

follows for the erection of a wing: Buck and stone, Orr Bros., \$1,586; carpenter work, Moir & McColl, \$1,725; slate and felt roofing, R. Rennie & Son, \$145; galvanized iron, A. B. Ormsby; plaster work, John M. Cander, \$179; steam heating, gas and electric wiring, John Ritchie Plumbing & Heating Company, \$345; painting, M. O'Connor, \$253.

MONTREAL, QUE.—Tenders for the construction of sewers were awarded by the city last week as follows. Marsolais & Gosselin, Cadieux street, from De Montigny street to Mount Royal avenue, \$7.15, and rock excavation, \$3.50; Capital street, between Place Royale and St. Francois Xavier street, \$7.45, and \$3.80 for rock excavation. C. Belleheumer, Ernest street from St. Denis ward eastwards, \$5.50, and \$4 for rock; St. Andre street, from Mary Ann street to Mount Royal avenue, as follows. Cross section, 3 x 2, internal diameter, \$3.50 per lineal yard; excavation for cross section, \$3.43, and refilling for cross section, 50 cents.—Building permits have been granted as follows: Building on Rozet street for Jno. Quinlan—W. E. Doran, architect; masonry, Jno. Quinlan; carpentry and bricklaying not let. House on Conway street for Robert Pitts; contractor for all trades, W. Bumbray. House, three tenements, on Delormer street, for John McIlhonn.—A. Prefontaine, architect, has let the contract for a convent at St. Eustache to G. Lanzon. A. St. Louis, architect, has accepted tenders as follows for three houses, 127 x 75 feet, on St. Denis street, for Theo. Lessard. Masonry, Theo. Lessard; carpentry, J. Bernard & Son.—J. A. Karch, architect, has accepted tenders for two houses, six tenements, on Sherbrooke street, for A. Geau. The contractors are: Masonry, Mayer & Branchaud; carpentry, E. W. Desparois.

#### WARM COVERING FOR BRICK FLOORS.

An agreeable covering for brick floors has lately been introduced in Germany and is described in consular reports for August last by J. C. Monaghan, United States consul at Chemnitz, Germany. This material is the Knoch cork-stone flooring and is somewhat of the nature of linoleum. It is highly com-

mended for its insulating properties. It is made of ground cork, ground tan-bark, ground peanut shells, or other suitable material of that class, and is mixed with paper waste, alum, or other fire-resisting materials, and molded into bricks. These bricks are dried in kilns before use, and the product is damp and sound proof and, to a large extent, fire proof. The bricks may char, but will not blaze.

Knoch also makes an elastic material, which, it is claimed, is absolutely fire, water and acid proof, and will not crack when used for flooring, walls, etc. It is made by dissolving chloride of magnesium in water at 27° Beaume. One pound of salt is then thoroughly dissolved in about one quart of cold water. To this is added 66 lbs. of burnt powdered magnesium and 4.4 lbs. of finely ground leather waste, and the compound is mixed by hand in a tub. Of this mixture 13 lbs. is mixed with 5 qts. of the chloride of magnesium solution, and the resultant mass is thoroughly kneaded by hand or in a machine until a uniform pulpy mass is obtained.

This mass is then spread over the surface to be covered and kept from running by wooden or sheet iron forms. It is smoothed by a tool and a beautiful surface is formed. The addition of more of the meal, or 6.6 lbs. instead of 4.4 lbs., makes it a still better non-conductor. To further insulate, and to provide an elastic floor, a layer of dry cork meal is placed between two layers of the above mixture. This covering can be used over stone,

brick, or old floors, and can be walked upon 12 hours after laying. It is said to have a surface as hard as stone, but it is elastic as wood. Any pattern may be impressed upon it by forms, and the material may be produced in sheets ready for shipment to any point.

The cost is small, 220 lbs. of the mixture costing \$1.66. For surface work a square yard,  $\frac{3}{8}$  in. thick, costs 73½ cents;  $\frac{1}{2}$  in. thick, costs 99½ cents, and 1½ in. thick, costs \$2 per sq. yd.

#### PILE DRIVING THROUGH STONE.

In a paper recently read before the American Society of Civil Engineers, Prof. W. H. Burr described some experimental pile-driving through new stone-filled crib work. Nineteen piles were driven. The crib was 35 feet deep, and the piles, from 52 feet to 60 feet long, were shod with chilled cast iron points, held on by straps spiked to the pile. The hammer used in the driving weighed 3,500 lbs., and the greatest number of blows was 350. There was no difficulty whatever in driving the piles, and there were no failures. In the discussion following the reading of the paper, several other gentlemen gave particulars of pile-driving through loose rock. The shoe used in the work of the New York department is conical, the angle of the cone being about 60 degrees. The base of the cone is flat, and it is secured to the cone by a pin, cast as part of the shoe and let into the end of the pile. This type of shoe is said to have proved very satisfactory in practice.

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