DEFLIFTA WE-1

REI 90 *

BRIEF DESCRIPTION

SINGLE-BEAM LOAD-BEARING OUTER FRAME.
determination of fire resistance according to EN 1363-1:2012 and EN 1365-1:2012

BENEFITS

- ✓ Speed of system installation
- ✓ Fire resistance performance
- ✓ Certified system
- ✓ Can be used for any purpose
- ✓ System flexibility

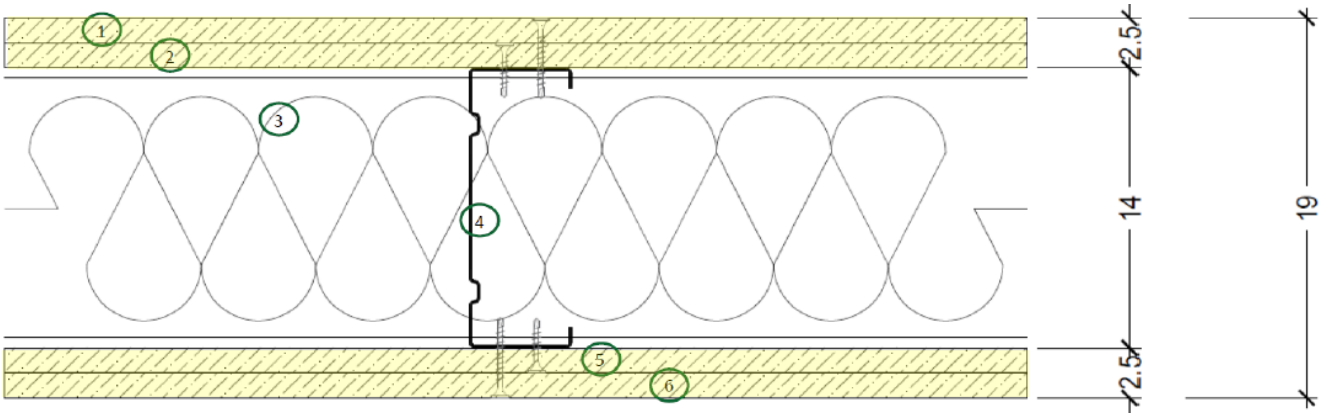
RECOMMENDED FIELDS OF APPLICATION

Residential
Corporate locations
Warehouse
Touristic
Hospital
Trade

DETAILS OF LOAD-BEARING STEEL CONSTRUCTION ELEMENTS

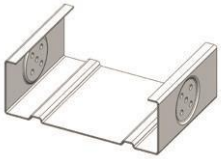
Load-bearing walls with a Manni Green Tech® Light Steel Frame structural frame with a total thickness of approximately 190 mm consisting of the elements listed below:

INTERNAL



INTERNAL

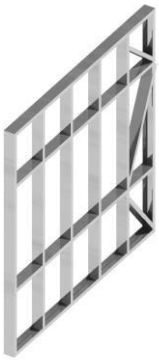
1. Manni Green Tech "F" 12.5 mm thick coated plasterboard sheets
2. Manni Green Tech "F" 12.5 mm thick coated plasterboard sheets
3. Rock wool insulation in double layer, 60+60 mm thickness and 70Kg/m^3 density
4. Manni Green Tech steel load-bearing profiles 140 mm section [10/50/140/50/10 mm]
5. Manni Green Tech "F" 12.5 mm thick coated plasterboard sheets
6. Manni Green Tech "F" 12.5 mm thick coated plasterboard sheets



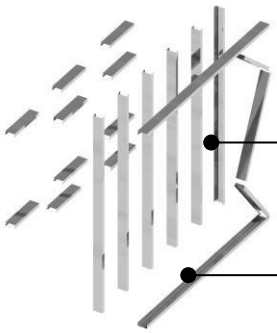
Manni Green Tech "C" profile
10/50/ 140/50/10.

DETAILS OF LOAD-BEARING STEEL CONSTRUCTION ELEMENTS:

The load-bearing structure will be made with "CFS" profiles by assembling high-strength steel profiles S350GD + Z140, in accordance with standard UNI-EN 10346, cold-formed, with dimensions of :



Wall structure
preassembled off-site



Wall structure
Unassembled profiles

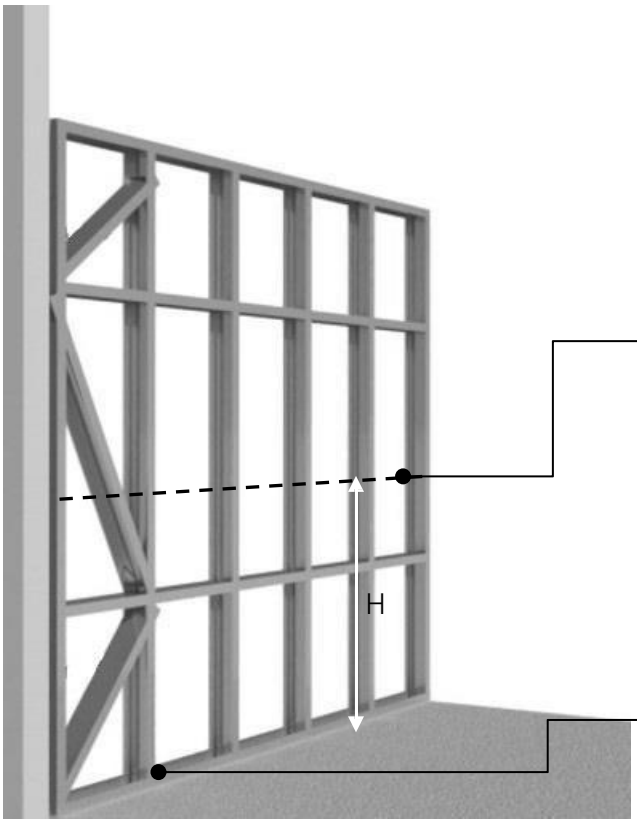
Manni Green Tech "C" uprights
10/50/140/50/10, centre-to-centre distance to be defined (1)

Manni Green Tech "C" guides
10/50/140/ 50/10 mm, thickness to be defined (1)

Frames insulated from the perimeter structures with 3.5 mm thick single-sided vinyl tape with an acoustic cutting function. The rails will be fixed to the floor at the base and top by means of dowels suitable for the support placed at a distance between centres to be defined (1).

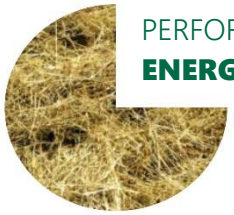
Connections between the rods will be made with self-drilling TEK screws, one to five in number depending on the structural dimensioning.

The vertical profiles can have holes along their core (Service Holes) with a diameter of approximately ø 38.00 mm to allow the passage of ducts for the systems to be inserted in the thickness of the wall, at a variable height (H).



Intersections between profiles should be made by riveting or removing the stiffening lip to ensure the insertion of the incident profile, or the standard distances between rivets and profile edge.

The anchorages to the support surface will be made by means of brackets (HOLD DOWN) anchored to the uprights with self-drilling screws and to the foundation surface with suitably sized mechanical dowels.

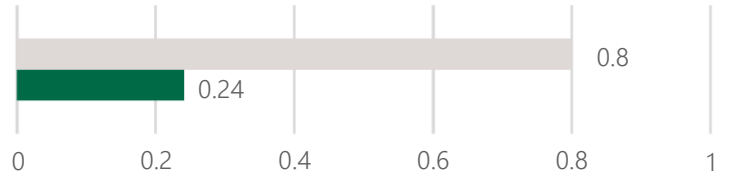


PERFORMANCE DETAILS:

ENERGY EFFICIENCY PERFORMANCE OF THE OPAQUE ENVELOPE

Thickness	190 mm
Surface mass	58 kg/m^2
Resistance	4.2 m^{2}K/W

TRANSMITTANCE U
0.24 [W/m^{2}K]



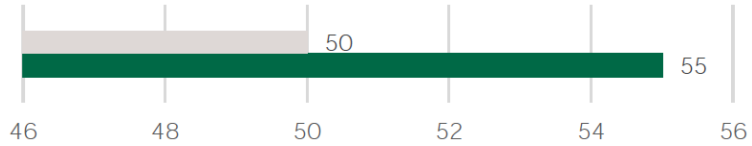
NOTE:
The thermal aspect must be assessed by a thermal engineer with specific global analyses concerning not only the typical section of the wall but also thermal bridges, windows and systems, referring to the thermal behaviour of the building as a whole.
For further information please contact Manni Green Tech Technical Service.

PERFORMANCE DETAILS:
SOUND INSULATION PERFORMANCE

Terms of correction:
C = - 4 dB
Ctr= - 10 dB

* Value according to current legislation DPCM 5/12/97 – Offices, commercial

SOUNDPROOFING POWER:
Rw 55 [dB]



NOTE:
Analytical evaluation with 500 Hz evaluation index in the frequency range from 100 Hz to 3150Hz. The acoustic performance must be evaluated with specific global analyses concerning not only the values of soundproofing power "Rw" but also estimating the contributions (negative on the theoretical value) given by lateral transmissions and acoustic bridges.
For further information please contact Manni Green Tech Technical Service.

SPECIFICATION ITEM

Supporting metal structure, nominal depth 140 mm, made of galvanised sheet steel C-shaped profiles, nominal cross-section 140 mm × 50 mm and nominal sheet thickness 1.25 mm, and comprising: n. 2 horizontal rails, nominal length 3000 mm, one on the floor and one on the ceiling; the lower horizontal rail is fixed to the test frame by means of steel expansion bolts, nominal diameter 9 mm and nominal length 45 mm, placed at a nominal distance between centres of 500 mm; uprights placed at a nominal distance between centres of 600 mm and inserted at their ends into the horizontal rails described above; intermediate cross-pieces placed between the uprights at 920 mm and 2300 mm height; oblique elements placed in the three squares formed by two neighbouring uprights, one of which is lateral, and the cross-pieces; all the profiles are fixed together by means of steel screws after appropriate machining and shaping of their ends; infill panels, total nominal thickness 25 mm, applied on both sides of the load-bearing truss structure described above and made with n. 2 layers of fireproofing slabs called "Manni Green Tech DF13" in coated gypsum reinforced with mineral fibres and additives of type "DF" in accordance with UNI EN 520:2009 "Gypsum plasterboards - Definitions, requirements and test methods", nominal dimensions 3000 mm × 1200 mm, nominal thickness 12.5 mm and nominal weight 10.7 kg/m^2, placed with staggered vertical joints and fixed to the profiles of the load-bearing metal structure by means of self-tapping phosphated steel screws, nominal diameter 3.5 mm and nominal length 25 mm for those of the internal layer placed at nominal spacing of 750 mm and nominal length 35 mm for those of the external layer placed at approximately 300 mm spacing; on the visible surfaces of the cladding panels, the joints between the slabs were sealed with micro-perforated paper reinforcement tape and gypsum filler, while the heads of the screws fixing the slabs and the perimeter edges of the object were sealed with gypsum filler only

REFERENCE LEGISLATION

The metal profiles indicated are to be dimensioned according to the actual design conditions.
For further information please contact MANNI GREEN TECH Technical Service.

The geometry, the pitch of the uprights, the diagonals and any other element with structural value are determined and dimensioned on the basis of the loads laid down in the technical standards for construction M.D. 17/01/2018 – "Update of the new technical standards for construction" and its implementing Circular no. 7 of 21/10/2019 – "Instructions for the application of the Update of the Technical Standards for Construction" referred to in M.D. 17/01/2018.

The strengths of CFS structural elements are determined in accordance with the structural Eurocodes:

UNI En 1993-1-3:2005 Eurocode 3 Design of steel structures - Part 1-3: General rules

Additional rules for the use of cold-bent profiles and thin sheets;

UNI EN 1993-1-5:2007 Eurocode 3 Design of steel structures - Part 1-5: Slab structural elements;

For seismic action reference is always made to the contents of M.D. 17/01/2018.

CERTIFICATIONS
ENVIRONMENTAL SUSTAINABILITY

FIRE RESISTANCE CERTIFICATE

Object: vertical load-bearing element (loaded wall) with separation function
Fire resistance classification according to EN 13501-2:2016
Test result: REI 90
Classification report: 370401/4024FR
Laboratory - date of issue: 18 March 2020

SLABS

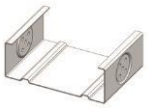
All our slabs comply with the current CE marked reference standard in accordance with UNI EN 520:2009 "Gypsum plasterboards - Definitions, requirements and test methods".
All different slabs comply with specific standards.

INSULATING MATERIAL

All insulation materials used comply with current legislation
UNI EN 13162:2015 "Thermal insulation products for buildings - Factory made mineral wool (MW) products - Specification".

UNI EN 1090 -1:2012

"Execution of steel and aluminium structures - Part 1: Requirements for conformity assessment of structural components".
CE marking according to the European Regulation n.305/2011 (CPR, Construction Products Regulation)



Manni Green Tech "C" profile
10/ 50/ 140/ 50/ 10

STEEL SUSTAINABILITY

Complies with the UNI EN ISO 14021:2016 standard for recycled content.
The average annual recycled content of steel used by Manni Green Tech during 2019 was 60%, varying according to the type of steel and the type of supply required.
CAM Building all structures meet the minimum requirements imposed by the law on - MINIMUM ENVIRONMENTAL CRITERIA FOR THE CONTRACTING OF DESIGN AND WORK SERVICES FOR THE NEW CONSTRUCTION, RENOVATION AND MAINTENANCE OF PUBLIC BUILDINGS - Art. 2.4.2.5 Cast iron, iron, steel

MANAGEMENT & QUALITY

UNI EN ISO 9001:2015 for the following activity EA:17 - Design and construction of steel structures for civil industrial buildings and plants. Production of cold-formed steels for the building industry.