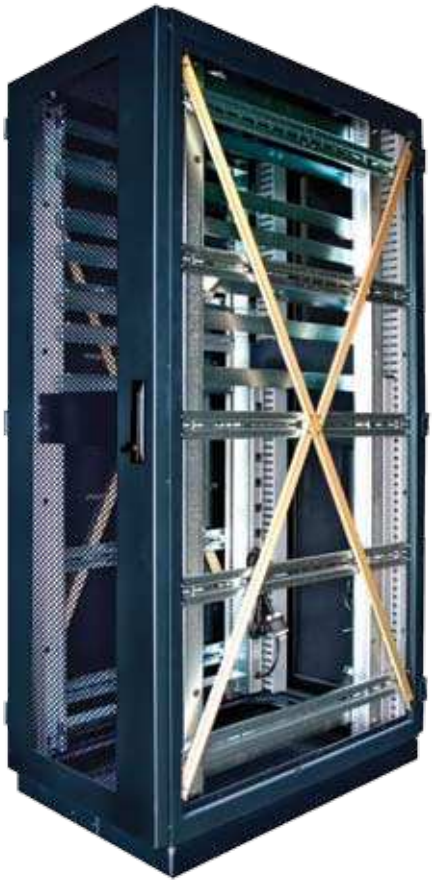
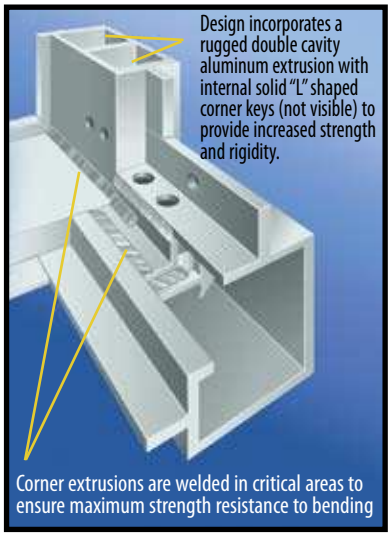


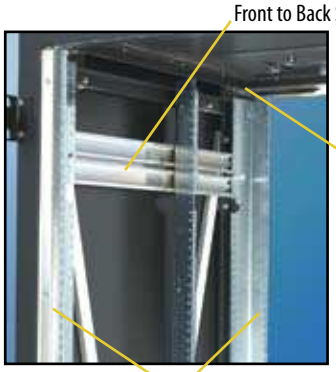
Overview:

Seismic environments require proven performance. Optima's M1 and M2 Seismic Ready Cabinets have been lab and field tested to insure that mission critical equipment remains up and running during earthquake zone events. The high strength- to-weight ration design of the M series cabinet is the foundation to support and protect the equipment during the full force of a seismic event. Telecom, computer, military, and aerospace systems require today's cabinets to handle denser equipment loads. Optima Seismic Ready Cabinets are custom designed to meet NEBS Level 3 Zone 4 and other stringent, earthquake zone applications.

M1 M2 Series Frame (Bezel) Design

- Innovative design of the M2 incorporates a rugged double cavity aluminum extrusion with internal solid "L" shaped corner keys (not visible) to provide increased strength and rigidity.
- Corner extrusions are welded in critical areas to ensure maximum strength resistance to bending and vibration stresses.
- Heavy Duty front to back stiffeners
- Welded Corner Sockets
- 11 Gage Tapped Rails





Side to side lab Test

Advantages:

- Meets Seismic Zone 4 per GR-63-CORE
- Customized Engineering review based on customer specific load requirements
- EMC and NEMA rated versions (optional)
- Modular design reduces installation, upgrade and service time.
- Wide range of industry standard sizes, cabling, cooling and power options.
- Selection of contemporary color choices. (custom color matching also available)
- Proven paint adhesion provides durable aesthetics.

M Series - Seismic Ready Cabinets

Description

All M series Optima cabinets are designed and tested to withstand an earthquake Seismic Zone 4 event as defined in GR-63-CORE without displaying any permanent set or deformation to impair performance or operation. The M1 (single wall extrusion) meets NEBS Level 3 requirements and its modular construction makes it ideal for customization to specific customer needs. For sever applications requiring seismic performance in excess of industry standards the M2's double cavity, aluminum extrusion provides a substantial increase in seismic performance. Each application requires engineering review for equipment loads and rack position. A wide selection of doors, side panels, top covers and bottom are available and designed to remain in place during a seismic event.

Features:

- Heavy duty single or double walled extrusions
- Internal reinforcing corner keys, four way crimped and welded
- Corner sockets and corner members welded to meet: ANSI 329, Bellcore TR-63
- 7 gauge welded steel base with 11 gage rails (10 gage rails optional)
- Universal hard mounting to floor – bolt down base (ceiling or wall bracing optional)
- Vibration resistant hardware
- Standard Sizes
  - Widths: 19", 23" and 24"
  - Heights: 12U, 16U, 20U, 24U, 30U, 35U, 40U, 44U (customs available)
  - Depths: 24", 30", 36", 42"
- Independent, removable side, top panel, bottom panel and doors
- Integrated cable management, power conditioning and cooling options

Scope of Supply:

- Basic cabinet to include: 1 x frame, 2 x mounting rails (pairs, with 10A clip nuts and panel screws), 1 x base, 1 x top panel, gasketing kit , painted and assembled.

1	2	–	3	4	5	6	7	8	9	10	11	12	13	14	15	–	16

1,2 Frame Style

- M1 > MAT Series (seismic)
- M2 > MAT Series (rugged seismic)
- ZZ > Custom

3,4 Frame Height

- 21 > 12U (21.12" / 536mm)
- 28 > 16U (28.12" / 714mm)
- 35 > 20U (35.12" / 892mm)
- 42 > 24U (42.12" / 1069mm)
- 52 > 30U (52.12" / 1336mm)
- 61 > 35U (61.38" / 1559mm)
- 70 > 40U (70.12" / 1781mm)
- 77 > 44U (77.12" / 1958mm)
- ZZ > Custom

5,6 Frame Width

- 19 > 19" (17.81"/ 452.4mm)
- 23 > 23" (21.81" / 554.0mm)
- 24 > 24" (22.81" / 579.4mm)
- ZZ > Custom

7,8 Frame Depth

- 24 > 24" (609.6mm)
- 30 > 30" (762.0mm)
- 36 > 36" (914.4mm)
- 42 > 42" (1066.8mm)
- ZZ > Custom

9 Mounting Rail Position

- S > Standard
- F > Recessed Front
- R > Recessed Rear
- B > Recessed Front & Rear
- X > Not installed
- Z > Custom

10,11 Mounting Rails

- SR > U shape – 14GA, std. (SR)
- UT > U shape – 11GA, tapped (UTR)
- PR > L shape – 11GA, punched (PR)
- TR > L shape – 11GA, tapped (TR)
- TI > Telco – 40U & 44U (TIR)
- RE > Reducer rail (RED)
- EU > IEC 60297-2, 12 gauge
- XX > Not installed
- ZZ > Custom

12,13 Base

- BS > Standard (BS)
- BC > Standard w/casters
- BL > Standard w/levelers
- CL > Standard w/both C&L
- CE > Cable egress (CE)
- EL > Cable egress w/levelers
- EC > Cable egress w/casters
- EB > Cable egress w/both C&L
- PC > Caster Plate w/castors
- SS > Standard w/stabilizer
- XB > Not installed (XB)
- ZZ > Custom

14,15 Top Panel

- TS > Solid (TS)
- PT > Perforated (PT)
- PG > Pagoda (PG)
- CE > Cable egress
- TF > Fan (TF)
- XT > Not installed (XT)
- ZZ > Custom

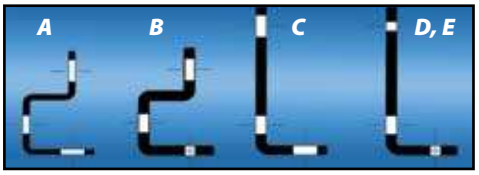
16 Body Color

- 1 > Black (207
- 2 > Sky Blue (210)
- 3 > White (931)
- 4 > Deep Charcoal (209)
- 5 > Light Gray (201)
- 6 > Beige (205)
- Z > Custom

Items to be ordered separately: bottom panel, side panels, doors, and accessories (denote "installed" and location for free integration to cabinet assembly). For a single, fully configured and assembled cabinet part number see page 6 or consult factory.

Mounting Rail Options - *for more detailed description /configuator see page 39*

A) **Standard (SR)** *14 gauge (.075" THK.) CRS*
B) **Heavy-duty Tapped 10-32 (UT)** *11 gauge (.119" THK.) CRS*
C) **Heavy-duty Punched (PR)** *11 gauge (.119" THK.) CRS*
D) **Heavy-duty Tapped 10-32 (TR)** *11 gauge (.119" THK.) CRS*
E) **Telecom Industry (TI)** *11 gauge (.119" THK.) CRS*
F) **IEC 60297-2 (Square hole)** *12/14 gauge (details page 38)*



Base Options - *for more detailed description /configuator see page 38*

A) **Solid**
B) **Cable Egress**

Top Panel Options - *for more detailed description /configuator see page 37*

1) **Solid Top (TS)**
2) **Perforated Top (PT)**
3) **Pagoda (PG)**
4) **Fan Cut-Out (TF)**
5) **Solid Quick-release Top (SQ)** - *CUSTOM*

Bottom Panel Options - *for more detailed description /configuator see page 38*

1 2 3 4 – 5 6 7 8 – 9

1,2 Bottom Panel Type
MU > Unshielded, seismic
MS > Shielded, seismic
ZZ > Custom

3,4 Venting
PS > Solid
PP > Perforated
CE > Cable Egress
ZZ > Custom

5,6 Width
19 > 19" (17.81"/ 452.4mm)
23 > 23" (21.81" / 554.0mm)
24 > 24" (22.81" / 579.4mm)

7,8 Depth
24 > 24" (609.6mm)
30 > 30" (762.0mm)
36 > 36" (914.4mm)
42 > 42" (1066.8mm)

9 Color
1 > Black (207)
2 > Sky Blue (210)
3 > White (931)
4 > Deep Charcoal (209)
5 > Light Gray (201)
6 > Beige (205)
Z > Custom

Side Panel - *for more detailed description /configuator see page 37*

1 2 3 4 – 5 6 7 8 – 9

1,2 Side Panel Type
MU > Unshielded, seismic
MS > Shielded, seismic
ZZ > Custom

3,4 Style
SF > Fixed
SL > Lift Off

5,6 Height
21 > 12U (21.12" / 536mm)
28 > 16U (28.12" / 714mm)
35 > 20U (35.12" / 892mm)
42 > 24U (42.12" / 1069mm)
52 > 30U (52.12" / 1336mm)
61 > 35U (61.38" / 1559mm)
70 > 40U (70.12" / 1781mm)
77 > 44U (77.12" / 1958mm)
ZZ > Custom

7,8 Depth
24 > 24" (609.6mm)
30 > 30" (762.0mm)
36 > 36" (914.4mm)
42 > 42" (1066.8mm)
ZZ > Custom

9 Color
1 > Black (207)
2 > Sky Blue (210)
3 > White (931)
4 > Deep Charcoal (209)
5 > Light Gray (201)
6 > Beige (205)
Z > Custom

Door Options - *for more detailed description /configuator see page 35*

1 2 – 3 4 5 6 – 7 8 – 9 10 – 11

1,2 Door Type
DA > Unshielded
AP > Acrylic
AS > Shielded
AH > Honeycomb
AB > HC, Blower
ZZ > Custom

3,4 Height
21 > 12U (21.12" / 536mm)
28 > 16U (28.12" / 714mm)
35 > 20U (35.12" / 892mm)
42 > 24U (42.12" / 1069mm)
52 > 30U (52.12" / 1336mm)
61 > 35U (61.38" / 1559mm)
70 > 40U (70.12" / 1781mm)
77 > 44U (77.12" / 1958mm)
ZZ > Custom

5,6 Width
19 > 19" (17.81"/ 452.4mm)
23 > 23" (21.81" / 554.0mm)
24 > 24" (22.81" / 579.4mm)
ZZ > Custom

7,8 Hinge Side
LH > Left Hinged
RH > Right Hinged

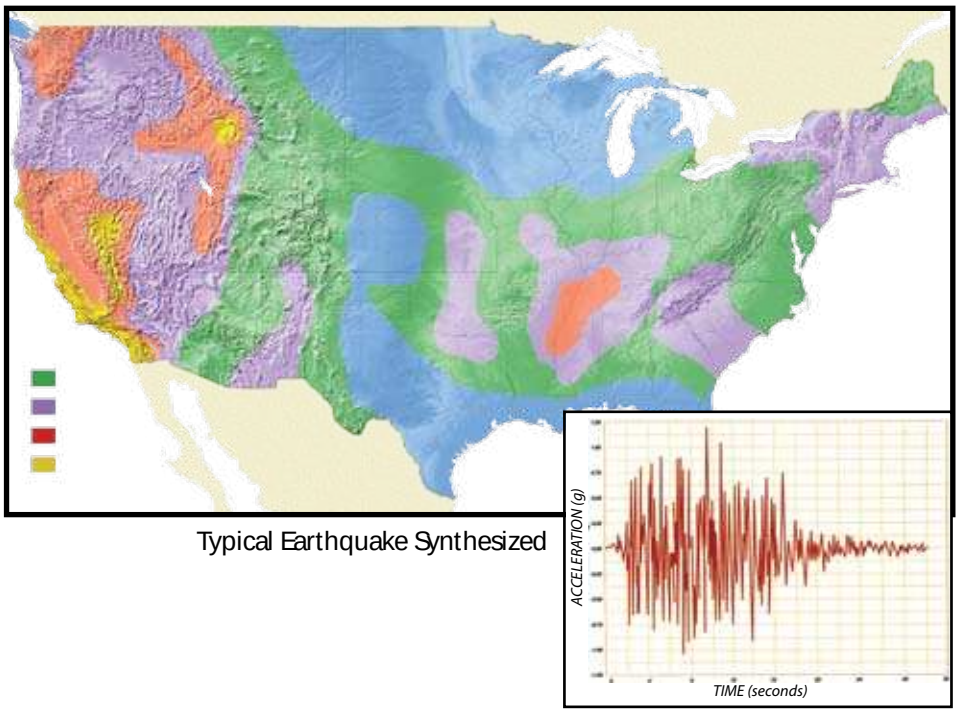
9,10 Ventilation
XX > Solid
TV > Vented Top
BV > Vented Bottom
FV > Vented Top & Bottom
PV > Perforated Insert

11 Color
1 > Black (207)
2 > Sky Blue (210)
3 > White (931)
4 > Deep Charcoal (209)
5 > Light Gray (201)
6 > Beige (205)
Z > Custom

For additional accessories and/or options, refer to pages 40 thru 52

Environmental Considerations for Seismic-Hardening

Earthquake-prone areas such as regions of California (along the San Andreas and other faults) are specified as Zone 4. Zone 3 regions are the next most active. Zones 2 and 1 represent the lowest-risk regions.



Typical Earthquake Synthesized

Sample of Seismic Specifications