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THE USE OF PLANKS IN WALL CONSTRUCTION

BY

T. RITCHIE

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L'UTILISATION DE MADRIERS DANS LA CONSTRUCTION DES MURS

SOMMAIRE

Bon nombre de vieilles maisons démolies à Ottawa ces dernières années avaient été construites de madriers horizontaux posés sur la largeur, se recouvrant aux angles et retenus par des clous rectangulaires. Les madriers étaient revêtus à l'extérieur de planches ou de parement de brique et à l'intérieur d'un massif en maçonnerie, de lattes ou de plâtre. L'auteur décrit quelques exemples de ce genre de construction, qui était peut-être répandu à Ottawa avant 1900.

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THE USE OF PLANKS IN WALL CONSTRUCTION

by

T. Ritchie

In accounts of the techniques of building with wood in Canada, little mention is made of the use of planks, which some dictionaries define as broad pieces of sawed timber, between 2 and 6 in. thick and more than 9 in. wide. In his account of building with wood in Ontario, Rempell¹ described briefly three methods of "plank construction" for walls: (1) logs hewn or split to 6 in. thickness and assembled with regular log cornering; (2) 2 by 6's and 2 by 8's laid flat one on top of another and spiked together; and (3) vertical planks running between the plate and the sill of a timber-frame building, their ends set in recesses cut in the plate and sill in such a way that the surfaces of planks, plate and sill were flush. Although examples of these constructions were seen occasionally, none was considered of great importance in the history of building in Ontario.

A type of wall made of planks, described by the writer² in connection with the method of construction now known as "plankwall framing", consists (usually) of 3-in. planks placed vertically as posts with planks of similar thickness laid horizontally on edge between them, with nailed connections between the vertical and horizontal planks. Such walls, used extensively at the present time in Quebec, are believed to have developed from the early timber construction of posts grooved along the sides to take the tenons of horizontal members slid between the posts.

In modern house construction in British Columbia walls are frequently constructed of vertical planks, but this building technique apparently is a recent development³, introduced about 1950, that employs cedar planks with tongue-and-groove connections laid vertically to provide a structural wall.

Another technique of using planks in wall construction was observed during the demolition of a number of old houses in Ottawa. The planks in these structures were stacked on edge one above the other to form the wall, with their arrangement at the corners such that the end of one plank was made flush with the surface of the adjoining plank of the other wall. A reverse arrangement was made for the planks immediately above, thus "toothing" the planks of the two walls. Since planks of random widths were employed the ends of some of them had to be notched to allow for the width of the intersecting plank of the other wall.

The planks of one wall were secured at the corners to those of the other wall by nails driven through the thickness of the one plank into the end of the adjoining plank. Each plank was also secured to the one below it by nails spaced along it driven down at a sharp angle to pass through the bottom two inches or so of the plank into the plank beneath it. To complete the wall construction tarred paper was placed over the outer surface of the planks, followed either by tongue-and-groove boards or by brick

veneer. On the inside furring strips, lath and plaster were applied to the planks, sometimes with paper placed between the furring and the planks.

The first building of this construction seen by the writer, a brick veneer house located on Guigues Street in Ottawa (demolished in 1966), is shown in Figure 1 in the early stages of demolition; the brick veneer has been removed exposing the tar paper covering the 3-in. planks held in place by thin vertical strips of wood. The addition to this building at the rear was of stud wall (balloon frame) construction. The interior of the plank wall, shown in Figure 2, consisted of vertical furring strips, lath and plaster, with a heavy paper placed between the planks and the furring. The rectangular nails used in this building suggested that it had probably been built before the turn of the century.

Two additional examples of 3-in. plank construction were observed in the 1974 demolition of a double house at 500-502 Laurier Ave. West (Figure 3) and a nearby smaller house at 516 Laurier (Figure 4). The planks in both buildings had originally been covered with tar paper and horizontal 1-in. tongue-and-groove boards, but the former subsequently had imitation brick siding applied over the boards while the latter was veneered in brick.

Both buildings had been constructed of 3-in. (actual dimension) planks of random widths; in the double house planks were between 11 and 19 in. wide while planks of the other house were between 9 3/4 and 12 in. in width. The nails holding the planks together at the corners were 6 in. long. The interior finish of the walls of the smaller house was seen to be furring strips, lath and plaster, with no paper applied over the planks.

Neither building is shown on Goad's "Insurance Plan of the City of Ottawa" for 1878, but both are shown on the revised plan dated 1912. Since rectangular nails had been used in the construction of these two buildings also, it is probable that they were built before the turn of the century.

Construction with 2-in. (instead of 3-in.) planks was observed in the brick veneer house at 395 Gloucester St. West, demolished in 1974 (Figure 5). Like the buildings described previously its planks were overlapped at the corners as shown in Figure 6, with nails driven through the planks into the ends of the adjoining planks. On the outside the planks were covered with tar paper held in place by laths nailed to the planks. The brick veneer was tied to the planks by nails (which may be seen in Figure 6), driven into the wood just above the bricks of a course and subsequently embedded in the mortar placed on the bricks for the next course.

On the inside of this wall, 1-in. boards, slanted at 45 degrees from the horizontal, were nailed to the planks; furring strips were nailed to these boards, then lath and plaster was applied. An interesting feature of the boards backing the planks was their arrangement to slant two ways; on one side of the mid-point of a wall they were slanted in one direction while those applied to the other half of the wall were slanted in the opposite direction, the purpose of this arrangement possibly being to obtain more effective corner bracing.

The diagonal boards of the construction are shown in Figure 6, where some of the planks have been removed. The photograph also shows (in the top plank of the wall on the left side) slots cut in the plank to receive the ends of the floor joists. The planks of this house were a full 2 in. thick and those measured were between 8 and 12 in. wide. The boards were 1 in. (actual) thick and those measured were 12 in. wide.

This building too does not appear on Goad's "Insurance Plan" for 1878, but does appear on the 1912 edition. Again, since rectangular nails were used in the construction, the house probably had been built before the turn of the century.

Another example of the use of 2-in. planks, but without the use of diagonal backing boards, was observed in the demolition of a house on Murray St., but unfortunately it was not possible to obtain details of its construction. Like the previous examples, rectangular nails had been used, which suggested a pre-1900 date of erection.

CONCLUSIONS

A type of wall construction employing 2-in. and 3-in. planks laid on edge has been observed in the demolition of old houses. The method of applying the planks and of arranging the corners suggests that this technique of building was derived from log construction, but used nails to hold the members together instead of interlocking them at the corners. It may be surmised that this method of construction developed concurrently with balloon-frame (stud) construction and with plankwall framing but was eventually discarded, probably before the end of the 19th century.

The five examples of the horizontal plank-on-edge construction described here are believed to have been built before 1900; three of them were built after 1878. The number of buildings found to be of plank-on-edge construction suggests that it was, at one time, a significant method of wood construction, at least in Ottawa.

FOOTNOTES:

- 1 Rempel, John I. Building with Wood and Other Aspects of Nineteenth-Century Building in Ontario, University of Toronto Press, 1967.
- 2 Ritchie, T. Plankwall Framing, Journal of the Society of Architectural Historians, Vol. XXX, No. 1, March 1971.
- 3 Davison, Keith B., Wood Framing Developments, Journal of the Royal Architectural Institute of Canada, Vol. 27, No. 9, September 1950.

This paper is a contribution from the Division of Building Research, National Research Council of Canada, and is published with the approval of the Director of the Division.

Figure 1 A house of plank construction on Guigues St., Ottawa, demolished in 1966; brick veneer removed, showing tarpaper over the planks (BRS 3586).

Figure 2 Interior of the plank wall showing paper laid over the planks, furring strips, lath and plaster (BRS 3574).

Figure 3 House at 500-502 Laurier Ave. West; 3-in. plank construction, originally covered with boards, later with imitation brick (BR 74, 1200).

Figure 4 House at 516 Laurier Ave. West; 3-in. plank construction originally board-covered, then veneered with brick. Removal of the veneer from the wall on the right reveals the original board finish (BR 74,1174).

Figure 5 House at 395 Gloucester St. W.; brick veneer over 2-in. plank construction (BR 74,1234).

Figure 6 Corner detail of 2-in. plank construction, showing overlapping of planks and their backing with 1-in. boards laid at 45 degrees to the horizontal (BR 74,848).