busSTRUT Shop Drawing Set

Express Grid (Large) - Lights & Power Drops

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.

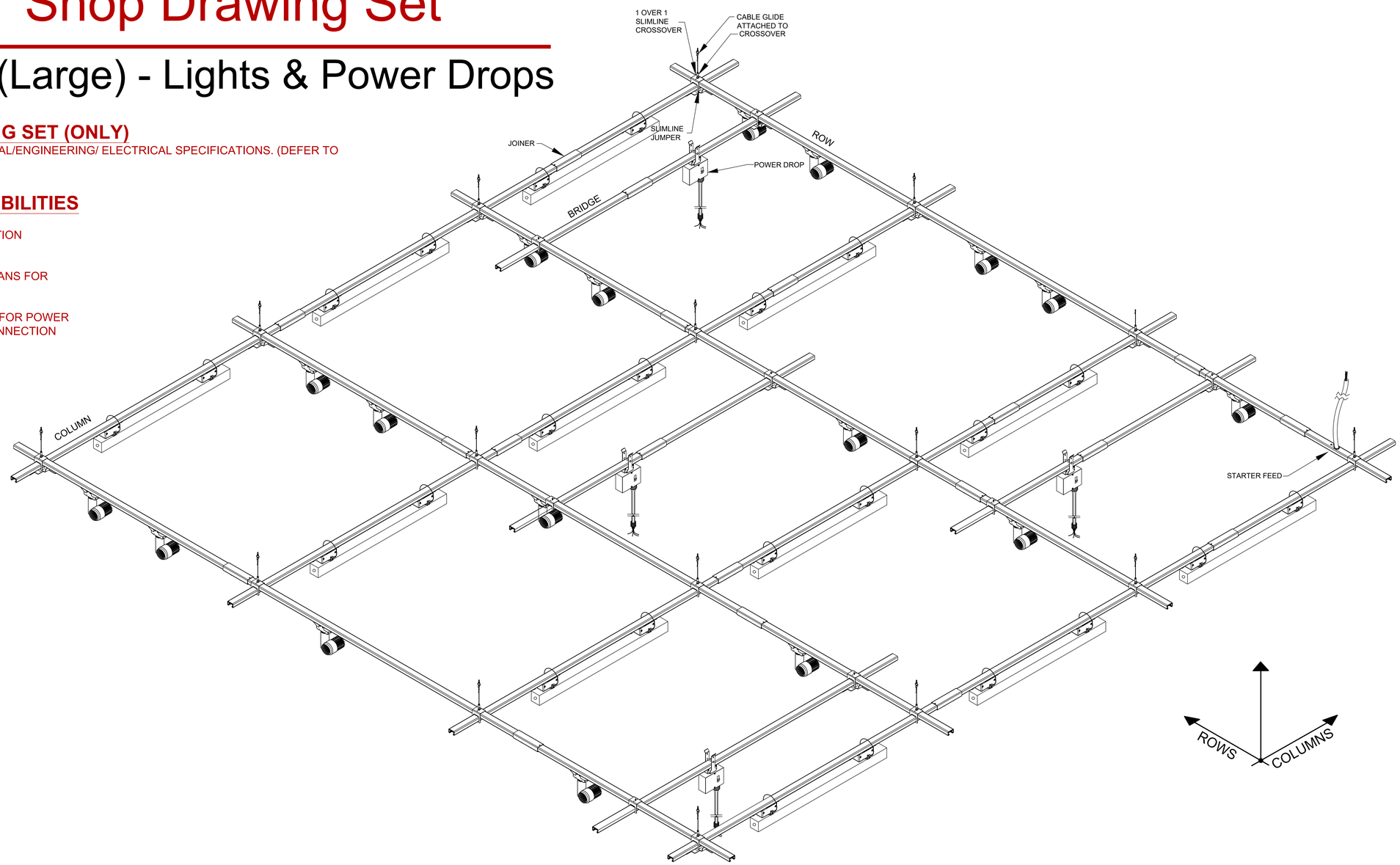
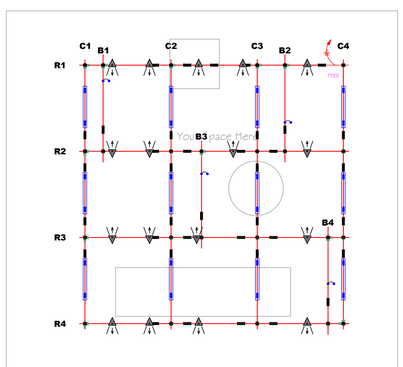
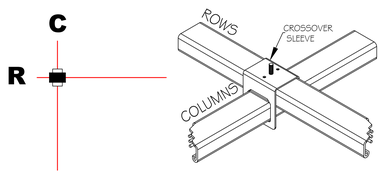


TABLE OF CONTENTS



KEY MOUNTING RULES

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



Row

Column

Legend

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

APPROVAL

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805 Hilladowne Road
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DRAWN BY: JOHN LOCH
ISSUE DATE: 10/28/2024
ISSUED FOR: BID/REVIEW

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PAPER SIZE: ARCH E (48x36)
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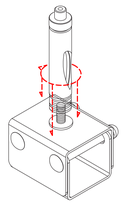
STEP 1

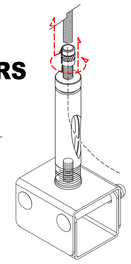
SUSPENDING busSTRUT

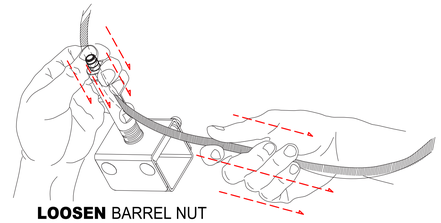
1
SUSPEND CABLES
(CG-XX)
ATTACH CABLE ASSEMBLY to STRUCTURE
*It is the contractor and/or engineer's responsibility to determine correct connection to structure (beam clamp, etc).



2
ASSEMBLE HANGERS
(HM-S)
ASSEMBLE HANGERS AND ATTACH CABLE GLIDE

3
ATTACH HANGERS TO CABLES
(CG-XX)
FEED CABLES THROUGH GLIDE TO ATTACH





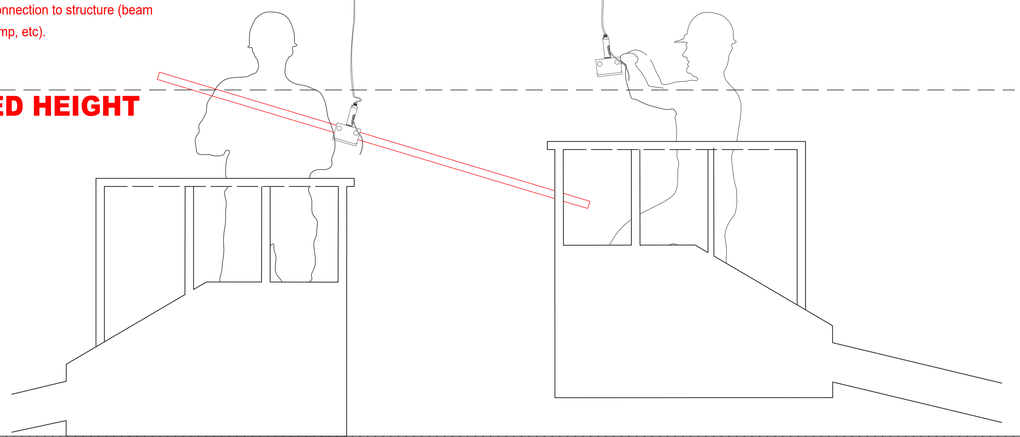
LOOSEN BARREL NUT
PUSH CABLE THROUGH
PULL CABLE FOR SLACK

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**.

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

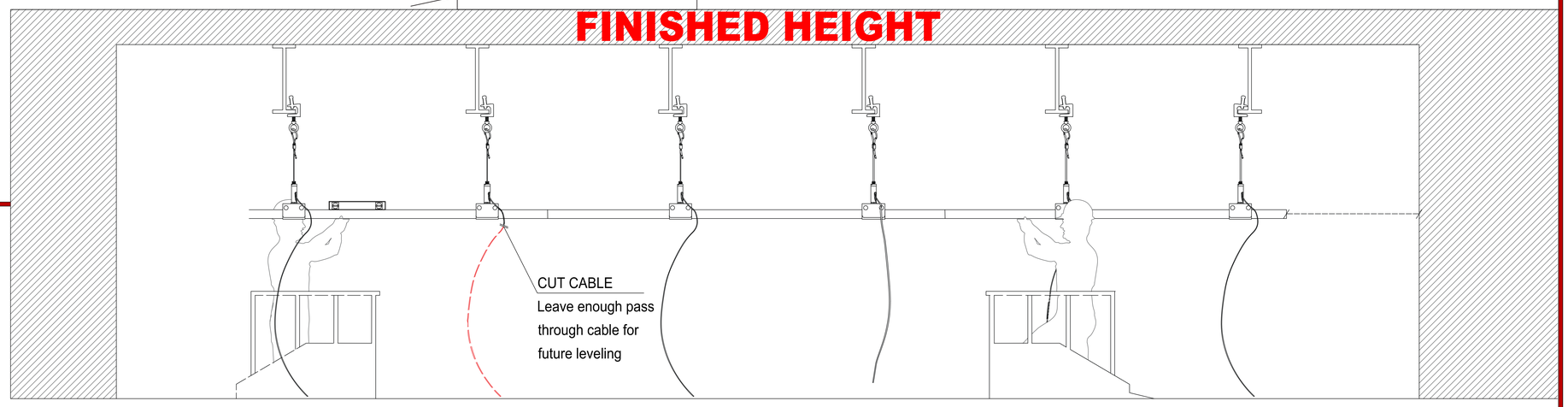
FINISHED HEIGHT



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

LEVEL busSTRUT AND TRIM CABLE

FINISHED HEIGHT

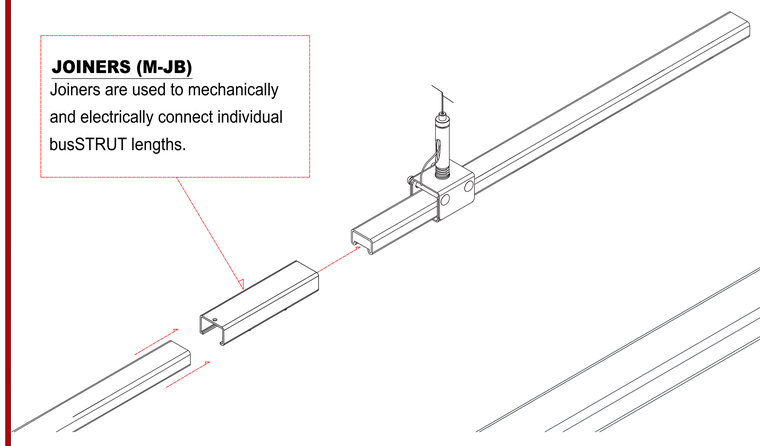


STEP 2

INSERT JOINERS

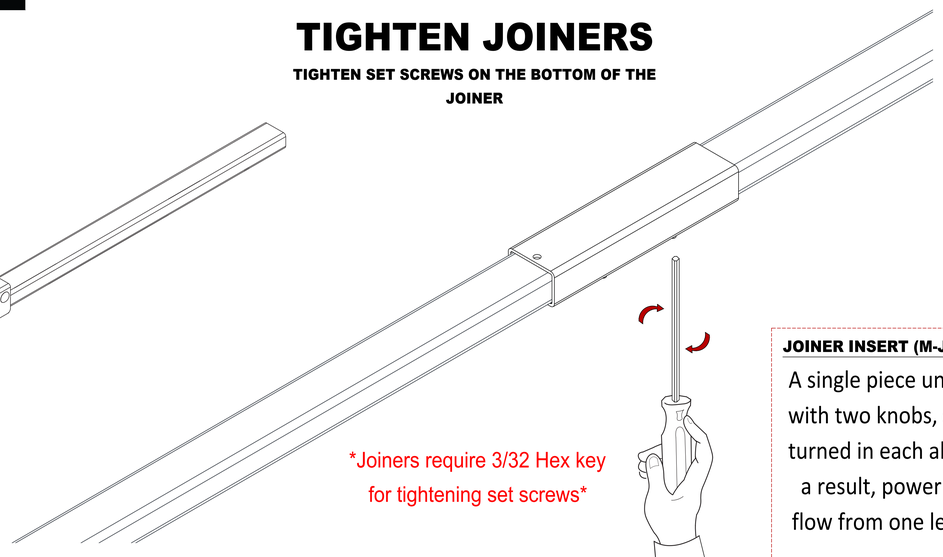
ATTACH JOINERS TO EACH END OF CONNECTING busSTRUT

JOINERS (M-JB)
Joiners are used to mechanically and electrically connect individual busSTRUT lengths.



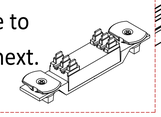
TIGHTEN JOINERS

TIGHTEN SET SCREWS ON THE BOTTOM OF THE JOINER



Joiners require 3/32 Hex key for tightening set screws

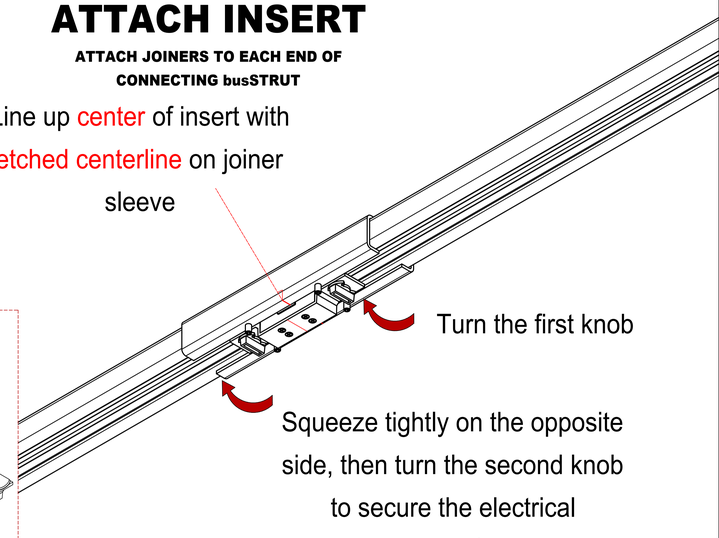
JOINER INSERT (M-JI-X)
A single piece unit that is installed with two knobs, one must be fully turned in each abutting length. As a result, power can continue to flow from one length to the next.



ATTACH INSERT

ATTACH JOINERS TO EACH END OF CONNECTING busSTRUT

Line up center of insert with etched centerline on joiner sleeve



Turn the first knob

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

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ISSUE DATE: 10/28/2024
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TYPICAL busSTRUT Installation Instructions

busSTRUT
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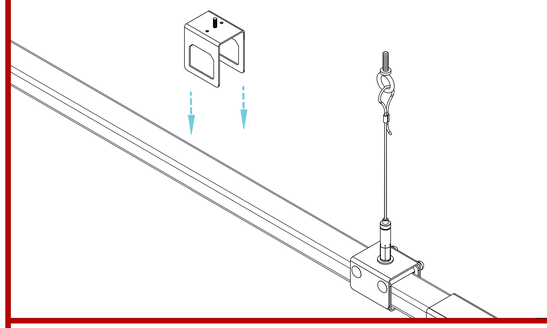
STEP 3

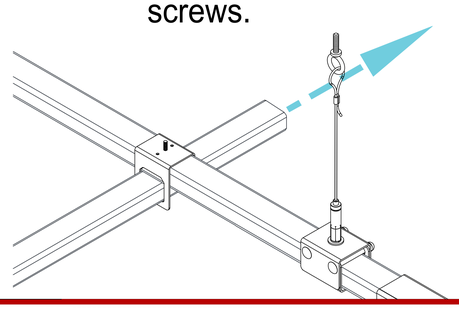
INSTALLING CROSSOVERS

DROPPING ON

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

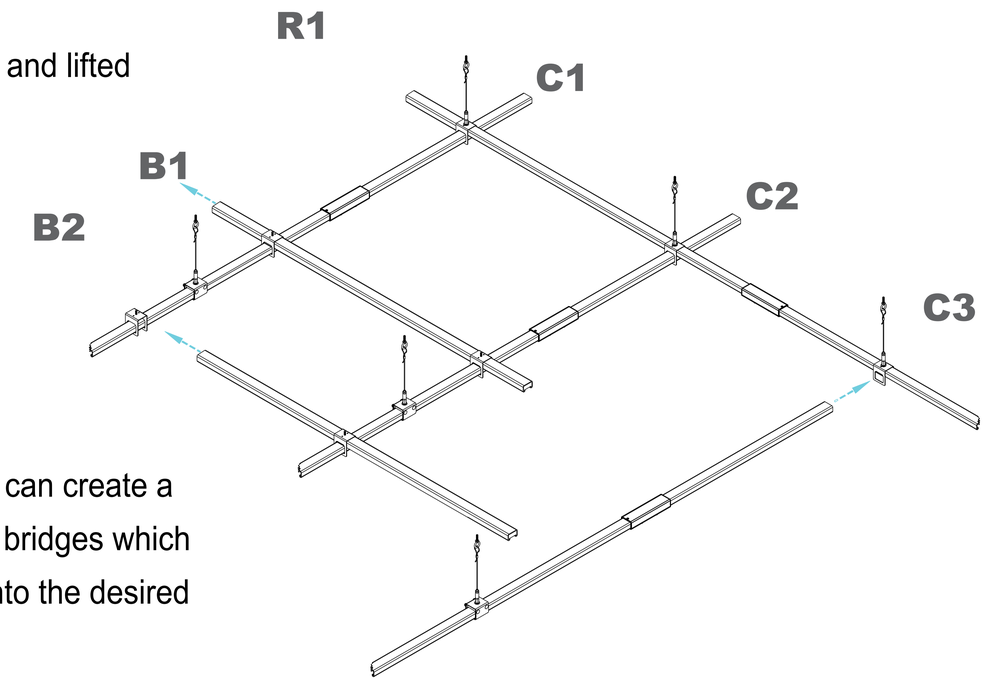


Slide perpendicular runs of busSTRUT through the crossover and tighten the set screws.



SLIDING ON

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

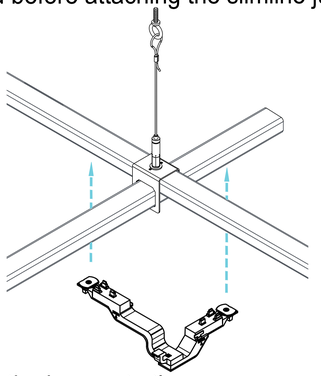


Perpendicular runs can create a full grid or be short bridges which are easily moved into the desired position.

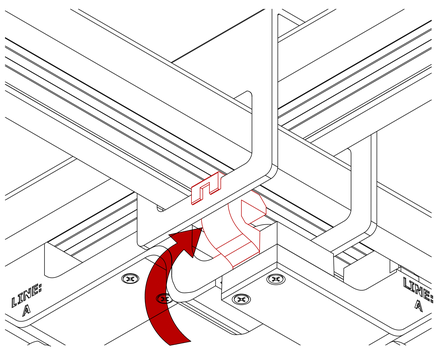
STEP 4A

SLIMLINE JUMPER

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

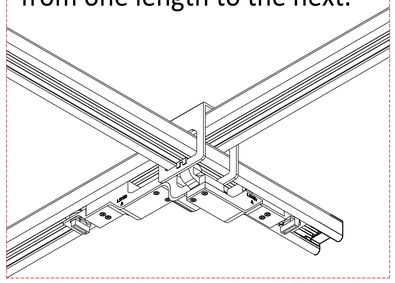


First, clip the jumper to the crossover.

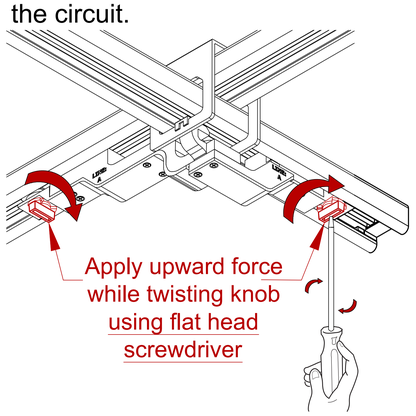


SLIMLINE JUMPER (MD2020-UNIV-IJ2-B-X)

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.

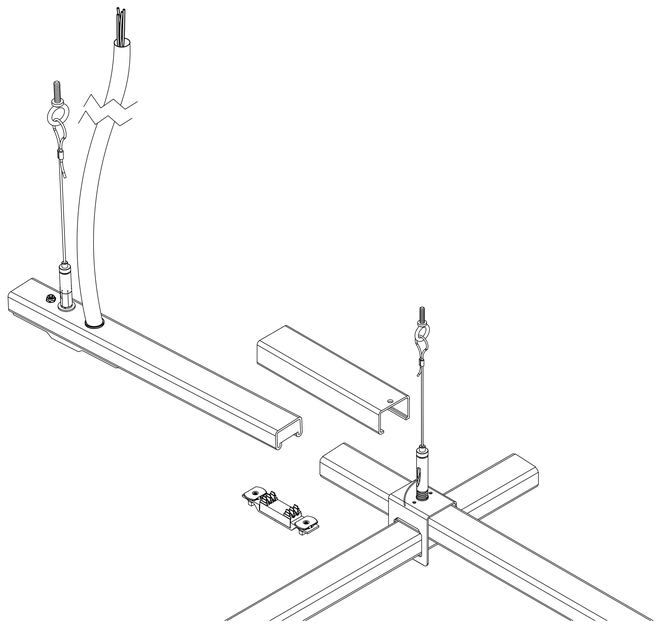


STEP 4B

STARTER FEED

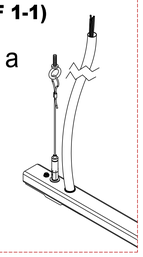
The Starter Feed comes with a 1/4-20 Stud to create an additional hang point and a 15' 12/4 SOOW Cord to connect power to the system.

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

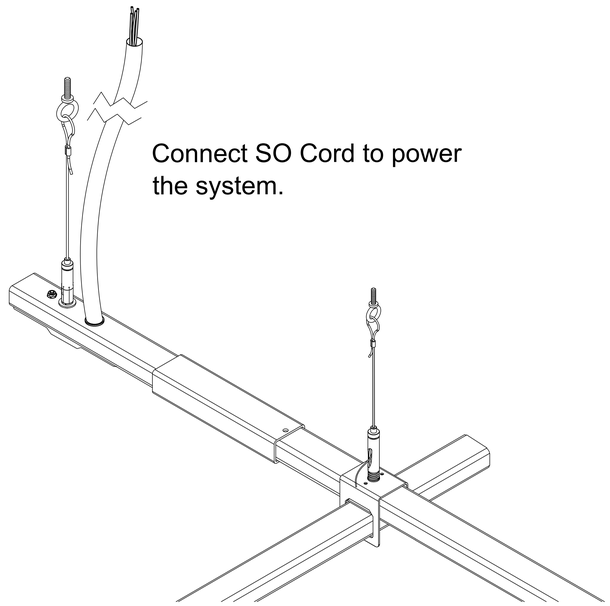


STARTER FEED (P20-3-40-UNIV-30-CM-F 1-1)

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.

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busSTRUT
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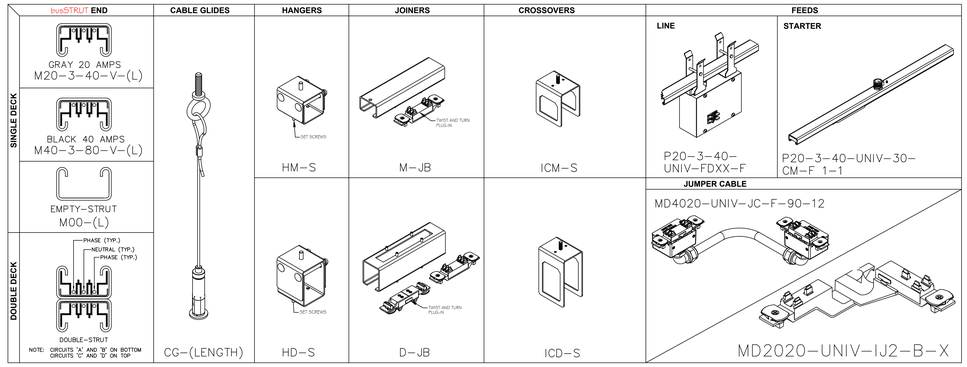
busSTRUT Parts



busSTRUT: 12 gauge 1" x 1" x 1-5/8" STEEL busSTRUT features two Hot wires 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', 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-In electrical insert to bridge power. And continuous grounding exists through the bus itself by means of a permanently affixed copper grounding bar.

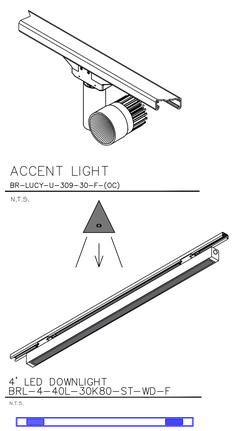
CROSSOVERS: For use with intersecting busSTRUT. Each is an assembled two-part unit for building grid configurations and bridges . The upper piece includes a threaded stud for use with busSTRUT cable-glide.

JUMPERS: For use with both busSTRUT/20 and busSTRUT/40. The fused 40/20 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 "limiters" (breakers/fuse holders) and 3 Pole Fitters. Available up to 277/480V. Can be positioned anywhere along busSTRUT to reduce the lengths of homeruns.

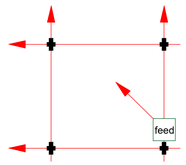
STARTER FEEDS: For use with powering single-decked busSTRUT. Utilized when no current limiting is required on the busSTRUT. Must be positioned at the beginning of a run.

Lights

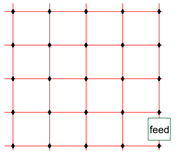


busSTRUT system is designed to be BID separately.

Bid from the **feeds-in**.



* Powered by a minimal amount of feed boxes.



Legend

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

Bill of Materials

busSTRUT **Bill of Materials**

GRID Large LT PD

Finish TBD:
Galvanized, White, or Black

Drawn By	John Loch
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
M20-3-40-277-2.5-F-2B	M20-3-40-277-3-F-2B	M20-3-40-277-5-F-2B	M20-3-40-277-7-F-2B	SINGLE	JOINER INSERT	NON-ELECTRIC JOINER INSERT	SINGLE	DÉCOR BRACKET	CG-E-15-B-GL	ICM-S-F-ST-X	JUMP CORD MD4020-UNIV-JCF-80-12-GO2	MD2020-UNIV-IJ2-F-X	P20-3-40-UNIV-JK-NB-F	STARTER FEED CENTER MOUNT P20-3-40-UNIV-30-CM-F 1-1	POWER DROP MD40-2-120-CB20-DC-XX-LE-F	BRL-4-40L-30K80-ST-WD-F	BR-LUCY-U-309-30-F-(OC)
M-JB-F-X	M-JI-F-X	M-JI-F-NE	HM-S-F-ST-LFX	MKU-ST-A-F													

R/C	Amps	LF	BF	2.5	3	5	7	M	INS	NE-INS	M	DB	C-GI	1/1	12"	INVS	JK	30ST	PD	GEN	ACT
Rows																					
R1	20	25	25	1	2		2	5	5				4	4				1			5
R2	20	25	25		2	1	2	4	4				4	4		1					4
R3	20	25	25		2	1	2	4	4				4	4		1					4
R4	20	25	25		2	1	2	4	4				4	4		1					4
SUB TOTAL		**100**	**100**	**1**	**8**	**3**	**8**	**17**	**17**				**16**	**16**		**3**		**1**			**17**
R/C	**Amps**	**LF**	**BF**	**2.5**	**3**	**5**	**7**	**M**	**INS**	**NE-INS**	**M**	**DB**	**C-GI**	**1/1**	**12"**	**INVS**	**JK**	**30ST**	**PD**	**GEN**	**ACT**
Columns																					
C1	20	25	25		2	1	2	4	4							1				3	
C2	20	25	25		2	1	2	4	4							1				3	
C3	20	25	25		2	1	2	4	4							1				3	
C4	20	25	25		2	1	2	4	4							1				3	
SUB TOTAL		**100**	**100**		**8**	**4**	**8**	**16**	**16**							**4**				**12**	
R/C	**Amps**	**LF**	**BF**	**2.5**	**3**	**5**	**7**	**M**	**INS**	**NE-INS**	**M**	**DB**	**C-GI**	**1/1**	**12"**	**INVS**	**JK**	**30ST**	**PD**	**GEN**	**ACT**
Bridges																					
B1	20	10	10		1		1	1	1					2		1			1		
B2	20	10	10		1		1	1	1					2		1			1		
B3	20	10	10		1		1	1	1					2		1			1		
B4	20	10	10		1		1	1	1					2		1			1		
SUB TOTAL		**40**	**40**		**4**		**4**	**4**	**4**					**8**		**4**			**4**		
STORE TOTAL		**240.0**	**240.0**	**1**	**20**	**7**	**20**	**37**	**37**				**16**	**24**		**11**		**1**	**4**	**12**	**17**

Labor Hours

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

busSTRUT LABOR

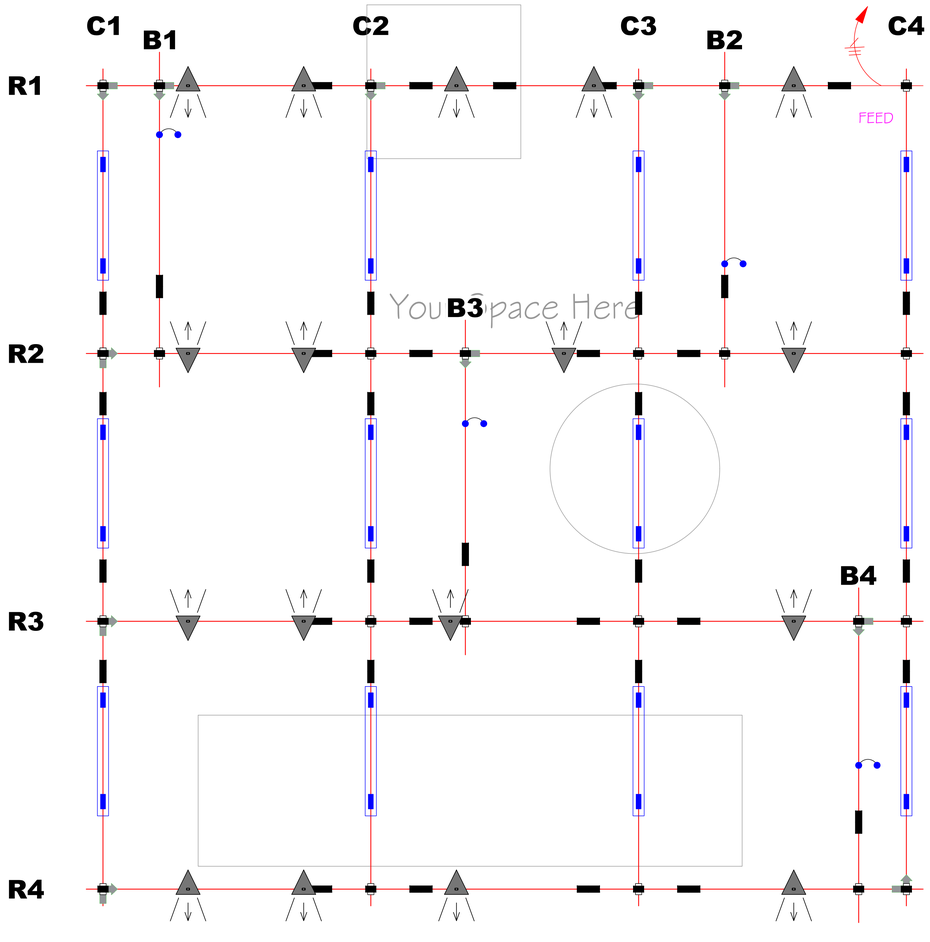
	ITEMS	Qty.	U/M		STANDARDIZED LABOR HOURS min	hrs 60		TOTAL HRS
busSTRUT SYSTEM	LENGTHS	240	LF	x	2.75	0.05	=	11
	JOINERS	37	EA	x	12	0.20	=	7
	HANGERS	16	EA	x	25	0.42	=	7
	CROSSOVERS	16	EA	x	10	0.17	=	3
	ATTACHMENTS	4	EA	x	8	0.13	=	1
	JUMPERS	11	EA	x	6	0.10	=	1
	FEEDS	1	EA	x	15	0.25	=	0
					busSTRUT SUB-TOTAL		=	30
FIXTURES	ACCENT	17	EA	x	8	0.13	=	2
	LINEARS	12	EA	x	20	0.33	=	4
					busSTRUT READY LIGHTS SUB-TOTAL		=	6
					TOTAL TIME		=	36

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)



COLUMNS
ROWS

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Lighting Plan & Bill of Materials

GRID LARGE - Lights & Power Drops

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PAPER SIZE: ARCH E (48x36)

SCALE 5/8" = 1'-0"

DRAWING NUMBER
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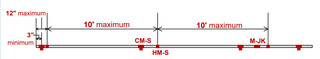
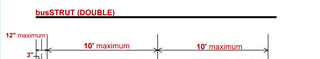
Mounting Rules

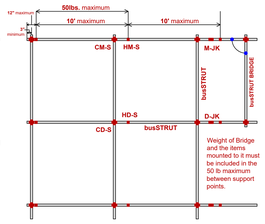
busSTRUT (SINGLE)



busSTRUT (DOUBLE)



busSTRUT GRID



WARNING
DO NOT FIELD-CUT OR PAINT busSTRUT. FACTORY FINISH HAS BEEN ENGINEERED AND APPLIED TO ENSURE SAFE ELECTRICAL GROUNDING. REFINISHING busSTRUT MAY DESTROY ELECTRICAL GROUNDING CAUSING AN ***UNSAFE*** CONDITION.

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:
Single (MIN) - 1.5 lb per Linear Foot (not including connected weight)
Double (MAX) - 3 lb per Linear Foot (not including connected weight)

FITTERS

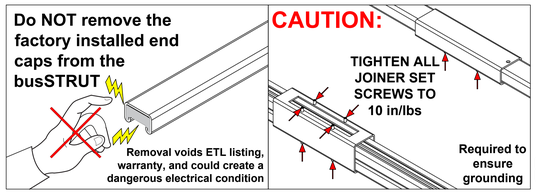
40 lbs The busSTRUT Flip-Fitters (with metal bracket) are rated for **40 lbs maximum static, vertical load.**

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.

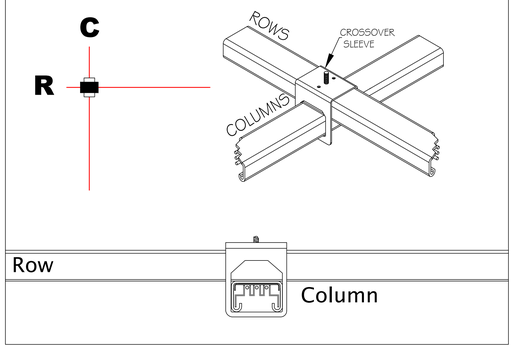
CONNECTION TO STRUCTURE BY OTHERS
Attachment from busSTRUT System to structure must be engineered and installed to properly support the entire suspended weight.

CONNECTION TO STRUCTURE BY OTHERS



Project Specific Rules

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



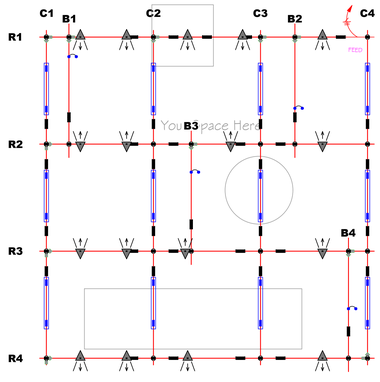
busSTRUT Lengths Used in this Project

2.5'

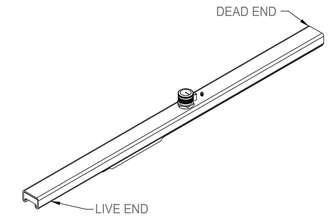
3'

5'

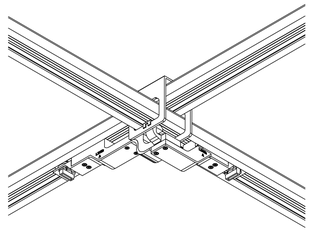
7'



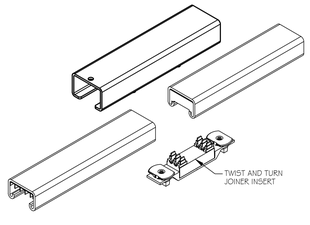
ISO Details



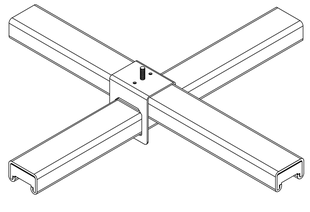
A 30" STARTER FEED N.T.S.



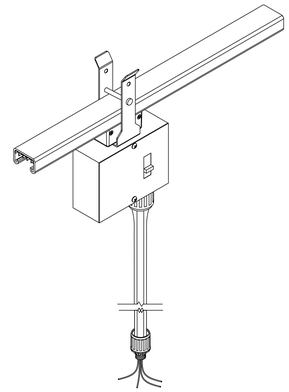
B SLIMLINE JUMPER at 1/1 CROSSOVER N.T.S.



C SINGLE JOINER w/ JOINER INSERT N.T.S.



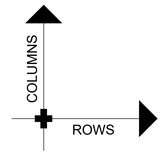
D SLIMLINE 1/1 CROSSOVER N.T.S.



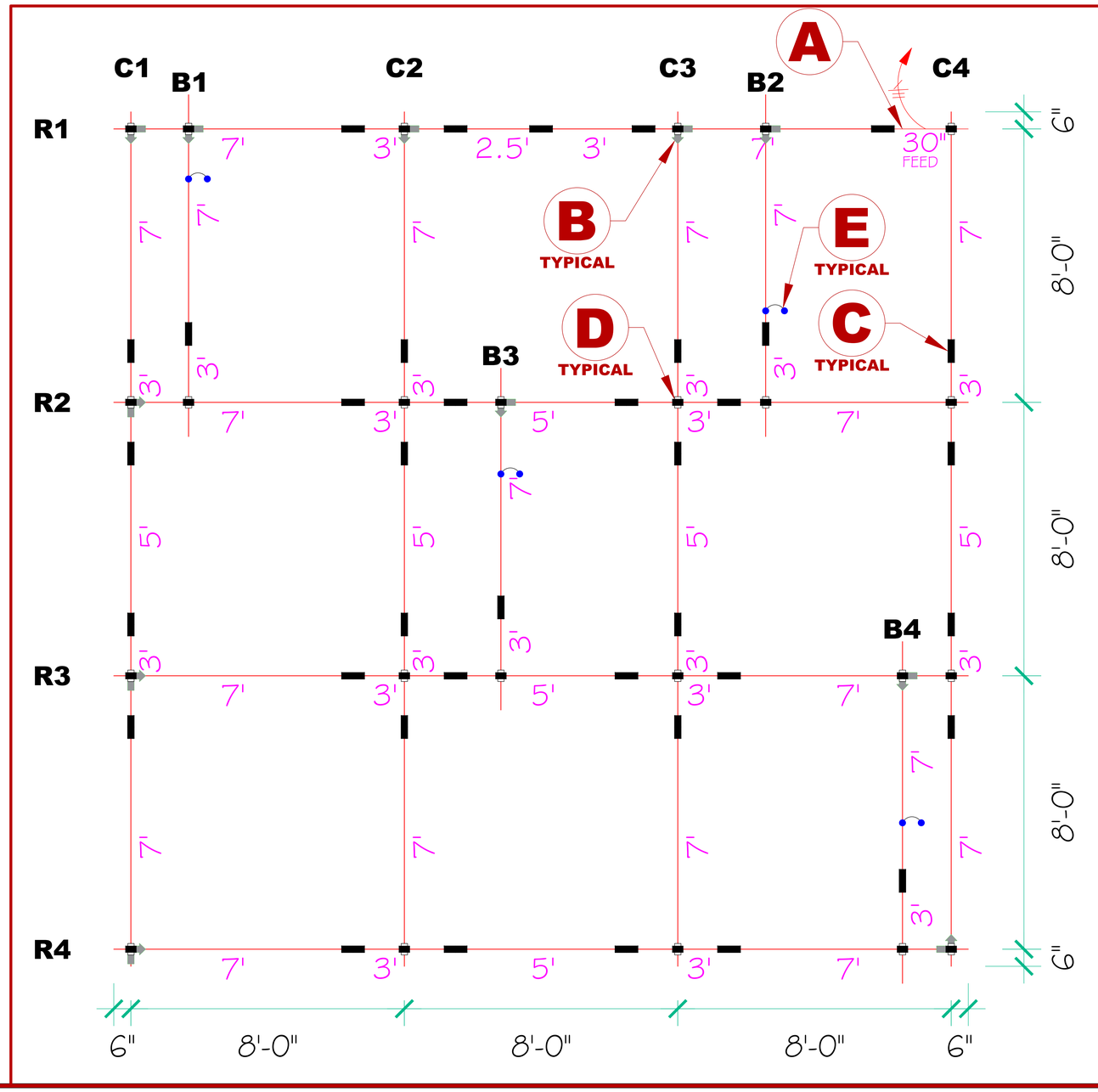
E POWER DROP N.T.S.

Legend

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



Dimensions



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DRAWN BY: JOHN LOCH
ISSUE DATE: 10/28/2024
ISSUED FOR: BID/REVIEW

Assembly Plan
GRID LARGE - Lights & Power Drops

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

NO.	DATE	REVISION DESCRIPTION	BY
	XX-XX-XX	XXXX	XX

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