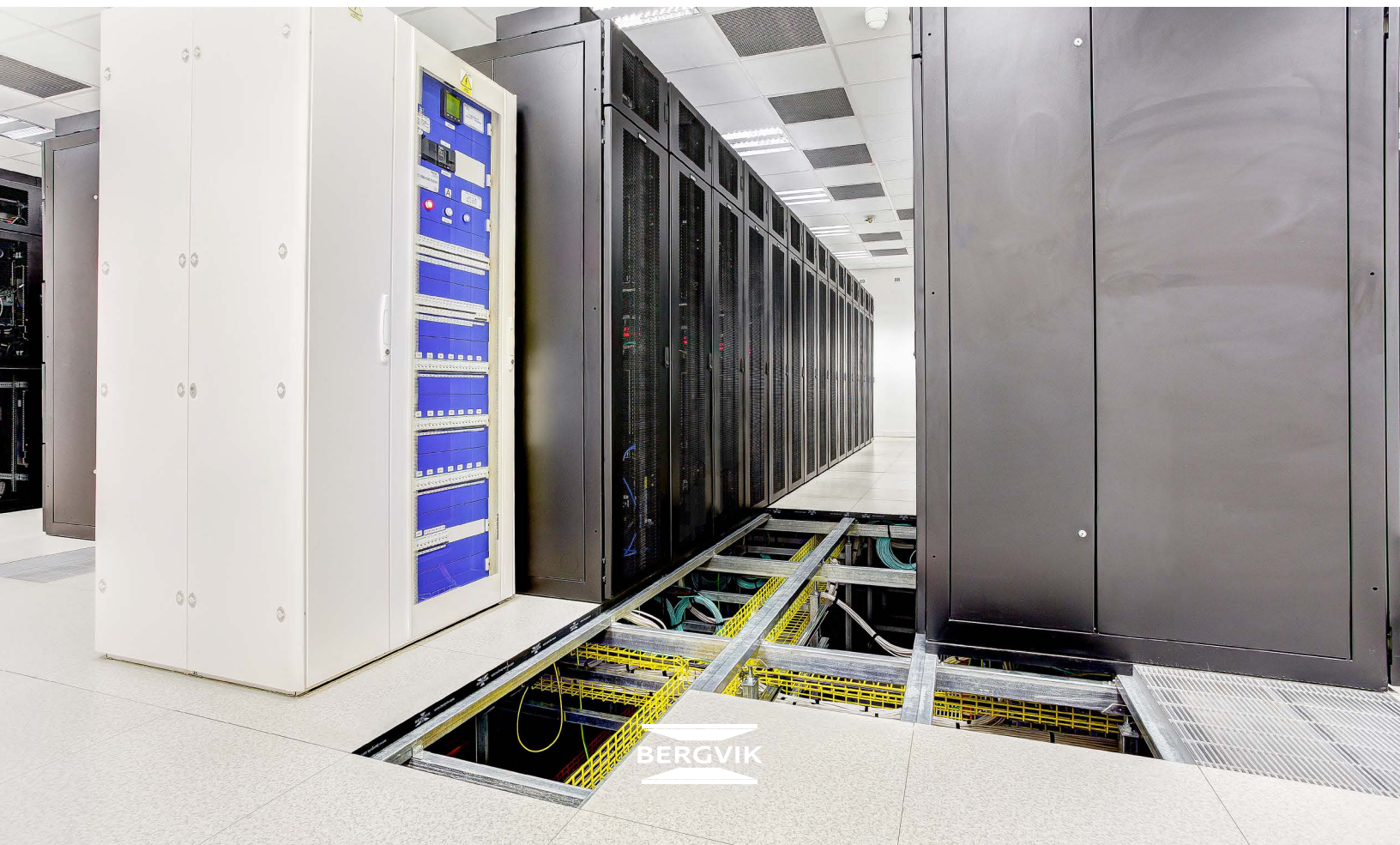


# ISO FLOOR

## BERGVIK RAISED ACCESS FLOOR – ISO FLOOR

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# TECHNICAL SPECIFICATION

## 1. COMPONENT SPECIFICATION

### 1.1 Panel

#### Top Side Laminate

The laminate is a Direct Laminate (DL) process manufactured from phenolic and melamine resin impregnated papers, décor layer of M335 Granite and a high-wear type melamine glass overlay. The DL is wear resistant and easy to clean and maintain (vacuum cleaner or dry mop).



**Electrical resistance:**  $>50 \text{ k}\Omega$  and an average value of  $<10 \text{ G}\Omega$  when test specimens and installed floor coverings are tested surface to ground resistivity at a relative humidity RH of max 40%.

**Colour Fastness:**  $>6$  in accordance with EN 13329.

#### Panel core

The Panel core is manufactured from high density particleboard and less than 10 ppm urea formaldehyde. The panel standard sizes are 24"x24", 36"x24", 18"x24", or 600x600, 800x600, 900x600 and 400x600 mm metric with a thickness of 38mm (1.5"). Custom sizes are available.



#### Edge trim

The edge trim of the panel is a glued 0.6mm (.024") thick ABS plastic and is applied so it covers the tapered edges, including the surface finish of the floor panel. During installation some panels need to be cut, the edges of the cut panels must be covered with aluminium tape.

#### Bottom side laminate

The bottom of the panel is direct laminated with a counterbalance laminate and an aluminum faced sheet, providing a flame spread index of 25 or less per ASTM E84 or NFPA 266.

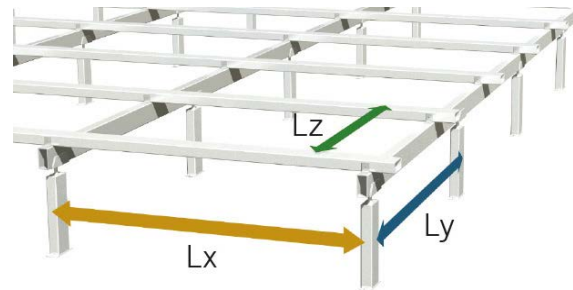
### 1.2 Steel sub-structure

The assembly consists of 80x40x1,5 mm primary and secondary layer tube steel beam sections bolted together 90 degrees perpendicular to each other with quick brackets and self-tapping screws. The desired load rating sets the spacing between the beams.

The under structure is self-supporting and independent from floor panel system and doesn't allow for any lateral movement. The hot dipped galvanized tubular steel sections provide a yield strength of minimum 370 MPa and a tensile strength of minimum 450 MPa in accordance with +CR2 classification.

The 80x40x1,5 mm main steel tube sections span a maximum of 1200 mm without support, while supporting  $10 \text{ kN/m}^2$  uniform distributed load and 3 kN concentrated load as a standard. Higher loads can be achieved by changing the internal spacing between the supporting members of the sub-structure.

For integrated support of transformers over 4000



Kg (8,900 lbs), tube steel beams with the dimension 160x80x5 mm can be used for reinforcement. The 160x80x5 mm beams can span 1200 mm (47.2") between the pedestals, while supporting  $80 \text{ kN/m}^2$  (1,635 PSF) uniform distributed load.

### 1.3 Pedestal

#### Standard Pedestal steel assembly

The standard pedestal assembly consists of a base, 80x40x1.5 mm steel tube column and a head cap, including pedestal head bracket (Type 40 or Type 80) with provisions for height adjustment of  $\pm 25 \text{ mm}$  ( $\pm 1"$ ). The rectangular base plate provides a  $95 \text{ cm}^2$  (14.85 Sq In) of bearing area.

The 80x40 column is made to the height required to

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complete the floor to the specified height, minimum 220 mm. The base plate and head cap are pressed securely into the column.

The Type 40 pedestal head bracket is attached to the 80x40 mm primary beams with self tapping screws in pre-stamped holes. The pedestal base attaches to the concrete floor with two Hilti concrete nails applied with a powder-actuated tool, or as an option with 6x40 mm nail plugs for pre-drilled holes.

The pedestal assembly supports an axial load of 31 kN (6,890 lbs) axial load per pedestal, according to CISCA Pedestal Axial Load Test. The pedestals have a double nut vibration-proof leveling for setting and holding the height over a range of +/- 25 mm (1").

## Seismic Design Solutions

Bergvik's seismic zone solutions come in two variations, a reinforced Iso Floor substructure, as well as seismic bracing frames for areas of frequent seismic activity and higher G-forces. The Iso Floor seismic design substructure with additional reinforcements accommodates a higher frequency of seismic activity. Strengthened with a 60x60x3 mm pedestal anchored to the sub-floor with Hilti seismic anchors and dual bracket connections between primary and secondary steel sections. This model fulfills the requirements for seismic reliability according to NEBS.

The seismic bracing frames can be shipped pre-assembled if a shorter installation time is necessary. If required, the seismic frames can be dynamic full scale tested together with seismic classified Electrical Equipment as one unit in accordance with NEBS GR-63 Core.

## Reinforced Pedestal assembly

The pedestal assembly for integrated transformer supports for transformers over 4000 kg consists of a 60x60x3mm steel tube column with head brackets and a foot with provisions for height adjustment. The base of the foot is rectangular with a 153 cm<sup>2</sup> bearing area.

The head brackets attaches to the 80x40x1,5 mm or 160x80x5 mm primary beam with self-tapping screws in pre-stamped holes. The pedestal base attaches to the concrete floor with two expanding concrete bolts. The pedestals have a vibration-proof levelling mechanism for making and holding fine adjustments in height over a range of +/- 25 mm. Pedestals can be locked at the selected height, so deliberate action

is required to change height setting thus preventing vibratory displacement.

## 2. PERFORMANCE SPECIFICATION

### 1. Floor System & Panels

- a.) Maximum Deflection at a uniform distributed load of 3260 lbs: 0.1 inch (2.54 mm).
- b.) Design system for full lateral stability in all directions, with or without any panels in place.
- c.) There will be electrical continuity throughout the raised flooring system and it shall be properly grounded to earth at the Steel substructure, using 2 grounding lugs in two opposite corners of the room(s).

### 2. Panels - Concentrated Loads:

- a.) 24"x24", or 600x600 mm floor panels, including those with cutouts, shall be capable of withstanding a concentrated design load of 500 kg (1,100 lbs), with a topsurface deflection under load and a permanent set not to exceed 0.19" (4.8 mm) and 0.008" (0.2 mm), respectively.
- b.) Permanent Deformation: 0.02-inch maximum at design load.
- c.) Ultimate Strength: Not less than twice design load.

### 3. Pedestals

- a.) Maximum Axial Load: 6,890 lb (3100 kg) without permanent deformation.
- b.) Ultimate Strength: Not less than twice design load.

## 2.1 Detailed Panel specification

|                      |                     |
|----------------------|---------------------|
| Panel Size (std.):   | 600x600mm, +/-0,2mm |
| Panel Thickness:     | 38mm, +/-0,1mm      |
| Panel Weight (std.): | 10,1 kg             |

| Properties                                       |  |
|--|--|
| Nominal Panel Size (mm x mm)<br>(inch x inch)    | 600x600x38 (std.)<br>24x24x1,5<br>(Unless other specified) |
| Fire Rating                                      | Class 1  |
| Fireproof Rating Classification                  | ASTM E-84 and NFPA 266                                     |
| Antistatic Floor Covering<br>(surface to ground) | 10 <sup>10</sup> - 10 <sup>11</sup> ohm                    |
| Bending strength (MOR)                           | 17.5 N/mm <sup>2</sup>                                     |
| Elasticity (MOE)                                 | 2950 N/mm <sup>2</sup>                                     |
| Finished Floor height (FFH) standard             | 12"-83" (300 mm – 2100 mm)                                 |
| Quality assurance                                | In accordance with<br>ISO 9001 & 14001                     |

# TECHNICAL SPECIFICATION

## 2.2 Tolerances and Limits table

| Description   | Tolerance/Limit                                    |
|---|--|
| <b>Panel 24"x24" or 600x600mm (Std.)</b>                |  |
| Length (sides)  | +/- 0,2 mm   |
| Diagonal difference                                     | < 3 mm   |
| Thickness   | ± 0.1 mm   |
| Level of installed access floor                         | 1.5 mm over 3 m                                    |
| Level of installed access floor                         | 3 mm over entire floor                             |
| Concentrated Load,<br>temporary deflection of 2.8 mm    | 3 kN   |
| Concentrated Load,<br>permanent deflection of 0.2 mm    | 3 kN   |
| Max allowed concentrated load                           | According to design,<br>up to 30 kN                |
| Uniformly Distributed Load per m <sup>2</sup><br>(max.) | According to design,<br>up to 80 kN/m <sup>2</sup> |

## 2.3 Flame spread/Fire ratings

The fire rating of the floor is determined by Fire resistance and Fire Reaction.

### Fire resistance European Norm:

Fire resistance is the ability of the floor to withstand fire and is measured and classed in EN 13501-01. Any material can be classified according to the European standard. It is a measurement of the time the fire takes to spread when exposed to fire.

### Electrical Characteristics:

The raised floor has an antistatic floor panel covering. The floor system shall be properly grounded to earth at the Steel structure, using grounding lugs in two opposite corners.

## 3. AUXILIARY EQUIPMENT

### 3.1 Support Section

Additional support under for heavy equipment will be added during the design phase of the floor. If heavy equipment is added after installation Bergvik must review and approve the design changes before modifications are done to the floor. The contractor must install the floor system in accordance with the provided

drawings, any changes must be approved by Bergvik.

### 3.2 Custom panels for equipment racks

Optional pre-cut panels are available to fit various equipment vendors relay racks, cabinets, power racks etc. in order to facilitate cabling and anchoring,

### 3.3 Air ventilation panels

Various air grille/ventilation panels with different open areas and sizes are available for Iso Floor. All air grille/ventilation panels shall be flush mounted with the standard floor panels.

### 3.4 Panel lifting device

With each room a double suction panel lifting and one wall mounted panel lifting bracket is delivered.

### 3.5 Mounting clamp

Bergvik's mounting clamp for cable ladders is an accessory customized for Iso Floor and HiFlex Floor pedestals, for floor height of minimum 400 mm. It is suited for the most common brackets in the market.

### 3.6 Ramps & steps

An optional metal ramp with a slope of less than 1:12 and have covering that match floor panel finish. A non-slip permanent tape strip shall be applied to ramp surface. Optional aluminium step or ramp structure can be prefabricated.

### 3.7 Railings

Optional railing including handrail, intermediate rails, posts, brackets, end caps, wall returns, wall and floor flanges, plates and anchor material.

### 3.8 Perimeter support (border fascia)

Optional perimeter support forms a transition between access flooring and adjoining floor coverings. The covering matches the floor panel finish, including a horizontal aluminium transition trim.