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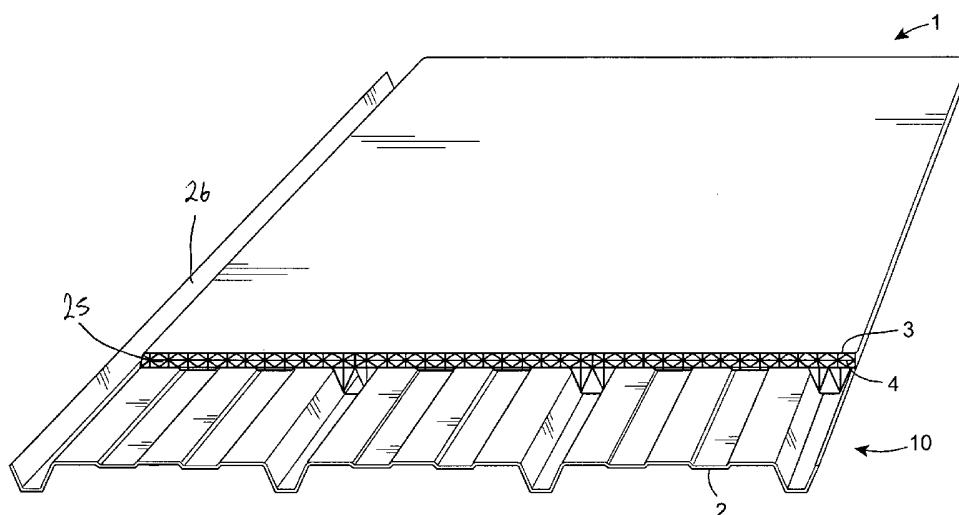
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(54) Title: A TRANSLUCENT ROOF PANEL



(57) Abstract: A translucent panel (1) comprises a single body of translucent material. The single body comprising an outer weather skin (2), an inner liner skin (3) and a multiwall support (4) between the outer weather skin (2) and the inner liner skin (3). The inner liner skin (3), outer weather skin (2) and multiwall support (4) all being of translucent material. The panel (1) further comprises an integral overlap portion (10) at least one end and/or side thereof. The overlap portion (10) having a thickness close to the thickness of the outer weather skin.



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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IE2005/000051

A. CLASSIFICATION OF SUBJECT MATTER  
E04D3/28 E04C2/54

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)  
E04D E04C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                                                              | Relevant to claim No. |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X          | EP 0 624 696 A (POLYGAL)<br>17 November 1994 (1994-11-17)<br>column 2, line 25 - line 30; figure 1a<br>-----                                                    | 1,7-10,<br>22,23,36   |
| X          | EP 0 381 339 A (POLYGAL)<br>8 August 1990 (1990-08-08)<br>abstract; figure 1<br>column 3, line 43<br>-----                                                      | 1,7-10,<br>22,36      |
| X          | US 6 190 742 B1 (WUESTER HEINRICH)<br>20 February 2001 (2001-02-20)<br>abstract; figures<br>column 3, line 20 - line 25<br>column 4, line 23 - line 29<br>----- | 1-8,22,<br>23         |
| X          | GB 542 085 A (GEORGE FEJER)<br>24 December 1941 (1941-12-24)<br>page 6, lines 2-40<br>-----<br>-/--                                                             | 1-8,22,<br>36         |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in 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 document 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.

\*G\* document member of the same patent family

Date of the actual completion of the international search

22 December 2005

Date of mailing of the international search report

02. 01. 2006

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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/IE2005/000051

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT |                                                                                                                                      |                       |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Category *                                           | Citation of document, with indication, where appropriate, of the relevant passages                                                   | Relevant to claim No. |
| X                                                    | GB 2 269 833 A (* EUROLYTE LIMITED)<br>23 February 1994 (1994-02-23)<br>page 1, paragraph 3; figures<br>-----                        | 1,7-10,<br>20-22,36   |
| X                                                    | WO 01/34379 A (CONNOLLY, HUGH)<br>17 May 2001 (2001-05-17)<br>page 9, line 20; figures 1,2<br>-----                                  | 1,7,8,<br>20-23,36    |
| X                                                    | EP 0 437 810 A (VEREINIGTE ALUMINIUM-WERKE<br>AKTIENGESELLSCHAFT; VAW ALUMINIUM AG)<br>24 July 1991 (1991-07-24)<br>figures<br>----- | 1                     |
| Y                                                    | DE 36 38 615 A1 (IMC ACRYLGUSS GMBH)<br>26 May 1988 (1988-05-26)<br>column 3, line 4 - line 7; figures<br>-----                      | 11-19,<br>24-34,36    |
| Y                                                    | US 3 869 219 A (WILSON ET AL)<br>4 March 1975 (1975-03-04)<br>figures<br>-----                                                       | 15-19,<br>28-32       |
| A                                                    | GB 2 069 036 A (ROBERTSON CO H H)<br>19 August 1981 (1981-08-19)<br>page 2, line 26 - line 49; figure 2<br>-----                     | 11-14,<br>24-27       |
| A                                                    | US 5 987 837 A (NELSON ET AL)<br>23 November 1999 (1999-11-23)<br>figures 1-7,13<br>-----                                            | 15-19                 |
| X                                                    | US 5 509 250 A (JENSEN ET AL)<br>23 April 1996 (1996-04-23)<br>figures 2,3,7<br>-----                                                | 24-26,<br>33,34,36    |
| X                                                    | US 5 163 257 A (CROWELL ET AL)<br>17 November 1992 (1992-11-17)<br>figures<br>-----                                                  | 24-27,<br>33,34,36    |
| X                                                    | DE 36 04 951 A1 (KRAUSE, OTTO<br>EBERHARD, DR.-ING; KLEZ, HANS-PETER)<br>20 August 1987 (1987-08-20)<br>figures<br>-----             | 24-26,<br>33,34,36    |
| A                                                    | EP 0 576 062 A (HOREMAN, JELLE)<br>29 December 1993 (1993-12-29)<br>column 1, paragraph 3; figures<br>-----                          | 1,34                  |

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IE2005/000051

### Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 35, 37  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

#### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

Continuation of Box II.2

Claims Nos.: 35, 37

PCT Article 17(2)(a)(ii) and Rule 6.2(a)

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-10 and 20-23 and 36 when dependent on claims 1-10

Translucent panel with a multiwall support which is collapsed, forced or pressed against the inner surface of the outer weather skin

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2. claims: 11-19 and 24-34

Translucent panel with a spacer for extending between the outer surface or the inner liner and a building frame element such as a purlin.

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# INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/IE2005/000051

| Patent document<br>cited in search report |    | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|----|---------------------|----------------------------|---------------------|
| EP 0624696                                | A  | 17-11-1994          | NONE                       |                     |
| EP 0381339                                | A  | 08-08-1990          | AU 625903 B2               | 16-07-1992          |
|                                           |    |                     | AU 4867490 A               | 26-07-1990          |
|                                           |    |                     | CA 2008069 A1              | 19-07-1990          |
|                                           |    |                     | IL 89005 A                 | 21-11-1991          |
|                                           |    |                     | JP 2279856 A               | 15-11-1990          |
|                                           |    |                     | NZ 232159 A                | 29-01-1992          |
|                                           |    |                     | US 5050362 A               | 24-09-1991          |
|                                           |    |                     | ZA 9000287 A               | 31-10-1990          |
| US 6190742                                | B1 | 20-02-2001          | AT 408015 B                | 27-08-2001          |
|                                           |    |                     | AT 144497 A                | 15-12-2000          |
|                                           |    |                     | DE 59810007 D1             | 04-12-2003          |
|                                           |    |                     | EP 0899393 A2              | 03-03-1999          |
| GB 542085                                 | A  | 24-12-1941          | NONE                       |                     |
| GB 2269833                                | A  | 23-02-1994          | NONE                       |                     |
| WO 0134379                                | A  | 17-05-2001          | AU 1171701 A               | 06-06-2001          |
| EP 0437810                                | A  | 24-07-1991          | DE 4000955 A1              | 18-07-1991          |
|                                           |    |                     | DK 437810 T3               | 11-10-1993          |
|                                           |    |                     | ES 2044393 T3              | 01-01-1994          |
| DE 3638615                                | A1 | 26-05-1988          | NONE                       |                     |
| US 3869219                                | A  | 04-03-1975          | CA 981944 A1               | 20-01-1976          |
|                                           |    |                     | DE 2353375 A1              | 09-05-1974          |
|                                           |    |                     | FR 2205128 A5              | 24-05-1974          |
|                                           |    |                     | GB 1385139 A               | 26-02-1975          |
|                                           |    |                     | IT 1006108 B               | 30-09-1976          |
|                                           |    |                     | JP 1107279 C               | 30-07-1982          |
|                                           |    |                     | JP 49077056 A              | 25-07-1974          |
|                                           |    |                     | JP 56053650 B              | 21-12-1981          |
|                                           |    |                     | ZA 7308037 A               | 30-07-1975          |
| GB 2069036                                | A  | 19-08-1981          | NONE                       |                     |
| US 5987837                                | A  | 23-11-1999          | NONE                       |                     |
| US 5509250                                | A  | 23-04-1996          | NONE                       |                     |
| US 5163257                                | A  | 17-11-1992          | CA 2059620 A1              | 19-07-1992          |
| DE 3604951                                | A1 | 20-08-1987          | NONE                       |                     |
| EP 0576062                                | A  | 29-12-1993          | NL 9201123 A               | 17-01-1994          |