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Custom Luminous SkyCeiling
LED Lighting Installation Instructions (Metric)

All LED light panels must be carried by hanger wire. There are no end caps. End caps create banding in the image. Refer to local codes for hanger wire size. Install the LED light panels prior to installing The Sky Factory Elevators. Preferred height for LED light panels is 25.4 cm – 30.5 cm above the bottom of the grid, 20.3 cm minimum. See XS1.

Step 1: Installing the LED Light Panels

1. Each panel has multiple sets of holes to receive hanger wire. (In seismic installations, these holes will also receive the seismic cables from the elevators.)

2. Locate each light panel following drawing L1 and L2. The panels are labeled on top and bottom. The label on top is oriented to match drawing L1.
   IMPORTANT: L1 IS A REFECTED CEILING PLAN. THE VIEW IS SHOWN LOOKING DOWN FROM ABOVE THE CEILING. L2 IS AS IF LOOKING UP AT THE CEILING FROM BELOW.

3. All light panels are specifically arranged in rows: Row 1 (Panel A1, B1, C1, etc.), Row 2 (Panel A2, B2, C2, etc.), etc. The panels in each row are connected (wired) together with power cables. Each power cable is row specific and labeled accordingly, ie. Row 1, Row 2, etc.

4. Light panels must be hung so the electrical connectors on the panels line up with the power cables, as shown in L1.

5. Light panels must be hung 25.4 cm – 30.5 cm above the bottom of the grid, 20.3 cm minimum, and must sit in the same plane to keep light leaks at a minimum.

6. All light panels must be centered directly over their prospective grid openings for proper lighting of the image. (All straight edges are 1.6 mm less than center of corresponding grid; all curved edges are 19 mm greater than the inside diameter of corresponding perimeter angle.)
7. The panels are designed to have a 3.2 mm gap between them for the grid hanger wire to pass through. The grid hanger wire must be located directly above the grid so it does not force a panel off center.

Step 2: Wiring the LED Light Panels

1. The LED light panels are wired together with row specific power cables. See L1 and E1.

2. Each power cable has a black Molex polarized receptacle to match each plug connector on the light panels in its row. When the mating halves are fully inserted and locked together, you will hear a distinctive "click". To unplug them, depress the latching lever and pull apart.

3. Route the power cables through the wire clips on the LED panels. **Make sure all wiring and connectors do not block LED strips.**

4. Each power cable has a yellow Wago 2 Position Luminaire Disconnect on one end.

5. Power is connected to the yellow Luminaire Disconnect with Push-In style connections using either solid or stranded 12 – 16 AWG wire.

   a. **Red Wire is DC positive (+) and connects to position number "1" in the Luminaire Disconnect. Note: the connector color for position No. 1 is Black.**

   b. **Black Wire is DC negative (-) and connects to position number "2" in the Luminaire Disconnect. Note: the connector color for position No. 2 is White.**

6. The wire for the 24 VDC line to the panels is connected to the power lug or terminals on the Power Supply (+ to + and – to –) and to one of the Luminaire Disconnects. Voltage drop will occur when run long distances. See the attached Wire Sizing Chart for appropriate lengths and gauges.

7. For small installations, the number of Luminaire Disconnects will equal the number of terminals on the Power Supply. For installations which require a 750 Watt Power Supply or larger, all the Luminaire Disconnects connect to a single power lug.

8. Install the switch on the AC side of the power supply. See drawing Figure 1 attached.

9. The DC Power Supply is powered by 115/230 VAC. Some are auto-ranging. Others must be manually set. **Power Supplies which are selectable by a switch have two options on the label AND A RED SLIDE SWITCH ON THE SIDE OR BACK. MAKE SURE THE RED SLIDE SWITCH IS SET TO THE APPROPRIATE VOLTAGE.**

IMPORTANT: The LED light panels are **DC ONLY.**
AC VOLTAGE CONNECTED DIRECTLY TO THE LIGHT FIXTURES WILL PERMANENTLY DAMAGE THE LED's.

10. **Power supply must be located outside of shielded room in MRI applications.**

11. Power supply must have adequate air flow for proper cooling and be inspected regularly for dust accumulation. See manufacturer's specifications.

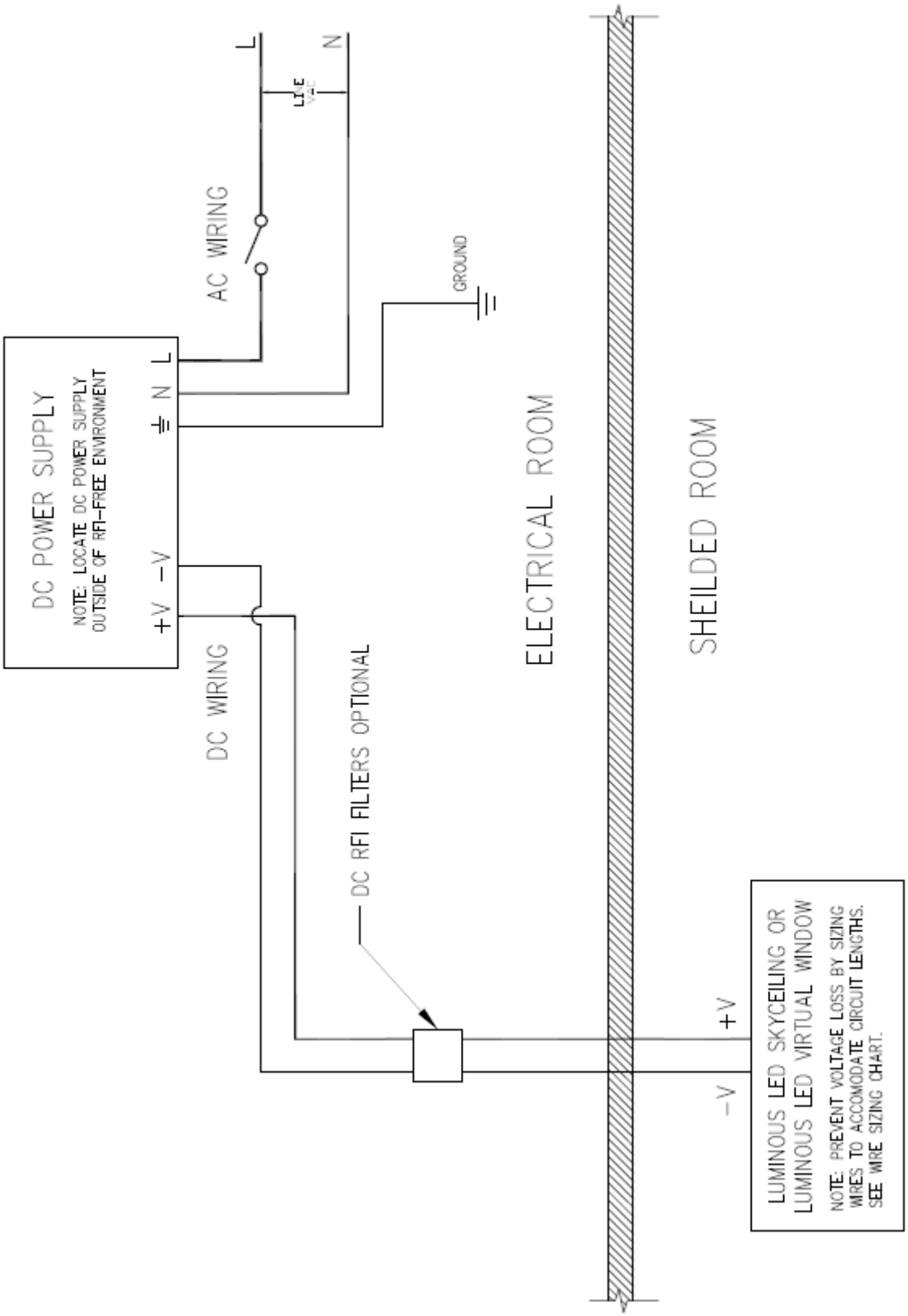
12. An RF filter is optional at the architect's or engineer's discretion.

13. **CHECK** the polarity and **MAKE SURE** that the **Red wire from our light panels is connected to the "+" terminals** of the power supply and the **Black wire from our light panels is connected to the "–" terminals** of the power supply**.** If the system is wired backwards, it will not light up.

See **Figure 1**, **Wire Sizing Chart** and **Drawings XS1, L1** and **L2** included.

For technical support please call us toll free at 866-759-3228. We want your installation to go as smoothly as possible. Thank you for choosing The Sky Factory.

Figure 1


DC POWER SUPPLY
NOTE: LOCATE DC POWER SUPPLY OUTSIDE OF RFI-FREE ENVIRONMENT
+V
-V
N
L
AC WIRING
L
LINE
N
GROUND
DC WIRING
DC RFI FILTERS OPTIONAL
ELECTRICAL ROOM
SHEILDED ROOM
+V
-V
LUMINOUS LED SKYCEILING OR
LUMINOUS LED VIRTUAL WINDOW
NOTE: PREVENT VOLTAGE LOSS BY SIZING
WIRES TO ACCOMODATE CIRCUIT LENGTHS.
SEE WIRE SIZING CHART.

Wire Sizing Chart

This is a guideline for recommended wiring practice.

	Distance - Feet						
	10	15	20	25	30	40	50
Amps	Wire Gauge						
5	18	16	14	12	12	10	10
10	14	12	10	10	10	8	6
15	12	10	10	8	8	6	6
20	10	10	8	6	6	6	4
25	10	8	6	6	6	4	4
30	10	8	6	6	4	4	2
40	8	6	6	4	4	2	2
50	6	6	4	4	2	2	1
60	6	4	4	2	2	1	0
70	6	4	2	2	1	0	2/0
80	6	4	2	2	1	0	3/0
90	4	2	2	1	0	2/0	3/0
100	4	2	2	1	0	2/0	3/0
120	4	2	1	0	2/0	3/0	4/0
140	2	2	0	2/0	2/0	4/0	4/0
160	2	1	0	2/0	3/0	4/0	4/0+4
180	2	1	2/0	3/0	3/0	4/0+10	4/0+2
200	2	0	2/0	3/0	4/0	4/0+4	4/0+0

AWG/MM Size Conversion				
AWG	MM	-	AWG	MM
26	.12826		11	4.156
25	.162		10	6.271
24	.205		9	6.626
23	.255		8	8.350
22	.322		7	10.544
21	.411		6	13.292
20	.516		5	16.755
19	.653		4	21.137
18	.823		3	26.653
17	1.039		2	33.606
16	1.308		1	42.384
15	1.652		0	53.454
14	2.088		00	67.399
13	2.629		000	84.004
12	3.302		0000	104.091

Observe Proper Wire Size

The most important wiring practice is to observe proper wire size. Failure to use adequate size can result in fire. Even if fire doesn't result, wires that are too small will cause marginal performance of electrical equipment.

Using the Table

The table shows the wire size required for a 3% voltage drop *in 12 Volt* circuits. To use the table, first calculate the total length of the wire from the source to the device and back again. Next, determine the amount of current in the wire. The wire gauge is found at the intersection of Amps and Feet. In most load circuits, a 3% drop is quite acceptable. In charging circuits it often pays to have less of a drop. Always use one size bigger if practical.