Load Bearing Ceilings

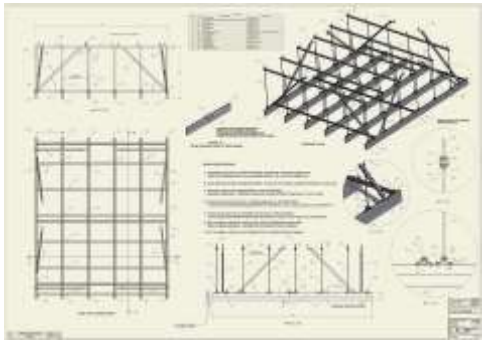
European EMC Products

Technical Datasheet

The modern hospital ward, treatment room or imaging room is a crowded environment and much equipment needs to be suspended from the ceiling capable of withstanding high static and dynamic loads. This ranges from light weight pendant lights to extremely heavy Fluoroscopy, X-Ray and Ultra sound imaging equipment which need to move quickly, smoothly and safely.

Load Bearing Ceilings are heavy duty steel 'Unistrut' type channels which are suspended from the host buildings ceiling in order to carry the moving medical equipment. The load bearing ceiling must be strong, rigid and securely braced to allow the sensitive equipment to be moved safely, smoothly and accurately.

As part of European EMC Products turnkey offering, we can supply the following:



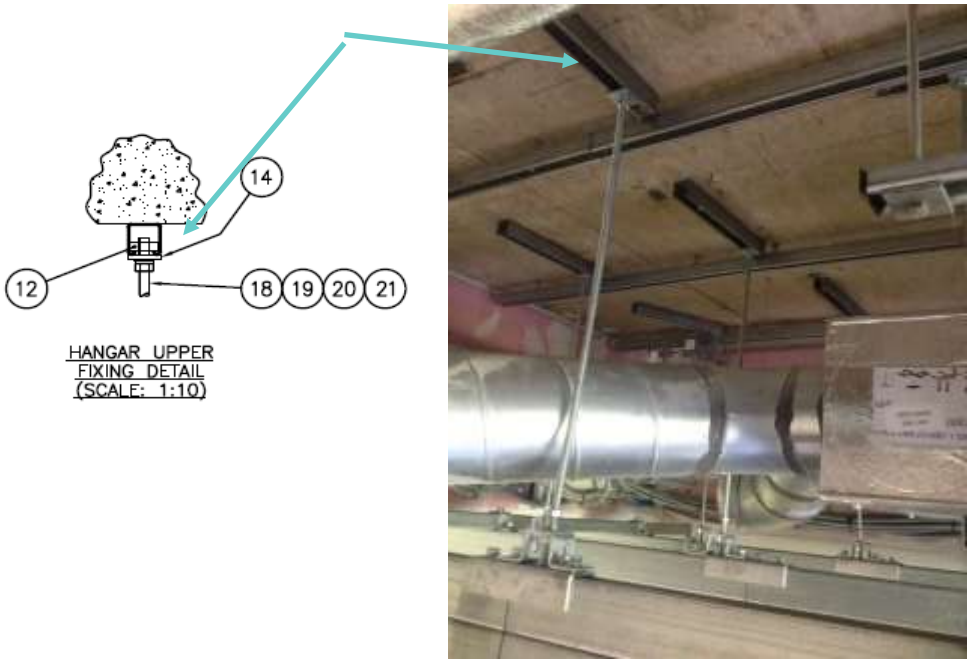
- Initial calculation for extent and scope of the load bearing ceiling. See typical design calculations and analysis in appendix A.
- Design, supply and install load bearing Unistrut ceiling grids within the rooms as per the drawings and specifications received. See appendix B for example of a typical layout drawing per room.

Load bearing support grids comprise of Unistrut cold rolled mild steel channels which are fixed to the structural steel using drop rod assemblies connected via channels and brackets using fixings to the structural concrete soffit and beams. EEP have allowed carrying pull out test on a selection of fixings if required. The ends of the main runners and tie bracing are fixed with anchors and brackets to the perimeter walls. The structure is also to be capable of withstanding additional impact loads with only transient deformation.

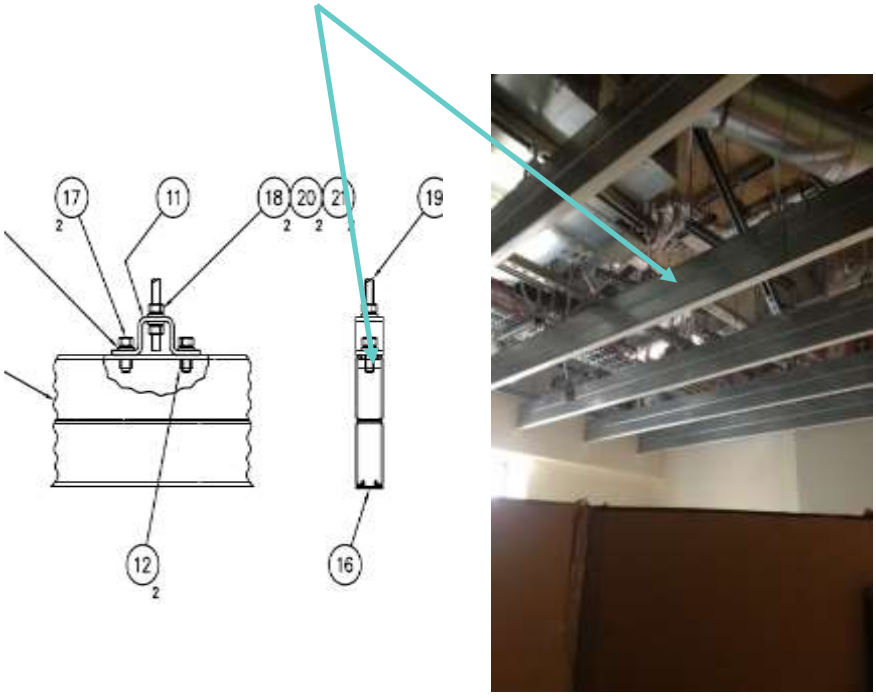
All ceiling grid and tiles supplied and installed by EEP within the Unistrut loading bearing ceiling frameworks.

Installation Sequence

Phase 1: Initial Unistrut P5500 channels sections fixed directly to soffit at 90º to main Unistrut direction.



Phase 2: Secondary main P5500 Unistrut channel fitted to primary using threaded drop rods.



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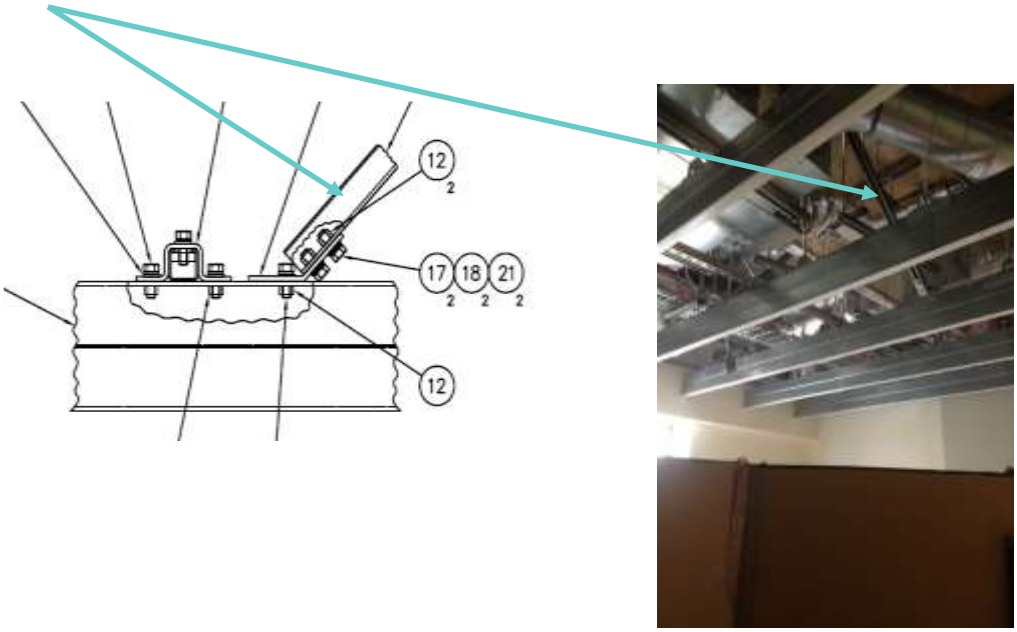
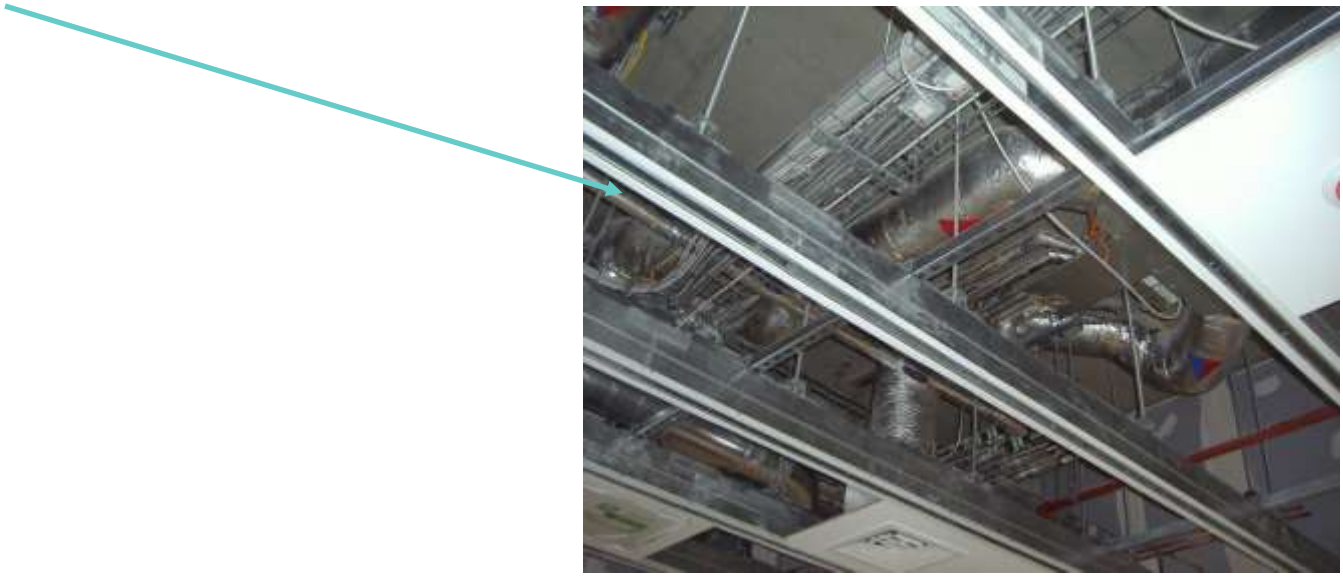
info@euro-emc.co.uk

Phase 3: Bracing channels installed.

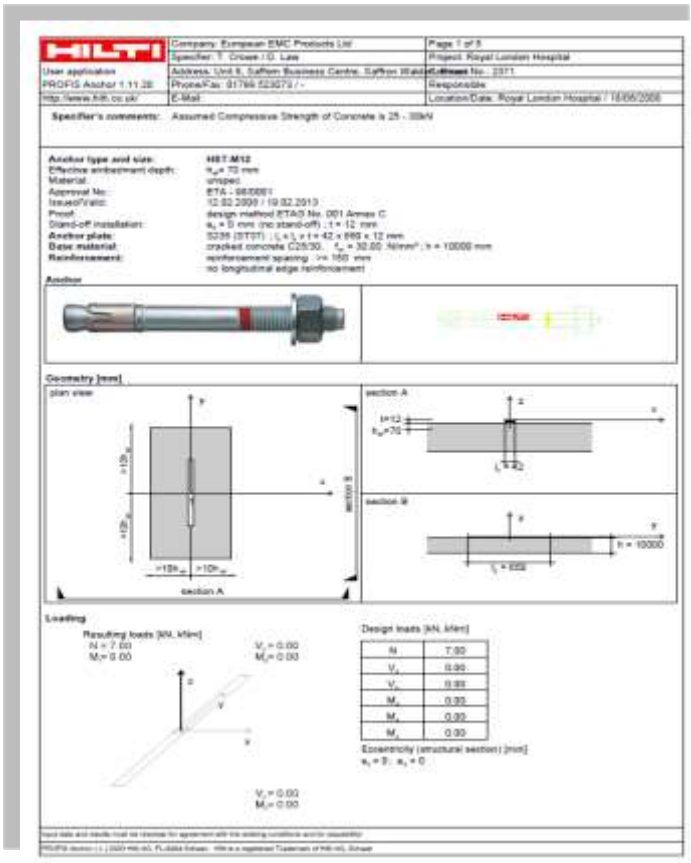


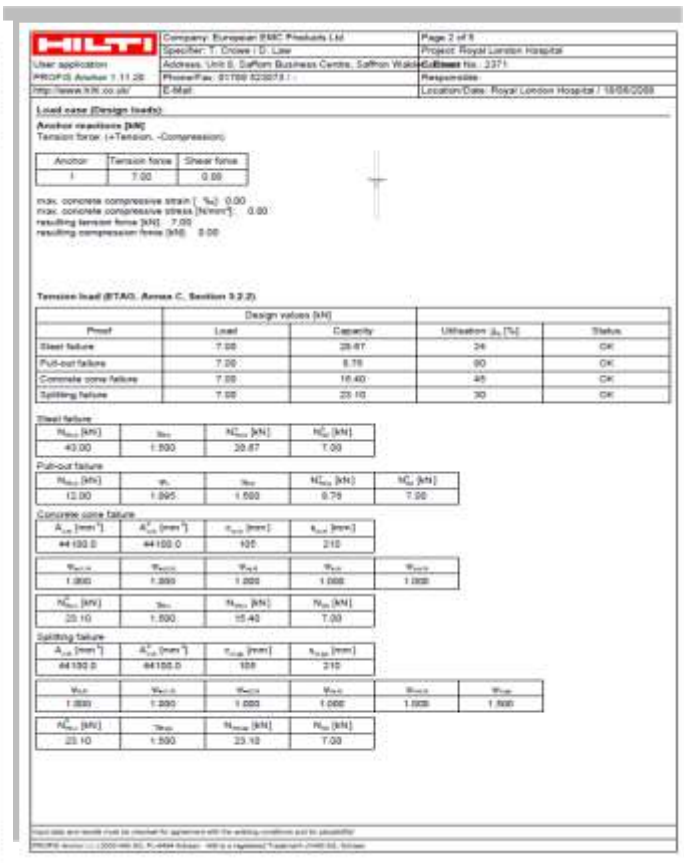
Phase 4: Ceiling tile support angle installed and tiles fitted.



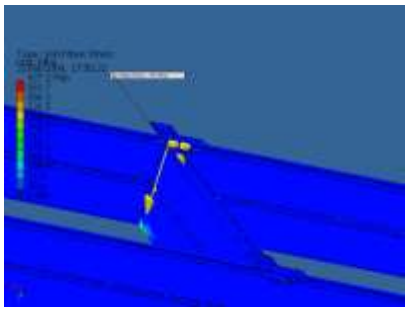
Appendix A: Examples of Load Bearing Load and Deflection Calculations

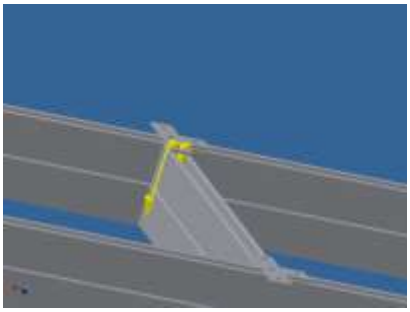
All fixings assessed using Hilti pull out calculator and pull out test carried out on samples.

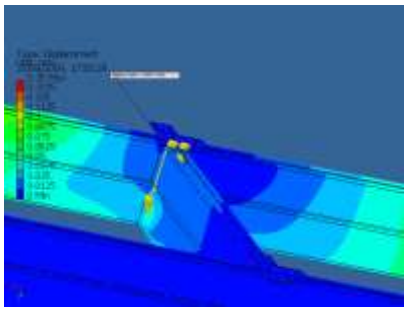




All ceiling layouts assessed using AutoCAD Inventor stress module.







Hilti deflection assessments are also used.

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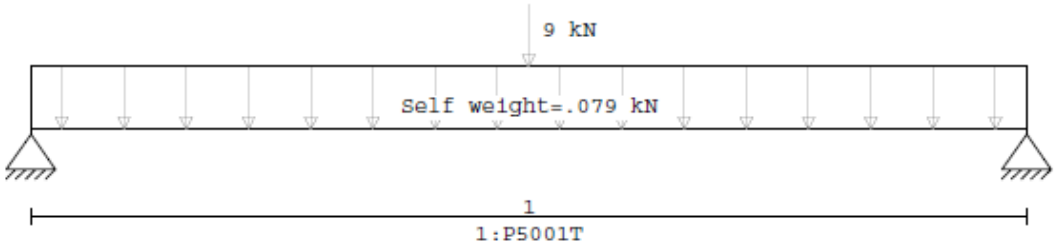
Unistrut Design Software Rel:1.00 23 jul 2009

UNISTRUT®

Project.....:
Component....:
Dimensions...: [kN,m]
Date.....: 23-07-2009
Customer code: GBU1001 Expiry date: 31-7-2009

All results produced by this application must be validated to all applicable standards.
The installation method should reflect the design parameters utilized in this program.

LOADS [kN,m]



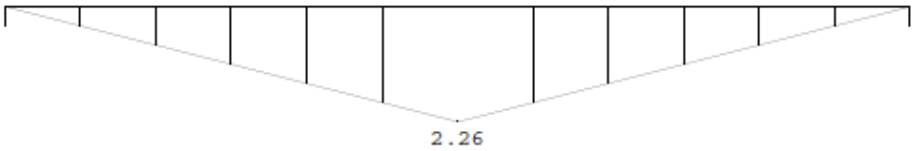
SPAN LENGTHS [m]

Span	From	To	Length
1	0.000	1.000	1.000

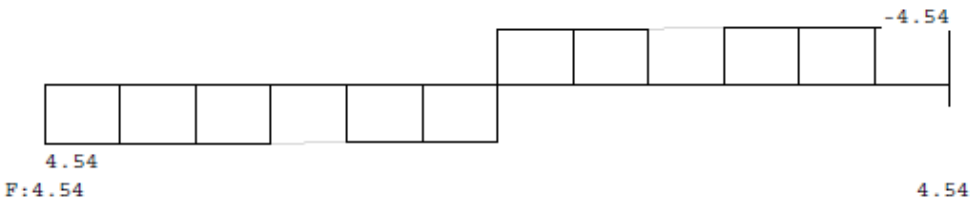
LOADS LCa:1

Load Type		load [kN,m]	Distance [m]	Length [m]
1 Self weight	[kN/m]	0.079	0.000	1.000
2 Point load	[kN]	9.000	0.500	

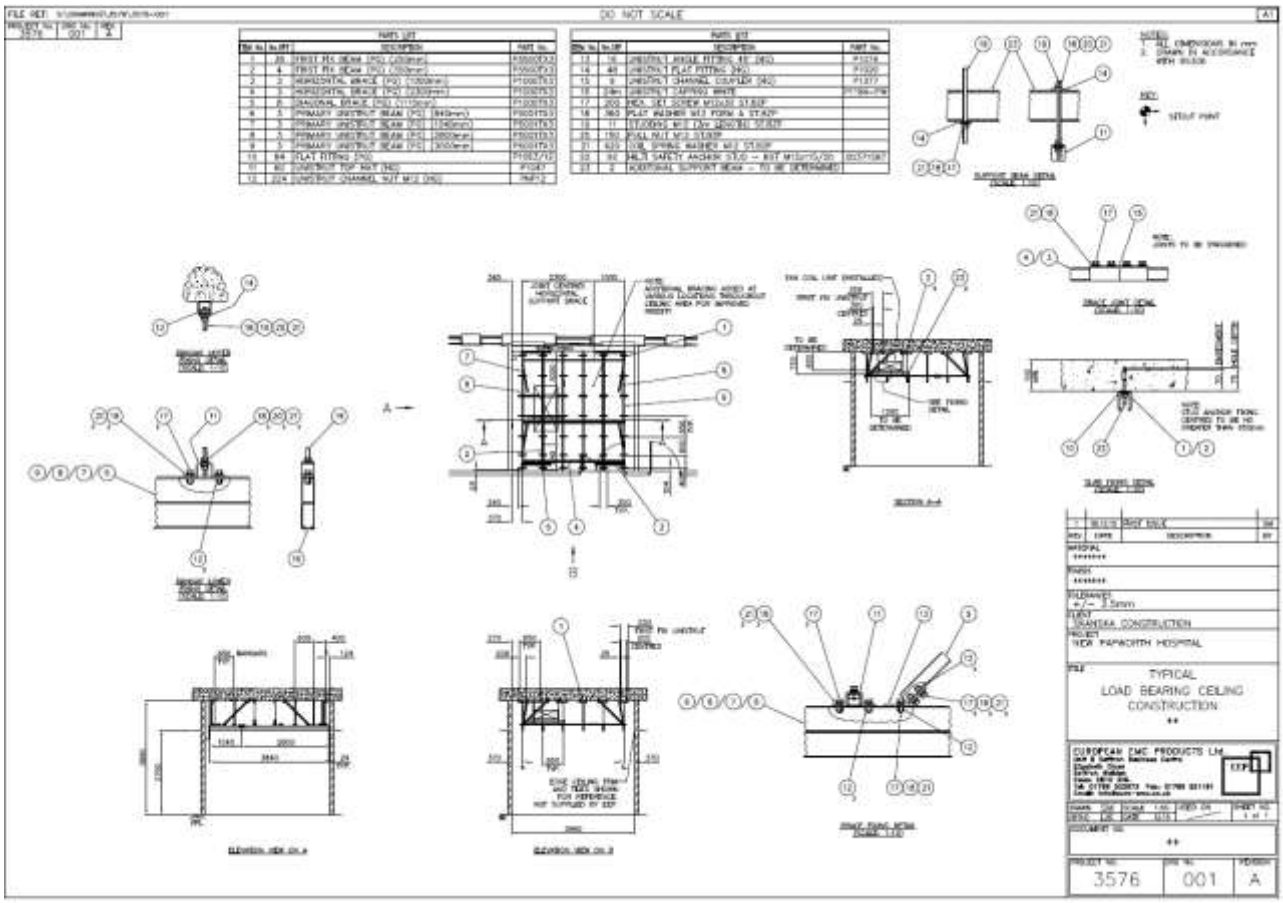
MOMENTS [kNm]



SHEAR FORCES [kN]



Appendix B: Example of Typical Layout Drawing, EEP reference 3576 001



About Us

Established in 1996, European EMC Products (EEP) are an established British company whose experience and understanding of the science of shielding makes it an ideal partner in whom you can place your trust with confidence. The purpose of installing EEP shielding systems is to protect people and equipment against the threats posed by electromagnetic and radio frequency (RF) interference, radiation, magnetic fields and electromagnetic pulses. Our diverse range of turnkey products and services, including design, project management, testing and consultancy are delivered across multiple sectors to an international client base.

Quality

European EMC Products Limited are registered to BS EN ISO 9001:2015, Certificate Number FS38901.
Registered Scope: The design, assembly, installation, servicing and testing of RF Shielded Structures and equipment including EMI Shielding, Blast Doors, Gas Tight Doors and specialised mobile Electromagnetic Pulse Protection (EMPP) containers.

Radio Frequency, Magnetic Shielding and Quench systems for MRI (Magnetic Resonance Imaging) scanners.
The design, assembly and installation of Ionising Radiation Protection facilities.
The design, manufacture and installation of LED lighting systems for medical applications.
EEP Filters Limited are registered to BS EN ISO 9001:2015, Certificate Number FS38901.
Registered Scope: The design, manufacture, management of installation and testing of high performance EMC and EMP Power and Data Line Filters.

Disclaimer

NB: All the information provided within this datasheet is for reference only. Product specifications are subject to change without notice.