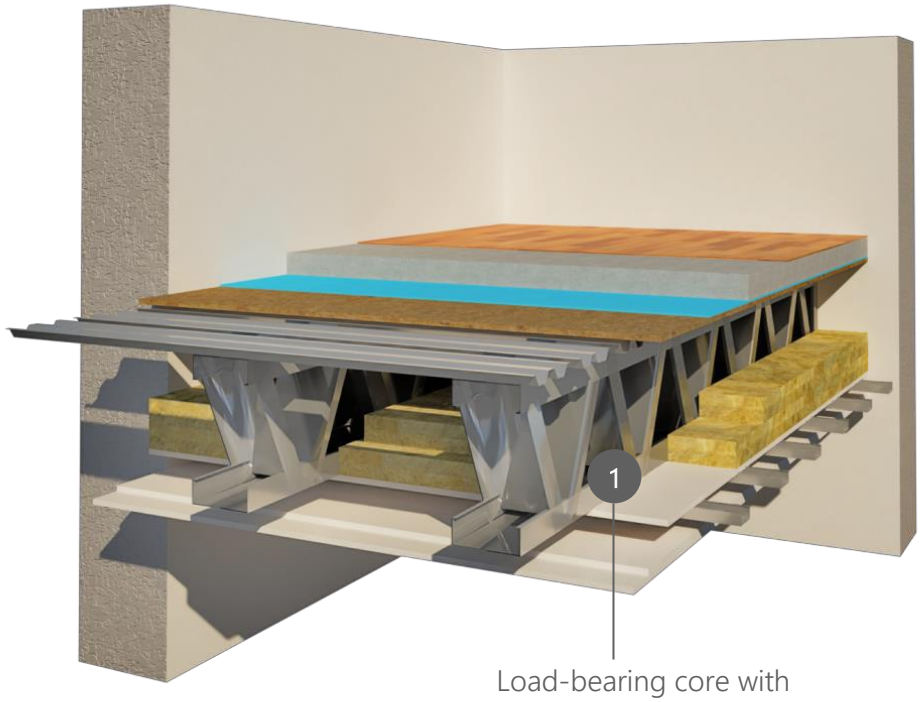
DEFLIFTA SL 1



Load-bearing core with
Manni Green Tech Profile

BRIEF DESCRIPTION

LOAD BEARING INTERNAL FLOOR IN-BETWEEN FLOORS OF DIFFERENT LIVING UNITS
Load-bearing intermediate floor slab with structural MANNI GREEN TECH light steel frame [lsf] metal frame and OSB3 panel cladding on the extrados side, as the laying surface for the subsequent layers of thermal-acoustic insulation and screeds to support the finishes. Cladding and finish on intrados side in MANNI GREEN TECH® coated plasterboard sheets.

BENEFITS

- ✓ Easy passage of ducts
- ✓ High thermal insulation
- ✓ Speed of system installation
- ✓ High levels of sound insulation
- ✓ Impact insulation
- ✓ Living comfort
- ✓ All types of flooring
- ✓ Flexibility in material composition

RECOMMENDED FIELDS OF APPLICATION

Two different building units

Different building units

Residential

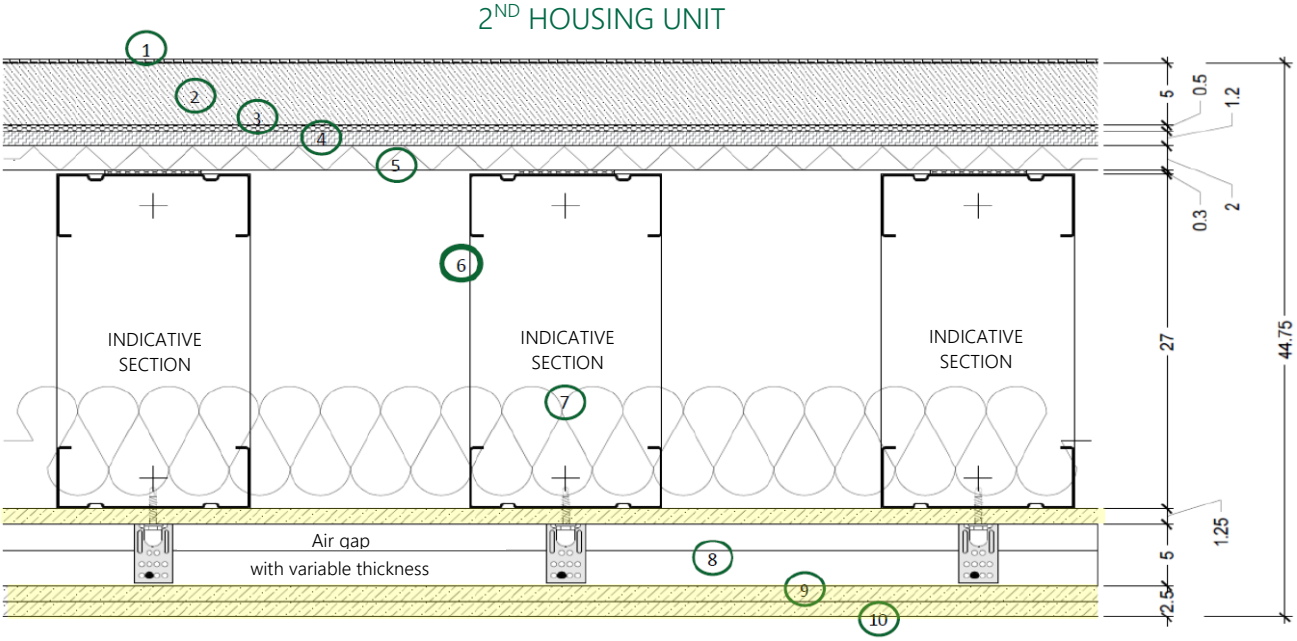
Hospital

Trade Offices

DETAILS OF LOAD-BEARING STEEL CONSTRUCTION ELEMENTS

Load-bearing intermediate floor slab dividing building units with a structural frame in MANNI GREEN TECH® Light Steel Frame with a total thickness of about 450 mm made up of the elements listed below:

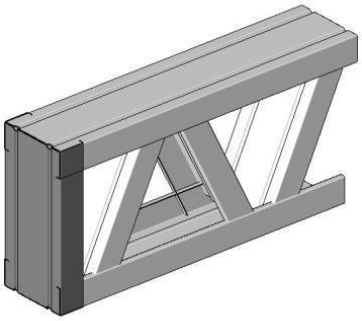
2ND HOUSING UNIT



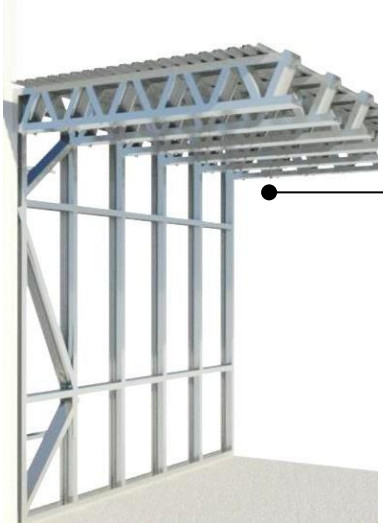
1ST HOUSING UNIT

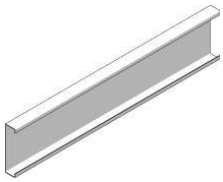
1. Finish in tiles, parquet, etc.
2. Reinforced sand-cement finishing screed min. 50 mm thick
3. Impact soundproofing mat and perimeter strips at least 5 mm thick
4. OSB panel- 3 12 mm thick
5. ISOPAN trapezoidal sheet metal mod. LG20 20 mm thick
6. Rock wool insulation in double layer, 60+60 mm thickness and 70Kg/m3 density
7. Manni Green Tech steel bearing profiles section 270 mm C-shaped beam [10x50/270/50/x10 mm] alternatively Reticular beam with Manni Green Tech steel bearing profiles height to be defined with uprights, guides and diagonals with Manni Green Tech steel bearing profiles section 140 mm [10x50/140/50x10 mm]
8. Manni Green Tech "A" 12.5 mm thick coated plasterboard sheets
9. Steel ceiling structure with 27 mm section profiles + variable air gap
   C-shaped uprights [27/50/27 mm thick 6/10 mm] and U-shaped rails [30/27/30 mm thick 6/10 mm]
10. Manni Green Tech "A" 12.5 mm thick coated plasterboard sheets
11. Manni Green Tech "A" 12.5 mm thick coated plasterboard sheets

DETAILS OF LOAD-BEARING STEEL CONSTRUCTION ELEMENTS:



Reticular beam with Manni Green Tech steel bearing profiles height to be defined with uprights, guides and diagonals with Manni Green Tech steel bearing profiles 140 mm section [10x50/140/50x10 mm]





Beams: Manni Green Tech "C" profile 10X50 / 270/ 50X10 mm, thickness to be defined

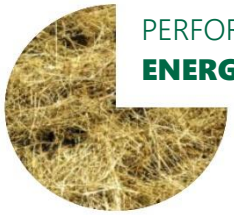
The load-bearing structure will be made of "CFS" profiles by assembling high-strength steel profiles S350GD + Z140, according to UNI-EN 10346, cold-formed.
Frames insulated from the perimeter structures with 3.5 mm thick single-sided vinyl tape with an acoustic cutting function. The rails will be fixed 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).
Each truss rod/beam will be constrained to the corresponding wall/column sections of the vertical profiles to allow proper stability according to the static scheme determined by the "Platform System" assembly system as defined by the CSSBI (Canadian Sheet Steel Buiilding Institute), with vertical forces (the loads) being transferred to the walls below to which they are mechanically connected by means of squares, screws and bolts. The vertical profiles can have holes along their core (Service Holes) to allow the passage of ducts for installations to be inserted into the thickness of the wall.
Connections between the rods will be made with self-drilling TEK screws, one to five in number depending on the structural dimensioning.
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.

In the case of a system with structural elements with linear development consisting of RETICULAR BEAMS.

Reticular beam with Manni Green Tech steel bearing profiles, height to be defined, with uprights, guides and diagonals with Manni Green Tech steel bearing profiles, 140 mm section [10x50/140/50x10 mm], thickness to be defined.

In the case of a system with structural elements with a linear development consisting of RODS.

Manni Green Tech steel rod bearing profiles section 270 mm "C" beam [10x50/270/50x10 mm] thickness and height of beam to be defined according to project.

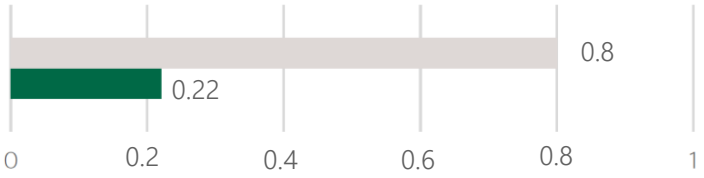


PERFORMANCE DETAILS:

ENERGY EFFICIENCY PERFORMANCE OF THE OPAQUE ENVELOPE

Thickness	450 mm
Surface mass	195 kg/m^2
Resistance	4.54 m^{2}K/W
Attenuation factor	0.22

TRANSMITTANCE U
0.22 [W/m²K]



* Normative reference transmittance according to M.D. 26 June 2015

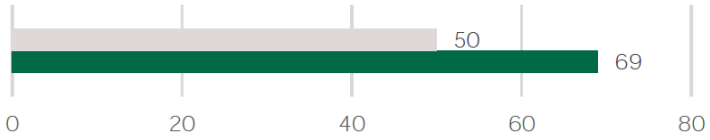
NOTE:
The thermal aspect must be assessed by a thermal engineer with specific global analyses concerning not only the typical section of the wall but also thermal bridges, windows and systems, referring to the thermal behaviour of the building as a whole.
For further information please contact MANNI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

PERFORMANCE DETAILS:
SOUND INSULATION PERFORMANCE

Terms of correction:
C = - 1 dB
Ctr= - 4 dB

* Value according to current legislation DPCM 5/12/97 - Residential

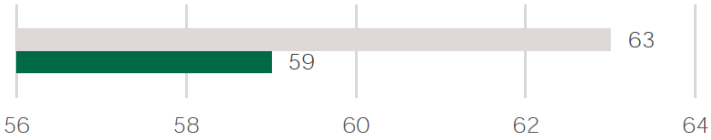
SOUNDPROOFING POWER:
Rw 69 [dB]



Terms of correction:
Cl = - 2 dB

* Value according to current legislation DPCM 5/12/97 - Residential

IMPACT NOISE:
Ln,w 59 [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" and insulation of the normalised impact noise level "Lnw" 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

LOAD-BEARING INTERMEDIATE FLOOR SLAB WITH STRUCTURAL MANNI GREEN TECH LIGHT STEEL FRAME [LSF] METAL FRAME AND OSB3 PANEL CLADDING ON THE EXTRADOS SIDE, AS THE LAYING SURFACE FOR THE SUBSEQUENT LAYERS OF THERMAL-ACOUSTIC INSULATION AND SCREEDS TO SUPPORT THE FINISHES. CLADDING AND FINISH ON INTRADOS SIDE IN MANNI GREEN TECH® COATED PLASTERBOARD SHEETS.
Supply and installation of load-bearing floors in MANNI GREEN TECH® LIGHT STEEL FRAME, with load-bearing metal frame and covering on the extrados and intrados sides by means of integrated thermo-acoustic insulation and support systems for floor and ceiling finishes, characterised by a thermal transmittance U of 0.22 W/m2K, soundproofing power Rw = 67dB and impact sound insulation Lnw = 59dB, with a total minimum thickness of 450 mm.
The load-bearing structure will be made with MANNI GREEN TECH "LFS" profiles, by assembling high-strength S350GD + Z140 steel profiles, in accordance with UNI-EN 10346, cold-formed, with dimensions 10x50/ 140/ 50x10 mm (alternatively beams with dimensions such as [10x50/ 270/ 50x10 mm] *to be checked). Each rod/ lattice beam will be tied to the corresponding column sections of the vertical profiles to allow proper stability according to the static scheme determined by the "Platform System" assembly system as defined by the CSSBI (Canadian Sheet Steel Buiilding Institute), with vertical forces (the loads) being transferred to the walls below to which they are mechanically connected by means of squares, screws and bolts. Connections between the rods will be made with self-drilling TEK screws, one to five in number depending on the structural dimensioning. A double layer of rock wool insulation with a density of 70 kg/m^3 and a thickness of 60+60 mm each (tot.120 mm) is placed in the gap between the 270 mm section uprights. The cladding on the extrados side of the bearing profiles will be made of ISOPAN corrugated sheet metal mod. LG 20 followed by the application of a single (and/or double) layer of slabs made of OSB (Oriented Strand Board), consisting of wood lamellas in glued and pressed layers that makes the panel compact and resistant. Each panel shall have a minimum thickness of 12 mm, in accordance with UNI EN 300, of the OSB/ 3 category, inherent to load-bearing panels for use in damp environments for structural use, and in biological risk class 1 and 2 in accordance with EN 335-3. The boards will be staggered (any additional layers will be placed crosswise and overlapping), nailing and cutting as necessary to correctly position the boards as the future support for the thermal-acoustic insulation system and the subsequent substrates and screeds. In this regard, it is necessary to use a suitable resilient layer between OSB-3 and the subsequent screeds, such as a polyethylene sheet membrane followed by the insertion of the acoustic mat and perimeter strips to create an acoustic cut-off element with respect to the overlying screed made up of a 60 mm thick reinforced sand-cement casting, which constitutes the laying surface for the floor finishes. The cladding on the intrados side of the MANNI GREEN TECH Light Steel Frame will consist of a single 12.5 mm thick Manni Green Tech "A" coated plasterboard sheet. Internal false ceiling, as a metal frame system plenum consisting of C-shaped uprights with dimensions 27/50/27 mm, and U-shaped rails with dimensions 30/27/30 mm. An additional insulating layer can be inserted in the cavity. The cladding of the frame will consist of a double layer of Manni Green Tech "A" coated plasterboard sheets, each 12.5 mm thick. The installation procedures will be in accordance with UNI 11424:2015 and the manufacturer's instructions for installation in accordance with the MANNI GREEN TECH® System Technical Data Sheet.

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

SLABS

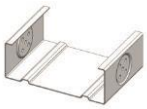
All our slabs comply with the current CE marked reference standard in accordance with UNI EN 520:2009 "Gypsum plasterboards - Definitions, requirements and test methods".
All different slabs comply with specific standards.

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.