

awarded contracts for a church for the St. Lambert parish, St. Lambert, as follows: Masonry, Alex. Failbe; brick, Victor Decary; carpenter and joiner's work, Agnus Mongeau.—L. R. Montbriand, architect, has awarded contracts as follows for two houses on St. Andre street for W. Corcaran. Masonry, Boucher & Huberdeau; carpenter and joiner's work, Wilfrid Mercier; brick, Boucher & Huberdeau; plastering, Ephrem Morache.—W. E. Doran, architect, has awarded the contract for alterations of house on Berri street for Mde J. P. Cuddy to Lambert & Son.—A. C. Hutchison, architect, has awarded contracts as follows for a building on Dorchester street for the Young Women's Christian Association: Masonry, Wighton & Morrison; carpenter and joiner's work, Geo. Roberts; roofing, Montreal Roofing Co.; plumbing and heating, J. Ballantyne; brick, T. W. Peel; plastering, Knott & Gardiner; painting and glazing, George Kimber; iron work, Dominion Bridge Co.

BIDS.

ST. JOHN, N. B.—Tenders were opened by the Board of Works on the 2nd inst. for harbor improvements and wharf extensions at Sand Point. The tenders were as follows: On the plans of City Engineer Peters—Messrs. Mayes, \$194,500; N. K. and M. Connolly, \$233,896; Lynch & Likely, \$234,162. For the same plans, exclusive of dredging, Thomas Thompson, \$83,470; Lynch & Likely, \$104,162. On the plans of C. P. R. Engineer Barber—Messrs. Mayes, \$124,500; N. K. & M. Connolly, \$190,938, and Lynch & Likely, \$190,938. For the same plans, without dredging, Thomas Thomson, \$34,890; Lynch & Likely, \$60,938. Action was deferred until a conference could be held with the City Engineer.

BUSINESS NOTES.

Lang & Co., plumbers, have opened an office at Trail, B. C.

A contracting firm at Lachine, Que., Godin & Legault, have assigned on demand. Liabilities small.

A statement of the affairs of the Erie Iron Works Co., St. Thomas, Ont., shows liabilities of \$18,000 and assets of \$15,000.

The first general meeting of the shareholders of the Victoria Granite Co. will be held at St. George, N. B., on the 16th inst.

Smith & Kennedy, plumbers, Hamilton, Ont., have dissolved partnership, Wm. D. Smith retiring. The business will be continued by J. S. Kennedy.

HOW TO BUILD A CHIMNEY.

Simple as it may seem to build a brick chimney and top it out, it is seldom done in a first-class and workmanlike manner. In the first place, especially in wooden houses, the best and hardest brick is selected for the outside walls or the underpinning, and the soft brick and bats are put into the chimneys. Anyone with a practical knowledge of the requirements of chimney flues will at once recognize the folly of this method. To be sure, they generally use good brick for the top, but it is up through the inside where there is danger of the fire eating through the soft brick and heating the timbers, so that sometimes they become completely charred, and many disastrous fires have been traced directly to this cause. The use of tile flue lining, which, we are glad to note, is rapidly coming into general use, overcomes this evil to a certain degree. Many round tile are now placed in square

flues, the tile being used for smoke and the four corners of the flue for ventilation.

In topping out a chimney there is a wide difference of opinion as regards the best materials to use as mortar. It has often been remarked that houses built in "Ye olden times" had chimneys laid up with simple lime mortar, and when it becomes necessary to tear them down, to make room for more modern structures, they have been found in a good state of preservation; in fact, it is often a hard matter to separate the bricks from the mortar. With a knowledge of this fact, many authorities claim that the masons of to-day do not use as good mortar as the masons of long ago. Their opinion is certainly open to severe criticism. In the first place they used wood as fuel almost entirely, whereas the common fuel to-day is coal. As almost everyone knows, the gases generated by the consumption of the fuel employed are the prime destructors of chimneys, decomposing and destroying the life of the mortar employed, and causing the softer bricks to chip and flake. Now, the gases thrown off from a wood fire are not strong enough to make any perceptible effect on a well constructed chimney; but when coal is the fuel we find a far different state of affairs, and just here we find the reason why the chimney built 100 years ago did not fall to pieces in a few years, like those of the present day. Having found that the gases, or condensation of gases, are the chief factors in the destruction of the chimney, we must employ those materials least susceptible to their ravages, and the experience of some of the most practical mason builders in the country has suggested the following rule: Use only the best and hardest brick throughout the entire chimney, laying them in the best lime mortar to roof, and be particular to fill all joints full. Above the roof use mortar composed of one part lime and four parts cement, with sand enough to work smooth. The plainer the chimney top is in design the better. Saw toothwork and similar ornamentation should be avoided and the largest chimneys should not be drawn out at the head more than 8 in. in each direction. Keep the inside of the flue straight and smooth. Change the bond in setting out the projections in the head to avoid the use of small pieces or "Dutchmen." Do not make the top

course smaller than the shaft of the chimney. On top of the brickwork put a stone coping and fasten the dovells with melted lead, and on top of this coping put a flat smooth stone, supported at each corner by small blocks of stone, whose height must depend on the size of the flue or flues. A strict observance of these rules will give as a result a well built, safe, and durable chimney, which will not be affected by the weather or gases nearly as soon as those built in the ordinary manner.

A HINT ON MORTAR MAKING.

Much depends on having mortar made on correct, if not scientific principles. The durability, if not actual safety, of a building is more or less effected by the kind of mortar that is put into it. We have seen brick building, and not very old ones either, from which the dry and hardened mortar could easily be picked in cakes from between the bricks, says the National Builder. The advantage in using such mortar is, that when the building tumbles down there will be no trouble in picking it from the old bricks, preparatory to rebuilding. A brick wall if put up with the right kind of mortar will be solid and almost homogeneous, as likely to break through the middle as at the joints. Such a building will never tumble down except under great strain, and will withstand a pretty severe earthquake shock.

An old builder of nearly forty years' experience in making mortar, writing upon the subject to a contemporary, very justly says: "The mere matter of slaking lime does not make mortar out of it. Lime and water alone will not make any better mortar than sand and water." He suggests the use of plenty of water in slaking the lime, so that when it is run out of the box into the bed it will not bake or burn, as it is liable to do if not well watered. The mortar bed should be made large and tight, so that there will be no leakage of the lime water. The proportions should be about fifty yards of good sand to twenty-five barrels of lime for the first mixing, which should be thoroughly done. The hair should be put into the lime before mixing in the sand. After the mortar has been worked in the above proportions for ten days or more, if the amount of materials given have been used, twenty-five to fifty loads of sand may be added and worked in. It is said that the water that rises on a bushel of slaked lime, and where plenty of water has been used, if removed, and put on a sharp sand, will make better stone than lime and sand mixed, showing that the water should be retained in the lime and sand while it is fresh, and that the mortar should be tempered in its own liquor. Of course where smaller quantities are used the proportion should be retained both at the first mixing and in the sand added subsequently.

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