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(54) **Title:** BUILDING MATERIAL

(57) **Abstract:** This invention relates to a building material consisting of organic/fibrous material composites or solid wood products, such as fibrous gypsum, paper-lined gypsum board, particle board, plywood or solid wood studs made of whitewood and redwood. The building material is treated with an anti-mold and anti-flame agent, such as boric acid and borax.

Building material

This invention relates to a building material consisting of organic/fibrous material composites or solid wood products, such as fibrous gypsum, paper-lined gypsum
5 board, particle board, plywood or solid wood studs made of whitewood and redwood.

The current building materials and building systems are based on the traditional way of building. The principle is that the builders, architects, constructors use the building materials available on the market, i.e. what is offered for sale, for their
10 buildings. The properties of the materials available also dictate how the buildings will be. The basic rule is as follows:

Wood burns and does not withstand humidity in closed structures where biological growth may occur (mold).

Organic materials in general do not withstand humidity in poorly ventilated and
15 closed structures where biological growth may occur (mold).

The invention provides brand new building materials by refining and combining the buildings materials currently available on the market. The novelty is based on that organic/fibrous material composites or solid wood products are treated in such a
20 way that the building materials are adapted and meet the requirements of the NO building system which is in accordance with BBR 2008 (the Regulations of the Swedish National Board of Housing, Building and Planning (Boverket)) and which is totally new to said buildings materials in the field of construction. The materials are: fibrous gypsum, particle board, plywood or solid wood studs made of
25 whitewood and redwood. The building materials are suited for constructing light partition walls, curtain walls, floor frameworks, intermediate floor frameworks and ceilings.

The invention is characterized in that the building material is treated with an anti-
30 mold and anti-flame agent, such as boric acid and borax. The boric acid and borax

can be dis-solved in water before the treatment of the building material. Even a binder, such as carboxymethyl cellulose, can be added to the anti-mold and anti-flame agent.

- 5 The novelty is a refining treatment result on five products.

The novelty is that the treatment result refines and creates a new unique technically-extended field of application for the above-mentioned building materials.

- 10 The novelty is that a treatment result giving protection against biological growth and protection against fire is achieved through one and the same refined treatment.

- The NO building system is based on approved NO products. The products must be certified under BBR 2008 Part 2, Section 6 Hygiene, Paragraph 6:5 Moisture,
15 Chapters 6:51 and 6:52, and EU Fire Class B-s1, d0 to A2.

- The treatment result must be verified by authorized test institutes such as IVL Swedish Environmental Research Institute, SP Technical Research Institute of Sweden and VTT Technical Research Centre of Finland, or by similar institutes.

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It is a novelty to create the possibility of presenting a re-fined moisture-ratio certified particle board which has a critical humidity level higher than 87 % RH, up to 97 % RH, and which is adapted and included in the NO building system.

- 25 It is a novelty to present a refined EU fire classified particle board B-s1, d0 to A2, adapted to and included in the NO building system.

It is a novelty that these two refined combinations are included in one and the same product.

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It is a novelty to create a refined wood stud from solid wood material, from whitewood or redwood, designed as a building stud and a construction stud which have not only a moisture-ratio certification but also have a critical humidity level higher than 87 % RH, up to 97 % RH, as well as EU fire class B-s1, d0 to A2, and
5 are which are adapted to the NO building system.

It is a novelty to be able to present a refined fibrous gyp-sum board which contains organic material and has a moisture-ratio certification and a critical humidity level higher than 87 % RH, up to 97 % RH, and has a retained fire class and is adapted to
10 the NO building system.

It is a novelty to be able present a traditional paper-lined gypsum board which can get a moisture-ratio certification and a critical humidity level higher than 87 % RH, up to 97 % RH, and which has a retained fire class and is adapted to the NO
15 building system.

Claims

1. A building material consisting of organic/fibrous material composites or solid wood products, such as fibrous gypsum, paper-lined gypsum board,
5 particle board, plywood or solid wood studs made of whitewood and redwood, characterized in that the building material is treated with an anti-mold and anti-flame agent, such as boric acid and borax.
2. A building material as defined in Claim 1, characterized in that the boric acid
10 or borax is dissolved in water before the treatment of the building material.
3. A building material as defined in Claim 1 or 2, characterized in that a binder,
15 such carboxymethyl cellulose, is added to the anti-mold and anti-flame agent.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI2013/050131

A. CLASSIFICATION OF SUBJECT MATTER See extra sheet According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC: E04B, B27K, E04C Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched FI, SE, NO, DK Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9913022 A1 (ERKOBEST AY [FI]) 18 March 1999 (18.03.1999) Whole document, especially page 1, lines 4-6, 14-23 and 27-33; page 2, lines 26-31 and claims 1, 23 and 25	1-3
X	AU 3382784 A (RENTOKIL LTD) 18 April 1985 (18.04.1985) Whole document, especially claim 1; page 2, lines 1-12; page 3, lines 14-19 and page 4, example 1	1-3
X	US 3378381 A (DRAGANOV SAMUEL M) 16 April 1968 (16.04.1968) Whole document, especially column 1, lines 9-12 and 71-72; column 2, lines 1-5 and claims 1, 3 and 7	1-2
X	US 2004173783 A1 (CURZON JON LEE [US] et al.) 09 September 2004 (09.09.2004) Whole document, especially paragraphs [0003], [0048], [0069], [0083]-[0084] and [0096]-[0097]	1-2
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
Date of the actual completion of the international search 25 April 2013 (25.04.2013)		Date of mailing of the international search report 29 April 2013 (29.04.2013)
Name and mailing address of the ISA/FI National Board of Patents and Registration of Finland P.O. Box 1160, FI-00101 HELSINKI, Finland Facsimile No. +358 9 6939 5328		Authorized officer Hanna Aho Telephone No. +358 9 6939 500

INTERNATIONAL SEARCH REPORT

International application No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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X	US 4725382 A (LEWCHALERMWONG C CHARLES [US]) 16 February 1988 (16.02.1988) Whole document, especially column 1, lines 8-12; column 3, lines 25-68; column 4, lines 1-7 and 53-57 and column 5, lines 1-12	1-2

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/FI2013/050131

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CLASSIFICATION OF SUBJECT MATTER

Int.Cl.

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