Open. Together.

OCP
REGIONAL
SUMMIT

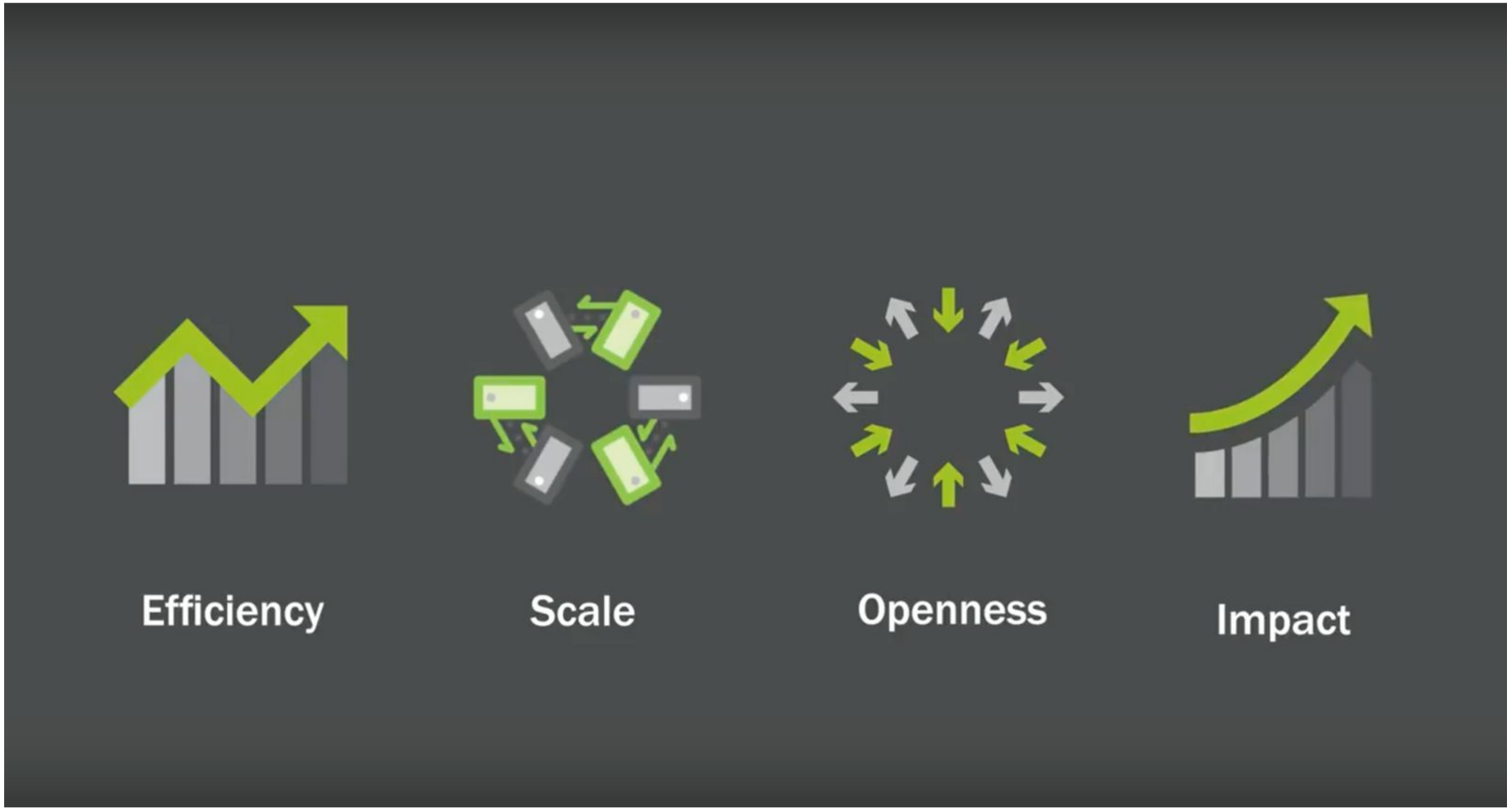
DATA CENTER FACILITIES

PCX 90kw OCP ***FLX*-MDC**

Rob Coyle, Director, PCX Corporation

OPEN COMMUNITY®

OCP Tenets



Modular Data Center Product Progress

Research

- Survey
- Match Initial Demand

Specification

- Technical Requirements
- 2 Standards of Design

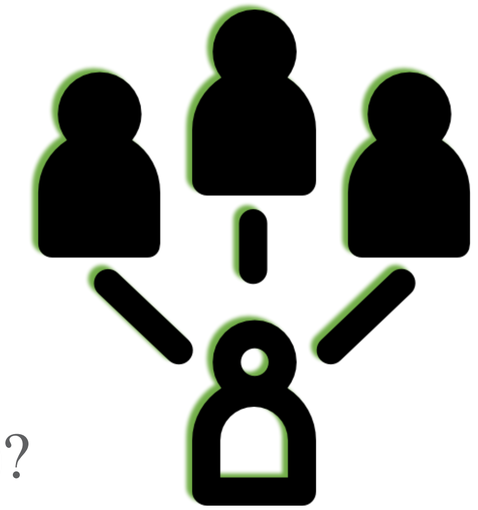
Product Submission

- Update Design Guidelines
- OCP Inspired/Approved

Available to Market

- OCP Approved
- OCP Marketplace

Historical Background



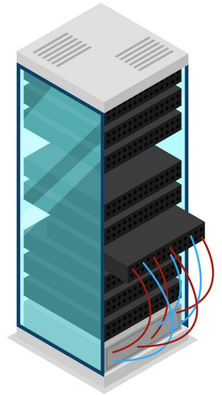
The questions asked:

- Where do you see Modular DC provide most value?
- How many racks are you aiming to deploy (new sites)?
- How many racks are you aiming to deploy (extension of old sites)?
- Typical density per rack?

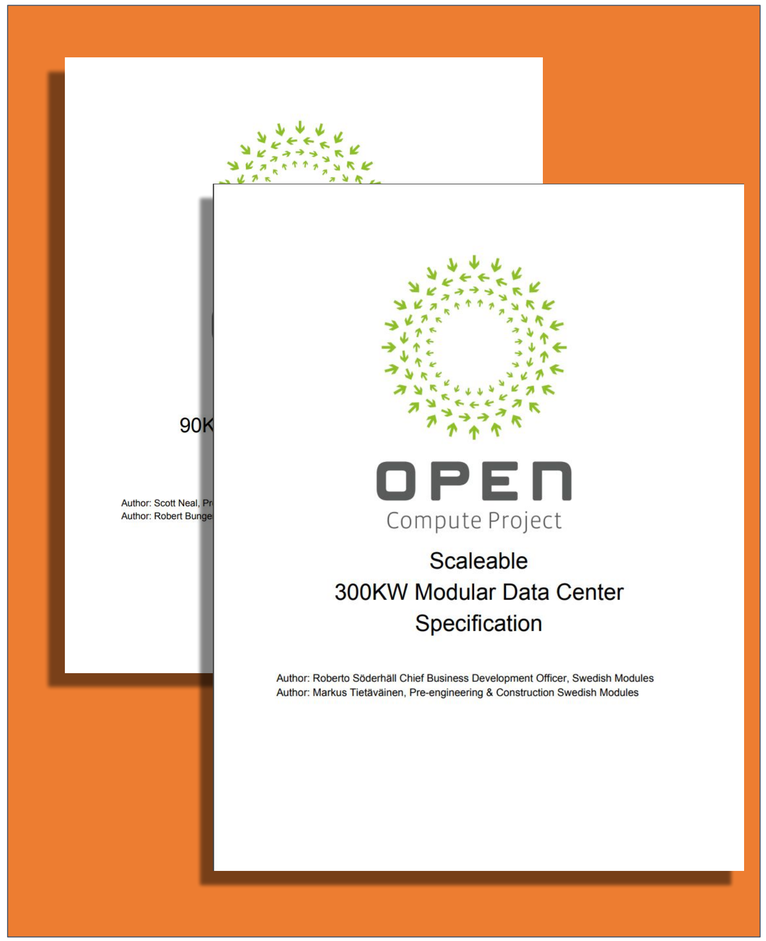
We received survey answers from 24 member Companies

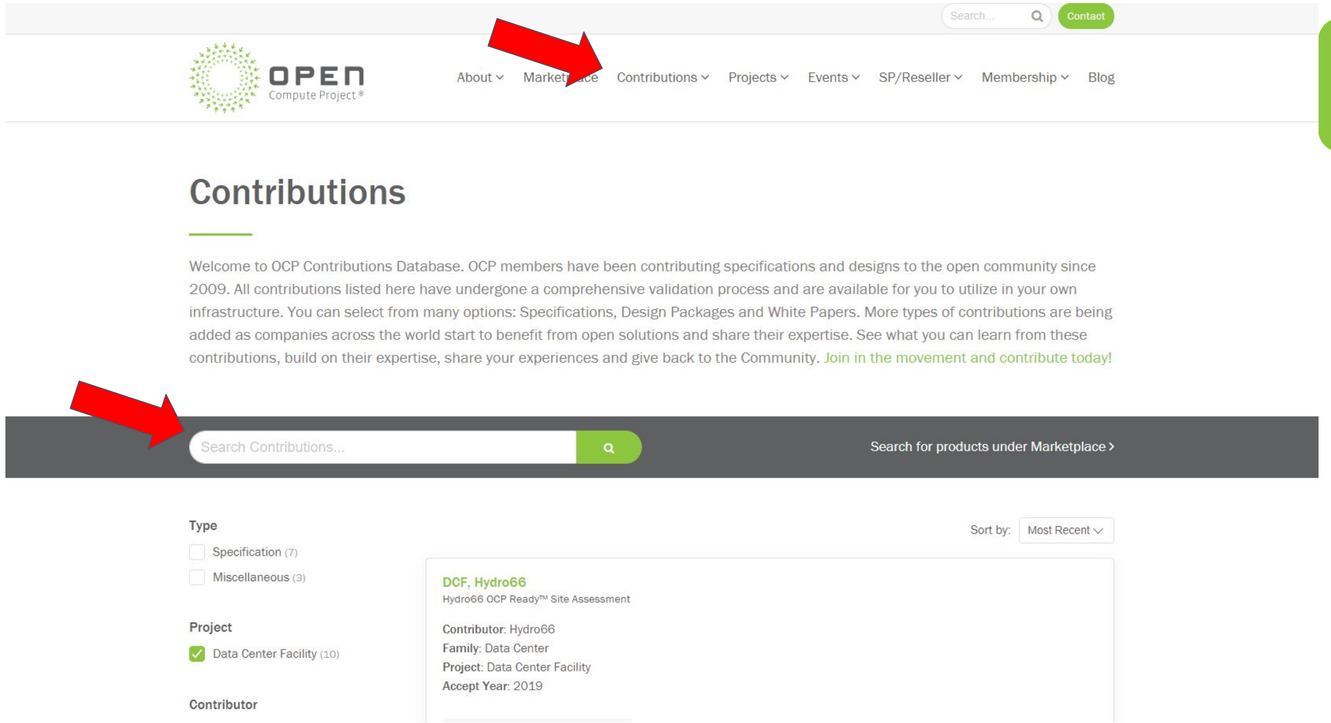
Input from OCP Community

- Deployment of compute in number of racks in new and old Sites
  - 1-20 (Telco, Colo and Hyperscale) *Stand alone 90kW*
  - 20-100 (Telco, Colo and Hyperscale) *Scalable 300kW*
- Typical density requirements per rack
  - 7-10kW (Telco, Colo, Hyperscale)
  - >25kW (HPC)



MDC Spec.





DATA CENTER FACILITIES

Workshops
Summits

Product Submission Guidelines

Guidelines for Submitting and Review of Design Contributions

Review for outlining harmonized guidelines for submitting Open MDC for "*Accepted*" or "*Inspired*"	
Reviewed by	
Date	

Contributors of Design Packaged to OCP must choose an outbound hardware license to use. The license must be stated in the license section of the contributed SPECIFICATION and the license must be executed. There are 3 to choose from:

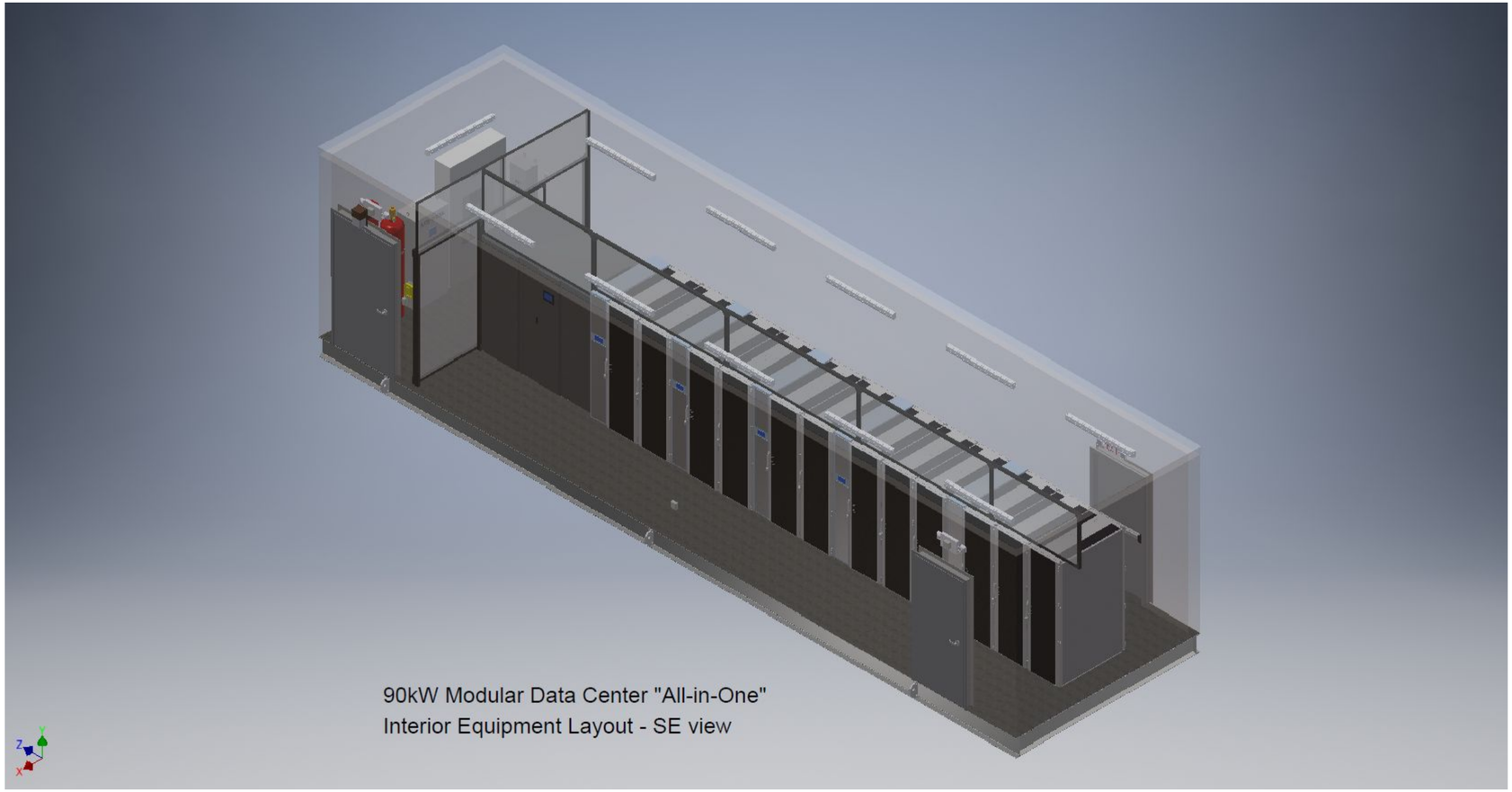
1. OWFa1.0 - content requirements are determined by the project and incubation committee base on availability of material, authority to contribute, and willingness to contribute by the contributor.
2. OCPHL-R - this license requires ALL the content
3. OCPHL-P - this license requires ALL the content

The "Complete Production Files" aka **Design Files** means all of the following, in a form sufficient for a person of ordinary skill to manufacture or modify the design of the Product.

All materials must be in a machine-readable file format that is (a) based on an open standard or for which a free decoder is widely available without charge; or (b) for CAD- generated system electrical schematics and layout, and mechanical 3D design only, in a form that is commonly in use in the industry and generally commercially available. :

REQUIREMENT	SUBMITTER or REVIEWER's Instructions
Materials detailing electrical design and composition, including (a) a Single line diagram	Typical file type: CAD, PDF, DWG, DWF
Materials detailing HVAC design and composition, including (a) a diagram and supported heat loads	Typical file type: CAD, PDF, DWG, DWF
A full CAD-generated system layout with floor plan, facades including measurements	Typical file type: CAD, DWG, DWF, RVT, Solidworks or STP.
A full system component bill of materials in a text format (tab-delimited or comma-delimited), including reference designators (e.g., part numbers on the equipment, SKU), manufacturers, manufacturer part numbers, and quantities;	Typical file type: Excel XLS file, PDF file. Verify all P/Ns in BOM include a Manufacturer and Manufacturer's' P/N or SKU
Materials detailing mechanical design and structure, including a 3D view of the MDC with all equipment in place	ACCEPTABLE file types: DWG, DWF, RVT, Solidworks and STP.
A copy of the Specification.	Verify the outbound License is specified in the LICENSE section of the SPEC.

Product Info



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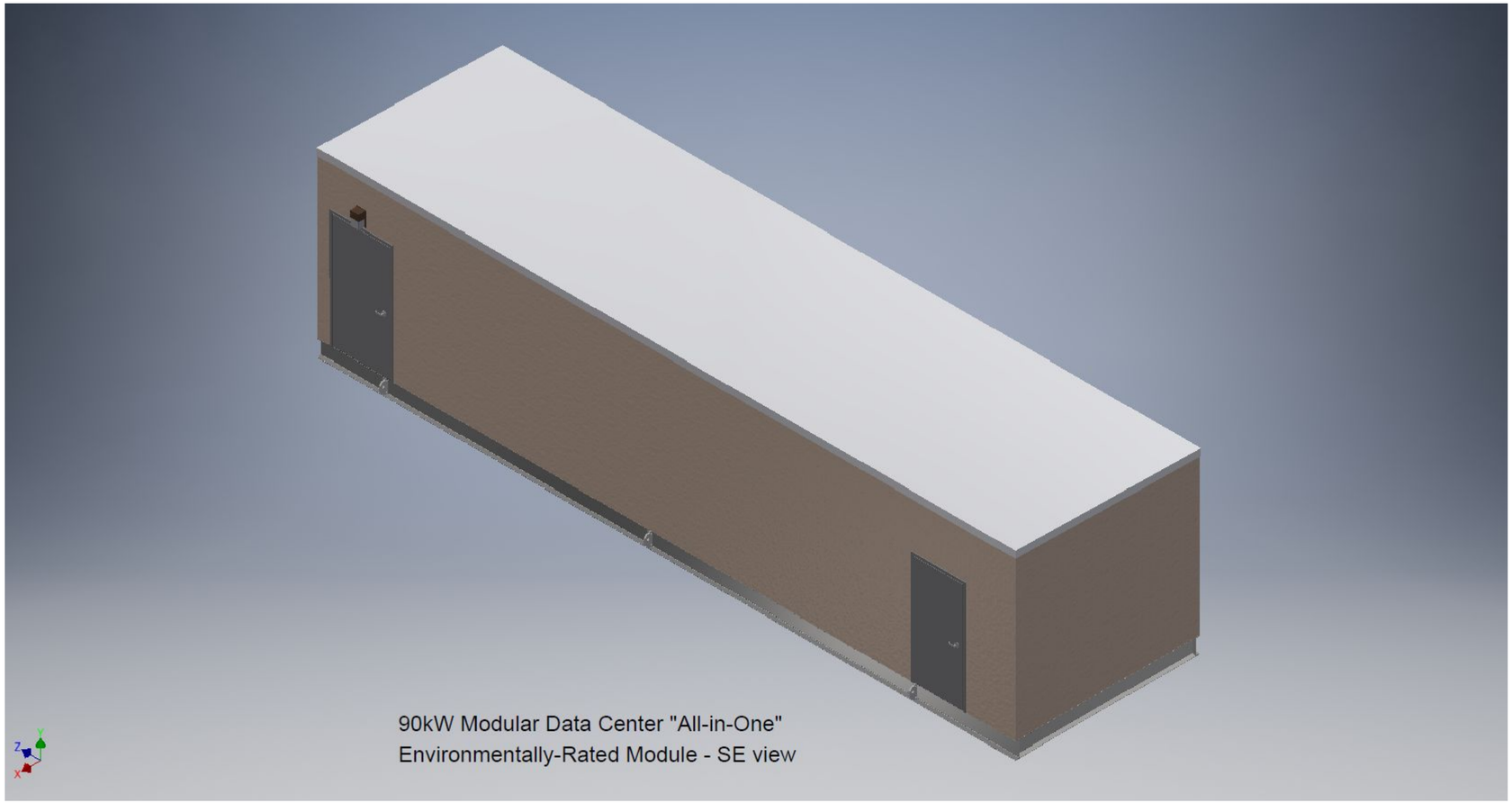

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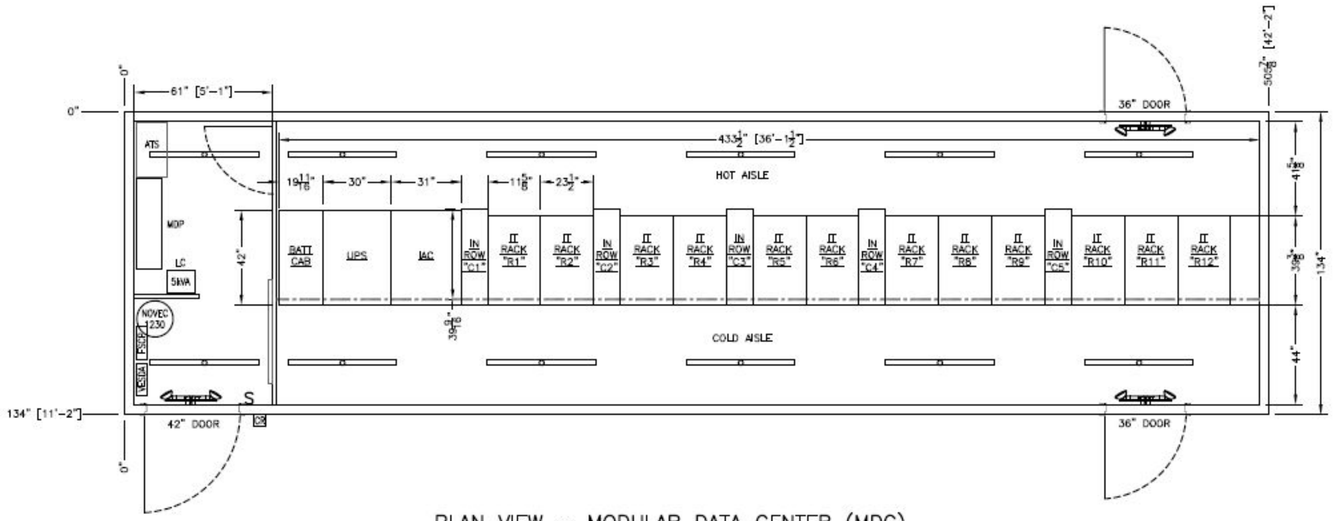


PLAN VIEW – MODULAR DATA CENTER (MDC)

WEIGHT (LBS):
MDC (SHIPPING): 50,000 (TBD)

HEIGHT:
BUILDING: 11'-0" (HI); 10'-9" (LOW)
[12" BASE; 5" ROOF (SLOPE $\frac{1}{4}$"/FT)

REVISION HISTORY:
A–[7/15/19]: INITIAL REVIEW
B–[7/22/19]: ZERO POINT; ADD 2FT. LENGTH; LOAD CENTER; (2) HIGH–CAPACITY IRC; RACK ARRANGEMENT; CONTAINMENT WALL WITH SLIDER & SWING DOOR; MOMENT FRAME; TOTAL WT TBD
C–[7/23/19]: OMIT KPS & MOMENT FRAME; ADD COMPOSITE ENCLOSURE; SHIFT UPS TO CENTER
D–[7/30/19]: OMIT IAC CABINET; DIMENSION ADJUSTMENTS
E–[7/31/19]: 480V SYSTEM; UPS; IRC DESIGN; CARD READER

Product Info

Product Info

PCX - 90kw FLX-MDC

DATA CENTER FACILITIES

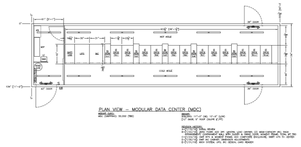
Description	Specification	Comments
IT-load [kW] (total capacity)	Up to 90	Power system redundancy at N with internal UPS redundancy of N+1. DX InRow Coolers at N+1 redundancy
Number of Racks (total capacity)	12 / 14	With UPS / without UPS
Average Density (kW/Rack)	7.5 / 6.4	12 / 14 racks deployed
Maximum Density (kW/Rack)	12	
Module Size[mm] (LxWxH)	13700 x 3300 x 3600	Outside dimensions
Module Size[mm] (LxWxH)	13500 x 3100 x 3400	Internal dimensions
Module Weight [kg]	25000 / 44636	Empty = no IT racks or equipment Full = 12 racks @ 1500 kg

PCX - 90kw FLX-MDC

DATA CENTER FACILITIES

Description	Specification	Comments
Input Power Type	480V, 3 wire, 400 amp	AC Low Voltage
Cooling System	InRow DX, N+1	CW option available
pPUE example 1 City Stockholm SE	1.5 typical	With inRow DX - Lower PUE may be possible with different cooling solutions
pPUE example 2 City Dubai	1.54 typical	With inRow DX - Lower PUE may be possible with different cooling solutions
Scalable Yes/ No	No	Module is designed to be deployed independently without sharing support systems

Order Process



Marketplace Link

- Evaluate Capacity Requirements
- Optional Equipment Checklist

Quote Response

- Pricing
- Initial Drawings

Confirm Design

- Define Scope
- Formal Quote

Manufacturing

- Site Prep
- Equipment Ordered
- Factory Acceptance Testing

Deployment & Commissioning

- Shipping & Rigging
- Connection

Get Ready!

Where to buy: https://www.opencompute.org/products

http://www.pcxcorp.com

Project Wiki with latest specification :

https://www.opencompute.org/wiki/Data_Center_Facility/MDC

Mailing list:

https://ocp-all.groups.io/g/OCP-MDC

OCP REGIONAL SUMMIT

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OCP Regional Summit

26–27, September, 2019