

A6 INSULATING PANELS IN MINERAL FIBRE

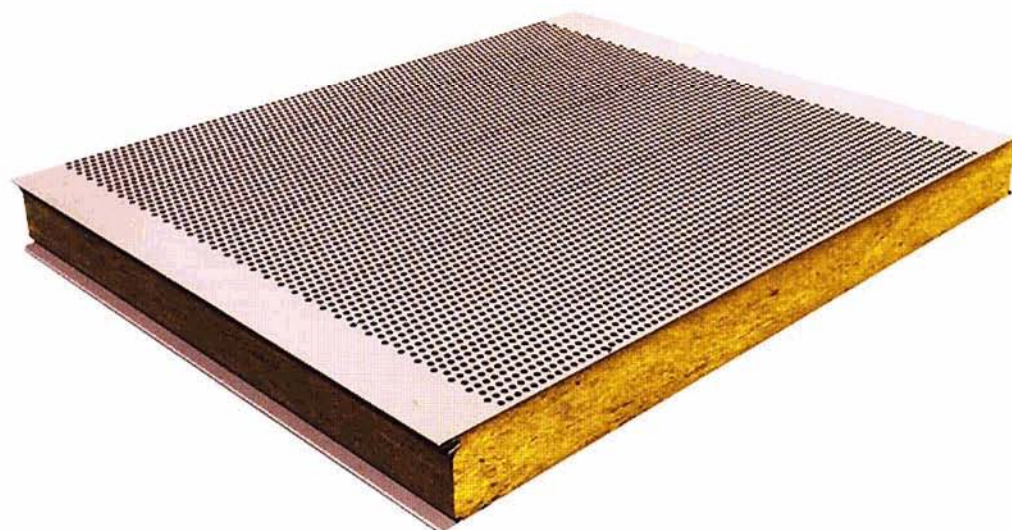
- Isofire Roof 1000
- Isofire Wall 1000
- Isofire Roof Fono 1000
- Isofire Wall Fono 1000

A6.1 TYPES AND INTENDED USES

Panels designed for use on pitched roofs (Isofire Roof 1000) and in walls (Isofire Wall 1000). Characterised by a core of mineral fibre which guarantees the incombustibility of the product besides ensuring excellent thermal insulation. The "Fono" versions are expressly designed for sound insulation. The panels were created to satisfy the growing demand for improved performance in fire behaviour, while maintaining good mechanical characteristics.

These panels have been tested at the Istituto Giordano S.p.A., obtaining the following certification:

- Class 0/1 reaction to fire (in terms of Ministerial Decree 26/06/84);
- Fire resistance: R.E.I. 30 / R.E.I. 60 / R.E.I. 120, depending on the thickness (in terms of Interior Ministry Circular 91, 14/09/61);
- Sound insulation to ISO 140 1995 and ISO 717 1996, and sound absorption to ISO 354 1985, for Fono version.



Sound-absorbing panel

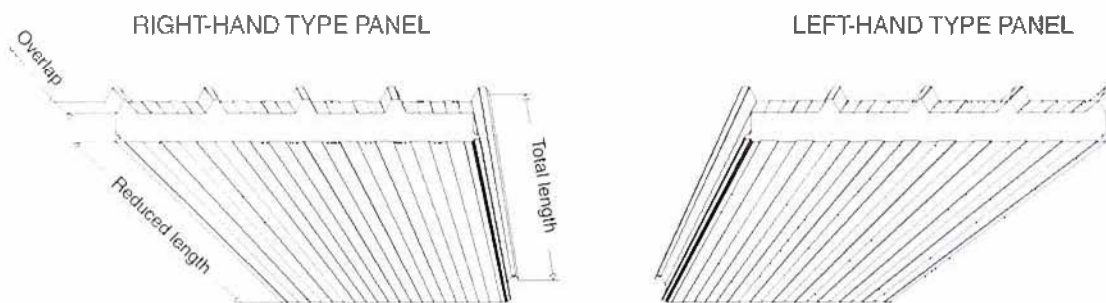
Note: our advice is that the longest mineral fibre panel which can sensibly be moved is 6000 mm.

A6.2 DIMENSIONAL CHARACTERISTICS

On this subject, please refer to the sections on roofing panels and wall panels in paragraph A4.2.

A6.3 OVERLAPS

There is no gasket provided for the longitudinal overlap joint, because the mineral wool must form a single continuous insulating layer, to guarantee the specified incombustibility and fire resistance. In the case of transverse (overlapped) joints, incombustible (Class 0) tape and gaskets must be fitted in order to ensure a perfect seal and complete impermeability without invalidating the fire-retardant properties of the panel. On roofing panels, the overlap must be achieved using the same procedures as on polyurethane panels, cutting away part of the insulation of the upper panel.



Arrangement for the overlap

Note: please refer to the following chapter for an appropriate description of the properties of this type of panel, which merits detailed analysis, especially in connection with the evolution of the legislation on fire safety and prevention.

A6.4 TOLERANCES

On this subject, please refer to paragraph A4.5.

A6.5 INSULATION

ISOFIRE ROOF 1000				
Panel thickness (mm)	50	60	80	100
Coeff. K (W/m ² *°C)	0,72	0,55	0,44	0,36
Coeff. K (kcal/h*m ² *°C)	0,64	0,48	0,38	0,32

ISOFIRE WALL 1000				
Panel thickness (mm)	50	60	80	100
Coeff. K (W/m ² *°C)	0,75	0,64	0,50	0,40
Coeff. K (kcal/h*m ² *°C)	0,67	0,57	0,44	0,35

A6.6 R.E.I. PANELS

The ISOFIRE series of panels is specially designed for the construction of rooms where fire can safely be kindled, and conversely of rooms which are required to be protected from the attack of fire coming from outside sources.

There is a variety of industrial uses for which ISOFIRE panels are particularly indicated, as for example:

- Protection of escape routes
- Fire escape stairs
- Lifts
- Fire barrier walls
 - Store rooms
- Suspended ceilings
- Clean rooms.

In addition to the above, they can be correctly used for the creation of safe rooms or compartments in accordance with the current regulations, particularly in terms of the "Definitions for the purposes of Annexe A of the Decree by the Interior Minister of 30/11/1983", cited below:

A6.6.1 Fireproof Compartment:

"Part of a building delimited by structural elements of a predetermined fire resistance, organised to fulfill the requirements of the prevention of fires."

A6.6.2 Smoke-proof filter:

"Compartment delimited by structures with a predetermined R.E.I. fire resistance, in any event not less than 60 minutes, and provided with two or more doors equipped with self-closure devices with a predetermined R.E.I. fire resistance, in any event not less than 60 minutes, with a ventilation shaft of adequate section, in any event not less than 0.10 m², issuing above the roof of the building; or compartment with the same fire resistance characteristics, maintained at an overpressure of at least 0.3 bar, even in emergency conditions, or vented directly to the outside with unobstructed openings having an area not less than 1 m² excluding ducts."

A6.6.3 Smokeproof stair wells or protected stairs:

"Protected staircase in well constituting a fire-resistant compartment having direct access from every floor with doors of R.E.I. fire resistance equipped with closing devices". ISOFIRE panels are designed to provide certificated high performance in fire resistance. (As provided by the current regulations, the certification of the products, particularly for fire resistance, is effected by real furnace tests on limited samples of the product). These tests guarantee the R.E.I. value for the panels and their jointing (longitudinal joint) at the test dimensions.

Note: Obviously the standard trial is not carried out on the complete installation (every completed project, however similar, has some unique and unrepeatable characteristics). In particular it cannot test the actual situation at the junctions – panel/floor, panel/beams (of various materials), panel/ceiling and panel/wall, or the various passageways for pipes, cables etc. It is therefore essential that the designer takes an engineering approach so that the intended performance can be guaranteed, especially as

TESTS FOR FIRE RESISTANCE



Vertical furnace 3000 x 3000 mm



Horizontal furnace for testing loadbearing structural elements and non-stressed firestop elements



Test of the efficacy of a portable extinguisher on a hearth of type B (liquids)



Radiant panel for testing reaction to fire

regards impermeability to flames, vapours and gases (E), and the thermal insulation (I) of the entire system.

In reality, these **qualities** are more closely connected with the procedures followed in carrying out the work and assembling the components, than with the specific and individual characteristics of these components, important though these are.

A6.6.4 Fire resistance

ISOFIRE insulated panels are certified in accordance with current national standards, in recognition of their performance in fire resistance, which contributes to the "R.E.I." grading of the product. Following the definitions given in Point 1.11 of Annexe A of the Decree by the Interior Minister of 30/11/1983, we can provide an exact explanation of the terminology used in assigning the values and the variables described in the Decree. In particular, we draw attention to the following definitions:

- **Fire resistance:** capacity of a construction element (component or structure) to maintain, for a fixed period of time:–
- **its stability "R"**, the tendency of a construction element to retain its mechanical strength under the action of fire;
- **its seal "E"**, the tendency of a construction element when exposed to the action of fire on one side, not to let flames, vapours or hot gases pass, or produce them on the side not so exposed;
- **its thermal insulation "I"**, the tendency of a construction element to reduce the transmission of heat.

Accordingly:

The symbol "R.E.I." is used to identify a construction element which, to qualify, must maintain its mechanical strength, its seal against flames and gas, and its thermal insulation, for a fixed period of time.

- The symbol "RE" is used to identify a construction element which, to qualify, must maintain its mechanical strength and its seal against flames and gas, for a fixed period of time.
- The symbol "R" is used to identify a construction element which, to qualify, must maintain its mechanical strength for a fixed period of time.

In relation to the requirements which they have demonstrated, structural elements are classified by a number, which represents the minutes. The time period for which the performance is guaranteed, in the classification of elements not bearing the rating "R", is automatically satisfied if criteria "E" and "I" are satisfied.

ISOFIRE panels have received the certification R.E.I. 30 / R.E.I. 60 / R.E.I. 120, depending on the different thicknesses, when used as non-stressed partitions, as indicated in the certifications, which are differentiated as regards the models and as regards their uses as roofing panels (non-stressed) and as vertical dividers. In view of the large number of construction types in the panels, it is important when using and checking the certified performances in fire resistance, to correlate exactly the model of panel with the certification obtained.

For the detailed characteristics, always refer to the ISOPAN technical documentation. For example, the 'ROOF' model of panel is certified both for use in roofing, and as a wall panel, but always with the specification that the side which can be exposed to the fire is the flat side (without ribs).

The model 'WALL', on the other hand, can be used for possible exposure to the fire on both faces, but only when positioned vertically in a wall. Strictly according to the standard, the certified performances refer to and are guaranteed only in the test conditions, which involve components of limited dimensions assembled with the particular joint. It is the responsibility of the designer to justify in "engineering" terms the extension of these performances to dimensions and procedures different from laboratory test conditions, particularly as regards length and therefore the scarcity of intermediate supports and bearings, and also as regards end-to-end joints, and the combination with other construction elements, especially structural members. As we have already stated, the object of this booklet is to supply the designer with advice and information to favour the identification of correct solutions and materials which will guarantee the fire resistance characteristics of the entire installation. The other components besides the panels, the structural elements in particular, must be able, in virtue of their composition, to resist fire for the necessary time.

If this condition cannot be met, these structural elements must be treated with the usual protective methods (intumescent paints, insulating or intumescent plaster etc.) and checked by the designer for compliance with the current applicable regulations, particularly Circular 91 and Standards CNVVF and UNI 9502, 9503 and 9504 etc.

A6.6.5 Outline of fire safety legislation

The use of ISOFIRE panels as elements resistant to fire is not structural, but aimed at contributing to the creation of compartmentation, that is, a separation of zones to be protected or insulated (safe zones) from others where there exists a greater possibility of a fire starting, or, conversely, to delimit zones at greater risk of fire.

The principal aim of the panels in such applications is to retard the spread of the high temperature (and

therefore of the fire) and of the combustion gases, for a fixed length of time, allowing people, materials and machinery to be brought to safety, and allowing action to be taken at the fire source itself before the fire spreads out of control. The Italian fire safety regulatory situation does not seem altogether systematic and functional, nor is it wholly consistent nor aligned with the legislation in other European countries. A large number of regulations have been drawn up or are in process of being drawn up, some of them laying down new procedures for homologating materials and new systems and solutions for fire protection.

A significant part of the legislation currently in force, which can be taken into consideration in the construction of partitions using ISOFIRE prefabricated panels, is listed below:

- Circular 91 of the Minister of the Interior of 14 September 1961;
- Ministerial decree of 30 November 1983 – “Terms, definitions and graphic symbols in fire prevention” – which, among other things, defines fire resistance and the various R.E.I. characteristics;
- Directive of the Council of the European Union 89/106/EEC of 21 December 1989, relating to harmonisation of the various national regulations.

In addition, for purposes of comparison and for the treatment of the structural components to which the panels are attached, it may be useful to refer to the Standards:

- UNI EN 10143, UNI EN 10147 for Steel
- EN 10088-1, EN 10088-2 for Stainless Steel
- UNI EN 485-4 for Aluminium

A6.6.6 Suggestions for making connections and joints

This manual contains suggestions relating to the commonest cases of combining ISOFIRE panels with others of the same type and with other building components. Naturally, the solutions put forward must be considered merely indicative, and require checking case by case. The joints which we need to consider are the transverse joints, since the longitudinal joint in ISOFIRE panelling is tested in the trials for certification, and the characteristics required are thus guaranteed.

In choosing the materials for fitting the products, it is important to remember that fire resistance must be ensured by the construction materials used (panels, beams, columns etc.)

Those elements among them which are not certified must be protected with guaranteed, certified materials (intumescent paints, intumescent or fire-retardant plaster etc.)

A6.6.7 Principal types of operation

Although we believe that the attached sketches are sufficiently clear and simple to be understood and for the principles to be extended to other similar cases, we describe some significant cases in the next few paragraphs.

a) COMPARTMENTATION:

- 1 – *Linking a vertical wall to the floor:* the R.E.I. characteristics are ensured by the conformation of the wall (certified) and of the floor (concrete slab). Thermo-expanding seals (gaskets or sponge) are recommended, which, by expanding under the influence of the flame or the temperature, tend to ensure the seal. Smoke and gases are thus prevented from getting through any narrow gaps at the

joint, and consequently no uncontrolled rise in temperature takes place on the side not exposed to the fire.

- 2 – *Linking a vertical wall to the ceiling*: it is advisable to provide enough play to facilitate fitting and to absorb deformation in the ceiling. In the case of a stressed slab or beam, the play provided must be sufficient to absorb deflection in the stressed structure, taking its own deadweight into account. The fire protection can be achieved by the use either of gaskets of suitable dimensions or of sponge of appropriate thickness.
- 3 – *Linking to elements different in type and composition from ISOFIRE panels* (beams, slabs, columns in reinforced concrete, prestressed concrete, iron etc.): besides adequately protecting such elements with specific fire-retardant products, take account of deformation which they may undergo as a result of loading or thermal expansion. This can be achieved by providing sufficient free play and using fire-retardant materials (seals, gaskets, felt etc.), which are thermo-expanding but sufficiently soft and elastic.

b) ITEMS CROSSING OR FITTED INTO THE PANELS:

On the subject of pipes, ducts or cables passing through the ISOFIRE panels, or window-frames being fitted into them, we list the commonest cases and the appropriate precautions to take to preserve the fire protection characteristics of the panels:

1 – *Combustible or heat-sensitive pipes*

We suggest the following protection systems:

- Recessed thermo-expanding collars, concentric with the pipes, set into the partition. It is important to check the seal between partition and collar, caulking it if necessary with intumescent or fire-retardant mastic.
- External thermo-expanding collars, concentric with the pipes, mounted visibly on one or both sides of the partition: easy to fit, but aesthetically less pleasing than the preceding solution.
- Intumescent tape, wrapped round the pipes and sealed with ceramic mastic or intumescent sealant.

2 – *Small diameter plastic tubes carrying cables*

Fit collars in thin-gauge steel with a band of intumescent material of suitable thickness. Plug the cavity in which the cables run, following the procedure described below.

3 – *Metal pipes*

Seal the gap with intumescent mastic. Alternatively, wrap the pipes with intumescent tape, and make the final seal with intumescent or ceramic mastic or plaster.

4 – *Electrical cables, single or in a compact bundle*

Wrap with intumescent tape or fill with intumescent mastic or plaster.

5 – *Open cable duct*

Use fire retardant thermo-expanding bags, or intumescent felt, combined with intumescent mortar or plaster, or infill with fire-resisting panels.



6 – *Cable duct with cover*

Seal the spaces between the cables and inside the duct with intumescent sponge or mastic, and seal the outside of the duct where it passes through the panel with intumescent or fire-retardant mastic or plaster.

7 – *Air conditioning ducts*

Wrap the ducts (not insulated and obviously fitted with firestop dampers) with intumescent felt or tape, sealing with intumescent or fire-retardant mastic or plaster

8 – *Holes passing through*

Larger-sized holes passing through the partition which cannot be sealed by the methods indicated above, must be closed by the usual methods or with other materials, such as for example panels in mineral wool treated with an intumescent or fire-retardant product, or intumescent, fire-resistant bags etc. Particular care should be taken if fire-resistant mortar is used, because it will have a different capacity for deformation from the ISOFIRE panels, with a consequent risk of cracks and fissures opening up.

9 – *Doors and window-frames*

When positioning and installing doors and window-frames in firestop partitions formed with ISOFIRE panels, follow the instructions of the manufacturer of the frames. The model chosen must obviously be certified and consistent with the grade of fire resistance designed and guaranteed for the rest of the system.

CERTIFICATION

Isopan panels have obtained technical approval from the strictest and most reputable international research institutes in Europe, charged with issuing such certification. In particular, the ITC, the Italian Institute for Construction Technologies, has issued Certificates of Technical Approval for our roofing and wall panels, while UGPU, the highly authoritative German Institute, has issued Approval for the panels produced by our plant at Patrica in Lazio. Many other European official bodies have certified the quality of our manufactured goods, and also the compliance of the raw materials and the finished product with the strictest standards of the individual countries and European standards. ISOPAN submits itself periodically to monitoring by the inspectors of the various Institutes, who oversee our production to ensure that the Approval standard is maintained.

Some of the best-known Certifications are illustrated below, with the corresponding attestations.

Recently the list was increased by the addition of the Certificate of Conformity to the Standard UNI EN ISO 9001:2000, which bears witness to the quality achieved in the production process for plain and ribbed panels at the production plant in question.

The ISOPAN Technical Office will be very happy to supply the list of the certificates available, and to send out exact copies of the original.



A7.1 CERTIFICATES FOR POLYURETHANE PANELS

Avis Technique 2/99-...

Année et Numéro l'Avis Technique 206-01

Garage Industriel à base de panneaux sandwich
Sandwich panel decking
Schutzwindo aus Sandwichpanelen

ISOPARETE 1000

Titulaire : Societas ISOPAN
Strada Prov. Moncalise
Zona Ind.
I - 03010 PATRICA (Toscana)
Italia
Tel. 0039 0773 9711
Fax. 0039 0773 9712
Bureau : ISOPAN S.p.A.
Strada Provinciale Moncalise - 03010 Patrica (TR)
Tel. 0773 971111
Fax. 0773 971112
E-mail : isopan@svackonline.it

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Commission chargée de formuler des Avis Techniques
(art. 18 de la Loi n° 12 du 5 Mars 1982)

Group Spécialisé n° 2
Carrelages, plaques et éléments légers
Vo pour enregistrer le



DEUTSCHES INSTITUT FÜR BAUTECHNIK

Zentral des Bautechnik

1929 Berlin 13, Februar 2003
Koblenzstraße 90
Telefon: 030 78730 290
Telefax: 030 78730 320
Deutsch: 0 30 787 30 324
E-Mail: D I B 1 9 4 1879

Allgemeine bauaufsichtliche Zulassung

Zulassungsnummer: Z-10-4-313

Antragsteller: ISOPAN S.p.A.
Strada Prov. Moncalise
03010 Patrica (Toscana)
ITALIEN

Zulassungsgegenstand: ISOPAN Sandwichpaneele mit einem Sichtglas aus PU-Hartschaum und Deckschichten aus Stahl

Gegeben am: 11. Februar 2004

Der allgemeine bauaufsichtliche Zulassungsgesamtext wird hiermit allgemein bauaufsichtlich zugelassen. Diese allgemeine bauaufsichtliche Zulassung umfasst auch Seiten sowie Anlage A (siehe Seiten 1 und Anlage 1/12 Seiten).



Stuttgart, den 2. April 2001

Comitato Nazionale Italiano di Unificazione
Istituto Centrale per l'Unificazione e la Tecnologia Edilizia
ICITE

CERTIFICATO DI IDONEITA' TECNICA

N. 539/99

FACSIMILE



Nome: 27.12.1994
Indirizzo: 27122, PISA
Organismo Certificatore: ICITE
Organismo del prodotto: Società di ingegneria e progettazione
Prodotto: NUOVA ISOPAN (E. C. M. - G. B. G. S. - E. C. M. - E. C. M. - NUOVA ISOPAN) PIANO 1000
Prodotto per: ISOPAN S.p.A. - Strada Provinciale Moncalise - 03010 Patrica (TR)
Prodotto da: ISOPAN S.p.A.
Prodotto in: Strada Provinciale Moncalise - 03010 Patrica (TR)
L'UNIONE EUROPEA PER IL REGOLAMENTO TECNICO DELLA COSTRUZIONE - E. C. M.

Überwachungsgemeinschaft
Hartschaum e.V.



Einbau-Zertifikat

Nr. 09/04/2001



§ 22, Abs. 2, Nr. 2, der Landesbauordnung
Niederrhein bestätigt, daß

PU-Hartschaum-Wärmedämmputz - Wärmedämmputz „ISOPARETE-1000“ mit ca. 50 mm PUR-Dämmschicht und 0,5 mm dicken Deckschichten aus Stahlblech

Zweckbestimmung: PUR - WDM - 025 - B2

Hersteller: ISOPAN S.p.A.
Strada Provinciale Moncalise
I-03010 Patrica

Der Auftraggeber hat die Zulassungsgesamtheit geprüft und die Zulassungsgesamtheit ist vom Auftraggeber als Bauteil für die Verwendung in der Bauteilherstellung genehmigt worden. Die Zulassungsgesamtheit ist vom Auftraggeber als Bauteil für die Verwendung in der Bauteilherstellung genehmigt worden.

Die Zulassungsgesamtheit ist am 11. Februar 2004 durch das Deutsche Institut für Bautechnik (DIBt) als Bauteil für die Verwendung in der Bauteilherstellung genehmigt worden.

Die Zulassungsgesamtheit ist am 11. Februar 2004 durch das Deutsche Institut für Bautechnik (DIBt) als Bauteil für die Verwendung in der Bauteilherstellung genehmigt worden.

Überwachungszeitraum bis zum 31. März 2003

Übersichtsgemeinschaft
Hartschaum e.V.
C. Kirscher
Vorsitzender

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A7.2 ISOFIRE CERTIFICATION

ISTITUTO GIORDANO

RAPPORTO DI PROVA N. 151610/2269RF

Luogo e data di emissione: Bellaria, 12/09/2001
Committente: ISOPAN S.p.A. - Strada Provinciale Morlolese - Zona Industriale - 03010 PATRICA (FR)
Data dell'esecuzione della prova: 10/07/2001
Oggetto della prova: Determinazione della resistenza al fuoco secondo la Circolare n. 91 del Ministero dell'Interno - Direzione Generale dei Servizi Antincendi del 14/09/1961, su un elemento di copertura non portante realizzato mediante l'assemblaggio di pannelli modulari denominati "ISOFIRE ROOF 1000 SP - 100 mm", non sottoposti a carico, prodotti e presentati dalla ditta Isopan S.p.A. - Strada Provinciale Morlolese - Zona Industriale - 03010 Patrica (FR).
Luogo della prova: Istituto Giordano - Blocco 3 - Via Verga, 19 - 47030 Gatteo
Prove in carico: Istituto del Committente

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Generalità

Presso il corso sperimentale del Laboratorio di Resistenza al Fuoco di questo Istituto è stata eseguita una prova secondo le prescrizioni della Circolare n. 91 del Ministero dell'Interno - Direzione Generale dei Servizi Antincendi del 14/09/1961, su un elemento di copertura non portante realizzato mediante l'assemblaggio di pannelli modulari denominati "ISOFIRE ROOF 1000 SP - 100 mm", non sottoposti a carico, prodotti e presentati dalla ditta Isopan S.p.A. - Strada Provinciale Morlolese - Zona Industriale - 03010 Patrica (FR).

(Rapporto di prova n. 151610/2269RF del 12/09/01)



Il presente rapporto di prova è un documento integrativo

Classificazione

Dall'esame dei risultati emersi dalla prova eseguita su un elemento di copertura non portante realizzato mediante l'assemblaggio di pannelli modulari denominati "ISOFIRE ROOF 1000 SP - 100 mm", sopra descritti, prodotto e presentato dalla ditta Isopan S.p.A. - Strada Provinciale Morlolese - Zona Industriale - 03010 Patrica (FR), si deduce che la durata di resistenza al fuoco dell'elemento di copertura studiato è stata di 120 minuti.

Pertanto, secondo quanto riportato nella Circolare n. 91 del Ministero dell'Interno - Direzione Generale dei Servizi Antincendi del 14/09/1961 e nel D.M. 30/11/1983, il campione in prova viene classificato

REI 120

è quindi il campione stesso può essere impiegato in costruzioni di classe non superiore a REI 120

Bellaria, 12/09/2001



Il Presidente o l'Amministratore Delegato
Dot. Ing. Vincenzo Iommi

ISTITUTO GIORDANO

CERTIFICATO DI PROVA N. 150361/RF3052

emesso ai sensi dell'art. 8 del decreto del Ministero dell'Interno del 20/01/1984 recante "Classificazione di reazione al fuoco ed omologazione dei materiali per la prevenzione incendi" (Supplemento Ordinario alla Gazzetta Ufficiale n. 21 del 25/01/1984).

Visto l'esito degli accertamenti effettuati sul elemento strutturale prodotto da: ISOPAN S.p.A. - Strada Provinciale Morlolese - Zona Industriale - 03010 PATRICA (FR).

denominato: "ISOFIRE ROOF 1000 SP - 100 mm".

impiegato per: rivestimento completo isolante in vista per copertura.

è stato accertato che è suscettibile di prendere fuoco su una sola faccia:

in base alle seguenti classi:

in base alla nota di cui al punto A2.2.1.2 dell'Allegato A2.2 al D.M. 26/06/1984 ed ai sensi del D.M. 14/01/1985, al materiale in esame nel suo complesso, quale commercializzato, la

CLASSE DI REAZIONE AL FUOCO 0 (ZERO) - I (UNO)

è il componente isolante a se stante la

CLASSE DI REAZIONE AL FUOCO I (UNO)

Bellaria, 25/09/2001
 Il Segretario
 Laboratorio di Resistenza al Fuoco
 (Dot. **Antonio Ferrarini**)

Il Presidente o l'Amministratore Delegato
Dot. Ing. Vincenzo Iommi

Il presente certificato di prova è composto da n. 1 foglio, da n. 1 allegato e dalla documentazione tecnica del prodotto ed è integrato dalla documentazione necessaria del materiale in prova.

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Rapporto di prova n. 152156 del 26/09/2001

segue - foglio n. 8 di 8

Superficie utile di misura del campione:
16,71 m²

Volume della camera emittente:
57,0 m³

Volume della camera ricevente:
88,0 m³

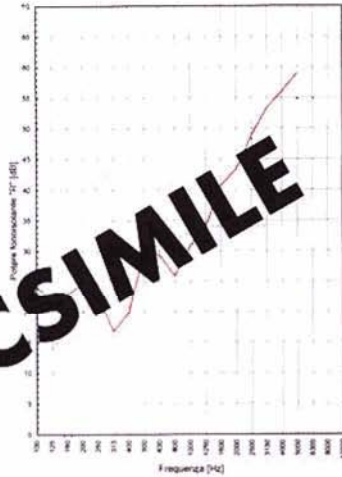
Tipo di rumore:
RONA

Tipo di filtro:
1/3 d'ottava

Esito della prova:
Indice di valutazione globale di 500 nella banda di frequenza compresa fra 100 e 5000 Hz.

Dato di riferimento con scarto sfavorevole maggiore di 8 dB:
315 Hz e 400 Hz

Termini di correzione:
C₁ = -1 dB
C₂ = -4 dB



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Il Responsabile del Laboratorio di Ricerca Acustica e Vibrazioni (Dott. Gian Luigi Baffoni) Dott. Ing. Andrea Iannelli
BELLARIA (RN)

RAPPORTO DI PROVA N. 152156

Luogo e data di emissione: Bellaria, 26/09/2001

Committente: ISOPAN S.p.A. - Strada Provinciale Morelense - Zona Industriale - 03010 PATRICA (FR)

Data della richiesta della prova: 09/05/2001

Numero e data della commessa: 2001/020

Data del ricevimento del campione: 20/09/2001

Data dell'esecuzione della prova: 26/09/2001

Oggetto della prova: Determinazione del potere fonoisolante di parete divisoria secondo le norme ISO 140 parte 3^a del 1995 e ISO 717 parte 1^a del 1996.

Luogo della prova: Istituto Giordano S.p.A. - Blocco J - Via Verga, 19 - 47030 Gatteo (FO)

Provenienza del campione: fornito dal Committente

Identificazione del campione in accettazioni: n. 2001/1202

Denominazione del campione*

I pannelli modulari utilizzati per la realizzazione del campione sottoposto a prova sono denominati "ISOFIRE RQOF FONDO 1000 SPESORE 80 mm"



*Vedi dichiarazione del Committente

Comp. PII Rev. 03/98 Il presente rapporto di prova è composto da n. 8 fogli Foglio n. 1 di 8

ALLEGATO "B" AL RAPPORTO DI PROVA N. 146659

Luogo e data di emissione: 30/03/2001

Committente: ISOPAN S.p.A. - Strada Provinciale Morelense - Zona Industriale - 03010 PATRICA (FR)

Oggetto: Indice globale a singolo numero dell'assorbimento acustico (100 - 5000 Hz) secondo la norma ZTV 83 "Zusätzliche Technische Vorschriften und Richtlinien für die Akustikprüfung von Leichtbauwänden an Straßen".

Modalità

L'indice globale a singolo numero $L_{n,100-5000}$, espresso in dB(A), è stato calcolato utilizzando la seguente formula:

$$L_{n,100-5000} = 10 \lg \left(\frac{\sum K_n}{\sum K_n \cdot \alpha_n} \right)$$

terzo d'ottava nell'intervallo di frequenze 100 - 5000 Hz.

K_n = coefficiente di pesatura per la n -esima frequenza, espresso in dB(A), e corrispondente ai valori riportati nella seguente tabella

Frequenza [Hz]	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	
K_n [dB(A)]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

α_n = coefficiente di assorbimento acustico per la n -esima frequenza.

I valori dei coefficiente di assorbimento acustico superiori all'unità sono stati considerati uguali ad 1.

Risultati

$L_{n,100-5000}$ = 15,1 dB(A)

Il Responsabile del Laboratorio di Ricerca Acustica e Vibrazioni (Dott. Gian Luigi Baffoni) Dott. Ing. Vincenzo Iannelli
Il Presidente e l'Amministratore Delegato (Dott. Gian Luigi Baffoni) Dott. Ing. Vincenzo Iannelli
BELLARIA (RN)

Comp. PII Rev. 03/98 Il presente allegato è composto da n. 1 fogli Foglio n. 1 di 1

FACSIMILE

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Anlage zum Übereinstimmungszertifikat Nr. 09/04/01 vom 02.04.01

der Firma ISOPAN S.p.A., I-03010 Patrica (Frosinone)

FACSIMILE



ZERTIFIKAT ◆ CERTIFICATE ◆ СВИДЕТЕЛЬСТВО ◆ CERTIFICADO ◆ CERTIFICAT ◆ CERTIFICATO

CERTIFICATE



Certificato Nr 50 100 2347

Si attesta che / This is to certify that

IL SISTEMA QUALITÀ DI
THE QUALITY SYSTEM OF

ISOPAN SPA

ST. PROVINCIALE MORELENSE ZONA INDUSTRIALE

I-03010 PATRIGNA (MT)

È CONFORME AI REQUISITI DELLA NORMA
HAS BEEN FOUND TO CONFORM TO THE REQUIREMENTS OF

ISO 9001:2000

Rif. della qualità per i dettagli delle esclusioni
quisiti della norma ISO 9001:2000
Refer to quality manual for details of exclusions
of requirements of the norm ISO 9001:2000

Questo certificato è valido per il seguente campo di applicazione
This certificate is valid for the following product or service range

Progettazione e produzione di pannelli termoisolanti poliuretanici con paramenti metallici e servizio di assistenza tecnica. Lavorazioni di taglio, profilatura e centinatura lamiera in acciaio (EA 17)

Design and production of thermoinsulating based panels with metallic supports and related technical services. Cutting, profiling and curving operations on steel plates (EA 17)

Luogo e data
Place and date

Cinisello, 2003-02-14

Data di scadenza
Expiry date

2005-12-18

Lead Auditor: Domenico D'Antonio

Per l'Organismo di Certificazione
For the Certification Body
TÜV Italia S.r.l.
Cinisello Balsamo (MI)




Nico Mastrorillo
Management Representative



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