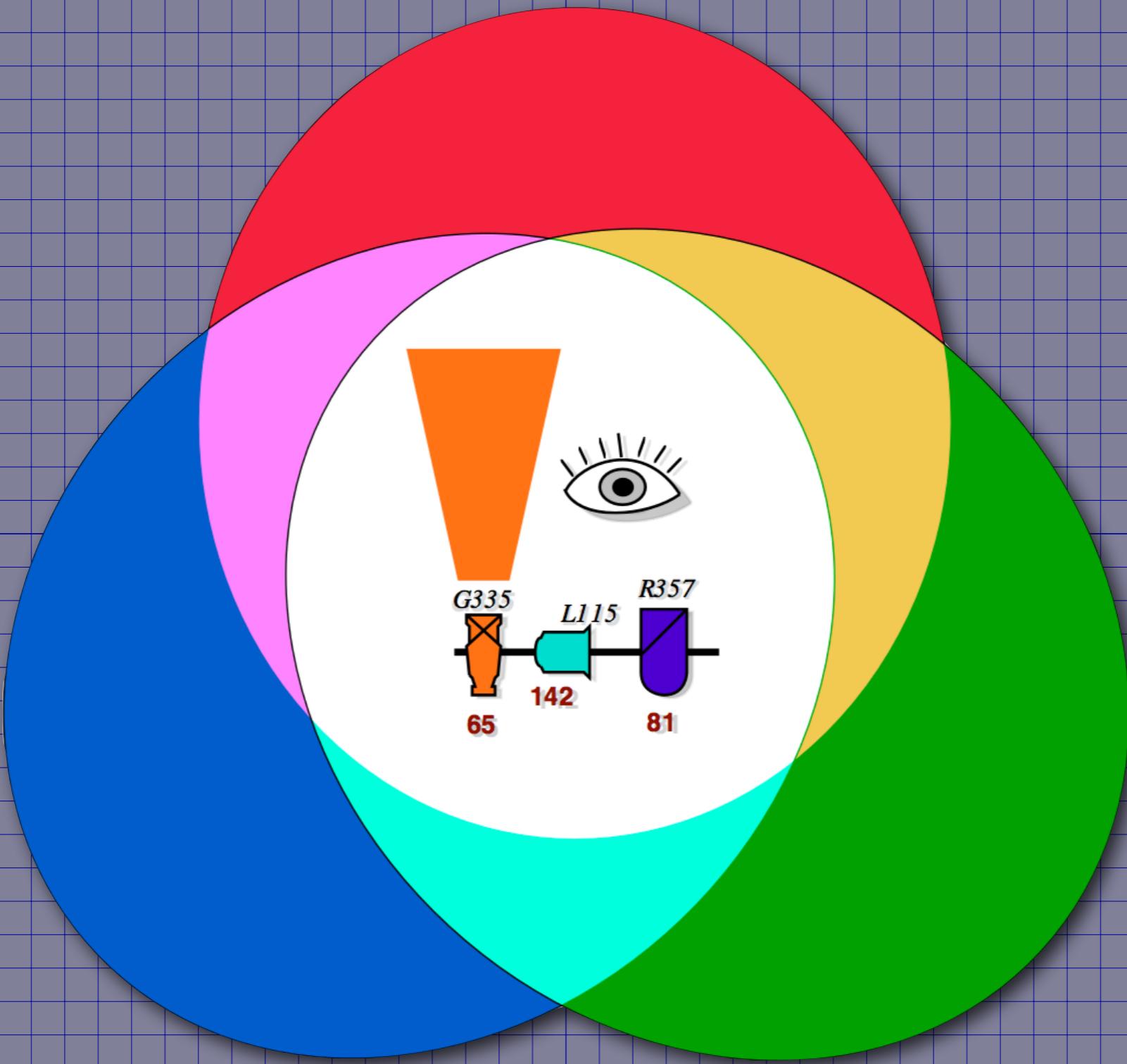


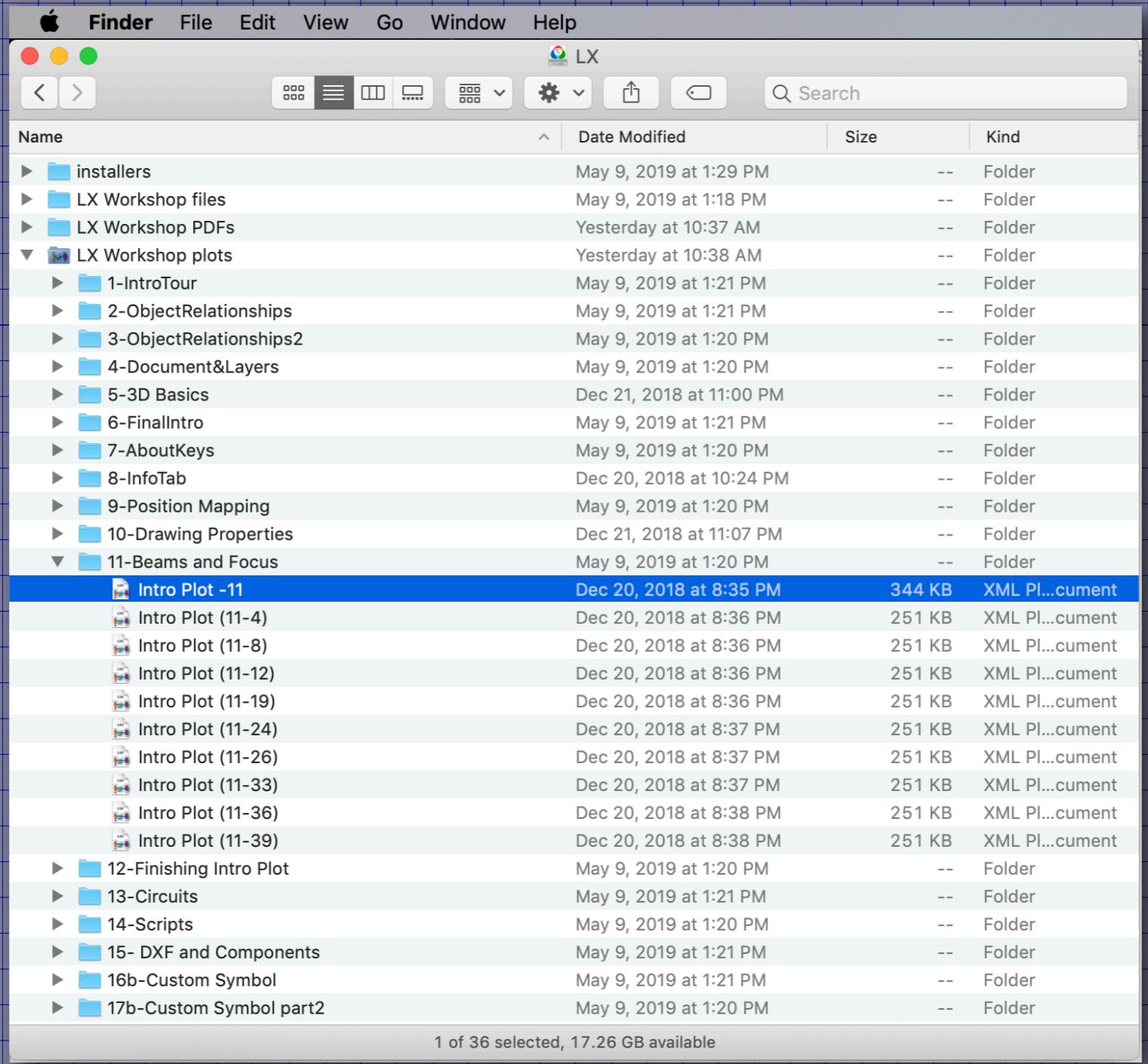
# Beams and Focus



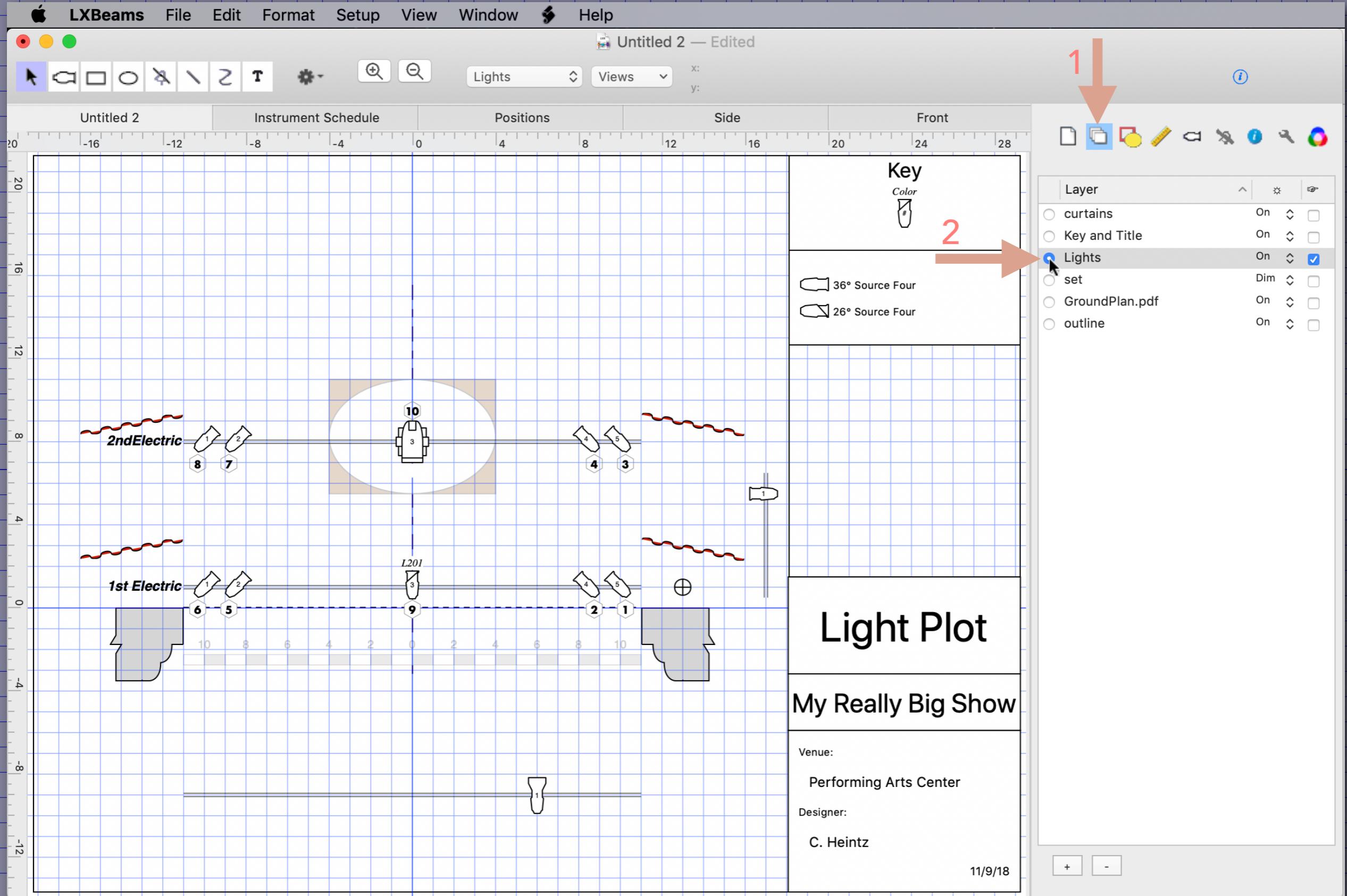
IATSE 728 Workshop 2020

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# You may want to start this section with Intro Plot - 11

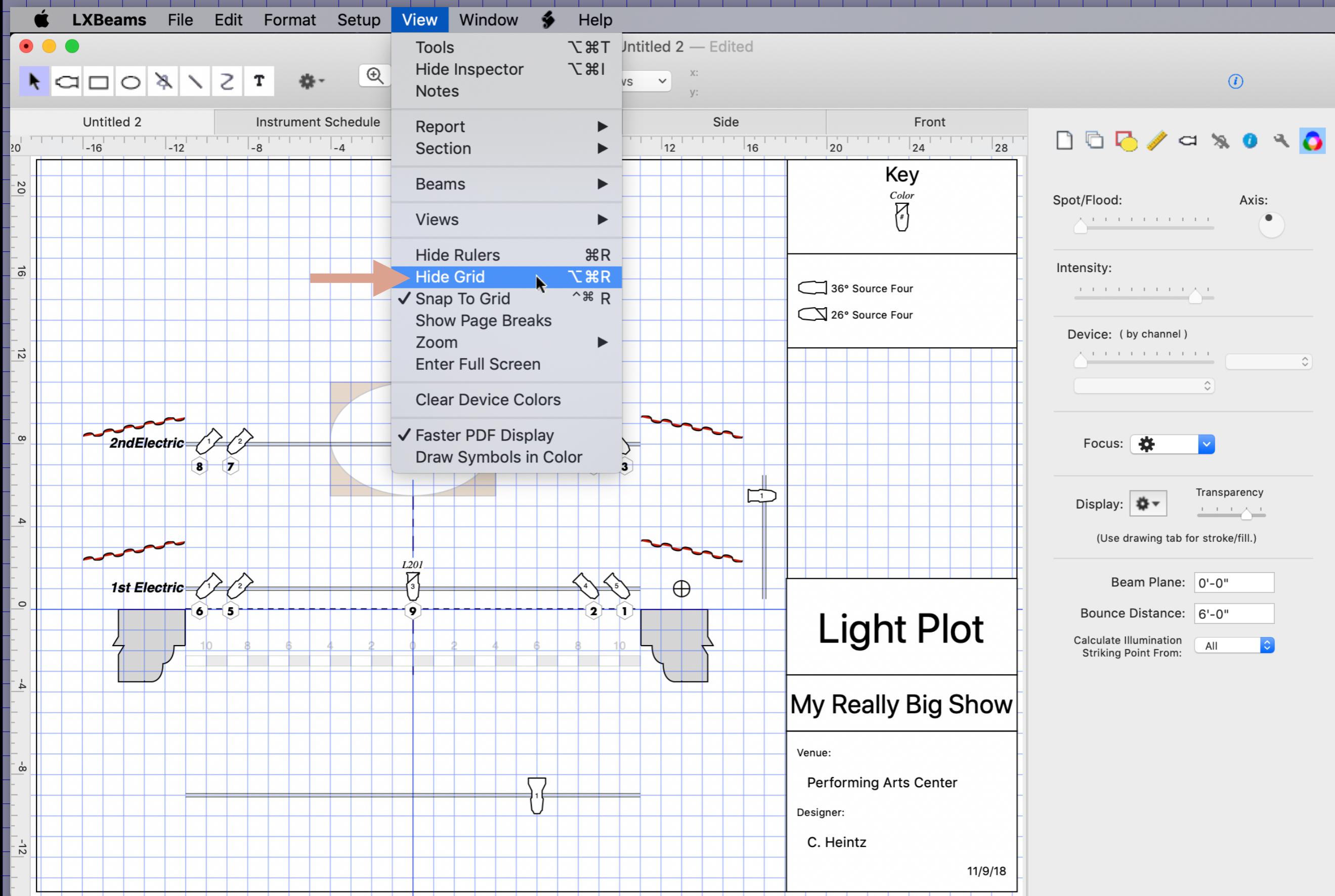


In the Layers tab, make "Lights" the current layer.

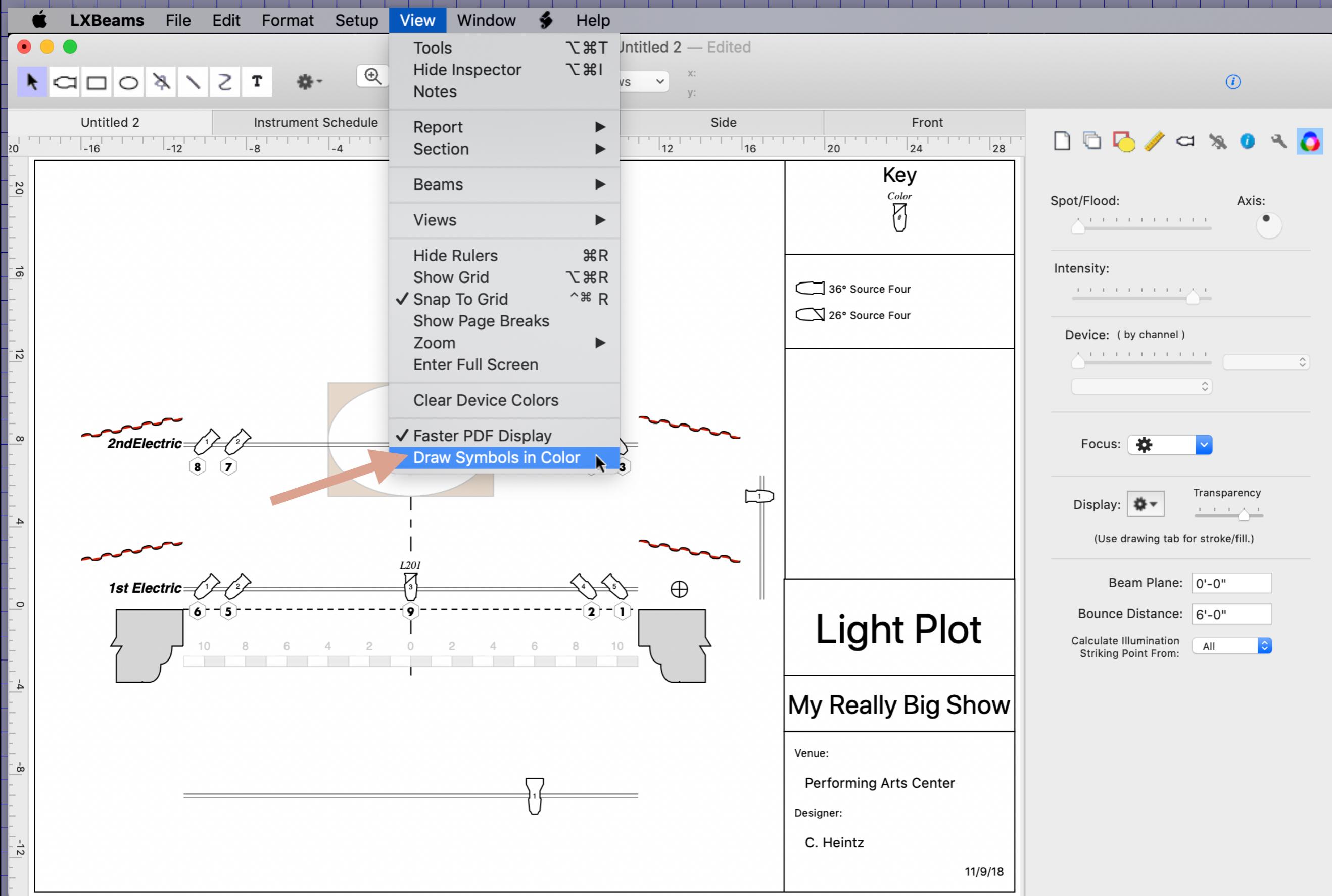


Objects in the Lights layer are already selectable,  
but this insures drawing happens in this layer as well

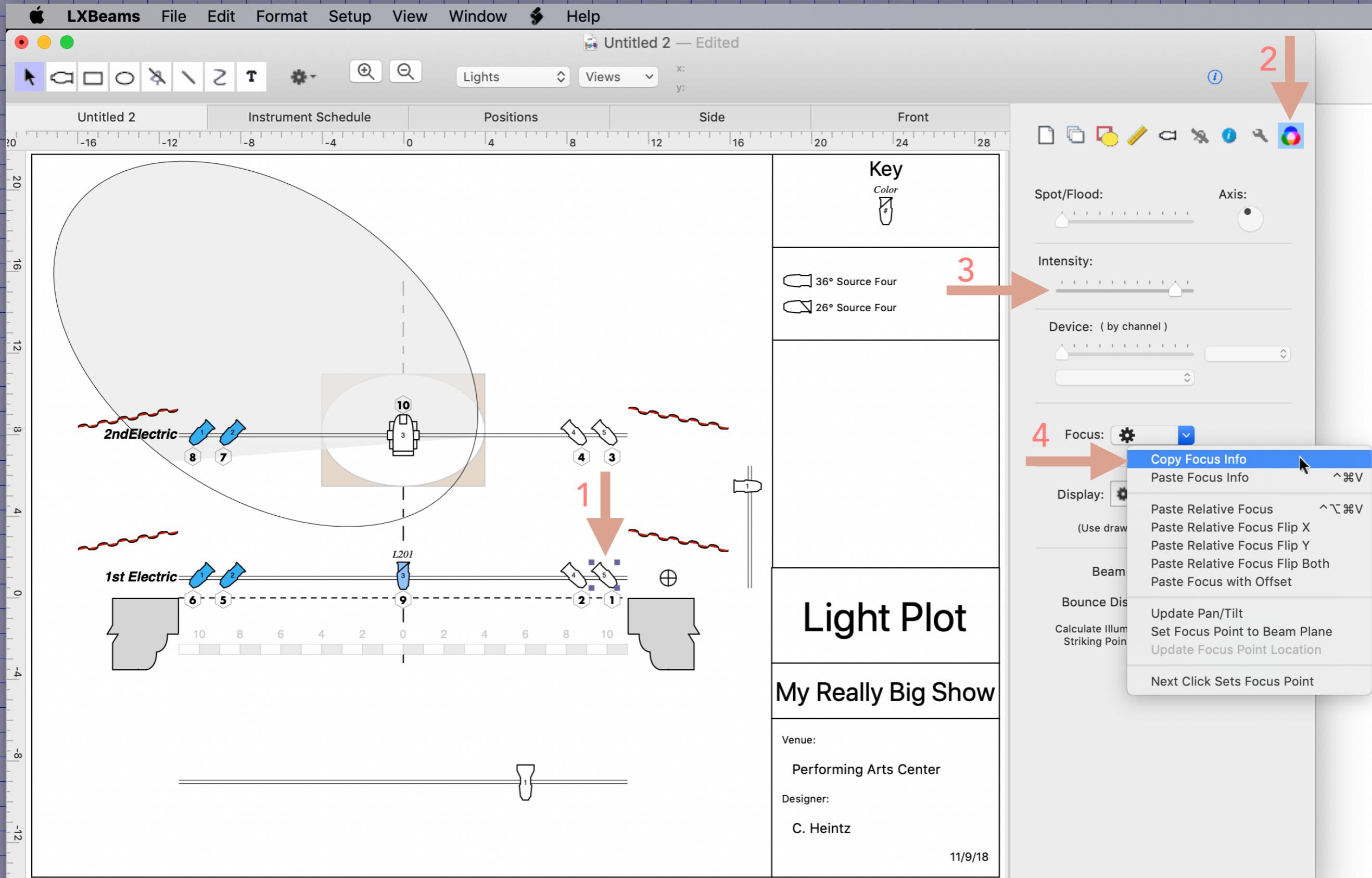
# Choose View→Hide Grid.



# Choose View→Draw Symbols in Color.



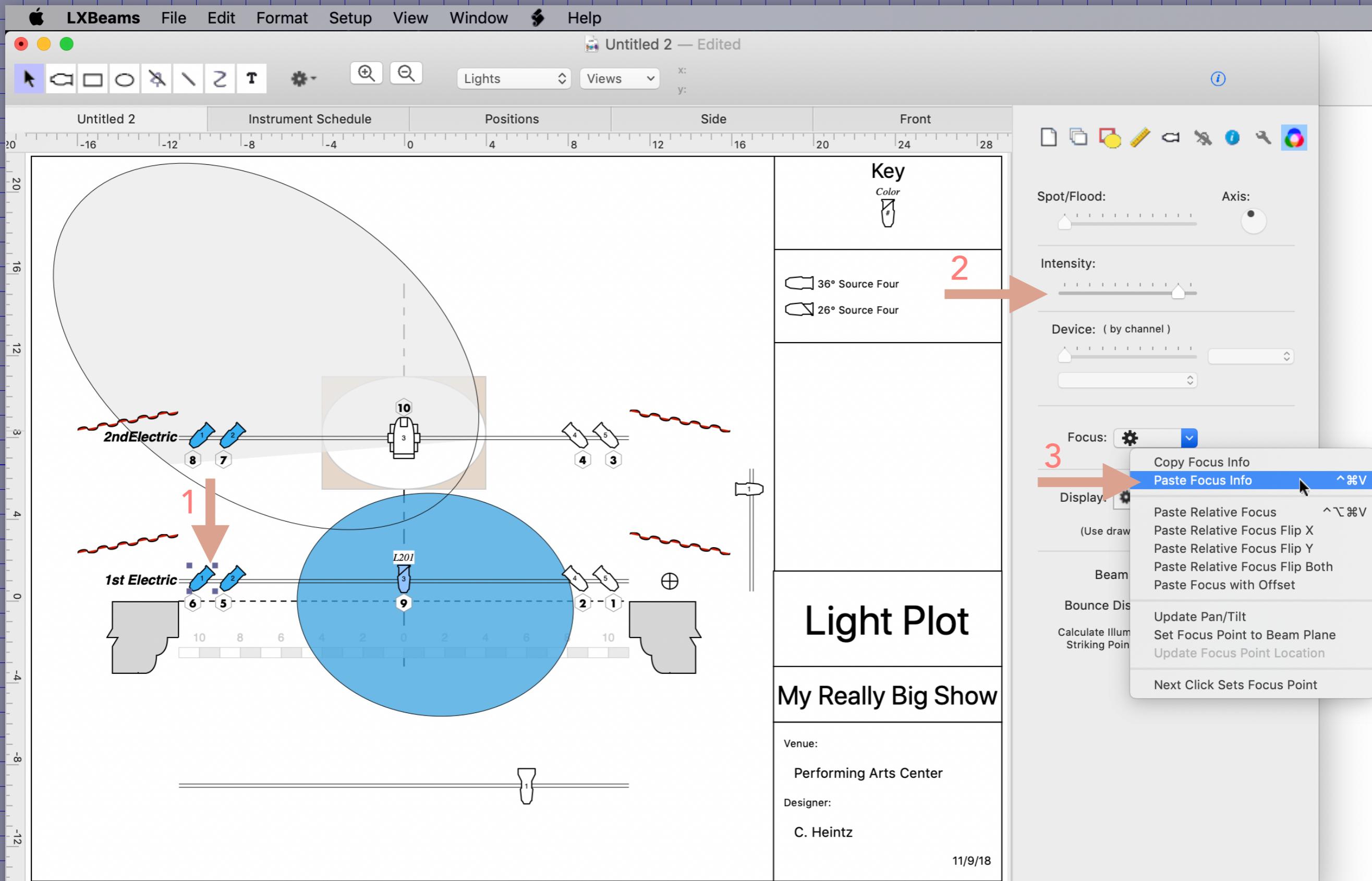
# Select the farthest right light on the 1st Electric (Channel 1).



Turn it on with the Intensity slider.

Then select "Copy Focus Info" from the Focus popup.

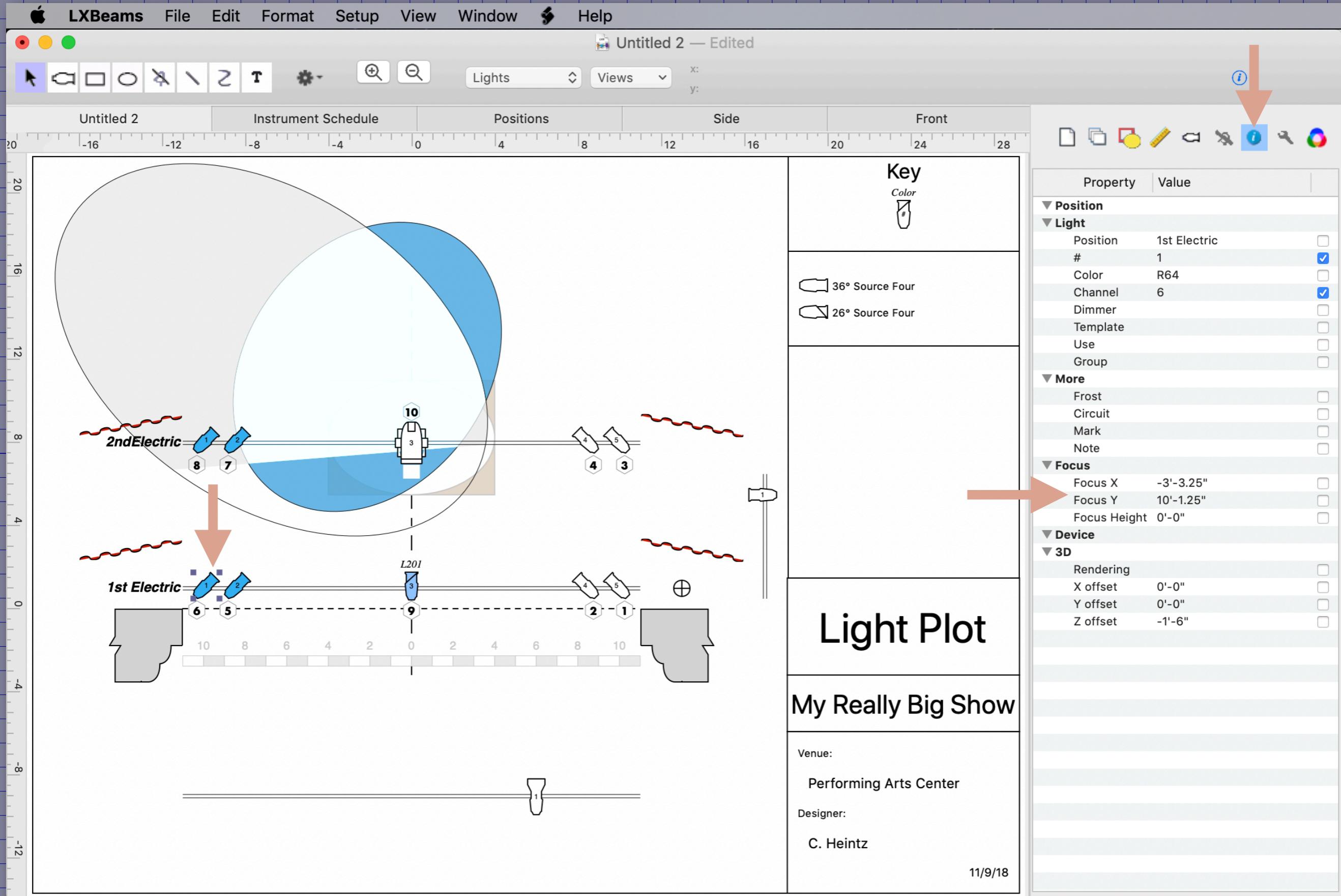
# Select the first light on the 1st Electric (Channel 6).



Turn it on with the Intensity slider.

Then select "Paste Focus Info" from the Focus popup.

# The focus point is now the same as the first light.



Note the focus point shown in the info table.

# Select the channel 1 light to be sure.

LXBeams File Edit Format Setup View Window Help

Untitled 2 — Edited

Lights Views x: y:

Instrument Schedule Positions Side Front

Untitled 2

Key Color #

36° Source Four

26° Source Four

Property Value

Position

Light

- Position 1st Electric
- # 5
- Color
- Channel 1
- Dimmer
- Template
- Use
- Group

More

- Frost
- Circuit
- Mark
- Note

Focus

- Focus X -3'-3.25"
- Focus Y 10'-1.25"
- Focus Height 0'-0"

Device

3D

- Rendering %;l50.0;s-39;w
- X offset 0'-0"
- Y offset 0'-0"
- Z offset -1'-6"

Light Plot

My Really Big Show

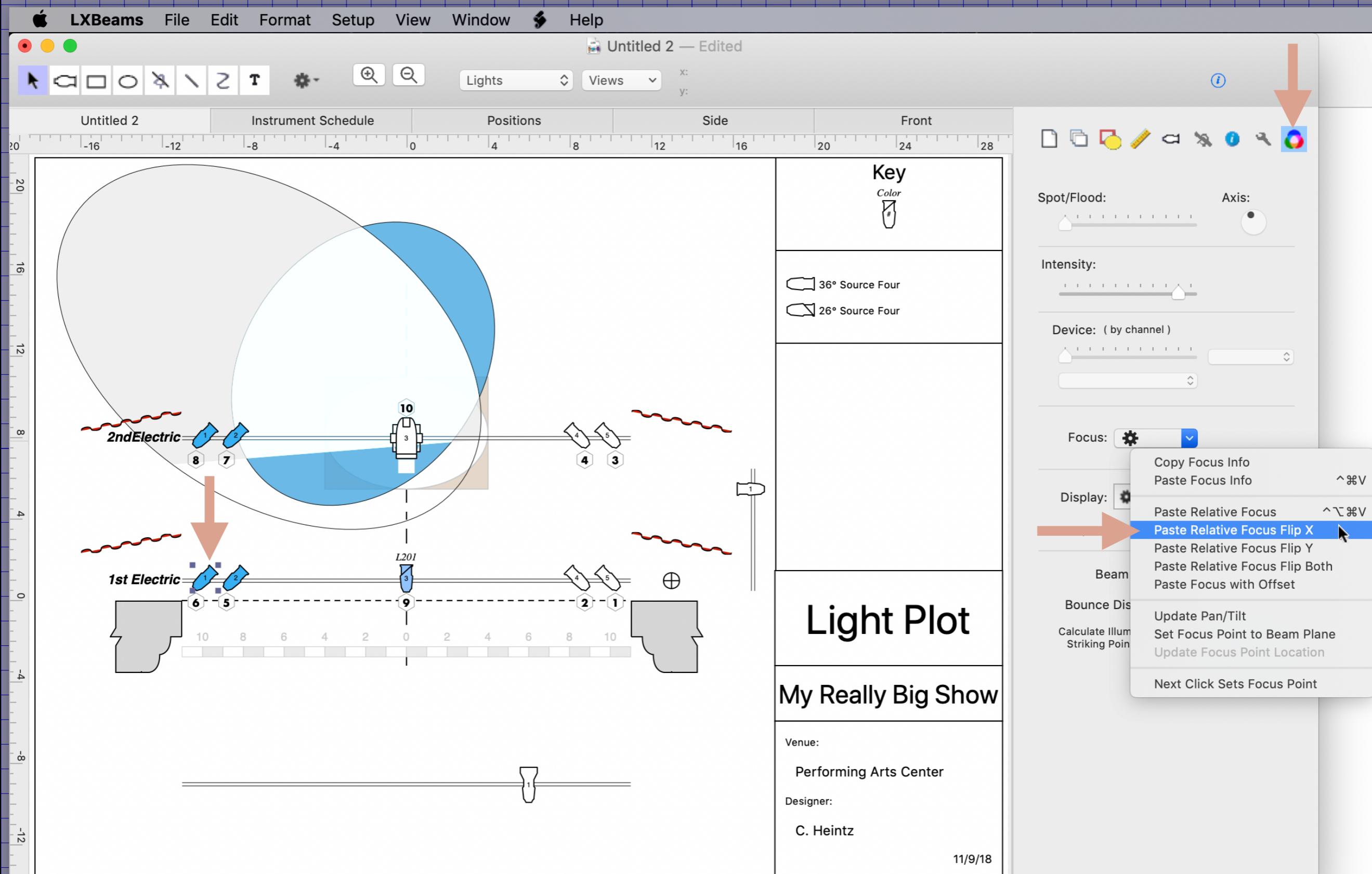
Venue:  
Performing Arts Center

Designer:  
C. Heintz

11/9/18

Not quite ideal for both lights as the focus is on the floor beyond the platform.

# Select the channel 6 light and try "Paste Relative Focus Flip X"



This mirrors the x coordinate of the focus point across center.

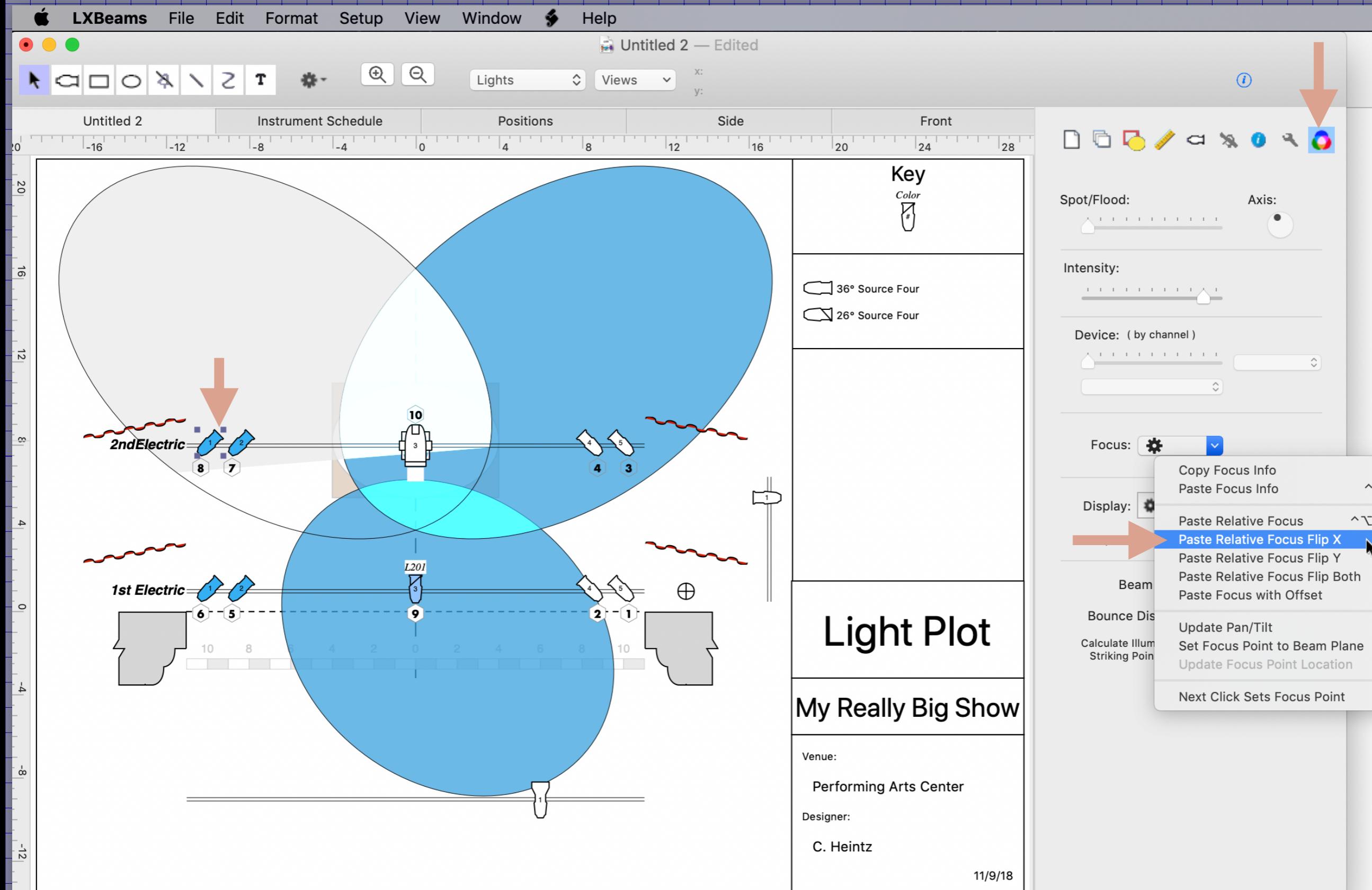
Looking at the focus point, the X coordinate is no longer negative.

The screenshot shows the LXBeams software interface with the following details:

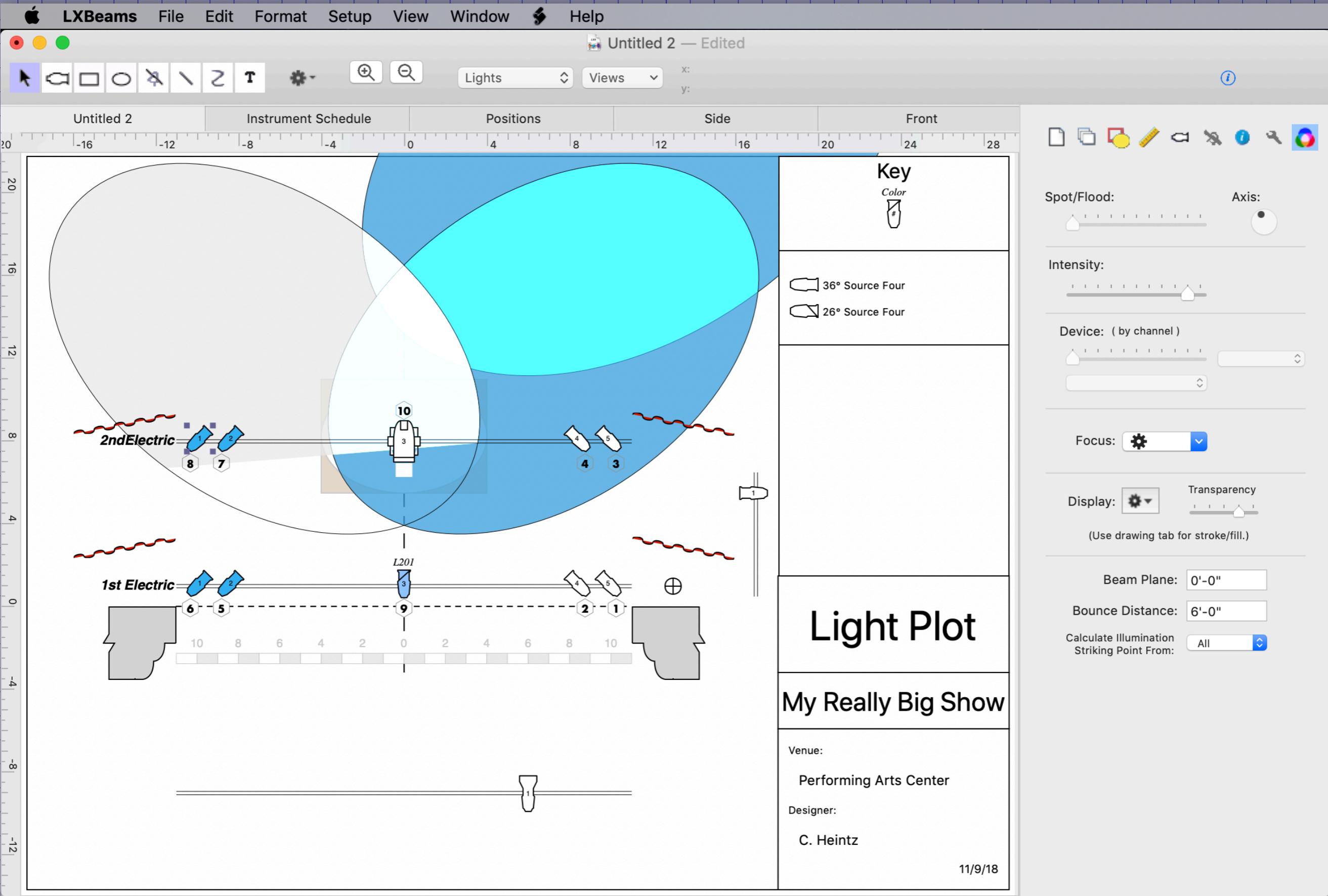
- Top Bar:** LXBeams, File, Edit, Format, Setup, View, Window, Help.
- Title Bar:** Untitled 2 — Edited.
- Toolbar:** Includes icons for selection, camera, square, circle, crop, text, gear, magnifying glass, and search.
- Views:** Lights, Views (x: y:).
- Stage Plot:** A circular stage plot with axes from -16 to 28. It features two main light sources: a large blue circle at the top right and a smaller grey circle at the top left. Stage equipment includes "2nd Electric" and "1st Electric" truss sections, a "L201" lighting fixture, and various spotlights numbered 1 through 10. A horizontal bar at the bottom indicates a distance of 10 units.
- Key:** A legend for light types: "Color" (blue icon), "36° Source Four" (yellow icon), and "26° Source Four" (orange icon).
- Light Plot:** A large blue circle representing a light source.
- Properties Panel:** Shows the following settings:
  - Position:** Position: 1st Electric, # 1, Color: R64, Channel: 6, Dimmer: 100%.
  - Light:** Position: 1st Electric, # 1, Color: R64, Channel: 6, Dimmer: 100%.
  - More:** Frost: Off, Circuit: Off, Mark: Off, Note: Off.
  - Focus:** Focus X: 3'-3.25", Focus Y: 10'-1.25", Focus Height: 0'-0".
  - Device:** Rendering: Off, X offset: 0'-0", Y offset: 0'-0", Z offset: -1'-6".
- Text Labels:** "Light Plot", "My Really Big Show", "Venue: Performing Arts Center", "Designer: C. Heintz".
- Date:** 11/9/18.

Flip X mirrors the x coordinate of the focus point across center.

Select the channel 8 light and try “Paste Relative Focus Flip X” again

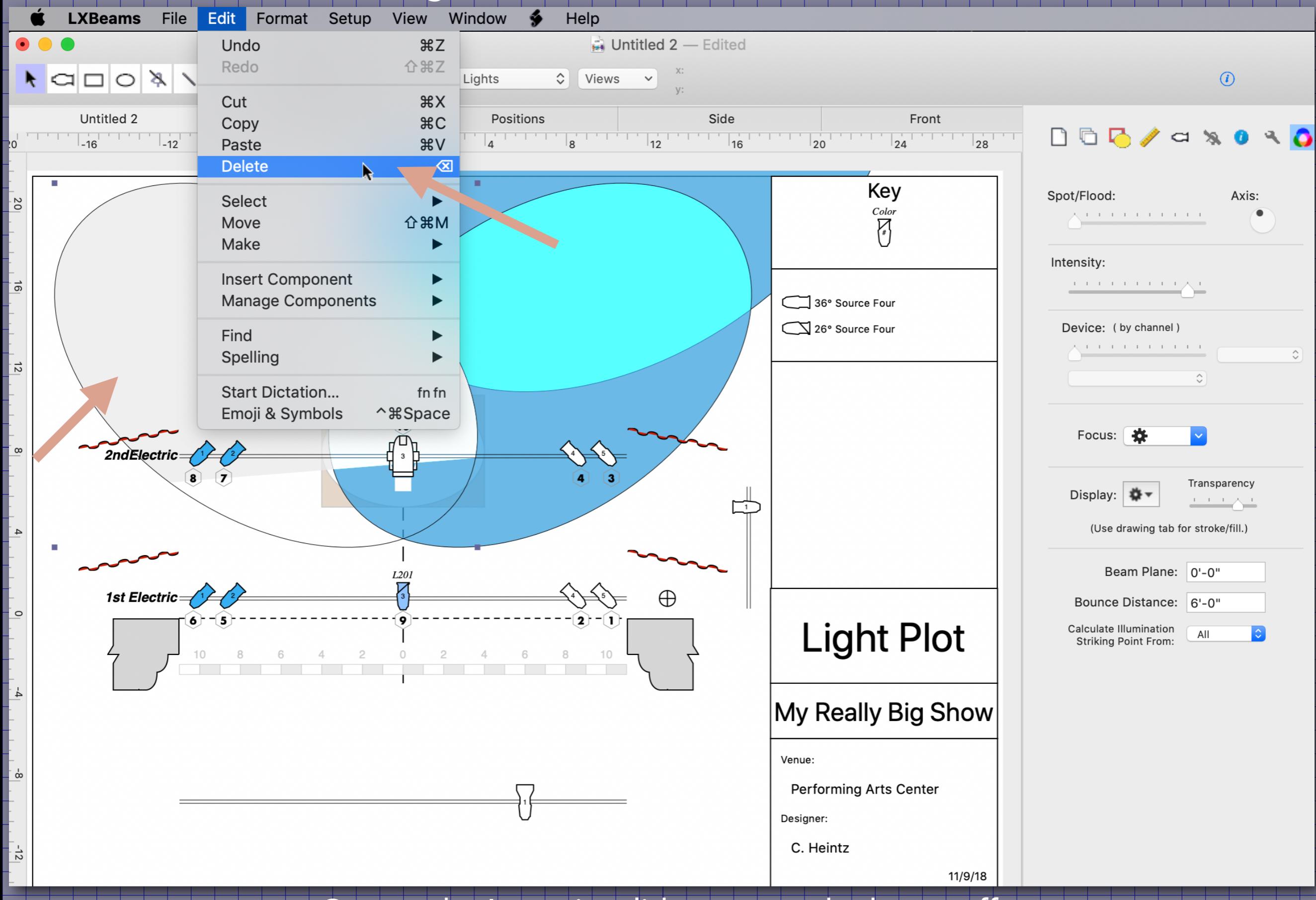


Relative focus is to a point the same direction/distance away from the light.



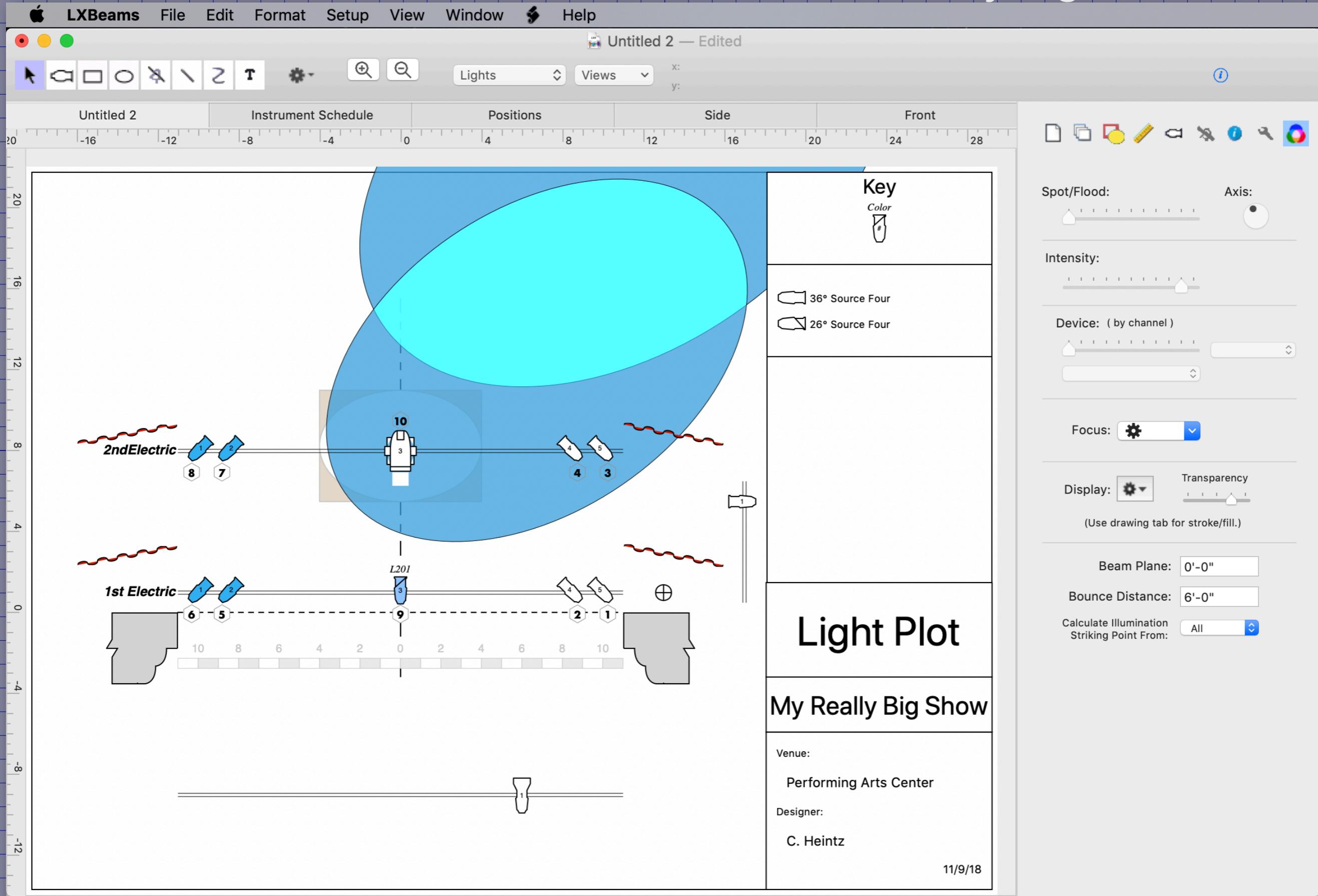
The beam is upstage by the distance between the electrics... almost.

Click on the original beam and then choose Edit → Delete.



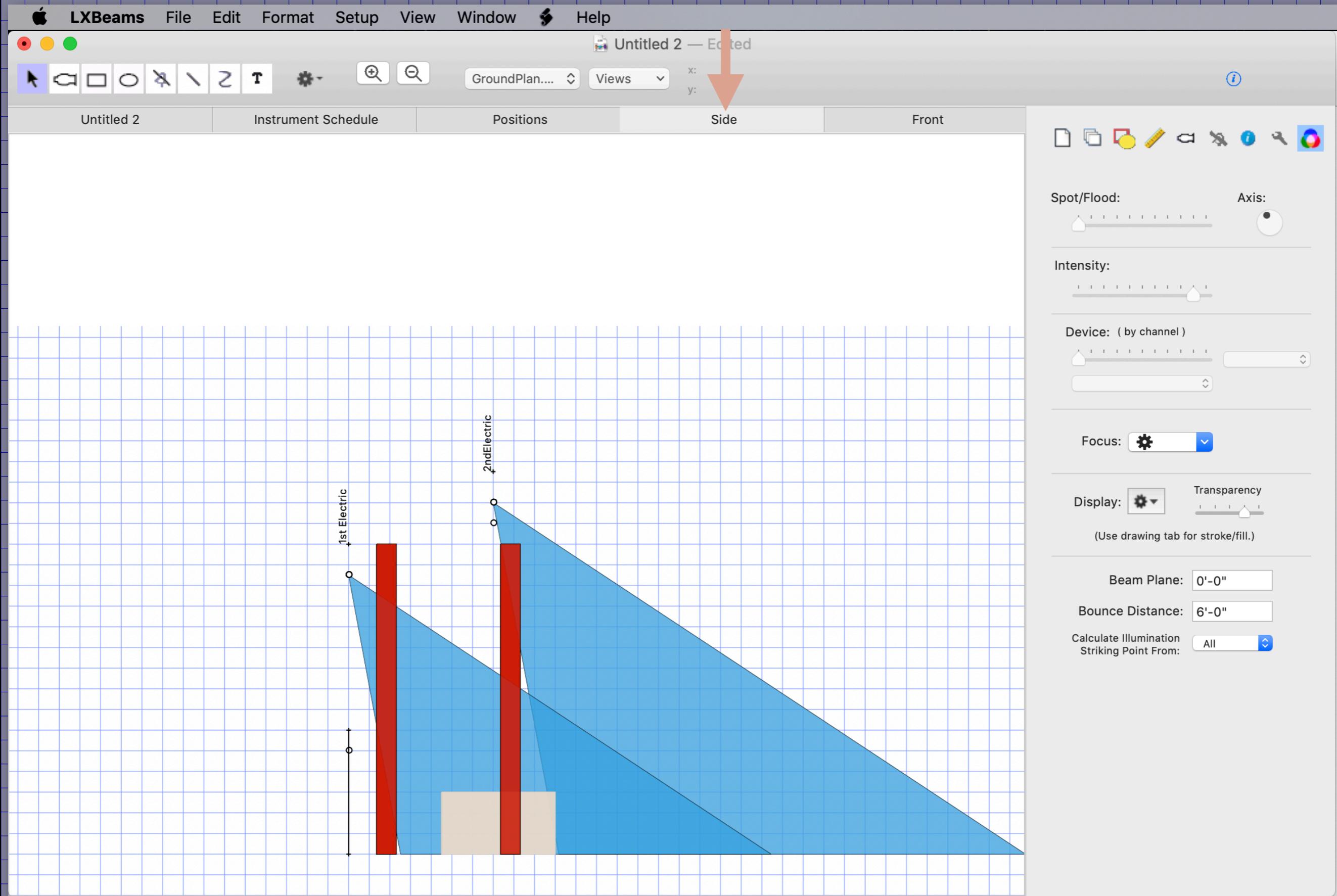
Or, use the Intensity slider to turn the beam off.

It's now easier to see the beams aren't exactly aligned.



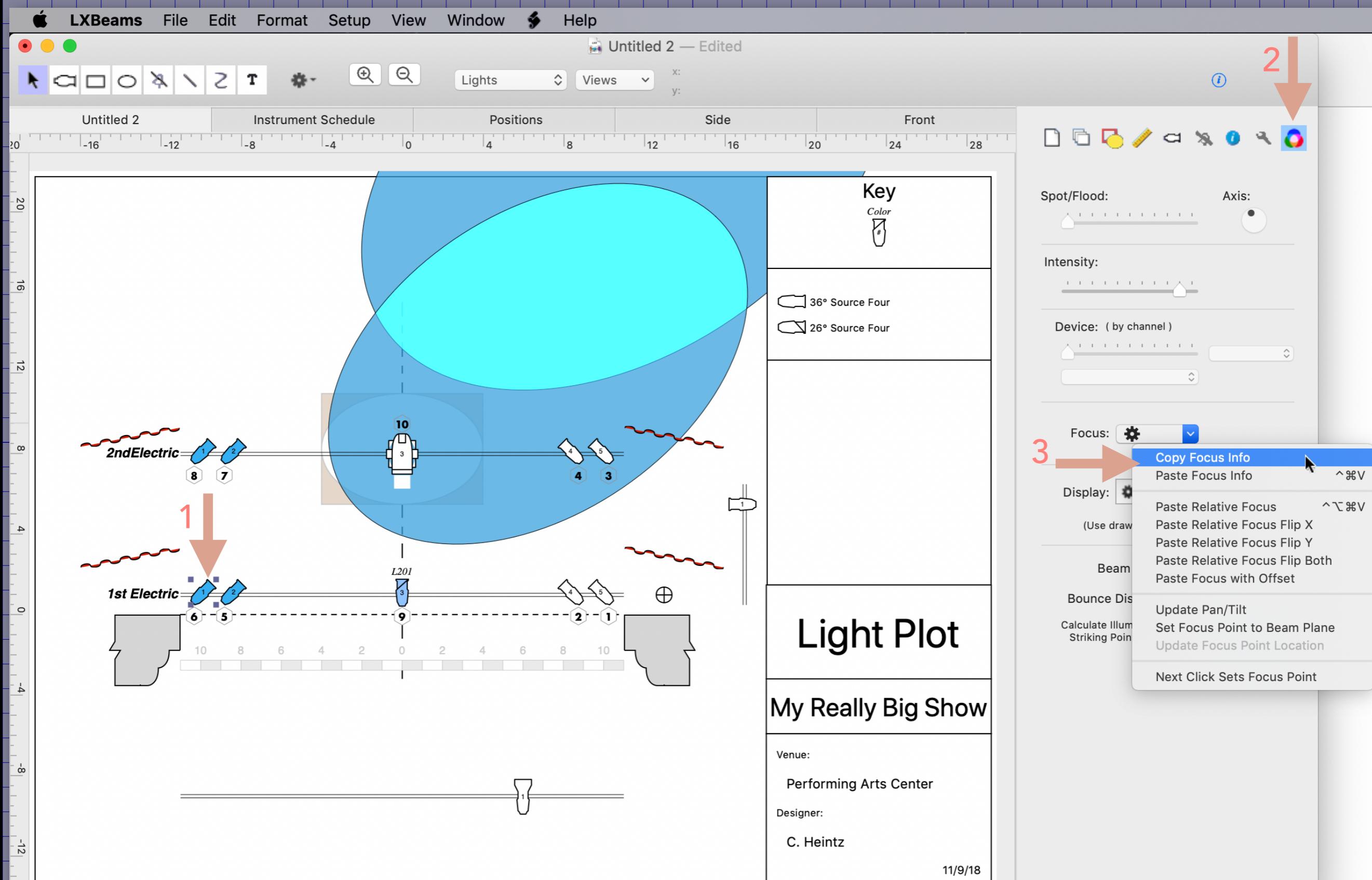
# Why?

Take a look at the side view. The electrics are at different heights.

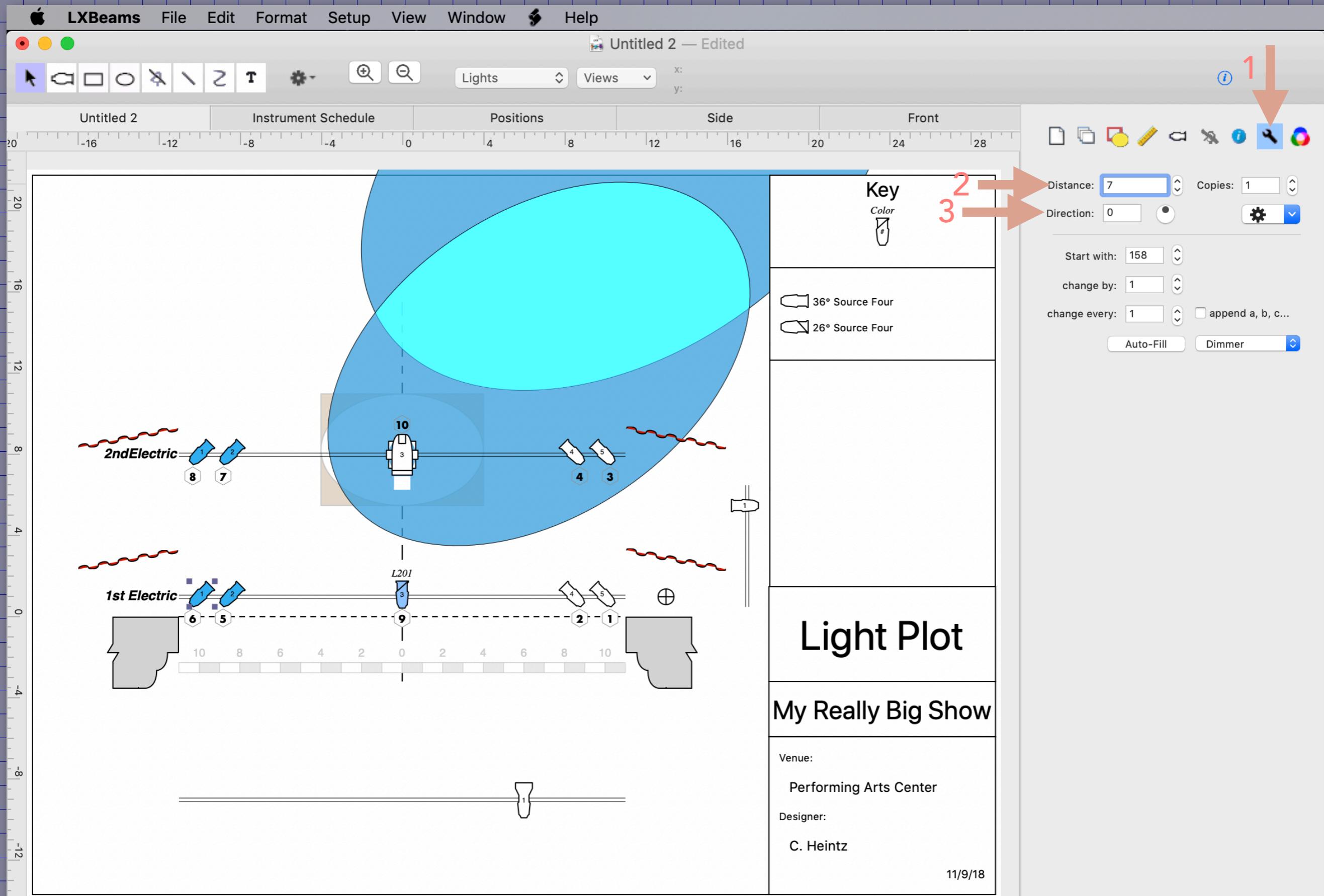


Relative focus is from the light to a point the same direction/distance away.

# Select the channel 6 light and copy its focus.

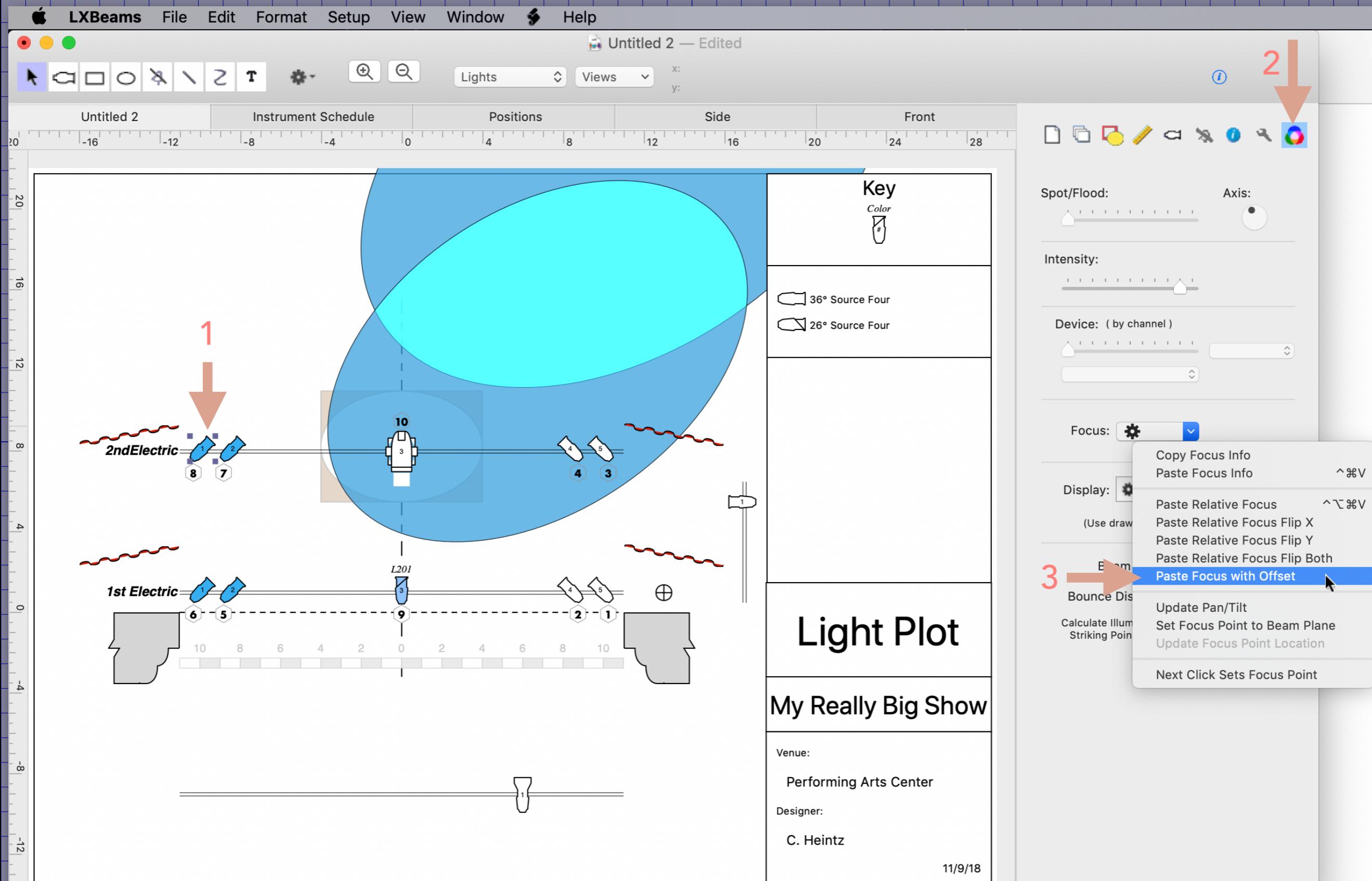


In the tools tab, set the distance to 7 and direction to 0.

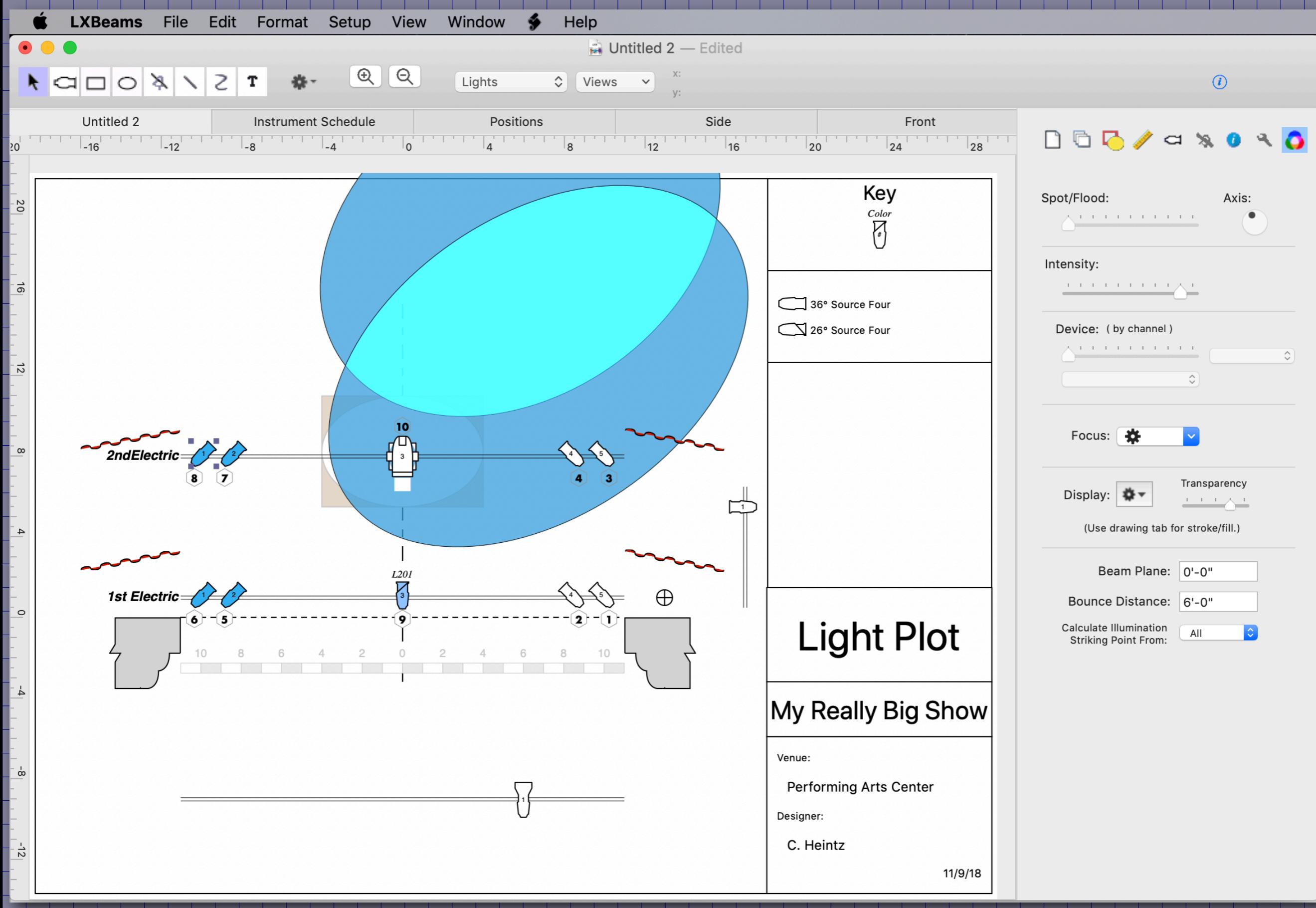


The 2nd Electric is 7 feet upstage of the 1st.

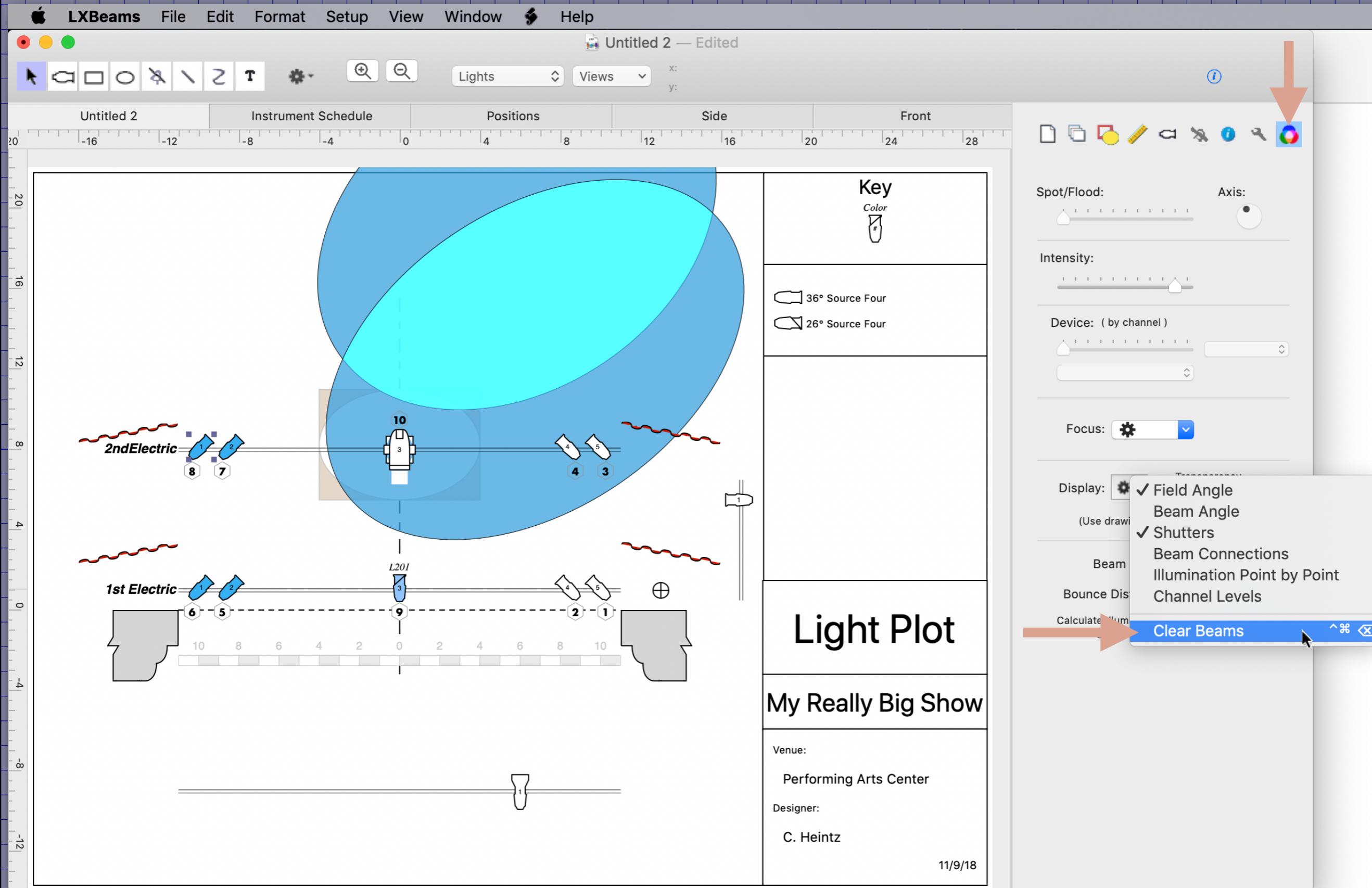
# Re-select the channel 8 light and use "Paste Focus with Offset"



# This is the result.

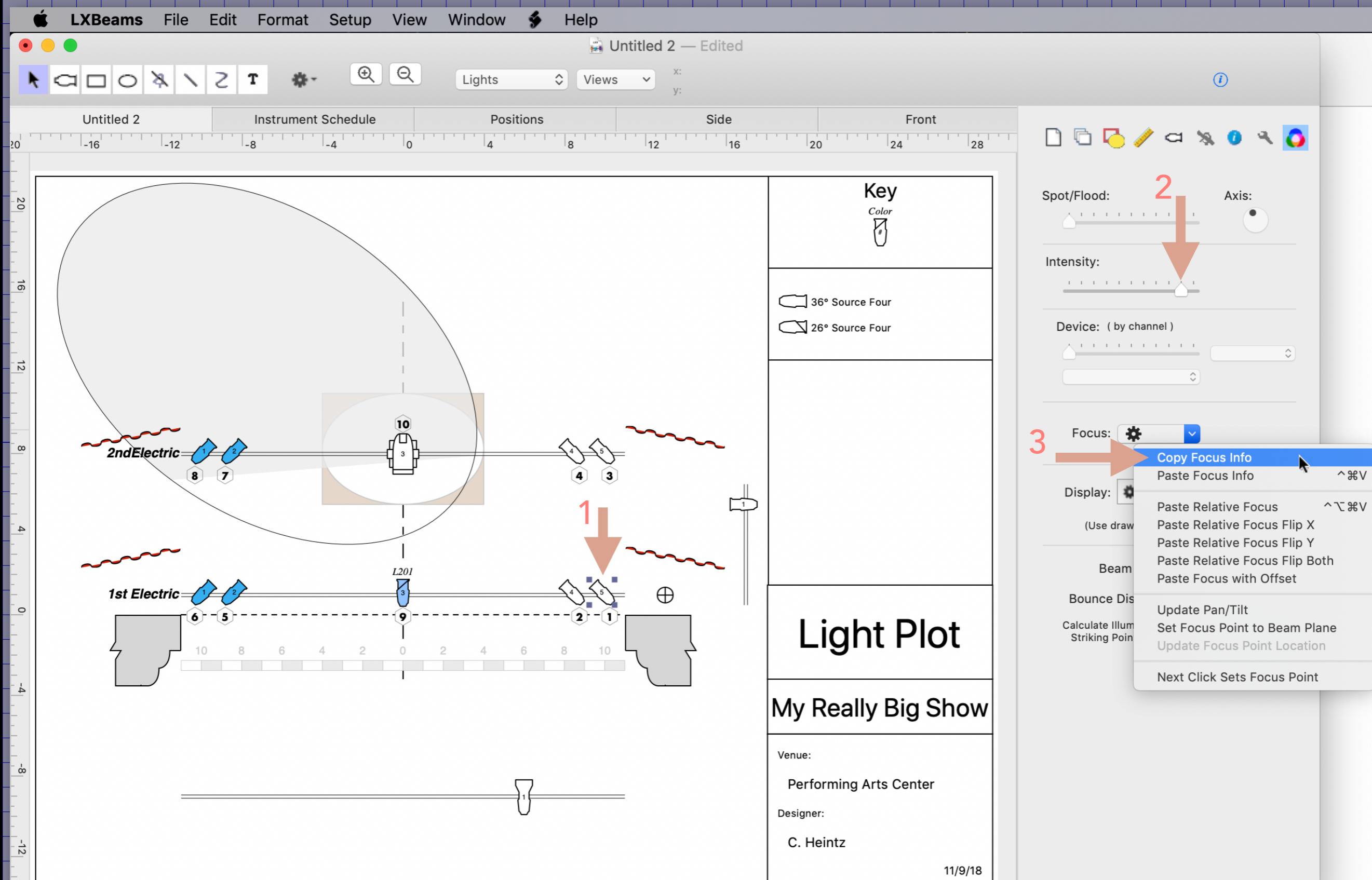


# From the popup in the Beams tab, choose Clear Beams

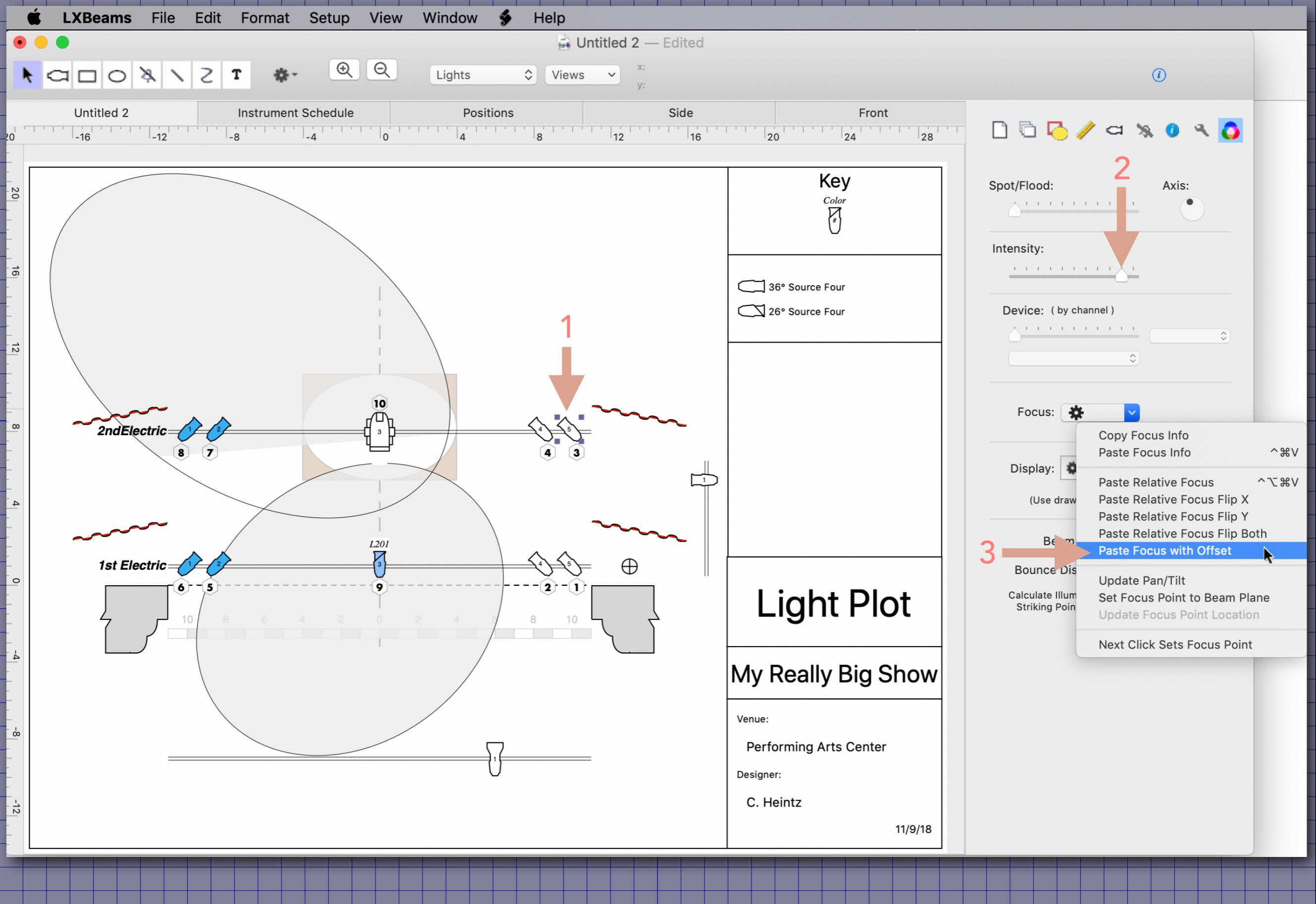


Repeat the Copy/Paste process for the other side.

Select the channel 1 light turn it on and copy its focus.



# Select the channel 3 light turn it on and paste the offset focus.



# From the Display popup choose "from Beam Angle".

LXBeams File Edit Format Setup View Window Help

Untitled 2 — Edited

Lights Views X: Y:

Instrument Schedule Positions Side Front

Untitled 2 -16 -12 -8 -4 0 4 8 12 16 20 24 28

20  
16  
12  
8  
4  
0  
-4  
-8  
-12

Key Color

36° Source Four

26° Source Four

2nd Electric 1 2 8 7 10 3 4 5 3 4 5 1

1st Electric 1 2 6 5 9 3 4 5 2 1

L201 10 8 6 4 2 0 2 4 6 8 10

+

Light Plot

My Really Big Show

Venue:  
Performing Arts Center

Designer:  
C. Heintz

11/9/18

Display:  Field Angle  Beam Angle  Shutters  Beam Connections  Illumination Point by Point  Channel Levels  Calculate Illum.  Striking Point  Clear Beams

Axis:

Intensity:

Device: (by channel)

Focus:

Transparency:

Beam:

Bounce Distance:

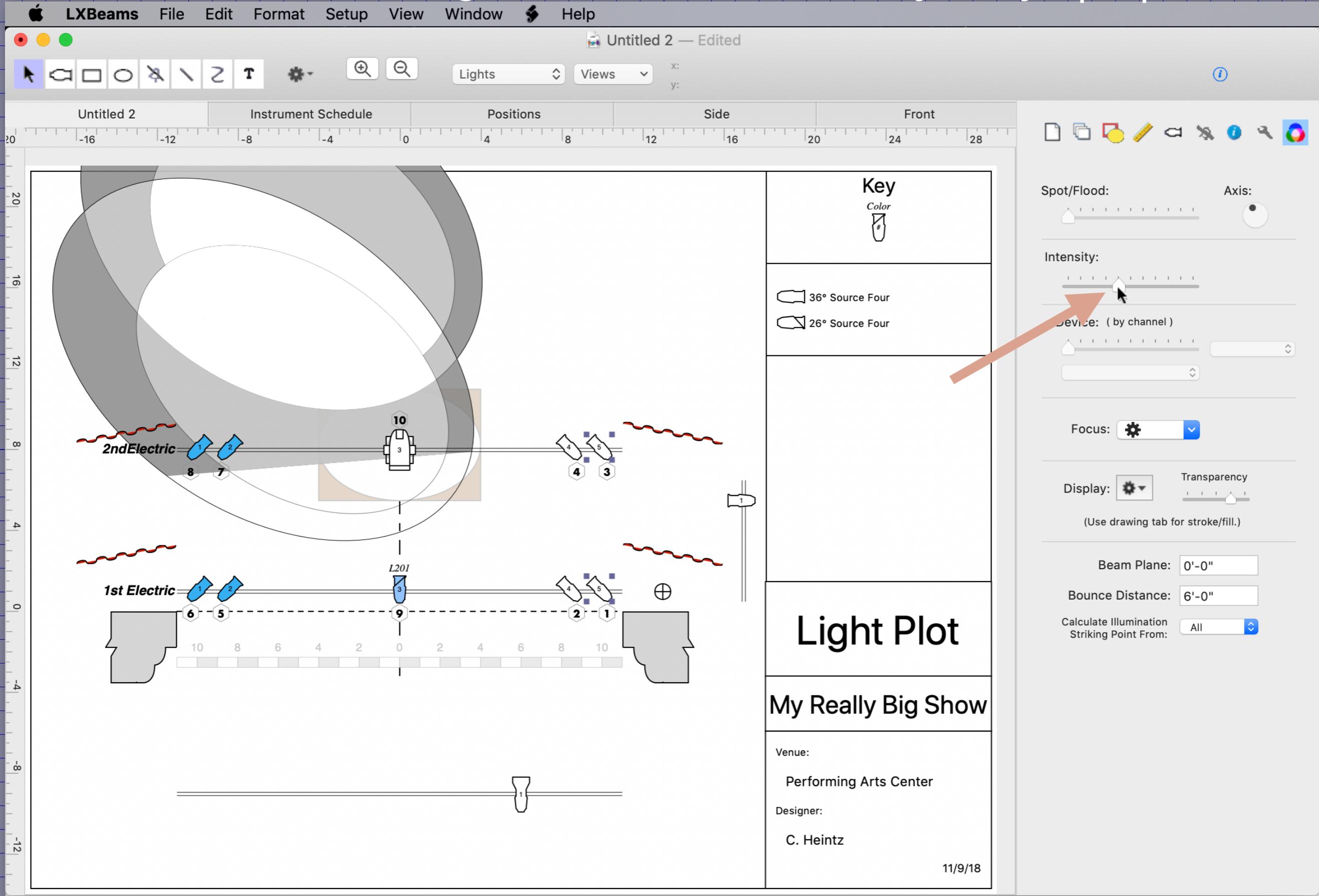
Calculate Illum.:

Striking Point:

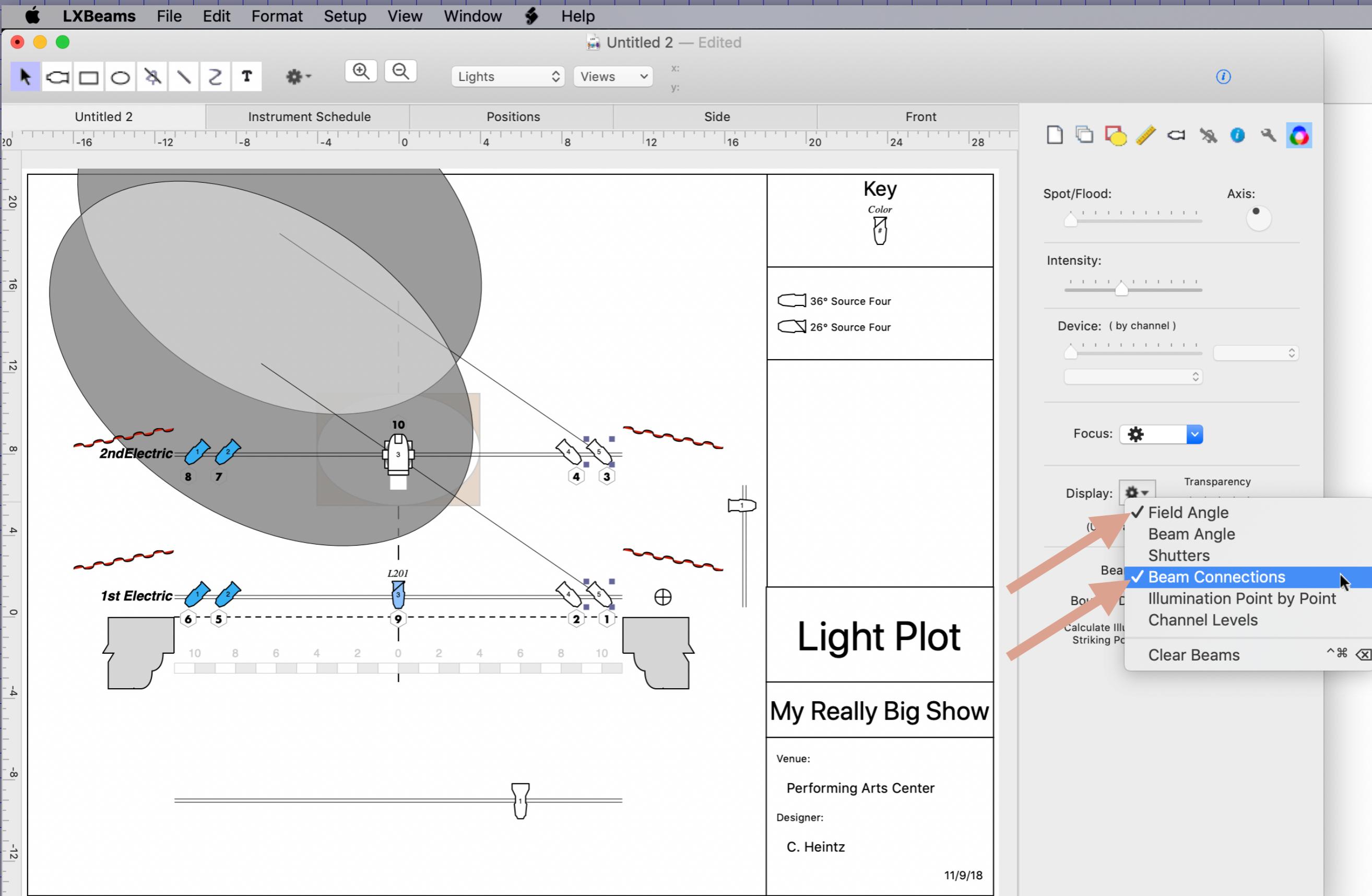
Clear Beams:

The screenshot shows a complex stage lighting setup with multiple instruments and beam paths. The 'Display' menu is open, and the 'Beam Angle' option is selected, as indicated by the blue highlight and the orange arrow.

# The beam and field angles are defined in the key entry's properties.

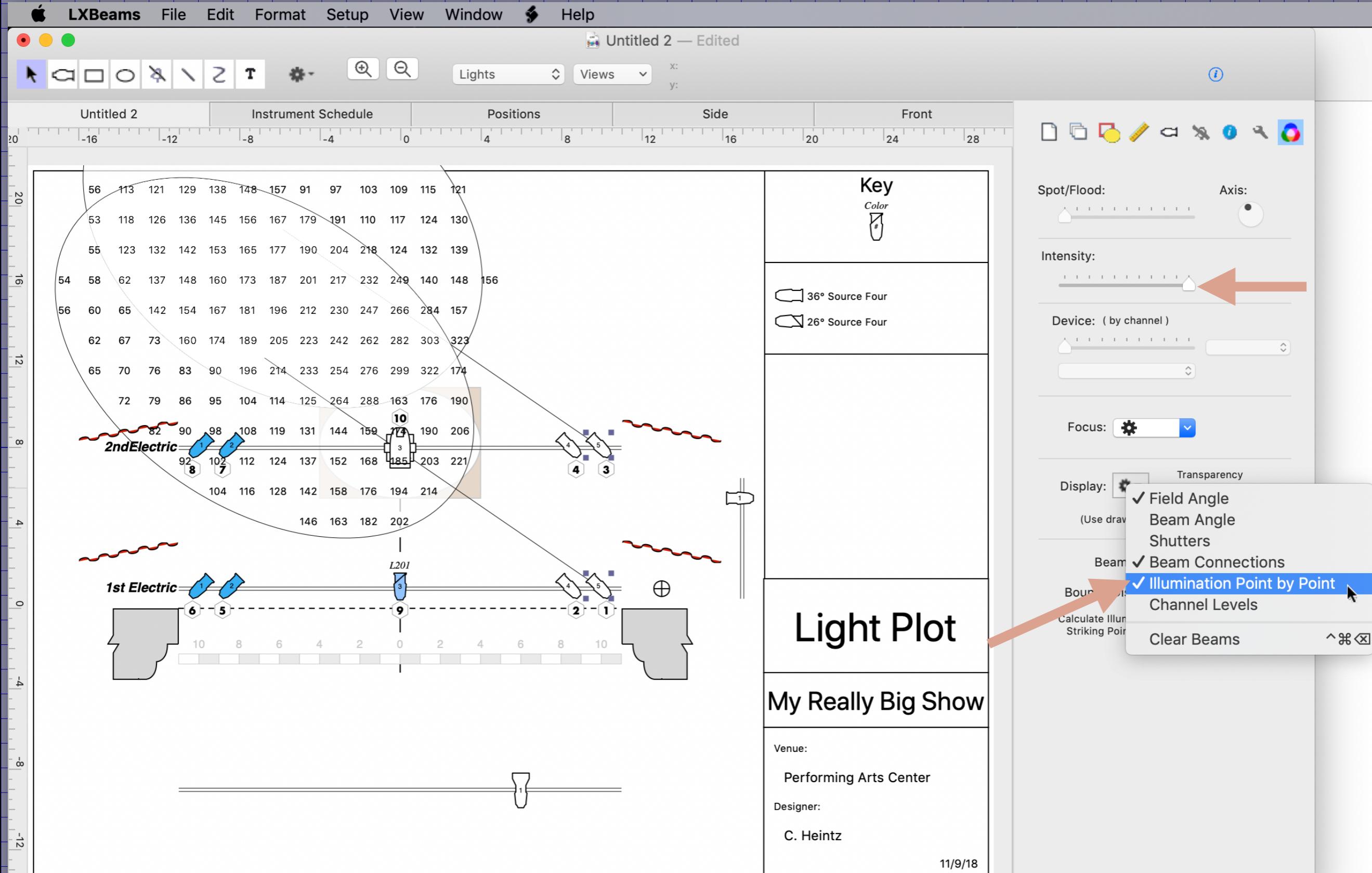


# Adjust the display so it shows the Field Angle and “Beam Connections”.



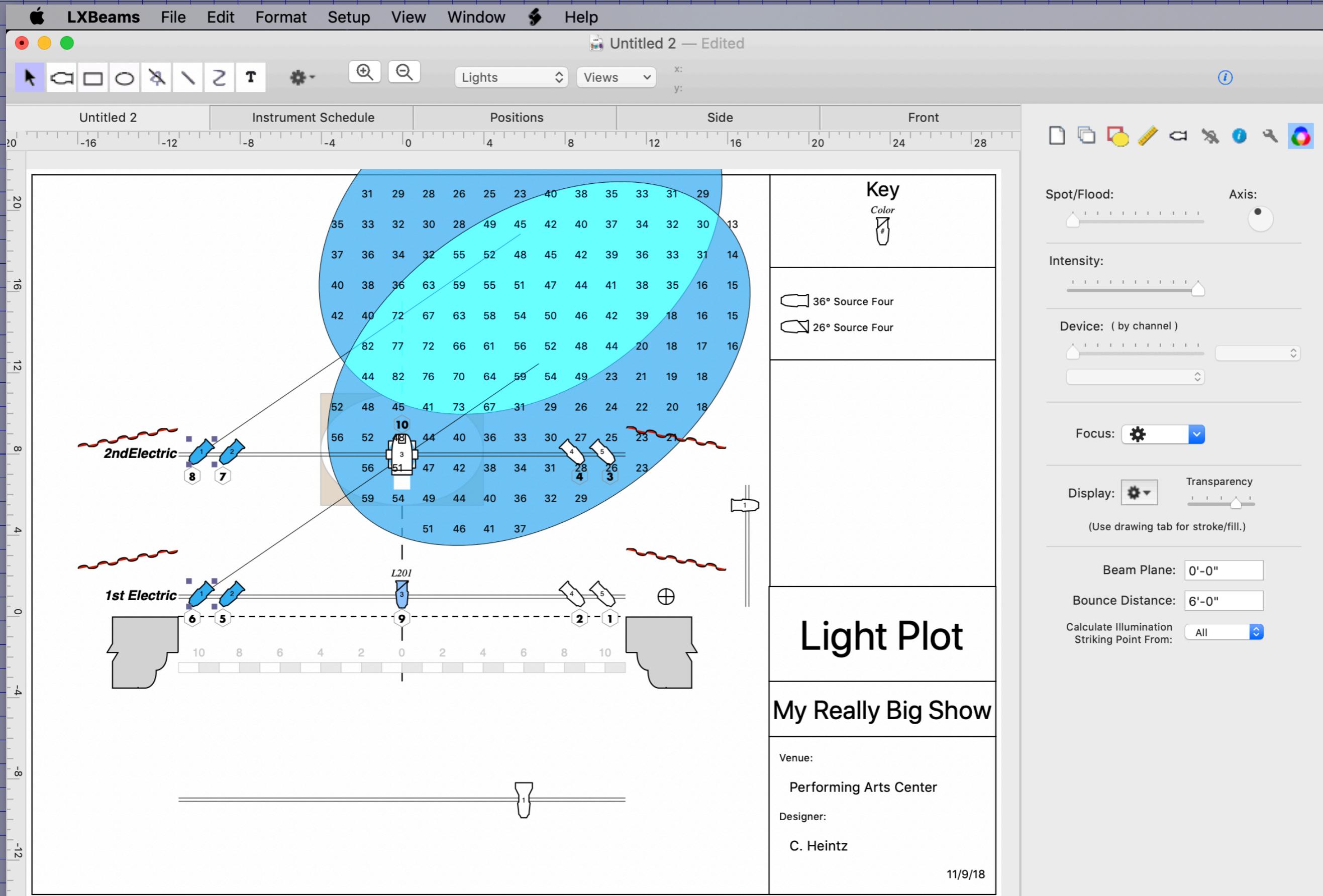
The connecting line shows which light is making the beam.

# Use the Display popup to show “Illumination Point by Point”.



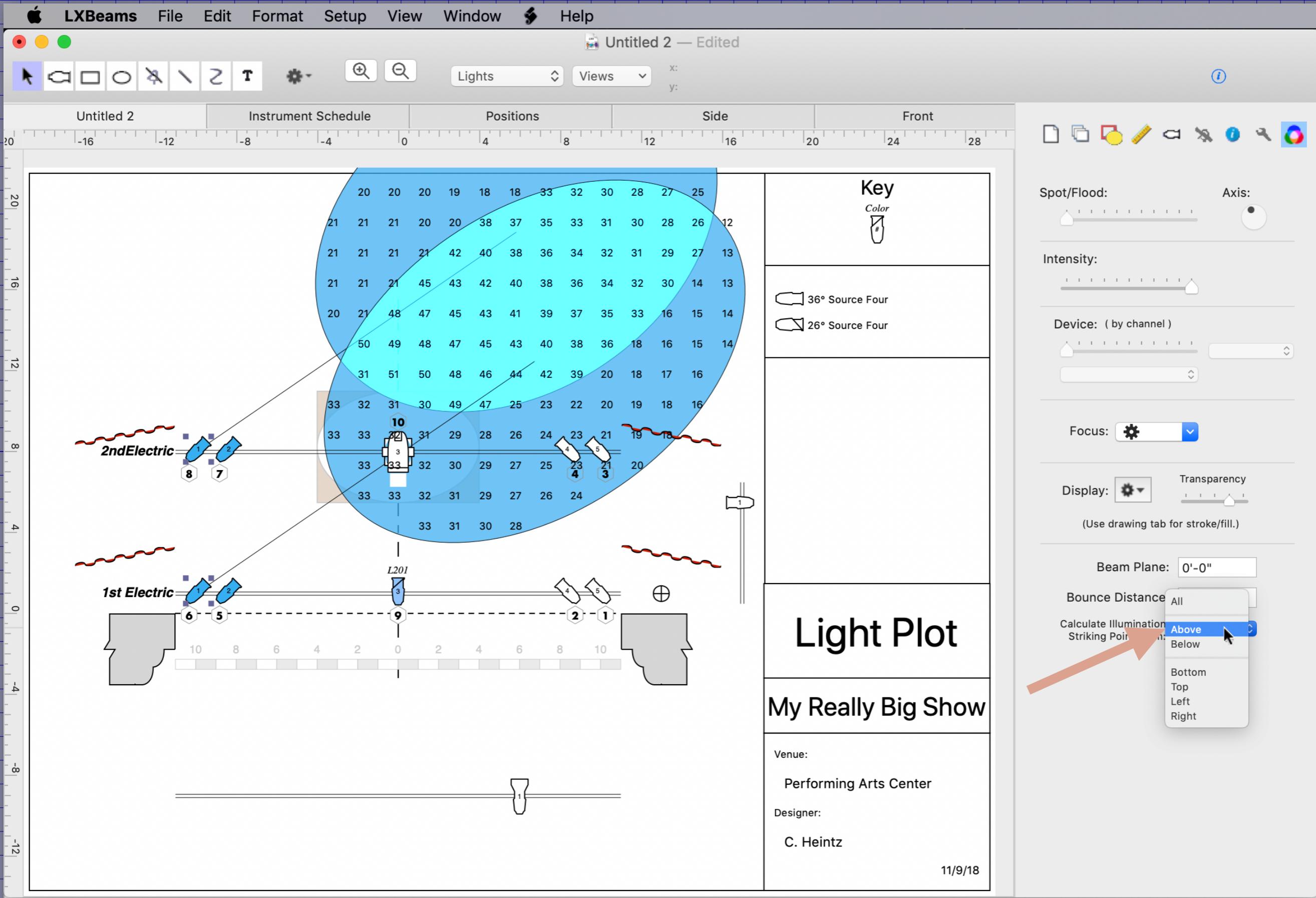
This displays foot-candle levels from the key entry's candela property.

Look at the beams from the other side.



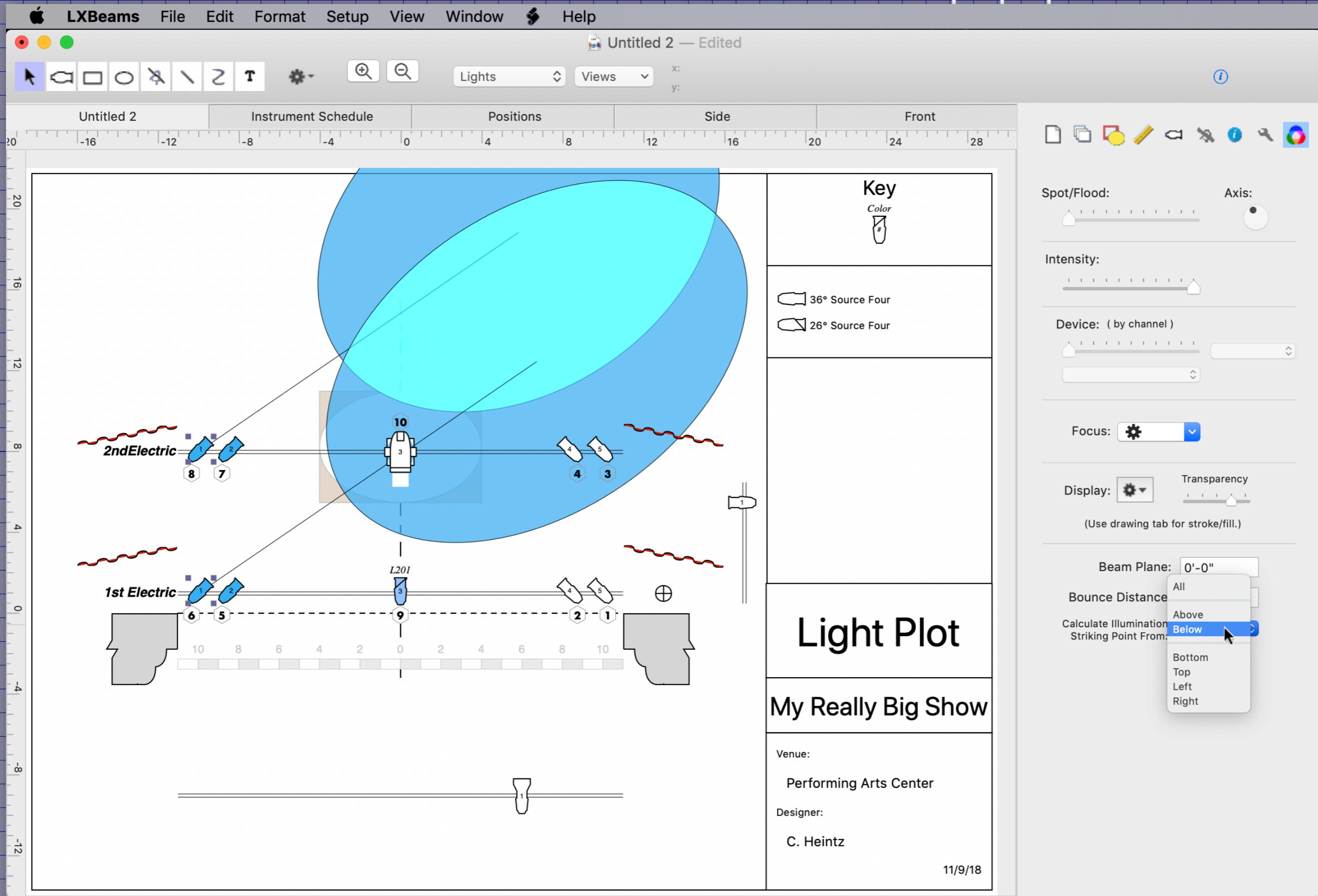
Point by Point considers the gel's transmission and the light's intensity.

# You can choose the direction of the illumination calculation.



"All" is the illumination arriving at the point without considering direction.

# Choose "Below" from the illumination popup.

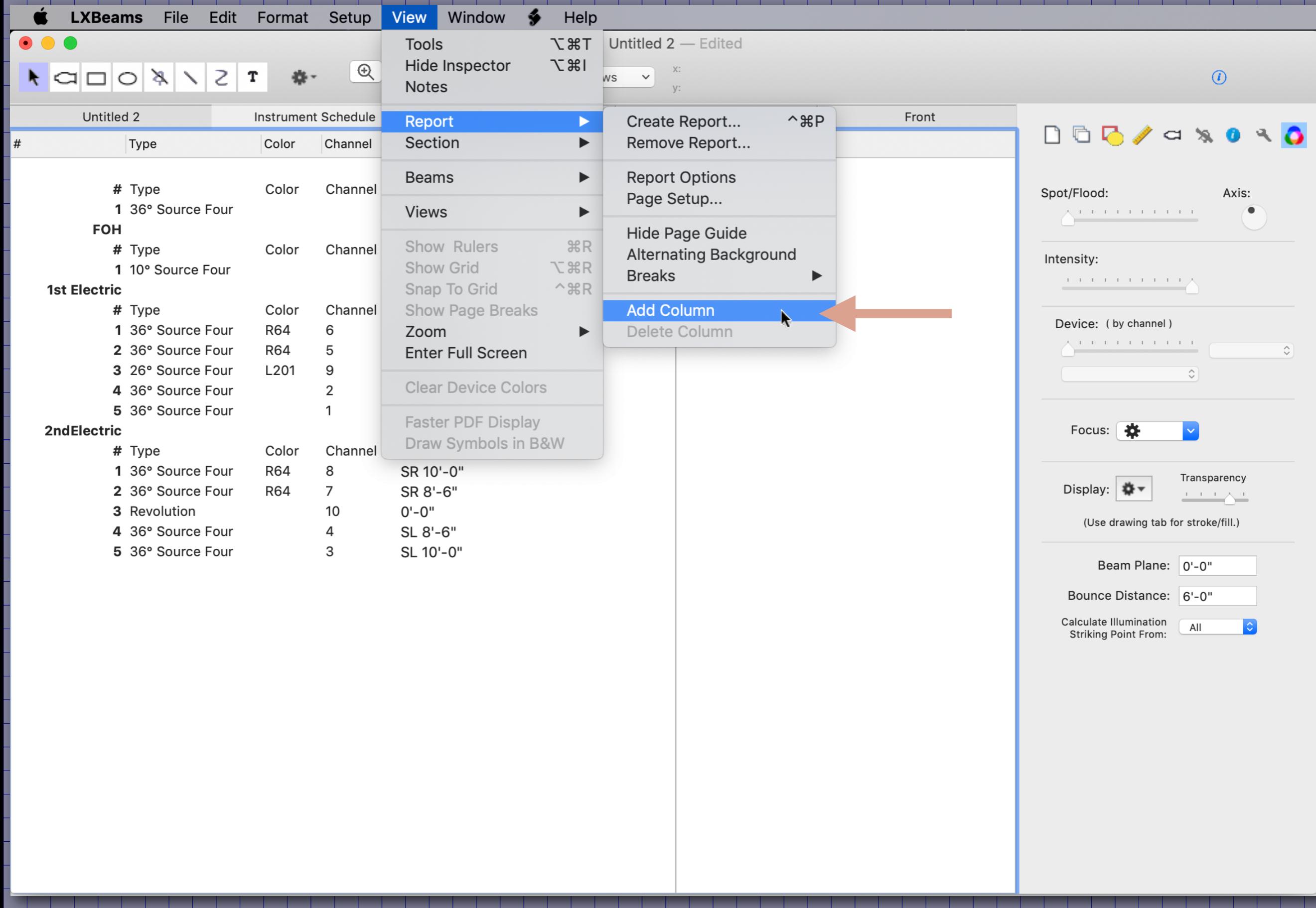


# Click on the Instrument Schedule tab.

The screenshot shows the LXBeams software interface on a Mac OS X system. The window title is "Untitled 2 — Edited". The menu bar includes File, Edit, Format, Setup, View, Window, Help, and a gear icon. The toolbar contains icons for selection, zoom, search, and various drawing tools. The main area has tabs for Untitled 2, Instrument Schedule, Positions, Side, and Front. The Instrument Schedule tab is selected, highlighted with a blue border. A red arrow points to the gear icon in the toolbar, which is also highlighted with a blue box. The right side of the interface features a control panel with various settings: Spot/Flood, Axis, Intensity, Device (by channel), Focus, Display, Transparency, Beam Plane (set to 0'-0"), Bounce Distance (set to 6'-0"), and Calculate Illumination Striking Point From (set to All). The central area displays a table of instrument schedule data:

#	Type	Color	Channel	Location
#	Type	Color	Channel	Location
1	36° Source Four			US 2'-0"
<b>FOH</b>				
#	Type	Color	Channel	Location
1	10° Source Four			SL 6'-0"
<b>1st Electric</b>				
#	Type	Color	Channel	Location
1	36° Source Four	R64	6	SR 10'-0"
2	36° Source Four	R64	5	SR 8'-6"
3	26° Source Four	L201	9	0'-0"
4	36° Source Four		2	SL 8'-6"
5	36° Source Four		1	SL 10'-0"
<b>2nd Electric</b>				
#	Type	Color	Channel	Location
1	36° Source Four	R64	8	SR 10'-0"
2	36° Source Four	R64	7	SR 8'-6"
3	Revolution		10	0'-0"
4	36° Source Four		4	SL 8'-6"
5	36° Source Four		3	SL 10'-0"

# Choose View→Report→Add Column.



# Choose Bounce Pt.

LXBeams File Edit Format Setup View Window Help

Untitled 2 — Edited

Lights Views x:  
y:

Front

Choose Column To Add:

✓ Position

- #
- Color
- Frost
- Channel
- Circuit
- Dimmer
- Template
- Use
- Group
- Mark
- Note
- Focus X
- Focus Y
- Beam Axis
- Channels
- Owner ID
- Parameters
- Type
- Full Name
- Symbol ID
- Inventory
- Balance
- Lamp
- Watts
- Color Frame
- Weight
- More Info
- Space
- Color/Frame
- Color/Type
- Location
- Focus Pt.
- Bounce Pt.**
- Input
- Sheets
- Full Color Name

Spot/Flood: Axis:

Intensity:

Device: ( by channel )

Focus:

Display:  Transparency:

(Use drawing tab for stroke/fill.)

Beam Plane: 0'-0"

Bounce Distance: 6'-0"

Calculate Illumination  
Striking Point From: All

Instrument Schedule

#	Type	Color	Channel	Location
#	Type	Color	Channel	Location
1	36° Source Four			US 2'-0"
<b>FOH</b>				
#	Type	Color	Channel	Location
1	10° Source Four			SL 6'-0"
<b>1st Electric</b>				
#	Type	Color	Channel	Location
1	36° Source Four	R64	6	SR 10'-0"
2	36° Source Four	R64	5	SR 8'-6"
3	26° Source Four	L201	9	0'-0"
4	36° Source Four		2	SL 8'-6"
5	36° Source Four		1	SL 10'-0"
<b>2nd Electric</b>				
#	Type	Color	Channel	Location
1	36° Source Four	R64	8	SR 10'-0"
2	36° Source Four	R64	7	SR 8'-6"
3	Revolution		10	0'-0"
4	36° Source Four		4	SL 8'-6"
5	36° Source Four		3	SL 10'-0"

The Bounce Point is the center of the beam when the pipe is at the bounce distance.

LXBeams File Edit Format Setup View Window Help

Untitled 2 — Edited

Lights Views x:  
y:

Instrument Schedule Positions Side Front

#	Type	Color	Channel	Location	Bounce Pt.
FOH	# Type 1 36° Source Four			US 2'-0"	Bounce Pt.
	# Type 1 10° Source Four			SL 6'-0"	SL 6'-2.75" , DS 27'...
1st Electric	# Type 1 36° Source Four	R64	6	SR 10'-0"	SR 5'-7" , US 4'-0.5"
	2 36° Source Four	R64	5	SR 8'-6"	SR 5'-8" , US 0'-8"
	3 26° Source Four	L201	9	0'-0"	SL 0'-0.5" , US 4'-10..."
	4 36° Source Four		2	SL 8'-6"	SL 5'-8" , US 0'-8"
	5 36° Source Four		1	SL 10'-0"	SL 5'-7" , US 4'-0.5"
2nd Electric	# Type 1 36° Source Four	R64	8	SR 10'-0"	SR 6'-5.75" , US 10'..."
	2 36° Source Four	R64	7	SR 8'-6"	SR 6'-3" , US 5'-10.5"
	3 Revolution		10	0'-0"	
	4 36° Source Four		4	SL 8'-6"	SL 6'-3" , US 5'-10.5"
	5 36° Source Four		3	SL 10'-0"	SL 6'-5.75" , US 10'..."

Spot/Flood: Axis:

Intensity:

Device: ( by channel )

Focus:

Display: Transparency

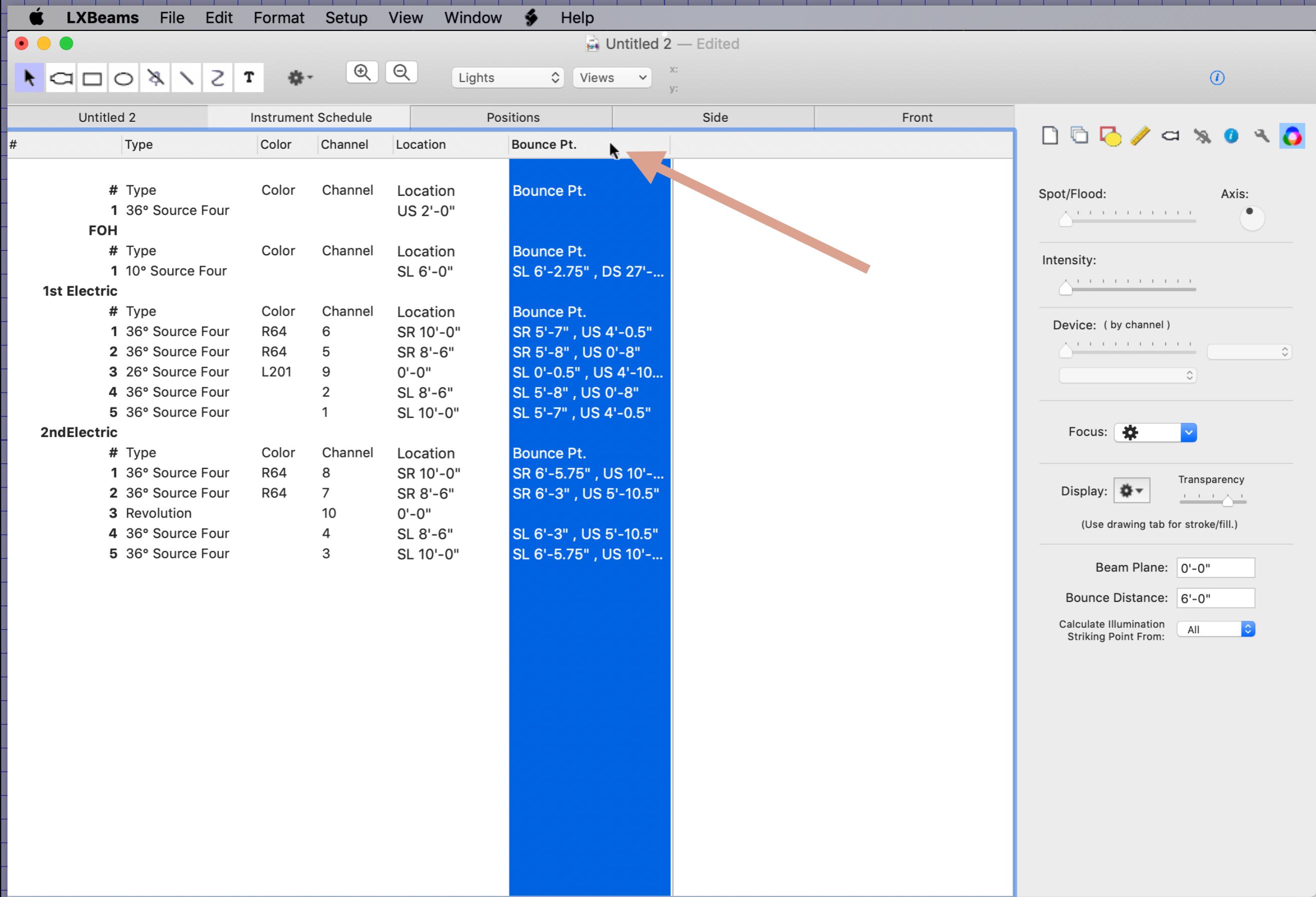
(Use drawing tab for stroke/fill.)

Beam Plane: 0'-0"

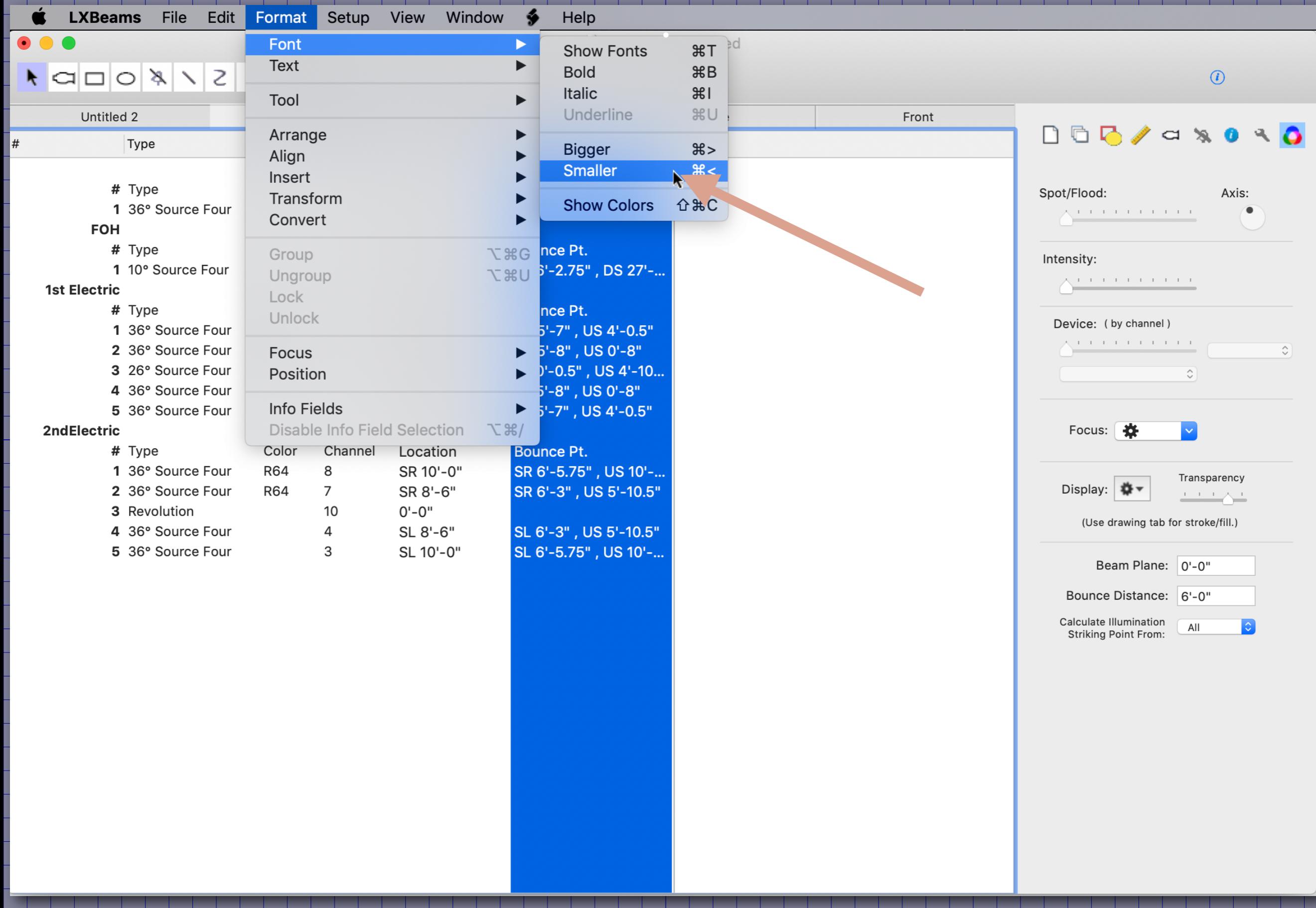
Bounce Distance: 6'-0"

Calculate Illumination Striking Point From: All

Click the header of the Bounce Pt. column.



# Choose Format→Font→Smaller.



# Note the bounce point of 1st Electric #1.

LXBeams File Edit Format Setup View Window Help

Untitled 2 — Edited

Lights Views x:  
y:

Untitled 2		Instrument Schedule		Positions		Side	Front
#	Type	Color	Channel	Location	Bounce Pt.		
	# Type	Color	Channel	Location	Bounce Pt.		
<b>FOH</b>	<b>1 36° Source Four</b>			US 2'-0"			
	# Type	Color	Channel	Location	Bounce Pt.		
<b>1st Electric</b>	<b>1 10° Source Four</b>			SL 6'-0"	SL 6'-2.75" , DS 27'-1.75"		
	# Type	Color	Channel	Location	Bounce Pt.		
<b>2nd Electric</b>	<b>1 36° Source Four</b>	R64	6	SR 10'-0"	SR 5'-7" , US 4'-0.5"		
	<b>2 36° Source Four</b>	R64	5	SR 8'-6"	SR 5'-8" , US 0'-8"		
	<b>3 26° Source Four</b>	L201	9	0'-0"	SL 0'-0.5" , US 4'-10.5"		
	<b>4 36° Source Four</b>		2	SL 8'-6"	SL 5'-8" , US 0'-8"		
	<b>5 36° Source Four</b>		1	SL 10'-0"	SL 5'-7" , US 4'-0.5"		
	# Type	Color	Channel	Location	Bounce Pt.		
	<b>1 36° Source Four</b>	R64	8	SR 10'-0"	SR 6'-5.75" , US 10'-5"		
	<b>2 36° Source Four</b>	R64	7	SR 8'-6"	SR 6'-3" , US 5'-10.5"		
	<b>3 Revolution</b>		10	0'-0"			
	<b>4 36° Source Four</b>		4	SL 8'-6"	SL 6'-3" , US 5'-10.5"		
	<b>5 36° Source Four</b>		3	SL 10'-0"	SL 6'-5.75" , US 10'-5"		


(5'-7", 4')

Spot/Flood: Axis:

Intensity:

Device: ( by channel )

Focus:

Display:  Transparency:

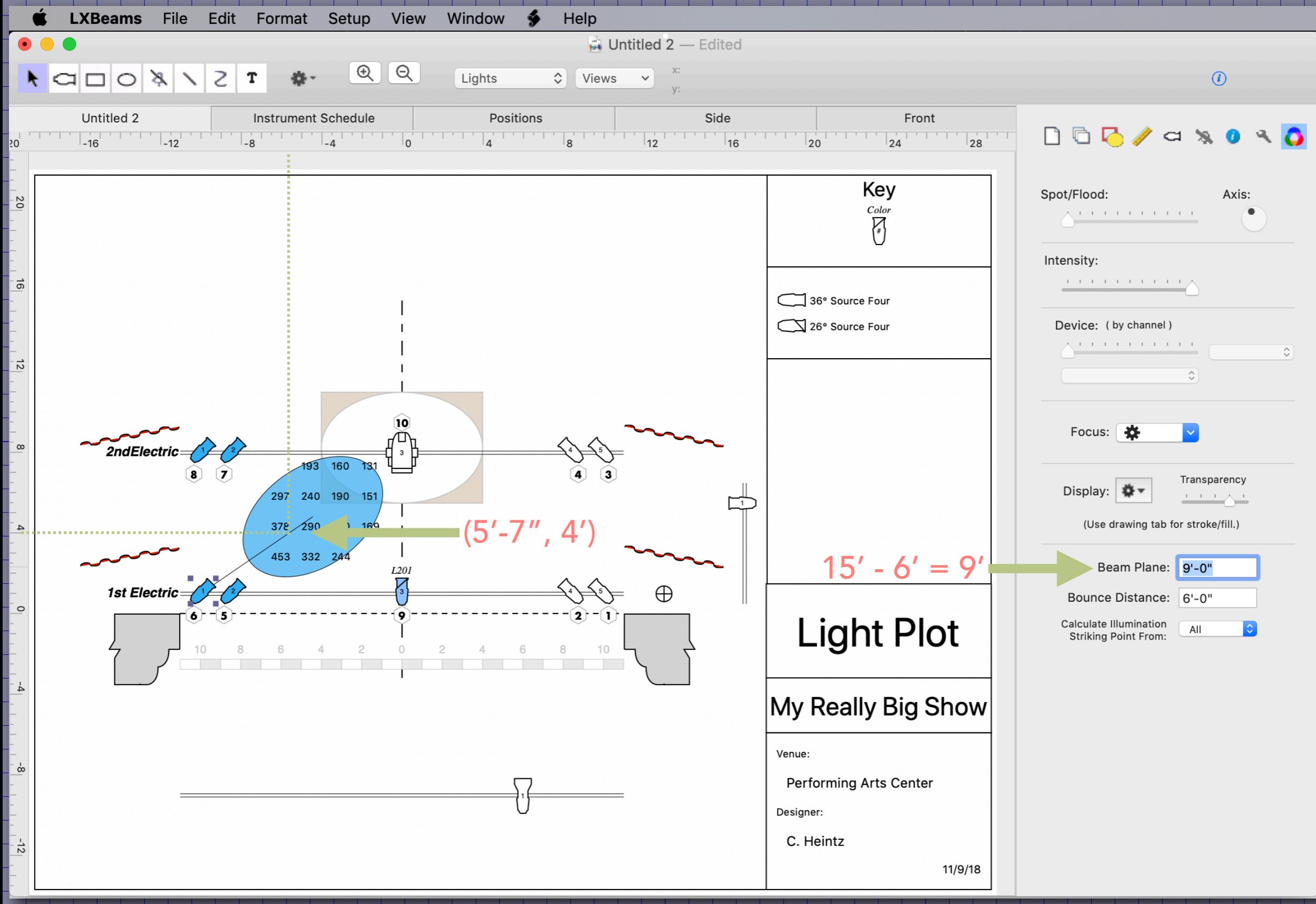
(Use drawing tab for stroke/fill.)

Beam Plane: 0'-0"

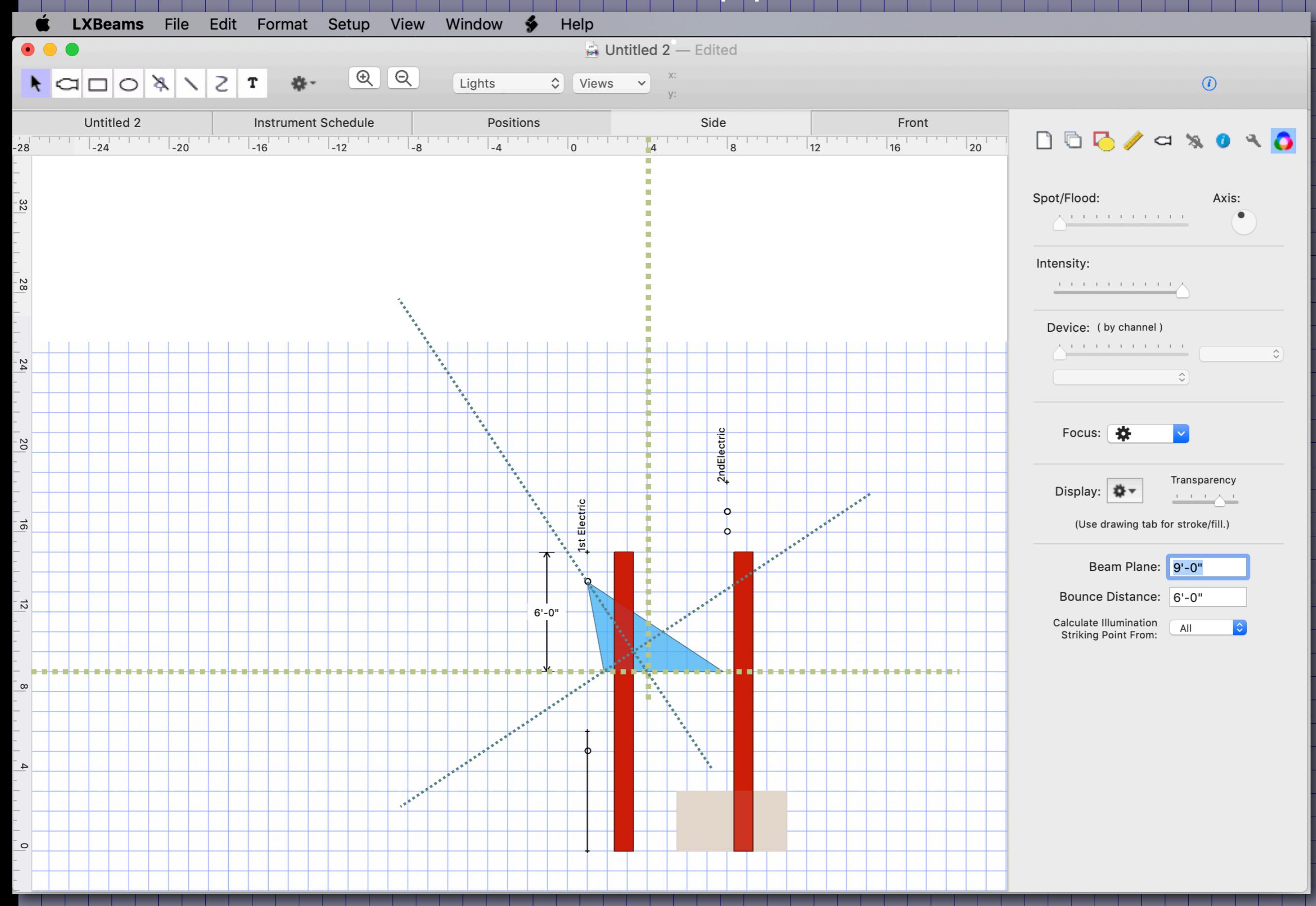
Bounce Distance: 6'-0"

Calculate Illumination Striking Point From: All

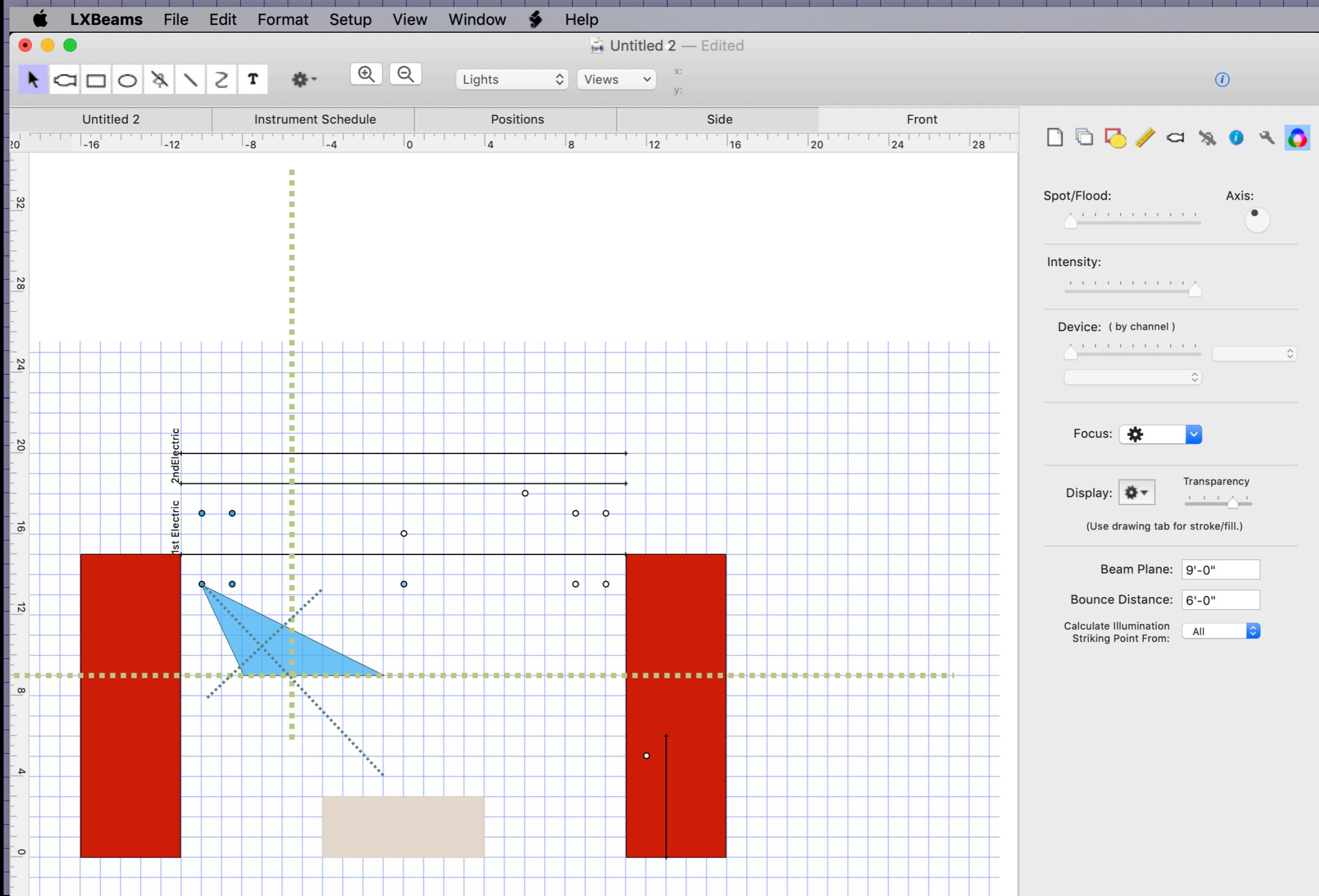
# The beam at 6'-0" below the pipe



The beam at 6'-0" below the pipe seen from the side.



# The beam at 6'-0" below the pipe seen from the front



# In this section we've looked at Focus and Beams.

- You can copy and paste focus between lights in a number of ways.
- You can paste the exact same focus point.
- You can paste the focus point so it keeps the same relative distance/direction from the light's location.
- Or, you can flip the relative position about the X/Y axis when pasting the focus.

# In this section we've looked at Focus and Beams.

- You can paste the exact same focus point,  
but moved by a distance/direction set in  
the Tools tab.

# In this section we've looked at Focus and Beams.

- Beams can be displayed using either the beam or field angle defined in the key.
- Beams can be displayed with a line connecting them to their source.
- Beams can display illumination intensity striking points from various directions.

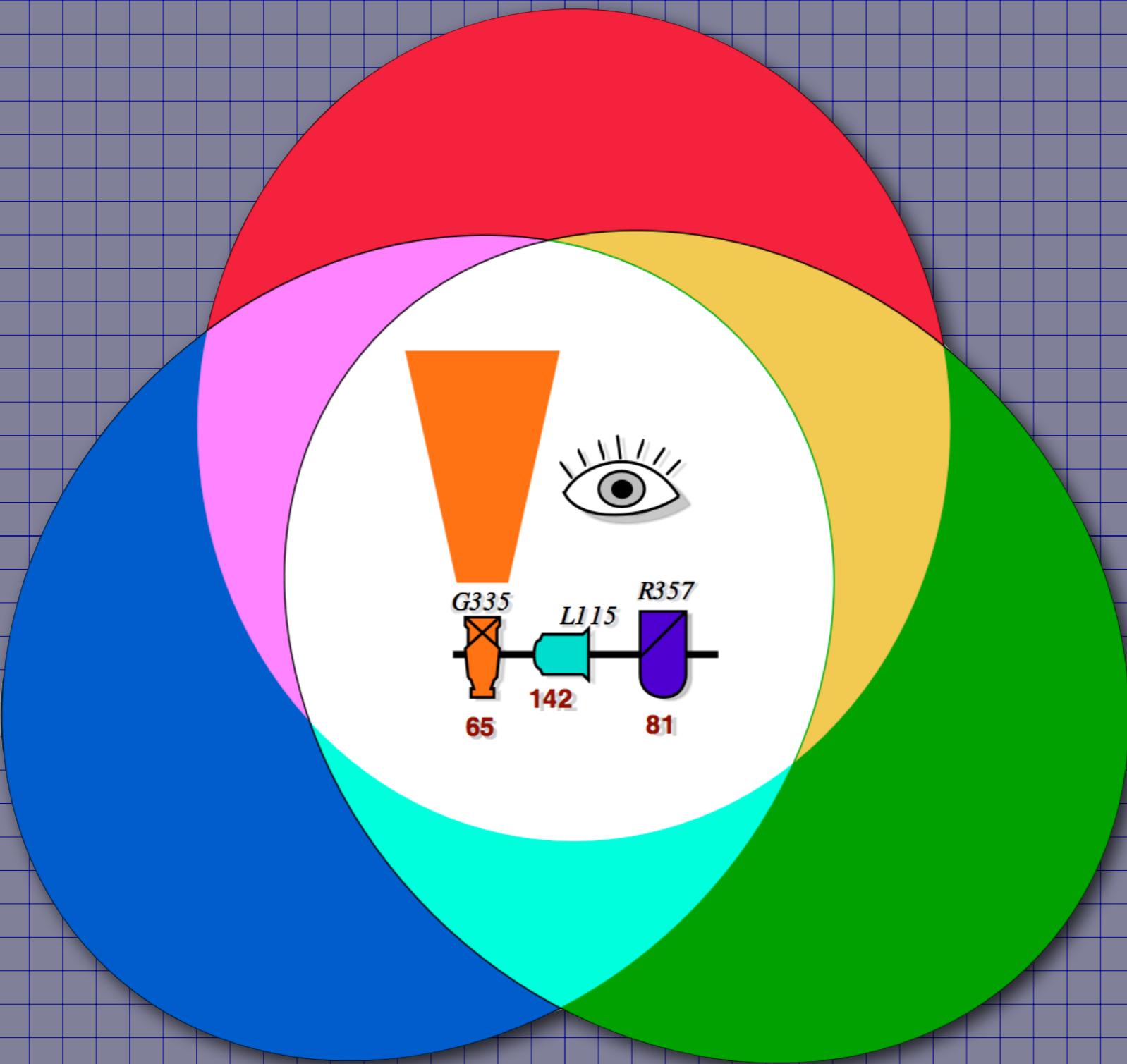
# In this section we've looked at Focus and Beams.

- A “Bounce Pt” column can be added to reports.
- The bounce point is the center of the light’s beam when the light’s position is lowered to a set distance from the floor.

# Try It Yourself

- Focus the other 4 pipe ends
- Try setting the focus point of one light
- Then use the copy/paste focus functions

<https://www.claudeheintzdesign.com/lx>



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