ecoHAB©

The Popcorn Innovation

Modular Interior Wallsystems for Drywall Construction

Module Surfaces & Claddings: HempFibres, Fire Protectiv Coating, Rough Plaster, Wooden- and Acoustic Panels, Stone-mosaic...

Fields of Application

- Industrial Building: Hotels, Offices, Industrial Halls and more...
- High-rise/ Appartments
- Villas and Appartment Buildings

Properties

- Wall modules from natural materials (core made of industrial PopCorn
- Dual planking with hempfibre-laminates (1-3mm strength)
- Module surfaces and planking available in different variants (colors, wooden panels, wooden- and stone mosaic planking)
- Excellent sound insulation properties

Flexibility

- Modular structure
- Strong and safe installation with special click-system
- Can be dismantled without destruction od damage and re-installed
- Rooms can be reconfigured as required multiple times
- Very short installation time (4-5 times faster than classic dry walls)

Innovations

- 100% recyclabale through application of natural materials (PopCorn, Hemp/Flax fibres, real wood)
- Specially developed safe installation system (guiding and u-rails, click-system)
- Automatically levelling of the modules
- High degree of prefabrication of the module walls including:
  - Cable guides
  - Finished wall surfaces (colors, real wood panels...)
  - Integrated floor- and ceiling strips with click-system
  - Integrated guids for electrical, Water...

Advantages

- Office spaces can be re-arranged anytime at little expense (e.g. tenant change)
- Re-useable without damaging of the modules
- Up to 450% increase in efficiency of applying company without increase of workforce (dependant on level of modularity
- Less idle times due to other trades on construction site (Electricians, Painters, Windows...)

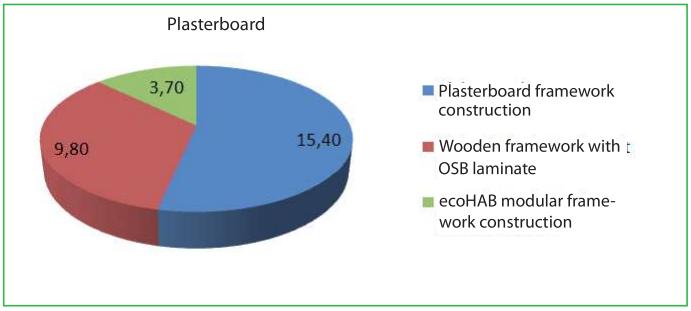
Comparsion with conventional Drywall Systems

ecoHAB© vs. plasterboard- and wooden framework construction method

Project with 1.000 m² interior walls and a workforce of 5

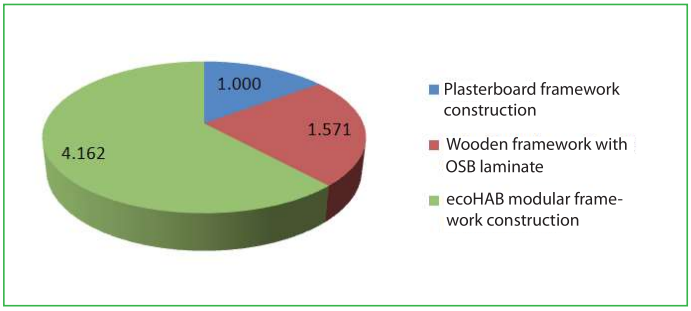
Project duration in working days

with a workforce of 5



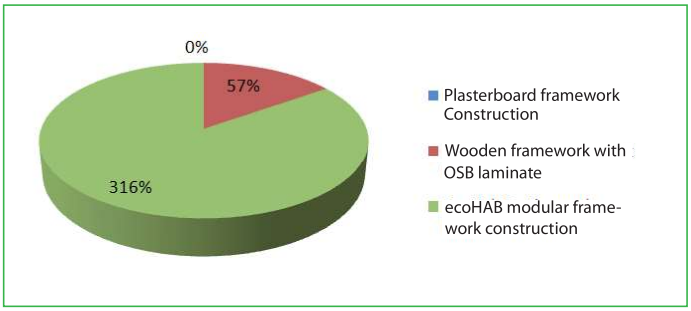
Efficiency comparison per m²

max. Wall installation surface in 15.4 days

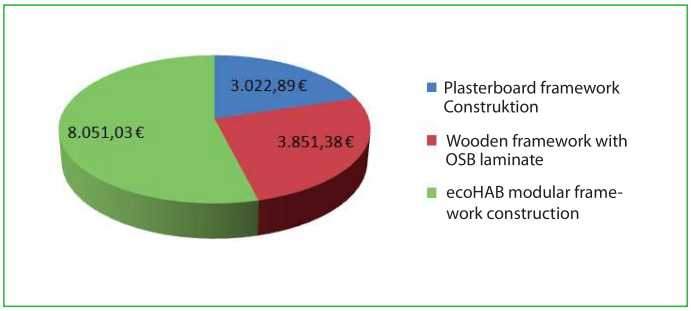


Efficiency Increase in %

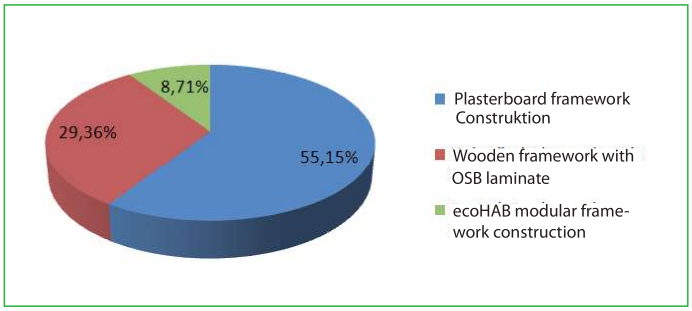
with ecoHAB modular system wall



Yield per Day



Wage share in %



ecoHAB© · Interior wall - modular system

One man interior module

- wall thickness 80 - 120 mm
- width 600 / 800 / 1000 mm (visible surface)
- height 2800 mm
- weight 16 - 25 kg (dep. on core density)
- Standard outer planking Hemp/Flax Laminate

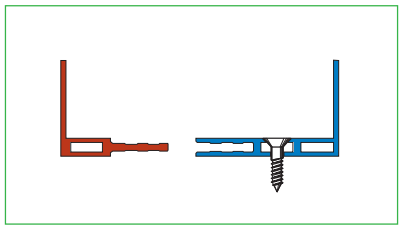
Special Door- or window lintel module

- thickness 80 - 120 mm
- width 600 / 800 / 1000 mm (vsible surface)
- door lintel height 700 mm
- window lintel height 400, 700 mm or optional others
- weight from 4 kg dep. on LWH (optional div. Wooden- and decorative panels)

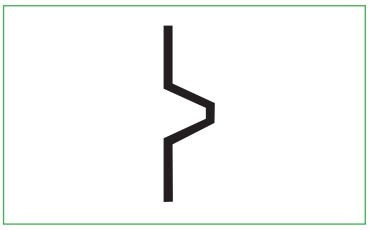
ecoHAB© Interior wall - standard module - modular system

for wall thicknesses 80 - 100 mm

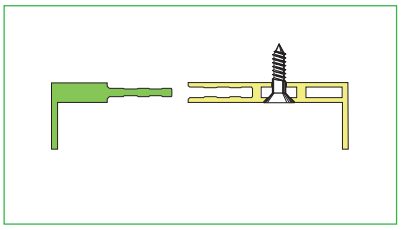
Floor rails



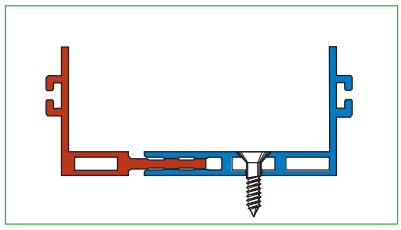
Wall docking rail



Ceiling rails



Floor rails for floor strips



Plug Hemp wool

Hemp waterproofing membrane

Modular wall corner connectors für P-TBM and E-TBM Modules

Nut - connectors

L - connectors

T - connectors

Cross connectors

Nut and groove - connectors

L - connectors

T - connectors

Cross connectors

Groove connector

connector

L - connectors

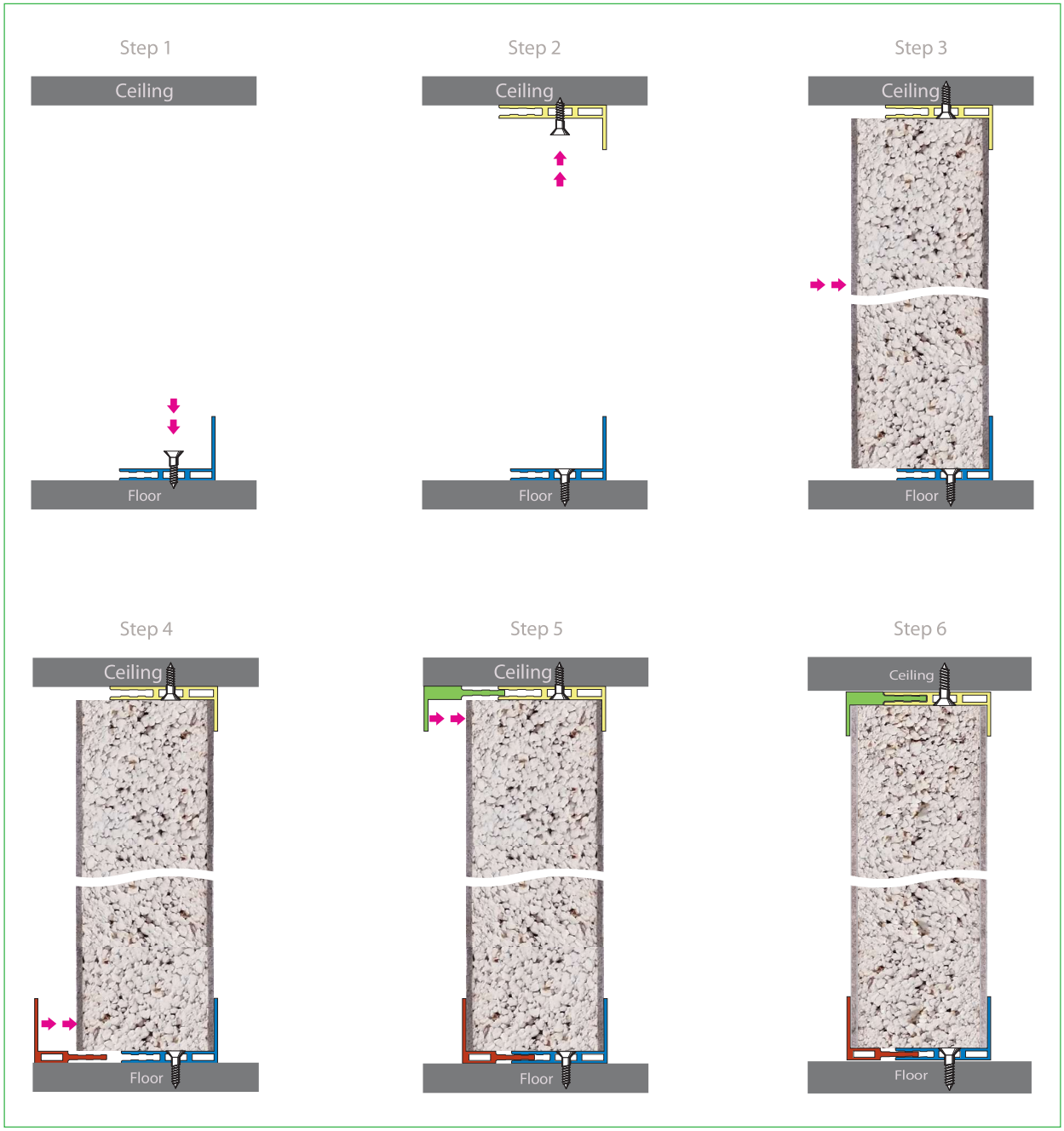
T - connectors

Cross connectors

Wall module Spring rail for Fastening/connection to connecting wall

Succession of modular installation of system rails

Module view horizontal cutting edge from above



S-TBM standard wall module (alternative to Plasterboard-framework method

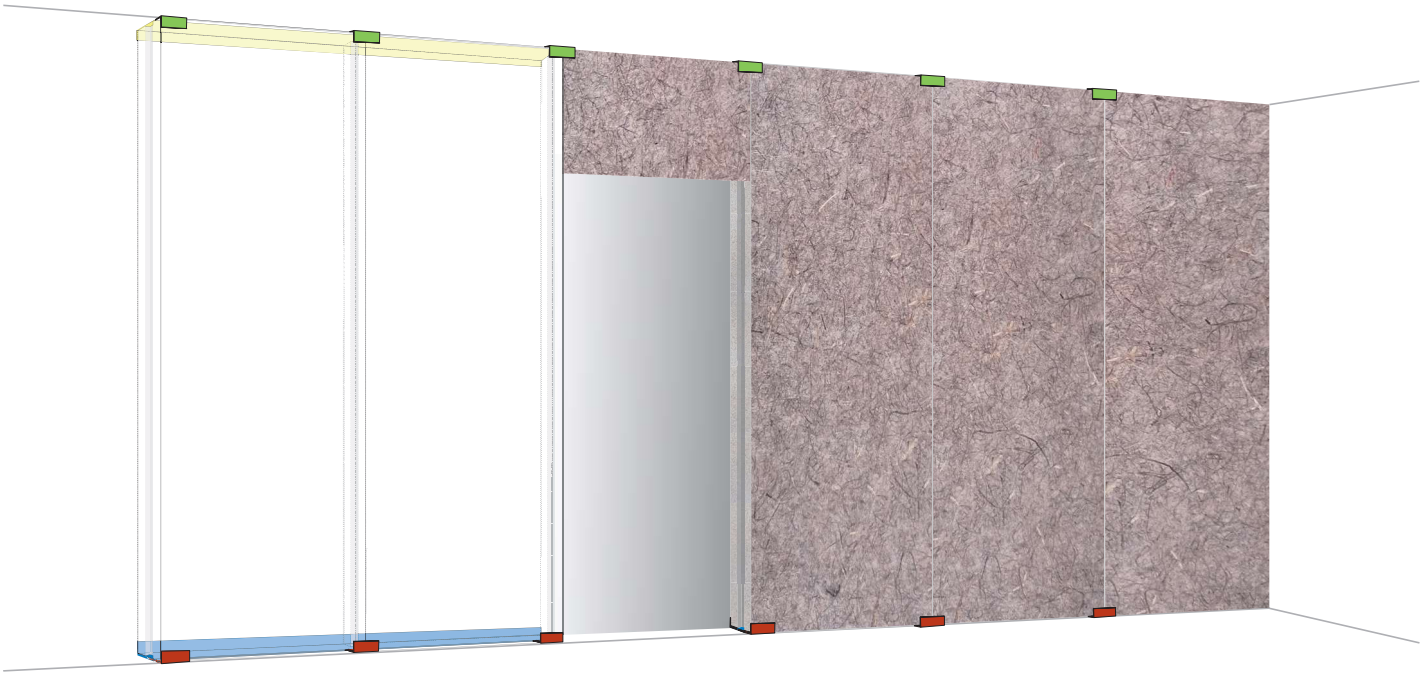
Aluminium-click-system (floor- and ceiling installation rails)
Wall thicknesses of 80 - 100 mm

Module working side /assembly side

Vertical module cross-section view

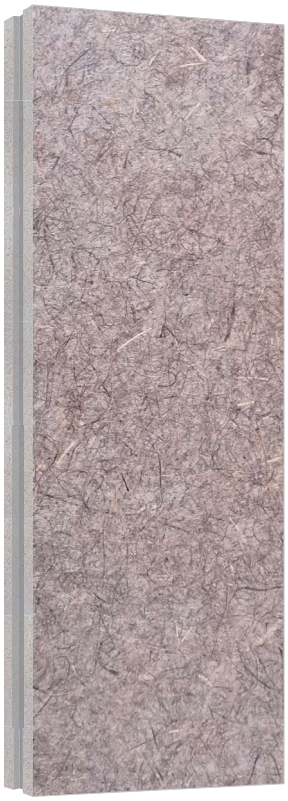
S-TBM standard wall module (alternative to Plasterboard-framework method

Modular wall construction



Module working side
/ assembly side

ecoHAB© - one man module for non-loadbearing interior walls



Technical Data

- Module size 600/800 x 2800 mm (optionally 1200 x 2800mm)
- Core material from puffed industrial corn (Popcorn)
- Material density 125 kg/m^3 (higher densities optionally available)
- Modular weight appr. 16-24 kg (dep. on density)
- Laminated Hempfibre board as Connecting board thickness 2.5mm
- Standard Module thicknesses 80/100mm (120mm as option)
- Alignment by Nut- and groove
- Self-levelling modules are inserted and firmly attached and inter-connected trough a special click-system
- Extremely quick and firm installation
- Excellent sound inszlation
- Fire protection rating B1 (flame retardant)
- Smoke developmend rating S1 (no/hardly any smoke development)
- Reaction to fire dripping: d0 (no dripping/falling off)
- Water absorption < 0,5% within 24 h.
- Cutting with standard wood sawing tools

ecoHAB© Module sizes

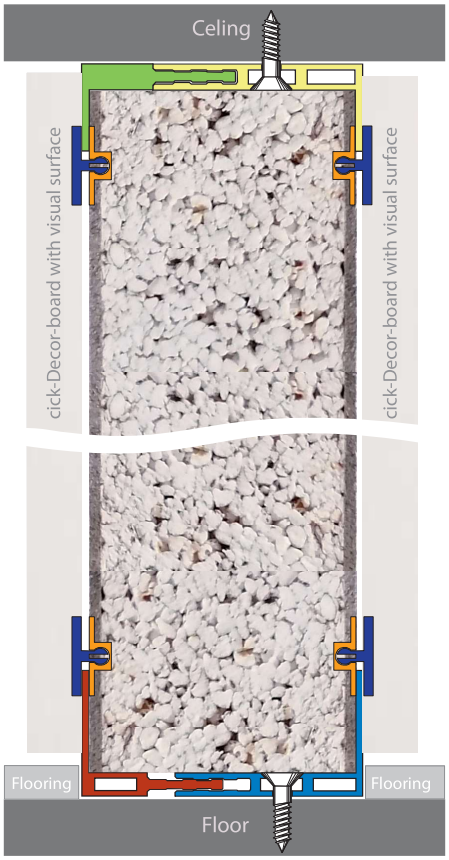
Module sizes (mm)				Composite board (mm)			Decor- & Visible Surfaces			Attachment Modules		Decor Floor rails		
series	wight	length	thickness	Type	thickness	visual	White covering *	Boards	Panels	Glue grooves	Rails click -system	yes	Glue	click
S-TBM	600/800	2800	80/100	Hemp/Flax fibre	2,5					✓	✓			
+ optionally	600/800	2800	80/100	Wood...	6 - 24	✓	✓			✓	✓			
P-TBM	600/800	2800	80/100	Hemp/Flax, Wood...	2,5 - 24	✓	✓	✓			✓	✓	✓	
E-TBM	600/800	2800	80/100	Hemp/Flax, Wood...	2,5 - 24	✓	✓	✓	✓		✓	✓		✓

* Fire protection coating with different Grain which is at the same time the visual surface in white

S-TBM Module

P-TBM Module

E-TBM Module



Module vertical cross-section view

ecoHAB Datasheet

high-quality building material for dry walls, trade fair construction, containers, insulation claddings made from renewable raw materials

v.08

Raw Materials (> 90% purely organic)
A) Natural fleece consisting of blends of Hemp, Flax, Kennaf and other long-fibred agricultural materials
B) Matrix consisting of acrylic-, melamine- or epoxy resins - dependant on requirements
C) Panel core materials consists of pure starch from industrial corn types
D) Lamination and glue consisting of epoxid resins or protein glues - dependant on requirements

Panel properties		Values		
Element size (variable)	width:	600 mm / 800mm / 1.200 mm		
	height:	2.800 mm		
Panel standard sizes:	density:	**120 kg/m³**	**600 mm x 2.800 mm**	
	thickness:	**20 mm**	**60 mm**	**80 mm**
Overall weight		10,0 kg	18,1 kg	22,1 kg
Weight per area		6,0 kg/m²	10,8 kg/m²	13,2 kg/m²
Extraction force per screw		0,1 - 0,7 kN		
Spezific heat capacity		2,0 J / (kg K)		
U - value panel		0,35 W / (m²K)		
Carbon offset per m²		-10,0 kg/m²	-17,0 kg/m²	-20,0 kg/m²

Material Data / Technical Data		Values for Panels PC-120 kg/m³				
Thermal conductivity	λ		0,037	-	0,041	W/(m K)
Compressive strength (DIN EN 319)	σ_D		200	kPa		N/mm²
Transverse tensile strength (DIN EN 319)	σ_m		0,1	-	0,25	N/mm²
Bending strength (DIN EN 310)	$\sigma_{B,R}$	o.B.	2,037	-	2,041	N/mm²
		m.B.	4,00	-	25,00	N/mm²
Bending elastic modulus (DIN EN 310)		m.B.	2.000	-	3.000	N/mm²
Fire behaviour (DIN EN 11925, DIN EN 4102)		o.B.: test passed with fire retardant additives m.B.: test passed without additives				
Sound absorption (DIN EN 11654)		o.B.: class A-B m.B.: class B-C				
Specific density of core material					120	kg / m³
Specific density of laminate			900	-	1.203	kg / m³
Specific density of panel		299 kg/m³	180 kg/m³		165 kg/m³	

o.B.: popcorn core without laminate m.B.: popcorn core with laminate on both sides

Processing	Statements
Attachement	Through aluminium or NFK wall-profiles
Asembly	Plug-in installation, optionally additional screwing
Sizing to Length	Sawing, drilling, punching, laser
Surface treatment	Planking, plastering and painting

Others	Statements
Disposal	Recyclable, mostly biologically degradable
Edge formation	Dull, smooth - with impressed phase
Reusablity	without glueing: - disassembly without damaging

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