FX SERIES CLIP IN CEILING TILE

- Structure and installation of clip in ceiling tile

- Illustration of clip in ceiling installation with light steel keel

- Corner details of FX series ceiling

B type:
20
Bevel edge

S type:
28
Square edge

E type:
25
Bevel edge

D type:
31
Bevel edge
SQUARE PANEL PATTERNS

UM-101
Ø 2
450

UM-102
Ø 5 (slit)

UM-103
Ø 10 / 3.2 / 3.0 / 5.0 / 10.0
(TUL HOLE)

UM-104
Ø 3
200

UM-105
Ø 1.0
80

UM-106
F10W
(PLAIN)

UM-107
Ø 1.0
(FLOWER)

UM-108
Ø 0.5
64

UM-109
F10B
(DULL BRIGHT)

PERFORATED SPECIFICATION

Ø 1.8mm
Ø 2.3mm
Ø 3.0mm
Ø 5.0mm
Ø 10mm

For perforation please refer to our perforation pattern on page 19

p 3
ZB SERIES HOOK ON CEILING

- ZB ceiling installation guide (light steel keel applied)

- The flat surface of hook on ceiling

- ZB hook on ceiling installation guide

- Side-view
DC, DE series ceiling panels are available with width 60mm, 80mm, 100mm, 150mm, 200mm, 300mm, height 25 - 30mm. All panels are static powder coated in white color, or other colors on request.
- KC series installation guide illustration

- KC series section view

- Solid leveled ceiling installation illustration

- Collusion of KC keel and ceiling

- Installation illustration of KC ceiling series

- Installation illustration of KC300 ceiling series
C SERIES STRIP CEILING

- Installation illustration of 300C strip ceiling

- Cross view of 300C strip ceiling

- Cross view of panel

- Carrier for 300C series
H SERIES STRIP CEILING

Installation illustration of H series strip ceiling

Structure side-view

Cross view of panel

Carrier for H series
F series strip ceiling

- Detail view

- Installation illustration of F series strip ceiling

- Cross view of panel and size

<table>
<thead>
<tr>
<th>Description</th>
<th>Width</th>
<th>Height</th>
<th>Standard Joint</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYF strip Ceiling</td>
<td>85</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>185</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>F carrier</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>
G SERIES STRIP CEILING

- Installation guide for G series strip ceiling

- Cross view of G series strip ceiling

- Detail view

- Cross view of panel

- Carrier for G series
R SERIES STRIP CEILING

- Installation illustration for R series strip ceiling

- 85R strip ceiling and carrier
B. V SERIES STRIP CEILING

**B SERIES STRIP CEILING: SVB35**

**V SERIES STRIP CEILING: SVV85**

- Installation guide for SVB35 series strip ceiling

![Diagram of SVB35 strip ceiling]

- Installation guide for V series strip ceiling

![Diagram of V series strip ceiling]

- SVV85 series strip ceiling and carrier

![Diagram of SVV85 series strip ceiling and carrier]
Material: aluminium
Thickness: 0.5mm and 0.6mm
Coating: white color power coated, or other RAL colors on request
Cell ceiling size

<table>
<thead>
<tr>
<th>A type cell ceiling</th>
<th>B type cell ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>50x50x40/48mm</td>
<td>50x50x50mm</td>
</tr>
<tr>
<td>75x75x40/48mm</td>
<td>75x75x50mm</td>
</tr>
<tr>
<td>100x100x40/48</td>
<td>100x100x50mm</td>
</tr>
<tr>
<td>125x125x40/48mm</td>
<td>125x125x50mm</td>
</tr>
<tr>
<td>150x150x40/48mm</td>
<td>150x150x50mm</td>
</tr>
<tr>
<td>200x200x40/48mm</td>
<td>200x200x50mm</td>
</tr>
</tbody>
</table>
**Material:** aluminium
**Thickness:** 0.8mm
**Maximum length:** 4m
**Coating:** white color power coated, or other RAL colors on request.
**Screen Ceiling size (space x height):**
- 100 x 100mm
- 150 x 100mm
- 200 x 100mm
- 150 x 120mm
SUN LOUVERS 85L

- **85L/2H Horizontal Sun Louvers**
  - Section view: Type 85L Sun-Louvers Panel
  - Isometric view: Horizontal carrier

- **85L/4V Vertical Sun Louvers**
  - Section view: Type 85L Sun-Louvers Panel
  - Isometric view: Vertical Carrier

- **Section view: Horizontal Panel with Carrier**
  - Horizontal Carrier

- **Section view: Vertical Panel with Carrier**
  - Vertical Carrier
SUN LOUVERS 132 Z

- Section View for 132Z Sun Louvers
- Details view for 132Z Sun Louvers
- Product illustration for 132Z Sun Louvers
The following perforation patterns available for FX Clip-In ceiling, TX Lay-In ceiling, Z/3 Hook-On ceiling series:

**Pattern A:** \( \phi 1.8 \)  
c-c: 5mm  
open area: 22%

**Pattern B:** \( \phi 2.3 \)  
c-c: 5mm  
open area: 18%

**Pattern C:** \( \phi 2.5 \)  
c-c: 5.5mm  
open area: 18%

**Pattern D:** \( \phi 0.7 \)  
c-c: 5mm  
open area: 2%

**Pattern E:** \( \phi 3.0 \)  
c-c: 6.8mm  
open area: 15%

**Pattern F:** \( \phi 3.0 \)  
c-c: 13.6mm  
open area: 8%

**Pattern G:** \( \phi 4.0 \)  
c-c: 7mm  
open area: 25%

**Pattern H:** \( \phi 4.5 \)  
c-c: 8mm  
open area: 42%

**Pattern I:** \( \phi 6.0 \)  
c-c: 10mm  
open area: 27%

**Pattern J:** \( \phi 25 \)  
c-c: 50mm  
open area: 20%

**Pattern K:** \( \phi 30 \)  
c-c: 45mm  
open area: 34%

**Pattern L:** \( \phi 4 \times 4 \)  
c-c: 8mm  
open area: 42%
**REPORT ON THE**

**SURFACE SPREAD OF FLAME**

**TEST OF**

"ALUMINIUM PLATE" MATERIAL

In accordance with BS 476.

<table>
<thead>
<tr>
<th>Specimen No.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spread of flame at first</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>time (mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance (mm)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start of flaming</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Time of maximum spread of flame</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Distance of flame (mm)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>comments</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion:**

In accordance with the class definitions specified in the Standard, the test results show that the sample tested has a Class One Surface Spread of Flame.

**Remarks:**

1) The test results relate only to the behaviour of the test specimens of the product under the particular conditions of test; they are not intended to be sole criterion for assessing the potential fire hazard of the product in use.

2) The sample was tested with the either face exposed to the heat and backed with calcium silicate board.

**Classification of Surface Spread of Flame**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Spread of flame at 1.5 min</th>
<th>Final spread of flame</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Limit (mm)</td>
<td>Limit for one specimen in sample (mm)</td>
</tr>
<tr>
<td>Class 1</td>
<td>105 - 25</td>
<td>105</td>
</tr>
<tr>
<td>Class 2</td>
<td>215 - 25</td>
<td>215</td>
</tr>
<tr>
<td>Class 3</td>
<td>265 - 25</td>
<td>265</td>
</tr>
<tr>
<td>Class 4</td>
<td>Exceeding the limit for class 3</td>
<td></td>
</tr>
</tbody>
</table>
### Acoustic Felt
The test was made on a lightweight type adhered to a perforated metal - diameter of perforation 2.5 mm, open area 18%.
- Sound absorption value is up to 0.65 as between 125 – 4,000 Hz range.
- Fire classification 1, when combined with perforated metal tiles per BS 476 Parts 6 & 7 meeting the UK Building Regulations for Class 0.
- Non-irritant fibres
- Excellent opacity
- Available in a variety of weights and thicknesses

### SOUND ABSORPTION COEFFICIENT CURVE

![Graph showing sound absorption coefficient curve]

<table>
<thead>
<tr>
<th>FREQUENCY</th>
<th>125</th>
<th>250</th>
<th>500</th>
<th>1000</th>
<th>2000</th>
<th>4000</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMPLE</td>
<td>0.40</td>
<td>0.45</td>
<td>0.65</td>
<td>0.65</td>
<td>0.65</td>
<td>0.55</td>
</tr>
<tr>
<td>REF CURVE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TEST REPORT FOR POWDER COATING

<table>
<thead>
<tr>
<th>ITEM</th>
<th>STANDARD</th>
<th>COATING REQUIREMENT</th>
<th>PERFORMANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloss</td>
<td>ISO 2813</td>
<td>(L-4G) +5 (M-4G) +7 (H-4G) = 10</td>
<td>(L-4G) +5 (M-4G) +7 (H-4G) = 10</td>
</tr>
<tr>
<td>Thickness of coating</td>
<td>ISO 2360</td>
<td>Average of five points is not less than 0.7mm</td>
<td>Average of five points is not less than 0.7mm</td>
</tr>
<tr>
<td>Adhesion</td>
<td>ISO 2499</td>
<td>Grade 2</td>
<td>Grade 2</td>
</tr>
<tr>
<td>Rockwell Capping Test</td>
<td>ISO 5260</td>
<td>35NM</td>
<td>60NM, NO CRACK</td>
</tr>
<tr>
<td>Impact Test</td>
<td>ASTM 5054</td>
<td>2.5NM</td>
<td>2.5NM, no crack</td>
</tr>
<tr>
<td>Hardness Test</td>
<td>ISO 2801</td>
<td>90 at least</td>
<td>Not less than 90</td>
</tr>
<tr>
<td>Resistance to cracking on bending</td>
<td>ISO 1510</td>
<td>3mm</td>
<td>6mm, no crack</td>
</tr>
<tr>
<td>Mortar Resistance</td>
<td>ASTM C 207</td>
<td>Mortar must be very easy to remove without leaving any residue.</td>
<td>No visible change and no removal</td>
</tr>
<tr>
<td>Acid resistance</td>
<td>AAMA 665.2</td>
<td>Leaking within 0.5mm of insertion</td>
<td>No foul, gulper of removal, etc.</td>
</tr>
<tr>
<td>Salt Spray Resistance</td>
<td>ISO 2427</td>
<td>1000h</td>
<td>1000h, leaking within 2mm of insertion</td>
</tr>
<tr>
<td>Resistance to boiling water</td>
<td>AAMA 665.2</td>
<td>1100h</td>
<td>No visible change and no removal</td>
</tr>
<tr>
<td>Accelerated weathering TEST</td>
<td>DIN 52017 Standard</td>
<td>1000h</td>
<td>No visible change and no removal</td>
</tr>
<tr>
<td>Solvent Resistance</td>
<td>ISO 50617</td>
<td>1000h</td>
<td>No visible change and no removal</td>
</tr>
<tr>
<td>Gloss</td>
<td>AAMA 665.2</td>
<td>No air bubbles, gulper or removal, etc.</td>
<td></td>
</tr>
<tr>
<td>Color Test</td>
<td>ISO 2813</td>
<td>E 4b, a&lt;q&lt;5</td>
<td></td>
</tr>
</tbody>
</table>

### COLOR CHART

- Light Blue 359
- Light Yellow 0613
- Pink Violet 06002
- Light Gray 7109
- Dark Blue 366
- Orange Yellow 1409
- Violet 0410
- Grey 7143
- Lake Blue 365
- Pink 633
- Light Green 170
- White 0010
# TECHNICAL DATA

## Report on Uniformly Distributed Load Test

**Laboratory Information**
- Lab. Sample I.D.: ST30435/1
- Date Received: 9th March 2003
- Date Tested: 8th March 2003
- Test Area: 1.2m x 1.2m = 1.44m²

<table>
<thead>
<tr>
<th>Lab. Sample I.D.</th>
<th>Maximum Uniformly Distributed Load</th>
<th>Failure Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST30435/1</td>
<td>51.71 KPA</td>
<td>Fracture of Aluminium C-Channel</td>
</tr>
</tbody>
</table>

## PVDF Coating Performance Properties

<table>
<thead>
<tr>
<th>Description</th>
<th>Coating Requirement</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color Uniformity</td>
<td>Visual Control</td>
<td>Immune to minor variations</td>
</tr>
<tr>
<td>Specular gloss at 60°</td>
<td>Medium and low gloss ranges</td>
<td>Controlled to custom spec ≤ 5 units</td>
</tr>
<tr>
<td>Dry film hardness ASTM D 523</td>
<td>E minimum</td>
<td>0.20</td>
</tr>
<tr>
<td>Film adhesion (dry, wet and boiling water) crosshatch 1/16 inch squares</td>
<td>No removal between scored lines</td>
<td>No removal</td>
</tr>
<tr>
<td>Impact resistance (direct) 0.10 inch distortion</td>
<td>No removal of film</td>
<td>No removal</td>
</tr>
<tr>
<td>Abrasion resistance ASTM D 968</td>
<td>20 liters per min</td>
<td>Exceeds spec</td>
</tr>
<tr>
<td>Chemical resistance (10% nitric acid)</td>
<td>15 minutes</td>
<td>Meets or exceeds spec</td>
</tr>
<tr>
<td>Chemical resistance (molar, alkali)</td>
<td>24 hours</td>
<td>Meets or exceeds spec</td>
</tr>
<tr>
<td>Resistance to acid pollutants (70% nitric acid)</td>
<td>30 minutes, maximum 5, ENIBRC units color change</td>
<td>Meets or exceeds spec</td>
</tr>
<tr>
<td>Detergent resistance</td>
<td>72 hours, no effect</td>
<td>Meets or exceeds spec</td>
</tr>
<tr>
<td>Humidity resistance ASTM D 2247</td>
<td>4000 hours, few #8 blisters (maximum)</td>
<td>Meets or exceeds spec</td>
</tr>
<tr>
<td>Salt spray resistance ASTM B 117</td>
<td>4000 hours, minimum 7 rating on active and minimum blister rating of B (ASTM D 5604)</td>
<td>Meets or exceeds spec</td>
</tr>
<tr>
<td>Weathering, color retentation, ASTM D 2244</td>
<td>10 years, 45° South Florida, maximum 5, ENIBRC units color change</td>
<td>Meets or exceeds spec</td>
</tr>
<tr>
<td>Weathering, chalk resistance, ASTM D 4214</td>
<td>10 years, 45° South Florida, B rating for color, C rating for white</td>
<td>Meets or exceeds spec</td>
</tr>
<tr>
<td>Weathering, erosion resistance</td>
<td>10 years, 45° South Florida, maximum 30% loss</td>
<td>Meets or exceeds spec</td>
</tr>
</tbody>
</table>

## COLOR CHART

- Glass Green #808
- Coffee Color #B310
- Flag Red #457
- Flak Green #0011
- Black #108
- Wood TB-1006 8116
- Gold
- Bronze
- Silver
Umen Metal Ceiling System

1. Fire resistance: Guarding against fire is a question of the first importance in designing modern public buildings, especially high-rise buildings. Because of the property of fire resistance, Umen aluminium ceiling panels are considered as the most ideal materials for fire-resistant hung ceilings. Tested by the National Quality Test Center of Fireproof Building Materials, the panels are determined as products reaching the quality of Level class 0 (fire resistance).

2. Damp resistance: Being subject to damp and deformation is a universal hard nut for most ceiling materials. Umen aluminium ceiling panels' properties of resistance to damp, contamination and scrub will keep the panels new for a long time without deformation.

3. High temperature resistance: Because of this property, Umen aluminium ceiling panels are considered as the first choice for decorative materials of hung ceilings in high temperature environments.

4. Decorativeness: Umen aluminium ceiling panels are made with more than 100 patterns and dozens of colours that will provide designers limitless space of imagination.

5. Multiple functions: It will get perfect results if Umen aluminium ceiling panels are constructed with heat insulating cotton and sound absorbing cotton. That will make your working and living spaces more ideal, quiet and comfortable.