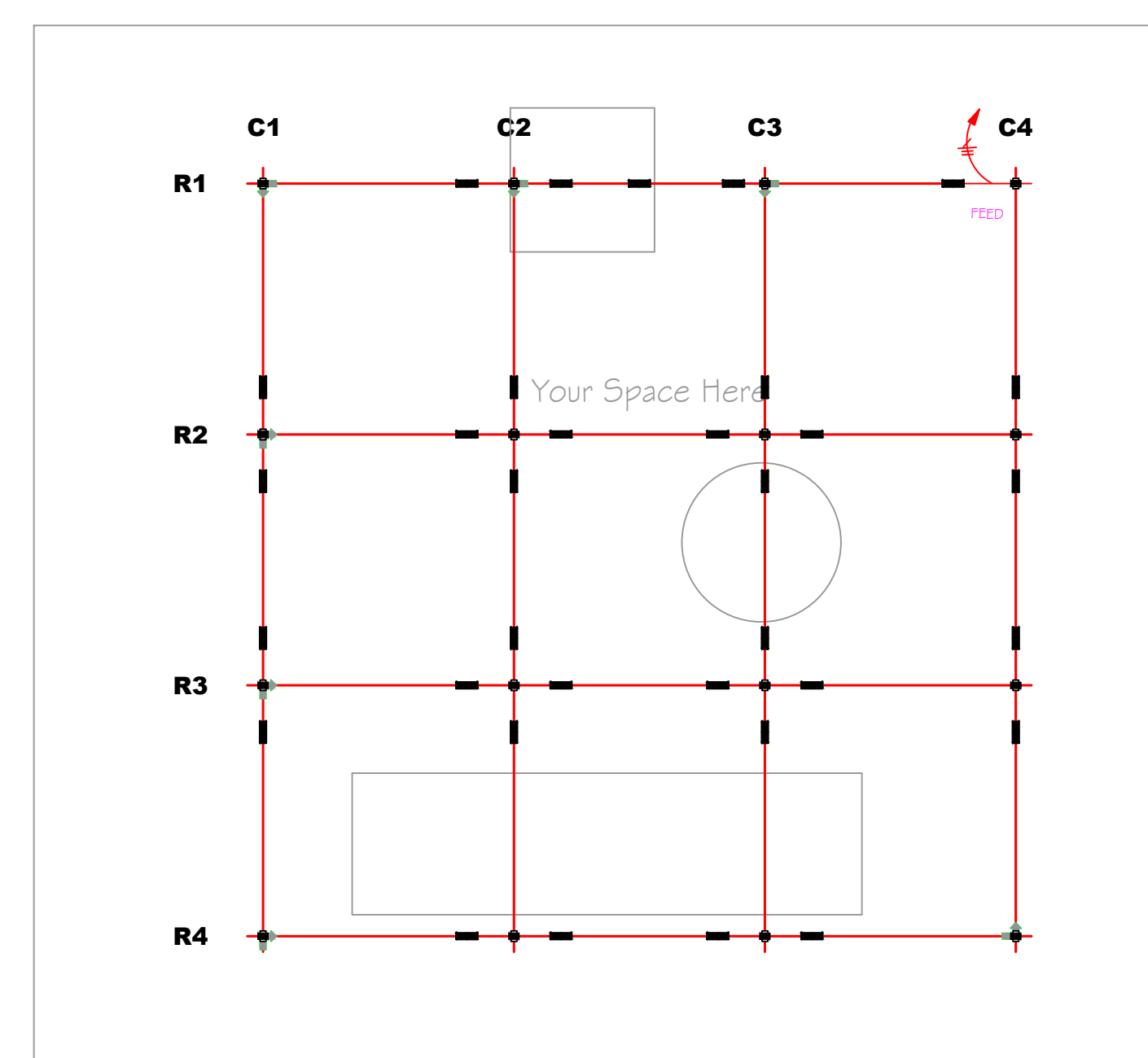
### CONNECTION TO STRUCTURE

ATTACHMENT FROM busSTRUT SYSTEM TO STRUCTURE MUST BE ENGINEERED AND INSTALLED TO PROPERLY SUPPORT THE ENTIRE SUSPENDED WEIGHT.



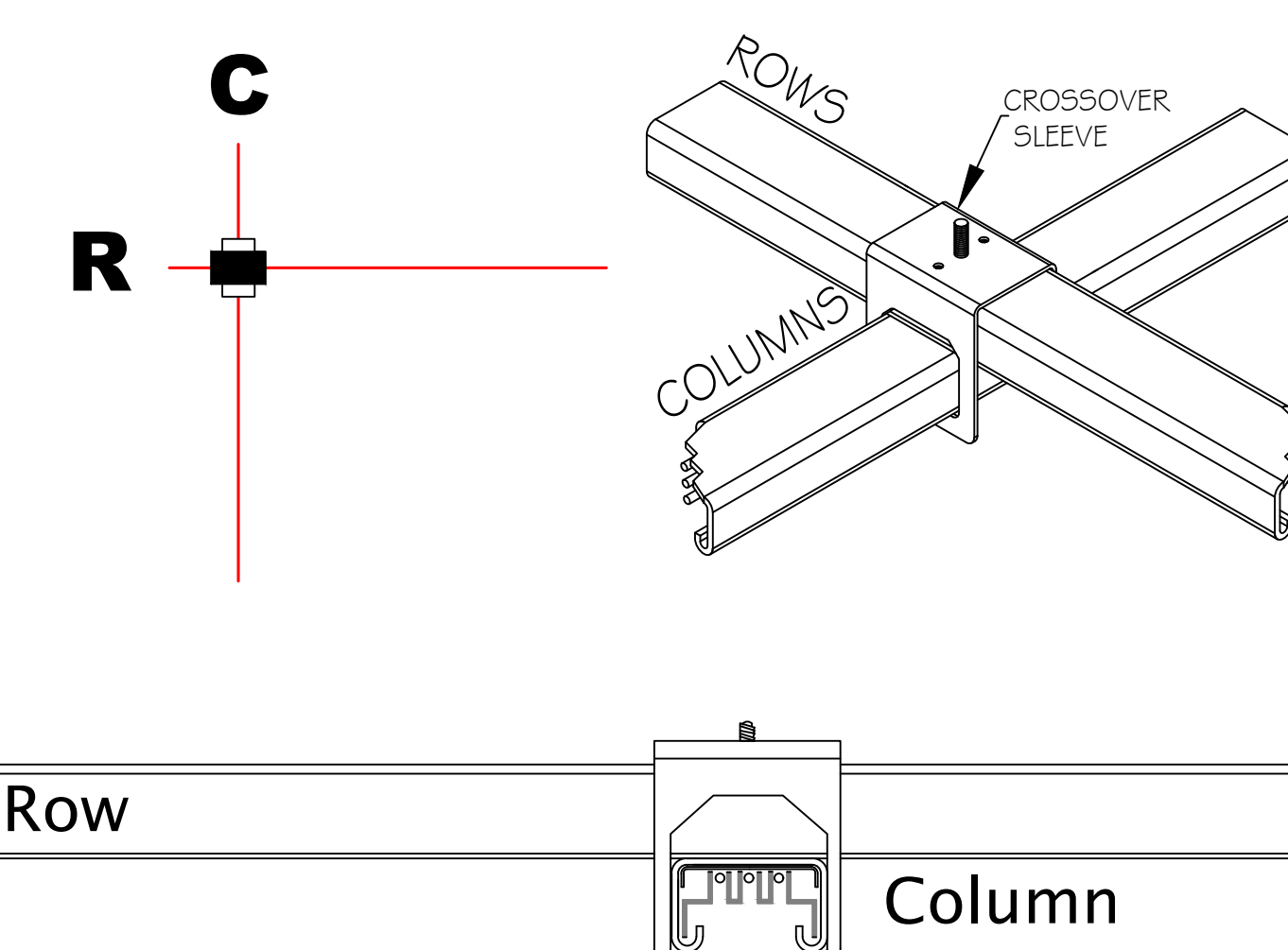
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### KEY MOUNTING RULES

Rows are to be mounted on top of Columns.  
Crossover sleeve runs with Rows.



### Legend

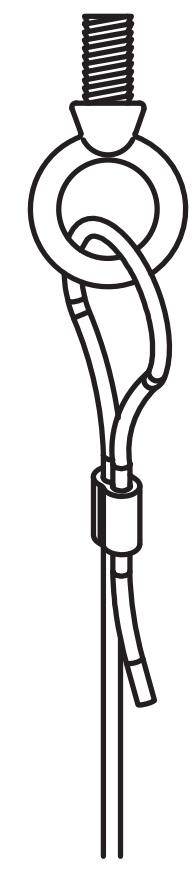
- busSTRUT 20 / Single Deck
- 30" Starter Feed
- Joiner
- 1/1 Slimline Crossover
- Slimline Jumper

### APPROVAL



# STEP 1

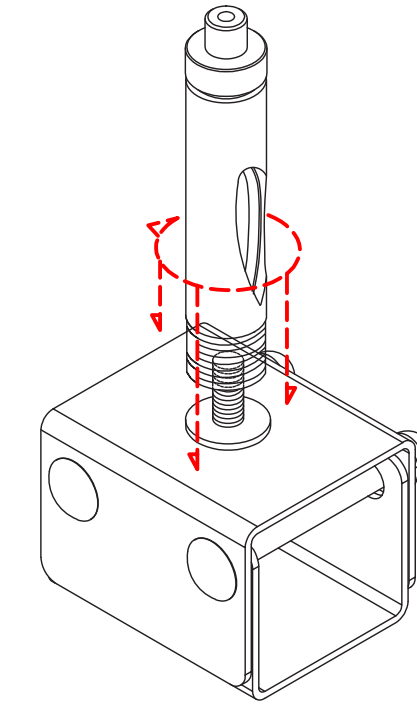
## SUSPENDING busSTRUT



### 1 SUSPEND CABLES (CG-XX)

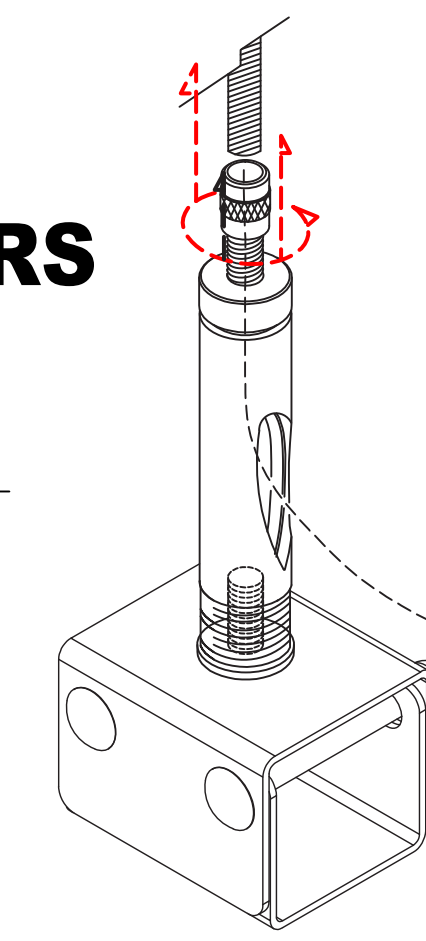
ATTACH CABLE ASSEMBLY TO STRUCTURE

\*It is the contractor and/or engineer's responsibility to determine correct connection to structure (beam clamp, etc).



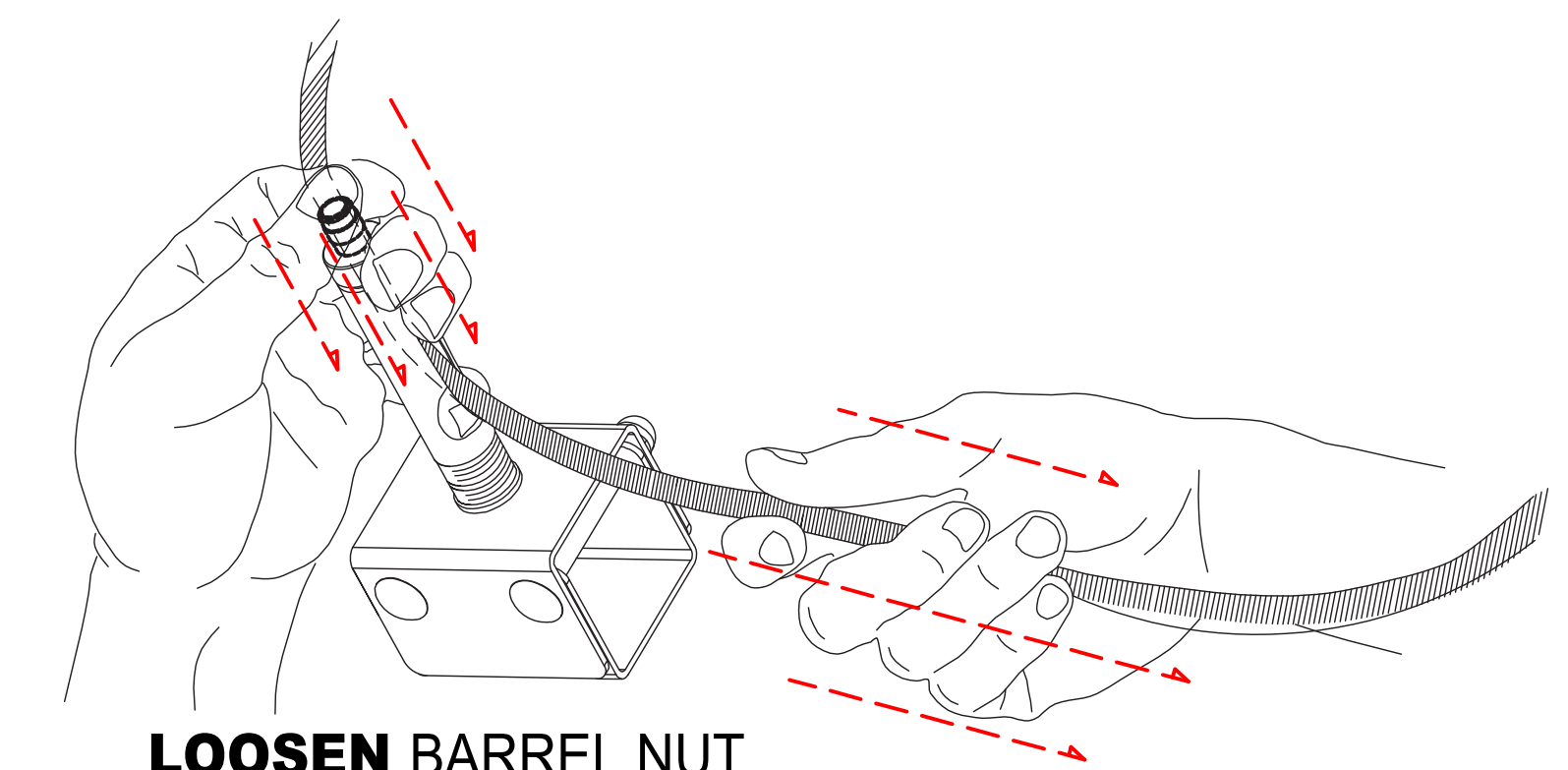
### 2 ASSEMBLE HANGERS (HM-S)

ASSEMBLE HANGERS AND ATTACH CABLE GLIDE



### 3 ATTACH HANGERS TO CABLES (CG-XX)

FEED CABLES THROUGH GLIDE TO ATTACH



LOOSEN BARREL NUT  
PUSH CABLE THROUGH  
PULL CABLE FOR SLACK

## SLIDE busSTRUT THROUGH SUSPENDED HANGERS

### Assemble

Create cable suspended runs of busSTRUT. Usually, these are running perpendicular to structural joists. Insert busSTRUT lengths through hangers/crossovers working from FINISHED HEIGHT.

FINISHED HEIGHT

\*It is the contractor and/or engineer's responsibility to determine correct connection to structure (beam clamp, etc).

## LEVEL busSTRUT AND TRIM CABLE

FINISHED HEIGHT

CUT CABLE  
Leave enough pass through cable for future leveling

BE SURE TO FOLLOW busSTRUT MOUNTING RULES (SEE busSTRUT shop drawings)

# STEP 2

## INSERT JOINERS

ATTACH JOINERS TO EACH END OF CONNECTING busSTRUT

### JOINERS (M-JB)

Joiners are used to mechanically and electrically connect individual busSTRUT lengths.

## TIGHTEN JOINERS

TIGHTEN SET SCREWS ON THE BOTTOM OF THE JOINER

\*Joiners require 3/32 Hex key for tightening set screws\*

## ATTACH INSERT

ATTACH JOINERS TO EACH END OF CONNECTING busSTRUT

Line up center of insert with etched centerline on joiner sleeve

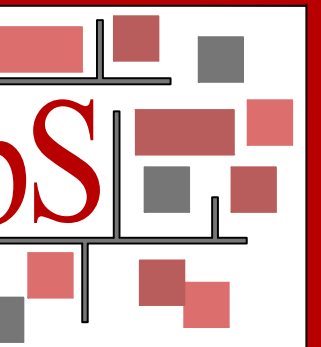
### JOINER INSERT (M-JI-X)

A single piece unit that is installed with two knobs, one must be fully turned in each abutting length. As a result, power can continue to flow from one length to the next.

Turn the first knob

Squeeze tightly on the opposite side, then turn the second knob to secure the electrical connection.

\*\*Installation Instruction Guidelines are provided only as that, informative guidelines. Defer to architectural/engineering drawings tailored to the specific project.



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CHECKED BY  
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DRAWN BY  
JOHN LOCH

DATE  
10/28/2024

SCALE  
BID / REVIEW

TYPICAL  
busSTRUT Installation Instructions

busSTRUT SHOP DRAWING SET (ONLY)  
NOT A REPLACEMENT FOR ARCHITECTURAL / ENGINEERING OR ELECTRICAL DRAWINGS

NO.	DATE	PERSON	DESCRIPTION

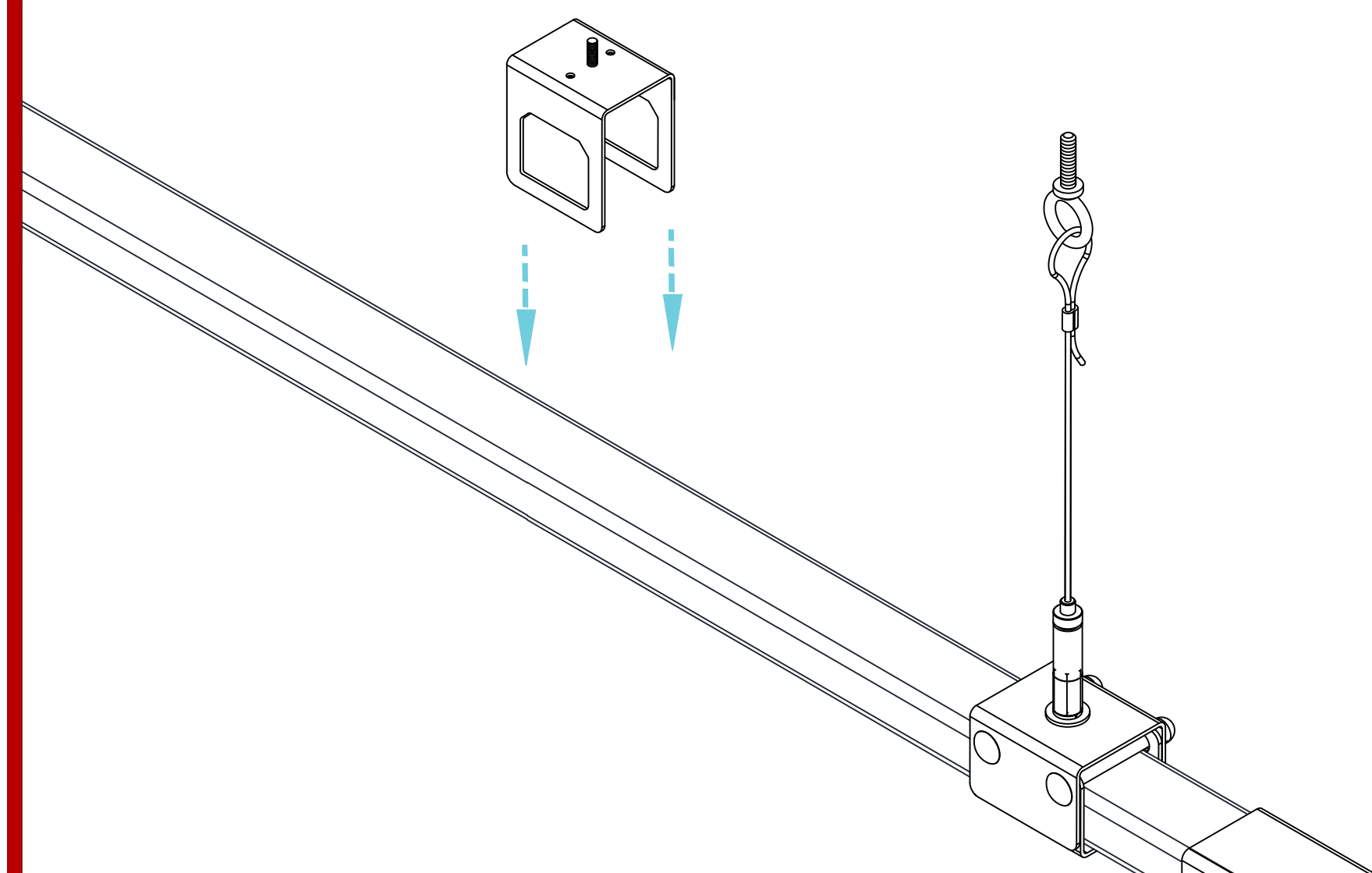
PAPER SIZE:  
ARCH E (48x36)  
NOT TO SCALE  
DRAWING NUMBER  
E-b01



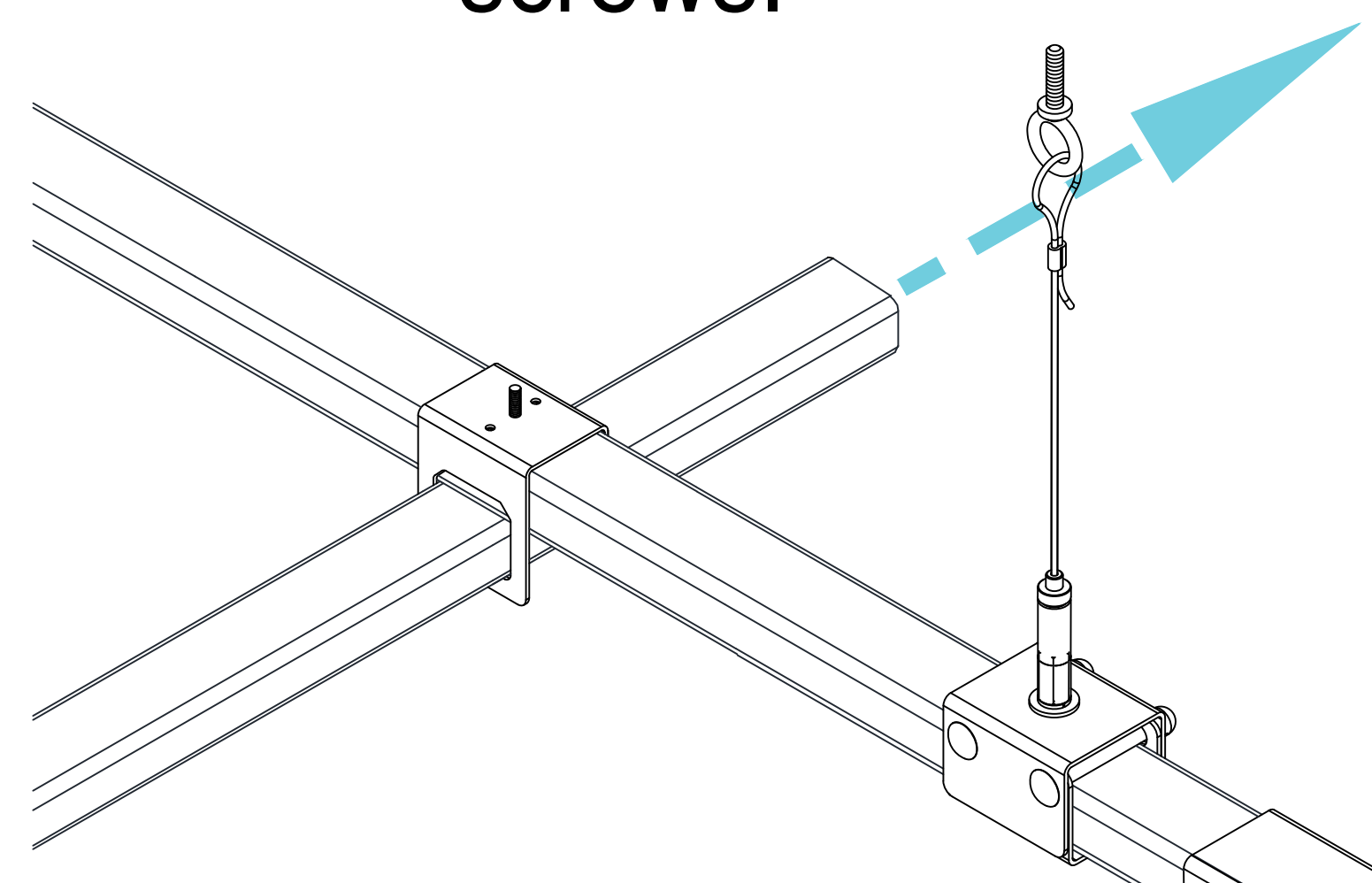
# STEP 3

## INSTALLING CROSSOVERS DROPPING ON

Crossovers can be dropped onto suspended busSTRUT to create an intersection with a perpendicular run of busSTRUT.



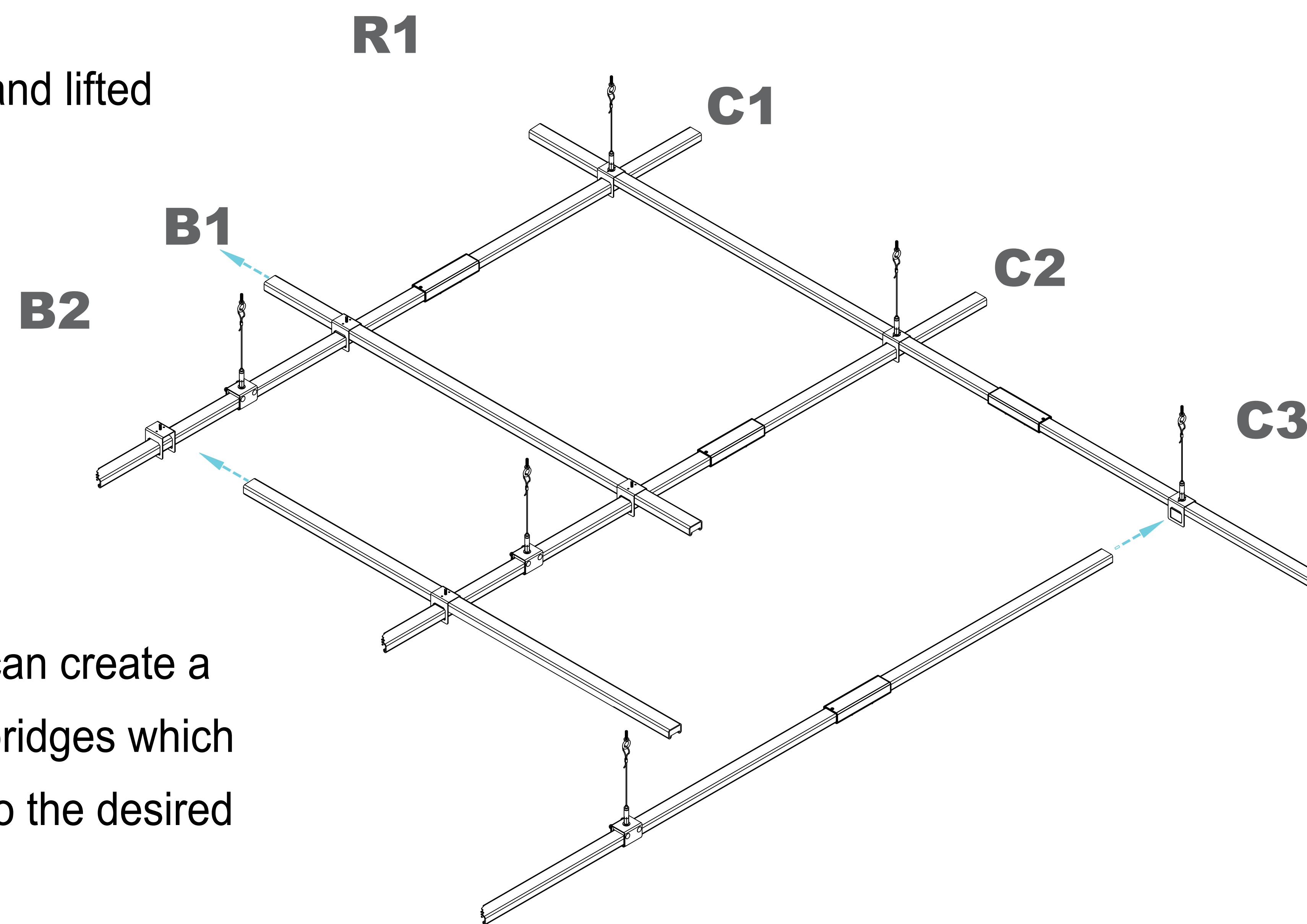
Slide perpendicular runs of busSTRUT through the crossover and tighten the set screws.



## SLIDING ON

Crossovers can be slid into position and lifted to create perpendicular bridges.

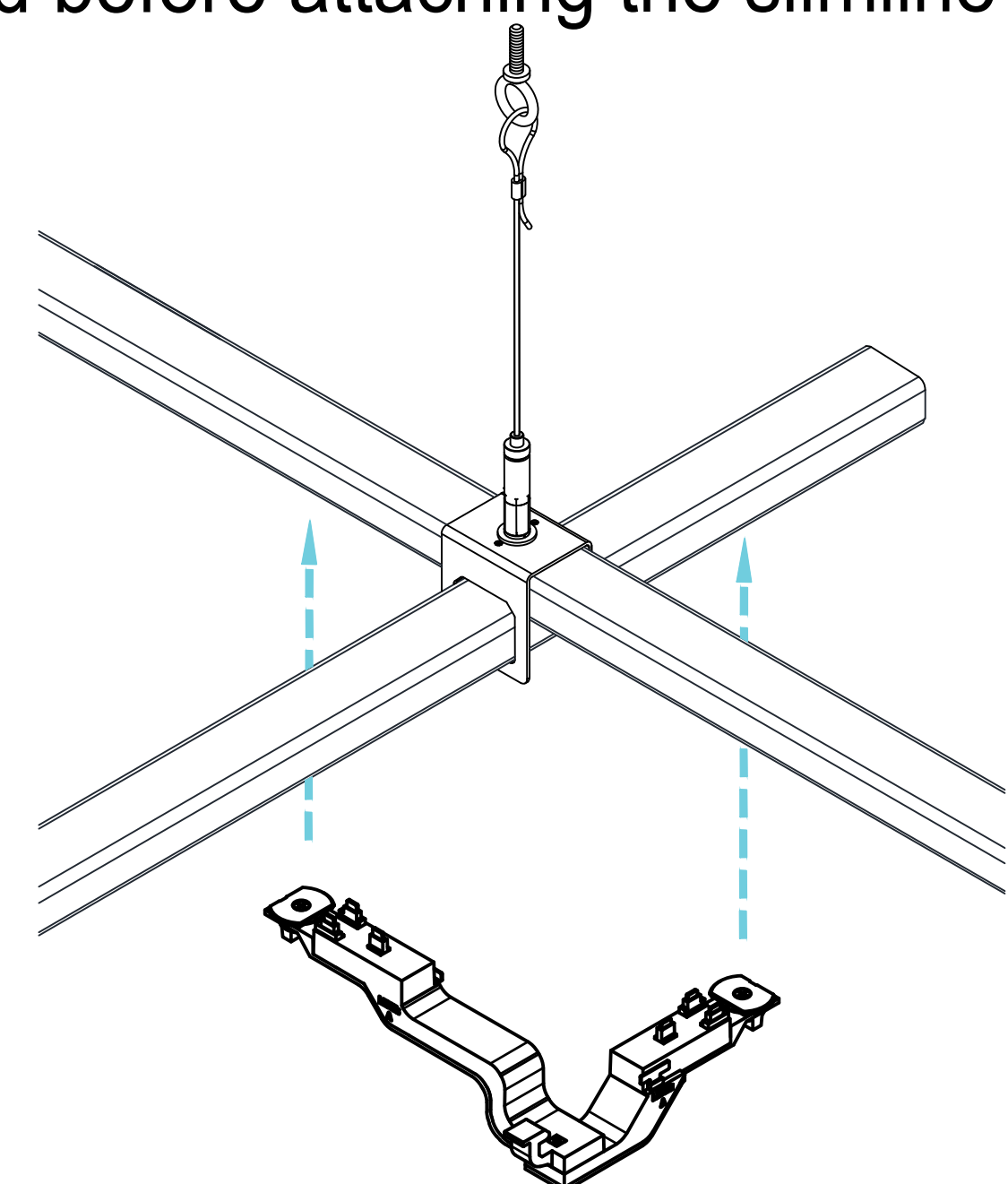
Perpendicular runs can create a full grid or be short bridges which are easily moved into the desired position.



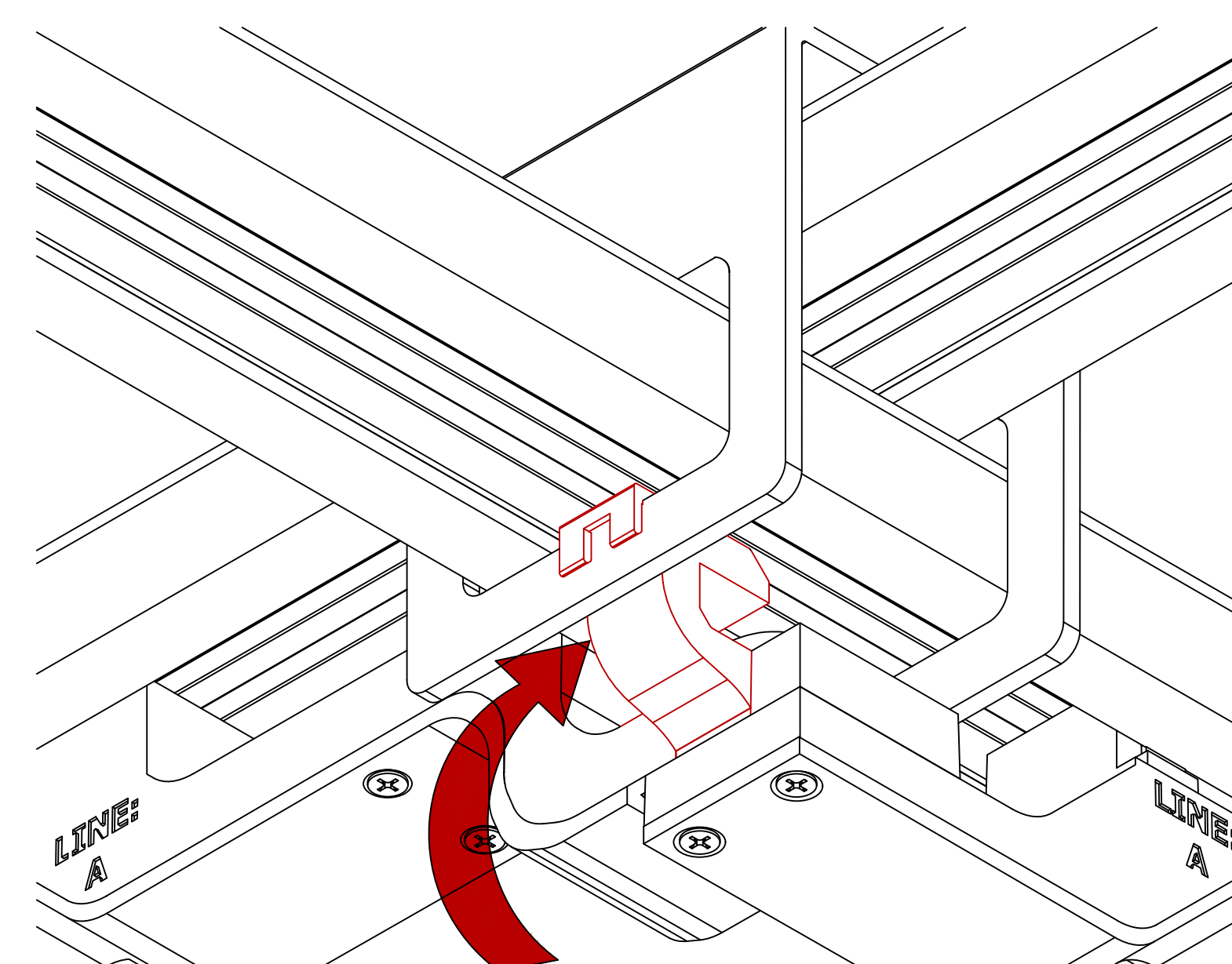
# STEP 4A

## SLIMLINE JUMPER

Make sure that the slimline crossover is tightened before attaching the slimline jumper.

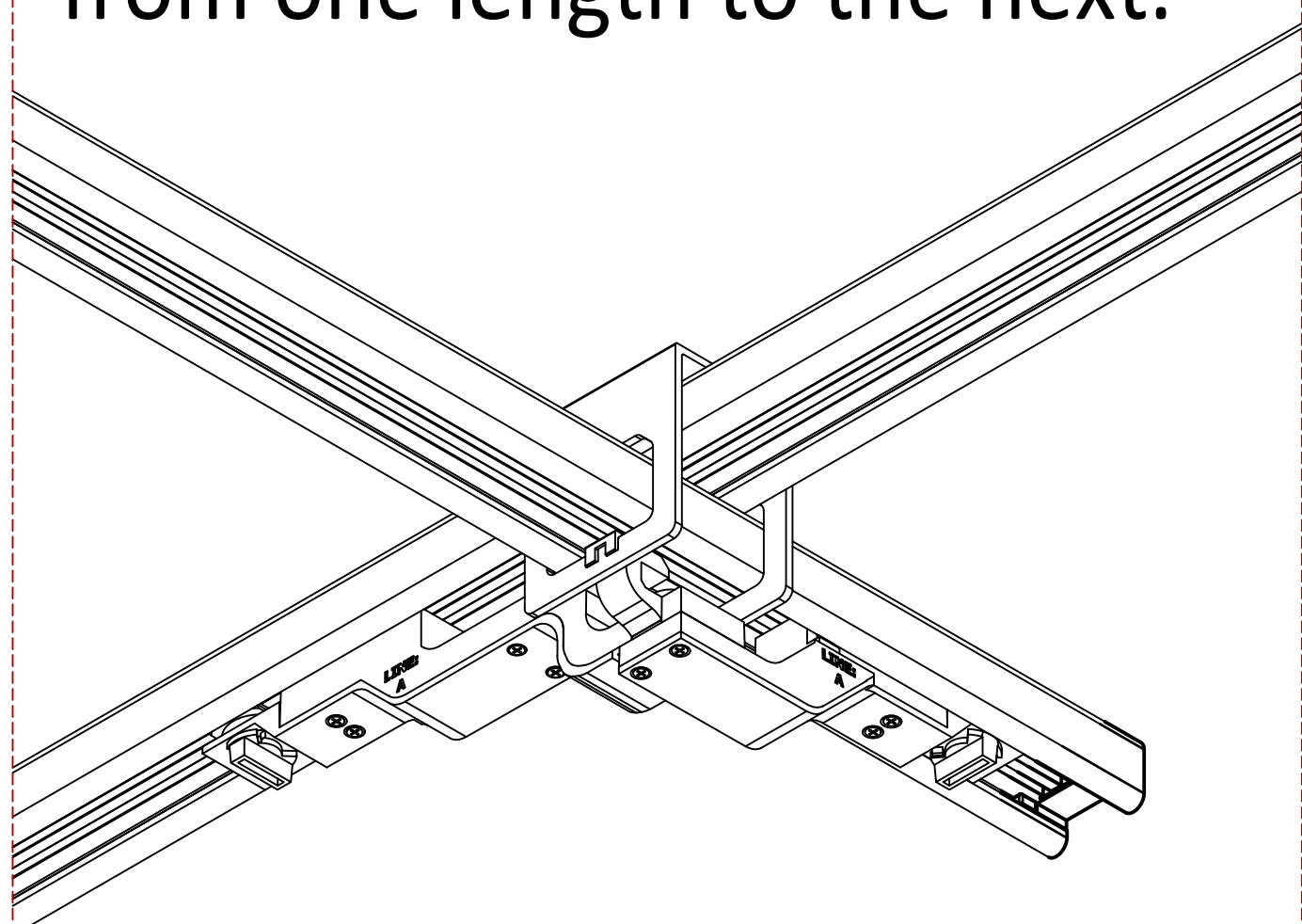


First, clip the jumper to the crossover.

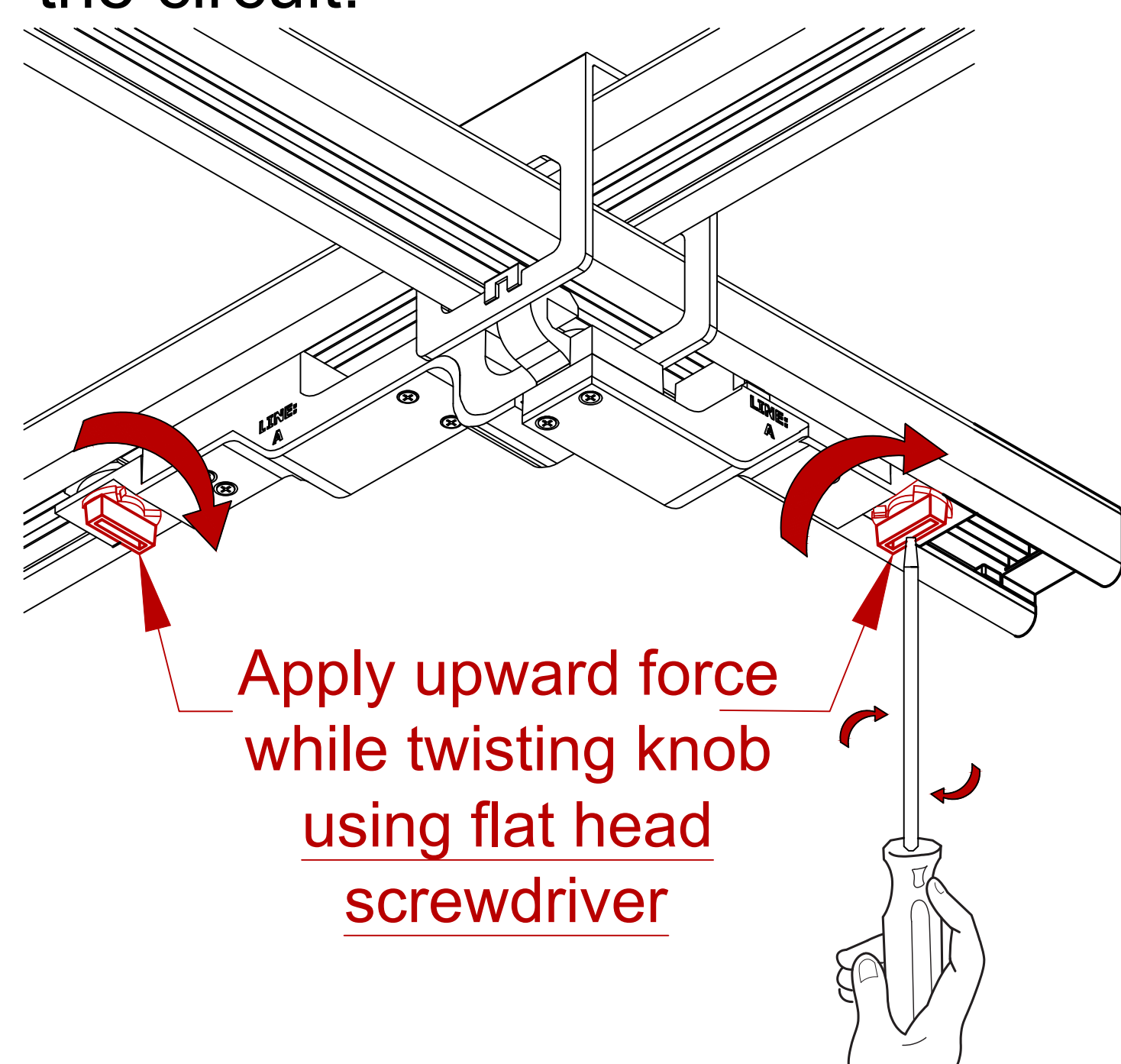


### SLIMLINE JUMPER (MD2020-UNIV-IJ2-B-X)

A single piece unit that is installed with two knobs, one must be fully turned in each abutting length. As a result, power can continue to flow from one length to the next.



Seat the jumper into the busSTRUT by squeezing tightly on one side and turning the knob. Then, turn the other knob to complete the circuit.



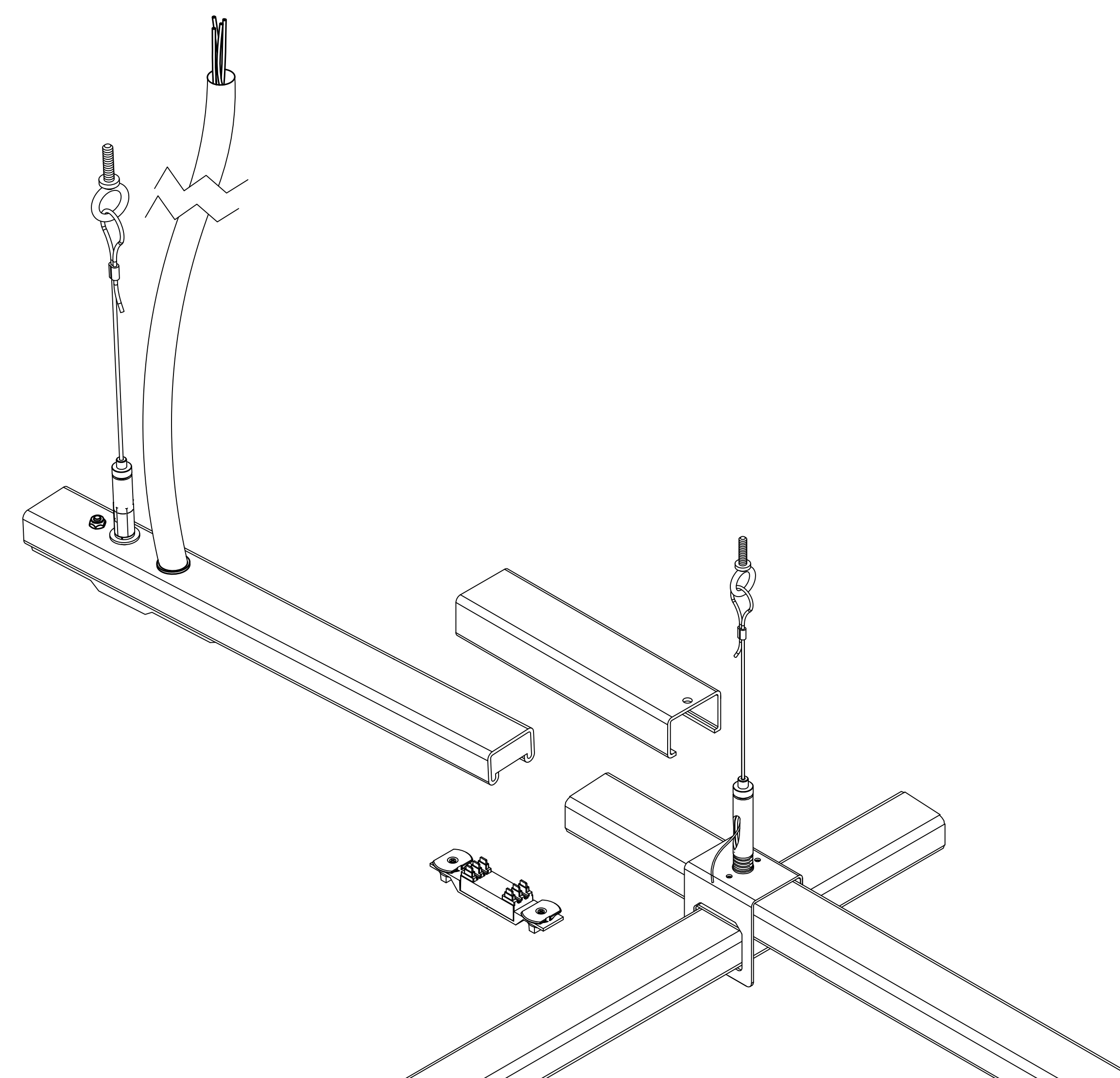
Apply upward force while twisting knob using flat head screwdriver

# STEP 4B

## STARTER FEED

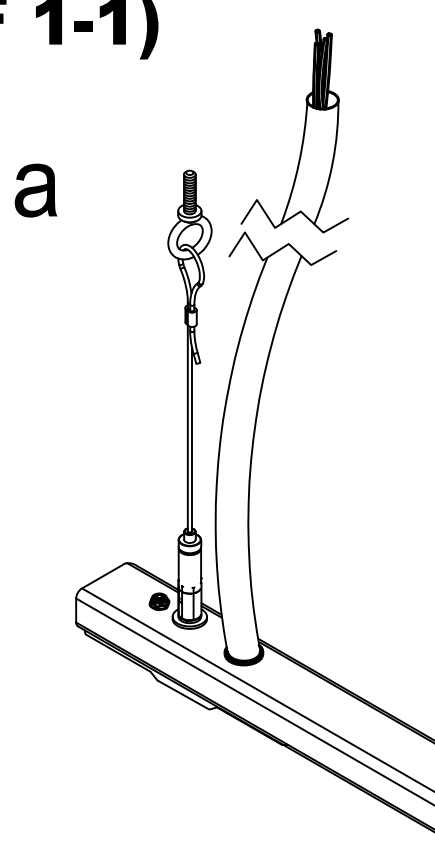
The Starter Feed comes with a 1/4-20 Stud to create an additional hang point and a 15' 12/4 SOOW Cord to connect power to the system.

Attach the cable glide to the stud and tighten. Connect the aircraft cable as shown in Step 1.

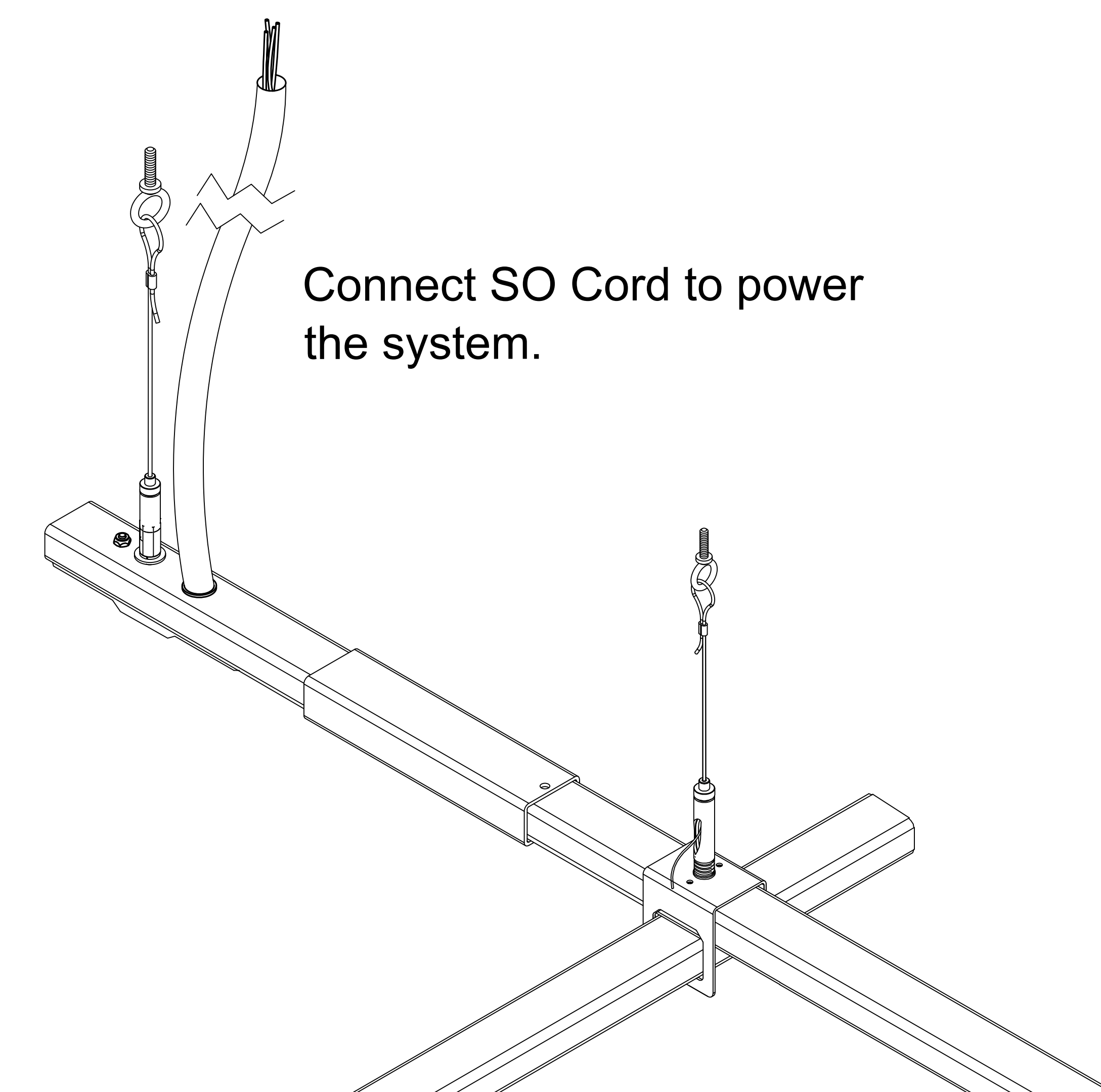


### STARTER FEED (P20-3-40-UNIV-30-CM-F 1-1)

This 30" length supplies power to a configuration from the preassembled cord and to the abutting length via a joiner insert that must be installed.



Once the starter is properly suspended, connect the starter to the suspended grid using a Joiner and Insert as shown in Step 2.

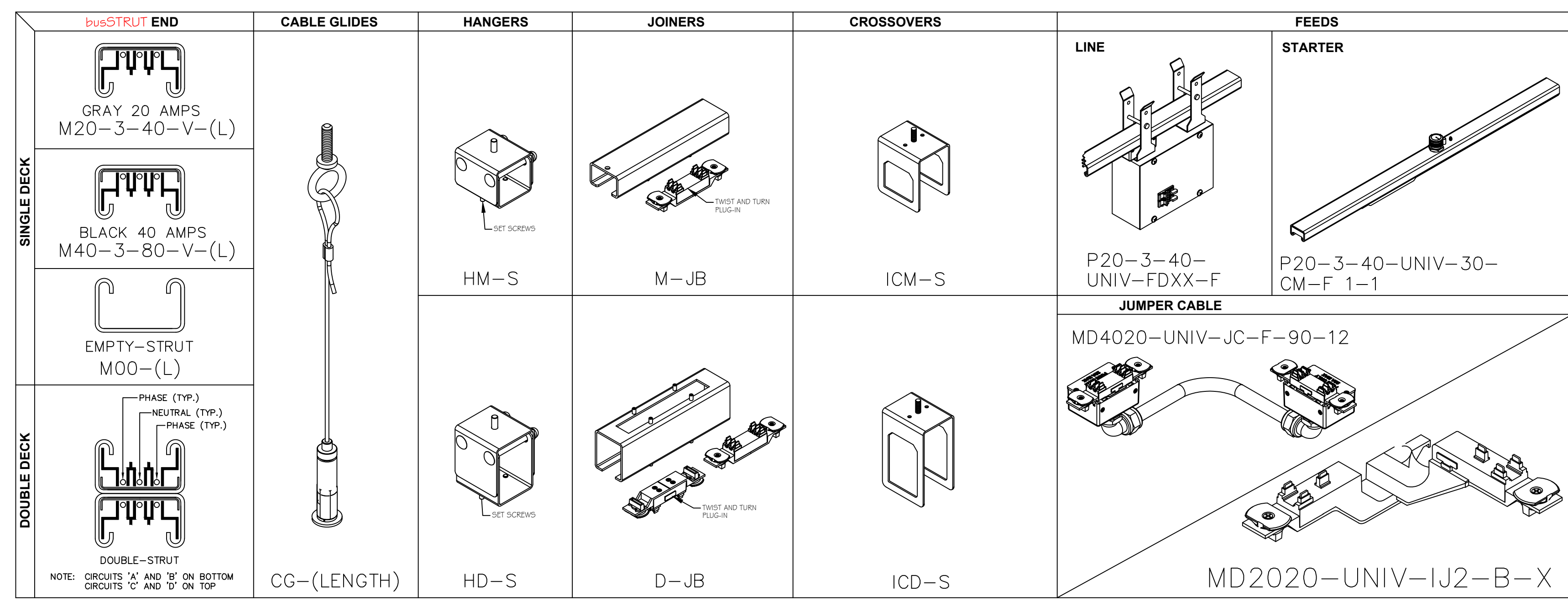


Connect SO Cord to power the system.

\*\*Installation Instruction Guidelines are provided only as that, informative guidelines. Defer to architectural/engineering drawings tailored to the specific project.



# busSTRUT Parts



**busSTRUT** 12 gauge 1" x 1" x 1.58" STEEL. **busSTRUT** features two Hot wire symmetrically surrounding a center Neutral. The result, two 20 Amp circuits 40 Amps Maximum with **busSTRUT** (20) alternatively two 40 Amp circuits 80 Amps Maximum with **busSTRUT** (40). 2, 5, 10, and 20' lengths. Rated for up to 277/480V. Double decks with standard hardware for trunking.

**BRAIDED CABLE WITH GLIDE:** For use with **busSTRUT** Hangers/Crossovers. Includes cable-glide and cable with factory assembled cable looped threaded 1/4-20 eye bolt.

**HANGERS:** Single and Double Hangers are for use with **busSTRUT**. Each is an assembled two-part unit. The upper piece includes a threaded stud for use with **busSTRUT** cable-glide.

**JOINERS:** Single and Double are for use with **busSTRUT**. Lengths are joined together mechanically with the 8" steel sleeve. Electrical Joiner-Kits include both a Twist & Turn Plug to electrical insert to bridge power. And continuous grounding wires through the bus itself by means of a permanently affixed copper grounding bar.

**CROSSOVERS:** For use with intersecting **busSTRUT**. Each is an assembled two-part unit for building grid configurations and bridges. The upper piece includes a threaded stud for use with **busSTRUT** cable-glide.

**JUMPERS:** For use with both **busSTRUT** (20) and **busSTRUT** (40). The fused 400Z Jumper Cables can be used to electrically connect **busSTRUT** (40) Trunks to **busSTRUT** (20) Branches and/or electrically connecting **busSTRUT** (20) to **busSTRUT** (20).

**LINE FEEDS:** For use with powering single-decked **busSTRUT**. Junction Box features energy code type "Tenters" (breakers/fuse holders) and 3 Pole Fuses. Available up to 277/480V. Can be positioned anywhere along **busSTRUT** to reduce the lengths of runnables.

**STARTER FEEDS:** For use with powering single-decked **busSTRUT**. Utilized when no current limiting is required on the **busSTRUT**. Must be positioned at the beginning of a run.

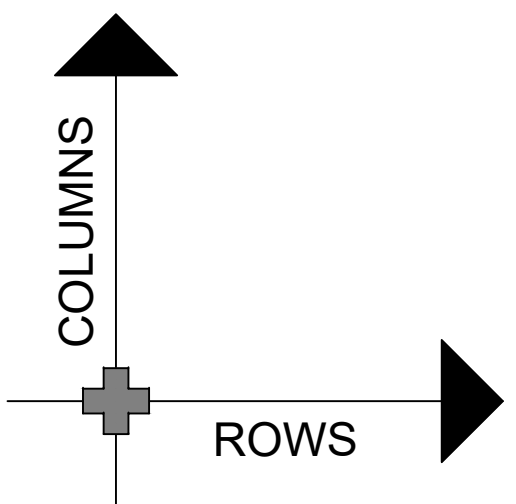
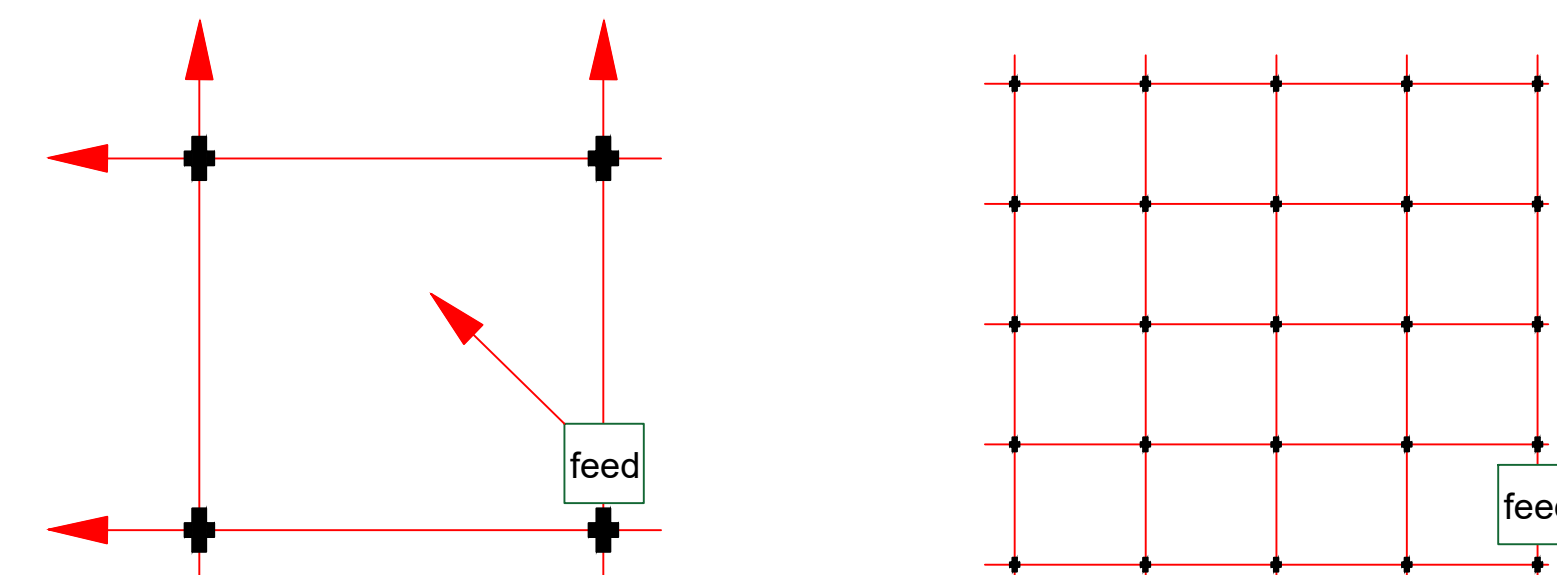
# Legend

	busSTRUT 20 / Single Deck
	30" Starter Feed
	Joiner
	1/1 Slimline Crossover
	Slimline Jumper

busSTRUT system is designed to be BID separately.

Bid from the feeds-in.

\* Powered by a minimal amount of feed boxes.

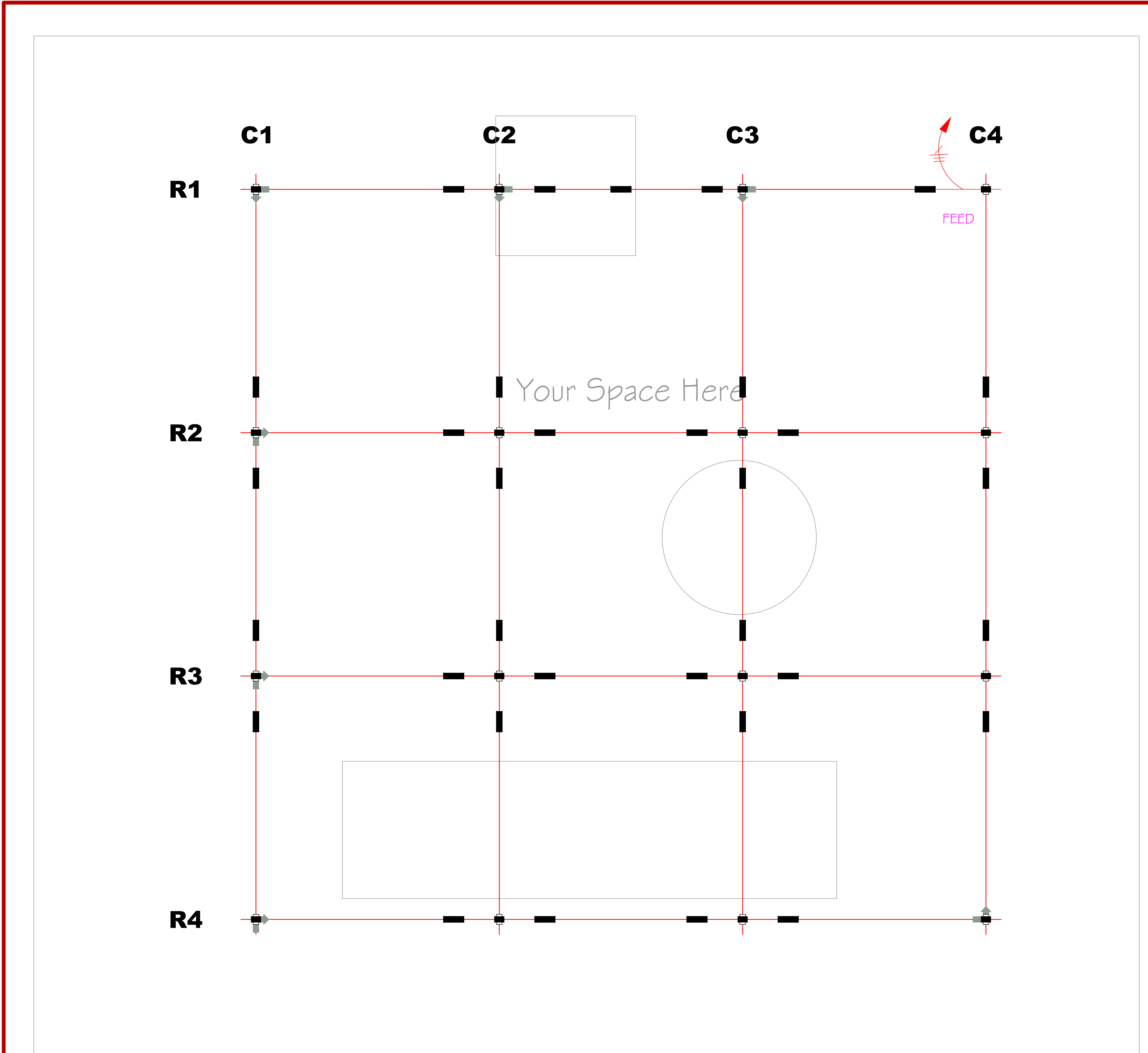


# Bill of Materials

busSTRUT Bill of Materials		Finish TBD: Galvanized, White, or Black										Drawn By	John Loch									
GRID Large												Checked By	John Loch									
												Date	10/28/2024									
		busSTRUT LENGTHS				busSTRUT Hardware				busSTRUT POWER												
		busSTRUT 20				Joiners		Hangers		C-GI	Xover	Jcord	Line		GEN	ACT						
						SINGLE	NON-ELECTRIC JOINER INSERT	SINGLE			JUMP CORD	STARTER FEED CENTER MOUNT	POWER DROP									
						M-JB-F-X	M-JI-F-X	M-JI-F-NE	HM-S-F-ST-LEX	MKU-ST-A-F	CG-E-1B-B-GL	ICM-S-F-ST-X	MD4020-UNIV-JCF-90-12-G02	MD2020-UNIV-IJ2-F-X	P20-3-40-UNIV-JK-NB-F	P20-4-40-UNIV-30-CM-F-1-1	MD40-2-120-CB20-DC-XX-LEF-F	BRL-4-40L-30K30-ST-WD-F	BRL-LUCY-J-309-30-F-(OC)			
R/C	Amps	LF	BF	2.5	3	5	7	M	INS	NE-INS	M	DB	C-GI	1/1	12"	INVS	JK	30ST	40	GEN	ACT	
Rows																						
R1	20	25	25	1	2		2	5	5				4	4				1				
R2	20	25	25		2	1	2	4	4				4	4								
R3	20	25	25		2	1	2	4	4				4	4								
R4	20	25	25		2	1	2	4	4				4	4								
<b>SUB TOTAL</b>	<b>100</b>	<b>100</b>		<b>1</b>	<b>8</b>	<b>3</b>	<b>8</b>	<b>17</b>	<b>17</b>				<b>16</b>	<b>16</b>				<b>3</b>	<b>1</b>			
Columns																						
C1	20	25	25		2	1	2	4	4									1				
C2	20	25	25		2	1	2	4	4									1				
C3	20	25	25		2	1	2	4	4									1				
C4	20	25	25		2	1	2	4	4									1				
<b>SUB TOTAL</b>	<b>100</b>	<b>100</b>		<b>8</b>	<b>4</b>	<b>8</b>	<b>16</b>	<b>16</b>										<b>4</b>				
<b>STORE TOTAL</b>	<b>200.0</b>	<b>200.0</b>		<b>1</b>	<b>16</b>	<b>7</b>	<b>16</b>	<b>33</b>	<b>33</b>				<b>16</b>	<b>16</b>			<b>7</b>	<b>1</b>				

# Lighting Plan

**busSTRUT LIGHTING PLAN ONLY**  
THIS DRAWING IS MEANT TO SHOW THE LOCATION OF busSTRUT LIGHTS ONLY. IT IS NOT A REPLACEMENT FOR: ARCHITECTURAL / ENGINEERING / ELECTRICAL SPECIFICATIONS. (SEE THEIR DRAWINGS)



# Labor Hours

busSTRUT provides time-tested standard labor hours per part, which are then multiplied by the project's Bill of Materials.

busSTRUT LABOR							
ITEMS	Qty.	U/M	STANDARDIZED LABOR HOURS	TOTAL HRS			
*in hrs @0							
busSTRUT SYSTEM	LENGTHS	200	LF	2.75	0.65	9	
	JOINERS	33	EA	12	0.20	7	
	HANGERS	16	EA	26	0.42	7	
	CROSSOVERS	16	EA	10	0.17	3	
	ATTACHMENTS		EA	8	0.13	0	
	JUMPERS	7	EA	6	0.10	1	
	FEEDS	1	EA	15	0.25	0	
	<b>busSTRUT SUB-TOTAL</b>					<b>26</b>	
	FIXTURES	ACCENT		EA	8	0.13	0
		LINEARS		EA	20	0.33	0
<b>busSTRUT READY LIGHTS SUB-TOTAL</b>					<b>0</b>		
<b>TOTAL TIME</b>					<b>26</b>		

# Lighting Plan & Bill of Materials

busSTRUT SHOP DRAWING SET ONLY NOT A REPLACEMENT FOR ARCHITECTURAL / ENGINEERING OR ELECTRICAL DRAWINGS

XX	BT
XXXX	REVISION DESCRIPTION
XX-XX-XX	DATE

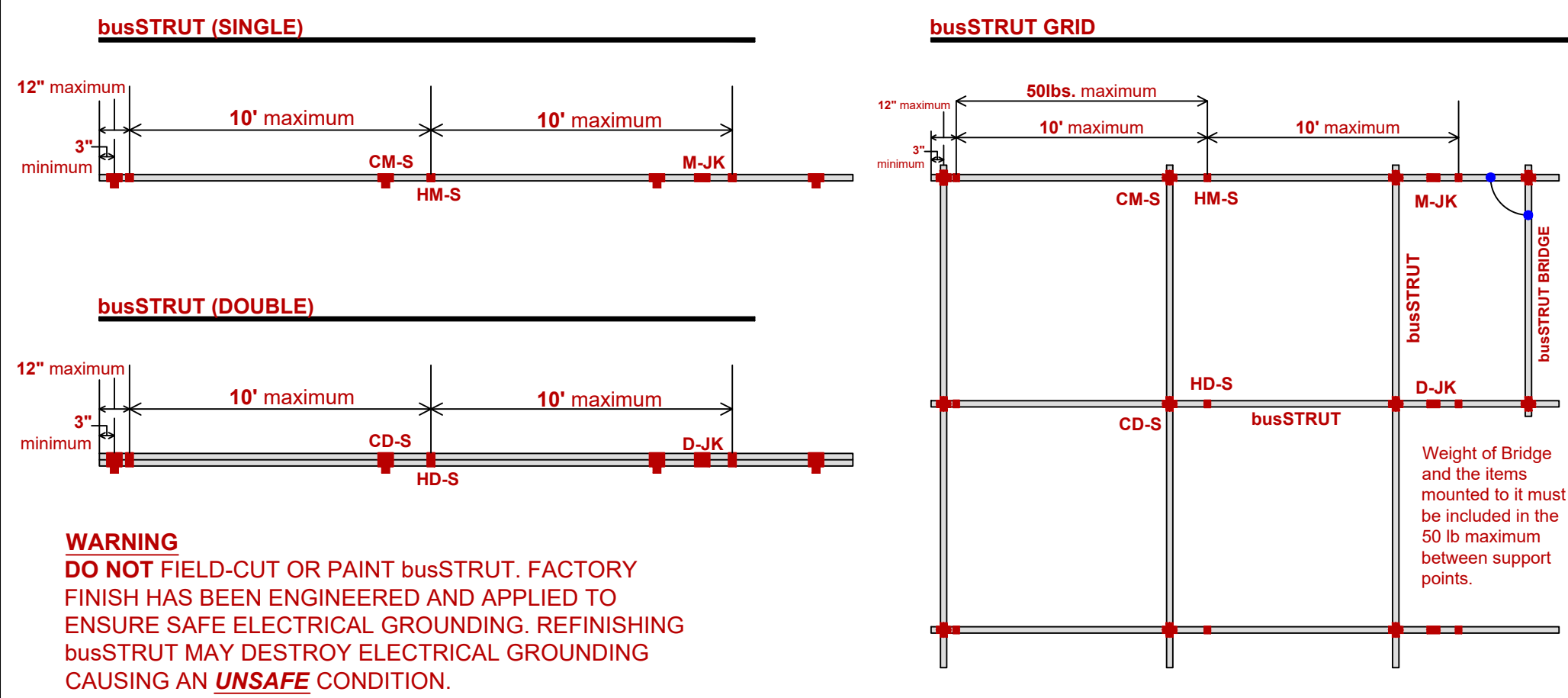
PAPER SIZE: ARCH E (48x36)  
SCALE 5/8" = 1'-0"  
DRAWING NUMBER E-b1

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805 Billdowne Road  
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DESIGNED BY: LARRY GELLERT  
DRAWN BY: JOHN LOCH  
CHECKED BY: JOHN LOCH  
DATE: 10/28/2024  
REVISION: BID/REVIEW

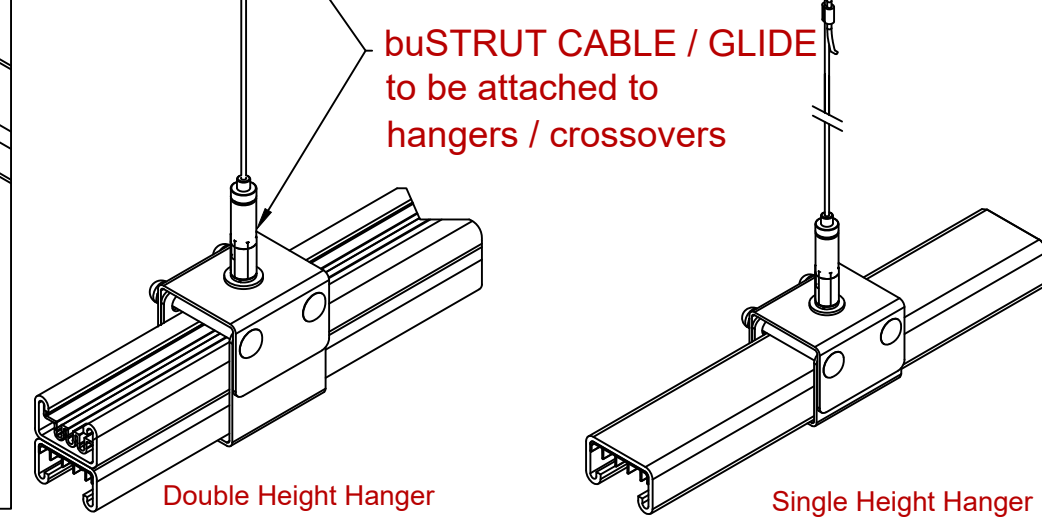
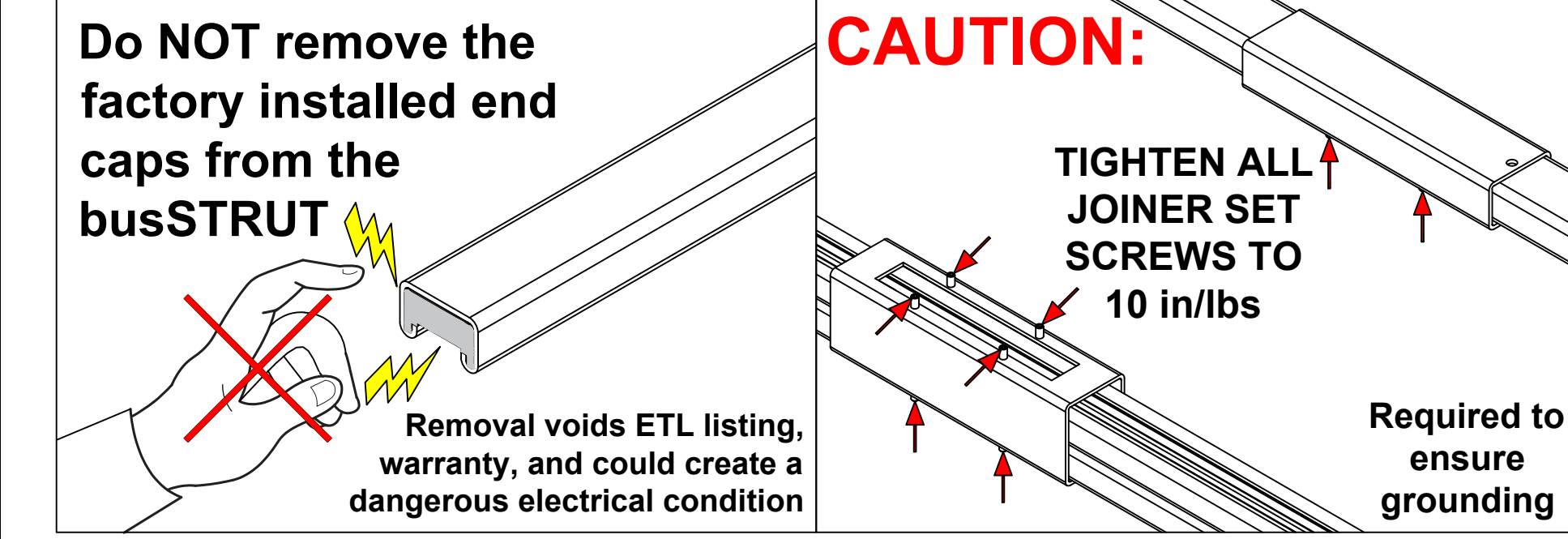


# Mounting Rules



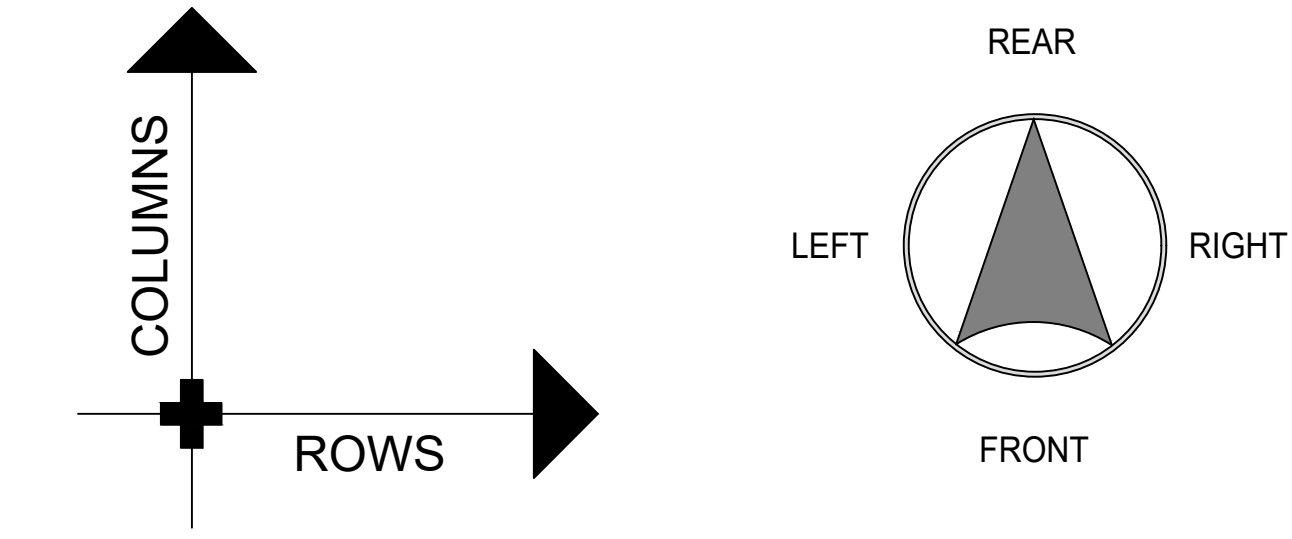
- DISTANCE:**  
**10'** MAXIMUM 10' spacing between support points
  - 12"** Support point must be within 12" from every end or corner
  - 3"** MINIMUM 3" of busSTRUT to be exposed beyond end of mounting hangers and/or crossovers
  - WEIGHT:**  
**50 lbs** Maximum 50 pounds between support points (Include weight of busSTRUT System)  
 Weight of 1 foot of busSTRUT System:  
 Single (MIN) - 1.5 lb per Linear Foot (not including connected weight)  
 Double (MAX) - 3 lb per Linear Foot (not including connected weight)
  - FITTERS**  
**40 lbs** The busSTRUT Flip-Fitters (with metal bracket) are rated for 40 lbs maximum static, vertical load.  
 Flip-Fitters without metal bracket are for use with standard track light fixtures only. Consult for maximum weight restrictions.
- Only busSTRUT fittings and hardware may be mounted directly to busSTRUT.

**CONNECTION TO STRUCTURE BY OTHERS**  
 Attachment from busSTRUT System to structure must be engineered and installed to properly support the entire suspended weight.

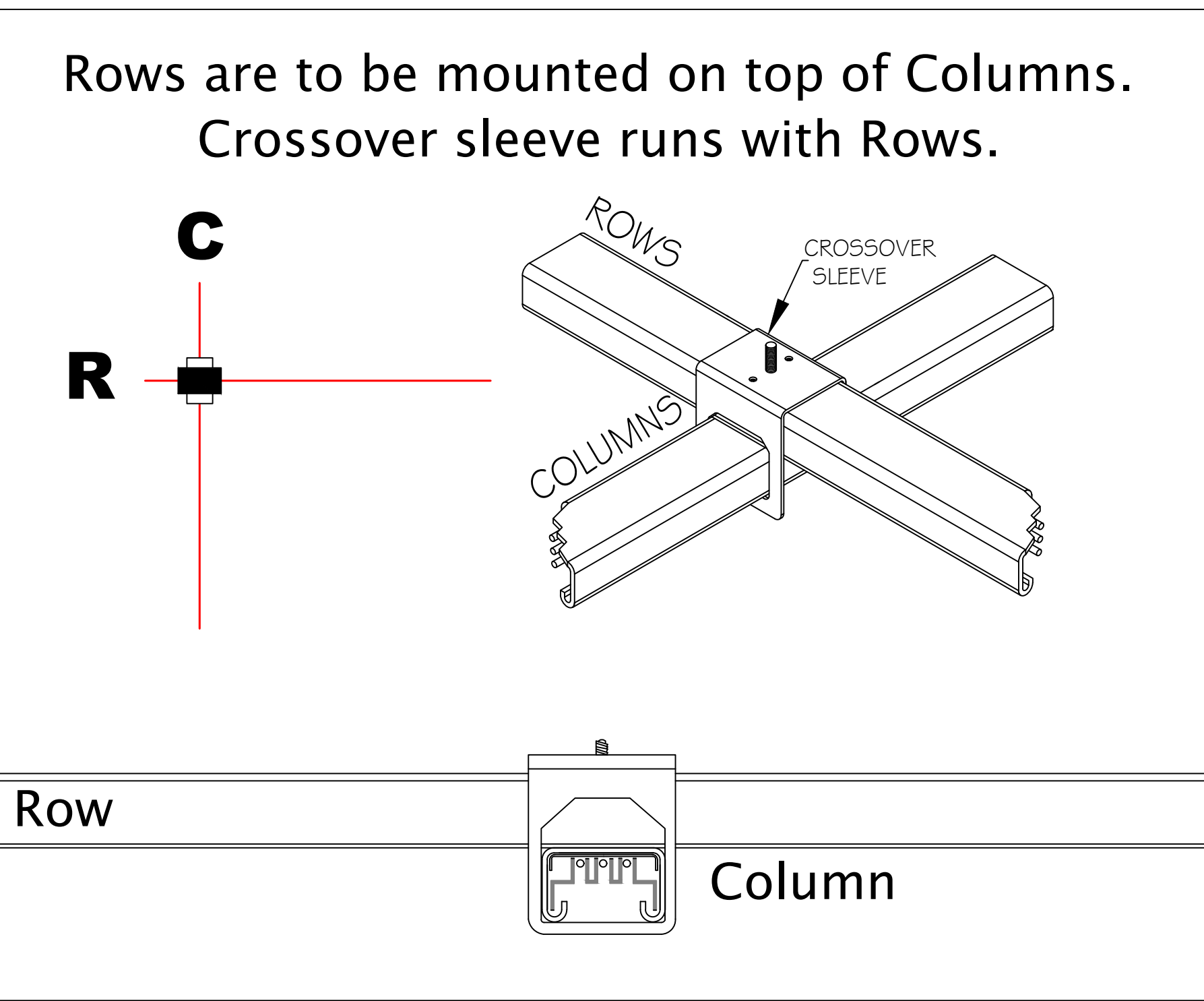


# Legend

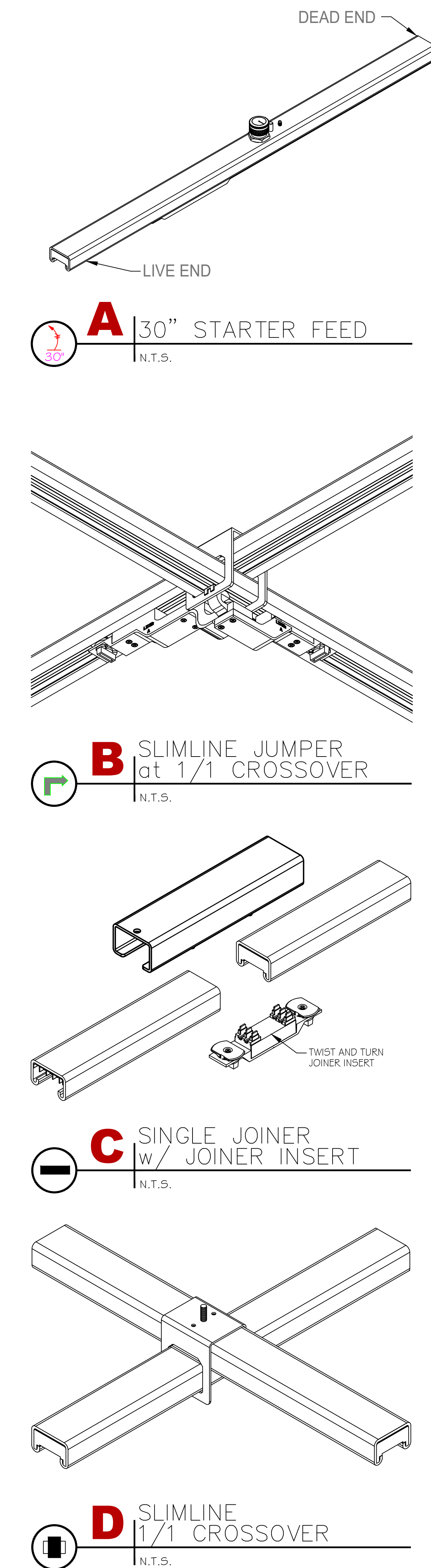
	busSTRUT 20 / Single Deck
	30" Starter Feed
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	1/1 Slimline Crossover
	Slimline Jumper



# Project Specific Rules

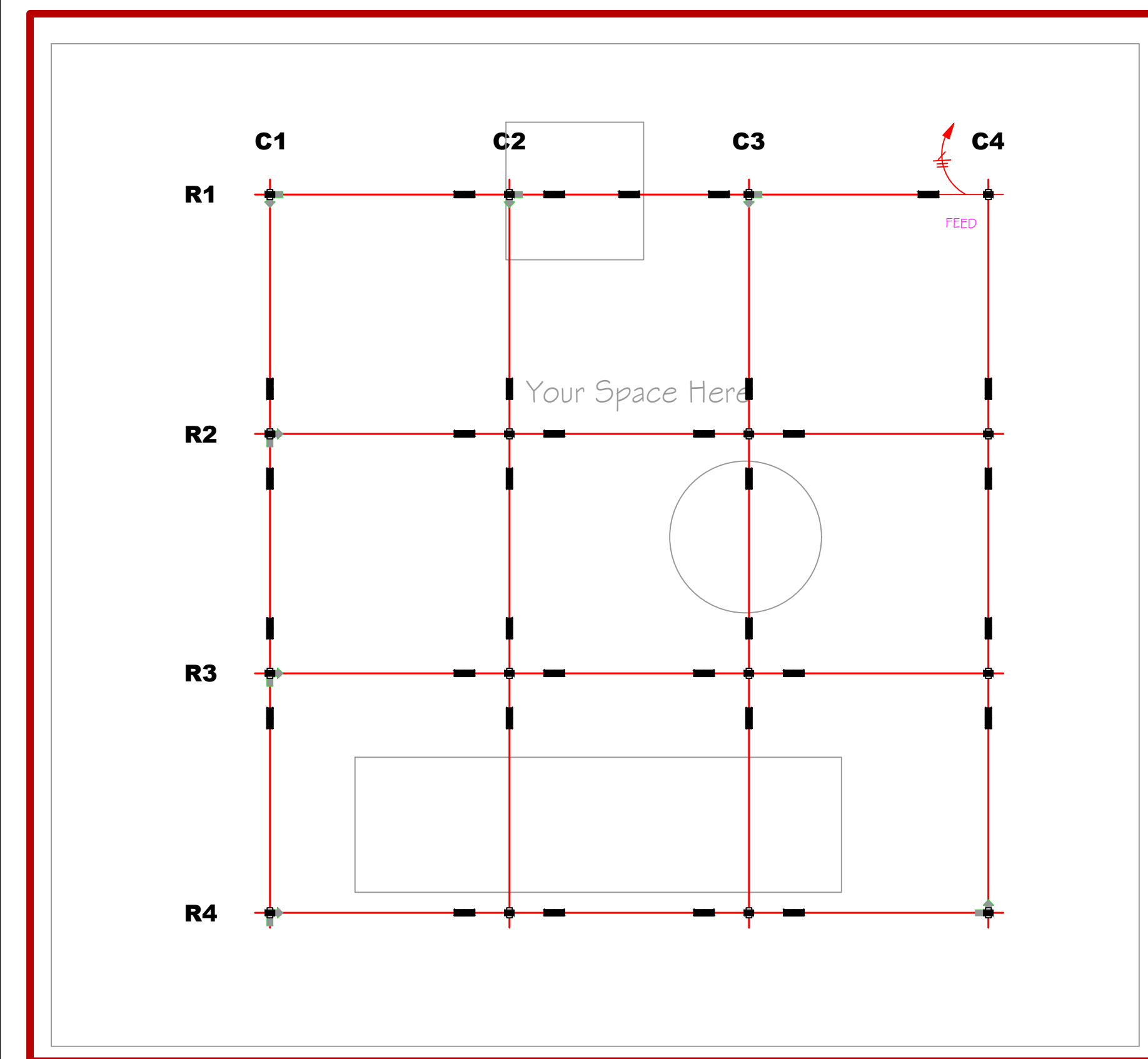


# ISO Details

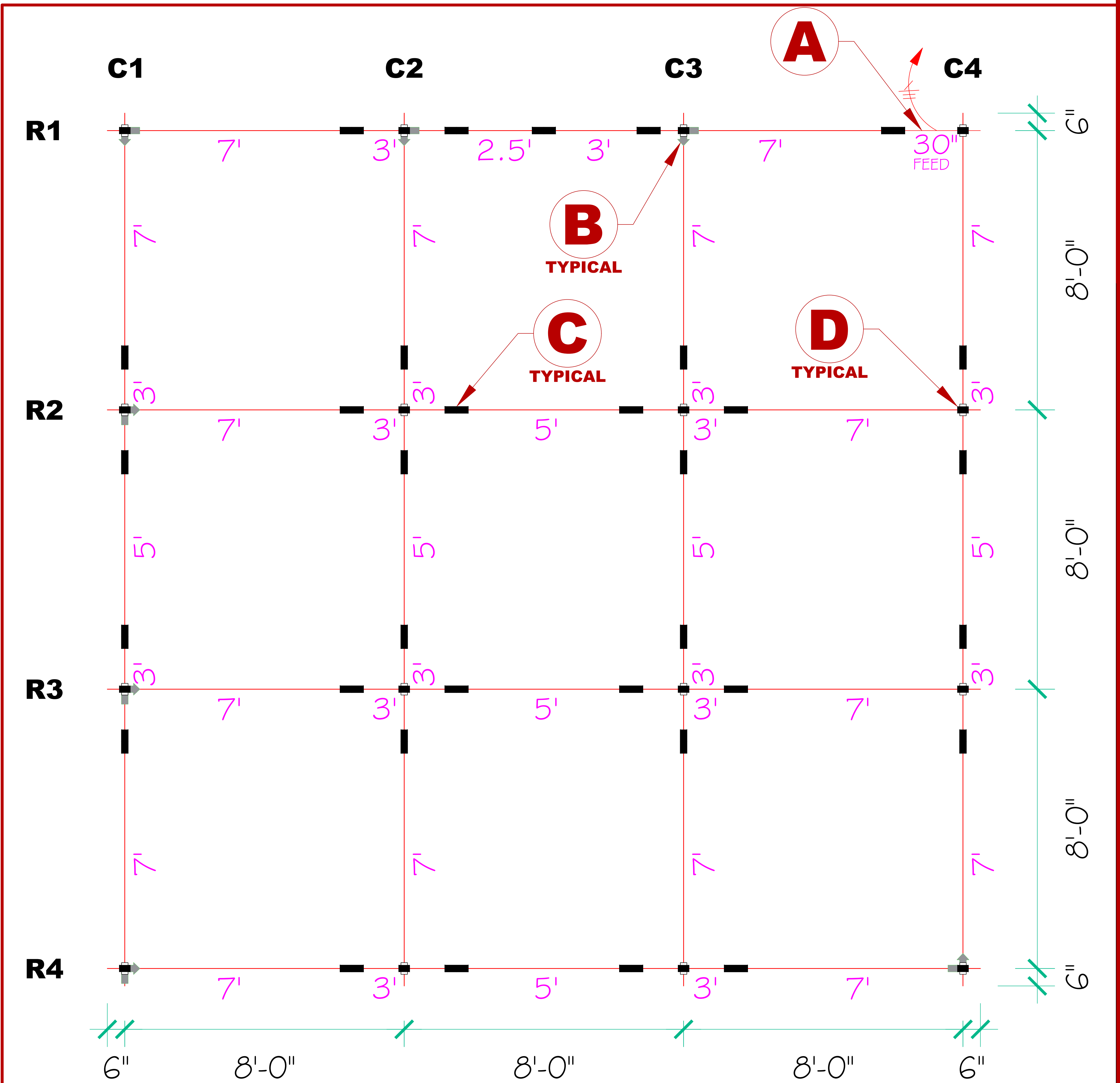


# busSTRUT Lengths Used in this Project

- 2.5'
- 3'
- 5'
- 7'



# Dimensions



**bs**  
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PERSONAL INCHARGE: LARRY GELLERT  
 CHECKED BY: JOHN LOCH  
 DRAWN BY: JOHN LOCH  
 DATE: 10/28/2024  
 REVISION: BID/REVIEW

# Assembly Plan

GRID LARGE

busSTRUT DRAWING SET (ONLY) STOP HERE! NO FURTHER PROGRESS FOR ARCHITECTURAL, ENGINEERING OR ELECTRICAL DRAWINGS

NO.	DATE	REVISION DESCRIPTION	BY

PAPER SIZE: ARCH E (48x36)  
 SCALE 3/4" = 1'-0"  
 DRAWING NUMBER: E-b2