

## Exacting Standards in Revitalised office block

### Air tight floor for revitalised offices.

The redevelopment of this 1960's built office building looking out over Charterhouse Square offers over 38,000ft<sup>2</sup> Category A open plan office accommodation and 5,000ft<sup>2</sup> of retail space, located adjacent to the new Crossrail Station at Farringdon East.

Our Air Seal medium grade steel encapsulated panel was utilised throughout all six floors to provide an air plenum to distribute conditioned air to all areas and floors.

Exacting standards were required and a full independent test was carried out with all floors passing with flying colours.

### The Project

Working to exacting standards with one of our best installation providers, we were tasked to supply a floor for a CAT A fit-out to provide air distribution from Denco units installed on each floor.

The criteria was set as follows:

Plenum void operating pressure 12Pa

Volume flow rate 6th floor - zone 1 south 1.80m<sup>3</sup>/s

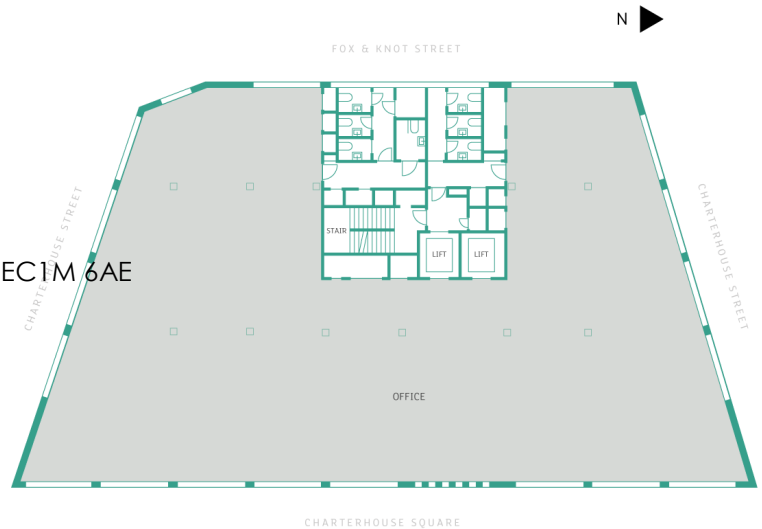
Volume flow rate 6th floor - zone 2 north 0.82m<sup>3</sup>/s

Volume flow rate all zones 1st to 5th floor - 1.42m<sup>3</sup>/s

The complete development sees 6 floors of fully accessible steel encapsulated raised floors manufactured to the PSA MOB PF2 PS/SPU British Standard by Permaflor Raised Flooring Solutions in Hereford to a CAT A fit out standard. The panels utilised our innovative air seal system so that conditioned air can be delivered under pressure to specified points in the floor with almost zero leakage.



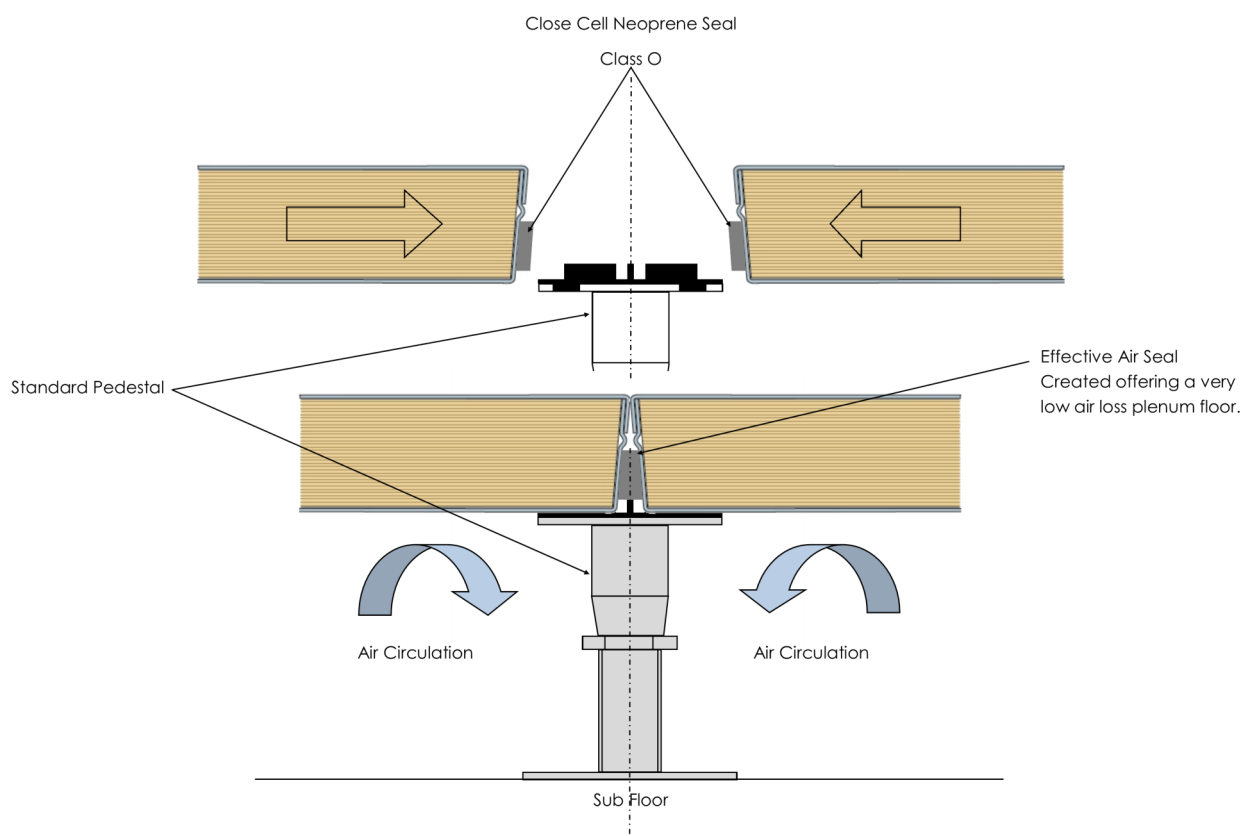
**Architect:** Buckley Gray Yeoman  
**Owner:** Helical PLC  
**Builder:** 21 Construction  
**Installer:** S J Durman Flooring  
**Location:** Charterhouse Square, London. EC1M 6AE  
**System Size:** 3,995 sq. m.  
**Completion:** February 2018  
**Installation:** 8 Weeks



## Products Used

The raised floor panel was produced to the PSA MOB PF2 PS/SPU Medium Grade British standard in a steel encapsulated construction with galvanised steel on both the top and bottom surfaces. Oversize panels were used at perimeters where cuts would have been less than 300mm to keep in line with the PSA specification. The panels were mounted on H range PSA (MOB PF2 PS/SPU) rated pedestals which were adhered directly to the concrete subfloor. All panels used in the installation utilised the air seal system as described below.

### Air Seal Gasket Solution for Plenum Floors



## Full On-Site testing carried out by independent test house

Once the installation had been completed by S J Durman Flooring, a tier one approved Permaflor installer, BTL (Building Testing Limited) were commissioned to carry out test on the air leakage across the floors.

The testing was carried out in December 2017 and viewed by Permaflor, S J Durman and the clients representatives. A full copy of the test report is available upon request from Permaflor.

A brief summary follows:

Report No. F2703/8126

BUILDING TESTING LIMITED

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| <b>SITE TEST REPORT</b><br>23-28 Charterhouse Square, Farringdon, London EC1M 6BQ.<br>Measurement of air flow of raised access plenum floor. Level 5.                                                                                                                                                                                                                                                                                                                                                             |                |                           |                                                                                                                                                                       |                    |                                                                             |                    |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------|--------------------|--------------------|
| <b>SPONSOR:</b><br>Mr Steve Durman<br>SJ Durman Flooring Ltd<br>Tyefields<br>Pennys Lane<br>Margaretting<br>Essex<br>CM4 OHA                                                                                                                                                                                                                                                                                                                                                                                      |                |                           | <b>TEST DATE:</b>                                                                                                                                                     |                    | Zone 1 south - 22/12/16                                                     |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                           | <b>ORDER:</b>                                                                                                                                                         |                    | SJ Durman Flooring Ltd email and BTL Confirmation Form dated 12/12/16 refer |                    |                    |
| <b>RAISED ACCESS FLOOR:</b><br>Supplied & installed by:<br>Type and FFH:<br>Access Panels described as:<br>Pedestals described as:                                                                                                                                                                                                                                                                                                                                                                                |                |                           | Permaflor Ltd. Installed by SJ Durman Flooring Ltd<br>Full access 600mm grid; 494mm FFH<br>BG Range panel with airseal to edges<br>Grainger                           |                    |                                                                             |                    |                    |
| <b>VOID BOUNDARY:</b><br>Lamatherm foil faced mineral fibre barriers to plenum perimeter. Concrete substrate.                                                                                                                                                                                                                                                                                                                                                                                                     |                |                           |                                                                                                                                                                       |                    |                                                                             |                    |                    |
| <b>TEMPORARY SEALS:</b><br>Hole in raised access floor where Denco units to be installed.                                                                                                                                                                                                                                                                                                                                                                                                                         |                |                           |                                                                                                                                                                       |                    |                                                                             |                    |                    |
| <b>STATED CONDITIONS:</b><br>Maximum air flow through floor at 50Pa:<br>Maximum air flow through void at 50Pa:                                                                                                                                                                                                                                                                                                                                                                                                    |                |                           | BSRIA Guide B65/2016<br>1.0 litre/sec.m <sup>2</sup><br>0.7 litre/sec.m <sup>2</sup> or 5% of the volume flow rate for the 12Pa operating pressure, whichever is less |                    |                                                                             |                    |                    |
| <b>METHOD:</b> See attached Appendix 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                           |                                                                                                                                                                       |                    |                                                                             |                    |                    |
| <b>RESULTS:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                           |                                                                                                                                                                       |                    |                                                                             |                    |                    |
| LOCATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | AREA           | PRESSURE                  | AIR FLOW                                                                                                                                                              |                    |                                                                             |                    |                    |
| Level 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | m <sup>2</sup> | Pa                        | VOID<br>(panel joints taped)                                                                                                                                          |                    | VOID + FLOOR<br>(panel joints untaped)                                      |                    | PANELS             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                           | L/s                                                                                                                                                                   | L/s.m <sup>2</sup> | L/s                                                                         | L/s.m <sup>2</sup> | L/s.m <sup>2</sup> |
| Zone 1 south                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 291            | 50                        | 84                                                                                                                                                                    | 0.29               | 204                                                                         | 0.70               | 0.41               |
| <b>CONCLUSION:</b><br>On completion of testing the airflow through both the underfloor plenum void and the surface of the raised access floor complied with the BSRIA Guide limits and the project requirements.<br><br>The integrity of cavity barriers and seals around service penetrations and the like must be maintained in order to ensure continuance of the air tightness values attained.<br><br>Opinions and interpretations expressed in this report are outside the scope of our UKAS accreditation. |                |                           |                                                                                                                                                                       |                    |                                                                             |                    |                    |
| <b>WITNESSED BY:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                | Brian Patey<br>Tom Bailey |                                                                                                                                                                       |                    | Sweco Ltd<br>Banyard Consultants Ltd                                        |                    |                    |
| <b>REPORTED BY:</b><br><div style="text-align: center;">  </div> <div style="text-align: right;">             Ian Collins<br/>             Technical Manager           </div>                                                                                                                                                                                                                                                  |                |                           |                                                                                                                                                                       |                    |                                                                             |                    |                    |

