LUMOS

# LSX Module System

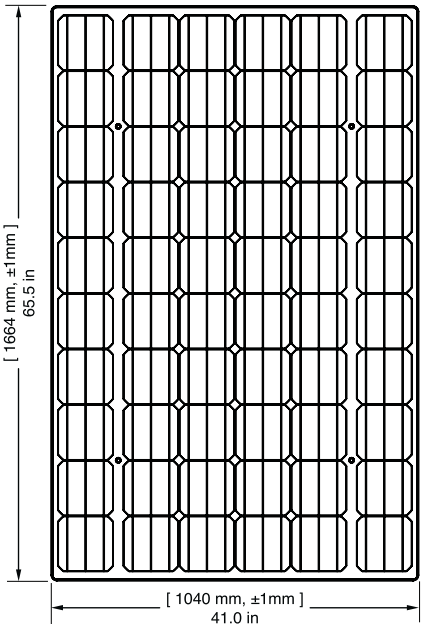
Frameless module with integrated mounting

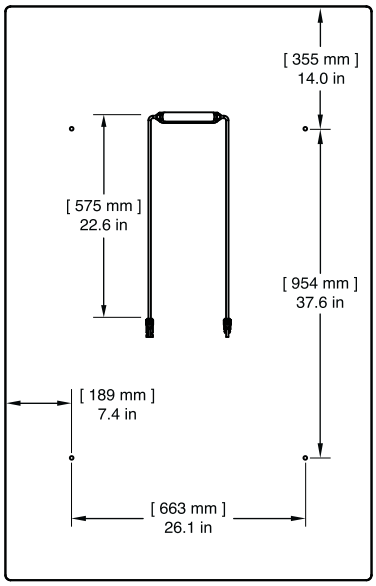
| Features | Benefits |
| --- | --- |
| Frameless Module | PID Free<br>Low profile |
| No Module Grounding | No ground lugs<br>No continuous module equipment ground |
| Constrained Module Positioning | Perfect alignment<br>Speeds installation time |
| Unique Through-Bolt Mounting | Tamper resistant mounting<br>Ease of weatherproofing |

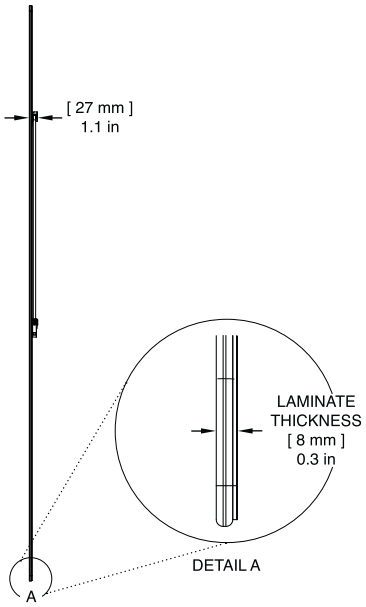
Proudly Made in the USA

# **LSX** Module System

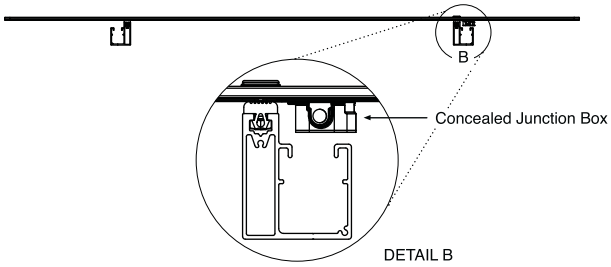
Proudly Made in the USA




**LSX** Module mounted to **LSX** Rail




## Electrical Specifications

| Model | **LSX**275 -60M-C* | **LSX**280 -60M-C* | **LSX**285 -60M-C* |
|---|---|---|---|
| Rated Power @ STC | 275 W | 280 W | 285 W |
| Peak Power Voltage (Vmp) | 31.71 V | 31.97 V | 32.24 V |
| Maximum Power Current (Imp) | 8.68 A | 8.76 A | 8.84 A |
| Open Circuit Voltage (Voc) | 39.03 V | 39.37 V | 39.71 V |
| Short Circuit Current (Isc) | 9.02 A | 9.25 A | 9.50 A |
| Module Efficiency | 15.9 % | 16.2 % | 16.5 % |
| Operating Temperature | -40 °C to 85 °C | | |
| Maximum System Voltage | UL 1000 V / IEC 1000 V | | |
| Maximum Series Fuse Rating | 15 A | | |
| Power Tolerance | -0/+3% | | |

*C-Clear Backsheet

## Temperature Coefficients

| | |
|---|---|
| Nominal Operating Cell Temperature (NOCT) | 43.6 °C |
| Power Temperature Coefficient (Pmpp) | -0.453 % / °C |
| Voltage Temperature Coefficient (Voc) | -0.337 % / °C |
| Current Temperature Coefficient (Isc) | 0.054 % / °C |

## Mechanical Specifications

| | |
|---|---|
| Solar Cell | Monocrystalline 6” x 6” (156 mm x 156 mm) |
| Number of Cells | 60 (6 x 10) |
| Bypass Diodes | 3 |
| Module Dimensions | 65.5” x 41.0” x 1.1” (1664 mm x 1040 mm x 27 mm) |
| Module Area | 18.65 $ft^2$ (1.73 $m^2$) |
| Module Weight | 62.6 lb (28.4 kg) |
| Module Weight / Area | 3.36 PSF (16.40 $kg/m^2$) |
| Front Glass | 0.24” (6 mm) FT Low-Iron PV Glass |
| Backsheet | Clear |
| Light Transmittance | Portrait ≡ 12% Landscape ≡ 10% |
| **LSX** Rail Assembly Options | 3, 4 & 5 Portrait Module Lengths 2 & 3 Landscape Module Lengths |
| Output Cables | 12 Awg. PV Wire and MC4 Compatible Connectors |
| Static Load | -50/+113 PSF (-2400/+5400 Pa) |
| Hail | Class 4 Hail Rating Max. Diameter 2” (51 mm) at 72 mph (32 m/s) |
| Module Type (Fire) | Type 1 |
| Warranty | 10 years at 90% of rated power output 25 years at 82% of rated power output |
| Certifications | c UL us LISTED UL 1703 |

Specifications are subject to change without notice. Lumos reserves the right of final interpretation and revision of this datasheet.

Version 201701

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# LSX Module System Installation Manual

February 2017
Revision 15

# Table of Contents

# 1. General Information

## 1.1 Lumos LSX Module System Introduction

Lumos LSX Modules are frameless solar panels. They are mounted by through-bolting them via 4 holes in the module glass. There are two mounting methods--**LSX** Rail and LSX Direct Mount--both of which are covered in this document. Make sure you reference the correct sections!

This manual is applicable to the LSX series of solar modules.

### 1.2 Warnings and Safety Guidelines

Installation, operation and maintenance of photovoltaic systems can be dangerous, and should be performed only by qualified persons. This manual should be read and understood fully before attempting to install any Lumos LSX Module System components.

Installations must conform to all applicable building and/or electrical codes and regulations, both national and local. It is the installer's responsibility to determine and fulfill all necessary requirements, including obtaining permits and inspections, if necessary.

Installers should maintain a safe installation environment. All OSHA or equivalent guidelines should be followed. Protective headgear, eye protection, insulating gloves, protective footwear and insulated tools are recommended. Do not attempt to install modules in windy or wet conditions. Do not install any photovoltaic components where flammable gasses may be present.

Modules should be handled with care. Keep the modules in the original packaging as long as possible. Stack module boxes neatly and evenly. Do not drop the module. Do not drop any objects on the module. Avoid bending the module. Do not use sharp tools or chemicals to clean the front glass or backsheet, as this may damage the module. Do not attempt to drill any holes in any part of the module. Do not use the junction box as a handle.

Lumos LSX Modules should only be installed with Lumos approved racking. Lumos does not accept any responsibility for loss or damage as a result of attempting to install LSX Modules with other mounting systems.

Approved suction cups may be used to handle the modules. However, Lumos does not accept any responsibility for damages related to the use of suction cups, approved or otherwise. If utilizing suction cups to handle the modules, check that they are clean and free of dirt or debris. Do not adhere the suction cup to the back of the module. Ensure that the suction cup is fully adhered to the module before attempting to move the module.

Modules are to be installed only on approved structures. It is the installer's responsibility to certify that the structure upon which the modules are to be mounted can handle the loads induced by the modules.

Photovoltaic modules generate DC power when they are exposed to sunlight. Contact with electrically active parts of the module can be hazardous. Avoid unnecessary handling of the module during installation. Do not disassemble any of the module components, or remove any affixed nameplates, labels or stickers. Do not disconnect any of the modules when they are under load.

Modules with broken glass present a serious shock hazard. Before handling broken modules, cover them with material that will block out all light, and wear insulating gloves. Dispose of broken modules safely and promptly (if making a warranty claim, store the module in a safe and secure location until the claim is resolved).

### 1.3 Electrical Ratings and Labels

The electrical characteristics are within ±10 percent of the indicated values of $I_{SC}$ and $V_{OC}$ under standard test conditions (irradiance of 100 mW/cm2, AM 1.5 spectrum, and a cell temperature of 25°C (77°F)).

Refer to Section 690-8 of the National Electrical Code for an additional multiplying factor of 125 percent (80 percent derating) which may be applicable.

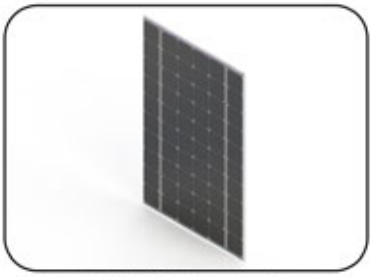
**⚠ WARNING!**

| | |
|---|---|
|  | Hazardous electricity can shock burn or cause death. Do not touch terminals. Before installing, operating and servicing this unit thoroughly review the installation and operating manual. For field connections, use a minimum of 12 AWG CU wires insulated for a minimum of 90° C |
|  | Glass is fragile. Stepping and/or standing on modules is ONLY permitted directly above supports. |
|  | Do not disassemble or alter the module. Do not open the junction box. |
|  | Do not carry a module by its cables or junction box. Do not leave modules unsupported or unsecured at any time. |

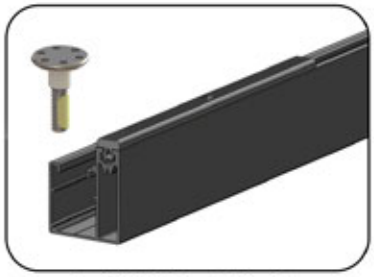
- Use modules for their intended purpose ONLY.
- Artificially concentrated sunlight shall not be directed on the module or panel.
- Under normal conditions, a photovoltaic module is likely to experience conditions that produce more current and/or voltage than reported at standard test conditions. Accordingly, the values of $I_{SC}$ and $V_{OC}$ marked on this module should be multiplied by a factor of 1.25 when determining component voltage ratings, conductor ampacities, fuse sizes, and size of controls connected to the PV output.

### 1.4 Components and Tools

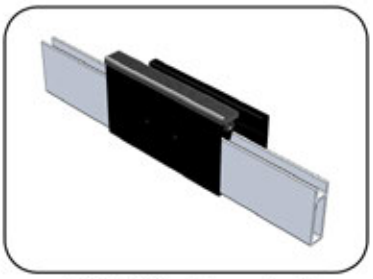
Here are the basic components and tools you will need to install LSX. You will definitely need additional tools, but these are the big ones you'll need.



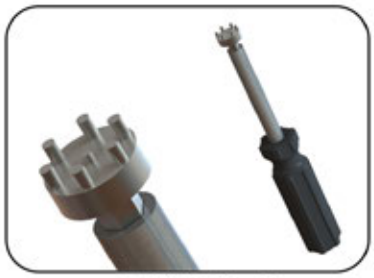
**LSX** Module



**LSX** Rail 1.1
(**LSX**Rail systems only)



**LSX** Splice 1.1
(**LSX**Rail systems only)



**LSX** Tool
(**LSX**Rail systems only)


Chalk Line or Laser Level

Impact Drill


Tape Measure

Woods Power Grip (Optional)

# 2. Installation

## 2.1 Mechanical Installation

### *2.1.1 Confirm Mounting Method*

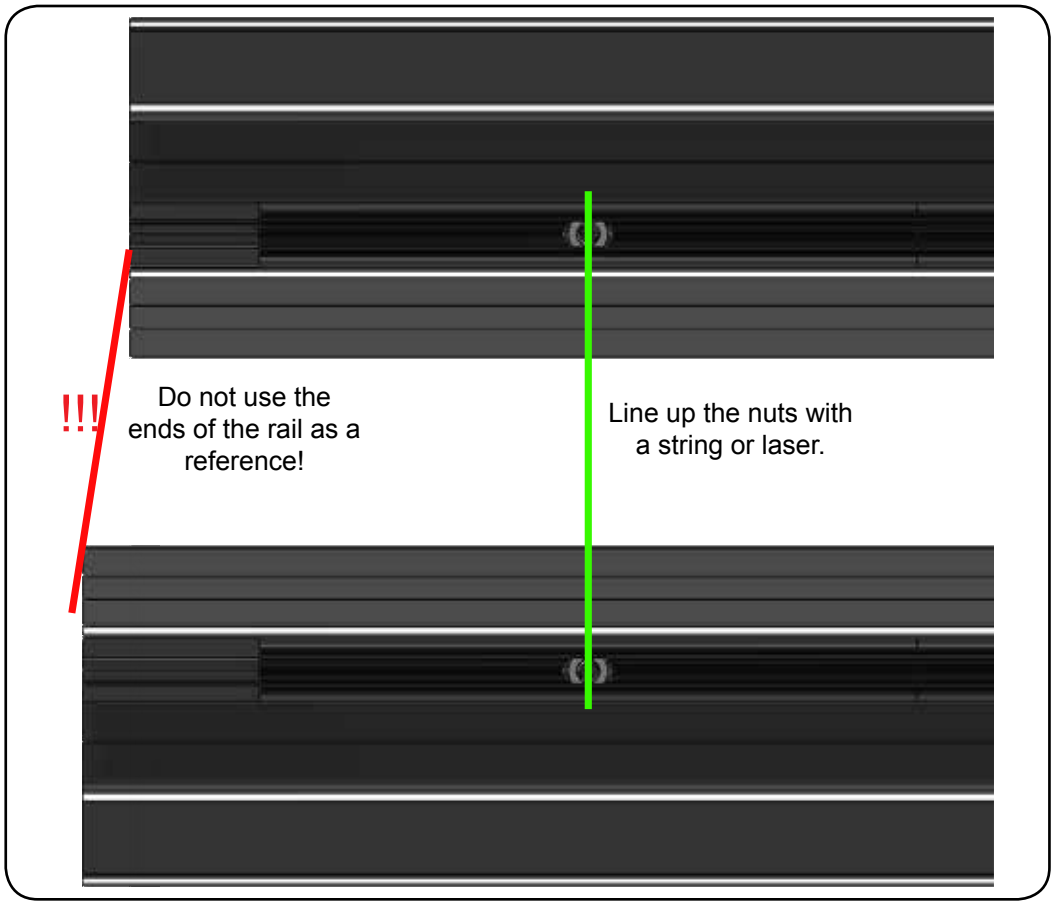
There are 2 methods of mounting LSX Modules--**LSX** Rail 1.1 and LSX Direct Mount. Before proceeding with your installation, identify which method you are using and find that section in this manual. **Always isolate dissimilar materials to avoid corrosion issues**. A simple layer of electrical tape between materials will suffice. LSX Rail is aluminum, so must be isolated when mounting to steel.

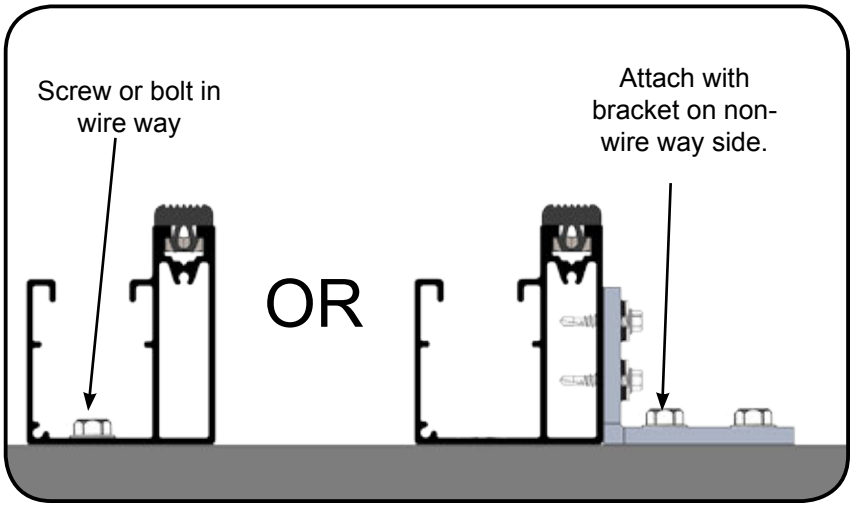
### *2.1.2 LSX Rail 1.1 Systems*

Lumos **LSX** Rail 1.1 is sold in lengths corresponding to a specific number of modules. **LSX** Rail 1.1 can be cut, but cutting is rarely necessary (if absolutely needed, cut the rail 5" from the center of the last nut you will use). The **LSX** Splice 1.1 can be used to link any two pieces of rail together. Engineering letters to determine the maximum span, overhang, and splice-to-connection distance are available upon request.

There are 2 ways to lay out the rails--center out, or end to end. This decision is best left up to the installer, but feel free to contact Lumos if you'd like help deciding. There are tables at the end of this document that provide progressive rail locations for both methods. ***Accurate placement of the rails is essential--they need to be spot on, +/- 1/16"!!*** Spend the time to lay out the rails correctly and the module installation will be very fast. If the rails are off, the module installation will be difficult.

Use a string line or laser level to align the nuts, NOT the ends of the rails. The module glass will extend 7-7/16" beyond the last nut (or *approximately* 2-7/16" beyond the end of the rail).






**LSX** *Rail 1.1 attachment methods. Bracket and screws shown here are for representative purposes only.*

**LSX** Rail 1.1 can be connected by screwing or bolting through the bottom surface of the wireway, or by using a bracket on the non-wire way side. You might need to pre-drill holes, and there is a drill target in the wire way for this purpose. If using a bracket, be sure to attach the bracket to the non-wire way side, and use screws that do not penetrate the wire way. Use only 300 series stainless steel hardware. If you are using standoffs, we recommend our XFlash or XTrack products. Allowable span will vary, and state-specific engineering letters are available upon request. It is the installer's responsibility to verify with an engineer that the structure upon which the modules will be mounted can handle the loads.

Install the **LSX** Splice 1.1 as necessary. Be sure to maintain a 1/8" space on either side of the splice. These gaps allow for thermal expansion and will result in proper module spacing.

Once all the rail is in place and fastened, position the first module on the rail such that holes in the module align with nuts in the rail. You can place the PV wire into the wire way as you lay the modules down, or you can do it later (provided you'll have access to the backside of the modules). Be sure to maintain a 1/4" gap between modules.

When the module is aligned correctly, tighten all (4) LSX Bolts to securely fasten the module to the rail. ***Hand-tighten with the LSX Tool (25 +/- 5 in-lbs, or 3.5 revolutions). Do not use a tool with a large mechanical advantage, such as a ratchet or a wrench. Do not use power tools. Use ONLY a screw driver with the LSX Tool tip, as shown in Section 1.4.***

Align the adjacent module. It is best to install the modules in a columnar fashion, starting from either the left or the right side of the array. This will ensure that the modules remain flush with each other.

After all modules are installed and all wiring is complete, install the end caps. Be sure to remove any and all protective covering before inserting end cap screws.

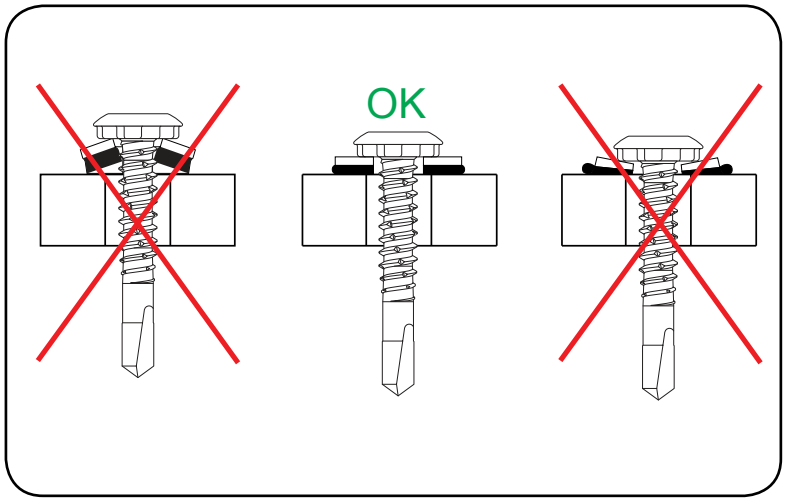
*Note: Never stand on the LSX Rail 1.1 adjacent to an installed module. Do not tie off to the LSX Rail 1.1 adjacent to an installed module as an anchor. Flexing the LSX Rail 1.1 adjacent to an installed module may break the glass. If a module does break, be sure to safely dispose of it by covering it from any sunlight and handling it with insulated gloves that will prevent electric shock or physical injury of any kind.*

### *2.1.3 LSX Direct Mount Systems*

Direct mount systems use standard structural members, such as I-beams or hollow metal tubes. The LSX Modules are fastened to these members with self drilling, self tapping screws. The members will need to line up with the holes in the module glass, and the exact spacing will depend on the desired gap and member shape. Contact Lumos if you need assistance determining correct member placement.

Once the members are fastened in place, install the provided rubber strips. These strips are available in 27.5' lengths with an adhesive backing--simply peel it off and center the strip over the connection location. The screws that will fasten the module should penetrate directly through the center of this rubber, so place it accordingly.

Position the first module. Use tape measures, string lines, laser levels, and general carpentry skills to ensure the module is placed as desired. Place the provided aluminum spacer into the module hole, and insert a module screw through the spacer. Drive the screw with a drill or impact driver and watch closely to ensure proper tightness. A well-fastened screw will have a slightly bulged rubber washer. Do not under or over tighten (see image at left). The provided screws may have a special Irius® head, as shown at left, or a hex head.



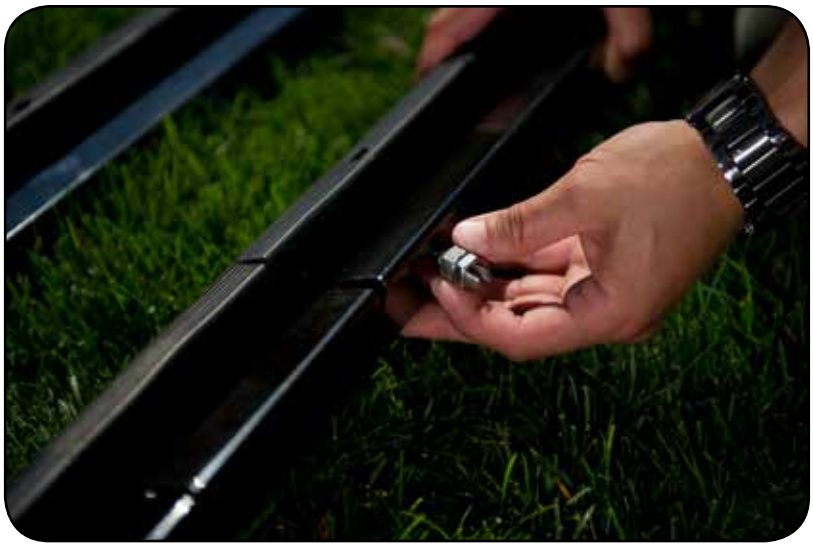

*Module screws must be tightened properly*

## 2.2 Electrical Installation

### *2.2.1 Grounding*

LSX Modules are frameless and do not require grounding. However, the NEC dictates that the racking equipment must be grounded. If you are installing directly to a conductive structure, it is possible that the structure itself could be used as the equipment grounding conductor (EGC), so long as appropriate connections are made. If you are installing LSX on a non-conductive structure, such as a comp shingle or TPO roof, you will need a separate EGC. Verify the relevant local codes before beginning any installations.

If installing **LSX** Rail 1.1 and a separate EGC is required, install ground lugs onto each side of all splices. These lugs should penetrate the rail, but not the splice. If the Authority Having Jurisdiction (AHJ) requires it, also install a ground lug on the splice. It should be noted that the **LSX** Splice 1.1 is considered a "bracket" and thus should not need to be electrically bonded to the rail system. However, be sure to check with the AHJ requirements before omitting an additional ground lug on the splice. Also install a ground lug at the end of each rail section.



*Installing a ground lug*

# 3. Weather Sealing

Lumos LSX modules are typically installed with 1/4” gaps between panels, which can be sealed off to create a weatherproof array. Lumos recommends 3M Scotchgard Paint Protection Film (PPF) for this purpose. This section describes the PPF installation process. It is similar to installing vinyl decals.

**Equipment**
In addition to the PPF and some clean lint-free cloths, you will need the following supplies:


*Sticker Squeegee*

*Glass Cleaner*


*Spray Bottle*


*Baby Shampoo*

**The Details**

**Application Conditions**
The recommended module surface temperature and ambient air temperature are both between 55°F and 90°F (13°C - 32°C). Winds should be below 5 mph.

**Surface Preparation**
For best results, wash hands thoroughly before application to avoid film contamination, such as fingerprints, which are difficult to remove.

Clean the perimeters of the modules prior to PPF application (see Fig 1). Recommended cleaners include 3M General Purpose Adhesive Cleaner, acetone, and isopropyl alcohol. **It is *imperative* to follow the adhesive cleaner with a glass cleaner**, because it removes all of the adhesive cleaner residual solvents. Failure to follow this step could result in insufficient PPF adhesion. Finally, wipe with a clean, lint-free cloth.

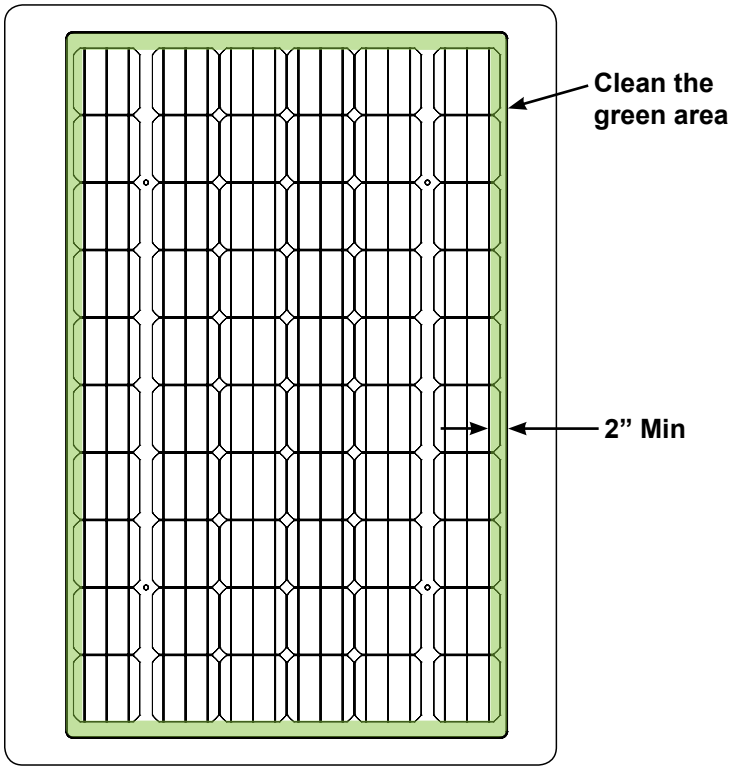


*Fig. 1: Thoroughly clean the green area.*

**Scotchgard PPF Application**

1. Fill a 16 oz. spray bottle with water and add 0.6ml (4 drops) of Johnson's Baby Shampoo or Aveeno Baby Wash and Shampoo.
2. Wash your hands to avoid leaving fingerprints on the adhesive.
3. Remove the liner from a short section of PPF.
4. Using the soap solution, spray your fingers, the application area on the modules, and the adhesive side of the PPF. The soap solution allows you to slide the PPF into its desired position, and allows you to remove air bubbles that might get trapped.
5. Properly position the PPF. It will slide around easily on the solution. Once in position, it should be centered over the gap.
6. Spray the top of the PPF, and squeegee out the soap solution. The solution allows the squeegee to slide over the film.
7. Continually re-wet your fingers, the PPF, and the module with the soap solution throughout the application process.
8. Repeat steps 3-7 until the all gaps are covered with PPF. Wipe dry.

*Notes and Tips:*

-Workers 200lbs and under can walk on the modules by stepping over the support rails (do not step on the centers or the edges of the modules).
-During the application, bubbles can be removed by making  irm, quick, "pushing strokes" with the squeegee toward the nearest edge that has not been tacked down.
-Pay special attention to the intersections, where one line of PPF crosses another. Failure to adequately squeegee and stick this area can result in leaks.
-3M PPF should only be installed on systems with tilts above 2°.
-***Do not worry if the PPF covers some cell area. It will not reduce power output.***
-If  splicing is necessary:
    -Splice should be at least 1 ft from intersections
    -Overlap the PPF by at least 3"
    -See Fig. 2 below

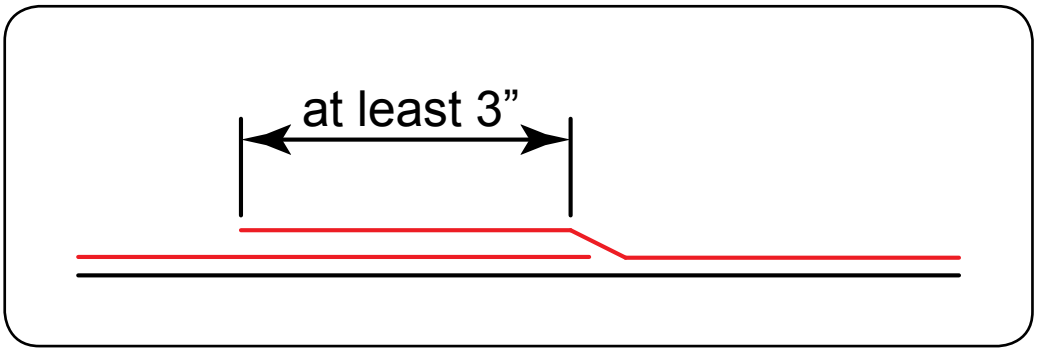



*Fig. 2  Overlap the PPF at least 3" at splices.*

## 4. Disclaimer of Liability

This manual provides safe and proper methods to install the Lumos LSX Module System. This is for the safety of the installers as well as the protection of the equipment. It is the responsibility of the installer to read and understand the information presented in this document. Failure to adhere to the guidelines set forth in this document may invalidate any applicable warranties.

Due to the fact that installation methods and conditions are beyond Lumos's control, Lumos does not accept responsibility and expressly disclaims liability for any loss, damage, or expenses that result during the installation, operation, or maintenance of the Lumos LSX Module System.

Lumos assumes no responsibility for any infringement of patents or other rights of third parties which may result from the use of Lumos LSX Module System products. No license is granted by implication or otherwise under any patent or patent rights.

Lumos reserves the right to modify this document, the LSX products and components, and any other product specifications and/or data sheets at any time. This document does not in any way constitute a warranty, express or implied. For warranty information on Lumos products, please contact Lumos directly.

## 5. Returns

Returns are only accepted with an approved RMA (Return Material Authorization) form. Returns must be packed appropriately, as the product was received, in the original packaging. Improperly packed returns will not be credited.

The pallet must be appropriately strapped and banded, including cross-wise, lengthwise, and side straps (as it was delivered). If you do not have strapping/banding equipment, use ratchet straps to replicate the strapping/banding method used at the factory.

For questions regarding RMA forms or to submit an RMA form, please contact Lumos directly.

## 6. Contact Lumos

For more information on the Lumos LSX Module System, LSX installation processes, maintenance, warranties, purchasing inquiries, finding an authorized dealer, or for more information on any other Lumos products and services, please contact:

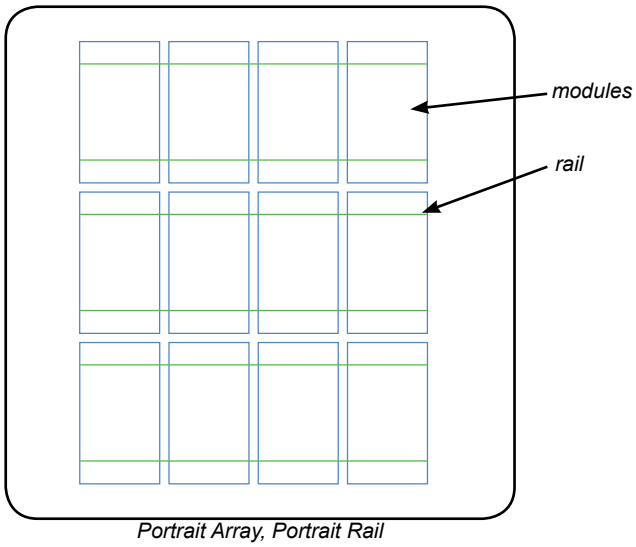
**Lumos Solar**
PO Box 20271 Boulder,
CO 80308
Tel: (303) 449 - 2394
**info@lumossolar.com**

# 7. Quick Reference Tables

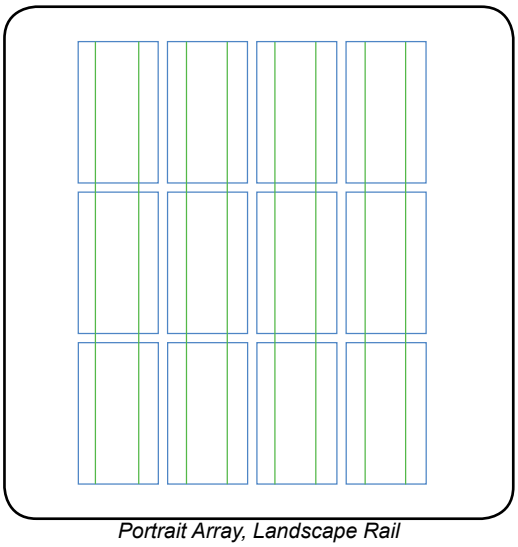
This section contains Quick Reference Tables for determining array dimensions and locations of each rail using a common reference. Data from the tables can be combined to obtain the required design/ layout information for LSX Arrays of any shape and/or size.

### 7.1 Terminology--Portrait v. Landscape

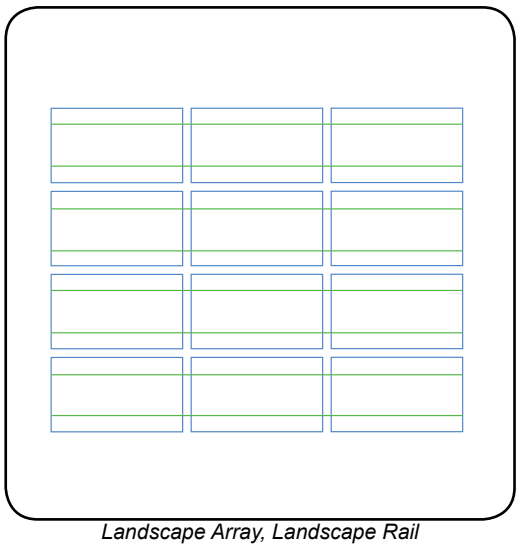
The terms “landscape” and “portrait” are used to describe array orientation and rail orientation. The problem is that any combination is possible (i.e., a portrait array with portrait rail, a portrait array with landscape rail, etc.). The best way to think of it is that portrait rail runs parallel to the short side of the modules, and landscape rail runs parallel to the long side of the modules. The array orientation is called “portrait” if the front edge of the array is parallel to the short edge of the modules, and “landscape” otherwise. The images below should clear things up.



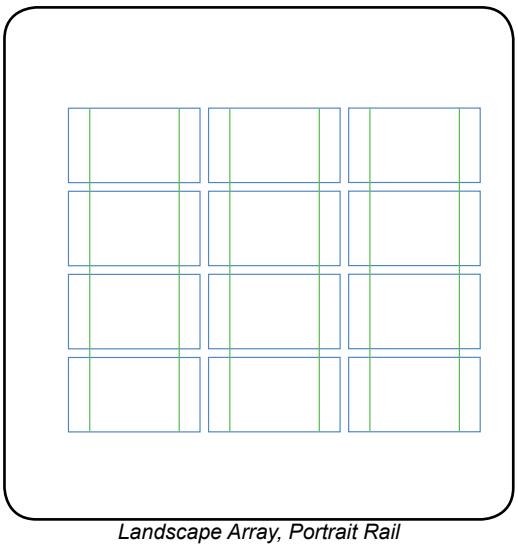

*Portrait Array, Portrait Rail*



*Portrait Array, Landscape Rail*



*Landscape Array, Landscape Rail*



*Landscape Array, Portrait Rail*

## EXAMPLE: HOW TO USE THE TABLES

A design layout dictates that 30 modules are to be installed on a car port, in three rows of ten modules. The modules are LSX 250 Series, all to be mounted on **LSX** Rail 1.1 in portrait orientation. The array itself will also be in portrait (see previous page for clarification). First, make sure the array will fit in the space provided, using the tables in Appendix A:

*Height of Array:* Go to **Array Height: Portrait Orientation**
For **3 Rows**, we see that the array height is 197 1/16".

*Width of Array:* Go to **Array Width: Portrait Orientation**
For **10 Modules per Row**, we see that the array width is 411 11/16"

Measure your space--will the array fit?

Next, determine what length of rail is needed. **LSX** Rail 1.1 is sold in modular lengths, not by the foot. For our example, we need rail that will hold 10 modules in portrait. Since **LSX** Rail 1.1 is available for 3-6 modules in portrait, we will need at least 2 pieces of rail and at least one splice to meet the required length. It is best to select rail sizes such that the number of splices is minimized.

In our example, we could achieve this length of rail by any of these combinations:

- (1) 6-Module Rail + (1) 4-Module Rail + (1) splice (combining the two rails)
- (2) 5-Module Rails + (1) splice (combining the two rails)
- (2) 3-Module Rails + (1) 4-Module Rail + (2) splices (combining the three rails)

The spacing between rails can be determined quickly and easily using the tables in Appendix B. There are quite a few different tables, and which one to use will depend on your particular installation. For this sample installation, let's assume we'll start at one end and work our way across the array.

Our system has three rows of modules in portrait – therefore we will have **6 rail lines.** Setting the first rail, Rail 1, as our reference, and using Datum B, we show the following locations for horizontal rail lines:

| | |
|---|---|
| Rail 1 | Reference Line |
| Rail 2 | 36 13/16" above Rail 1 |
| Rail 3 | 65 3/4" above Rail 1 |
| Rail 4 | 102 9/16" above Rail 1 |
| Rail 5 | 131 1/2" above Rail 1 |
| Rail 6 | 168 5/16" above Rail 1 |

**(See tables on the following pages)**

# Appendix A - Critical Dimensions Tables

**Array Height: Portrait Orientation**

| # Rows | Array Height (mm) | Array Height (in) |
|---|---|---|
| 1 | 1664 | 65 1/2 |
| 2 | 3334.35 | 131 1/4 |
| 3 | 5004.7 | 197 1/16 |
| 4 | 6675.05 | 262 13/16 |
| 5 | 8345.4 | 328 9/16 |
| 6 | 10015.75 | 394 5/16 |
| 7 | 11686.1 | 460 1/16 |
| 8 | 13356.45 | 525 7/8 |
| 9 | 15026.8 | 591 5/8 |
| 10 | 16697.15 | 657 3/8 |
| 11 | 18367.5 | 723 1/8 |
| 12 | 20037.85 | 788 7/8 |
| 13 | 21708.2 | 854 5/8 |
| 14 | 23378.55 | 920 7/16 |
| 15 | 25048.9 | 986 3/16 |
| 16 | 26719.25 | 1051 15/16 |
| 17 | 28389.6 | 1117 11/16 |
| 18 | 30059.95 | 1183 7/16 |
| 19 | 31730.3 | 1249 1/4 |
| 20 | 33400.65 | 1315 |
| 21 | 35071 | 1380 3/4 |
| 22 | 36741.35 | 1446 1/2 |
| 23 | 38411.7 | 1512 1/4 |
| 24 | 40082.05 | 1578 1/16 |
| 25 | 41752.4 | 1643 13/16 |
| 26 | 43422.75 | 1709 9/16 |
| 27 | 45093.1 | 1775 5/16 |
| 28 | 46763.45 | 1841 1/16 |
| 29 | 48433.8 | 1906 13/16 |
| 30 | 50104.15 | 1972 5/8 |
| 31 | 51774.5 | 2038 3/8 |
| 32 | 53444.85 | 2104 1/8 |
| 33 | 55115.2 | 2169 7/8 |
| 34 | 56785.55 | 2235 5/8 |
| 35 | 58455.9 | 2301 7/16 |
| 36 | 60126.25 | 2367 3/16 |
| 37 | 61796.6 | 2432 15/16 |
| 38 | 63466.95 | 2498 11/16 |
| 39 | 65137.3 | 2564 7/16 |
| 40 | 66807.65 | 2630 1/4 |

**Array Width: Portrait Orientation**

| # Columns | Array Width (mm) | Array Width (in) |
|---|---|---|
| 1 | 1040 | 40 15/16 |
| 2 | 2086.35 | 82 1/8 |
| 3 | 3132.7 | 123 5/16 |
| 4 | 4179.05 | 164 1/2 |
| 5 | 5225.4 | 205 3/4 |
| 6 | 6271.75 | 246 15/16 |
| 7 | 7318.1 | 288 1/8 |
| 8 | 8364.45 | 329 5/16 |
| 9 | 9410.8 | 370 1/2 |
| 10 | 10457.15 | 411 11/16 |
| 11 | 11503.5 | 452 7/8 |
| 12 | 12549.85 | 494 1/16 |
| 13 | 13596.2 | 535 5/16 |
| 14 | 14642.55 | 576 1/2 |
| 15 | 15688.9 | 617 11/16 |
| 16 | 16735.25 | 658 7/8 |
| 17 | 17781.6 | 700 1/16 |
| 18 | 18827.95 | 741 1/4 |
| 19 | 19874.3 | 782 7/16 |
| 20 | 20920.65 | 823 5/8 |
| 21 | 21967 | 864 13/16 |
| 22 | 23013.35 | 906 1/16 |
| 23 | 24059.7 | 947 1/4 |
| 24 | 25106.05 | 988 7/16 |
| 25 | 26152.4 | 1029 5/8 |
| 26 | 27198.75 | 1070 13/16 |
| 27 | 28245.1 | 1112 |
| 28 | 29291.45 | 1153 3/16 |
| 29 | 30337.8 | 1194 3/8 |
| 30 | 31384.15 | 1235 5/8 |
| 31 | 32430.5 | 1276 13/16 |
| 32 | 33476.85 | 1318 |
| 33 | 34523.2 | 1359 3/16 |
| 34 | 35569.55 | 1400 3/8 |
| 35 | 36615.9 | 1441 9/16 |
| 36 | 37662.25 | 1482 3/4 |
| 37 | 38708.6 | 1523 15/16 |
| 38 | 39754.95 | 1565 1/8 |
| 39 | 40801.3 | 1606 3/8 |
| 40 | 41847.65 | 1647 9/16 |

**Array Height: Landscape Orientation**

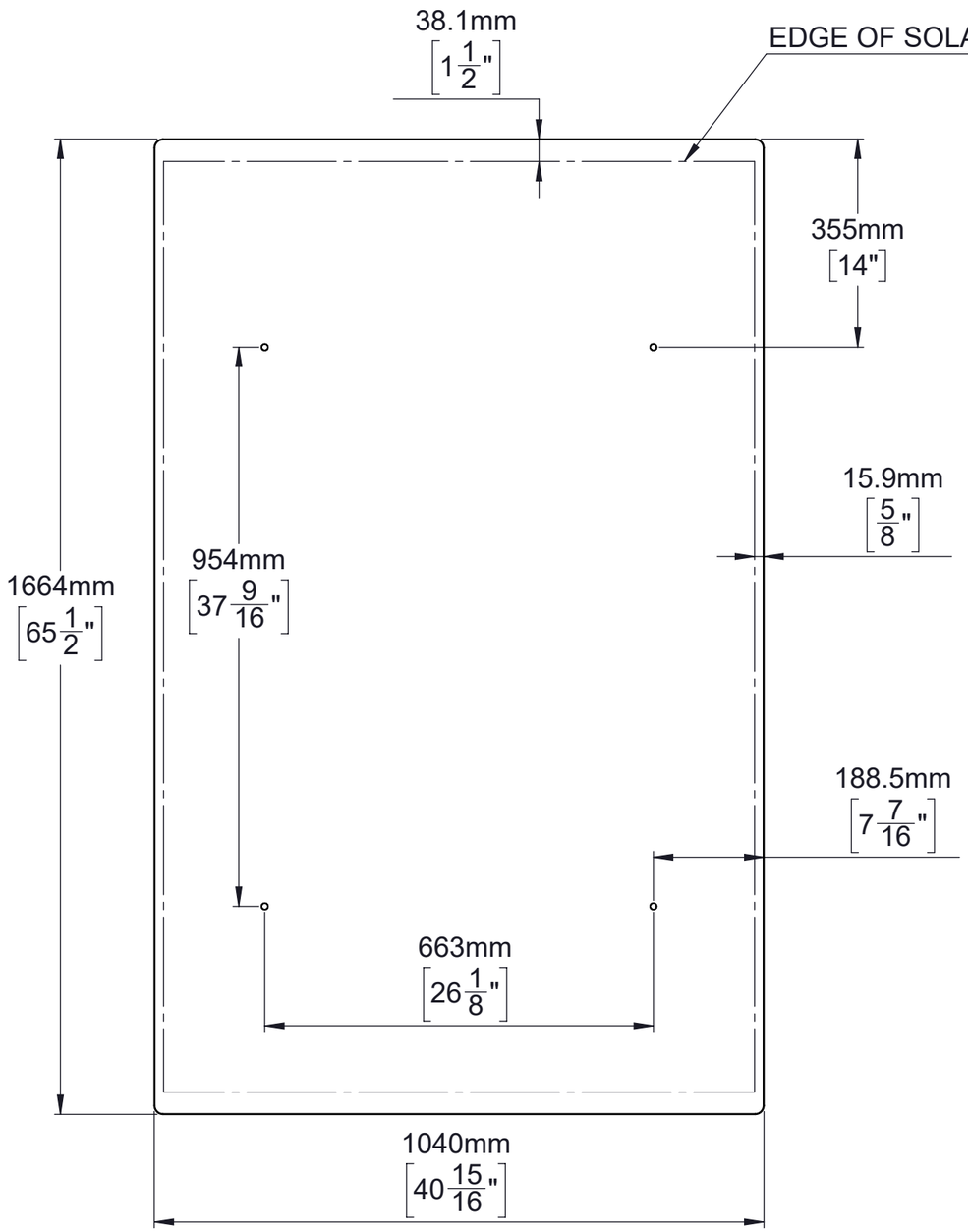
| # Rows | Array Height (mm) | Array Height (in) |
|---|---|---|
| 1 | 1040 | 40 15/16 |
| 2 | 2086.35 | 82 1/8 |
| 3 | 3132.7 | 123 5/16 |
| 4 | 4179.05 | 164 1/2 |
| 5 | 5225.4 | 205 3/4 |
| 6 | 6271.75 | 246 15/16 |
| 7 | 7318.1 | 288 1/8 |
| 8 | 8364.45 | 329 5/16 |
| 9 | 9410.8 | 370 1/2 |
| 10 | 10457.15 | 411 11/16 |
| 11 | 11503.5 | 452 7/8 |
| 12 | 12549.85 | 494 1/16 |
| 13 | 13596.2 | 535 5/16 |
| 14 | 14642.55 | 576 1/2 |
| 15 | 15688.9 | 617 11/16 |
| 16 | 16735.25 | 658 7/8 |
| 17 | 17781.6 | 700 1/16 |
| 18 | 18827.95 | 741 1/4 |
| 19 | 19874.3 | 782 7/16 |
| 20 | 20920.65 | 823 5/8 |
| 21 | 21967 | 864 13/16 |
| 22 | 23013.35 | 906 1/16 |
| 23 | 24059.7 | 947 1/4 |
| 24 | 25106.05 | 988 7/16 |
| 25 | 26152.4 | 1029 5/8 |
| 26 | 27198.75 | 1070 13/16 |
| 27 | 28245.1 | 1112 |
| 28 | 29291.45 | 1153 3/16 |
| 29 | 30337.8 | 1194 3/8 |
| 30 | 31384.15 | 1235 5/8 |
| 31 | 32430.5 | 1276 13/16 |
| 32 | 33476.85 | 1318 |
| 33 | 34523.2 | 1359 3/16 |
| 34 | 35569.55 | 1400 3/8 |
| 35 | 36615.9 | 1441 9/16 |
| 36 | 37662.25 | 1482 3/4 |
| 37 | 38708.6 | 1523 15/16 |
| 38 | 39754.95 | 1565 1/8 |
| 39 | 40801.3 | 1606 3/8 |
| 40 | 41847.65 | 1647 9/16 |

**Array Width: Landscape Orientation**

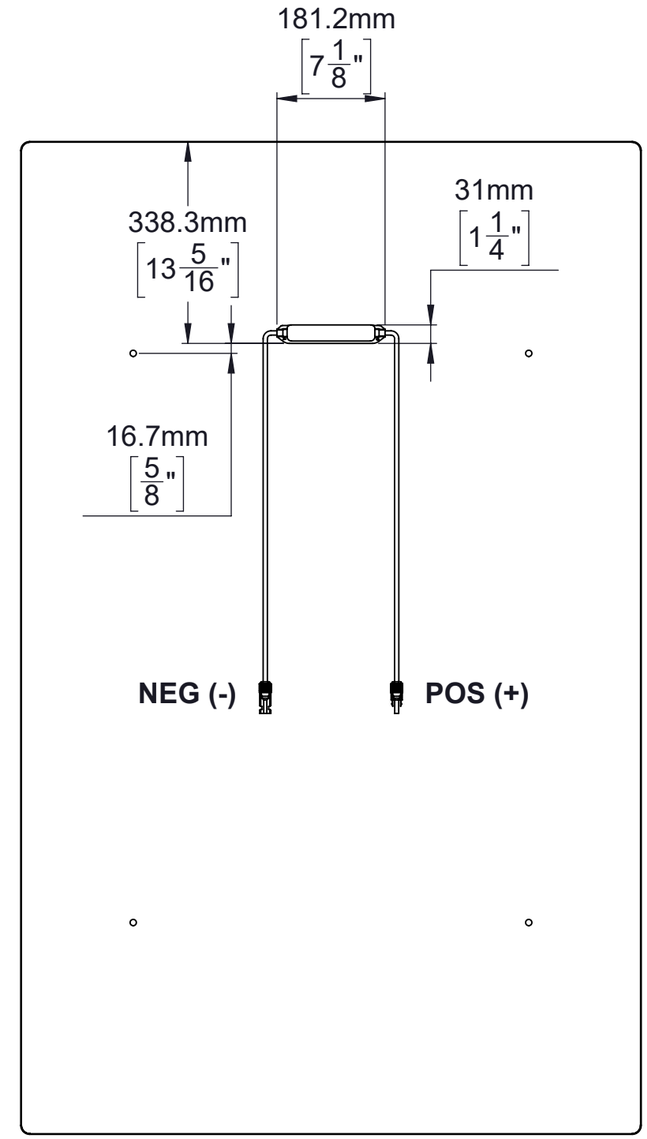
| # Columns | Array Width (mm) | Array Width (in) |
|---|---|---|
| 1 | 1664 | 65 1/2 |
| 2 | 3334.35 | 131 1/4 |
| 3 | 5004.7 | 197 1/16 |
| 4 | 6675.05 | 262 13/16 |
| 5 | 8345.4 | 328 9/16 |
| 6 | 10015.75 | 394 5/16 |
| 7 | 11686.1 | 460 1/16 |
| 8 | 13356.45 | 525 7/8 |
| 9 | 15026.8 | 591 5/8 |
| 10 | 16697.15 | 657 3/8 |
| 11 | 18367.5 | 723 1/8 |
| 12 | 20037.85 | 788 7/8 |
| 13 | 21708.2 | 854 5/8 |
| 14 | 23378.55 | 920 7/16 |
| 15 | 25048.9 | 986 3/16 |
| 16 | 26719.25 | 1051 15/16 |
| 17 | 28389.6 | 1117 11/16 |
| 18 | 30059.95 | 1183 7/16 |
| 19 | 31730.3 | 1249 1/4 |
| 20 | 33400.65 | 1315 |
| 21 | 35071 | 1380 3/4 |
| 22 | 36741.35 | 1446 1/2 |
| 23 | 38411.7 | 1512 1/4 |
| 24 | 40082.05 | 1578 1/16 |
| 25 | 41752.4 | 1643 13/16 |
| 26 | 43422.75 | 1709 9/16 |
| 27 | 45093.1 | 1775 5/16 |
| 28 | 46763.45 | 1841 1/16 |
| 29 | 48433.8 | 1906 13/16 |
| 30 | 50104.15 | 1972 5/8 |
| 31 | 51774.5 | 2038 3/8 |
| 32 | 53444.85 | 2104 1/8 |
| 33 | 55115.2 | 2169 7/8 |
| 34 | 56785.55 | 2235 5/8 |
| 35 | 58455.9 | 2301 7/16 |
| 36 | 60126.25 | 2367 3/16 |
| 37 | 61796.6 | 2432 15/16 |
| 38 | 63466.95 | 2498 11/16 |
| 39 | 65137.3 | 2564 7/16 |
| 40 | 66807.65 | 2630 1/4 |

# Appendix B - Critical Dimensions Drawings

# LSX MODULE DIMENSIONS








[Indicates reference dimension]

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DRAWING TITLE
CRITICAL DIMS FOR GEN 3 LSX MODULES



PROJECT NUMBER
XXX

DRAWN BY
Brian Rafferty

DATE
2/8/2017

ORIGINAL SIZE
11"X17"

SHEET SIZE
ANSI_B

SCALE
NTS

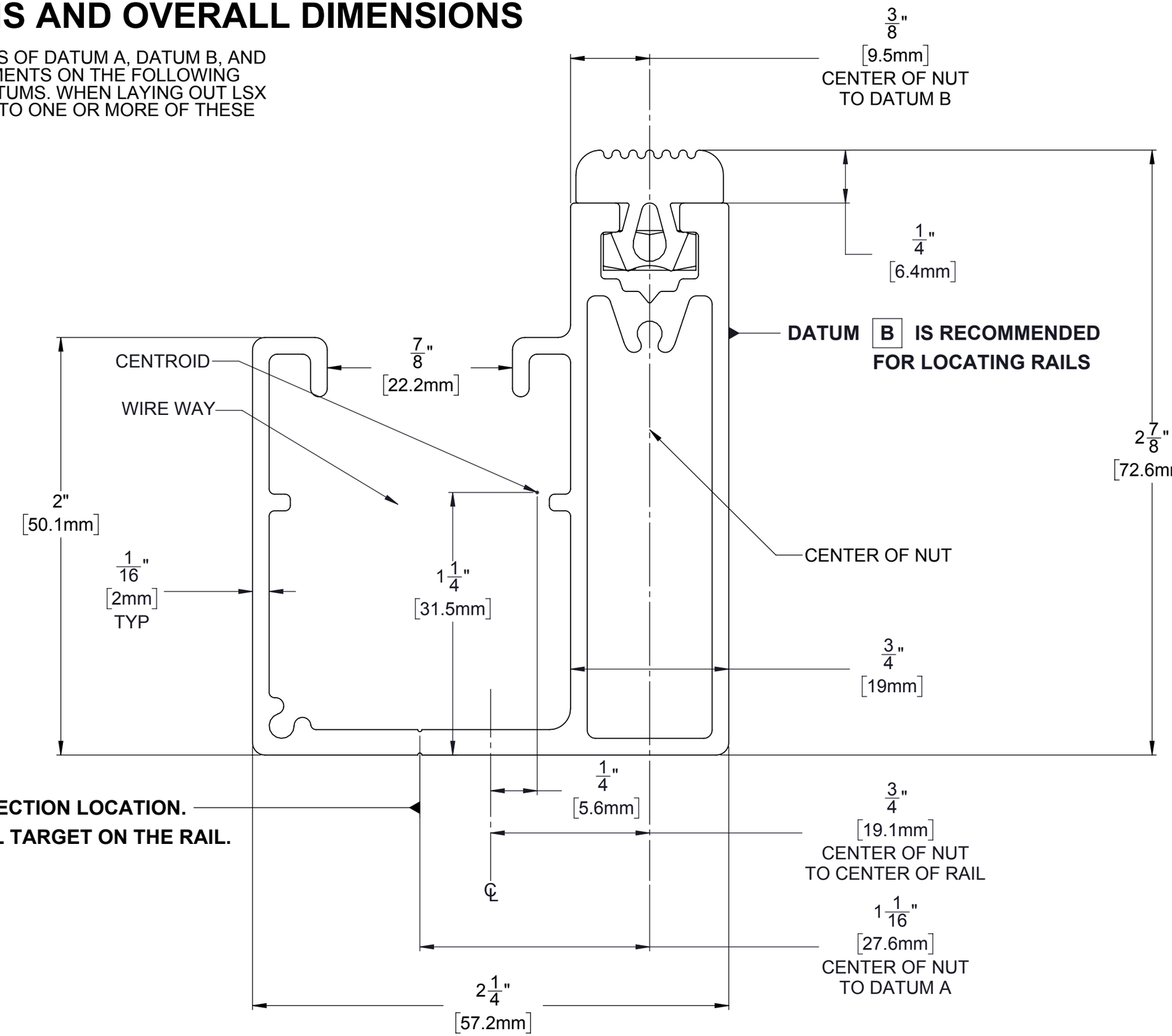
SHEET NUMBER
1

# LSX RAIL 1.1 DATUMS AND OVERALL DIMENSIONS

THIS DRAWING SHOWS THE LOCATIONS OF DATUM A, DATUM B, AND THE RAIL CENTERLINE. ALL MEASUREMENTS ON THE FOLLOWING PAGES REFER TO ONE OF THESE 3 DATUMS. WHEN LAYING OUT LSX RAIL 1.1, YOU WILL ALWAYS MEASURE TO ONE OR MORE OF THESE LOCATIONS ON THE RAIL.

RAIL PROPERTIES:

AREA: 0.99 IN^2
IX: 0.48 IN^4
IY: 0.89 IN^4
WEIGHT: 1.22 LB/FT (ASSEMBLED)




**DATUM A IS A COMMON CONNECTION LOCATION. IT IS MARKED BY A DRILL TARGET ON THE RAIL.**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DRAWING TITLE
CRICITAL DIMS FOR GEN 3 LSX250 MODULES ON LSX RAIL 1.1

FILE NAME 20150523_Rev003_LSX Critical Dimensions with LSX Rail 1.1 (Gen 3 mods)



DRAWN BY
KY

APPROVED BY
N/A

DATE
5/23/2016

ORIGINAL SIZE
11"X17"

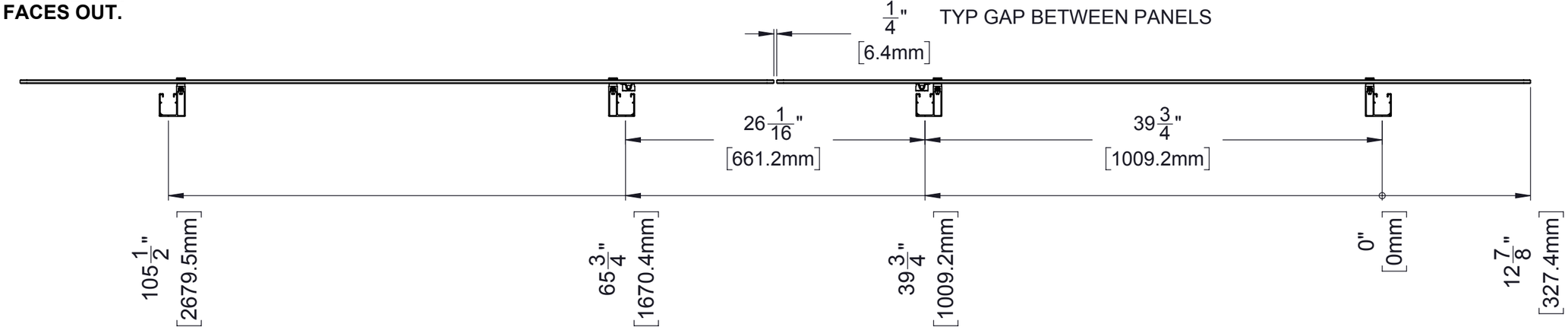
SHEET SIZE
ANSI_B

SCALE
AS NOTED

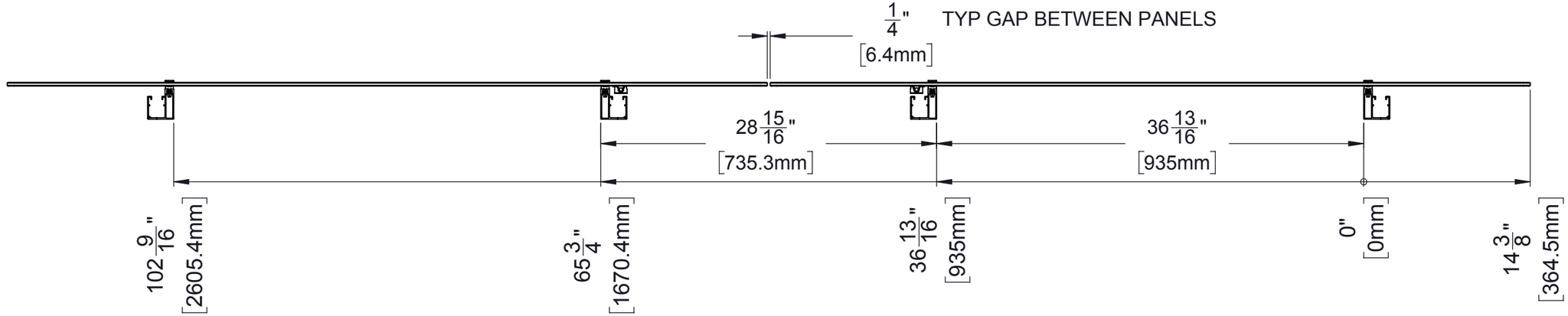
SHEET/DRAWING NUMBER
2

**NOTE:**
**RAIL POSITION ALTERNATES SUCH THAT WIREWAY ALWAYS FACES OUT.**

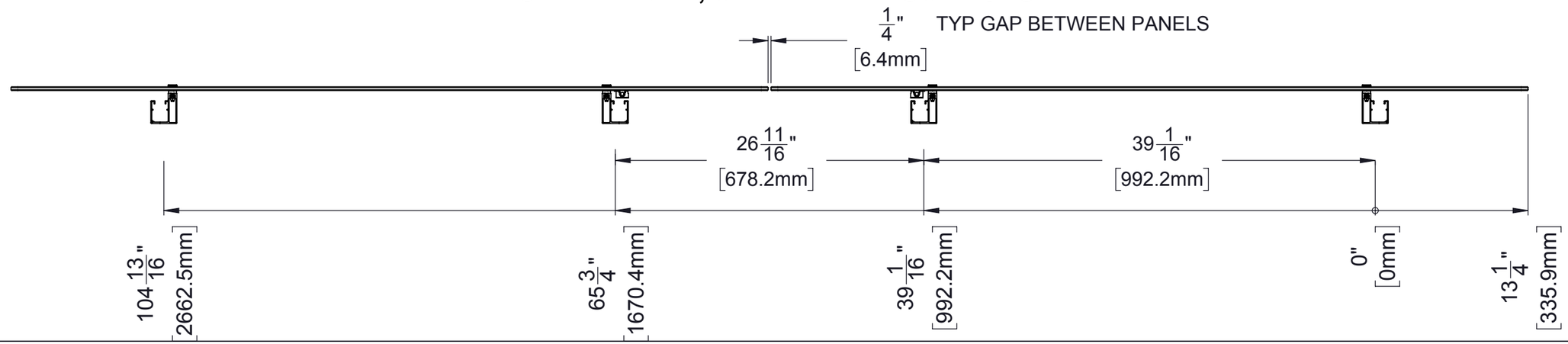
## PORTRAIT RAIL, DATUM A LOCATIONS




## PORTRAIT RAIL, DATUM B LOCATIONS




## PORTRAIT RAIL, CENTERLINE LOCATIONS





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DRAWING TITLE
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FILE NAME 20150523_Rev003_LSX Critical Dimensions with LSX Rail 1.1 (Gen 3 mods)



DRAWN BY
KY

APPROVED BY
N/A

DATE
5/23/2016

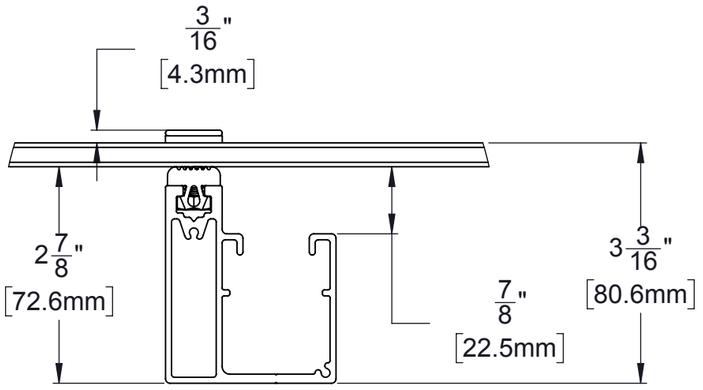
ORIGINAL SIZE
11"X17"

SHEET SIZE
ANSI_B

SCALE
AS NOTED

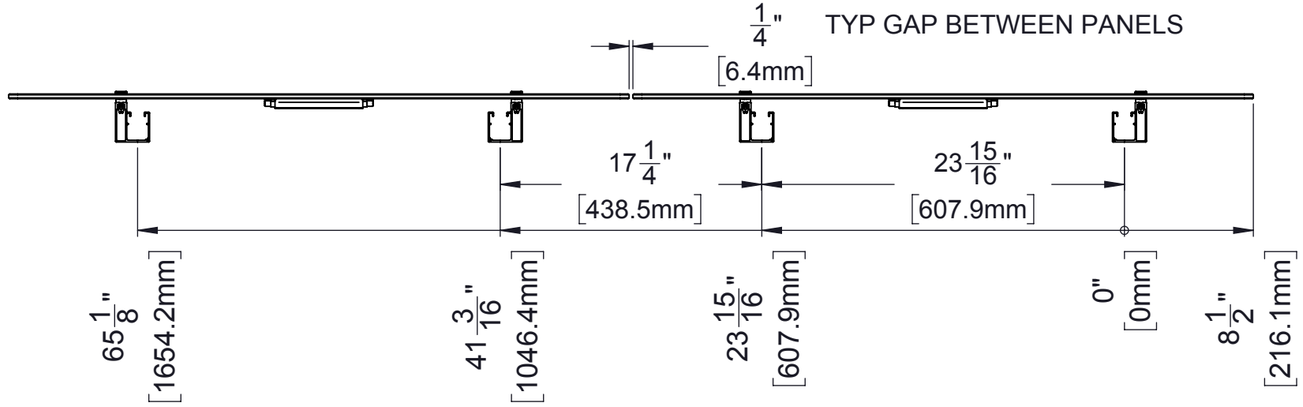
SHEET/DRAWING NUMBER
3

**NOTE:**
**RAIL POSITION ALTERNATES SUCH THAT WIREWAY ALWAYS FACES OUT.**

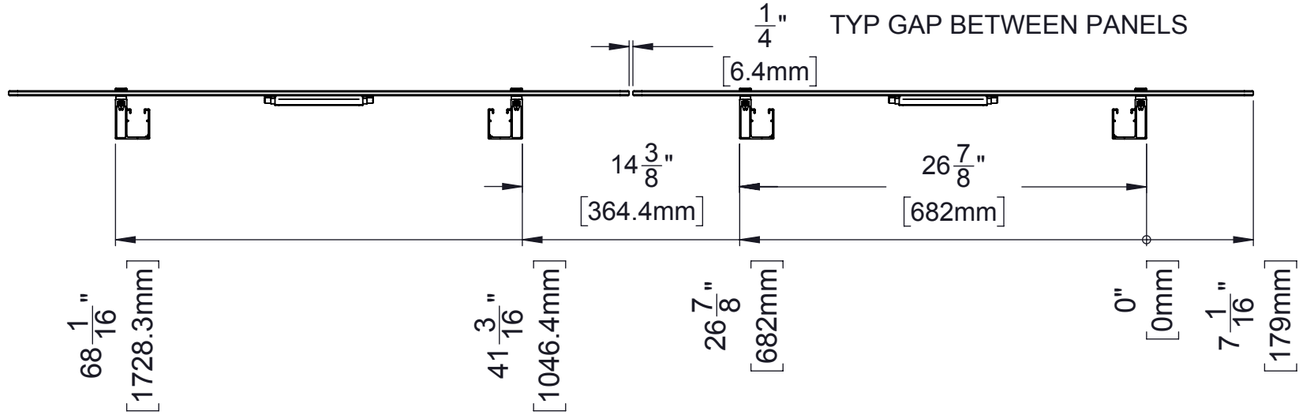



DETAIL A
SCALE 1 : 2

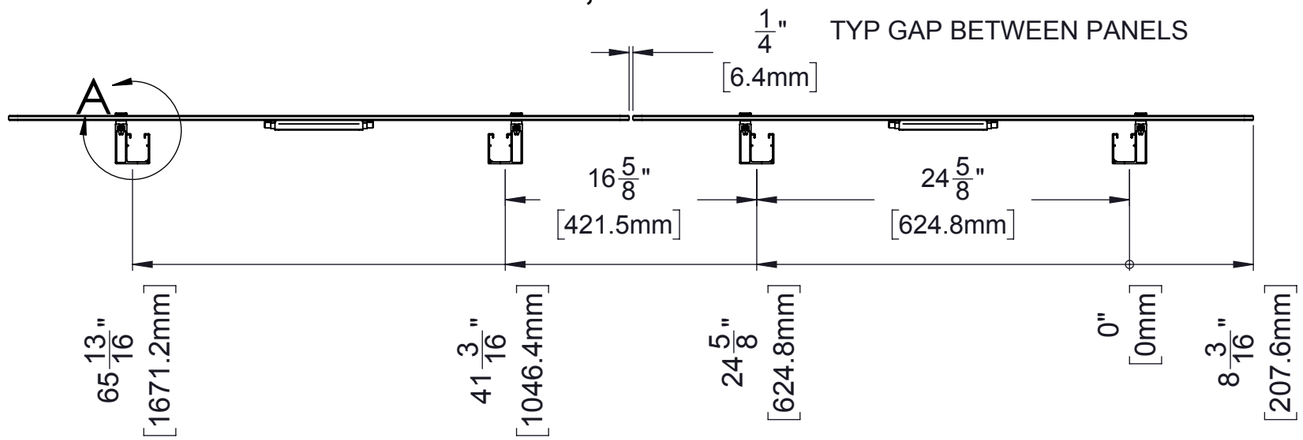
## LANDSCAPE RAIL, DATUM A LOCATIONS




## LANDSCAPE RAIL, DATUM B LOCATIONS




## LANDSCAPE RAIL, CENTERLINE LOCATIONS

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DRAWING TITLE
CRICITAL DIMS FOR GEN 3 LSX250 MODULES ON LSX RAIL 1.1

FILE NAME 20150523_Rev003_LSX Critical Dimensions with LSX Rail 1.1 (Gen 3 mods)



DRAWN BY
KY

APPROVED BY
N/A

DATE
5/23/2016

ORIGINAL SIZE
11"x17"

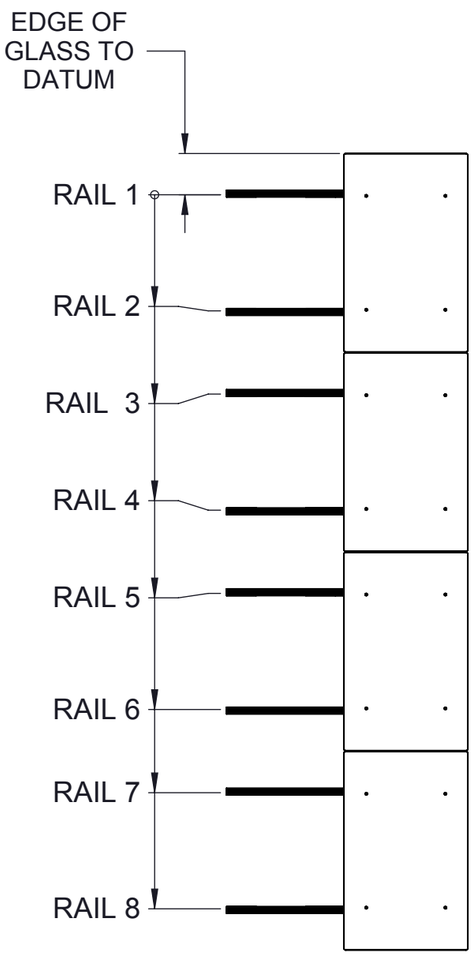
SHEET SIZE
ANSI_B

SCALE
AS NOTED

SHEET/DRAWING NUMBER
4

## PORTRAIT RAIL LOCATION TABLES

USE THESE TABLES IF YOU ARE LAYING OUT RAILS FROM ONE END OF THE ARRAY. (IF YOU ARE MEASURING FROM THE CENTER OUT, USE THE "CENTER OUT" TABLES.)




**Portrait End to End Tables (in)**

| Rail # | Datum A | Datum B | Rail CL |
|---|---|---|---|
| Edge of Glass | -12 7/8 | -14 3/8 | -13 1/4 |
| 1 | 0 | 0 | 0 |
| 2 | 39 3/4 | 36 13/16 | 39 1/16 |
| 3 | 65 3/4 | 65 3/4 | 65 3/4 |
| 4 | 105 1/2 | 102 9/16 | 104 13/16 |
| 5 | 131 1/2 | 131 1/2 | 131 1/2 |
| 6 | 171 1/4 | 168 5/16 | 170 9/16 |
| 7 | 197 5/16 | 197 5/16 | 197 5/16 |
| 8 | 237 | 234 1/8 | 236 3/8 |
| 9 | 263 1/16 | 263 1/16 | 263 1/16 |
| 10 | 302 3/4 | 299 7/8 | 302 1/8 |
| 11 | 328 13/16 | 328 13/16 | 328 13/16 |
| 12 | 368 9/16 | 365 5/8 | 367 7/8 |
| 13 | 394 9/16 | 394 9/16 | 394 9/16 |
| 14 | 434 5/16 | 431 3/8 | 433 5/8 |
| 15 | 460 5/16 | 460 5/16 | 460 5/16 |
| 16 | 500 1/16 | 497 1/8 | 499 3/8 |
| 17 | 526 1/8 | 526 1/8 | 526 1/8 |
| 18 | 565 13/16 | 562 7/8 | 565 1/8 |
| 19 | 591 7/8 | 591 7/8 | 591 7/8 |
| 20 | 631 9/16 | 628 11/16 | 630 15/16 |
| 21 | 657 5/8 | 657 5/8 | 657 5/8 |
| 22 | 697 3/8 | 694 7/16 | 696 11/16 |
| 23 | 723 3/8 | 723 3/8 | 723 3/8 |
| 24 | 763 1/8 | 760 3/16 | 762 7/16 |
| 25 | 789 1/8 | 789 1/8 | 789 1/8 |
| 26 | 828 7/8 | 825 15/16 | 828 3/16 |
| 27 | 854 7/8 | 854 7/8 | 854 7/8 |
| 28 | 894 5/8 | 891 11/16 | 893 15/16 |
| 29 | 920 11/16 | 920 11/16 | 920 11/16 |
| 30 | 960 3/8 | 957 1/2 | 959 3/4 |
| 31 | 986 7/16 | 986 7/16 | 986 7/16 |
| 32 | 1026 3/16 | 1023 1/4 | 1025 1/2 |
| 33 | 1052 3/16 | 1052 3/16 | 1052 3/16 |
| 34 | 1091 15/16 | 1089 | 1091 1/4 |
| 35 | 1117 15/16 | 1117 15/16 | 1117 15/16 |
| 36 | 1157 11/16 | 1154 3/4 | 1157 |
| 37 | 1183 11/16 | 1183 11/16 | 1183 11/16 |
| 38 | 1223 7/16 | 1220 1/2 | 1222 3/4 |
| 39 | 1249 1/2 | 1249 1/2 | 1249 1/2 |
| 40 | 1289 3/16 | 1286 5/16 | 1288 9/16 |
| 41 | 1315 1/4 | 1315 1/4 | 1315 1/4 |
| 42 | 1354 15/16 | 1352 1/16 | 1354 5/16 |
| 43 | 1381 | 1381 | 1381 |
| 44 | 1420 3/4 | 1417 13/16 | 1420 1/16 |
| 45 | 1446 3/4 | 1446 3/4 | 1446 3/4 |
| 46 | 1486 1/2 | 1483 9/16 | 1485 13/16 |
| 47 | 1512 1/2 | 1512 1/2 | 1512 1/2 |
| 48 | 1552 1/4 | 1549 5/16 | 1551 9/16 |
| 49 | 1578 5/16 | 1578 5/16 | 1578 5/16 |
| 50 | 1618 | 1615 1/8 | 1617 3/8 |

**Portrait End to End Tables (mm)**

| Rail # | Datum A | Datum B | Rail CL |
|---|---|---|---|
| Edge of Glass | -327.4 | -364.5 | -335.9 |
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 1009.2 | 935.0 | 992.2 |
| 3 | 1670.4 | 1670.4 | 1670.4 |
| 4 | 2679.5 | 2605.4 | 2662.5 |
| 5 | 3340.7 | 3340.7 | 3340.7 |
| 6 | 4349.9 | 4275.7 | 4332.9 |
| 7 | 5011.1 | 5011.1 | 5011.1 |
| 8 | 6020.2 | 5946.1 | 6003.2 |
| 9 | 6681.4 | 6681.4 | 6681.4 |
| 10 | 7690.6 | 7616.4 | 7673.6 |
| 11 | 8351.8 | 8351.8 | 8351.8 |
| 12 | 9360.9 | 9286.8 | 9343.9 |
| 13 | 10022.1 | 10022.1 | 10022.1 |
| 14 | 11031.3 | 10957.1 | 11014.3 |
| 15 | 11692.5 | 11692.5 | 11692.5 |
| 16 | 12701.6 | 12627.5 | 12684.6 |
| 17 | 13362.8 | 13362.8 | 13362.8 |
| 18 | 14372.0 | 14297.8 | 14355.0 |
| 19 | 15033.2 | 15033.2 | 15033.2 |
| 20 | 16042.3 | 15968.2 | 16025.3 |
| 21 | 16703.5 | 16703.5 | 16703.5 |
| 22 | 17712.7 | 17638.5 | 17695.7 |
| 23 | 18373.9 | 18373.9 | 18373.9 |
| 24 | 19383.0 | 19308.9 | 19366.0 |
| 25 | 20044.2 | 20044.2 | 20044.2 |
| 26 | 21053.4 | 20979.2 | 21036.4 |
| 27 | 21714.6 | 21714.6 | 21714.6 |
| 28 | 22723.7 | 22649.6 | 22706.7 |
| 29 | 23384.9 | 23384.9 | 23384.9 |
| 30 | 24394.1 | 24319.9 | 24377.1 |
| 31 | 25055.3 | 25055.3 | 25055.3 |
| 32 | 26064.4 | 25990.3 | 26047.4 |
| 33 | 26725.6 | 26725.6 | 26725.6 |
| 34 | 27734.8 | 27660.6 | 27717.8 |
| 35 | 28396.0 | 28396.0 | 28396.0 |
| 36 | 29405.1 | 29331.0 | 29388.1 |
| 37 | 30066.3 | 30066.3 | 30066.3 |
| 38 | 31075.5 | 31001.3 | 31058.5 |
| 39 | 31736.7 | 31736.7 | 31736.7 |
| 40 | 32745.8 | 32671.7 | 32728.8 |
| 41 | 33407.0 | 33407.0 | 33407.0 |
| 42 | 34416.2 | 34342.0 | 34399.2 |
| 43 | 35077.4 | 35077.4 | 35077.4 |
| 44 | 36086.5 | 36012.4 | 36069.5 |
| 45 | 36747.7 | 36747.7 | 36747.7 |
| 46 | 37756.9 | 37682.7 | 37739.9 |
| 47 | 38418.1 | 38418.1 | 38418.1 |
| 48 | 39427.2 | 39353.1 | 39410.2 |
| 49 | 40088.4 | 40088.4 | 40088.4 |
| 50 | 41097.6 | 41023.4 | 41080.6 |

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DRAWING TITLE
CRICITAL DIMS FOR GEN 3 LSX250 MODULES ON LSX RAIL 1.1

FILE NAME 20150523_Rev003_LSX Critical Dimensions with LSX Rail 1.1 (Gen 3 mods)



DRAWN BY
KY

APPROVED BY
N/A

DATE
5/23/2016

ORIGINAL SIZE
11"x17"

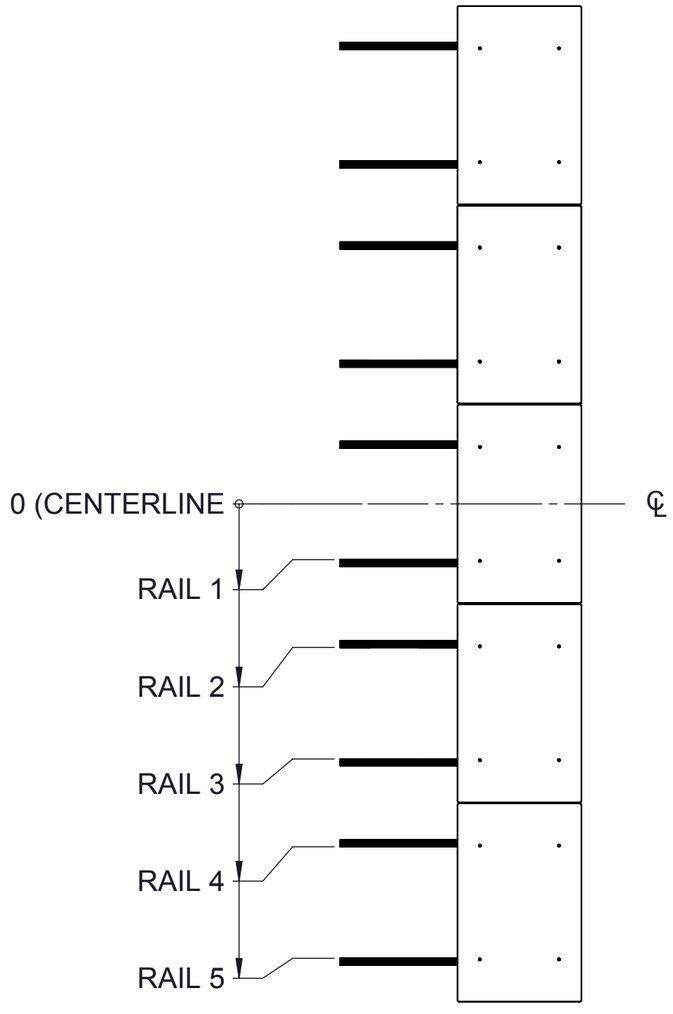
SHEET SIZE
ANSI_B

SCALE
AS NOTED

SHEET/DRAWING NUMBER
5

## PORTRAIT CENTER OUT RAIL LOCATION TABLES

USE THESE TABLES IF YOU ARE INSTALLING RAILS FROM THE CENTER OF THE ARRAY OUT.




USE THESE TABLES IF THE CENTER LIES ON A MODULE (# OF COLUMNS IS ODD)

**Portrait Center Out Tabels (in)**

| *Rail #* | *Datum A* | *Datum B* | *Rail CL* |
|---|---|---|---|
| Centerline | 0 | 0 | 0 |
| 1 | 19 7/8 | 18 3/8 | 19 1/2 |
| 2 | 45 7/8 | 47 3/8 | 46 1/4 |
| 3 | 85 5/8 | 84 3/16 | 85 5/16 |
| 4 | 111 11/16 | 113 1/8 | 112 |
| 5 | 151 3/8 | 149 15/16 | 151 1/16 |
| 6 | 177 7/16 | 178 7/8 | 177 3/4 |
| 7 | 217 1/8 | 215 11/16 | 216 13/16 |
| 8 | 243 3/16 | 244 5/8 | 243 1/2 |
| 9 | 282 15/16 | 281 7/16 | 282 9/16 |
| 10 | 308 15/16 | 310 3/8 | 309 1/4 |
| 11 | 348 11/16 | 347 3/16 | 348 5/16 |
| 12 | 374 11/16 | 376 3/16 | 375 1/16 |
| 13 | 414 7/16 | 413 | 414 1/8 |
| 14 | 440 7/16 | 441 15/16 | 440 13/16 |
| 15 | 480 3/16 | 478 3/4 | 479 7/8 |
| 16 | 506 1/4 | 507 11/16 | 506 9/16 |
| 17 | 545 15/16 | 544 1/2 | 545 5/8 |
| 18 | 572 | 573 7/16 | 572 5/16 |
| 19 | 611 3/4 | 610 1/4 | 611 3/8 |
| 20 | 637 3/4 | 639 3/16 | 638 1/16 |
| 21 | 677 1/2 | 676 | 677 1/8 |
| 22 | 703 1/2 | 705 | 703 7/8 |
| 23 | 743 1/4 | 741 13/16 | 742 15/16 |
| 24 | 769 1/4 | 770 3/4 | 769 5/8 |
| 25 | 809 | 807 9/16 | 808 11/16 |
| 26 | 835 1/16 | 836 1/2 | 835 3/8 |
| 27 | 874 3/4 | 873 5/16 | 874 7/16 |
| 28 | 900 13/16 | 902 1/4 | 901 1/8 |
| 29 | 940 1/2 | 939 1/16 | 940 3/16 |
| 30 | 966 9/16 | 968 | 966 7/8 |
| 31 | 1006 5/16 | 1004 13/16 | 1005 15/16 |
| 32 | 1032 5/16 | 1033 13/16 | 1032 11/16 |
| 33 | 1072 1/16 | 1070 5/8 | 1071 3/4 |
| 34 | 1098 1/16 | 1099 9/16 | 1098 7/16 |
| 35 | 1137 13/16 | 1136 3/8 | 1137 1/2 |
| 36 | 1163 7/8 | 1165 5/16 | 1164 3/16 |
| 37 | 1203 9/16 | 1202 1/8 | 1203 1/4 |
| 38 | 1229 5/8 | 1231 1/16 | 1229 15/16 |
| 39 | 1269 5/16 | 1267 7/8 | 1269 |
| 40 | 1295 3/8 | 1296 13/16 | 1295 11/16 |
| 41 | 1335 1/8 | 1333 5/8 | 1334 3/4 |
| 42 | 1361 1/8 | 1362 9/16 | 1361 7/16 |
| 43 | 1400 7/8 | 1399 3/8 | 1400 1/2 |
| 44 | 1426 7/8 | 1428 3/8 | 1427 1/4 |
| 45 | 1466 5/8 | 1465 3/16 | 1466 5/16 |
| 46 | 1492 11/16 | 1494 1/8 | 1493 |
| 47 | 1532 3/8 | 1530 15/16 | 1532 1/16 |
| 48 | 1558 7/16 | 1559 7/8 | 1558 3/4 |
| 49 | 1598 1/8 | 1596 11/16 | 1597 13/16 |

**Portrait Center Out Tabels (mm)**

| *Rail #* | *Datum A* | *Datum B* | *Rail CL* |
|---|---|---|---|
| Centerline | 0.0 | 0.0 | 0.0 |
| 1 | 504.6 | 467.5 | 496.1 |
| 2 | 1165.8 | 1202.8 | 1174.3 |
| 3 | 2174.9 | 2137.9 | 2166.4 |
| 4 | 2836.1 | 2873.2 | 2844.6 |
| 5 | 3845.3 | 3808.2 | 3836.8 |
| 6 | 4506.5 | 4543.5 | 4515.0 |
| 7 | 5515.6 | 5478.6 | 5507.1 |
| 8 | 6176.8 | 6213.9 | 6185.3 |
| 9 | 7186.0 | 7148.9 | 7177.5 |
| 10 | 7847.2 | 7884.2 | 7855.7 |
| 11 | 8856.3 | 8819.3 | 8847.8 |
| 12 | 9517.5 | 9554.6 | 9526.0 |
| 13 | 10526.7 | 10489.6 | 10518.2 |
| 14 | 11187.9 | 11224.9 | 11196.4 |
| 15 | 12197.0 | 12160.0 | 12188.5 |
| 16 | 12858.2 | 12895.3 | 12866.7 |
| 17 | 13867.4 | 13830.3 | 13858.9 |
| 18 | 14528.6 | 14565.6 | 14537.1 |
| 19 | 15537.7 | 15500.7 | 15529.2 |
| 20 | 16198.9 | 16236.0 | 16207.4 |
| 21 | 17208.1 | 17171.0 | 17199.6 |
| 22 | 17869.3 | 17906.3 | 17877.8 |
| 23 | 18878.4 | 18841.4 | 18869.9 |
| 24 | 19539.6 | 19576.7 | 19548.1 |
| 25 | 20548.8 | 20511.7 | 20540.3 |
| 26 | 21210.0 | 21247.0 | 21218.5 |
| 27 | 22219.1 | 22182.1 | 22210.6 |
| 28 | 22880.3 | 22917.4 | 22888.8 |
| 29 | 23889.5 | 23852.4 | 23881.0 |
| 30 | 24550.7 | 24587.7 | 24559.2 |
| 31 | 25559.8 | 25522.8 | 25551.3 |
| 32 | 26221.0 | 26258.1 | 26229.5 |
| 33 | 27230.2 | 27193.1 | 27221.7 |
| 34 | 27891.4 | 27928.4 | 27899.9 |
| 35 | 28900.5 | 28863.5 | 28892.0 |
| 36 | 29561.7 | 29598.8 | 29570.2 |
| 37 | 30570.9 | 30533.8 | 30562.4 |
| 38 | 31232.1 | 31269.1 | 31240.6 |
| 39 | 32241.2 | 32204.2 | 32232.7 |
| 40 | 32902.4 | 32939.5 | 32910.9 |
| 41 | 33911.6 | 33874.5 | 33903.1 |
| 42 | 34572.8 | 34609.8 | 34581.3 |
| 43 | 35581.9 | 35544.9 | 35573.4 |
| 44 | 36243.1 | 36280.2 | 36251.6 |
| 45 | 37252.3 | 37215.2 | 37243.8 |
| 46 | 37913.5 | 37950.5 | 37922.0 |
| 47 | 38922.6 | 38885.6 | 38914.1 |
| 48 | 39583.8 | 39620.9 | 39592.3 |
| 49 | 40593.0 | 40555.9 | 40584.5 |

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DRAWING TITLE
CRICITAL DIMS FOR GEN 3 LSX250 MODULES ON LSX RAIL 1.1

FILE NAME: 20150523_Rev003_LSX Critical Dimensions with LSX Rail 1.1 (Gen 3 mods)



DRAWN BY
KY

APPROVED BY
N/A

DATE
5/23/2016

ORIGINAL SIZE
11"x17"

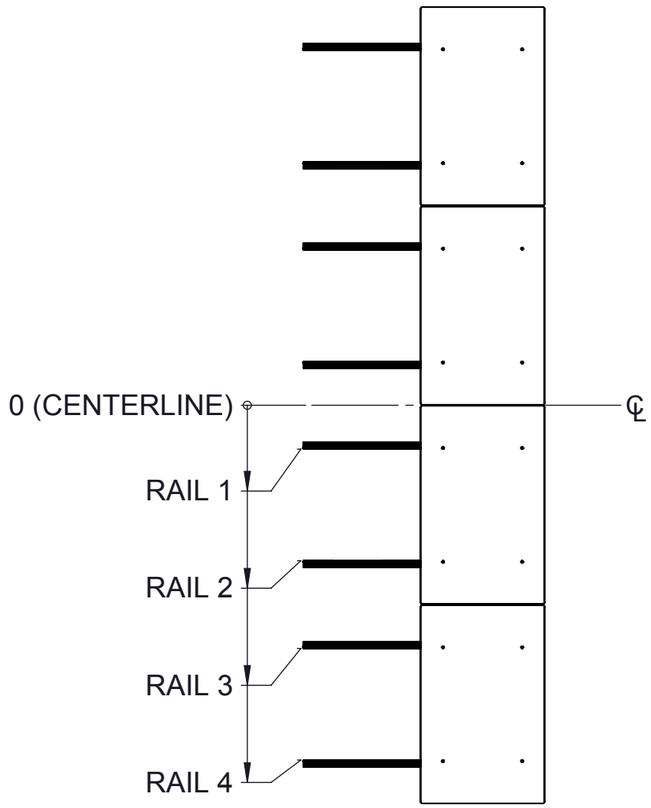
SHEET SIZE
ANSI_B

SCALE
AS NOTED

SHEET/DRAWING NUMBER
6

## PORTRAIT CENTER OUT RAIL LOCATION TABLES

USE THESE TABLES IF YOU ARE INSTALLING RAILS FROM THE CENTER OF THE ARRAY OUT.




USE THESE TABLES IF THE CENTER LIES BETWEEN MODULES (# OF COLUMNS IS EVEN)

**Portrait Center Out Tabels (in)**

| Rail # | Datum A | Datum B | Rail CL |
|---|---|---|---|
| Centerline | 0 | 0 | 0 |
| 1 | 13 | 14 1/2 | 13 3/8 |
| 2 | 52 3/4 | 51 5/16 | 52 7/16 |
| 3 | 78 3/4 | 80 1/4 | 79 1/8 |
| 4 | 118 1/2 | 117 1/16 | 118 3/16 |
| 5 | 144 9/16 | 146 | 144 7/8 |
| 6 | 184 1/4 | 182 13/16 | 183 15/16 |
| 7 | 210 5/16 | 211 3/4 | 210 5/8 |
| 8 | 250 1/16 | 248 9/16 | 249 11/16 |
| 9 | 276 1/16 | 277 1/2 | 276 3/8 |
| 10 | 315 13/16 | 314 5/16 | 315 7/16 |
| 11 | 341 13/16 | 343 5/16 | 342 3/16 |
| 12 | 381 9/16 | 380 1/8 | 381 1/4 |
| 13 | 407 9/16 | 409 1/16 | 407 15/16 |
| 14 | 447 5/16 | 445 7/8 | 447 |
| 15 | 473 3/8 | 474 13/16 | 473 11/16 |
| 16 | 513 1/16 | 511 5/8 | 512 3/4 |
| 17 | 539 1/8 | 540 9/16 | 539 7/16 |
| 18 | 578 13/16 | 577 3/8 | 578 1/2 |
| 19 | 604 7/8 | 606 5/16 | 605 3/16 |
| 20 | 644 5/8 | 643 1/8 | 644 1/4 |
| 21 | 670 5/8 | 672 1/16 | 670 15/16 |
| 22 | 710 3/8 | 708 7/8 | 710 |
| 23 | 736 3/8 | 737 7/8 | 736 3/4 |
| 24 | 776 1/8 | 774 11/16 | 775 13/16 |
| 25 | 802 3/16 | 803 5/8 | 802 1/2 |
| 26 | 841 7/8 | 840 7/16 | 841 9/16 |
| 27 | 867 15/16 | 869 3/8 | 868 1/4 |
| 28 | 907 5/8 | 906 3/16 | 907 5/16 |
| 29 | 933 11/16 | 935 1/8 | 934 |
| 30 | 973 7/16 | 971 15/16 | 973 1/16 |
| 31 | 999 7/16 | 1000 7/8 | 999 3/4 |
| 32 | 1039 3/16 | 1037 11/16 | 1038 13/16 |
| 33 | 1065 3/16 | 1066 11/16 | 1065 9/16 |
| 34 | 1104 15/16 | 1103 1/2 | 1104 5/8 |
| 35 | 1130 15/16 | 1132 7/16 | 1131 5/16 |
| 36 | 1170 11/16 | 1169 1/4 | 1170 3/8 |
| 37 | 1196 3/4 | 1198 3/16 | 1197 1/16 |
| 38 | 1236 7/16 | 1235 | 1236 1/8 |
| 39 | 1262 1/2 | 1263 15/16 | 1262 13/16 |
| 40 | 1302 1/4 | 1300 3/4 | 1301 7/8 |
| 41 | 1328 1/4 | 1329 11/16 | 1328 9/16 |
| 42 | 1368 | 1366 1/2 | 1367 5/8 |
| 43 | 1394 | 1395 1/2 | 1394 3/8 |
| 44 | 1433 3/4 | 1432 5/16 | 1433 7/16 |
| 45 | 1459 3/4 | 1461 1/4 | 1460 1/8 |
| 46 | 1499 1/2 | 1498 1/16 | 1499 3/16 |
| 47 | 1525 9/16 | 1527 | 1525 7/8 |
| 48 | 1565 1/4 | 1563 13/16 | 1564 15/16 |
| 49 | 1591 5/16 | 1592 3/4 | 1591 5/8 |

**Portrait Center Out Tabels (mm)**

| Rail # | Datum A | Datum B | Rail CL |
|---|---|---|---|
| Centerline | 0.0 | 0.0 | 0.0 |
| 1 | 330.6 | 367.7 | 339.1 |
| 2 | 1339.8 | 1302.7 | 1331.3 |
| 3 | 2001.0 | 2038.0 | 2009.4 |
| 4 | 3010.1 | 2973.0 | 3001.6 |
| 5 | 3671.3 | 3708.4 | 3679.8 |
| 6 | 4680.5 | 4643.4 | 4672.0 |
| 7 | 5341.7 | 5378.7 | 5350.1 |
| 8 | 6350.8 | 6313.7 | 6342.3 |
| 9 | 7012.0 | 7049.1 | 7020.5 |
| 10 | 8021.2 | 7984.1 | 8012.7 |
| 11 | 8682.4 | 8719.4 | 8690.8 |
| 12 | 9691.5 | 9654.4 | 9683.0 |
| 13 | 10352.7 | 10389.8 | 10361.2 |
| 14 | 11361.9 | 11324.8 | 11353.4 |
| 15 | 12023.1 | 12060.1 | 12031.5 |
| 16 | 13032.2 | 12995.1 | 13023.7 |
| 17 | 13693.4 | 13730.5 | 13701.9 |
| 18 | 14702.6 | 14665.5 | 14694.1 |
| 19 | 15363.8 | 15400.8 | 15372.2 |
| 20 | 16372.9 | 16335.8 | 16364.4 |
| 21 | 17034.1 | 17071.2 | 17042.6 |
| 22 | 18043.3 | 18006.2 | 18034.8 |
| 23 | 18704.5 | 18741.5 | 18712.9 |
| 24 | 19713.6 | 19676.5 | 19705.1 |
| 25 | 20374.8 | 20411.9 | 20383.3 |
| 26 | 21384.0 | 21346.9 | 21375.5 |
| 27 | 22045.2 | 22082.2 | 22053.6 |
| 28 | 23054.3 | 23017.2 | 23045.8 |
| 29 | 23715.5 | 23752.6 | 23724.0 |
| 30 | 24724.7 | 24687.6 | 24716.2 |
| 31 | 25385.9 | 25422.9 | 25394.3 |
| 32 | 26395.0 | 26357.9 | 26386.5 |
| 33 | 27056.2 | 27093.3 | 27064.7 |
| 34 | 28065.4 | 28028.3 | 28056.9 |
| 35 | 28726.6 | 28763.6 | 28735.0 |
| 36 | 29735.7 | 29698.6 | 29727.2 |
| 37 | 30396.9 | 30434.0 | 30405.4 |
| 38 | 31406.1 | 31369.0 | 31397.6 |
| 39 | 32067.3 | 32104.3 | 32075.7 |
| 40 | 33076.4 | 33039.3 | 33067.9 |
| 41 | 33737.6 | 33774.7 | 33746.1 |
| 42 | 34746.8 | 34709.7 | 34738.3 |
| 43 | 35408.0 | 35445.0 | 35416.4 |
| 44 | 36417.1 | 36380.0 | 36408.6 |
| 45 | 37078.3 | 37115.4 | 37086.8 |
| 46 | 38087.5 | 38050.4 | 38079.0 |
| 47 | 38748.7 | 38785.7 | 38757.1 |
| 48 | 39757.8 | 39720.7 | 39749.3 |
| 49 | 40419.0 | 40456.1 | 40427.5 |

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DRAWING TITLE
CRICITAL DIMS FOR GEN 3 LSX250 MODULES ON LSX RAIL 1.1

FILE NAME: 20150523_Rev003_LSX Critical Dimensions with LSX Rail 1.1 (Gen 3 mods)



DRAWN BY
KY

APPROVED BY
N/A

DATE
5/23/2016

ORIGINAL SIZE
11"x17"

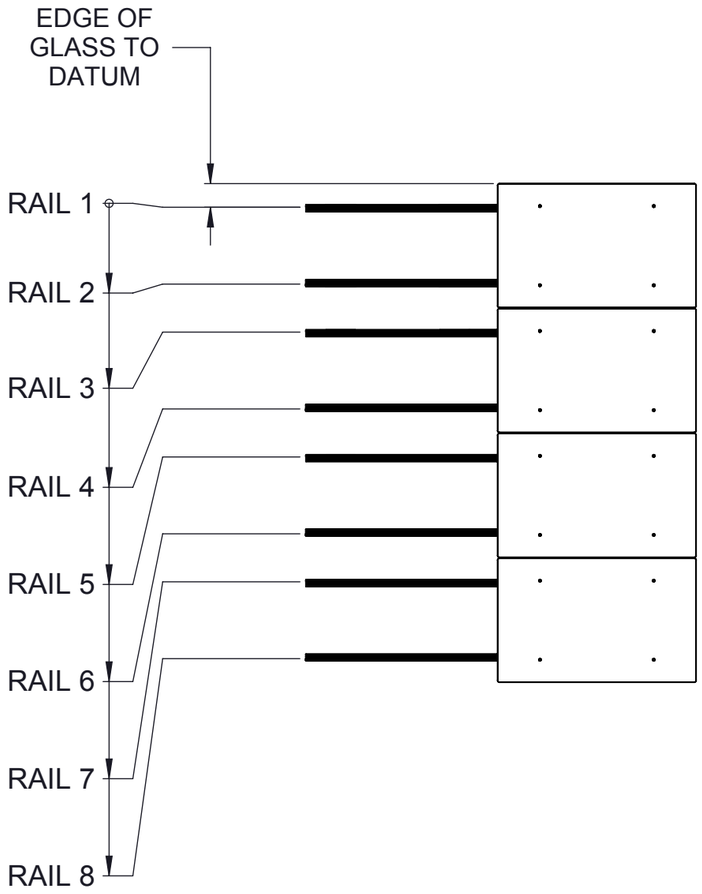
SHEET SIZE
ANSI_B

SCALE
AS NOTED

SHEET/DRAWING NUMBER
7

## LANDSCAPE RAIL LOCATION TABLES

USE THESE TABLES IF YOU ARE LAYING OUT THE RAILS FROM ONE END (IF YOU ARE MEASURING FROM THE CENTER OUT, USE THE "CENTER OUT" TABLES.)




**Landscape End to End Tables (in)**

| Rail # | Datum A | Datum B | Rail CL |
|---|---|---|---|
| Edge of Glass | -8 1/2 | -7 1/16 | -8 3/16 |
| 1 | 0 | 0 | 0 |
| 2 | 23 15/16 | 26 7/8 | 24 5/8 |
| 3 | 41 3/16 | 41 3/16 | 41 3/16 |
| 4 | 65 1/8 | 68 1/16 | 65 13/16 |
| 5 | 82 3/8 | 82 3/8 | 82 3/8 |
| 6 | 106 5/16 | 109 1/4 | 107 |
| 7 | 123 9/16 | 123 9/16 | 123 9/16 |
| 8 | 147 1/2 | 150 7/16 | 148 3/16 |
| 9 | 164 3/4 | 164 3/4 | 164 3/4 |
| 10 | 188 11/16 | 191 5/8 | 189 3/8 |
| 11 | 206 | 206 | 206 |
| 12 | 229 7/8 | 232 13/16 | 230 9/16 |
| 13 | 247 3/16 | 247 3/16 | 247 3/16 |
| 14 | 271 1/8 | 274 | 271 3/4 |
| 15 | 288 3/8 | 288 3/8 | 288 3/8 |
| 16 | 312 5/16 | 315 3/16 | 312 15/16 |
| 17 | 329 9/16 | 329 9/16 | 329 9/16 |
| 18 | 353 1/2 | 356 7/16 | 354 3/16 |
| 19 | 370 3/4 | 370 3/4 | 370 3/4 |
| 20 | 394 11/16 | 397 5/8 | 395 3/8 |
| 21 | 411 15/16 | 411 15/16 | 411 15/16 |
| 22 | 435 7/8 | 438 13/16 | 436 9/16 |
| 23 | 453 1/8 | 453 1/8 | 453 1/8 |
| 24 | 477 1/16 | 480 | 477 3/4 |
| 25 | 494 5/16 | 494 5/16 | 494 5/16 |
| 26 | 518 1/4 | 521 3/16 | 518 15/16 |
| 27 | 535 9/16 | 535 9/16 | 535 9/16 |
| 28 | 559 7/16 | 562 3/8 | 560 1/8 |
| 29 | 576 3/4 | 576 3/4 | 576 3/4 |
| 30 | 600 11/16 | 603 9/16 | 601 5/16 |
| 31 | 617 15/16 | 617 15/16 | 617 15/16 |
| 32 | 641 7/8 | 644 3/4 | 642 1/2 |
| 33 | 659 1/8 | 659 1/8 | 659 1/8 |
| 34 | 683 1/16 | 685 15/16 | 683 11/16 |
| 35 | 700 5/16 | 700 5/16 | 700 5/16 |
| 36 | 724 1/4 | 727 3/16 | 724 15/16 |
| 37 | 741 1/2 | 741 1/2 | 741 1/2 |
| 38 | 765 7/16 | 768 3/8 | 766 1/8 |
| 39 | 782 11/16 | 782 11/16 | 782 11/16 |
| 40 | 806 5/8 | 809 9/16 | 807 5/16 |
| 41 | 823 7/8 | 823 7/8 | 823 7/8 |
| 42 | 847 13/16 | 850 3/4 | 848 1/2 |
| 43 | 865 1/16 | 865 1/16 | 865 1/16 |
| 44 | 889 | 891 15/16 | 889 11/16 |
| 45 | 906 5/16 | 906 5/16 | 906 5/16 |
| 46 | 930 3/16 | 933 1/8 | 930 7/8 |
| 47 | 947 1/2 | 947 1/2 | 947 1/2 |
| 48 | 971 7/16 | 974 5/16 | 972 1/16 |
| 49 | 988 11/16 | 988 11/16 | 988 11/16 |
| 50 | 1012 5/8 | 1015 1/2 | 1013 1/4 |

**Landscape End to End Tables (mm)**

| Rail # | Datum A | Datum B | Rail CL |
|---|---|---|---|
| Edge of Glass | -216.1 | -179.0 | -207.6 |
| 1 | 0.0 | 0.0 | 0.0 |
| 2 | 607.9 | 682.0 | 624.8 |
| 3 | 1046.4 | 1046.4 | 1046.4 |
| 4 | 1654.2 | 1728.3 | 1671.2 |
| 5 | 2092.7 | 2092.7 | 2092.7 |
| 6 | 2700.6 | 2774.7 | 2717.5 |
| 7 | 3139.1 | 3139.1 | 3139.1 |
| 8 | 3746.9 | 3821.0 | 3763.9 |
| 9 | 4185.4 | 4185.4 | 4185.4 |
| 10 | 4793.3 | 4867.4 | 4810.2 |
| 11 | 5231.8 | 5231.8 | 5231.8 |
| 12 | 5839.6 | 5913.7 | 5856.6 |
| 13 | 6278.1 | 6278.1 | 6278.1 |
| 14 | 6886.0 | 6960.1 | 6902.9 |
| 15 | 7324.5 | 7324.5 | 7324.5 |
| 16 | 7932.3 | 8006.4 | 7949.3 |
| 17 | 8370.8 | 8370.8 | 8370.8 |
| 18 | 8978.7 | 9052.8 | 8995.6 |
| 19 | 9417.2 | 9417.2 | 9417.2 |
| 20 | 10025.0 | 10099.1 | 10042.0 |
| 21 | 10463.5 | 10463.5 | 10463.5 |
| 22 | 11071.4 | 11145.5 | 11088.3 |
| 23 | 11509.9 | 11509.9 | 11509.9 |
| 24 | 12117.7 | 12191.8 | 12134.7 |
| 25 | 12556.2 | 12556.2 | 12556.2 |
| 26 | 13164.1 | 13238.2 | 13181.0 |
| 27 | 13602.6 | 13602.6 | 13602.6 |
| 28 | 14210.4 | 14284.5 | 14227.4 |
| 29 | 14648.9 | 14648.9 | 14648.9 |
| 30 | 15256.8 | 15330.9 | 15273.7 |
| 31 | 15695.3 | 15695.3 | 15695.3 |
| 32 | 16303.1 | 16377.2 | 16320.1 |
| 33 | 16741.6 | 16741.6 | 16741.6 |
| 34 | 17349.5 | 17423.6 | 17366.4 |
| 35 | 17788.0 | 17788.0 | 17788.0 |
| 36 | 18395.8 | 18469.9 | 18412.8 |
| 37 | 18834.3 | 18834.3 | 18834.3 |
| 38 | 19442.2 | 19516.3 | 19459.1 |
| 39 | 19880.7 | 19880.7 | 19880.7 |
| 40 | 20488.5 | 20562.6 | 20505.5 |
| 41 | 20927.0 | 20927.0 | 20927.0 |
| 42 | 21534.9 | 21609.0 | 21551.8 |
| 43 | 21973.4 | 21973.4 | 21973.4 |
| 44 | 22581.2 | 22655.3 | 22598.2 |
| 45 | 23019.7 | 23019.7 | 23019.7 |
| 46 | 23627.6 | 23701.7 | 23644.5 |
| 47 | 24066.1 | 24066.1 | 24066.1 |
| 48 | 24673.9 | 24748.0 | 24690.9 |
| 49 | 25112.4 | 25112.4 | 25112.4 |
| 50 | 25720.3 | 25794.4 | 25737.2 |

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DRAWING TITLE
CRICITAL DIMS FOR GEN 3 LSX250 MODULES ON LSX RAIL 1.1

FILE NAME: 20150523_Rev003_LSX Critical Dimensions with LSX Rail 1.1 (Gen 3 mods)



DRAWN BY
KY

APPROVED BY
N/A

DATE
5/23/2016

ORIGINAL SIZE
11"X17"

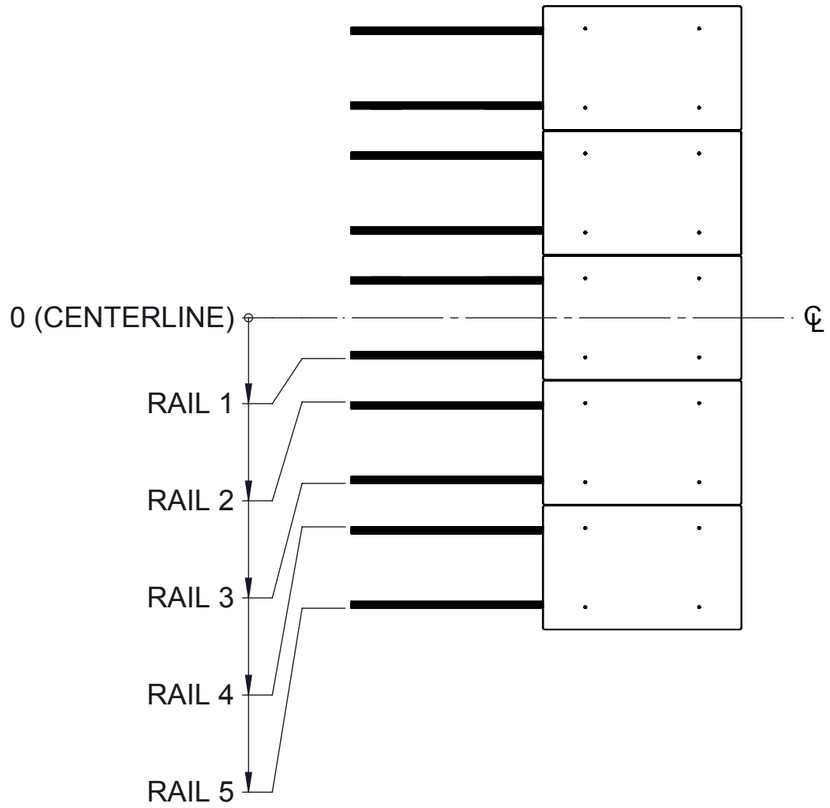
SHEET SIZE
ANSI_B

SCALE
AS NOTED

SHEET/DRAWING NUMBER
8

## LANDSCAPE CENTER OUT RAIL LOCATION TABLES

USE THESE TABLES IF YOU ARE INSTALLING RAILS FROM THE CENTER OF THE ARRAY OUT.




USE THESE TABLES IF THE CENTER LIES ON A MODULE (# OF COLUMNS IS ODD)

**Landscape Center Out Tabels (in)**

| *Rail #* | *Datum A* | *Datum B* | *Rail CL* |
|---|---|---|---|
| Centerline | 0 | 0 | 0 |
| 1 | 11 15/16 | 13 7/16 | 12 5/16 |
| 2 | 29 1/4 | 27 3/4 | 28 7/8 |
| 3 | 53 3/16 | 54 5/8 | 53 1/2 |
| 4 | 70 7/16 | 68 15/16 | 70 1/16 |
| 5 | 94 3/8 | 95 13/16 | 94 11/16 |
| 6 | 111 5/8 | 110 3/16 | 111 5/16 |
| 7 | 135 9/16 | 137 | 135 7/8 |
| 8 | 152 13/16 | 151 3/8 | 152 1/2 |
| 9 | 176 3/4 | 178 3/16 | 177 1/16 |
| 10 | 194 | 192 9/16 | 193 11/16 |
| 11 | 217 15/16 | 219 3/8 | 218 1/4 |
| 12 | 235 3/16 | 233 3/4 | 234 7/8 |
| 13 | 259 1/8 | 260 5/8 | 259 1/2 |
| 14 | 276 3/8 | 274 15/16 | 276 1/16 |
| 15 | 300 5/16 | 301 13/16 | 300 11/16 |
| 16 | 317 9/16 | 316 1/8 | 317 1/4 |
| 17 | 341 1/2 | 343 | 341 7/8 |
| 18 | 358 13/16 | 357 5/16 | 358 7/16 |
| 19 | 382 3/4 | 384 3/16 | 383 1/16 |
| 20 | 400 | 398 1/2 | 399 5/8 |
| 21 | 423 15/16 | 425 3/8 | 424 1/4 |
| 22 | 441 3/16 | 439 3/4 | 440 7/8 |
| 23 | 465 1/8 | 466 9/16 | 465 7/16 |
| 24 | 482 3/8 | 480 15/16 | 482 1/16 |
| 25 | 506 5/16 | 507 3/4 | 506 5/8 |
| 26 | 523 9/16 | 522 1/8 | 523 1/4 |
| 27 | 547 1/2 | 548 15/16 | 547 13/16 |
| 28 | 564 3/4 | 563 5/16 | 564 7/16 |
| 29 | 588 11/16 | 590 1/8 | 589 |
| 30 | 605 15/16 | 604 1/2 | 605 5/8 |
| 31 | 629 7/8 | 631 3/8 | 630 1/4 |
| 32 | 647 1/8 | 645 11/16 | 646 13/16 |
| 33 | 671 1/16 | 672 9/16 | 671 7/16 |
| 34 | 688 3/8 | 686 7/8 | 688 |
| 35 | 712 1/4 | 713 3/4 | 712 5/8 |
| 36 | 729 9/16 | 728 1/16 | 729 3/16 |
| 37 | 753 1/2 | 754 15/16 | 753 13/16 |
| 38 | 770 3/4 | 769 1/4 | 770 3/8 |
| 39 | 794 11/16 | 796 1/8 | 795 |
| 40 | 811 15/16 | 810 1/2 | 811 5/8 |
| 41 | 835 7/8 | 837 5/16 | 836 3/16 |
| 42 | 853 1/8 | 851 11/16 | 852 13/16 |
| 43 | 877 1/16 | 878 1/2 | 877 3/8 |
| 44 | 894 5/16 | 892 7/8 | 894 |
| 45 | 918 1/4 | 919 11/16 | 918 9/16 |
| 46 | 935 1/2 | 934 1/16 | 935 3/16 |
| 47 | 959 7/16 | 960 15/16 | 959 13/16 |
| 48 | 976 11/16 | 975 1/4 | 976 3/8 |
| 49 | 1000 5/8 | 1002 1/8 | 1001 |

**Landscape Center Out Tabels (mm)**

| *Rail #* | *Datum A* | *Datum B* | *Rail CL* |
|---|---|---|---|
| Centerline | 0.0 | 0.0 | 0.0 |
| 1 | 303.9 | 341.0 | 312.4 |
| 2 | 742.4 | 705.4 | 733.9 |
| 3 | 1350.3 | 1387.3 | 1358.8 |
| 4 | 1788.8 | 1751.7 | 1780.3 |
| 5 | 2396.6 | 2433.7 | 2405.1 |
| 6 | 2835.1 | 2798.1 | 2826.6 |
| 7 | 3443.0 | 3480.0 | 3451.5 |
| 8 | 3881.5 | 3844.4 | 3873.0 |
| 9 | 4489.3 | 4526.4 | 4497.8 |
| 10 | 4927.8 | 4890.8 | 4919.3 |
| 11 | 5535.7 | 5572.7 | 5544.2 |
| 12 | 5974.2 | 5937.1 | 5965.7 |
| 13 | 6582.0 | 6619.1 | 6590.5 |
| 14 | 7020.5 | 6983.5 | 7012.0 |
| 15 | 7628.4 | 7665.4 | 7636.9 |
| 16 | 8066.9 | 8029.8 | 8058.4 |
| 17 | 8674.7 | 8711.8 | 8683.2 |
| 18 | 9113.2 | 9076.2 | 9104.7 |
| 19 | 9721.1 | 9758.1 | 9729.6 |
| 20 | 10159.6 | 10122.5 | 10151.1 |
| 21 | 10767.4 | 10804.5 | 10775.9 |
| 22 | 11205.9 | 11168.9 | 11197.4 |
| 23 | 11813.8 | 11850.8 | 11822.3 |
| 24 | 12252.3 | 12215.2 | 12243.8 |
| 25 | 12860.1 | 12897.2 | 12868.6 |
| 26 | 13298.6 | 13261.6 | 13290.1 |
| 27 | 13906.5 | 13943.5 | 13915.0 |
| 28 | 14345.0 | 14307.9 | 14336.5 |
| 29 | 14952.8 | 14989.9 | 14961.3 |
| 30 | 15391.3 | 15354.3 | 15382.8 |
| 31 | 15999.2 | 16036.2 | 16007.7 |
| 32 | 16437.7 | 16400.6 | 16429.2 |
| 33 | 17045.5 | 17082.6 | 17054.0 |
| 34 | 17484.0 | 17447.0 | 17475.5 |
| 35 | 18091.9 | 18128.9 | 18100.4 |
| 36 | 18530.4 | 18493.3 | 18521.9 |
| 37 | 19138.2 | 19175.3 | 19146.7 |
| 38 | 19576.7 | 19539.7 | 19568.2 |
| 39 | 20184.6 | 20221.6 | 20193.1 |
| 40 | 20623.1 | 20586.0 | 20614.6 |
| 41 | 21230.9 | 21268.0 | 21239.4 |
| 42 | 21669.4 | 21632.4 | 21660.9 |
| 43 | 22277.3 | 22314.3 | 22285.8 |
| 44 | 22715.8 | 22678.7 | 22707.3 |
| 45 | 23323.6 | 23360.7 | 23332.1 |
| 46 | 23762.1 | 23725.1 | 23753.6 |
| 47 | 24370.0 | 24407.0 | 24378.5 |
| 48 | 24808.5 | 24771.4 | 24800.0 |
| 49 | 25416.3 | 25453.4 | 25424.8 |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DRAWING TITLE
CRICITAL DIMS FOR GEN 3 LSX250 MODULES ON LSX RAIL 1.1

FILE NAME: 20150523_Rev003_LSX Critical Dimensions with LSX Rail 1.1 (Gen 3 mods)



DRAWN BY
KY

APPROVED BY
N/A

DATE
5/23/2016

ORIGINAL SIZE
11"X17"

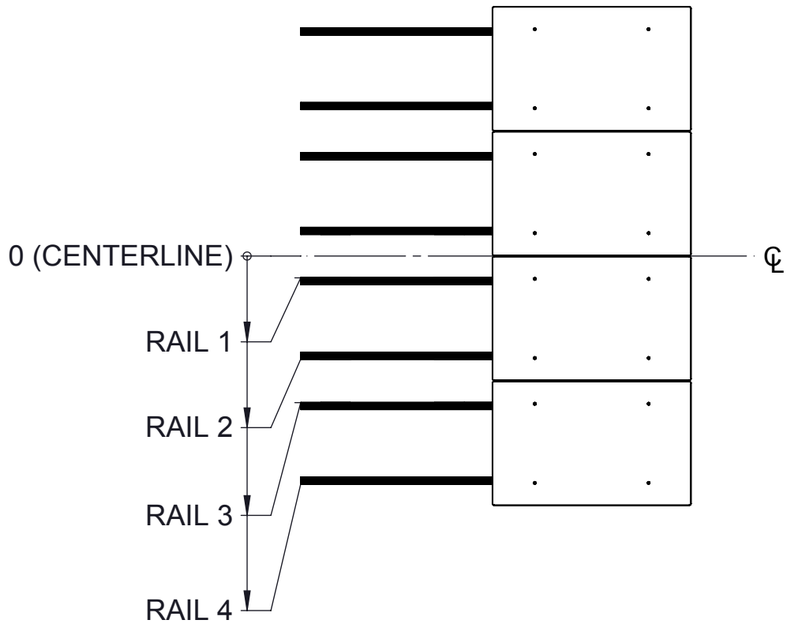
SHEET SIZE
ANSI_B

SCALE
AS NOTED

SHEET/DRAWING NUMBER
9

## LANDSCAPE CENTER OUT RAIL LOCATION TABLES

USE THESE TABLES IF YOU ARE INSTALLING RAILS FROM THE CENTER OF THE ARRAY OUT.




USE THESE TABLES IF THE CENTER LIES BETWEEN MODULES (# OF COLUMNS IS EVEN)

**Landscape Center Out Tabels (in)**

| *Rail #* | *Datum A* | *Datum B* | *Rail CL* |
|---|---|---|---|
| Centerline | 0 | 0 | 0 |
| 1 | 8 5/8 | 7 3/16 | 8 5/16 |
| 2 | 32 9/16 | 34 | 32 7/8 |
| 3 | 49 13/16 | 48 3/8 | 49 1/2 |
| 4 | 73 3/4 | 75 3/16 | 74 1/16 |
| 5 | 91 | 89 9/16 | 90 11/16 |
| 6 | 114 15/16 | 116 7/16 | 115 5/16 |
| 7 | 132 3/16 | 130 3/4 | 131 7/8 |
| 8 | 156 1/8 | 157 5/8 | 156 1/2 |
| 9 | 173 7/16 | 171 15/16 | 173 1/16 |
| 10 | 197 5/16 | 198 13/16 | 197 11/16 |
| 11 | 214 5/8 | 213 1/8 | 214 1/4 |
| 12 | 238 9/16 | 240 | 238 7/8 |
| 13 | 255 13/16 | 254 5/16 | 255 7/16 |
| 14 | 279 3/4 | 281 3/16 | 280 1/16 |
| 15 | 297 | 295 9/16 | 296 11/16 |
| 16 | 320 15/16 | 322 3/8 | 321 1/4 |
| 17 | 338 3/16 | 336 3/4 | 337 7/8 |
| 18 | 362 1/8 | 363 9/16 | 362 7/16 |
| 19 | 379 3/8 | 377 15/16 | 379 1/16 |
| 20 | 403 5/16 | 404 3/4 | 403 5/8 |
| 21 | 420 9/16 | 419 1/8 | 420 1/4 |
| 22 | 444 1/2 | 446 | 444 7/8 |
| 23 | 461 3/4 | 460 5/16 | 461 7/16 |
| 24 | 485 11/16 | 487 3/16 | 486 1/16 |
| 25 | 503 | 501 1/2 | 502 5/8 |
| 26 | 526 7/8 | 528 3/8 | 527 1/4 |
| 27 | 544 3/16 | 542 11/16 | 543 13/16 |
| 28 | 568 1/8 | 569 9/16 | 568 7/16 |
| 29 | 585 3/8 | 583 7/8 | 585 |
| 30 | 609 5/16 | 610 3/4 | 609 5/8 |
| 31 | 626 9/16 | 625 1/8 | 626 1/4 |
| 32 | 650 1/2 | 651 15/16 | 650 13/16 |
| 33 | 667 3/4 | 666 5/16 | 667 7/16 |
| 34 | 691 11/16 | 693 1/8 | 692 |
| 35 | 708 15/16 | 707 1/2 | 708 5/8 |
| 36 | 732 7/8 | 734 5/16 | 733 3/16 |
| 37 | 750 1/8 | 748 11/16 | 749 13/16 |
| 38 | 774 1/16 | 775 1/2 | 774 3/8 |
| 39 | 791 5/16 | 789 7/8 | 791 |
| 40 | 815 1/4 | 816 3/4 | 815 5/8 |
| 41 | 832 1/2 | 831 1/16 | 832 3/16 |
| 42 | 856 7/16 | 857 15/16 | 856 13/16 |
| 43 | 873 3/4 | 872 1/4 | 873 3/8 |
| 44 | 897 5/8 | 899 1/8 | 898 |
| 45 | 914 15/16 | 913 7/16 | 914 9/16 |
| 46 | 938 7/8 | 940 5/16 | 939 3/16 |
| 47 | 956 1/8 | 954 5/8 | 955 3/4 |
| 48 | 980 1/16 | 981 1/2 | 980 3/8 |
| 49 | 997 5/16 | 995 7/8 | 997 |

**Landscape Center Out Tabels (mm)**

| *Rail #* | *Datum A* | *Datum B* | *Rail CL* |
|---|---|---|---|
| Centerline | 0.0 | 0.0 | 0.0 |
| 1 | 219.3 | 182.2 | 210.8 |
| 2 | 827.1 | 864.2 | 835.6 |
| 3 | 1265.6 | 1228.5 | 1257.1 |
| 4 | 1873.5 | 1910.5 | 1881.9 |
| 5 | 2312.0 | 2274.9 | 2303.5 |
| 6 | 2919.8 | 2956.9 | 2928.3 |
| 7 | 3358.3 | 3321.2 | 3349.8 |
| 8 | 3966.2 | 4003.2 | 3974.6 |
| 9 | 4404.7 | 4367.6 | 4396.2 |
| 10 | 5012.5 | 5049.6 | 5021.0 |
| 11 | 5451.0 | 5413.9 | 5442.5 |
| 12 | 6058.9 | 6095.9 | 6067.3 |
| 13 | 6497.4 | 6460.3 | 6488.9 |
| 14 | 7105.2 | 7142.3 | 7113.7 |
| 15 | 7543.7 | 7506.6 | 7535.2 |
| 16 | 8151.6 | 8188.6 | 8160.0 |
| 17 | 8590.1 | 8553.0 | 8581.6 |
| 18 | 9197.9 | 9235.0 | 9206.4 |
| 19 | 9636.4 | 9599.3 | 9627.9 |
| 20 | 10244.3 | 10281.3 | 10252.7 |
| 21 | 10682.8 | 10645.7 | 10674.3 |
| 22 | 11290.6 | 11327.7 | 11299.1 |
| 23 | 11729.1 | 11692.0 | 11720.6 |
| 24 | 12337.0 | 12374.0 | 12345.4 |
| 25 | 12775.5 | 12738.4 | 12767.0 |
| 26 | 13383.3 | 13420.4 | 13391.8 |
| 27 | 13821.8 | 13784.7 | 13813.3 |
| 28 | 14429.7 | 14466.7 | 14438.1 |
| 29 | 14868.2 | 14831.1 | 14859.7 |
| 30 | 15476.0 | 15513.1 | 15484.5 |
| 31 | 15914.5 | 15877.4 | 15906.0 |
| 32 | 16522.4 | 16559.4 | 16530.8 |
| 33 | 16960.9 | 16923.8 | 16952.4 |
| 34 | 17568.7 | 17605.8 | 17577.2 |
| 35 | 18007.2 | 17970.1 | 17998.7 |
| 36 | 18615.1 | 18652.1 | 18623.5 |
| 37 | 19053.6 | 19016.5 | 19045.1 |
| 38 | 19661.4 | 19698.5 | 19669.9 |
| 39 | 20099.9 | 20062.8 | 20091.4 |
| 40 | 20707.8 | 20744.8 | 20716.2 |
| 41 | 21146.3 | 21109.2 | 21137.8 |
| 42 | 21754.1 | 21791.2 | 21762.6 |
| 43 | 22192.6 | 22155.5 | 22184.1 |
| 44 | 22800.5 | 22837.5 | 22808.9 |
| 45 | 23239.0 | 23201.9 | 23230.5 |
| 46 | 23846.8 | 23883.9 | 23855.3 |
| 47 | 24285.3 | 24248.2 | 24276.8 |
| 48 | 24893.2 | 24930.2 | 24901.6 |
| 49 | 25331.7 | 25294.6 | 25323.2 |

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