

GTOG: From production to recycling: a circular economy for the European gypsum Industry with the demolition and recycling Industry



GYPSUM TO GYPSUM

**EUROPEAN HANDBOOK FOR BEST PRACTICES
IN AUDIT PRIOR TO DECONSTRUCTION OF
BUILDINGS**

Database of the main categories of gypsum-based products likely to be encountered during the audit

Start date of the project: 2013/01/01

Duration: 36 months



LIFE PROGRAMME: LIFE11 ENV/BE/001039



GYPSUM TO GYPSUM



Identifier:	Appendix of DB2: Database of the main categories of gypsum-based products likely to be encountered during the audit
Number of the associated action:	B1
Date:	March 2015
Class:	Deliverable
Responsible partner:	Recovering
Distribution:	PU: public
Title:	Database of the main categories of gypsum-based products likely to be encountered during the audit

Contact Information

Lead Contact	Eurogypsum - Christine Marlet
Phone Number	+32 2 227 11 30
Email	info@eurogypsum.org

Document Contact	Recovering – Silvia Nougazol
Deliverable	Database of the main categories of gypsum-based products likely to be encountered during the audit (Appendix of DB2)
Phone Number	+33 6 12 67 17 38
Email	snougazol@recovering.fr
Participants	Recovering, Occamat, UPM

GtoG Project Management Bureau

Name	Title	Phone	Email
Christine Marlet	Project Director	+32 2 227 11 30	info@eurogypsum.org
Luigi Della Sala	Project Manager	+32 2 227 11 62	project@eurogypsum.org
Thierry Pichon	ERMC Chair/President of the GtoG SC		Thierry.Pichon@siniat.com



GYP SUM TO GYP SUM



Documents history

Version	Date	Author(s)
00	02/03/2015	Silvia Nougazol Draft 1
01	31/03/2015	Silvia Nougazol (from the comments made by the Steering Committee)

Summary

Systems for bearing wall

Sound and thermal insulator made of plasterboard and insulator glued together	Type 1
Plasterboard system filling a wooden bearing structure with insulator	Type 2
Plasterboard system on a metallic or a wooden frame with insulator	Type 3

Partition systems in a same building

Plaster blocks partition	Type 4
Honeycomb plasterboard, wooden frame	Type 5
Plasterboard partition without insulator	Type 6
Plasterboard partition with insulator	Type 7

Ceiling

Plaster tile hanging ceiling system	Type 8
Plasterboard ceiling system under-attic nailed or screwed on a wooden or a metallic framework	Type 9
Plasterboard ceiling/flooring system nailed or screwed on a wooden or a metallic framework	Type 10

Type 1: sound and thermal insulator made of plasterboard and insulator glued together

Countries where the system can be found: Germany, France

Countries where the system cannot be found: Belgium, the UK

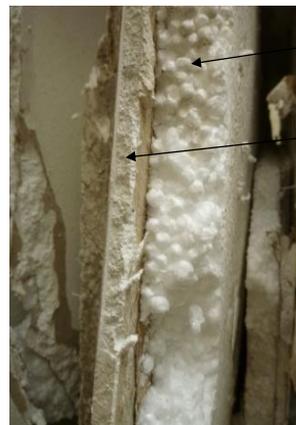
Description of the gypsum-based system or product	Technical recovery of the systems	Existing of final recovering outlets of the system
<p><u>System:</u> Insulation system made of plasterboard and expanded polystyrene (EPS) or other insulator glued together and glue to the wall.</p> <p><u>Detailed description (from the visible face to the face against the wall):</u> Plasterboard/glue/expanded polystyrene or other insulator. The insulator is mainly EPS (95% of the systems). The other types that can be found are mineral glass wool, rock wool or polyurethane.</p> <p><u>Gypsum-based materials that constitute the gypsum-based systems:</u> 1 plasterboard</p> <p><u>Way the gypsum-based products are arranged to form a gypsum-based system:</u> Glue</p> <p><u>Type of use and location in the building:</u> Thermal and sound insulation Bearing wall (internal side)</p>	<p><u>System of plasterboard and expanded polystyrene (EPS) glued together:</u> Plasterboard must be separated from EPS. 2 ways exist: with a "hot string" by hand or with a mechanical process. In the first case both materials are recycled but in the second one, only plasterboard is recycled.</p> <p><u>System of plasterboard and glass wool glued together:</u> Plasterboard must be separated from glass wool. 2 ways exist: with a knife by hand or with a mechanical process. In the first case both materials are recycled but in the second one, only plasterboard is recycled.</p> <p><u>System of plasterboard and rock wool glued together:</u> Plasterboard must be separated from rock wool. 2 ways exist: with a knife by hand or with a mechanical process. In the first case both materials are recycled but in the second one, only plasterboard is recycled.</p> <p><u>System of plasterboard and polyurethane (PU) glued together:</u> Plasterboard must be separated from PU. 2 ways exist: with a "hot string" by hand or with a mechanical process. In both ways, only plasterboard is recycled. PU may be energy recovered</p>	<p><u>System of plasterboard and polystyrene glued together:</u> France: plasterboard manufacturer separate manually the laminates in the factories (KNAUF, PLACOPLATRE, SINIAT). Two recycling facilities separate mechanically the laminates (NANTET LOCABENNES, the business approved partner of PLACOPLATRE in Chambéry (73), and RITLENG REVALORISATIONS, the business approved partner of SINIAT in Ottmarsheim (68)) and ship the recycled gypsum to the plasterboard manufacturer. UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd Germany: Recycling route non-existent</p> <p><u>System of plasterboard and glass wool glued together:</u> France: glass wool manufacturer separate manually the laminates (ISOVER). Two recycling facilities separate mechanically the laminates (NANTET LOCABENNES, the business approved partner of PLACOPLATRE in Chambéry, and RITLENG REVALORISATIONS, the business approved partner of SINIAT in Ottmarsheim) and ship the recycled gypsum to the plasterboard manufacturer. UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd Germany: Recycling route non-existent</p> <p><u>System of plasterboard and rock wool glued together:</u> France: two recycling facilities separate mechanically the laminates (NANTET LOCABENNES, the business approved partner of PLACOPLATRE in Chambéry, and RITLENG REVALORISATIONS, the business approved partner of SINIAT in Ottmarsheim) and ship the recycled gypsum to the plasterboard manufacturer. UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd Germany: Recycling route non-existent</p> <p><u>System of plasterboard and polyurethane glued together:</u> France: two recycling facilities separate mechanically the laminates (NANTET LOCABENNES, the business approved partner of PLACOPLATRE in Chambéry, and RITLENG REVALORISATIONS, the business approved partner of SINIAT in Ottmarsheim) and ship the recycled gypsum to the plasterboard manufacturer. UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd Germany: Recycling route non-existent</p>

Pictures:

System prior to deconstruction



Transversal view of the system



Polystyrene panel glued to the plasterboard. Face glued to the bearing wall

Visible face of the wall: plasterboard

Type 2: plasterboard system filling a wooden bearing framework with insulator

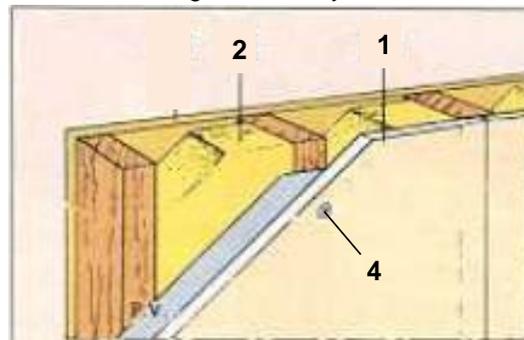
Countries where the system can be found: France;

Countries where the system cannot be found: ...

Description of the gypsum-based system or product	Technical recovery of the systems	Existing of final recovering outlets of the system
<p>System: Mineral wool filling the wooden bearing structure. Possible wooden horizontal panelling. Possible metallic framework. Plasterboard.</p> <p><u>Detailed description (from the visible face to the face against the wall):</u> Plasterboard / possible wooden chipboard / mineral wool arranged between the empty spaces of the wooden bearing structure. Possible vapour barrier covering the mineral wool</p> <p><u>Gypsum-based materials that constitute the gypsum-based systems:</u> 1 plasterboard</p> <p><u>Way the gypsum-based products are arranged to form a gypsum-based system:</u> Screwed or nailed on a metallic framework or on a wooden framework</p> <p><u>Type of use and location in the building:</u> Inside casing of a bearing framework</p>	<p>Plasterboard: Plasterboards are fully recyclable. Some provision may exist for some specific plasterboard. In most cases the paper is separated from the recycled gypsum</p> <p>Metallic framework, nails and screws: This metal is fully recyclable without any pre-treatment</p> <p>Wooden framework: Wooden frame is either recycled in wooden board or energy recovered in specific furnaces (cement industry, industrial boiler)</p> <p>Glass wool or rock wool: Both are technically recyclable according to the manufacturers</p>	<p>Plasterboard: France: Plasterboard manufacture (KNAUF, PLACOPLATRE, SINIAT) UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd Germany: Recycling route non-existent</p> <p>Cardboard: France, ...: recycled in the paper industry</p> <p>Metallic framework, nails and screws: France, Germany: Local waste management companies buy metal scrap and ship it abroad</p> <p>Wooden framework: France: Wooden board manufacture (EGGER, KRONOSPAN, SWEDSPAN (IKEA), UNILIN) Energy recovering (EGGER, HOLCIM, ITALCEMENTI, LAFARGE, VICAT) UK: Westminster Waste Germany: Local waste management companies buy wood and ship it (Energy recovering)</p> <p>Mineral wool: no existing proven route</p>

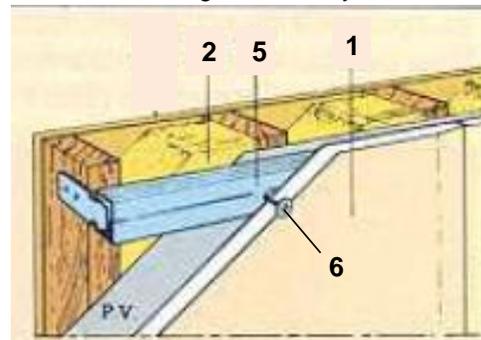
Pictures:

Diagram of the system



- 1: Plasterboard
- 2: Mineral wool or wooden wood
- 3: Wooden paneling (possible)
- 4: Nails
- 5: Metallic framework
- 6: screws

Other diagram of the system



System partially deconstructed



Type 3: plasterboard system on a metallic or a wooden frame with insulator

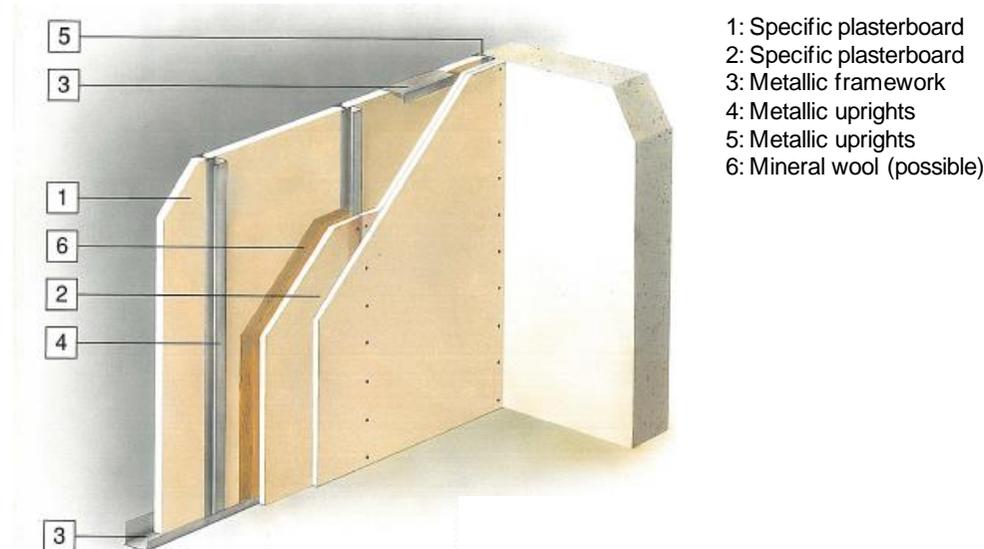
Countries where the system can be found: France

Countries where the system cannot be found: ...

Description of the gypsum-based system or product	Technical recovery of the systems	Existing of final recovering outlets of the system
<p>System: Plasterboard system with a non-accessible face (against a wall for instance) screwed on a metallic or framework. Presence of insulator.</p> <p><u>Detailed description (from the visible face to the face against the wall):</u> 2 plasterboards / Mineral wool / 1 plasterboard</p> <p><u>Gypsum-based materials that constitute the gypsum-based systems:</u> 3 plasterboards (specific plasterboards with firebreak, sound or thermal properties)</p> <p><u>Way the gypsum-based products are arranged to form a gypsum-based system:</u> Screwed on a metallic frame</p> <p><u>Type of use and location in the building:</u> Casing of bearing framework Use as a firebreak wall, thermal insulation, sound insulation</p>	<p>Plasterboard: Plasterboards are fully recyclable. Some provision may exist for some specific plasterboard. In most cases the paper is separated from the gypsum</p> <p>Metallic framework, nails and screws: This metal is fully recyclable without any pre-treatment</p> <p>Wooden framework: Wooden frame is either recycled in wooden board or energy recovered in specific furnaces (cement industry, industrial boiler)</p> <p>Glass wool or rock wool: Both are technically recyclable according to the manufacturers</p>	<p>Plasterboard: France: Plasterboard manufacture (KNAUF, PLACOPLATRE, SINIAT) UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd Germany: Recycling route non-existent</p> <p>Cardboard: France, ...: recycled in the paper industry</p> <p>Metallic framework, nails and screws: France, Germany: Local waste management companies buy metal scrap and ship it abroad</p> <p>Wooden framework: France: Wooden board manufacture (EGGER, KRONOSPAN, SWEDSPAN (IKEA), UNILIN) Energy recovering (EGGER, HOLCIM, ITALCEMENTI, LAFARGE, VICAT) UK: Westminster Waste Germany: Local waste management companies buy wood and ship it (Energy recovering)</p> <p>Mineral wool: no existing proven route</p>

Pictures:

Diagram of the system



- 1: Specific plasterboard
- 2: Specific plasterboard
- 3: Metallic framework
- 4: Metallic uprights
- 5: Metallic uprights
- 6: Mineral wool (possible)

Remark:

Instead of a system with plasterboard, plaster blocks could be found

Type 4: plaster blocks partition

Countries where the system can be found: Belgium, Germany, France

Countries where the system cannot be found: The UK

Description of the gypsum-based system or product	Technical recovery of the systems	Existing of final recovering outlets of the system
<p><u>System:</u> Plaster blocks glued together</p> <p><u>Gypsum-based materials that constitute the gypsum-based systems:</u> Plaster blocks</p> <p><u>Way the gypsum-based products are arranged to form a gypsum-based system:</u> Coating</p> <p><u>Type of use and location in the building:</u> Partitioning of the rooms of a same accommodation</p>	<p>Plaster blocks (with the coating on it): Blocks are fully recyclable after being shredded in the cement clinker or in the plasterboard manufacture.</p>	<p>Plaster blocks (with the coating on it): France: - Cement industry (HOLCIM, ITALCEMENTI, LAFARGE, VICAT) - Plasterboard manufacture (KNAUF, SINIAT, PLACOPLATRE)</p>

Pictures:

Plaster blocks partition prior to deconstruction



Plaster blocks partition being deconstructed



Pieces of plaster blocks in a skip after deconstruction



Type 5: honeycomb plasterboard, wooden frame

Countries where the system can be found: France, the UK

Countries where the system cannot be found: Belgium, Germany

Description of the gypsum-based system or product	Technical recovery of the systems	Existing of final recovering outlets of the system	
<p><u>System:</u> Partition made of honeycomb plasterboard on a wooden frame</p> <p><u>Gypsum-based materials that constitute the gypsum-based systems:</u> 1 honeycomb plasterboard made of 2 plasterboards with honeycomb cardboard between</p> <p><u>Way the gypsum-based products are arranged to form a gypsum-based system:</u> Nailed or screwed on a wooden framework</p> <p><u>Type of use and location in the building:</u> Partitioning</p>	<p><u>Honeycomb plasterboard:</u> Honeycomb plasterboards are fully recyclable. Cardboard is easy to separate from the system</p> <p><u>Wooden framework:</u> Wooden frame is either recycled in wooden board or energy recovered in specific furnaces (cement industry, industrial boiler)</p>	<p><u>Honeycomb plasterboard:</u> France: Plasterboard manufacture (KNAUF, PLACOPLATRE, SINIAT) UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd Germany: Recycling route non-existent</p> <p><u>Cardboard:</u> France, ...: recycled in the paper industry</p> <p><u>Wooden framework:</u> France: Wooden board manufacture (EGGER, KRONOSPAN, SWEDSPAN (IKEA), UNILIN) Energy recovering (EGGER, HOLCIM, ITALCEMENTI, LAFARGE, VICAT) UK: Westminster Waste Germany: Local waste management companies buy wood and ship it (Energy recovering)</p>	
Pictures:	Honeycomb plasterboard partition at the beginning of the deconstruction process	Honeycomb plasterboard partition under deconstruction	Honeycomb plasterboards piled up after deconstruction
			

Other information about the system:

In France, SAINT-GOBAIN PLACOPLATRE put on the market this system under the name "Placopan" since 1956.

In the UK and in France, SINIAT (formerly LAFARGE) used to put on the market this system under the name "Panelplus" but it was discontinued around 1999. It continued to stay on the market in France more recently. It was mainly used for partitions within commercial buildings (offices) where no special impact resistance was needed, maybe also in some housing.

Type 6: plasterboard partition without insulator

Countries where the system can be found: Belgium, Germany, France, the UK

Countries where the system cannot be found: ...

Description of the gypsum-based system or product	Technical recovery of the systems	Existing of final recovering outlets of the system
<p><u>System:</u> Simple or double plasterboard partition without insulator screwed to a metallic framework or screwed or nailed to a wooden framework or arranged with a channel</p> <p><u>Gypsum-based materials that constitute the gypsum-based systems:</u> 2 or 4 plasterboards</p> <p><u>Way the gypsum-based products are arranged to form a gypsum-based system:</u> The plasterboards are screwed (or eventually nailed) on a metallic or a wooden framework. In the case of double plasterboard partition, the second plasterboard is glued on the first plasterboard which is screwed on the uprights. The screws go through the plasterboards, the rails and the uprights. There can be a seal between to plasterboards of a same partition. Instead of screws or seals, the gypsum-based system can be attached by a channel. N.B.: More recently, a new system has been developed consisting into two plasterboards glued together with a sound insulating film in between.</p> <p><u>Type of use and location in the building:</u> Partitioning of the rooms of a same accommodation</p>	<p><u>Plasterboard:</u> Plasterboards are fully recyclable. Some provision may exist for some specific plasterboard. In most cases the paper is separated from the gypsum</p> <p><u>Metallic framework, nails and screws:</u> This metal is fully recyclable without any pre-treatment</p> <p><u>Wooden framework:</u> Wooden frame is either recycled in wooden board or energy recovered in specific furnaces (cement industry, industrial boiler)</p>	<p><u>Plasterboard:</u> France: Plasterboard manufacture (KNAUF, PLACOPLATRE, SINIAT) UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd, Germany: Recycling route non-existent</p> <p><u>Cardboard:</u> France, ...: recycled in the paper industry</p> <p><u>Metallic framework, nails and screws:</u> France, Germany: Local waste management companies buy metal scrap and ship it abroad</p> <p><u>Wooden framework:</u> France: Wooden board manufacture (EGGER, KRONOSPAN, SWEDSPAN (IKEA), UNILIN) Energy recovering (EGGER, HOLCIM, ITALCEMENTI, LAFARGE, VICAT) UK: Westminster Waste Germany: Local waste management companies buy wood and ship it (Energy recovering)</p>

Type 7: plasterboard partition with insulator

Countries where the system can be found: Belgium, Germany, France, the UK

Description of the gypsum-based system or product	Technical recovery of the systems	Existing of final recovering outlets of the system
<p>System: Simple or double plasterboard partition with insulator screwed to a metallic framework or screwed or nailed to a wooden framework or arranged with a channel.</p> <p>Detailed description: Wallpaper / 1 or 2 plasterboards / Glass wool, rock wool or other insulator / Metallic or wooden framework / Possible wooden uprights / 1 or 2 plasterboards / Wallpaper</p> <p>Gypsum-based materials that constitute the gypsum-based systems: 2 or 4 plasterboards</p> <p>Way the gypsum-based products are arranged to form a gypsum-based system: The plasterboards are screwed (or eventually nailed) on a metallic or a wooden framework. In the case of double plasterboard partition, the second plasterboard is glued on the first plasterboard which is screwed on the uprights (montants?). The screws go through the plasterboards, the rails and the uprights. There can be a seal between to plasterboards of a same partition.</p> <p>Instead of screws or seals, the gypsum-based system can be arranged with a channel.</p> <p>Type of use and location in the building: Partitioning of the rooms of a same accommodation or of different flats</p>	<p>Plasterboard: Plasterboards are fully recyclable. Some provision may exist for some specific plasterboard. In most cases the paper is separated from the gypsum</p> <p>Metallic framework, nails and screws: This metal is fully recyclable without any pre-treatment</p> <p>Wooden framework: Wooden frame is either recycled in wooden board or energy recovered in specific furnaces (cement industry, industrial boiler)</p> <p>Glass wool or rock wool: Both are technically recyclable according to the manufacturers</p>	<p>Plasterboard: France: Plasterboard manufacture (KNAUF, PLACOPLATRE, SINIAT) UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd, Germany: Recycling route non-existent</p> <p>Cardboard: France, ...: recycled in the paper industry</p> <p>Metallic framework, nails and screws: France, Germany: Local waste management companies buy metal scrap and ship it abroad</p> <p>Wooden framework: France: Wooden board manufacture (EGGER, KRONOSPAN, SWEDSPAN (IKEA), UNILIN) Energy recovering (EGGER, HOLCIM, ITALCEMENTI, LAFARGE, VICAT) UK: Westminster Waste Germany: Local waste management companies buy wood and ship it (Energy recovering)</p> <p>Mineral wool: no existing proven route</p>

Pictures:

System arranged with a metallic channel, prior to deconstruction



Seal

System screwed to a metallic framework prior to deconstruction



Profile (channel)

Lateral view of the previous system



Lateral view of the system after having removed the vertical metallic framework



- 1: "First plasterboard", screwed on a metallic framework
- 2: "Second plasterboard", glued on the "first plasterboard"
- 3: Metallic frame
- 4: Glass wool

Other information about the system:

It seems that glass wool is considered as hazardous waste (waste classification nr. 17 06 03*) in Germany.

Type 8: plaster tile hanging ceiling system

Countries where the system can be found: Belgium, Germany, France

Countries where the system cannot be found: The UK

Description of the gypsum-based system or product	Technical recovery of the systems	Existing of final recovering outlets of the system
<p><u>System:</u> Ceiling made of plaster tile, metallic framework and metallic ceiling hanger Plaster tile / metallic framework / ceiling hanger made of metal</p> <p><u>Gypsum-based materials that constitute the gypsum-based systems:</u> 1 plaster tile (the tiles can be covered by an acoustic lining)</p> <p><u>Way the gypsum-based products are arranged to form a gypsum-based system:</u> Screwed to metallic framework and metallic ceiling hangers</p> <p><u>Type of use and location in the building:</u> Ceiling</p>	<p><u>Plaster tiles:</u> Plaster tiles (except for those with metallic film) are fully recyclable in the plasterboard manufacture.</p> <p><u>Metallic framework, nails and screws:</u> This metal is fully recyclable without any pre-treatment</p>	<p><u>Plasterboard:</u> France: Plasterboard manufacture (KNAUF, PLACOPLATRE, SINIAT) UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd, Germany: Recycling route non-existent</p> <p><u>Metallic framework, nails and screws:</u> France, Germany: Local waste management companies buy metal scrap and ship it abroad</p>

Pictures:

Hanging ceiling made of plaster tiles prior to deconstruction



Type 9: plasterboard ceiling system under-attic nailed or screwed on a wooden or a metallic framework

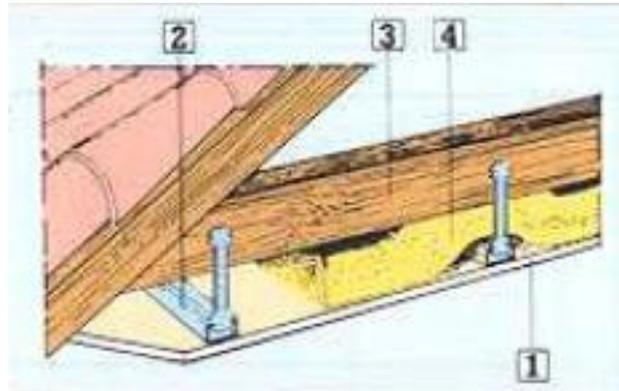
Countries where the system can be found: Germany, France

Countries where the system cannot be found: ...

Description of the gypsum-based system or product	Technical recovery of the systems	Existing of final recovering outlets of the system
<p><u>System:</u> Plasterboard screwed or nailed on a metallic or a wooden framework. Possible presence of wooden boards nailed or screwed on the plasterboards (junction between 2 plasterboards). In some rare cases there can be two plasterboards.</p> <p><u>Description from the visible face to the non visible face:</u> 1 or 2 plasterboards / metallic or wooden framework / mineral wool</p> <p><u>Gypsum-based materials that constitute the gypsum-based systems:</u> 1 or 2 plasterboards</p> <p><u>Way the gypsum-based products are arranged to form a gypsum-based system:</u> Screwed or nailed on a metallic or a wooden framework</p> <p><u>Type of use and location in the building:</u> Under-attic and standed ceiling</p>	<p><u>Plasterboard:</u> Plasterboards are fully recyclable. Some provision may exist for some specific plasterboard. In most cases the paper is separated from the gypsum</p> <p><u>Metallic framework, nails and screws:</u> This metal is fully recyclable without any pre-treatment</p> <p><u>Wooden framework:</u> Wooden frame is either recycled in wooden board or energy recovered in specific furnaces (cement industry, industrial boiler)</p> <p><u>Glass wool or rock wool:</u> Both are technically recyclable according to the manufacturers</p>	<p><u>Plasterboard:</u> France: Plasterboard manufacture (KNAUF, PLACOPLATRE, SINIAT) UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd,</p> <p>Germany: Recycling route non-existent</p> <p><u>Cardboard:</u> France, ...: recycled in the paper industry</p> <p><u>Metallic framework, nails and screws:</u> France, Germany: Local waste management companies buy metal scrap and ship it abroad</p> <p><u>Wooden framework:</u> France: Wooden board manufacture (EGGER, KRONOSPAN, SWEDSPAN (IKEA), UNILIN) Energy recovering (EGGER, HOLCIM, ITALCEMENTI, LAFARGE, VICAT) UK: Westminster Waste Germany: Local waste management companies buy wood and ship it (Energy recovering)</p> <p><u>Mineral wool:</u> no existing proven route</p>

Pictures:

Diagram of an under-roof system



- 1: Plasterboard
- 2: Metallic framework
- 3: Wooden frame or joist

- 4: Mineral wool (possible)
- 5: Wooden boards nailed on the plasterboards

Under-roof system under deconstruction



Type 10: plasterboard ceiling/flooring system nailed or screwed on a wooden or a metallic framework

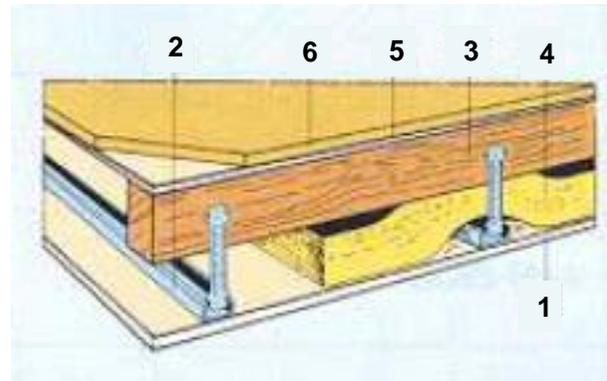
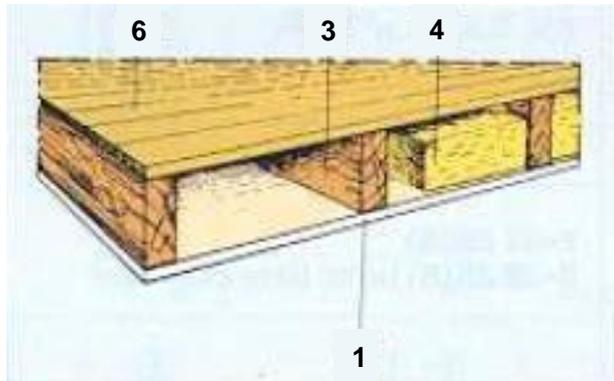
Countries where the system can be found: Germany, France

Countries where the system cannot be found: ...

Description of the gypsum-based system or product	Technical recovery of the systems	Existing of final recovering outlets of the system
<p><u>System:</u> Plasterboard screwed or nailed on a metallic or a wooden framework. Possible presence of wooden boards nailed or screwed on the plasterboards (junction between 2 plasterboards). In some rare cases there can be two plasterboards.</p> <p><u>Description from the "ceiling face" to the "flooring face":</u> 1 or 2 plasterboards / metallic or wooden framework / mineral wool / building frame or joist / Eventually: plasterboard / Eventually: particle board / Eventually: fitted carpet In some cases there can be boards of wood under the particle board.</p> <p><u>Gypsum-based materials that constitute the gypsum-based systems:</u> 1 or 2 plasterboards</p> <p><u>Way the gypsum-based products are arranged to form a gypsum-based system:</u> Screwed or nailed on a metallic or a wooden framework</p> <p><u>Type of use and location in the building:</u> Flooring/ceiling</p>	<p><u>Plasterboard:</u> Plasterboards are fully recyclable. Some provision may exist for some specific plasterboard. In most cases the paper is separated from the gypsum</p> <p><u>Metallic framework, nails and screws:</u> This metal is fully recyclable without any pre-treatment</p> <p><u>Wooden framework:</u> Wooden frame is either recycled in wooden board or energy recovered in specific furnaces (cement industry, industrial boiler)</p> <p><u>Glass wool or rock wool:</u> Both are technically recyclable according to the manufacturers</p>	<p><u>Plasterboard:</u> France: Plasterboard manufacture (KNAUF, PLACOPLATRE, SINIAT) UK: Anyjunk Ltd, Mid UK Recycling Ltd (small volume only), NWGR, Roy Hatfield Ltd, Germany: Recycling route non-existent</p> <p><u>Cardboard:</u> France, ...: recycled in the paper industry</p> <p><u>Metallic framework, nails and screws:</u> France, Germany: Local waste management companies buy metal scrap and ship it abroad</p> <p><u>Wooden framework:</u> France: Wooden board manufacture (EGGER, KRONOSPAN, SWEDSPAN (IKEA), UNILIN) Energy recovering (EGGER, HOLCIM, ITALCEMENTI, LAFARGE, VICAT) UK: Westminster Waste Germany: Local waste management companies buy wood and ship it (Energy recovering)</p> <p><u>Mineral wool:</u> no existing proven route</p>

Pictures:

Diagrams of gypsum-based systems for flooring/ceiling



- 1: Plasterboard (eventually specific plasterboard with firebreak properties for instance) screwed under joints or screwed to a metallic framework
- 2: Metallic framework
- 3: Wooden joist
- 4: Mineral wool (possible)
- 5: Plasterboard (possible)
- 6: Particle board or parquet floor

Other information about the system: This system seems to be very rare.