

# OPEN

## Compute Project

### **Fidelity Open Bridge Rack v1.0**

Author: Brian Obernesser

#### **Scope**

This document defines the technical specifications for the Fidelity Open Bridge Rack used in Open Compute Project Open Rack.

This custom convertible rack can house either 19" EIA or Open Compute Project standard technologies. The rack can be purchased in either EIA or OCP specifications and can be converted in-place from either standard to the other.

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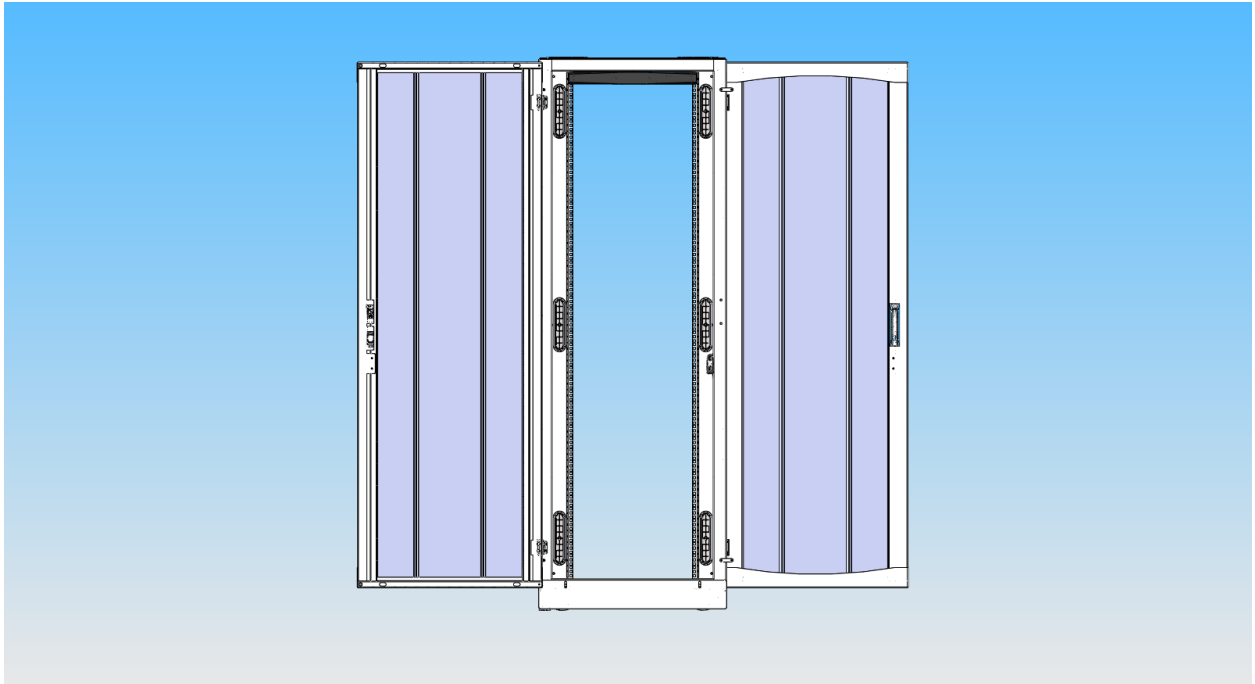
## 2 Overview

The challenge of many facility designers and data center operators is preparing a facility that can accommodate both EIA and OCP technologies. The key is to have a rack that protects today's infrastructure investment by providing a migration path from traditional EIA to OCP technologies whenever the future transition occurs. The solution is the Open Bridge Rack that converts between EIA and OCP standards via a conversion kit. The unique solution when outfitted with doors provides a uniform look throughout the space in any combination of EIA and OCP units.

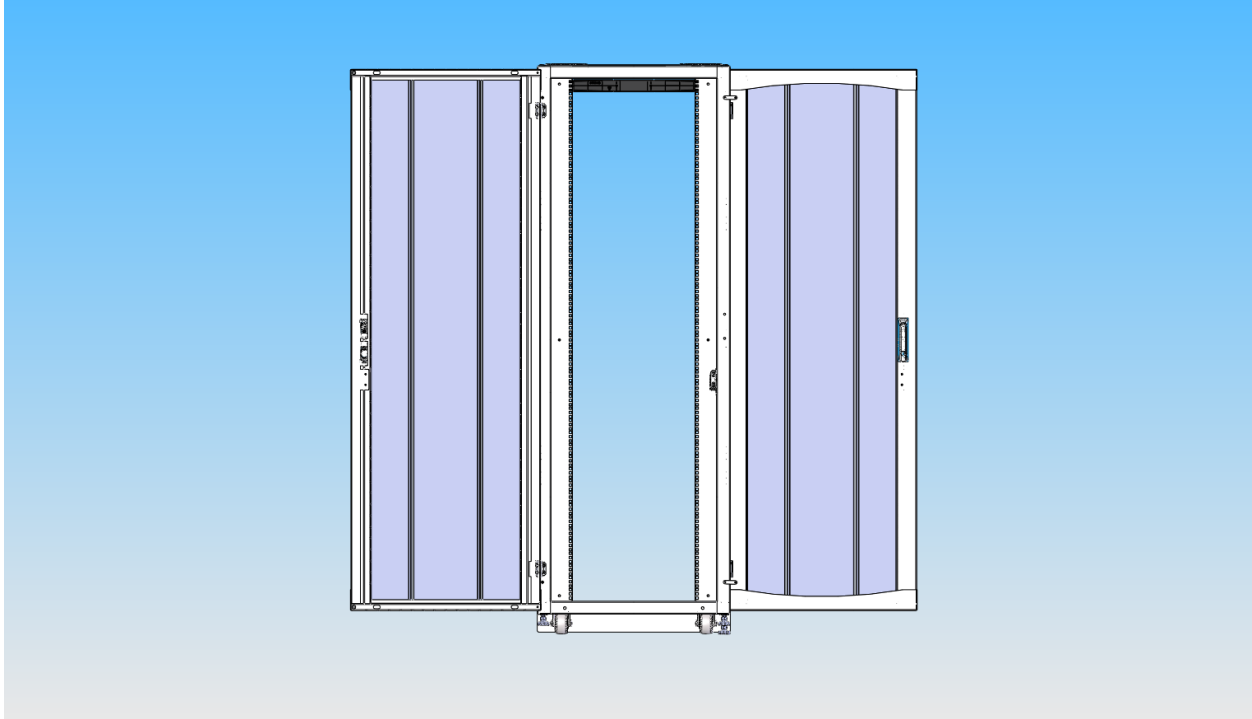
The main components of the system are the rack and conversion kit. The rack has reversible rails that, depending on their orientation, can accommodate either EIA or OCP equipment. The rack presented in this document is 40OU/43RU X 28" Wide X 48" Deep frame. However, conversion kit principles may be applied to different dimensions.

### 3 Fidelity Open Bridge Rack Features

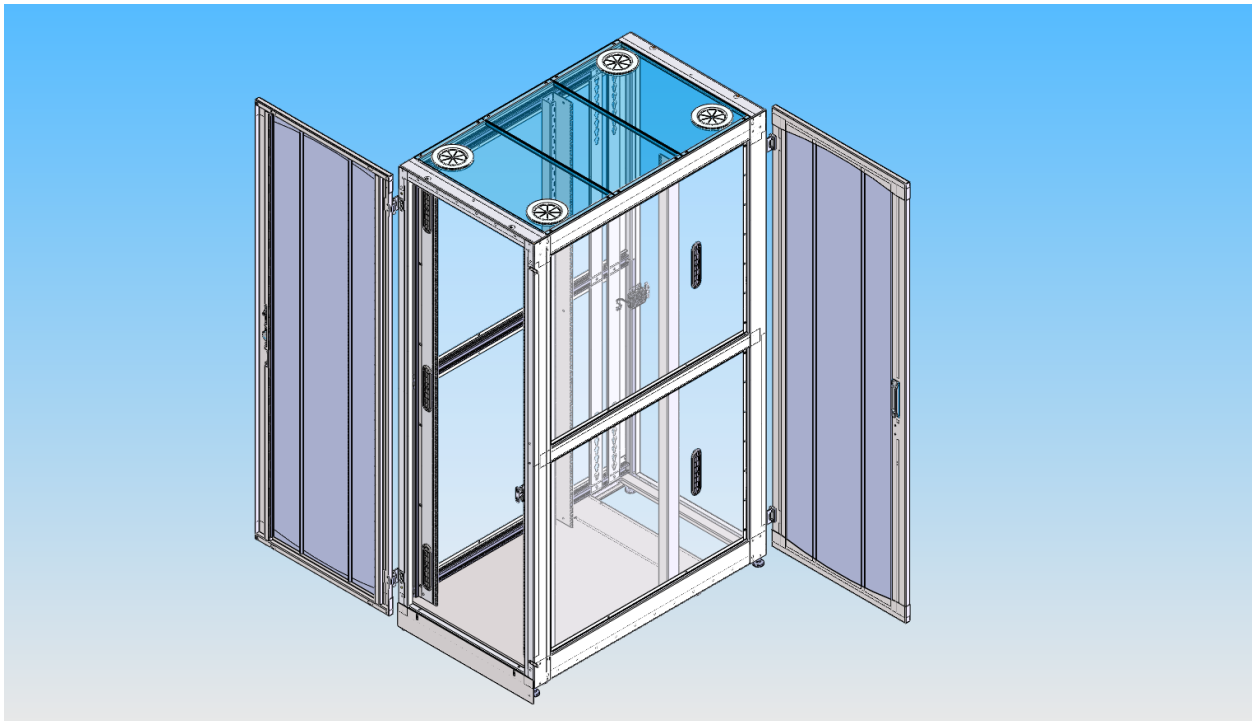
#### 3.1 EIA Images



19" EIA-Front View (Fig 3.1A)



19" EIA-Rear View-(Fig. 3.1B)

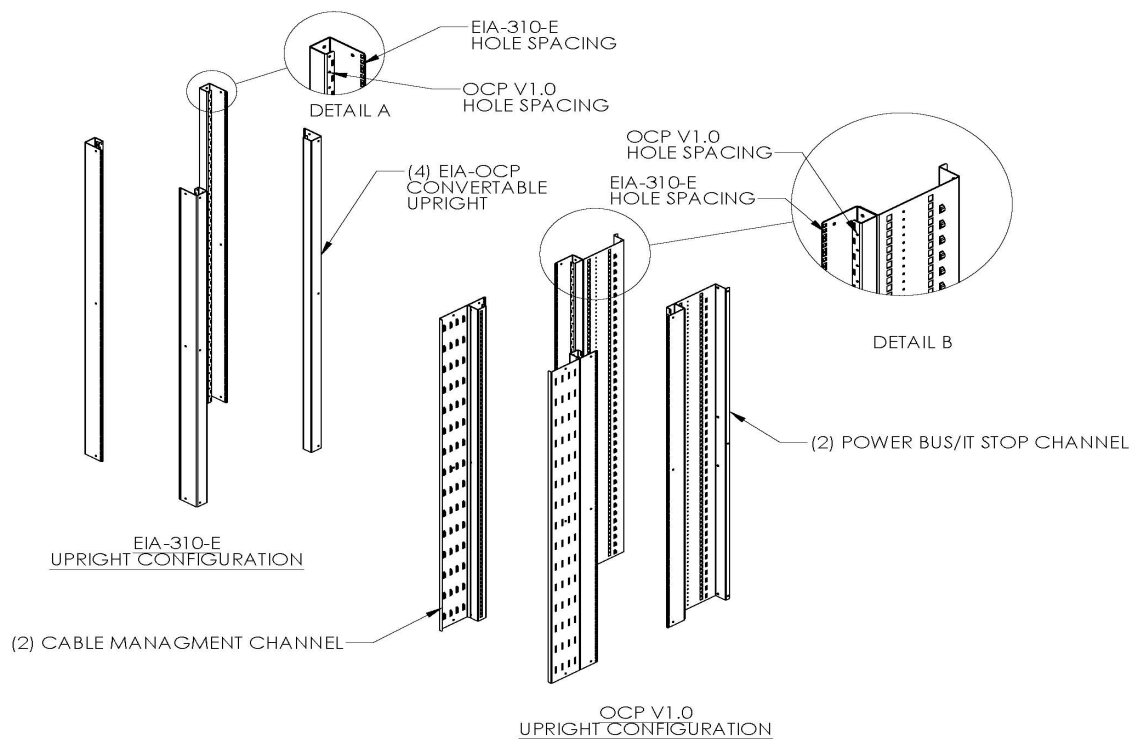


19" EIA-Isometric View (Fig. 3.1C)

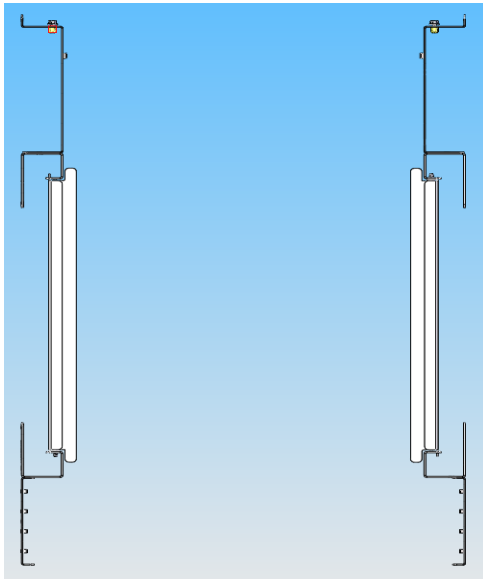
### 3.2 Views of EIA and OCP Upright configurations



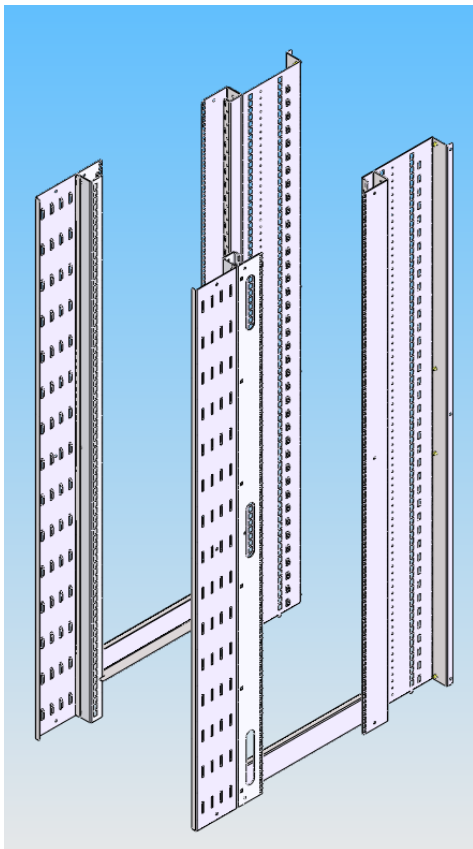
Top View (Fig. 3.2A)



Isometric View (Fig. 3.2B)

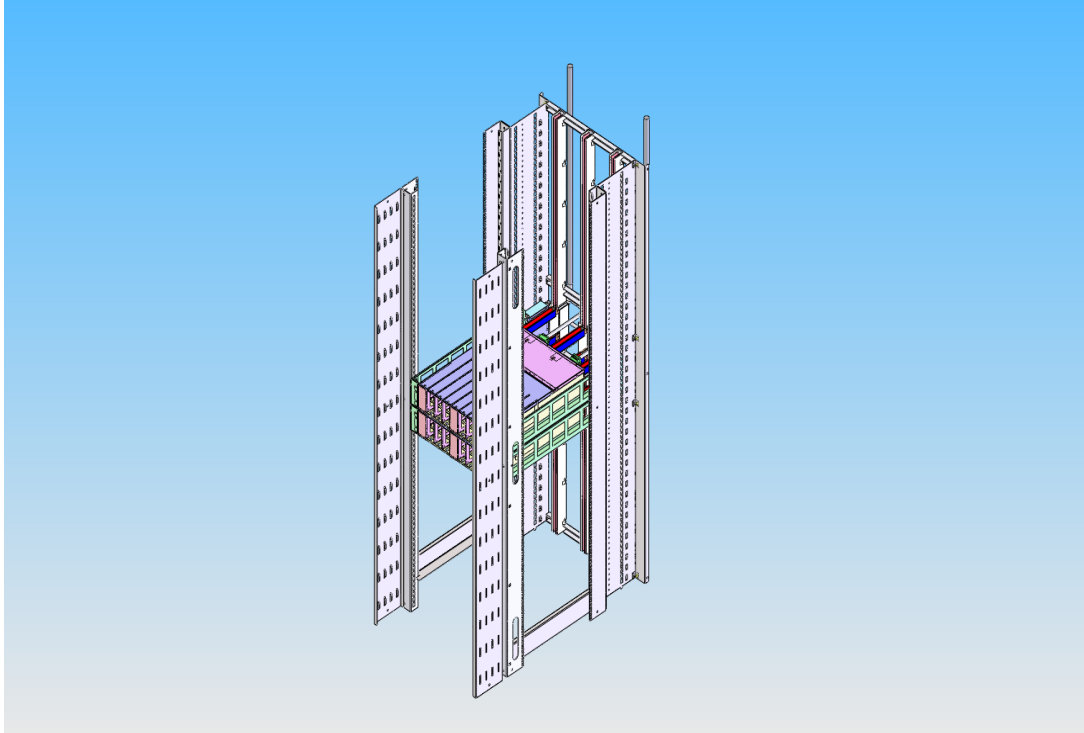


Top View of OCP Configuration with IT Support rails (Fig. 3.2C)

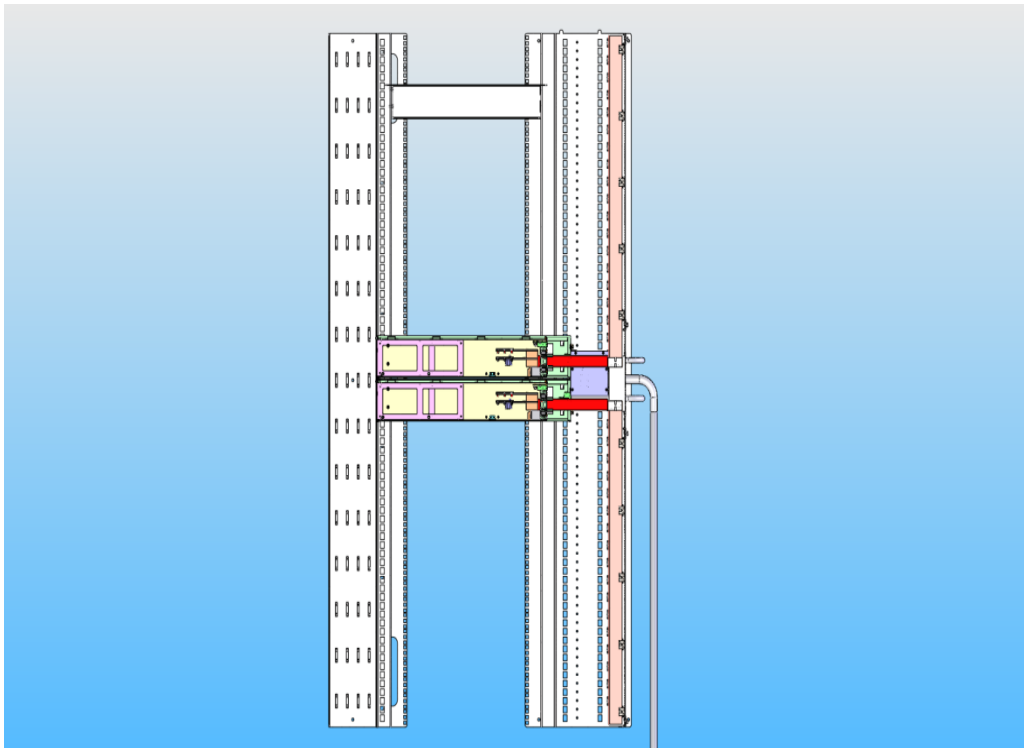


Isometric View of OCP Configuration with IT Support rails-(Fig. 3.2D)

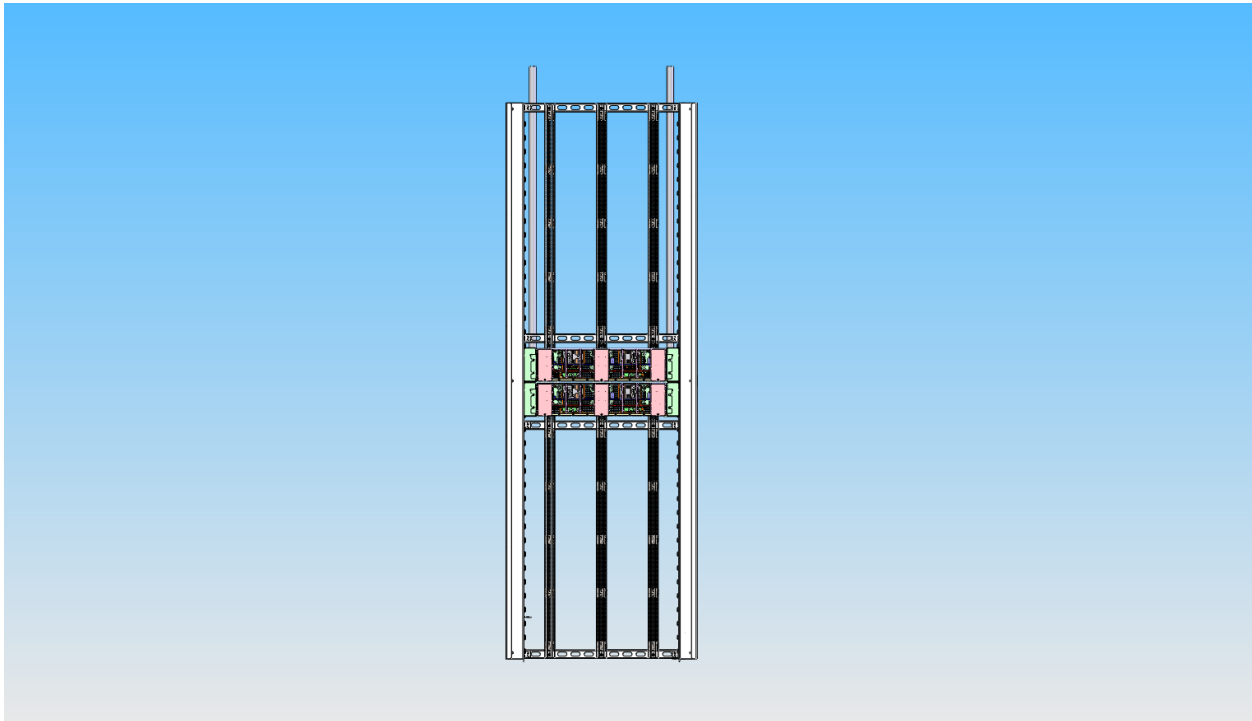




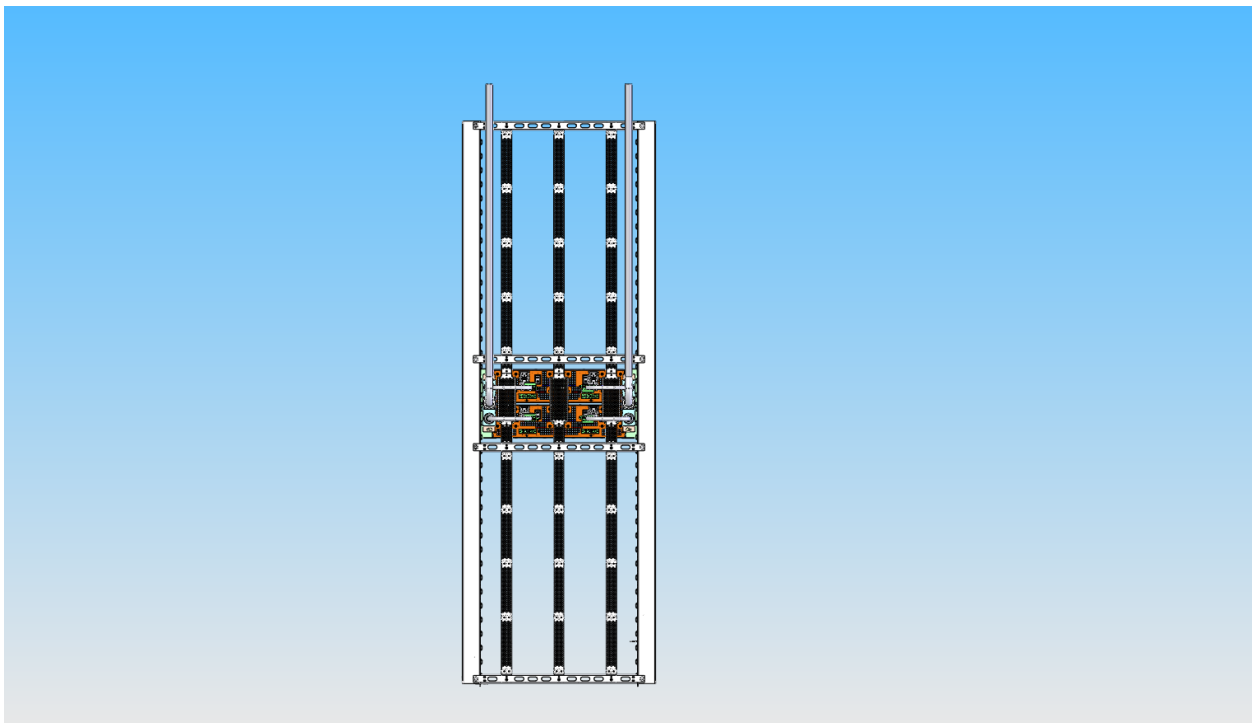
OCP Conversion Kit-Isometric View-Shows manufacturer supplied Power Bus and Shelf (Fig .3.2E)



OCP Conversion Kit- Section View- Shows manufacturer supplied Power Bus and Shelf- Conversion Kit includes the front lacing, rear bus uprights and horizontal equipment supports- (Fig. 3.2F)

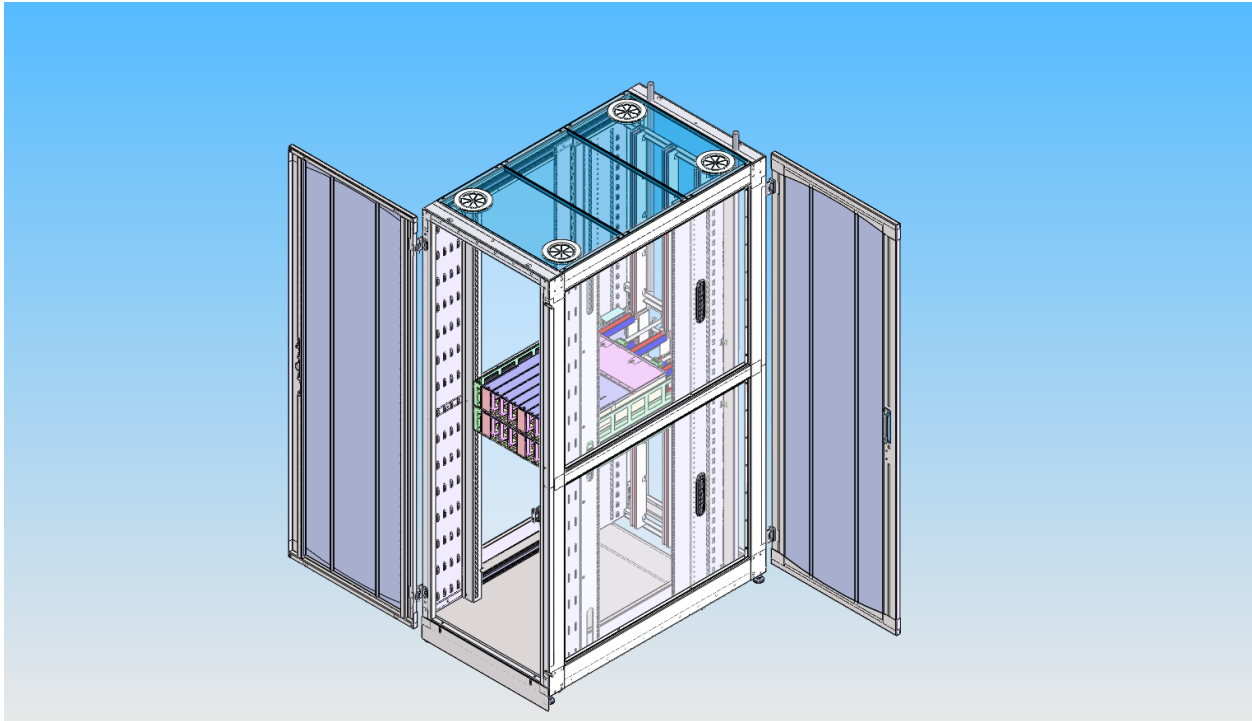


OCP Conversion Kit-Front View-Shows manufacturer supplied Power Bus and Shelf-(Fig. 3.2G)

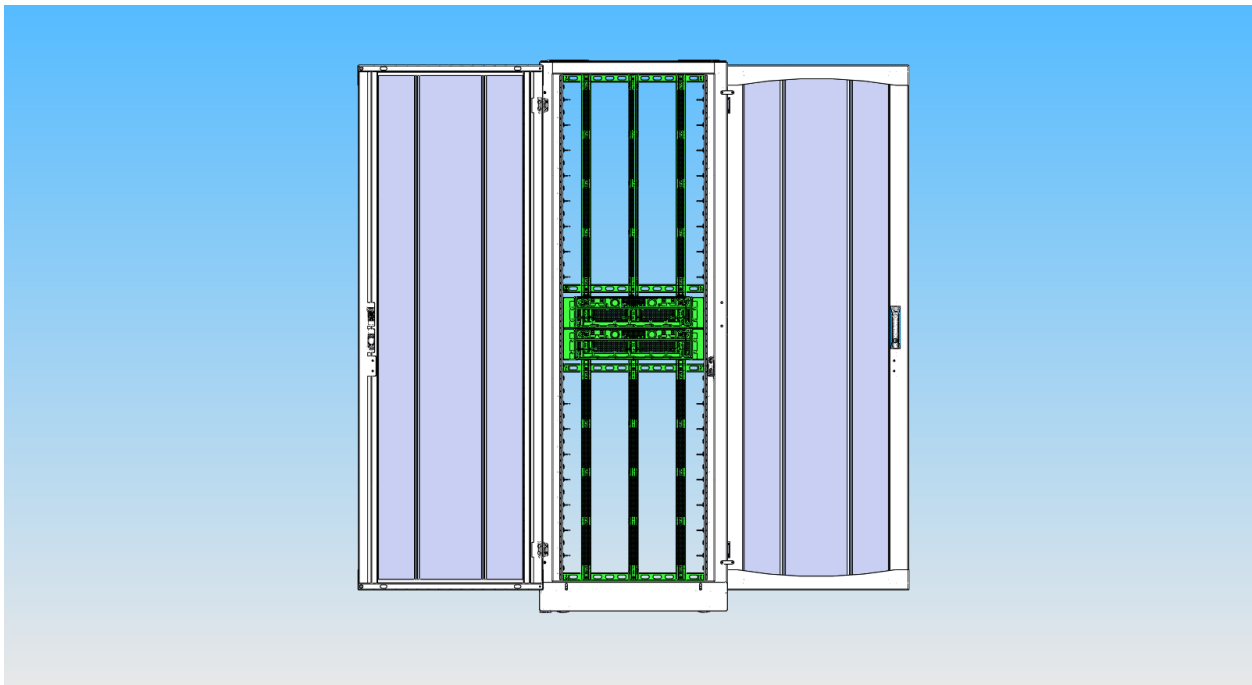


OCP Conversion Kit-Rear View-Shows manufacturer supplied Power Bus and Shelf-(Fig. 3.2H)

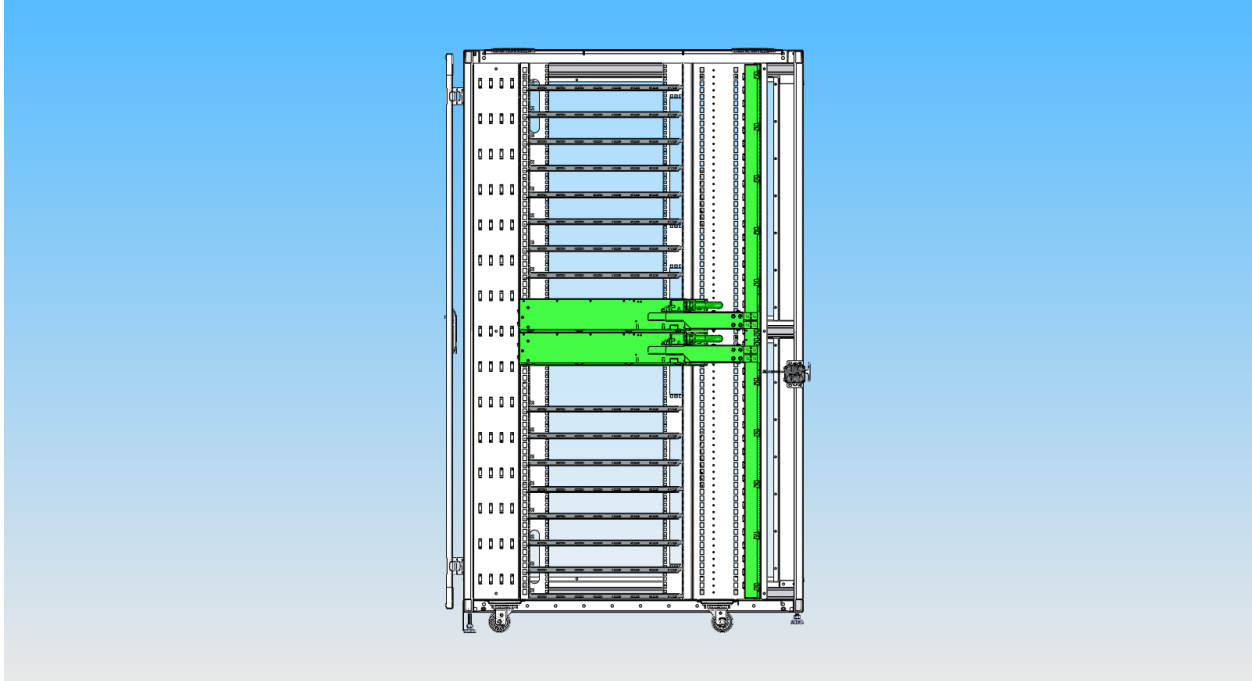
### 3.3 Images of Rack with OCP Conversion Kit Implemented and Bus Installed



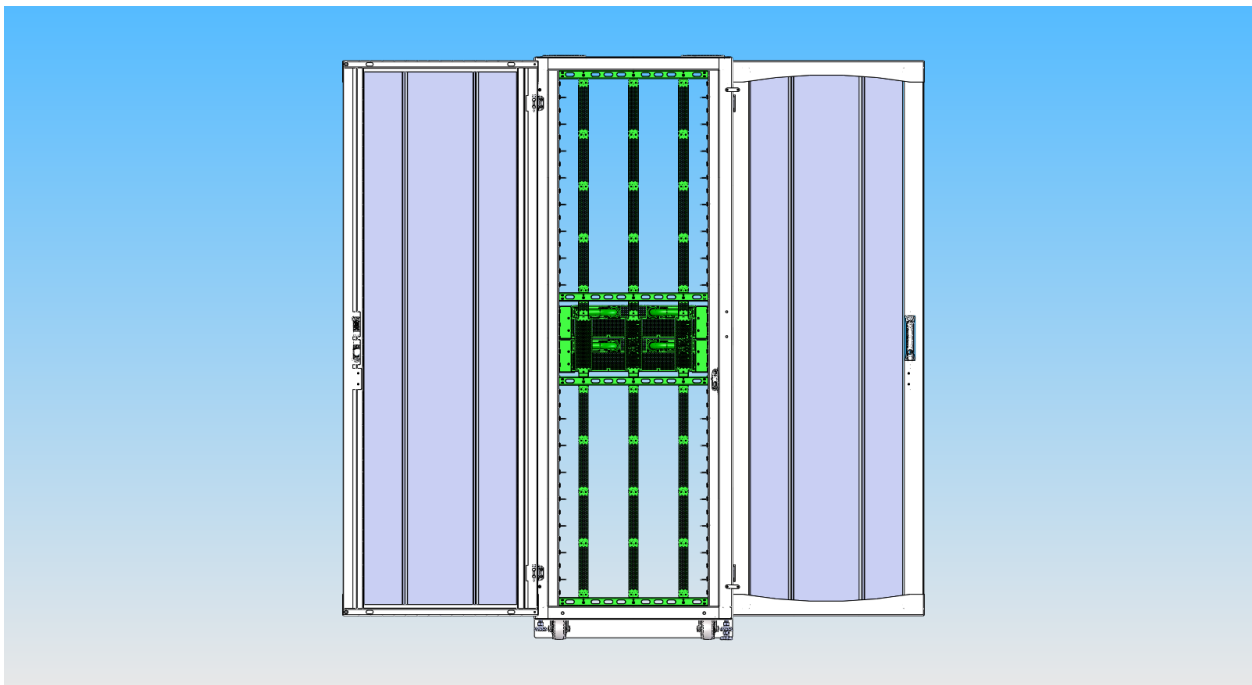
OCP Isometric View-Shows manufacturer supplied Power Bus and Shelf-(Fig. 3.3A)



OCP Front View-Shows manufacturer supplied Power Bus and Shelf-(Fig. 3.3B)



OCP Section View-Shows manufacturer supplied Power Bus and Shelf -(Fig. 3.3C)



OCP Rear View-Shows manufacturer supplied Power Bus and Shelf-(Fig. 3.3D)

## 4 Mechanical Requirements

This section is an overview of the mechanical parts of the rack that are provided and required to conform to the OCP Rack Standard Version 1.1

- <http://files.opencompute.org/oc/public.php?service=files&t=f65fa945cb5a069c9ac3d29b9f569b96>

### 4.1 Rack Columns

The vertical columns are used to retain equipment and also limit its horizontal movement. This enables the chassis to align the bus bar clip to the bus bar.

The columns will have all the lances, rectangular cutouts at the locations detailed in the OCP Rack Standard Version 1.0

### 4.2 IT Support Shelves

IT equipment sits on a series of horizontal support shelves. These shelves conform to the shape detailed in the OCP Rack standard and support a load of at least 700N per pair

### 4.3 Bus Bar

The bus bar may be supplied by the customer specified power company. The bus will conform to the OCP standard and have other specified Agency approvals. The rack manufacturer and power manufacturer will interface to make sure that the bus when installed in the rack will conform to the standard

### 4.4 OpenU Markings

See OCP standards for marking requirements.

### 4.5 Marking for Re-use

See OCP standards for marking requirements

## 5 Electrical Requirements

Rack manufacturer and customer specified power supplier work together to ensure the power parts will fit in the rack and conform to the OCP Rack Standard

### 5.1 Bus Power Connection

Determined by the customer specified power company and will conform to the standards. See OCP standard for connection requirement

## 6 EIA to OCP Conversion Details

This section outlines the steps necessary to convert the EIA rack to OCP standards

- Remove the reversible EIA mounting rails
- Install front lacing uprights which help position the front OCP mounting
- Install the rear power bus support uprights which help position the rear OCP mounting
- Reverse the EIA mounting rails to OCP orientation and install
- Install the rear mounting in OCP orientation
- Connect the power bus to the left and right power bus support uprights
- Install power shelf per manufacturer's recommendation
- Install horizontal equipment supports as required

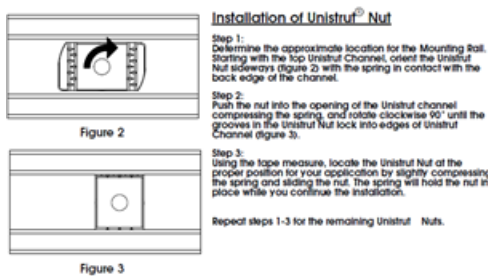
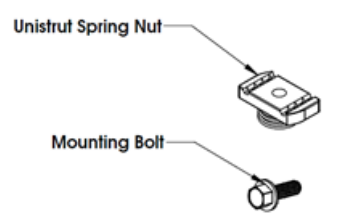
## 7 EIA Specifications and OCP Standards

The rack is manufactured to meet both EIA specifications and OCP standards when implemented in their respective orientation.

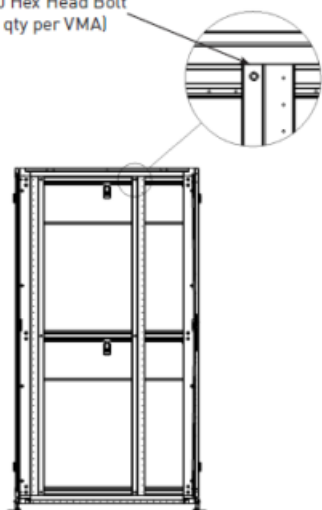
## 8 Additional Detail

This section identifies addition rack detail also included in the drawing set.

- Percent open perforation on front and rear doors: 63%
- Dimensions of the rack: 28.0"W x 48.0"D(w/o doors); 51.0"( w/doors hinge to hinge) x 82.3"H
- Front to back dimension of vertical equipment mounting rails: 39.97"overall in OCP config
- Weight capacity of the rack: Estimated at 3000lbs static, 2500lbs rolling
- Front to rear rack column spacing positions: EIA mode Set at 28"for Fidelity; 45.5" max spacing
- Caster size and capacity: 3," @ 1000lbs each
- Baying method: Baying straps on front and rear included.
- Rack weight: Approx. 300lbs
- Rail mounting and adjustment hardware: Bolt and Strut Nut  
<https://www.youtube.com/watch?v=FvI42rDn5kQ&list=UUaOng3Q-zGPfPu7tNuCGx-w&index=10>



1/4-20 Hex Head Bolt  
(3 qty per VMA)



#### Adjusting Vertical Mounting Rail

NOTE: Adjustment to the mounting rail location should only be made when there is no equipment mounted to the rails.

Tools: 3/8 Drive Socket, Socket Wrench, Tape Measure.

1. Loosen the 1/4-20 hex head bolts securing the VMA to the unistrut being careful not to completely remove the bolts. **Do not remove the bolts.** There are 3 bolts per mounting rail.
2. Once all 3 bolts have been loosened, using a tape measure, move the mounting rails to the desired location, and fasten the 3 bolts.

NOTE: On some cabinet models, the mounting rails may have a spacer bracket. Follow the instructions above to loosen the bolts and change the VMA location. Please ensure that the VMA is positioned such that it mirrors the mounting rails on the opposite side.

## 9 Conclusion

This design is made specifically for this application. These concepts may or may not work in racks with other dimensions or of different construction