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FREEAXEZ GRIDD® ADAPTIVE CABLING DISTRIBUTION SYSTEMS

CSI Section:

09 69 33 – Low Profile Fixed Height Access Flooring

1.0 RECOGNITION

The FreeAxez Gridd® cabling distribution systems recognized in this report have been evaluated for use as an interior, adaptive, cabling distribution and management floor system. The structural performance and fire-resistance properties of the Gridd® system comply with the intent of the provisions of the following codes and regulations:

- 2021, 2018, 2015, 2012, and 2009 International Building Code® (IBC)
- 2013 Abu Dhabi International Building Code (ADIBC) – attached supplement
- 2023 City of Los Angeles Building Code (LABC) – attached supplement
- 2022 California Building Code (CBC) – attached supplement

2.0 LIMITATIONS

Use of the FreeAxez Gridd® cabling distribution system recognized in this report is subject to the following limitations:

2.1 The FreeAxez Gridd® cabling distribution systems shall be installed in accordance with the applicable code, the manufacturer's published installation instructions, and this report. Where a conflict occurs, the more restrictive requirements shall govern.

2.2 Gridd® systems shall be for indoor use only, protected by the weather-resistant exterior wall envelope complying with Chapter 14 of the IBC

2.3 Wiring and cabling are beyond the scope of this review. The wiring and cabling and the installation shall comply with the requirements of the National Electrical Code (NFPA 70), including Article 645.5 (e).

2.4 Gridd® systems shall not be used as part of the grounding system.

2.5 All load-carrying units and other heavy equipment shall be anchored to the existing structure as required for seismic resistance.

2.6 Project-specific Gridd installation/layout drawings are provided by the manufacturer on each job to accommodate site specific border conditions and transitions and to plan/organize the cable pathways/power distribution systems only. Documentation shall be provided by others to the building official to show that the existing structure is capable of supporting the additional loading provided by the Gridd® system. Any project specific engineering or documentation shall be provided by others to the building official.

2.7 For Types I and II construction, the area below the Gridd® system shall be limited to uses as noted in Section 718.5 of the IBC.

2.8 Required fire-resistance-rated walls shall extend through the Gridd® system to the fire resistance-rated floor/ceiling assembly below. Penetrations through the walls above and below the fixed-height, low-profile raised floor system shall be protected by an approved firestop system.

2.9 The area below the Gridd® system shall not be used as a plenum.

2.10 The floor covering is beyond the scope of this report. The floor covering shall comply with the requirements of Section 804 of the IBC.

2.11 The cabling distribution systems recognized in this report are produced by FreeAxez in Attleboro, Massachusetts.

3.0 PRODUCT USE

3.1 General: Gridd® is designed to create a low-profile floor which provides underfloor, adaptive cabling distribution and management that is concealed, modular, accessible, and gravity held.

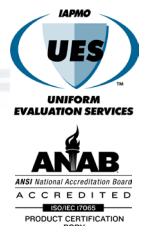
3.2 Design:

3.2.1 Noncombustibility: The system is noncombustible and applicable to Types I, Type II, Type III, Type IV, and Type V construction.

3.2.2 Design Uniform and Concentrated Loading: The Gridd® systems have a maximum dead load of 5 psf (240 Pa) for the Standard and Reinforced Gridd Systems and 7 psf (335 Pa) for the Reinforced Base Unit and High-density Base Unit. The allowable concentrated and uniform live loads are shown in Tables 3 and 4 of this report.

3.2.3 Allowable Seismic Load: The seismic design shall comply with Chapter 13 of ASCE 7 and Tables 5 and 6 of this report. Loading was determined based on seismic shake table testing. The structural functionality of the Gridd®

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.





systems was determined based on testing with a covering of modular carpet tile and luxury vinyl tile on a Gridd® System that consisted of the base units, channel plates, corner plates, and boarder components. The Standard and Reinforced Gridd Systems (40 and 70 series) have a maximum dead load of 5 psf (240 Pa). The Reinforced Gridd Systems (40 or 70 series) with High Capacity Base Units have a maximum dead load of 7 psf (335 Pa).

3.3 Installation: The FreeAxez Gridd® cabling distribution systems published installation instructions, plans, and this report shall be strictly adhered to and available at all times on the jobsite during installation. Additionally, the drawings provided by FreeAxez shall supplement the installation instructions on how to apply the system within the specific space. The overhead work shall be complete, and the initial coat of primer shall be applied to the drywall before Gridd installation.

The concrete subfloor shall comply with the applicable code and the FreeAxez specifications before assembly of the system. The subfloor shall be flat within a tolerance of ¼-inch deviation per 10 feet.

The undersheet supplied by FreeAxez shall be applied to the concrete subfloor before placement of the Gridd® system. Spray-glue shall be applied at the ends of the undersheet as required by the manufacturer’s installation instructions to assure that the undersheet is flat.

The Gridd® system shall be laid out using the layout and material staging drawings prepared by FreeAxez and as required by the FreeAxez installation instructions (Figure 7 of this report). The base units are connected by using the channel plates and corner plates supplied by FreeAxez. The panels interconnect without the use of fasteners.

Project specific Gridd installation/layout instructions are provided by the manufacturer on each job to accommodate site specific border conditions and transition and to plan/organize cable pathways/power distribution systems. Connections and loading conditions are not reflected on these drawings.

Preparation and sealing of project specific construction documents detailing existing building conditions, design live loading, calculations, and/or connectors shall be the responsibility of others in responsible charge in accordance with IBC 107.3.4.

4.0 PRODUCT DESCRIPTION

4.1 General: The FreeAxez Gridd® System is available in eight types of systems; Gridd® 40 Standard, Gridd® 40 Reinforced, Gridd® 70 Standard, and Gridd® 70 reinforced. In addition, both the Gridd 40 Reinforced and Gridd 70 Reinforced are available with either Reinforced Base Unit or High-Density Base Units.

4.2 Gridd® 40 Standard and Gridd® 40 Reinforced Systems: The Gridd® 40 Standard and Gridd® 40 Reinforced Systems are 1.57 inches (40 mm) in height. Gridd® 40 and Gridd® 40 Reinforced Systems consist of the following parts and materials as shown in Table 1 and Figure 1 of this report.

Part Name	FreeAxez Part Number	Material
Base Unit	4001	(2)
Corner Plate	4002	(2)
Channel Plate	4003	(2)
Undersheet	4096	See Section 4.6
Adhesive	4700	3M Synthetic Elastomer Adhesive
Reinforced ¹ Corner Plate	4002R40	(3)
Reinforced ¹ Channel	4003R40	(3)

¹Available on Reinforced System Only

²Grade 40 ASTM A653 Steel HD G40 Galvanized (0.045 and 0.06-inch thicknesses (1.1 and 1.5 mm)).

³The reinforced corner plate and channel are manufactured with Grade 40 ASTM A653 Steel HD G40 Galvanized (0.045 and 0.06-inch thicknesses) and reinforced with 2011-T3 or 6061-T6 Aluminum legs.

4.3 Gridd® 70 Standard and Gridd® 70 Reinforced Systems: The Gridd® 70 Standard and Gridd® 70 Reinforced Systems are 2.52 inches (70 mm) in height. Gridd® 70 and Gridd® 70 Reinforced Systems consist of the following parts and materials as shown in Table 2 and Figure 2 of this report.

Part Name	FreeAxez Part Number	Material
Base Unit	7001	(2)
Corner Plate	4002	(2)
Channel Plate	4003	(2)
Undersheet	4096	See Section 4.6
Adhesive	4700	3M Synthetic Elastomer Adhesive
Reinforced ¹ Corner Plate	4002R70	(3)
Reinforced ¹ Channel	4003R70	(3)

¹Available on Reinforced System Only

²Grade 40 ASTM A653 Steel HD G40 Galvanized (0.045 and 0.06-inch thicknesses (1.1 and 1.5 mm)).

³The reinforced corner plate and channel are manufactured with Grade 40 ASTM A653 Steel HD G40 Galvanized (0.045 and 0.06-inch thicknesses) and reinforced with 2011-T3 or 6061-T6 Aluminum legs.

4.4 Gridd® 40 Reinforced with Reinforced Base Unit and Gridd® 40 Reinforced with High Density Base Unit Systems: The Gridd® 40 Reinforced with Reinforced Base Unit and Gridd® 40 Reinforced with High Density Base Unit



Systems are 1.57 inches (40 mm) in height. These systems consist of the following parts and materials as shown in Table 3, and Figures 3 and 4 of this report.

TABLE 3 – Gridd® 40 Reinforced with Reinforced Base Unit and Gridd® 40 Reinforced with High Density Base Unit CORE PARTS		
Part Name	FreeAxez Part Number	Material
High Density Base Unit	4230	(2)
Reinforced Base Unit	4001R	(2)
Reinforced ¹ Corner Plate	4002R70	(3)
Reinforced ¹ Channel	4003R70	(3)
Undersheet	4096	See Section 4.6
Adhesive	4700	3M Synthetic Elastomer Adhesive

¹Available on Reinforced System Only

²Grade 40 ASTM A653 Steel HD G40 Galvanized (0.045 and 0.06-inch thicknesses (1.1 and 1.5 mm)).

³The reinforced corner plate and channel are manufactured with Grade 40 ASTM A653 Steel HD G40 Galvanized (0.045 and 0.06-inch thicknesses) and reinforced with 2011-T3 or 6061-T6 Aluminum legs.

4.5 Gridd® 70 Reinforced with Reinforced Base Unit and Gridd® 70 Reinforced with High Density Base Unit Systems: The Gridd® 70 Reinforced with Reinforced Base Unit and Gridd® 70 Reinforced with High Density Base Unit Systems are 2.52 inches (70 mm) in height. These systems consist of the following parts and materials as shown in Table 4, and Figures 3 and 5 of this report.

TABLE 4 – Gridd® 70 Reinforced with Reinforced Base Unit and Gridd® 70 Reinforced with High Density Base Unit CORE PARTS		
Part Name	FreeAxez Part Number	Material
High Density Base Unit	7230	(2)
Reinforced Base Unit	7001R	(2)
Reinforced ¹ Corner Plate	4002R70	(3)
Reinforced ¹ Channel	4003R70	(3)
Undersheet	4096	See Section 4.6
Adhesive	4700	3M Synthetic Elastomer Adhesive

¹Available on Reinforced System Only

²Grade 40 ASTM A653 Steel HD G40 Galvanized (0.045 and 0.06-inch thicknesses (1.1 mm and 1.5 mm)).

³The reinforced corner plate and channel are manufactured with Grade 40 ASTM A653 Steel HD G40 Galvanized (0.045 and 0.06-inch thicknesses) and reinforced with 2011-T3 or 6061-T6 Aluminum legs.

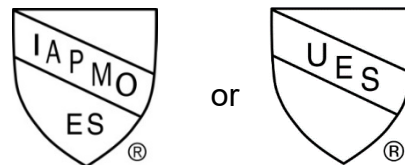
4.6 Undersheet: Sekisui Volara AF Sheets or Vertecc SG Type i-Cell (SG2W-080-42-900) Sheets are provided by FreeAxez to be used as the undersheet for installation of the FreeAxez Gridd® cabling distribution systems. The sheets provided are 1/8-inch thick (3.2 mm) and are available in 60-inch wide (1524 mm) rolls. When tested to ASTM E84, the sheets have a flame spread index of 5 or less and a smoke developed index of 75 or less.

4.7 Adhesive: The 3M Super 77 spray adhesive is provided by FreeAxez for use in attaching the undersheet to concrete. The adhesive is a high tack, high coverage, fast drying transparent adhesive. The product shall be stored in temperatures ranging from 60°F to 80°F (16°C to 27°C). The unopened containers have a shelf life of 15 months.

4.8 Curb (FA-0730 or FA-0430): The Aluminum curb is a hollow aluminum beam with a box cross section. The curb has preinstalled holes on the upper and lower surface to allow it to be anchored to the subfloor. The bottom hole accepts the anchor, and the upper hole is a pass through for the screw gun. The curb is the same height as the Gridd floor and is designed to lay into the cable pathways in place of the corner and channel plate. The curb is designed to be multi-functional. It can be used for local reinforcement or as a secure base to anchor partition walls etc. which may be used to subdivide a space built on Gridd flooring. While the curb fills the cable pathways it is placed within, it was designed to be field cut to allow cable paths to flow uninterrupted.

5.0 IDENTIFICATION

Gridd® 40 Standard, Gridd® 40 Reinforced, Gridd® 40 Reinforced with Reinforced Base Unit, Gridd® 40 Reinforced with High-density Base Unit, Gridd® 70 Standard, Gridd® 70 Reinforced, Gridd® 70 Reinforced with Reinforced Base Unit, and Gridd® 70 Reinforced with High-density Base Unit, re identified on the packaging, as shown in Figure 9 of this report, by the FreeAxez name and trademark, product name, part number, date of manufacture and evaluation report number (ER-518). Each Gridd® Base Unit, as shown in Figure 10 of this report, is stamped with the FreeAxez company name and the evaluation report number. The identification of both the packaging and the base units may also include the IAPMO Uniform Evaluation Service Mark of Conformity as shown below:



IAPMO UES ER-518



6.0 SUBSTANTIATING DATA

6.1 Data in accordance with ICC-ES Acceptance Criteria for Fixed-Height, Low-Profile, Raised Floor Systems, AC151.

6.2 Data in accordance with ICC-ES Acceptance Criteria for Seismic Certification by Shake-table Testing of Nonstructural Components. (AC156) dated October 2010 (Editorially Revised December 2020).

6.3 Data from uniform load testing in accordance with CISCA-Recommended Test Procedures for Access Floors.

6.4 Testing in accordance with ASTM E84.

6.5 Test reports are from laboratories in compliance with ISO/IEC 17025.

6.6 Engineering report with recommendations for the seismic requirements.

6.7 Manufacturer’s quality documentation, descriptive literature, and installation instructions.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on FreeAxez’s Gridd® cabling distribution systems to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. Products are manufactured at locations noted in Section 2.11 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org

TABLE 5 – GRIDD ALLOWABLE CONCENTRATED LIVE LOADS

Concentrated Live Load	Gridd 40 or Gridd 70	Gridd 40 Reinforced or Gridd 70 Reinforced	Gridd 40 Reinforced or Gridd 70 Reinforced with Reinforced BU	Gridd 40 Reinforced or Gridd 70 Reinforced with HD BU	Curb
Load Rating	2,000 lbs	3,000 lbs	4,000 lbs	4,000 lbs	4,000 lbs
Contact Area	2.5 ft x 2.5 ft	2.5 ft x 2.5 ft	2.5 ft x 2.5 ft	2.5 ft x 2.5 ft	96 inches x 3.5 inches
Deflection (inch)	0.15	0.15	0.15	0.15	0.15

For SI: 1 inch=25.4 mm, 1 ft = 0.3048 m, 1 lb = 0.00445 kN

TABLE 6 – GRIDD ALLOWABLE UNIFORM LIVE LOADS

	Gridd 40 or Gridd 70	Gridd 40 Reinforced or Gridd 70 Reinforced	Gridd 40 Reinforced or Gridd 70 Reinforced with Reinforced BU	Gridd 40 Reinforced or Gridd 70 Reinforced with HD BU	Curb
Uniform Live Load Rating	100 psf	250 psf	650 psf	650 psf	500 plf
Maximum Deflection (inch)	0.15	0.15	0.15	0.15	0.15

TABLE 7 – GRIDD SEISMIC DESIGN CRITERIA				
Gridd System	Gridd 40 or Gridd 70	Gridd 40 Reinforced or Gridd 70 Reinforced	Gridd 40 Reinforced or Gridd 70 Reinforced with Reinforced BU	Gridd 40 Reinforced or Gridd 70 Reinforced with HD BU
Design spectral response acceleration at short periods (S_{DS})	2.0 g	2.0 g	2.0 g	2.0 g
Maximum Considered Earthquake Response at Short Periods (S_s) ¹	3.0 g	3.0 g	3.0 g	3.0 g
Ratio of Mounting Height to Roof Height (z/h)	1	1	1	1
Importance Factor (I_p)	1.5	1.5	1.5	1.5

¹Mapped spectral accelerations for short periods are determined in Section 1613.2.1 of the 2021 and 2018 IBC, and Section 1613.3.1 of the 2015 and 2012 IBC and Section 1613.5.1 of the 2009 IBC, as applicable.

TABLE 8 – GRIDD SEISMIC PARAMETERS ^{1,2}				
Gridd System	Gridd 40 or Gridd 70	Gridd 40 Reinforced or Gridd 70 Reinforced	Gridd 40 or Gridd 70 Reinforced with Reinforced BU	Gridd 40 Reinforced or Gridd 70 Reinforced with HD BU
Seismic Design Category ³	A, B, C, D, E, F	A, B, C, D, E, F	A, B, C, D, E, F	A, B, C, D, E, F
Occupancy Category	I, II, III, IV	I, II, III, IV	I, II, III, IV	I, II, III, IV
Site Classification	A, B, C, D	A, B, C, D	A, B, C, D	A, B, C, D

¹Qualified for any height within the structure based on seismic shake table testing ($z/h=1$) in accordance with AC156.

²Qualified for Importance Factor (I_p) = 1.5 based on seismic shake table testing in accordance with AC156.

³Seismic Design Category is determined from Section 1613.2.5 of the 2021 and 2018 IBC, and Section 1613.3.5 of the 2015 and 2012 IBC, and Section 1613.5.6 of the 2009 IBC, as applicable.

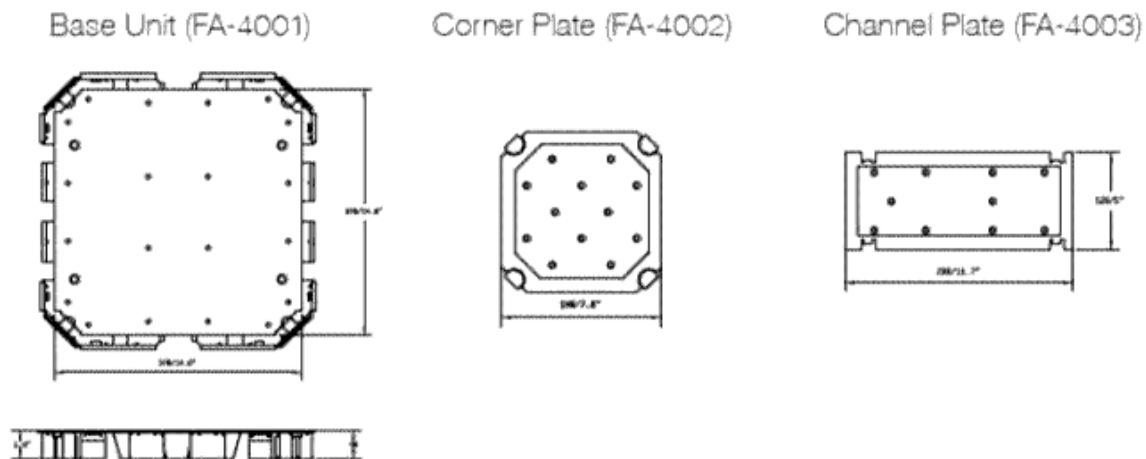


FIGURE 1— GRIDD[®] 40 CORE COMPONENTS

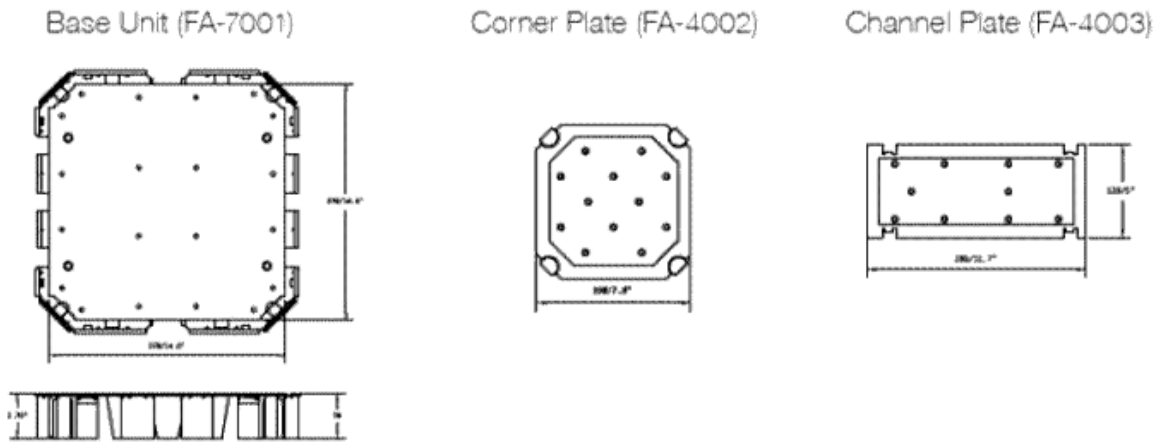


FIGURE 2-- GRIDD[®] 70 CORE COMPONENTS

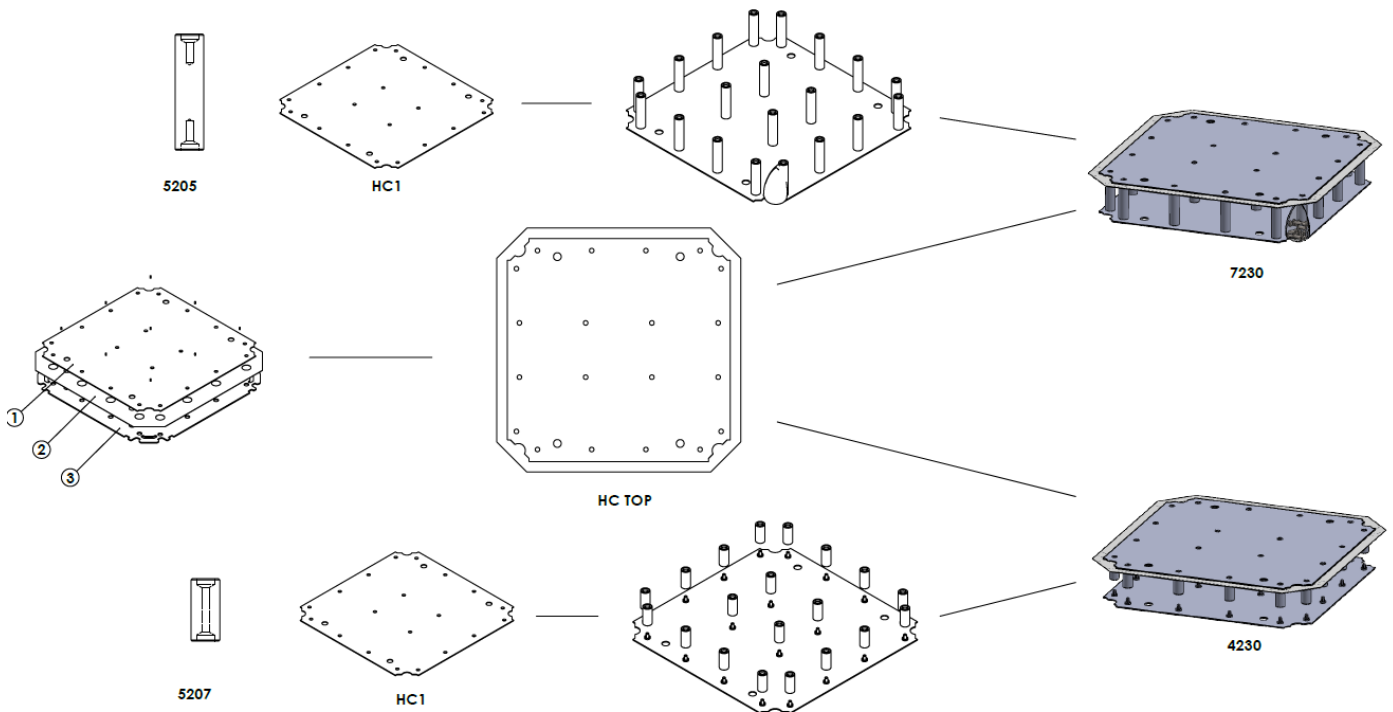


FIGURE 3 – HIGH DENSITY BASE UNIT OVERVIEW (40 and 70 SERIES)

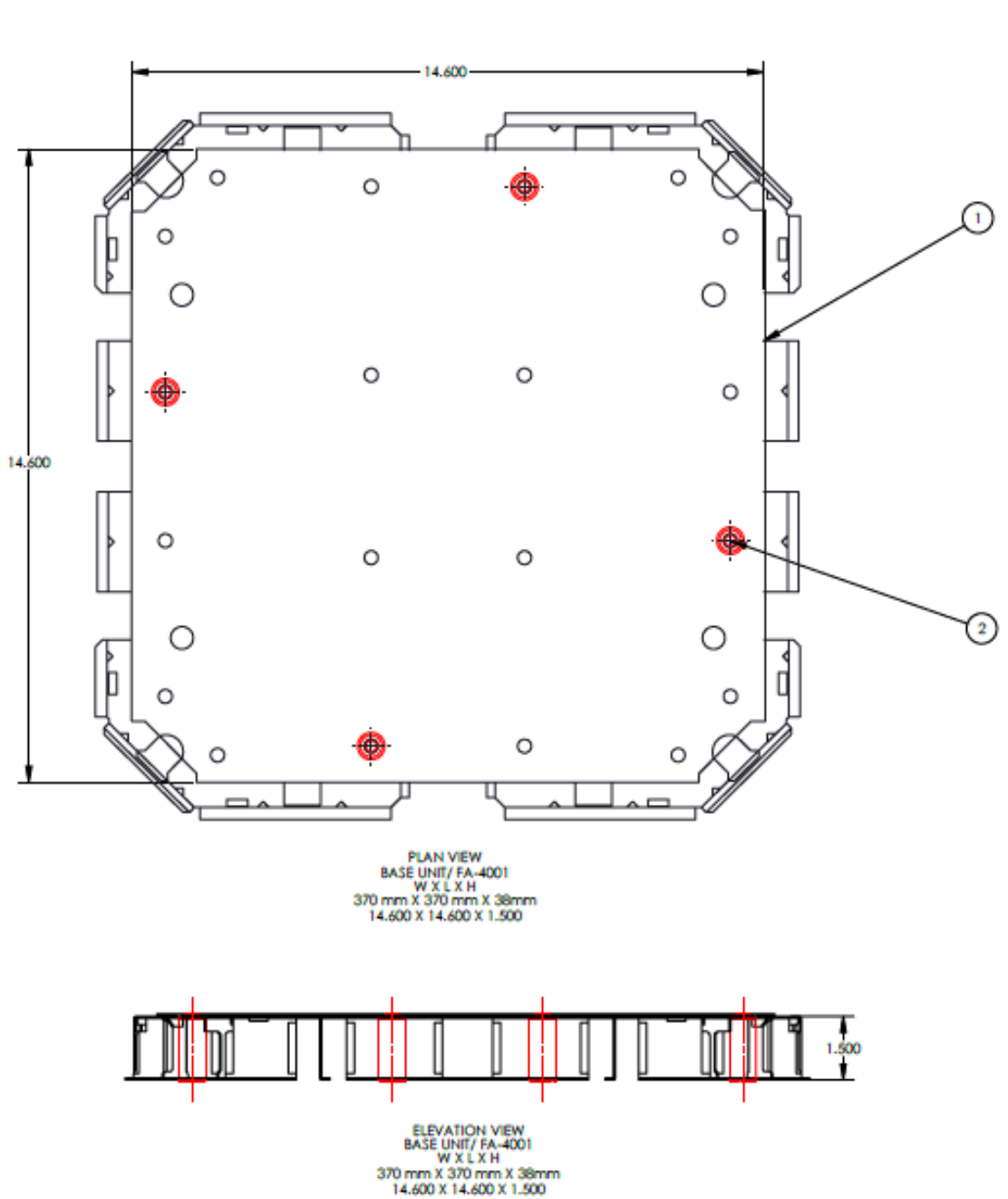
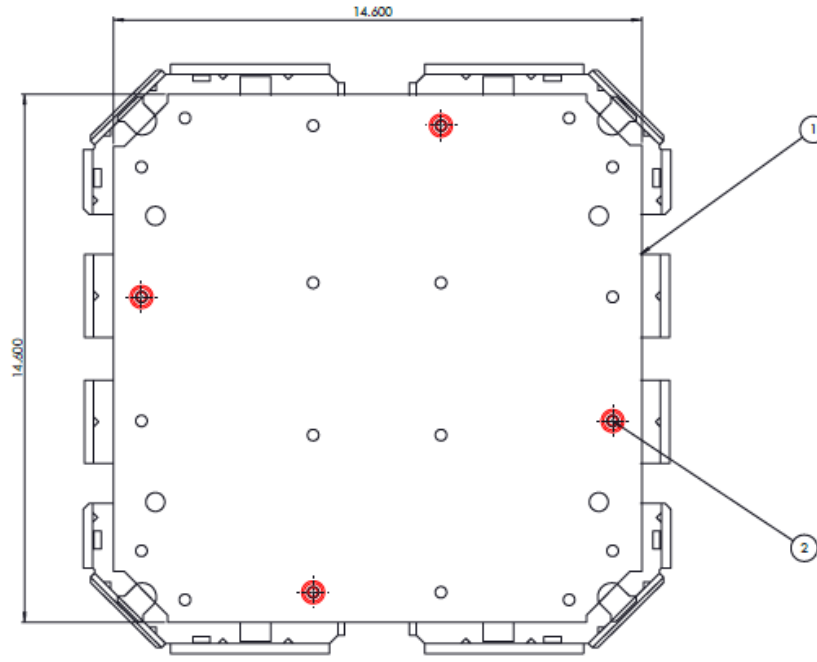
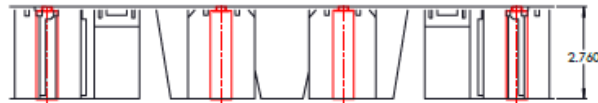


FIGURE 4 – GRIDD 40 REINFORCED BASE UNIT



PLAN VIEW
BASE UNIT/FA-7001
W X L X H
370 mm X 370 mm X 70 mm
14.6' X 14.6' X 2.76'



ELEVATION VIEW
BASE UNIT/FA-7001
W X L X H
370 mm X 370 mm X 70 mm
14.6' X 14.6' X 2.76'

FIGURE 5 – GRIDD 70 REINFORCED BASE UNIT

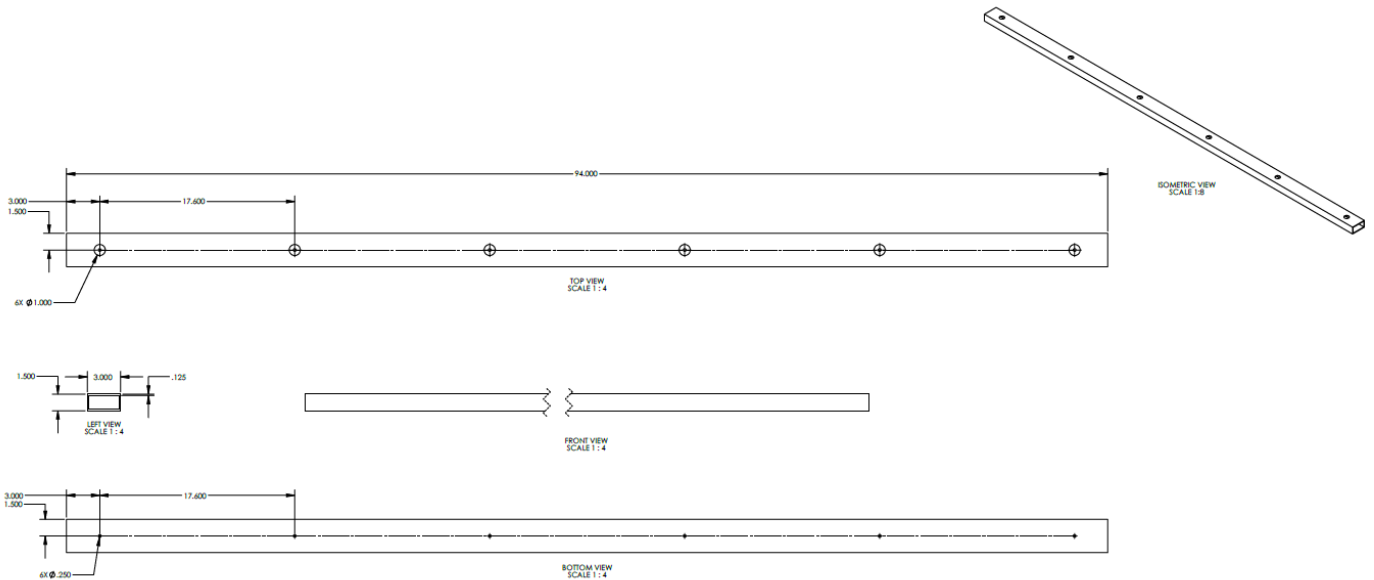


FIGURE 6 – Gridd 40 CURB

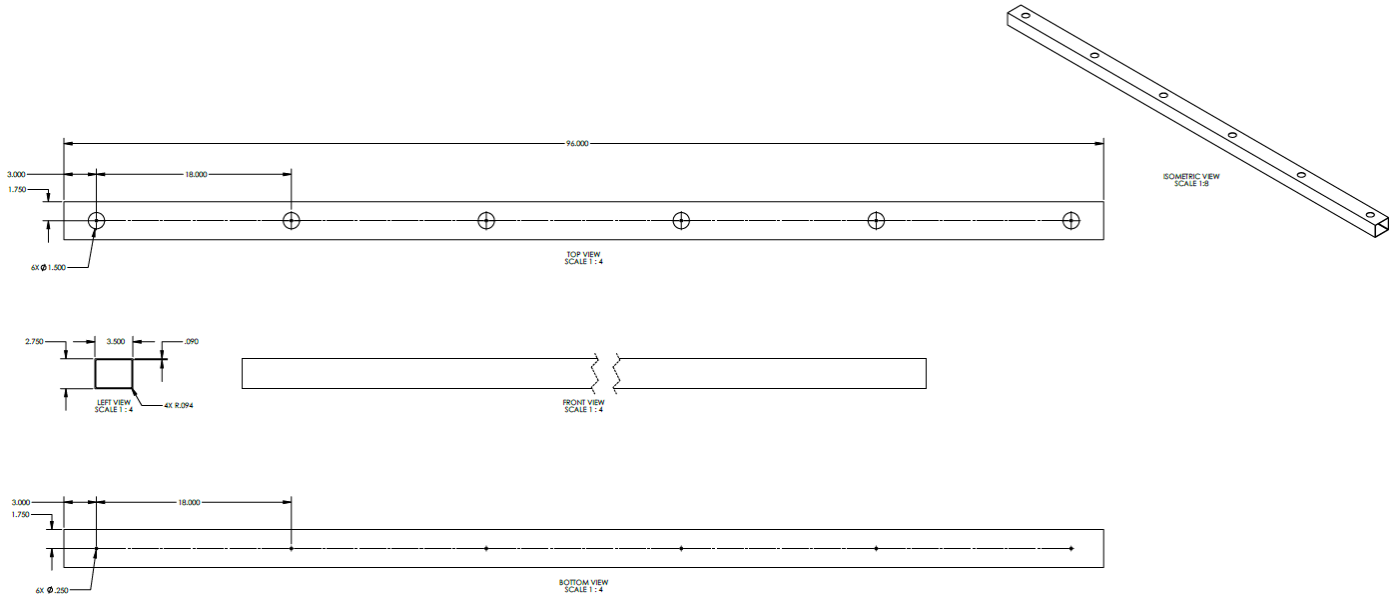


FIGURE 7 – GRIDD 70 CURB

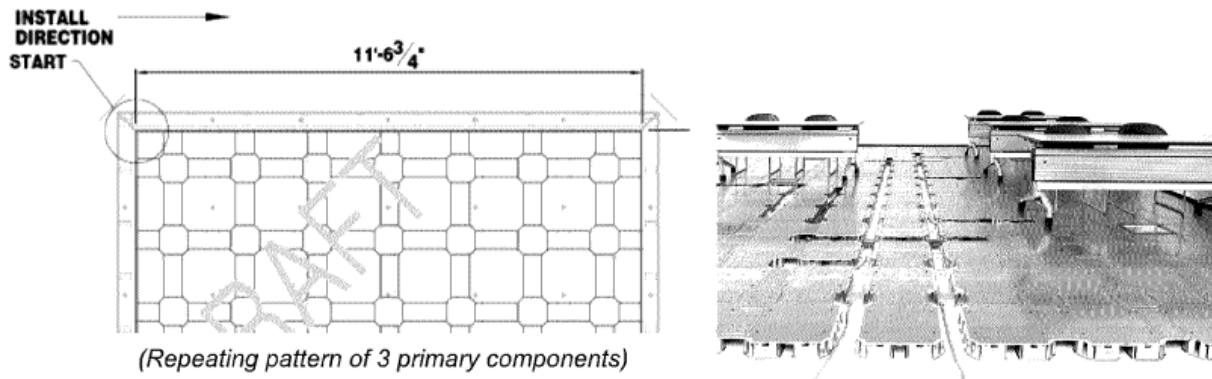


FIGURE 8 – GRIDD INSTALLATION (TYPICAL)



FIGURE 9 – GRIDD PACKAGING LABEL



FIGURE 10 – GRIDD BASE UNIT STAMP



CITY OF LOS ANGELES SUPPLEMENT

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FREEAXEZ GRIDD[®] ADAPTIVE CABLING DISTRIBUTION SYSTEMS

CSI Section:

09 69 33 – Low Profile Fixed Height Access Flooring

1.0 RECOGNITION

The FreeAxez Gridd[®] cabling distribution systems recognized in this report have been evaluated in IAPMO UES ER-518 and the LABC for use as an interior, adaptive, cabling distribution and management floor system. The structural performance and fire-resistance properties of the Gridd[®] system comply with the intent of the provisions of the following code and regulations:

- 2023 City of Los Angeles Building Code (LABC)

2.0 LIMITATIONS

The FreeAxez Gridd[®] cabling distribution system described in this report supplement is subject to the following limitations in addition to the limitations shown in ER-518.

2.1 Use and installation shall be in accordance with ER-518, the manufacturer's installation plans and published installation instructions, and the City of Los Angeles Building Code. A copy of the manufacturer's installation instructions and plans shall be available on site for Registered Deputy Inspectors. Where conflicts occur, the more restrictive shall govern.

2.2 Design loads shall be determined in accordance with the LABC Chapter 16. Allowable loads values shall not be further increased for short duration loading such as wind and seismic.

2.3 Special inspections, where required, shall be in accordance with the LABC Chapter 17, as applicable.

2.4 This supplement expires concurrently with ER-518.

For additional information about this evaluation report please visit www.uniform-es.org or email at info@uniform-es.org



CALIFORNIA SUPPLEMENT

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CSI Section:
09 69 33 – Low Profile Fixed Height Access Flooring

1.0 RECOGNITION

The FreeAxez Gridd[®] cabling distribution systems recognized in this report have been evaluated for use as an interior, adaptive, cabling distribution and management floor system. The structural performance and fire-resistance properties of the Gridd[®] system comply with the intent of the provisions of the following codes and regulations:

- 2022 California Building Code (CBC)
- Additional requirements and limitations for compliance with chapters of the Division of the State Architect (DSA), the California Office of the State Fire Marshall, and the California Health Care Access and Information (HCAi) (formerly OSHPD) are in Sections 3.0 through 5.0 of this supplement.

2.0 LIMITATIONS

The FreeAxez Gridd[®] cabling distribution systems when installed and recognized in this report are subject to the limitations stated in Evaluation Report ER-518 and the following additional limitations:

2.1 The design, installation, limitations, and identification of the FreeAxez Gridd[®] cabling distribution systems shall be in accordance with the 2021 International Building Code or the 2021 International Residential Code, as applicable, as noted in ER-518.

2.2 The systems described in this report shall be used and installed in accordance with ER-518 and Chapters 7, 8, and 16 of the CBC.

2.3 This supplement expires concurrently with ER-518.

3.0 LIMITATION SPECIFIC TO DSA

When installed under DSA, the systems described in this report shall be designed and installed in accordance with ER-518 and Chapters 7, 8, 16, and 16A, of the CBC, as applicable.

4.0 LIMITATION SPECIFIC TO OSFM

When installed under OSFM, the systems described in this report shall be designed and installed in accordance with ER-518 and Chapters 7, 8, 16, and 16A, of the CBC, as applicable.

5.0 LIMITATION SPECIFIC TO HCAi (formerly OSHPD)

When installed under HCAi, the systems described in this report shall be designed and installed in accordance with ER-518 and Chapters 7, 8, 16, and 16A, of the CBC, as applicable.

For additional information about this evaluation report please visit www.uniform-es.org or email at info@uniform-es.org



ABU DHABI INTERNATIONAL BUILDING CODE SUPPLEMENT

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CSI Section:

09 69 33 – Low Profile Fixed Height Access Flooring

1.0 RECOGNITION

The FreeAxez Gridd[®] cabling distribution systems as evaluated and represented in IAPMO UES Evaluation Report ER-518 and with changes as noted in this supplement is a satisfactory alternative for use in buildings built under the following codes (and regulations):

- 2013 Abu Dhabi International Building Code (ADIBC)

2.0 LIMITATIONS

Use of the FreeAxez Gridd[®] cabling distribution system described in IAPMO UES ER-518 complies with the 2013 ADIBC when meeting the requirements of the 2009 International Building Code.

This supplement expires concurrently with ER-518.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org