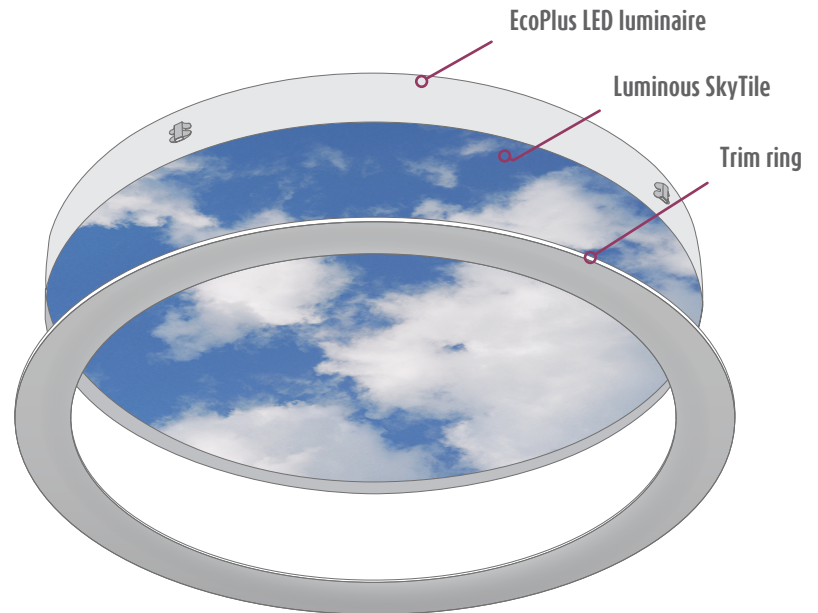




## Aperture w/ EcoPlus Installation Instructions



### Installation Packet Includes:

Aperture w/ EcoPlus Installation Instructions

Drop Ceiling and Hard Ceiling Cross-Sections included

One of three Custom EcoPlus Electrical Packets

Custom EcoPlus Electrical Packet (24PS HLG)

Custom EcoPlus Electrical Packet (HLG)

Custom EcoPlus Electrical Packet (Fixture Only)

Luminous SkyTile Installation

SkyTile Layout

Grid Plan GR1

Suspension Layout SP1

Electrical Layout EL1

Electrical Layout EL2

Grid Detail DE2-4

For technical support at any time during the installation, please call us **toll free at 866-759-3228**.

We want your installation to go as smoothly as possible. Thank you for choosing Sky Factory.

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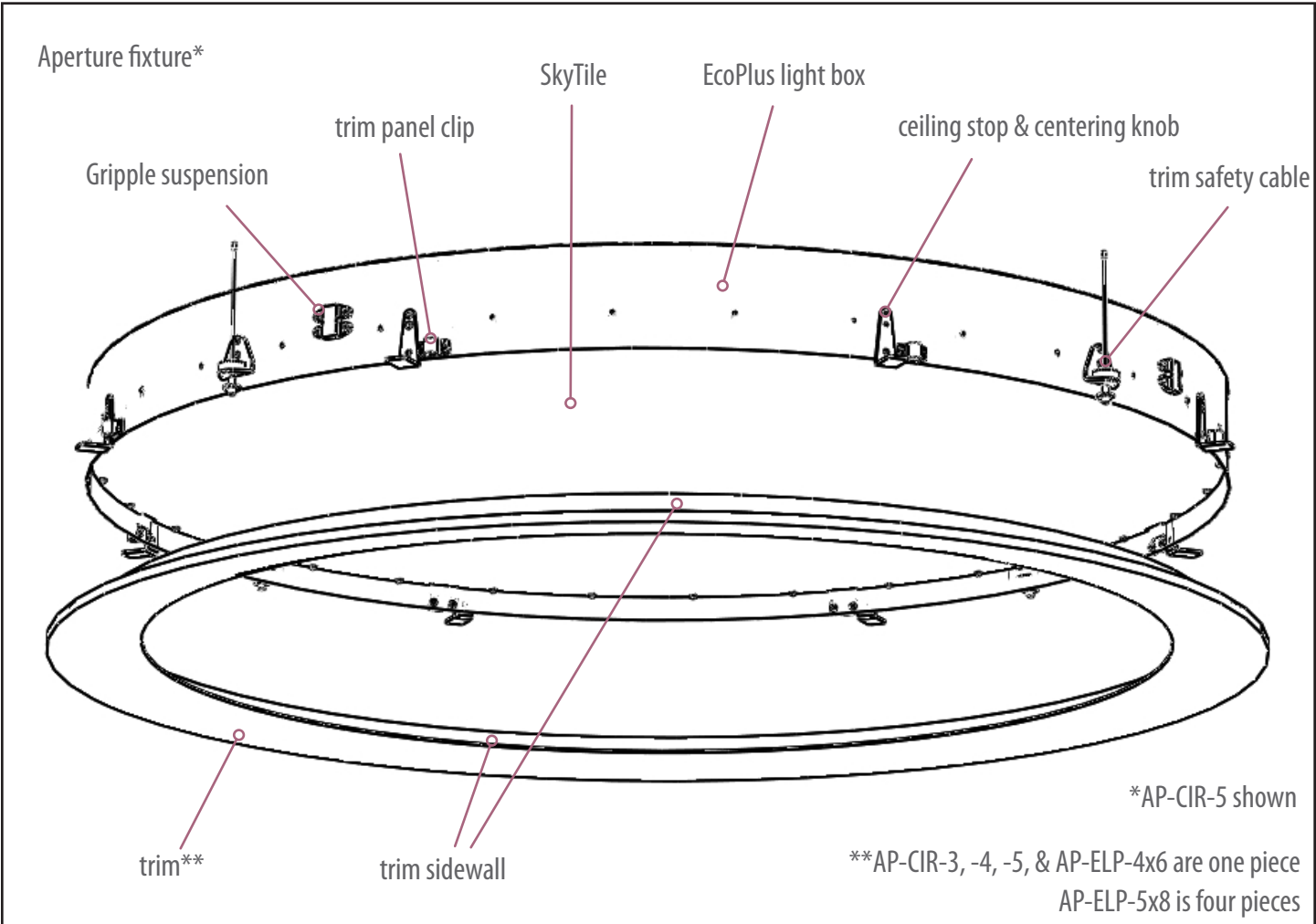
## Installation Requirements

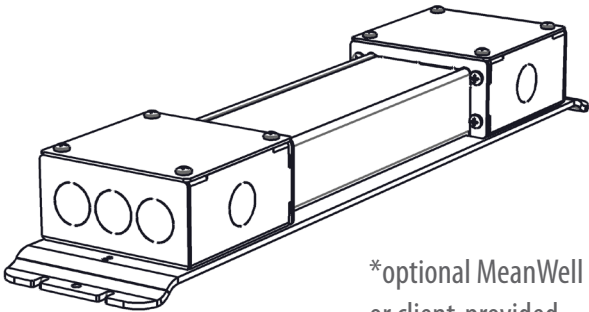
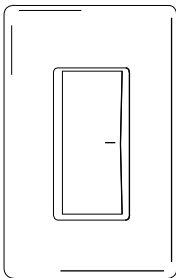
### Tools and Parts

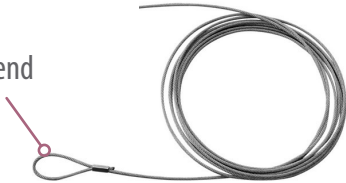
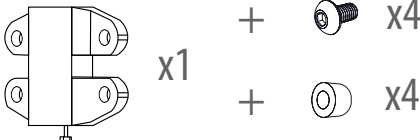

#### Tools Needed:

- Tools to attach suspension system to building structure
- Needlenose pliers, measuring tape, level and other hand tools
- Tools for installing electrical and running conduit (where required)

Parts Provided:

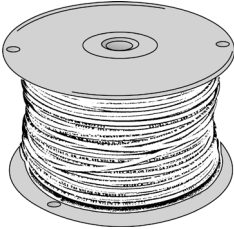
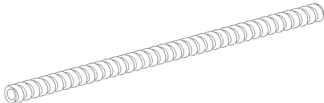
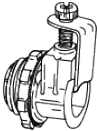


<p>Sky Factory 24PS HLG Power System*</p>  <p>*optional MeanWell HLG or client-provided</p>	<p>Dimmer switch (optional)</p>  <p>*Lutron Diva DVSTV (North America) or Jung 240-10 (International)</p>
--	---


<p>Gripple suspension cable</p>  <p>loop type end</p> <p>* 5' (1.5m) cable length</p>	<p>Gripple Butterfly Trapeze kit (backup only)*</p>  <p>x1 + x4 + x4</p> <p>* Gripple Butterfly Trapeze + 10-32 fastener + 1/4" spacer</p>	<p>Trim safety cable*</p>  <p>* 2 - 8 depending on model</p>
--	--	---

Parts Needed:

for AC Source power

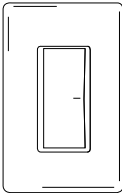
<div>Electrical wire</div> <div></div>	<div>Conduit</div> <div>* where required</div> <div></div>
	<div>1/2" trade size box connector*</div> <div>*as per application and code</div> <div></div>

Standard 2x4 wall box

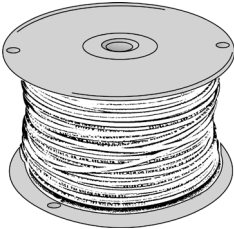
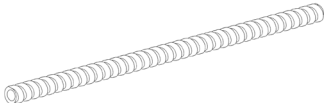
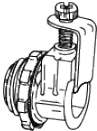


+

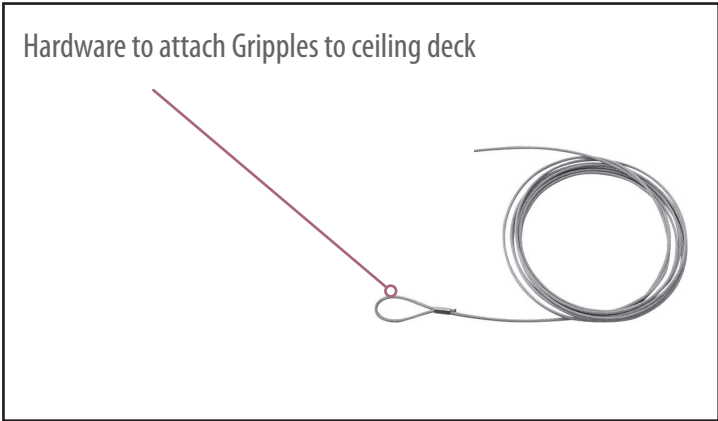
and in-line switch  
where no dimmer is specified



for DC power

<div>Electrical wire</div> <div></div>	<div>Conduit</div> <div>* where required</div> <div></div>
	<div>1/2" trade size box connector*</div> <div>*as per application and code</div> <div></div>

Suspension



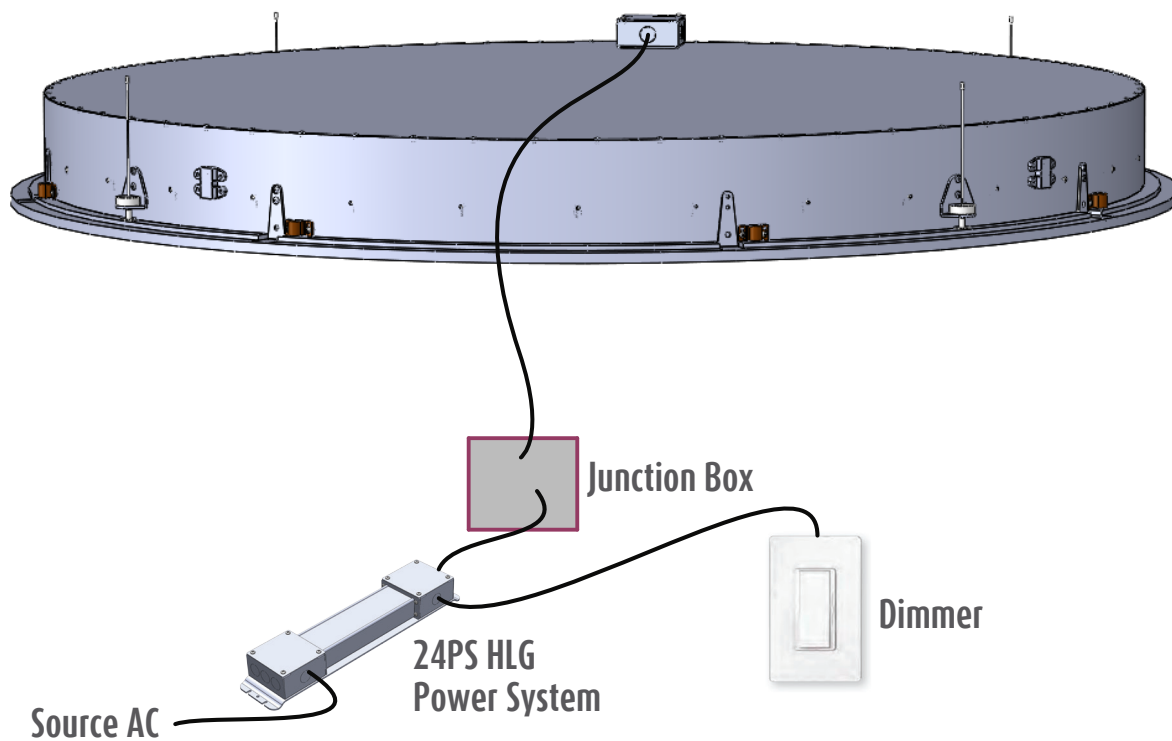
# Location Requirements

Aperture SkyCeilings require selecting a location for the following components:

- SkyCeiling
- Dimmer or in-line power switch
- AC to DC power supply

## SkyCeiling

- suspension anchor points must meet local and national codes
- must be dry and accessible for periodic cleaning
- can be installed in ceiling grid or imbedded in finished ceiling
- minimum space required above finished ceiling or grid: 6 7/8" (17.5cm)  
not including means to connect suspension to building structure



## Power system

- must be dry, dust-free and accessible for periodic cleaning
- SkyFactory 24PS HLG shown

## Dimmer

- wall box not provided
- Lutron Diva dimmer shown

# Suspension Requirements

## Fixture Suspension

Gripple Butterfly Trapeze suspension system (provided)

5' (152cm) stainless steel cable with loop end anchored to building structure

- Suspension anchor points not provided and must meet local and national codes

See drawing **SP1** for suspension locations

## Trim Suspension

Sugatsune suspension system (provided)

Panel clips secure trim to fixture

Safety cables with 5" reach help secure trim during installation and provide backup once trim is fully secured

## SkyCeiling Dimensions and Weights

### AP-CIR-3

7 3/8" (18.8cm) bottom of trim to top of fixture

32 1/2" (82.6cm) EcoPlus light box outside dia.

36" (92cm) trim outside dia.

23 lbs (10.5kg); 5.8 lbs (2.7kg) per suspension point

### AP-CIR-4

7 3/8" (18.8cm) bottom of trim to top of fixture

44 1/2" (113cm) EcoPlus light box outside dia.

48" (122cm) trim outside dia.

40 lbs (18.2kg); 10 lbs (4.6kg) per suspension point

### AP-CIR-5

7 3/8" (18.8cm) bottom of trim to top of fixture

56 1/2" (144cm) EcoPlus light box outside dia.

60" (153cm) trim outside dia.

63 lbs (28.6kg); 15.8 lbs (7.2kg) per suspension point

### AP-ELP-4X6

7 3/8" (18.8cm) bottom of trim to top of fixture

44 1/2" x 68 1/2" (113cm x 174cm) EcoPlus light box outside dim.

48" x 72" (122cm x 183cm) trim outside dim.

62 lbs (28.2kg); 15.5 lbs (7.1kg) per suspension point

### AP-ELP-5X8

7 3/8" (18.8cm) bottom of trim to top of fixture

56 1/2" x 92 1/2" (144cm x 235cm) EcoPlus light box outside dim.

60" x 96" (153cm x 244cm) trim outside dim.

101 lbs (45.9kg); 16.9 lbs (7.7kg) per suspension point

## Electrical Requirements

At 24V DC:

AP-CIR-3 Series @ 01.6A, 37.4W

AP-CIR-4 Series @ 2.9A, 69.0W

AP-CIR-5 Series @ 4.7A, 112.1W

AP-ELP-4X6 Series @ 4.8A, 115.0W

AP-ELP-5X8 Series @ 8.2A, 195.5W

See one of three electrical packets:

Custom EcoPlus Electrical Packet (24PS HLG),

Custom EcoPlus Electrical Instructions (HLG), or

Custom EcoPlus Electrical Instructions (Fixture Only)

*Electrical work must be performed by a qualified electrician who is familiar with DC lighting systems and must conform to all local and national codes.*

## Fixture and SkyTile Orientation

Fixtures **MUST** be installed so the SkyTile fits the SkyTile Layout.

SkyCeiling images are composed with a head/foot orientation.

See **SkyTile Layout** included.

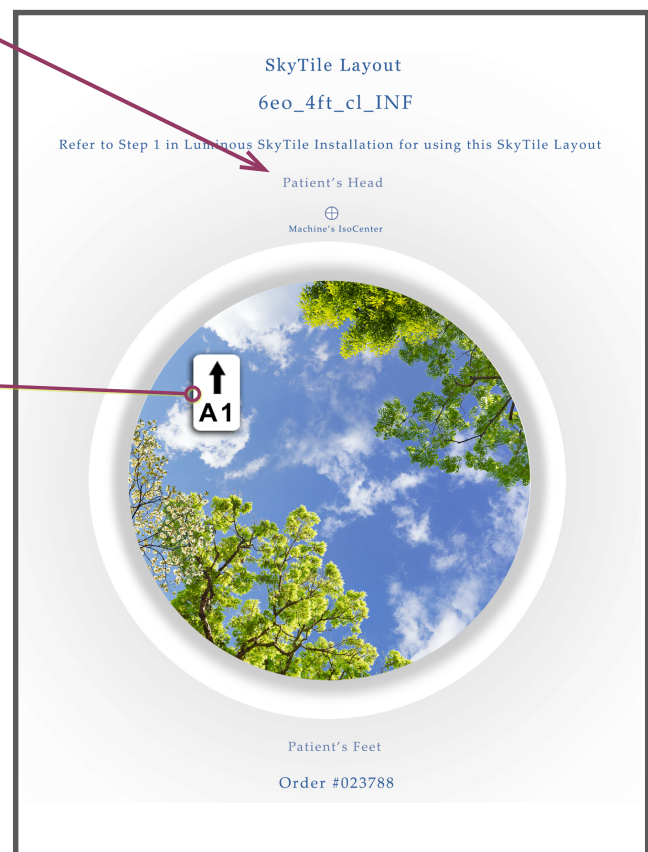


### Important:

Quick release label is for installation purposes only.

It orients the location and direction of tile in the ceiling.

Label **MUST** be removed once the SkyCeiling is fully installed and checked for proper orientation.



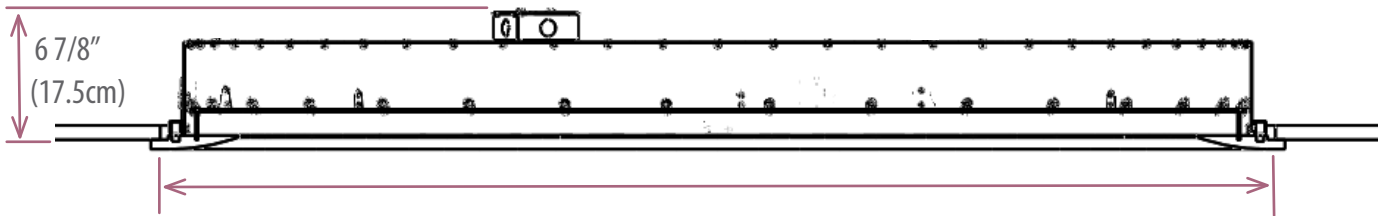
# Installation Instructions

## Step 1: Create ceiling opening

Frame opening or prepare grid in accordance with all local and national codes.

See also Suspension Requirements on page 6, cross sections on pages 18-19, and installation specific drawings

**GR1, SP1 and DE2-4** provided



IMPORTANT: TRIM OVERLAP IS MINIMAL. OPENING MUST BE +/- 1/4" (0.64cm)

TEMPLATE FOR ELLIPSES CAN BE PROVIDED UPON REQUEST

### finished openings:

AP-CIR-3

35" (87.5cm) sidewall to sidewall or  
15/16" grid on 3' center\*

AP-CIR-4

47" (117.5cm) sidewall to sidewall or  
15/16" grid on 4' center\*

AP-CIR-5

59" (147.5cm) sidewall to sidewall or  
15/16" grid on 5' center\*

AP-ELP-4X6

47" x 71" (117.5cm x 177.5cm) sidewall to sidewall or  
15/16" grid on 4' and 6' center\*

AP-ELP-5X8

59" x 95" (147.5cm x 237.5cm) sidewall to sidewall or  
15/16" grid on 5' and 8' center\*

\* Aperture series fixtures fit in standard imperial grid openings, but can be installed in a variety of off-center applications in both imperial and metric grid as well.

## Step 2: Plan for electrical

See:

- **Location Requirements** on page 5
- **Step 7: Connect Power**
- **Custom EcoPluS Electrical Packet** provided



### Step 3: Determine SkyTile orientation

- See page 7
- **IMPORTANT:** Be sure to orient the fixture following the **SkyTile Layout** sheet. If the SkyTile is improperly oriented, the fixture will have to be removed from the SkyCeiling and re-installed in the proper orientation.

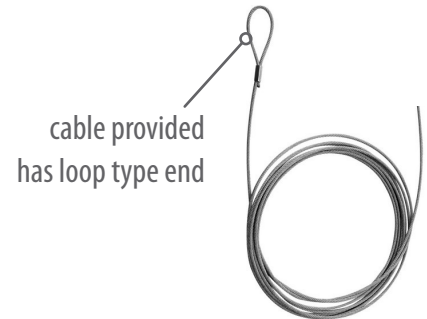
### Step 4: Attach suspension cables to building structure

See:

- **SP1** for SkyCeiling suspension points
- "Suspension Requirements" on page 6 for SkyCeiling weights

Attach cables to building structure following all local and national codes

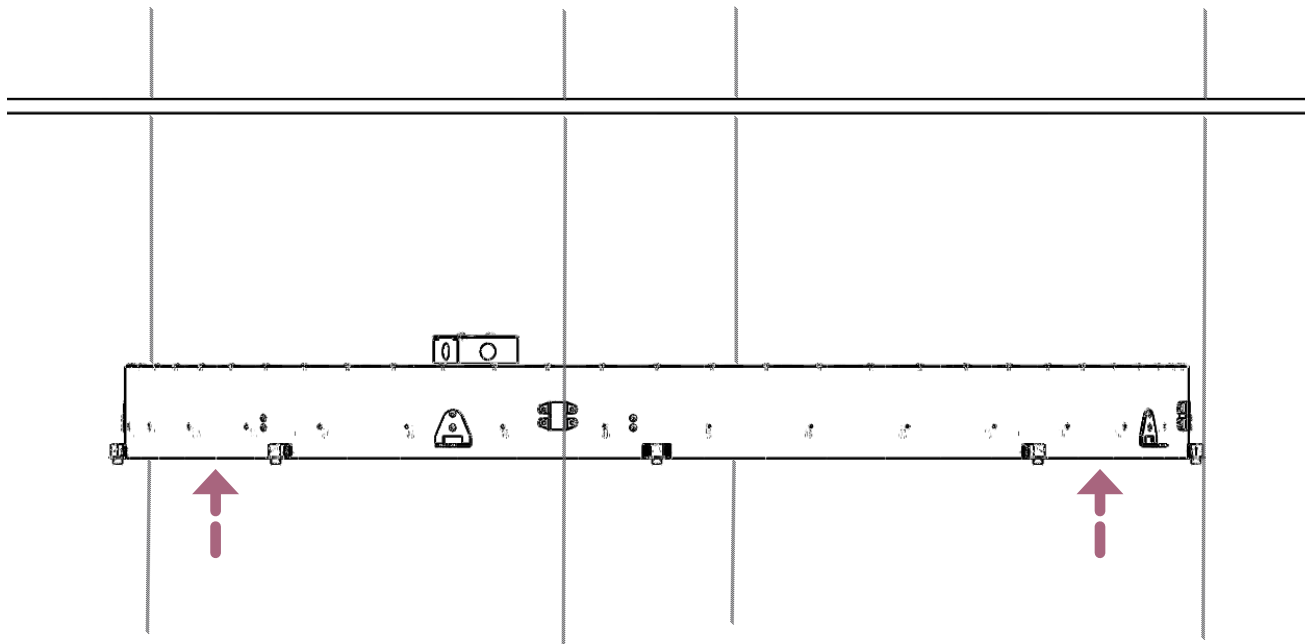
Ensure cables extend at least 3" (8cm) below Gripper when fully installed.



### Step 5: Lift fixture into position

**IMPORTANT:** Lift fixture by sidewall or ceiling stops. **DO NOT LIFT AGAINST SKYTILE.**

Do not overflex fixture when positioning. Too much flexion could crack SkyTile.



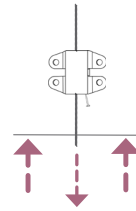
## Step 6: Secure fixture to suspension cables

Operating the **Gripple Butterfly Trapeze** suspension system

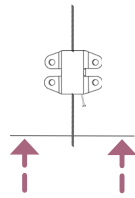
- See also Gripple installation sheet on page 16.

**To adjust load upward:**

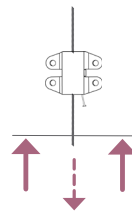
Thread cable down through Gripple, then lift fixture and pull on tail



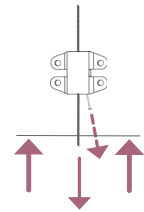
**To adjust load downward:**



Lift up on fixture to remove load



Pull on cable tail to release internal wedge

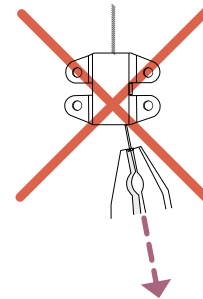


Pull down on pin to free cable

### **IMPORTANT: DO NOT FORCE PIN**

Gripple safety mechanism – release pin will break loose if forcefully pulled under load.

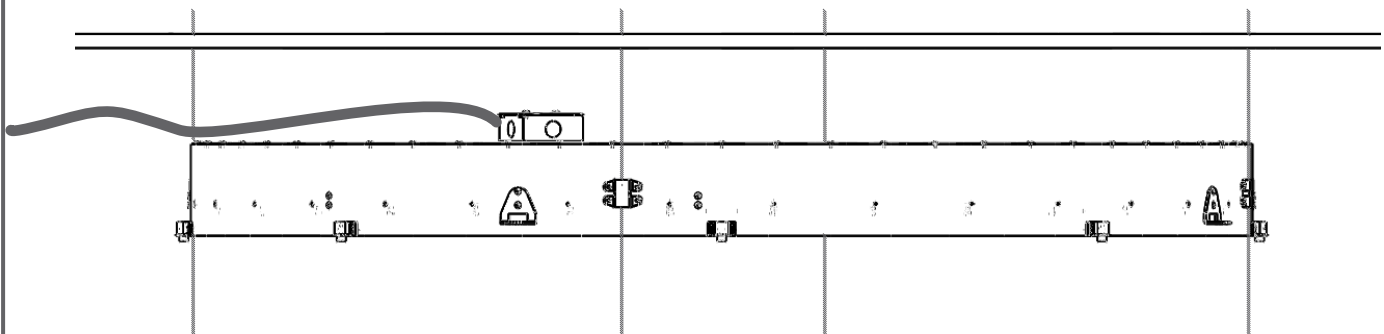
If cable is wedged too tight and won't release, see Appendix A: How to Free Stuck Gripple Cables



## Step 7: Connect power

See **Custom EcoPlus Electrical Packet** provided for wiring details

- Must conform to all local and national codes
- Test electrical before Step 8



## Step 8: Draw fixture up against grid or finished ceiling

Do not overflex fixture when snugging up cables. Work from Gripple to Gripple lifting fixture 3-4" (7-10cm) at a time

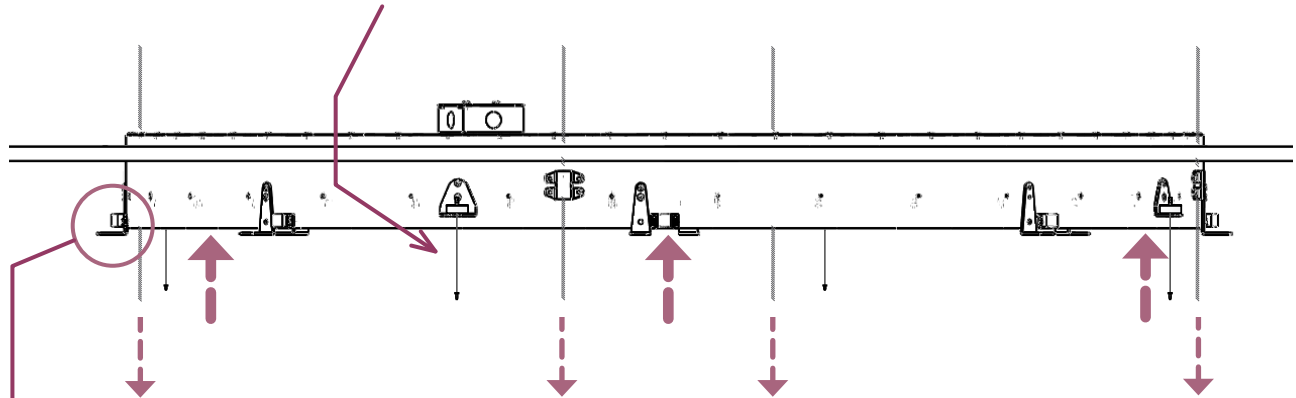
### Install trim safety cables:

**before seating fixture against finished ceiling.**

Cables will hang from bracket, and push up once attached to trim.

cable inserts through hole in bottom plate and rides in notch.

bumper fits in pocket in back plate



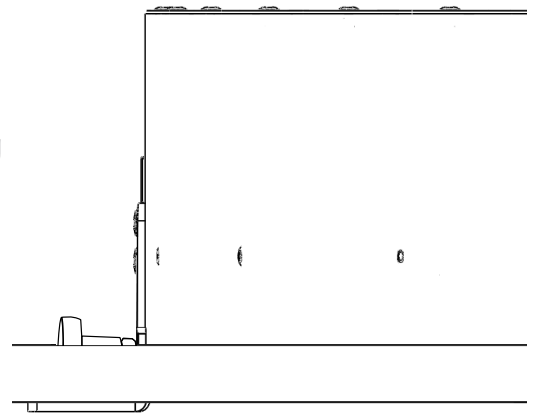
### Ceiling stops:

- set height of fixture in relation to bottom of grid or finished ceiling so trim will seat properly
- in finished ceiling applications only, stops fixture from lifting when trim is snapped into place. See SP1 and GR1.

**IMPORTANT:** Stop needs to be snug only against ceiling.

If Gripple is pulled too tight, it can be hard to release.

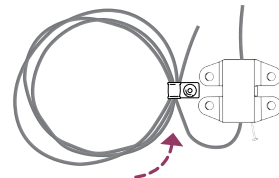
See Step 6 and Appendix A.



**IMPORTANT:** Bottom edge of fixture must sit in same plane for trim to secure properly.

Once fixture is firmly seated against ceiling or grid,  
stow loose suspension cables out of the way above the ceiling

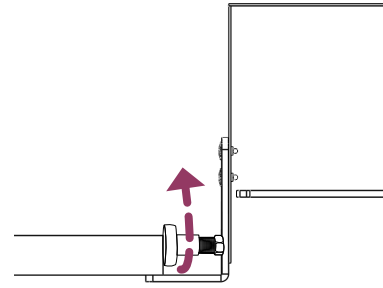
**DO NOT CUT CABLES! LEAVE FOR FUTURE MAINTENANCE, IF NEEDED!**



## Step 9: Center fixture in opening

adjust knobs on ceiling stops to center fixture.

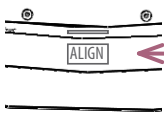
in ceiling grid applications, knob may ride against grid  
or against cut acoustical tiles



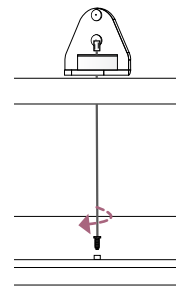
## Step 10: Align trim with fixture sidewall and attach safety cables



line up label on fixture sidewall  
with label on trim



(AP-CIR-3,-4,-5 only)  
(AP-ELP-4x6 is symmetrical)  
(AP-ELP-5x8 joints are labeled)



thread end of safety cable  
into nut inserted  
on top of trim

## IMPORTANT:

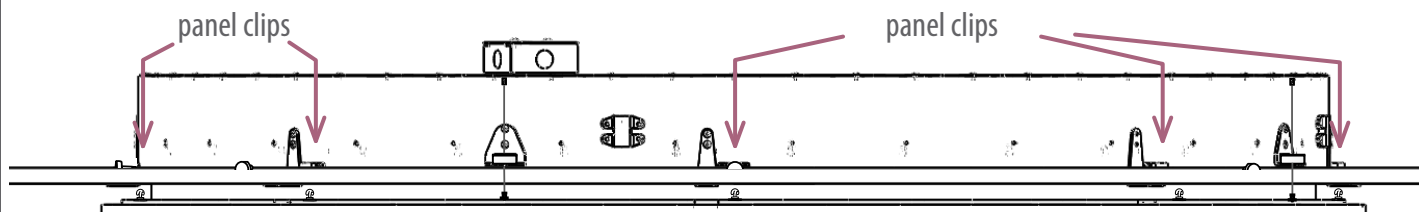
### APERTURE TRIM IS A TRIM SYSTEM ONLY:

- **SAFETY CABLES (STEP 10) AND PANEL CLIPS (STEPS 11-12) ARE DESIGNED TO SUPPORT WEIGHT OF TRIM ONLY!**
- **DO NOT HANG OR SET ANY ADDITIONAL COMPONENTS, INCLUDING INSTALLATION TOOLS AND CEILING GRID, ON TRIM DURING OR AFTER INSTALLATION!**
- **WHEN SEATING TRIM, MAKE SURE PANEL CLIPS ARE FULLY ENGAGED!**

## Step 11: Engage panel clips

NOTE: Make sure all suspension cables are stowed out of the way  
Make sure fixture sits in a single plane. If panel clips do not fully engage, fixture height may need adjusted.

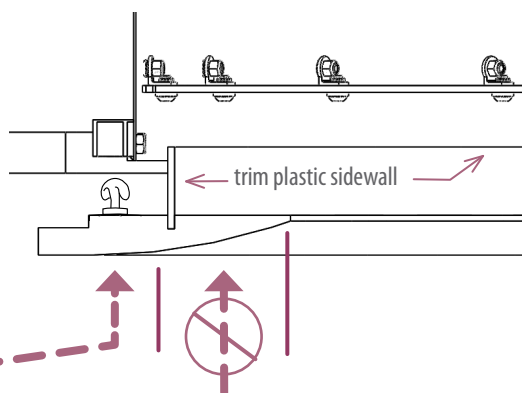
AP-CIR-3, -4, -5, & AP-ELP-4x6 are one piece  
**AP-ELP-5x8 is four pieces –**  
**for 5x8 trim alignment, see also Step 12**



**IMPORTANT:** In ceiling grid applications, fixture must be manually held when engaging or disengaging clips

to engage clips:

- line up male clip on trim to female clip on fixture
- push up firmly on trim **RIGHT BELOW CLIP**



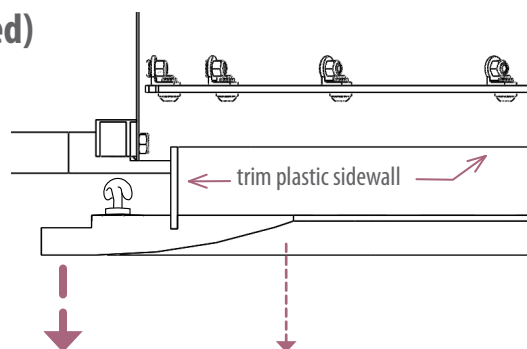
**IMPORTANT:**  
**DO NOT PUSH UP ON TRIM**  
**WITHIN 2 1/2" FROM INSIDE EDGE**

NOTE: Grid applications may require final height adjustment after trim is installed

## Step 12: To disengage panel clips (where required)

to disengage clips:

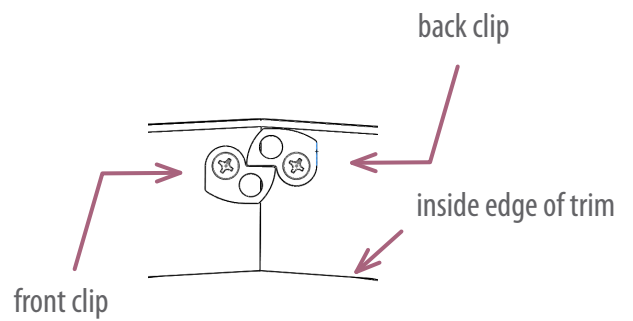
- gently but firmly pull down on trim in clip location



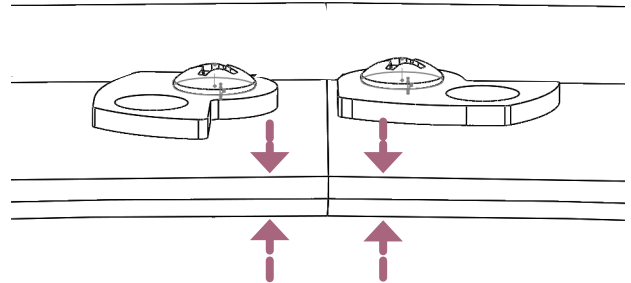
**IMPORTANT:**  
**PULL DOWN AS MUCH AS POSSIBLE**  
**ON OUTSIDE OF TRIM**

## Step 13: Trim joint alignment (5x8 only)

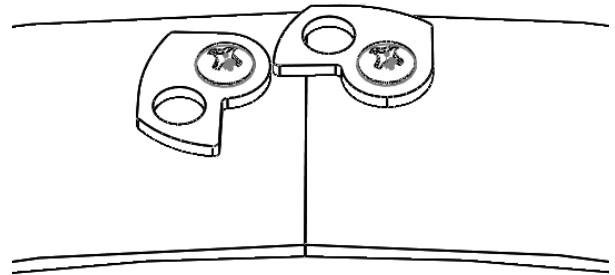
Alignment clips sit on inside ledge of trim and lock together



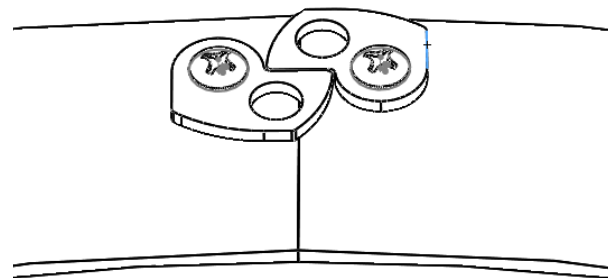
Pinch joint so two sides line up horizontally



Rotate back clip into position first – straight leg should be perpendicular to joint



Then rotate front clip into position – straight leg should be perpendicular to joint



## Final Inspection List



Is the trim seated up against the grid flange or finished ceiling?

- If not, make sure all panel clips are fully engaged.
- Height of fixture in relation to finished ceiling or grid may need to be adjusted.

If Ap-Elp-5x8, have trim joint alignment clips been adjusted?

- If not, make sure all alignment clips are engaged and trim lines up at joints.

In grid ceiling applications, does the fixture sit evenly in the grid?

- If not, fixture alignment may need adjusting.
- If grid is not installed square, fixture may sit unevenly in the opening. If so, adjust grid so it is square.

Is the image evenly lit?

- If not, contact Sky Factory.

Does the SkyCeiling image match the SkyTile Layout image?

- If the SkyTile Layout has a head location, make sure the SkyCeiling is properly oriented in the room. If not, it should be reinstalled.

Has the arrow-label been removed once the image has been verified? If not, remove it now.

- Quick release label MUST be removed once the SkyTile is fully installed and checked for proper orientation.

## Care and Maintenance

- Avoid scratching SkyTile and Trim when cleaning.
- Once installed, SkyTile and Trim can be cleaned in place.
- Use a mild soap and water solution, and a soft, damp-only, non-abrasive cloth.
- DO NOT wet edges of SkyTile. Water may cause image film to de-laminate.

# Butterfly Trapeze Hanger



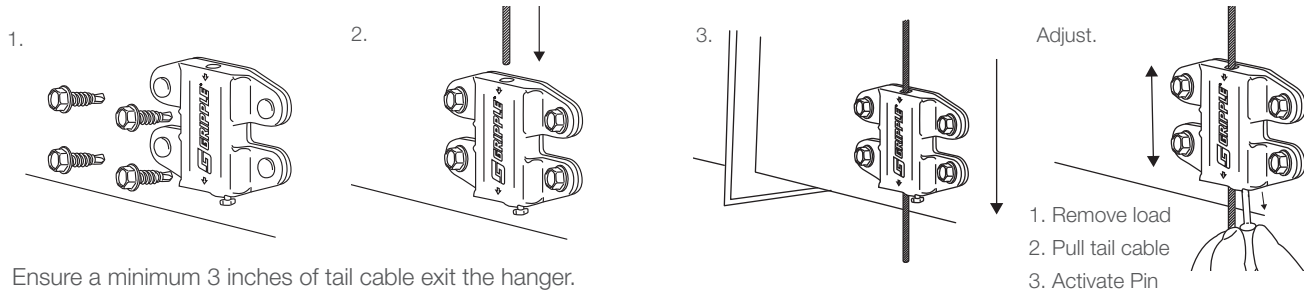
Cable hanger with one-way fastener or the fast suspension of rectangular duct and similar equipment in an indoor stationary setting. NOT suitable for use in chlorinated / swimming pool environments.

## FEATURES / BENEFITS

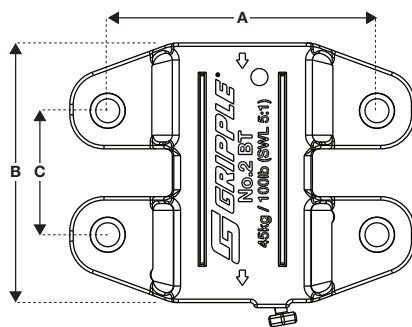
- Attaches to side of duct with self-drilling screws (not provided)
- Rubber pad prevents air leakage and dampens vibration
- Simple height adjustment using the built-in release pin prior to applying load
- Conforms to DW144 Class D
- Ideal for rectangular duct suspended close to the ceiling; can also be used for multi-tiered installations
- Supplied as a ready-to-use kit comprising a length of cable with pre-attached end fixing



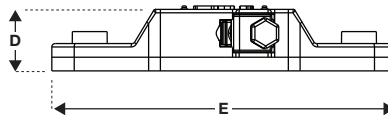
## INSTALLATION & ADJUSTMENT



## SIZE SPECS



Dimension	(inches)
A	1.54
B	1.50
C	0.71



Dimension	(inches)
D	0.35
E	2.00

## AVAILABLE END FIXINGS



For more options on available end fixings please contact us or visit [www.grippler.com](http://www.grippler.com)

## CABLE SPECS

Galvanized high tensile steel cable to EN12385. Standard lengths from 5ft-30ft, other lengths can be made to order.

	No.2
Cable Diameter	5/64"
Strand Configuration	7x7
Min. Breaking Load	500 lbs
Max. Safe Working Load	100 lbs
Tensile Strength (lbs/sq.in.)	256,700

## FASTENER SPECS

**Housing** - Type ZA2 Zinc

**Wedge** - Sintered steel hardened to min. 56 Rockwell C

**Spring** - Stainless Steel (Type 302)

**End Cap** - UV stabilized homopolymer propylene

**Rubber Pad** - EPDM 40±5 SHORE A

**Pin** - A2 Stainless Steel

**Safe Working Load:**

No.2 - up to 100 lbs @5:1 safety factor

PI-BTRAPEZE-US

[www.grippler.com](http://www.grippler.com)

Grippler's policy is one of continuous development and innovation. We therefore reserve the right to alter specifications, etc. without notice.



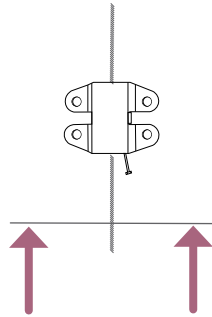
Grippler Inc | 1611 Emily Lane | Aurora, IL 60502 | USA

Tel +1 866 474 7753 Fax +1 800 654 0689 Email [gripplerinc@grippler.com](mailto:gripplerinc@grippler.com)

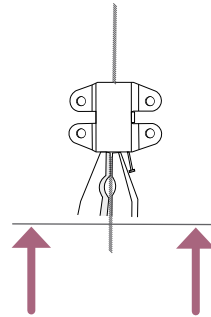


## Appendix A: How to Free Stuck Gripple Cables

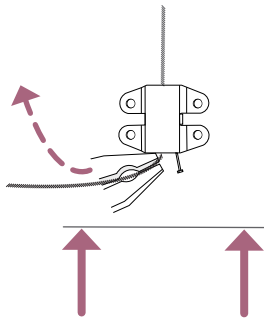
If cable is wedged too tightly and won't release::



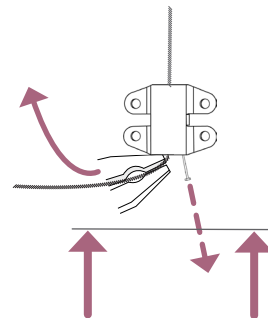
Step 1:  
Support fixture  
so cable is not carrying load



Step 2:  
Grip cable with pliers  
against bottom of Gripple

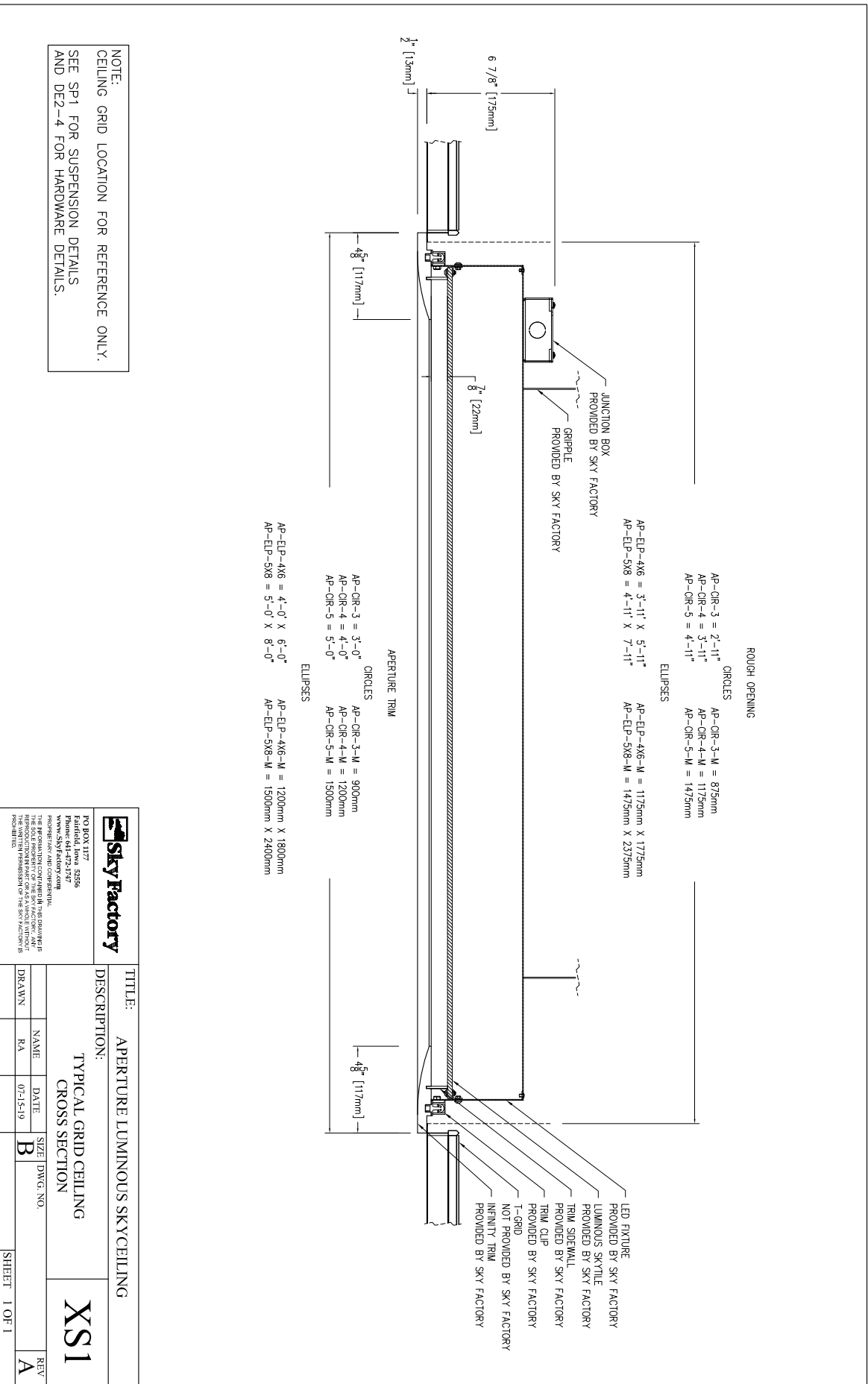


Step 3:  
Gently roll cable sideways  
while wedging pliers against Gripple

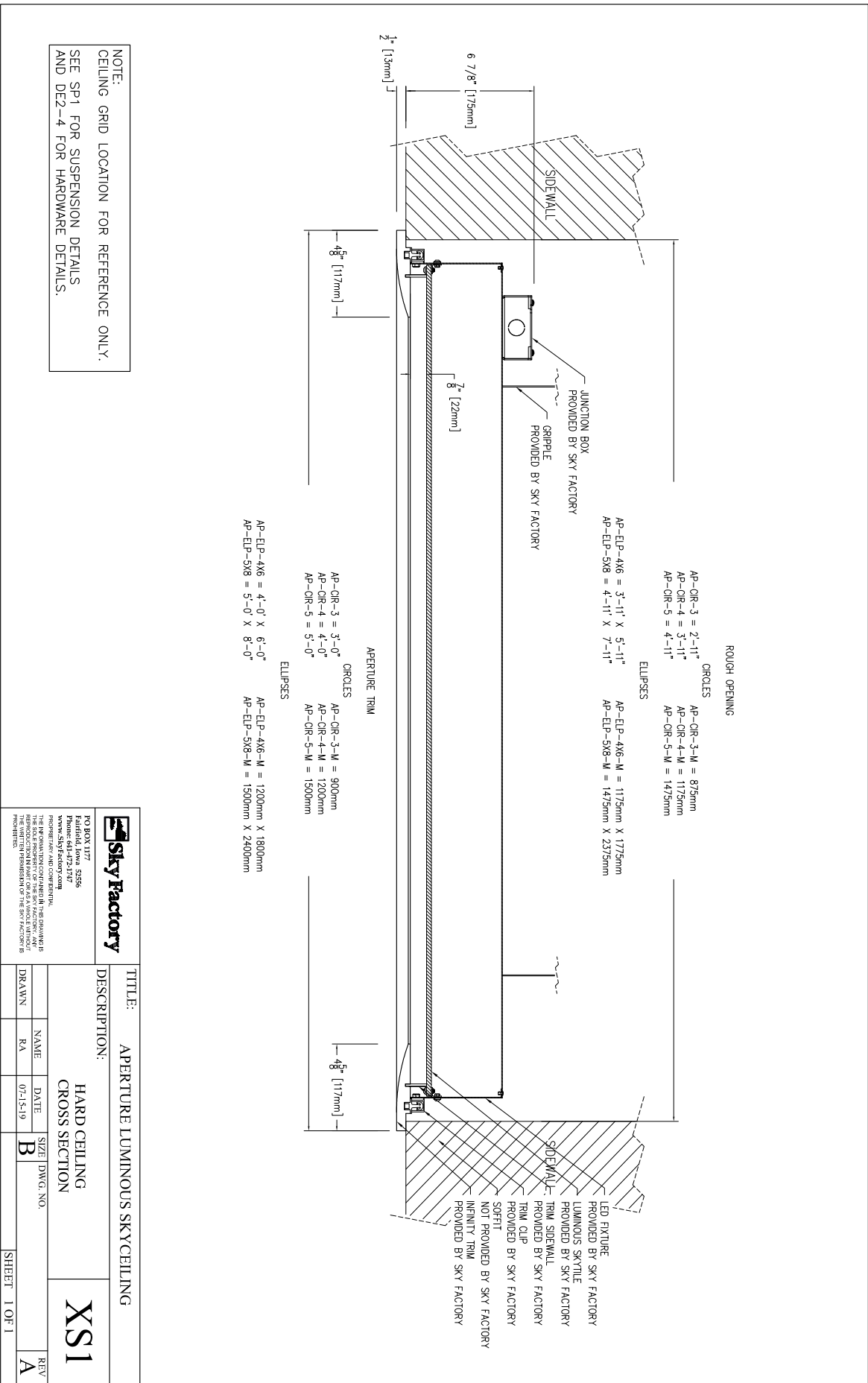


Step 4:  
When cable is loosened  
pull down on pin

**NOTE: If a Gripple is damaged beyond repair,  
an extra Gripple with stand-offs and machine screws is included**



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<b>sky Factory</b> PO BOX 117 Fairfield, Iowa 52504 Phone: 319.335.5555 Email: info@skyfactory.com www.skyfactory.com		TITLE: APERTURE LUMINOUS SKYCEILING DESCRIPTION: HARD CEILING CROSS SECTION XS1	
DRAWN	NAME	DATE	SIZE
RA	RA	07-15-19	B
DWG. NO.			REV
SHEET 1 OF 1			A