IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application 582,219 having been rejected under Subsection 47(2) of the Patent Rules the Applicant has asked that the Final Action of the Examiner be reviewed. The rejection has consequently been considered by the Patent Appeal Board and by the Commissioner of Patents. The findings of the Board and the ruling of the Commissioner are as follows:

Agent for the Applicant

Fetherstonhaugh & Co., P.O. Box 2999, Station D, 55 Metcalfe Street, Suite 900, Ottawa, Ontario, K1P 5Y6 This decision deals with the Applicant's request that the Commissioner of Patents review the Examiner's Final Action on patent application 582,219, Class 154-143, filed November 4, 1988, entitled "Thermal Insulation Material as Insulating and Sealing Layer for Roof Areas" and naming Herbert Prignitz as both inventor and applicant. The Examiner in charge issued the Final Action on October 28, 1992 refusing all claims in view of prior art. The Applicant replied on April 28, 1993 with an argument in favour of the rejected claims and requested that the Final Action be reviewed by the Commissioner of Patents. The Applicant also suggested that he would consider the possibility of amending the claims by inserting one of the features of claims 9, 10 or 11 into claim 1 and at the suggestion of the Board an amended set of claims 1 to 20 in which the feature of claim 10 was inserted into claim 1 was submitted on November 30, 1993.

The invention relates to a thermal insulation material as insulating and sealing layer for roof areas which makes it possible to cover larger areas of several square meters at a time and also avoid the disadvantages of the prior art solutions to problems such as buckling, blistering or wrinkling. The invention is illustrated by Figures 1 and 2 which are reproduced below:



Figure 1 shows a section of the thermal insulation material according to the invention in a view from below, whilst Figure 2 shows the thermal insulation material in a vertical section taken in the direction of Line II-II in Figure 1. The insulation material generally identified in Figure 1 as 10 comprises a sheet or foil web 130 which acts as a sealing layer and is bonded to a strip of thermal insulation material 120 which constitutes the insulating material. The web 130 is provided with projecting edges which serve as overlap sections 31 and 32 arranged on longitudinal and transverse edges to provide a means of sealing adjacent panels. The insulation material 120 is usually selected from a polymer such as polyurethane or polystyrene but may also be fabricated from glass fibre or rock wool strips. The insulation panels also contain means providing for the removal of any moisture that might accumulate between the insulating panels and the roof surface to be covered. These means for removing any moisture buildup take the form of flat prominences formed on the insulating material 120 on the side facing away from sealing layer 130.

In the Final Action the examiner rejected all of the claims in view of United States patent number 3,455,076 issued July 15, 1969 to Clarvoe on the grounds that the subject matter covered by the claims lacked inventive ingenuity over the cited reference. Rejected claim 1 on which the other claims were dependent is as follows:

 An article of insulation positionable between a surface to be covered and an external environment, said article comprising:

 a layer of sealing material having a given area defined by a longitudinal and a transverse edge;

an insulation material having a first face facing toward said layer of sealing material and a second face facing oppositely thereof, said insulation material being sized and disposed on said layer of sealing material such that portions of its given area are exposed so as to define at least two overlap sections; and

means provided on said insulation material second face for forming diffusion channels on said insulation material second face for drawing off humidity from between said second face and said surface to be covered.

The Clarvoe patent relates to roofing membranes comprised of an outer weathering film and a laminated resilient sponge layer which protects against roof membrane failure by its ability to take up stresses caused by building movement. The resilient sponge backing can be grooved to further increase its ability to take up stress and to provide an outlet for trapped water vapour. A reinforcing fabric may also be provided between the outer weathering film and the sponge layer. The invention is illustrated by Figures 1 to 7 which are reproduced below:





Referring to Figures 1 and 2 the roofing material is indicated generally at 10 and comprises a film 12 adhered to a compressible, recoverable, resilient material 14. The film or layer 12 is not limited to any particular material but is of an elastic and highly durable nature being waterproof and capable of withstanding the rigors of weathering, suitable materials being selected from, for example, polyisobutylene, butyl rubber or neoprene. Material 14 is selected from a material which is capable of being distorted to a considerably greater degree than film 12, suitable materials being selected from, for example, sponge rubber, sponge polyurethane foam or sponge polystyrene foam. The dimensions of the film and underlying layer are preferably 20 to 80 mils for film 12 and 1/16 to 1/4 inch thick for sponge layer 14 so that the material can be kept lightweight and flexible enough that it can packaged in roll form. In order to provide the laminate with more body and also to preclude the adhesive used to bond the laminate to the roof deck from attacking film 12 a third layer of material may be interposed between the film and sponge layers as shown in Figure 6 at 34. The third layer of material can be a felted material comprised of organic or inorganic fibres such as cellulosic, mineral wool, asbestos or glass fibres.

To provide for the removal of water vapour or air which may become trapped between the roof deck and the roofing membrane sponge layer 14 may be provided with a plurality of intersecting grooves shown as 20 and 22 in Figures 5 and 7. These grooves may extend through the full thickness of the sponge layer as shown in Figures 5 and 7 or may extend through only part of the sponge layer. The result is to provide a roofing material which is flexible, waterproof, easy to apply and has some insulation value. In his Final Action the examiner rejected the claims of the application on the grounds that the Clarvoe reference teaches all of the features of the Applicant's invention, namely a roofing membrane that is easy to apply, is waterproof and has insulating properties. In the Final Action it is stated that:

"In applicant's response of September 10, 1992 arguments are presented against the rejection of the present claims in view of the reference applied. The thrust of the arguments is that the construction of the Clarvoe (patent) does not provide both insulation and sealing. Applicant supports this premise by indicating: 1) the dimensions in those specific teachings of Clarvoe would fail to provide insulative and sealing properties; and 2) further stating that no suitable material existed at the time of Clarvoe's teaching which would provide these properties.

These arguments fail to dissuade the rejection. Clarvoe teaches "The dimensions of the film and underlying layer may vary according to the desired properties of the laminate and according to available manufacturing capabilities." (column 2 lines 50 to 53.

Clarvoe also teaches, "With this arrangement, the film provides a tough, weather resistant surface, and the sponge layer provides insulation." (column 2 lines 65 to 67.

Clearly, then, Clarvoe does teach a construction that seals and insulates. Further Clarvoe teaches examples of materials that may be used for each layer. Applicant is directed to column 2 lines 33 to 40. Included in these examples are polyurethane and polystyrene foams.

Consequently claims 1 to 23 are rejected because the subject matter thereof lacks inventive ingenuity in view of G.W. Clarvoe, as the difference thereover is held to be obvious to one of ordinary skill in the art to which the alleged invention pertains."

In his reply to the Final Action the Applicant has indicated that the claims of the application are directed to an article of thermal insulation, whereas the invention of Clarvoe does not relate to thermal insulation as that would be understood by a person skilled in the art today. Thus it is stated that:

"The claims of the present application are directed to "an article of insulation". It is clear from the disclosure, for example the very first sentence, that the insulation referred to is thermal insulation. In the construction trade, there are clear standards which have to be addressed. There are regulations which define minimum thermal insulation. In the construction industry, thermal insulation is normally considered to begin at a thickness of 40 millimetres.".....

.

"The Examiner has rejected the claims on the basis of the single reference, United States patent No. 3,455,076 (Clarvoe). This reference does <u>not</u> relate to thermal insulation as that would be understood by a person skilled in the art today. It relates to roofing materials, but is clearly concerned with providing a material which can accommodate roof deck movement. The reference requires "a layer of highly compressible and resilient spongy material capable of being distorted to a considerably greater degree than the film" in which "the film" is the weather resistant outer layer of the roofing material. This "highly compressible and resilient spongy material" is essential to the teachings of Clarvoe. It happens that this spongy layer also provides insulation. However, applicant submits that no person skilled in the art, reading Clarvoe, would be confused that this provision of insulation refers to proper thermal insulation as that term would be understood in today's construction world. Indeed, at column two, line 54, Clarvoe states that the so-called insulation layer is <u>preferred</u> to be about 1/16 to 1/4 inches thick. This gives a range of 1,5 to 6 millimetres thickness. This is the range which Clarvoe teaches is the <u>preferred</u> thickness of the layer. Any person skilled in this art would consider a layer of from 1.5 to 6 millimetres as totally inadequate for the purposes of thermal insulation."....

Further the present claims require "means provided on said insulation material second face for forming diffusion channels on said insulation for drawing off humidity from between said second face and said surface to be covered". These means are exemplified by one of the preferred embodiments shown in figure 2 as projections 21. Whilst Clarvoe does teach means to permit the escape of air or water vapour trapped between the roof deck and the roofing, these means are clearly channels or grooves between adjacent strips of the spongy or resilient material. These channels cannot be regarded as means <u>on</u> the second face, as required by applicant's claims. There is nothing in Clarvoe which could be considered as "means provided <u>on</u> said insulation material as required by applicants present claim."

Whilst it agrees with the Applicant that its insulation material is patentably distinct from that disclosed by the Clarvoe reference the Board nevertheless agrees with the examiner that rejected claim 1 does not make that distinction sufficiently clear. Thus the Board agrees that the Clarvoe material would be of little practical use for the purposes of thermal insulation, since the foam materials used as components of the roofing panel do not in general have high insulation values, would in any case be too thin to be effective and would have their insulating properties further degraded by having slots cut either partially or completely through them. However the statement in claim 1 that the applicant's article of insulation comprises "means provided on said insulation material second face for forming diffusion channels on said insulation material second face for drawing off humidity from between said second face and said surface to be covered" does not in the Board's opinion patentably distinguish applicant's invention from Clarvoe in that the means described in Clarvoe, i.e. slots cut in the sponge layer, can also strictly speaking be regarded as being on the insulation material.

The Board however does consider that amended claim 1 which is as follows:

"An article of insulation positionable between a surface to be covered and an external environment, said article comprising: a layer of sealing material having a given area defined by a longitudinal and a transverse edge,

an insulation material having a first face facing toward said layer of sealing material and a second face facing oppositely thereof, said insulation material being sized and disposed on said layer of sealing material such that portions of its given area are exposed so as to define at least two overlap sections; and

means provided on said insulation material second face for forming diffusion channels on said insulation material second face for drawing off humidity from between said second face and said surface to be covered wherein said means for forming diffusing channels in said insulation material includes a plurality of projections in regular disposition on said face facing away from said layer of sealing material." does patentably distinguish Applicant's insulation material from that of Clarvoe in that it clearly indicates that the channels in the insulation material are formed from projections on the insulating material itself rather than from channels cut into the material. The Board therefore recommends that present claims 1 to 23 of the application be replaced by new claims 1 to 20 and that the application be returned to the examiner for further prosecution consistent with the recommendation.

P.J. Davies Acting Chairman Patent Appeal Board

M Howarth

M. Howarth Member Patent Appeal Board

I concur with the recommendation of the Patent Appeal Board. Accordingly I agree that present claims 1 to 23 of the application be replaced by new claims 1 to 20 and that the application be returned to the examiner for further prosecution consistent with the recommendation.

M. Leesti

Commissioner of Patents

Dated at Hull, Quebec this 21stday of January 1994