Chamberlin Metal Weather Strip Company

Incorporated

General Offices: Detroit, Mich.

FACTORIES

Detroit, Mich. **Peru, Illinois**

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60 Sub-branches throughout the United States

Comfort with fuel economy is the aim of the engineer designing a heating and ventilating plant for any type of building and it is, therefore, essential that he have complete information on weather strips when determining heat losses from a structure.

Recent tests made by the *American Society of Heating and Ventilating Engineers* in cooperation with the *American Institute of Architects* at the experiment station of the *U. S. Bureau of Mines*, Pittsburgh, are of interest to the engineer, architect, contractor and their clients and the results are cited to aid the engineer in judging the value of weather strips.

The rib type of weather strip is used in 90 per cent of the installations made and it is universally agreed that the tongue and groove principle is correct from a practical standpoint. The weather strip becomes a part of the frame and engages in a groove in the sash insuring positive contact at all times and one that does not become disengaged after a few years use.

The width of the groove is the determining factor in the efficiency of the weather strip. In the official report covering the test made on this type of weather stripping is a paragraph which reads:

"The Rib Type strip has one metal member fastened on the frame which fits into a groove ploughed in the sash by the carpenter applying the strip. The width of this groove in comparison with the width of the metal member may be the determining factor in the leakage through a window to which this type of strip is applied. In this instance, the rib was 1/8 in. wide and the groove 1/32 in. wider. DeVolson Wood (*A. S. M. E. Transactions*, Volume No. 10) gives the lateral expansion of white pine as 2.6 per cent from dryness to saturation. With the groove 5/32 in. wide a variation of 0.004 in. in width is given from one extreme to the other. Though most sashes at the present time are made of some less expensive wood, such as Cypress or Spruce, it is probable that the expansion of either would not be much greater than white pine. **Therefore, the clearance allowed here would be ample in any case.**"

The width of the groove in comparison with the metal member is the determining factor, otherwise the groove might just as well be 1/4 inch wider. A testing apparatus built to duplicate the conditions of the test at Pittsburgh and which checked the tests made at Pittsburgh proves this conclusively.

If the lateral expansion of white pine in a groove 5/32 inch wide is but 0.004 inch in width from a thoroughly dry condition to a thoroughly wet condition, then a clearance of 1/32 inch (0.0313) is allowing nearly **eight times as much as is necessary** to take care of the expansion of the wood.

In regular installation it isn't practical to allow only 0.004 inch and the standard grooving plane for the Chamberlin Rib Type allows a clearance of 0.012 inch, this being three times the expansion of the wood and sufficient under all circumstances. **But—in the test on the Rib Type at Pittsburgh, the groove clearance was nearly three times as much as ordinary practice.**

Inasmuch as the Chamberlin Rib Type has been installed successfully for a period of thirty-three years, and the experience of these thirty-three years tells us that a clearance of 0.012 inch is ample for ordinary conditions, it is fair to assume that that clearance should be allowed.

A comparison of the figures of the following table shows very clearly the different

results obtained when the groove for the Rib Type strip is made in accordance with the standard that has been in vogue for thirty-three years.

The conclusions obtained at the Pittsburgh and other tests necessarily do not take into consideration the time element. It was not possible in a laboratory test of this kind to determine what the result would be after a period of years.

That this time element is a big factor is recognized from the Official Report which reads:

"The most important factor in the problem of infiltration has been the subject of much discussion and is not yet definitely determined. This factor is the clearance of the average window after it has been in service a sufficient length of time to have reached its final condition in regard to shrinkage which is a question for architects and heating engineers to decide. A simple solution to the problem can be obtained by actually measuring and then averaging the clearances of a sufficient number of windows in buildings which are at least five years old."

Standard Chamberlin Installations have been in use for thirty-three years, and it is possible to include in tests the time element.

Engineers have been employed to make tests on these standard installations which have been in use over a long period of years, and some of the results are given in the following tables. Tests were made by putting a collecting chamber on the inside of the window opening taking an anemometer reading of the leakage over a period of thirty minutes. The wind velocities were obtained from the U. S. Weather Bureau, and the resultant leakage compared with the leakages found on non-weather stripped windows at the Pittsburgh test.

Of course, during the thirty-three years that Standard Chamberlin Installations have been made there have been changes and improvements in the strip and the method of installation, and for this reason tests are shown on installations that have been in use from 2 to 33 years to make sure that an average could be obtained that would cover not only the original installations but likewise all of the improvements that have been added.

We submit that as a proof of efficiency, it is much more important for the Architect, Engineer, Contractor and Consumer to know what the result of a weather strip installation will be thirty or more years after the application has been made than the result obtained immediately after installation. Certainly an installation that will remain effective over this long period of years is a much more efficient installation than one which cannot hold out excepting for a comparatively few years.

CHAMBERLIN INSTALLATION POLICIES

For a period of 14 years, that is, from 1893 to 1907, Chamberlin distribution and installation functioned under the licensee or dealer system. The company, therefore, had no decisive administrative influence on the sales or installation methods of these agents.

In 1907, however, the Chamberlin Company made a radical change and for the past 18 years Chamberlin has been sold by company branches and installed by company mechanics.

Thirty-three years have proven the principle of Chamberlin Weather Strip design and the practicability of the theory that the installation is equally as important as the design.

The founders of the Chamberlin Metal Weather Strip Company considered most important the ideal of rendering not only the best of service but indefinite satisfaction in the case of every installation. The same practical ideal dominates the policies of the Company today.

Chamberlin is not merely a manufacturing organization. It is more than that. The problems of manufacture are well solved, the method well-perfected. Selling is a logical function based on accepted business principles, but weather strip installation, its life-long guarantee, that is the crowning effort to accomplish and to maintain a complete and resultful transaction, the details of which are not submitted to the care of any third parties. There are two parties to a Chamberlin installation contract, the customer and subsequent owners of any building, and Chamberlin who is manufacturer, salesman, installer and servicer.