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Datasheet for the decision of 30 March 2023

Case Number: T 0484/20 - 3.2.03

Application Number: 09768324.7

Publication Number: 2347059

IPC: E04B1/76

Language of the proceedings: EN

Title of invention:
FACADE INSULATION SYSTEM

Patent Proprietor:
ROCKWOOL A/S

Opponents:
BASF SE
Aspen Aerogels, Inc.

Headword:

Relevant legal provisions:
EPC Art. 100(a), 100(b), 100(c)

Keyword:
Grounds for opposition - added subject-matter (no) - insufficiency of disclosure (no) - lack of patentability (no)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 0484/20 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 30 March 2023

Appellant: (Opponent 1)	BASF SE Carl-Bosch-Str. 38 67056 Ludwigshafen (DE)
Representative:	BASF IP Association BASF SE G-FLP-C006 67056 Ludwigshafen (DE)
Appellant: (Opponent 2)	Aspen Aerogels, Inc. 30 Forbes Road, Bldg B Northborough MA 01532 (US)
Representative:	Ter Meer Steinmeister & Partner Patentanwälte mbB Nymphenburger Straße 4 80335 München (DE)
Respondent: (Patent Proprietor)	ROCKWOOL A/S Hovedgaden 584 2640 Hedehusene (DK)
Representative:	Gill Jennings & Every LLP The Broadgate Tower 20 Primrose Street London EC2A 2ES (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 20 December 2019 rejecting the opposition filed against European patent No. 2347059 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	C. Herberhold
Members:	B. Miller
	F. Bostedt

Summary of Facts and Submissions

I. European patent No. 2 347 059 B1 ("the patent") relates to thermal and sound insulation properties of external thermal insulation composite systems (ETICS).

II. Two oppositions were filed against the patent, based on the grounds for opposition of Article 100(a), (b) and (c) EPC.
The opposition division rejected both oppositions pursuant to Article 101(2) EPC.

This decision was appealed by both opponents, opponent 1 ("appellant 1") and opponent 2 ("appellant 2").

III. The appellants requested that the decision under appeal be set aside and the patent be revoked.

The respondent (patent proprietor) requested that the appeals be dismissed or, in the alternative, that the patent be maintained in amended form on the basis of one of the first to third auxiliary requests as submitted with the reply to the grounds of appeal filed by the appellants.

IV. Independent claim 1 as granted according to the main request, including a feature analysis as proposed by appellant 2, reads as follows:

[1] An insulated building wall comprising
[1a] an external thermal insulation composite system (ETICS) and

[1b] a building wall (5),

[1c] wherein the ETICS is affixed to the building wall (5), the ETICS comprising:

[1d] (i) an insulation sub-system (1), said insulation sub-system (1) being either

[1e] (a) an insulation sub-system comprising at least a first insulating plate (3) which contains from 20 to 90 wt % aerogel and at least a second insulating plate (2) which contains mineral wool, or

[1f] (b) an insulation sub-system comprising at least one composite insulating plate (12) containing mineral wool and from 20 to 90 wt % aerogel,

and

[1g] (ii) at least one mechanical fastener (4) for fastening either

(a) said first insulating plate (3) and said second insulating plate (2), or

(b) the at least one composite insulating plate (12), to the building wall (5), and

[1h] (iii) an outer layer, wherein the outer layer is a system comprising a mortar layer.

Claim 19 of the main request relates to a corresponding method claim, which reads:

"A method of providing an external thermal insulation composite system (ETICS) affixed to a building wall (5) comprising:

1) providing an insulation sub-system (1) to the wall (5), preferably by adhering the insulation sub-system (1) to the wall, the sub-system (1) comprising

- a first insulating plate (3) containing from 20 to 90 wt % aerogel and a second insulating plate (2) containing mineral wool, or
- a composite insulating plate (12) containing mineral wool and from 20 to 90 wt % aerogel,

2) fastening the insulation sub-system (1) to the wall with mechanical fasteners (4);

3) providing an outer layer on the insulation sub-system (1), wherein the outer layer is a system comprising a mortar layer."

The wording of the auxiliary requests is not relevant to the present decision.

V. State of the art

The following documents already cited during the opposition proceedings are of particular importance to the present decision:

E1: Aspen aerogels case study, "Aerogel Insulation Converts Old Mill House Into Modern Energy-Saving Passive House" (31 July 2008; evidenced through the Wayback Machine, see E1a)
E3: EP 1 408 168 A1
E4: WO 2006/091812 A2
E5: GB 2 447 562 A
E7: WO 02/052086 A2
E8: WO 2006/065904 A1
E9: US 5,306,555
E10: US 2006/0125158 A1
E11: US 2006/0194026 A1
E14: Safety Data Sheet "Spaceloft® 3251, 4201, 6251, 9251", revision date 13 November 2007
E19: Guideline for European Technical Approval of External Thermal Insulation Composite Systems

With Rendering, ETAG 004, Edition March 2000, Amendment June 2008

E20: Affidavit signed by Mr. Michael James O'Connor, with the following attachments:
Photos 1, 2A, 2B, 2C and 3, together with metadata of electronic copies of each photo;

E20a: Müli Oberhallau, Hallau (SH) - Aerogel Anwendungen, http://aerogelanwendungen.ch/mueli-oberhallau-hallau-sh/

E21: Website listing both Spaceloft 9251 insulation and Pyrogel 6350 insulation as Aspen Aerogels insulation products (23 December 2006; evidenced through the Wayback Machine)

E22: Data sheet of "Pyrogel 6350 insulation" (17 October 2006; evidenced through the Wayback Machine)

E23: US 2007/0014979 A1

VI. With the summons to oral proceedings, the board sent a communication pursuant to Article 15(1) RPBA 2020 indicating to the parties its preliminary, non-binding opinion of the case.

VII. In reaction to the summons, both appellants stated that they would not be attending the oral proceedings before the board.

VIII. Oral proceedings were held on 30 March 2023 in the absence of both appellants in accordance with Article 15(3) RPBA 2020, and the appellants were treated as relying only on their written cases pursuant to Rule 115(2) EPC.

IX. The appellants' arguments, as far as relevant to this decision, can be summarised as follows:

(a) Amendments

The feature "wherein the outer layer is a system comprising a mortar layer" in claims 1 and 19 constituted an unallowable intermediate generalisation, since it did not require the mortar layer to be the "outermost" layer in accordance with the disclosure on page 10, first paragraph of the application as filed.

Moreover, the application as filed did not disclose that the "composite" insulating plate was fastened by a mechanical fastener as required by option (ii) (b) of feature [1g].

The requirement of claim 1 as granted that "at least one mechanical fastener (4)" is for fastening "said first insulating plate (3) and said second insulating plate (2)" represented a generalisation of the disclosure as filed with regard to

- the type of fastener,
- the type of layers, including their disclosed properties such as thickness, and
- their arrangement.

(b) Sufficiency

The skilled person was unable to determine the location of the outer layer in the ETICS and how to attach the mortar as an outer layer. The skilled person was not in a position to determine the meaning of an "outer layer" compared with a "surface layer" as shown in Figures 2 and 4. The skilled person would, rather, apply a surface coating or bricks as the outer layer, and not mortar.

Furthermore, the definition of the insulation sub-system was unclear, since a composite panel was composed of two layers. Since the skilled person was not able to distinguish between the two options of claim 1, they could not reproduce the invention.

(c) Inventive step - public prior use (E1/E20) as starting point

Starting from the disclosure derivable from the prior use by the renovation project of Müli Oberhallau in 2008, the subject-matter of claim 1 differed by the insulation sub-system comprising mineral wool.

E19 by the reference to standard EN 13162 on page 11 provided sufficient motivation to introduce an additional layer of mineral wool into the ETICS disclosed in the public prior use.

E21 and E22 provided an incentive for the skilled person to exchange the Spaceloft used in the public prior use for Pyrogel, since these citations confirmed that the latter was on the market before the priority date of the patent.

E3 disclosed an ETICS comprising mineral wool. This disclosure of E3 taught the skilled person the possibility of employing an additional layer of mineral wool in the insulation system used in the public prior use.

E7, E9 and E10 disclosed mineral wool as a beneficial element in an insulation system.

In view of E19, E21, E22, E3, E7, E9 and E10 it was obvious to the skilled person that mineral wool could

be used alternatively or in addition for an ETICS such as applied during the renovation project described by E1/E20.

(d) Inventive step - E3 or E19 as starting point

Starting from E3 or E19, the subject-matter of claim 1 differed by the insulation sub-system comprising aerogel.

It was obvious to the skilled person that an insulation panel comprising an aerogel either in the form of a composite matrix or in the form of an addition layer could alternatively be used in an insulation system of E3 or E19, since these materials were known in the art to be mechanically stable and to have very good insulation properties, as evidenced by E7 to E11.

Since E3 and E19 taught the use of an insulation system based on mineral wool, it would have been obvious for the skilled person starting from E3 or E19 to apply the aerogel as known from E7 to E11 in combination with the mineral wool fibres of E3 or E19.
There was sufficient incentive and motivation in the prior art for the skilled person to seriously contemplate the use of aerogels in E3 as well, either as an additional plate or as a composite in accordance with claim 1 of the opposed patent, in order to provide for an ETICS with desired properties (i.e. thinner, lighter, with increased handleability and mechanical stability), since none of these properties were surprising to the skilled person.

Starting from E19, it was further obvious in the light of the public prior use reported in E1 and E20 to use

an aerogel composite panel in order to enhance the properties of the insulation system.

(e) Inventive step - E4 or E5 as starting point

E4 and E5 both disclosed insulation plates comprising aerogel and mineral fibres, wherein the insulation plates could be fixed to a wall.

The subject-matter of claim 1 differed from the disclosure of each of E4 and E5 in that the outer layer comprised a mortar layer.

The use of an outer mortar layer was common practice, as demonstrated by the public prior use E1/E20.

It was obvious to the skilled person to apply a mortar layer to the insulated wall disclosed in E4 or E5.

X. The respondent's respective arguments can be summarised as follows:

(a) Amendments

The feature "wherein the outer layer is a system comprising a mortar layer" was based on the disclosure on page 10, first paragraph of the application as filed.

Claim 1 as filed disclosed that in one alternative the insulation sub-system comprised at least one composite insulating plate. Moreover, claim 1 as filed further disclosed that the fastener was used to fasten "the at least one insulation plate". Hence claim 1 as filed taught that the fastener could be used to fasten the composite insulation plate.

The amendment of claim 1 as granted that "at least one mechanical fastener (4)" was for fastening "said first insulating plate (3) and said second insulating plate (2)" constituted a mere clarification and was based on the overall teaching of the application as filed.

(b) Sufficiency

There was no ambiguity about the meaning of an outer layer. The skilled person could clearly distinguish between an outer layer comprising a mortar layer and a surface layer as being a part of a dual-density mineral wool plate.

There was no barrier to reproducing the invention due to the overlap of options (a) and (b). A skilled person would be in a position to easily determine whether or not they were working within the scope of the claim.

(c) Inventive step - public prior use (E1/E20) as starting point

Starting from the disclosure derivable from the prior use by the renovation project of Müli Oberhallau in 2008, the subject-matter of claim 1 differed by the insulation sub-system comprising mineral wool.

Neither the prior use itself nor any of the further cited documents E3, E7, E9, E10, E19, E21, E22 provided any motivation to modify the ETICS applied during the renovation project by using an insulation system comprising mineral wool.

(d) Inventive step - E3 or E19 as starting point

Starting from E3 or E19, the subject-matter of claim 1 differed by the insulation sub-system comprising aerogel.

Although aerogel was a known material, none of the cited documents E7 to E11 provided any motivation for modifying the insulation system of E3 or E19 by adding aerogel, either in the form of a composite matrix or in the form of an addition layer. No motivation was provided by the public prior use E1/E20 either.

(e) Inventive step - E4 or E5 as starting point

Neither E4 nor E5 related to an ETICS as the contested patent does. Hence these documents did not represent a realistic starting point for assessing inventive step.

Reasons for the Decision

1. Main request - Article 100(c) EPC

1.1 Claim 1 as granted according to the main request is based on claim 1 as filed and comprises the following added features

[1h] "wherein the outer layer is a system comprising a mortar layer"

[1g] the at least one mechanical fastener (4) is for fastening
- "said first insulating plate (3) and said second insulating plate (2)", (option (a)) or
- the at least one "composite" insulating plate, (option (b)).

Similarly, the wording of claim 19 as granted corresponds to claim 19 as filed wherein feature [1h] has been added accordingly.

The board agrees with the finding in point II.16 of the contested decision that these amendments comply with the requirement that the subject-matter of claim 1 as granted does not contain subject-matter which extends beyond the content of the application as filed.

1.2 Addition of "wherein the outer layer is a system comprising a mortar layer" to claims 1 and 19

1.2.1 The addition of the expression "wherein the outer layer is a system comprising a mortar layer" to the wording of claims 1 and 19 as filed is based on the disclosure of the first paragraph on page 10, lines 1 to 5 of the

application as originally filed (reference is made to the published international application WO 2010/046074 A1, "the application") which reads:

"*In one embodiment, the outer layer forms the outermost surface of the ETICS. The outer layer is preferably a system comprising one or more of the following constituents: 1) a Re-enforcement [sic] net, preferably a web of glass-, metal- or polymer-fibres; 2) a mortar layer, preferably of an under mortar layer, an adhesive layer and a final mortar layer.*"

Therefore the application discloses the features in question *expressis verbis* in the second sentence on page 10.

However, it is disputed between the parties whether the outer layer as defined in the second sentence must at the same time form the outermost surface of the ETICS as defined in the preceding first sentence.

1.2.2 The board is of the opinion that the first two sentences on page 10 are not necessarily linked to each other, but rather disclose two options which can be realised independently of each other. Therefore the application does not disclose that the outer layer is a system comprising a mortar layer only if the outer layer is also the outermost layer of the ETICS. This interpretation is further supported by the teaching of the application, e.g. on page 13, lines 15 to 17:

"*The first insulating plate may be applied with a surface layer, coating or sheet which has a suitable affinity for the provision of an outer layer, preferably an outer layer comprising mortar or plaster.*"

1.3 Amendments to feature [1g]

1.3.1 Claim 1 as filed discloses two alternatives for the insulation sub-system:

a) a sub-system comprising at least a first insulating plate and at least a second insulating plate;
b) a sub-system comprising at least one composite insulating plate.

Hence claim 1 as filed encompasses both possibilities, that the insulation sub-system is composed of a single composite plate and that it is composed of a combination of two plates.

Claim 1 as filed further discloses that the fastener is used to fasten "the at least one insulation plate". A corresponding teaching can be found on page 6, lines 1 to 9 of the application.

1.3.2 Claim 1 as granted requires at least one mechanical fastener (4) for fastening either

(a) said first insulating plate (3) and said second insulating plate (2), or
(b) the at least one composite insulating plate (12).

Both options are directly and unambiguously derivable from the application as originally filed.

1.3.3 Insertion of the term "composite" in option (b)

The application as filed discloses in claim 1 as well as on page 6, lines 1 to 9 that the fastener is used to

fasten "the at least one insulation plate". This general statement applies to any of the insulation plates and hence also to the at least one composite insulating plate of the insulation sub-system according to claim 1 as filed. It follows that the application teaches that the fastener is used to fasten the at least one composite insulating plate according to option (b) of feature [1g] of claim 1 as granted.

1.3.4 Addition of option (a)

As discussed above, claim 1 of the application discloses that the mechanical fastener is used in general to fasten the at least one insulation plate.

Therefore it has to be evaluated whether the skilled person will understand from claim 1 as filed in combination with the rest of the teaching of the application that the mechanical fastener can be used

- only for a single insulation plate or
- in general, for fastening the insulation sub-system, i.e., in the case of alternative a) for fastening the combination of a first and second insulating plate.

Although claim 1 as filed might be ambiguous in this regard, the skilled reader is taught by all the figures of the application that the mechanical fastener can be used to fasten not only the composite plate or one of the first and second insulation plates but all the insulation plates. This teaching regarding the fastening of the insulation plates in the figures of the application is independent of the choice of material for the further outer layer.

Moreover, it is made clear on page 9, lines 18 to 31 of the application that the application is aimed at ETICS where a mechanical fastening is applied.

Hence the amendment to claim 1 according to which "at least one mechanical fastener (4)" is for fastening "said first insulating plate (3) and said second insulating plate (2)" does not extend beyond the teaching of the application.

1.4 The board therefore concludes that the ground for opposition pursuant to Article 100(c) EPC does not prejudice maintenance of the patent as granted.

2. Main request - Article 100(b) EPC

2.1 According to established case law as summarised in Case Law of the Boards of Appeal, 10th edition, 2022 ("Case Law"), the patent specification as a whole, and not the independent claims as such, must convey a reproducable teaching for the skilled person, see Case Law, Chapter II.C.3.1.

Accordingly, a successful objection of insufficiency of disclosure presupposes that there are serious doubts, substantiated by verifiable facts (Case Law, Chapter II.C.9.). The mere fact that a claim is broad or contains features of a certain ambiguity is not a reason to assume that the patent does not meet the requirement of sufficient disclosure.

In order to establish insufficiency, the burden of proof is upon an opponent to establish on the balance of probabilities that a skilled reader of the patent, using their common general knowledge, would be unable to carry out the invention.

2.2 Claim 1 of the main request refers to an outer layer. Reading claim 1 with a mind willing to understand, the outer layer refers to a layer that is located on the surface of the insulation sub-system which is directed away from the building wall. Interpreting claim 1 in the required meaningful and technically sensible manner, the term "outer layer" in the context of claim 1 is not understood as referring to a surface layer of an intermediate dual-density mineral wool layer, such as the surface layer (10) of Figures 2 and 4, see paragraph [0119] of the patent.

Neither of the appellants has demonstrated by verifiable facts that the skilled person could not provide an insulated building wall comprising a mortar layer on the outside.

2.3 The sub-system according to claim 1 comprises either a single composite layer or a combination of two layers. The combination of two composite layers may also comply with the definition of the sub-system comprising a first and a second layer according to claim 1. Nevertheless, the skilled person is able to determine this without experimental effort and also has no difficulties in reproducing the alternative embodiments.

2.4 The board therefore concludes that the ground for opposition pursuant to Article 100(b) EPC does not prejudice maintenance of the patent as granted.

3. Main request - Article 100(a) EPC in combination with Article 56 EPC

3.1 Public prior use the "renovation project of Müli Oberhallau" in 2008 (E1, E20) as starting point

3.1.1 Status of the various documents relating to the objection based on the public prior use

The opposition division concluded that the renovation project of the mill (Müli Oberhallau) as described in E1 and the declaration E20 and as shown in the photos attached to E20 constituted a public prior use according to Article 54(2) EPC.

Further, the opposition division considered E21 and E22 to belong to the state of the art according to Article 54(2) EPC, since their publication date had been determined by the Wayback Machine database.

The respondent does not concede that there is a sufficiently proven case of public prior use, nor that the case study of E1 and E20 is a single public prior use disclosure. However, it presents its arguments for inventive step, accepting for the sake of argument that prior use was proven, see reply to appeal, page 9.

In view of the following considerations, the board sees no reason to question the public prior use by the "renovation project of Müli Oberhallau" in 2008 as described in E1 and E20.

In point II.18.1.2 of the contested decision, the opposition division concluded that, in the absence of a proven publication date, E20a does not constitute the state of the art under Article 54(2) EPC in its own

right. The board informed the parties in its communication pursuant to Article 15(1) RPBA 2020 that it tended to agree with the finding of the opposition division with regard to E20a.
This opinion of the board was not questioned by the appellants in the rest of the appeal procedure. Therefore E20a is not considered any further in this decision.

3.1.2 Disclosure derivable from the prior use

E1 describes an aerogel-based insulation that was used on external walls during the "renovation project of Müli Oberhallau" to convert the old mill house into an energy-saving structure.

E20 confirms that during conversion of the old mill house into an energy-saving house a Spaceloft aerogel-based insulation was applied to the building walls. The specific aerogel product Spaceloft 9251 applied during the prior use comprises 50 to 70 % aerogel and 30 to 70 % polyethylene terephthalate (PET or polyester) fibres, see composition of Spaceloft 9251 in E14, Section 3.

E20 further confirms (see also photos 1 and 2) that fasteners were used during the renovation project to fix the insulation plates to the wall and that a net and a mortar layer were applied on the insulation system.

3.1.3 Distinguishing feature

The subject-matter of claim 1 differs from the disclosure derivable from the documentation on the "renovation project of Müli Oberhallau" (E1 and E20) by

an insulation sub-system comprising mineral wool, in particular by an insulation sub-system (1) being either

(a) an insulation sub-system comprising at least a first insulating plate (3) which contains from 20 to 90 wt % aerogel and at least a second insulating plate (2) which contains mineral wool, or
(b) an insulation sub-system comprising at least one composite insulating plate (12) containing mineral wool and from 20 to 90 wt % aerogel.

3.1.4 Objective technical problem

The patent sets out in paragraph [0029] that the invention aims at improving both the mechanical and the insulating properties of an insulation sub-system comprising mineral wool in an ETICS.

In line with the arguments presented by the parties, the objective technical problem can be seen as the provision of an alternative effective ETICS.

3.1.5 Obviousness of the solution

On the one hand, the skilled person starting from the documentation on the "renovation project of Müli Oberhallau" (E1 and E20) is aware of the fact that mineral wool can be used in ETICS. This knowledge of the skilled person can be considered as being evidenced by the disclosure of E3 and E19.

E3 discloses an insulation sub-system containing mineral wool (see "insulation plate 4" in Figure 1, paragraphs [0020], [0023], claim 1).

E19 discloses mineral wool as a standard thermal insulation product for buildings (see page 11, reference to standard EN 13162).

Aiming at the provision of an alternative effective ETICS, the skilled person might possibly be motivated to use the complete insulation system disclosed in E3 and E19 instead of the insulation system used in the "renovation project of Müli Oberhallau" (E1 and E20). However, E3 and E19 do not provide any motivation for using a layer of mineral wool in addition to the aerogel layer of the ETICS used in the renovation project (E1 and E20).

On the other hand, the skilled person starting from the documentation on the "renovation project of Müli Oberhallau" (E1 and E20) is also aware of the fact that mineral wool can be used in combination with an aerogel to provide a thermal insulation material.

This knowledge of the skilled person can be considered as being evidenced by the disclosure of E7, E9, E10, E19, E21 and E22 as summarised in the following:

E7 describes on page 22 in example 7, sample B a composite insulation panel comprising aerogel and quartz wool. This composite panel is particularly suitable for clothing applications due to its flexibility and drapeability, see paragraph bridging pages 4 and 5 of E7.

E9 discloses a substantial increase in the mechanical strength (see column 5, lines 9 to 14; Figure 1: "Aerogel Matrix Composites") obtained with aerogel matrix composites (see column 3, lines 63 to 67) that could be made from mineral wool / silica fibres (see

column 4, lines 13, 15; column 7, lines 33/34) as the fibre-type reinforcement for the aerogel material (see column 4, lines 10 to 14).

E10 describes a blanket comprising aerogels, fibres, and at least one wetting agent (see claim 1), i.e. a fibre-reinforced aerogel blanket. The fibres may include "mineral wool" as a reinforcing fibre (see paragraph [0036]). The aerogel blankets of E10 are particularly useful as an insert in the gap between glass panels of windows, see paragraphs [0061] and [0064] to [0068].

E21 and E22 demonstrate that Spaceloft 9251 and Pyrogel 6350, a high-temperature insulation blanket formed from silica aerogel and reinforced with a non-woven carbon-fibre and glass-fibre batting, were offered on the market in 2006. Both documents describe that Spaceloft 9251 is typically applied in "Low pressure steam pipes, vessels and equipment; subsea pipelines, hot pipes, vessels, and equipment; footwear" and that Pyrogel 6350 is typically applied in "Medium-to-high pressure steam pipes, vessels and equipment; aerospace & defence applications; fire barriers; welding blankets".

From each of the disclosures in E7, E9, E10, E21 and E22 it follows that the skilled person might have considered using an aerogel composite comprising mineral wool as an alternative insulating material (or to exchange one or more layers of Spaceloft 9251 for an alternative Aspen Aerogels product such as Pyrogel 6350) in order to provide for an alternative ETICS.

However, different insulation purposes require insulation materials with different properties. An insulation material for ETICS requires specific

mechanical properties such as high stiffness, pull-through resistance and wind load resistance, see paragraph [0051] of the patent. Documents E7, E9, E10, E21 and E22 do not demonstrate, and do not provide at least a pointer to that effect, that the skilled person starting from the finished "renovation project of Müli Oberhallau" documented by E1 and E20, in a similar renovation project, not only could but also would use an insulation system comprising in addition mineral wool in an obvious manner as an effective alternative for the ETICS installed in the course of the "renovation project of Müli Oberhallau".

The mere knowledge of the existence of a mineral wool product such as those described in any of E7, E9, E10, E21 and E22 and their various different specific properties which render them suitable for specific applications such as clothing or pipes does not already provide an incentive for the skilled person to use an aerogel composite comprising mineral wool, of all things, as an alternative to the specific ETICS insulation material used for the renovation project described in E1 and E20. This is also confirmed at least for the person responsible for the "renovation project of Müli Oberhallau", since a corresponding insulation material comprising mineral wool was not used in this project despite its known existence, see last paragraph on page 1 of E20.

3.1.6 In summary, the board agrees with the conclusion in point II.19.1 of the contested decision that the subject-matter of claims 1 and 19 as granted is not rendered obvious when starting from the public prior use "renovation project of Müli Oberhallau" in 2008 (E1, E20) and considering the further cited prior art E3, E7, E9, E10, E19, E21 and E22.

3.2 E3 as starting point

3.2.1 E3 relates to thermal insulation systems which can be anchored onto the exterior facade of a building structure (see paragraphs [0001] and [0002]). Hence E3, similarly to the patent, is directed at providing durable and highly insulating systems for external building walls.

E3 discloses an insulated building wall system comprising a thermal insulation composite system affixed to the facade of a building wall using mechanical fasteners (see paragraphs [0033], [0057] and Figure 1). The resulting system is covered with an outer rendering layer of plaster material (paragraph [0048], claim 1). The insulation sub-system of E3 contains mineral wool (see "insulation plate 4" in Figure 1, paragraphs [0020], [0023], claim 1).

3.2.2 The subject-matter of claim 1 differs from E3 in that the insulation sub-system comprises aerogel and in particular is either

(a) an insulation sub-system comprising at least a first insulating plate (3) which contains from 20 to 90 wt % aerogel and at least a second insulating plate (2) which contains mineral wool, or
(b) an insulation sub-system comprising at least one composite insulating plate (12) containing mineral wool and from 20 to 90 wt % aerogel.

3.2.3 The claimed insulation sub-system has the advantage of improved insulation properties due to the content of aerogel, see paragraph [0109] of the patent. This allows for the first insulating plate or the composite

plate to be thinner and lighter compared with a pure mineral wool insulation sub-system. Hence handling of the sub-system is easier during installation, while at the same time the sub-system has improved mechanical properties (see paragraphs [0051], [0059], [0117] and [0128] of the patent).

In view of these effects explained in the contested patent, the parties agree that the objective technical problem is to provide an insulation system which has improved thermal insulation properties while retaining good mechanical properties, and which can be handled more easily.

3.2.4 E3 is concerned with the mechanical performance of a mineral wool ETICS, for example the shear strength of the mineral wool panels to resist breaking under their own weight, and the resistance to wind suction forces, see paragraphs [0004] and [0005].

E3 on its own does not provide any motivation to further supplement the mineral wool insulation with aerogel.

3.2.5 Such motivation is not provided by the insulation systems comprising aerogel known from E7 to E11 either.

(a) E7 is aimed at an aerogel composite that exhibits improved performance over prior aerogel composites in one or more of the areas of flexibility, durability, aerogel sintering, x-y thermal and/or electrical conductivity, RPI and EMI attenuation, and burn-through resistance, see page 4, third paragraph. Although insulation systems for building walls are described in the context of the prior art, see page 1, last complete paragraph, E7 is

specifically aimed at the provision of a material suitable for clothing, see paragraph bridging pages 4 and 5. In order to achieve this goal, E7 proposes using a reinforcement structure in the form of lofty fibrous batting, see claim 1. By reference to Figure 7, E7 in example 7 evaluates the thermal performance of aerogel composites comprising various lofty batting materials.

However, a technical teaching regarding properties as required in an ETICS is not disclosed in E7.

Hence the skilled person is not motivated to consider the teaching of E7 in the context of ETICS according to E3, which need a certain stiffness and rigidity.

(b) E8 and E10 propose aerogel blankets for building insulation in general, but in particular describe that aerogel composites with a minimum content of fibres can be used as an insert in the gap between glass panels of windows
(see E8: paragraphs [0059] and [0062] to [0066] and E10: paragraphs [0061] and [0064] to [0068]).

No specific pointer can be found in E8 or E10 that the materials disclosed therein could meet the technical demands imposed by their use in a mechanically fastened ETICS such as the one disclosed in E3.

(c) E9 aims at improving the manufacturing process for aerogel matrix composites, see column 2, lines 3 to 14 and claims 1 and 10. The manufacturing process of E9 results in an aerogel matrix composite having good thermal insulation properties (see E9,

column 1, lines 11 to 14) and a substantial increase in mechanical strength (see E9, column 5, lines 9 to 14).

The aerogel matrix composites of E9 comprise from 45 to 91 wt % of aerogel material (i.e. 9 wt % to 55 wt % fibres), see Table I. Silica fibres and mineral wool can be used as the "fiber-type reinforcement", see E9, column 4, lines 10 to 17.

However, there is no apparent reason why the skilled person would expect an improvement in the ETICS of E3 by considering the teaching of E9 with regard to a specific manufacturing process of aerogel composites. E9 does not specify that the insulation may be applied in a mechanically fastened ETICS that requires certain properties such as pull-through resistance and mechanical stability to support an outer layer such as a mortar layer.

(d) E11 refers to sidings or panels (see paragraph [0015]) but does not describe an ETICS of the type described in E3 or in the patent.

Therefore the skilled person has no reason to expect that an aerogel-containing material according to E11 can be used in an ETICS of the type disclosed in E3.

3.2.6 In view of the above, the board agrees with the conclusion in point II.19.2 of the contested decision that the subject-matter of claims 1 and 19 as granted is not rendered obvious when starting from E3 and considering the further cited prior art.

3.3 E19 as starting point

Starting from E19, the subject-matter of claim 1 differs by the same features as with regard to E3.

Therefore the same arguments apply as with regard to E3, see above.

Even when considering the public prior use reported in E1 and E20, no motivation can be identified for the skilled person starting from E19 in addition to use an aerogel panel in order to enhance the properties of the insulation system of E19. In particular, there is no reason why the skilled person would supplement the insulation system of E19 with a part of the insulation system disclosed in E1 and E20.

3.4 E4 or E5 as starting point

E4 relates to a roofing component and, in more general terms, to a method of insulating a building by placing a layer of aerogel material on a surface of the building, see page 2, lines 7 to 12 and claims 1 and 15.

E5 relates to a racking panel for use in the construction of walls of timber frame houses for improving the walls' thermal insulation and structural characteristics, see page 1, lines 4 to 8 and claims 1 and 17.

Neither E4 nor E5 relates to an ETICS as defined in claim 1. Therefore E4 and E5 are not directed to the same purpose as the patent, and consequently are less pertinent than E1 or E3.

There is no reason to start from E4 or E5 when aiming at an ETICS or to modify the disclosure of E4 or E5 to provide an ETICS as defined in claims 1 and 19 as granted. The subject-matter of claims 1 and 19 is therefore not obvious when starting from E4 or E5.

3.5 The board therefore concludes that the ground for opposition pursuant to Article 100(a) EPC in combination with Article 56 EPC does not prejudice maintenance of the patent as granted.

Order

For these reasons it is decided that:

The appeals are dismissed.

The Registrar: The Chairman:

H. Jenney C. Herberhold

Decision electronically authenticated