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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF PUBLIC WORKS, TENDERS, ADVANCE INFORMATION AND MUNICIPAL PROGRESS

EVERY THURSDAY

This paper reaches every week the Town and City Clerks, Town and City Engineers, County Clerks and County Engineers, Purchasers of Municipal Debentures and leading Contractors in all lines throughout Canada.

Vol. 7.

OCTOBER 8, 1896

No. 36.

THE CANADIAN CONTRACT RECORD,

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NOTICE TO PLUMBERS AND STEAMFITTERS

Tenders addressed to the "Chairman of the Board of Control, City Hall, Toronto, will be received through registered post up to noon on THURSDAY, OCTOBER 8th, 1896.

For carrying out the necessary works in connection with the Steamfitting, Ventilating, Plumbing, Gasfitting and Electric Wiring, etc., in connection with the erection of the new Municipal Buildings now in course of erection on Queen-street west in this City.

Plans and specifications and form of contract may be seen and forms of tender and all other information obtained upon application at the office of E. J. Lennox, Architect, corner King and Yonge streets, Toronto.

Each and every tender must comply with the terms of the specifications and this advertisement, and be accompanied by a marked cheque, made payable to the order of the City Treasurer, Toronto, equal to 2½ per cent. of the amount of the tender.

Tenders must be on forms supplied by the architect, which provides for the bona fide signatures of the contractor and his sureties, or they will be ruled out as informal.

The lowest or any tender not necessarily accepted.

POSTPONEMENT

Tenders will take notice that the time for receiving tenders for the above named works has been extended until 12 O'CLOCK NOON, ON THURSDAY, OCT. 15th, INST.

Parties tendering may have further access to the plans and specifications in the evenings by arrangement at the architect's office.

ROBERT J. FLEMING, Mayor,
Chairman Board of Control.

City Oct. 6, 1896.



Tenders for Hose Sleights and Keyless Doors for Fire Alarm Boxes

Separate tenders, addressed to R. J. Fleming, Esq. (Mayor), Chairman Board of Control, will be received, by registered letter only, up to noon on THURSDAY, THE 15th INSTANT, for supplying (1) three two-horse hose sleights and (2) 17 keyless doors for fire alarm signal boxes.

Forms of tender and all further information may be obtained upon application at the office of the Secretary of the Fire Department, Richmond Street Fire Hall, Toronto.

A cash deposit or marked cheque equal to 5 per cent of the total amount of the contract must accompany each tender, and the same will be forfeited to the city in the event of the person whose tender is accepted failing to execute the necessary contract or give satisfactory sureties for the due fulfilment of the same.

The deposit of unsuccessful tenderers will be returned. The lowest or any tender not necessarily accepted.

R. J. FLEMING, Mayor,
Chairman Board of Control.

City Hall, Toronto, October 5th, 1896.



Notice to Contractors

Tenders will be received by registered post only, addressed to the Chairman of the Board of Control, Toronto, up to 10 o'clock a. m. on THURSDAY, OCTOBER 15, 1896, for the construction of a

CONCRETE SIDEWALK

on the west side of York Street, from Front Street to Wellington Street.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 2½ per cent. on the value of the work tendered for, must accompany each and every tender, otherwise it will not be entertained.

Specifications may be seen and forms of tender obtained on and after Friday, October 2nd, 1896, at the office of the City Engineer, Toronto.

The tenders must bear the bona fide signatures of the contractor and his sureties, or they will be ruled out as informal.

R. J. FLEMING, Mayor,
Chairman Board of Control.

City Hall, Toronto, Sept. 20, 1896.

BUSINESS NOTES.

R. C. Donald, a general contractor of Moncton, N. B., has assigned.

F. W. Wilkes, plumber, etc., Toronto, has assigned to Hy. Barber & Co.

J. & H. W. Mackintosh, contractors, Halifax, N. S., are announced to have assigned. Liabilities, \$10,000.

J. D. Baker, manufacturer of plaster, ceiling ornaments, etc., Montreal, has made an assignment of his estate, showing liabilities of \$38,049.

CONTRACTS OPEN.

NORTH BAY, ONT.—The question of lighting the town by electricity is under consideration.

HANOVER, ONT.—A company has been organized here to build and operate a chair factory.

PARRSBORO, N. S.—Dr. J. R. Smith has secured from the town a franchise to operate an electric light plant.

PEMBROKE, ONT.—It is probable that some definite action will shortly be taken in regard to the question of providing the town with a system of sewerage.

BERLIN, ONT.—It is the intention of the Grand Trunk Railway Co. to erect a new depot at this place, plans for which are now being prepared by Chief Engineer Hobson.

LEVIS, QUE.—Authority has been granted by the Dominion parliament to the South Shore Railway Co. to construct a line of railway from Levis to Valleyfield, on the C. A. R.

OSHAWA, ONT.—The corporation invites tenders until the 10th inst. for lighting the town by electricity for a term of three years from 1st November next. Address Walter Coulthard.

ST. JOHN, N. B.—The Committee on Harbor Improvements have decided to ask for tenders for the doors, windows, and roofs for two warehouses being built by the city on the new wharves.

ST. CATHARINES, ONT.—The Dominion parliament has passed the bill of the St. Catharines & Niagara Central Railway Co., by which authority is given to construct a branch line from St. Catharines to Smithville.

STRATFORD, ONT.—The contracts for painting external and internal wood and brick, ornamental cathedral glass, electric wiring and chandeliers for St. Mary's Methodist church have not yet been let. D. G. Baxter, architect.

WOODSTOCK, ONT.—Work has been commenced on the new factory for the James Hay Co. The main building will be 200 x 175 feet. B. McNichol, Chairman Board of Works, will receive tenders until to-morrow (Friday), for the construction of plank sidewalks.

CUMBERLAND, B. C.—The Cumberland & Union Water Works Co. are applying for incorporation, with a capital stock of \$75,000, to provide the town with a water supply. The applicants are Robert Lawrence, Robert Grant and F. D. Smith, of Cumberland, and William Lewis, of Courtenay.

QUEBEC, QUE.—In connection with the construction of the electric railway, it is probable that a bridge will be built over the St. Charles to Parent Park.—The corporation propose to erect several houses near the new city hall.—A new Anglican church is to be erected by Albert Peters at Harrington Harbor, Labrador, where the Revd C. E. Bishop is the pastor.

The plans have been prepared by Mr. Staveley, architect, of this city.—Paul Breton is erecting a two-storey brick and wood house, with flat roof, at 30 Latourelle street, to cost \$1,000.—Thomas Raymond, architect, is calling for tenders for a church to be erected at Sault Montmorency.—Messrs. Tanguay & Vallee, architects, are preparing plans for a kiosque to be erected on the new park.

VANCOUVER, B. C.—Surveys will be completed in about six weeks of the proposed railway to be built by the Vancouver, Victoria and Eastern Railway and Navigation Company. The road will extend from Vancouver to New Westminster, crossing the Fraser river by a railway and traffic bridge. The cost of construction is placed at \$400,000.

OWEN SOUND, ONT.—Tenders are being received for an addition to the chair factory at Chesley, from plans by J. C. Forster.—The only contracts let in connection with the addition to the North American Bent Chair Co.'s factory are the masonry and carpenter work. The architect is J. C. Forster. Leaded glass is required for H. A. Harrison's residence now nearing completion, from the plans of the above architect.

WINNIPEG, MAN.—J. W. Sifton and Engineer Law have gone to Springfield to lay out the necessary work in connection with the extension of the Springfield road and the deepening of Burns creek. Tenders will be asked shortly for the construction of the work. There will be about 6,000 yards of excavation.—Dr. Patterson, provincial health officer, and Major Rutan, C. E., have made a report to the provincial health department on the Assiniboine river as the source of the city's water supply. It is recommended that a settling basin be constructed at the waterworks and the supply pumped from it after the sedimentary substances in the water have been allowed to settle.

HAMILTON, ONT.—Proposals are invited until Friday, the 23rd inst., for the purchase of \$200,000 of 20 year debentures, bearing interest at 4 per cent. Address T. Beasley, city clerk.—Tenders are being received this week by the Chairman of the Sewers Committee for the erection of a sewage works building and for the machinery required in the construction of the sewerage interception works, including two centrifugal pumps, two steam duplex sludge pumps, one filter press and two chemical mixers.—Building permits have been granted as follows: W. J. McDonald, two two-storey brick dwellings, corner Main and Grant avenue, cost \$5,000; Samuel Howard, two-storey brick dwelling on York street for Thomas Porteous, cost \$1,100.—It is probable that the Toronto, Hamilton and Buffalo Railway Company will build a high-level bridge over the Desjardins Canal at its own expense.—The time for receiving tenders for the purchase of city debentures has been extended until November 5th.

LONDON, ONT.—The Finance Committee will ask the City Council to authorize the sale of \$200,000 worth of debentures, to pay the Grand Trunk car shops bonus and the outlay on the London and Port Stanley railway.—J. M. Moor, Superintendent of Waterworks, has submitted the following estimate of the cost of constructing a separate system of waterworks for street watering. Building site, \$1,000; pumping station, \$2,500; receiving wells and connections, \$1,500; pump and foundations, \$7,000; boilers and fittings, \$1,500, twelve-inch main on Bathurst street, from the river to Adelaide street, \$10,800; six-inch main on Talbot street, Horton to Lichfield, \$3,150; six-inch main on Park avenue, Horton street to Dufferin avenue, \$2,250; six-inch main on Waterloo street, Horton street to Central avenue, \$3,225; six-inch main on

Maitland street, Horton street to Dufferin ave., \$2,250; forty-five hydrants, \$1,800, valves, \$500. No action in the matter has as yet been taken.—George Craddock, architect, is receiving tenders this week for the erection of a brick house on York street.—The residents on Cheapside street have petitioned for a water main.—The superintendent of waterworks has recommended that the portion of Colville spring conduit, down the river immediately west of the pump house, be laid with cast iron, at a cost of \$900.—A. O. Graydon, chief engineer of the L. and P. S. railway, is receiving tenders for the construction of a turntable pit. Plans at the engineer's office.—The City Council propose putting in a new fire alarm system.—The tenders for erecting the new St. James church have been found to be too high, and action has been deferred for the present.

TORONTO, ONT.—New tenders will be invited for plastering the addition to the Bay street fire hall.—Ald. Jolliffe is looking for a factory site for a company which it is said will expend \$150,000 in the erection of a building.—It is probable that the time for receiving tenders for plumbing, steam heating, etc., for the new city hall will be extended.—Ald. Jolliffe has moved in Council that the House of Industry be asked to reconsider their decision to spend \$15,000 in erecting new buildings.—A letter has been addressed to all the merchants on Queen street, from Yonge street to the subway, asking them to assist in having a permanent asphalt pavement laid.—The Board of Control invites tenders, addressed to R. J. Fleming, Mayor, until the 15th inst., for supplying three two-horse horse sleighs and 17 keyless doors for fire alarm signal boxes. Further information may be obtained at the Bay street fire hall.—The time for receiving tenders for plumbing, steam heating, etc., for the new municipal buildings has been extended until Thursday, the 15th inst.—Building permits have been granted as follows: James Green, pr. s. d. 2 storey and attic bk. dwellings, 66-68 Shaftesbury ave., cost \$3,500; Alex. Johnston, Esq. Toronto, pr. s. d. 2 storey and attic bk. dwelling, 77-79 Crawford street, cost \$6,000; Trusts Corporation of Ontario, 2 storey bk. add. rear 510 Bathurst street, cost \$1,100; I. O. Foresters, 9 story bk. add. to Bay st. extension of Toronto Temple, cost \$100,000; Mrs. White, Wychwood Park, 2 storey r. c. addition and alterations to dwellings, 100-2-4 Euclid ave., cost \$1,700; Mrs. P. Pearson, 2 storey and attic bk. dwelling, 136 Pearson ave., cost \$1,800; F. T. Burgess, bk. front, s. e. cor. Queen and Strange st., cost \$1,000.—The Gutta Percha Rubber Co. have applied for a permit to erect an addition to their factory on West Lodge avenue. The addition will be 50 x 150 feet, and will cost \$9,500.—F. T. Burgess will put a new front on his store at the corner of Queen and Strange streets, and convert it into a dwelling house, at a cost of \$1,000.

OTTAWA, ONT.—A vote of the rate-payers will be taken on Tuesday, the 3rd of November, to provide the sum of \$444,500 by the issue of debentures for the construction of a number of sewers, to be built of brick.—Tenders will be received until the 14th inst. for the painting of McLeod st. Methodist Church, addressed to M. C. Edey, architect, 51 Sparks st.—Further supplementary estimates were presented to the Dominion Parliament last week. Among the appropriations are the following: Rideau canal, \$6,500; dredging of the Catarqui river, \$3,000; to complete the work of deepening at Merrickville and Newboro, \$3,500; a further appropriation of \$4,000 for asphaltting the esplanade in front of the Ottawa post office. For Nova Scotia and New Brunswick are the following grants: Arisaig, repairs to wharf, \$1,800;

Chelicamp Point, new wharf, \$2,000; Cribbon's Point, repairs to wharf, \$3,000; Joggins, repairs to breakwater, \$1,500; Judique, Indian Point, new wharf, \$2,000; Pugwash, new wharf, \$4,000; Wallace, new wharf, \$2,000; dredging between St. John river and Grand Lake, \$1,500; Quaco, repairs to breakwater, \$1,000. The sum of \$1,000 is provided for the purpose of remodelling the present electric lighting in the Dominion building at Halifax, overhauling the gas pipes, etc. The following grants are made for harbors and breakwaters in the Province of Quebec: Bay St. Paul, \$3,500; Berthier ice pier, \$3,000; Cap-a-L'Ange, \$1,500; L'Islet, repairs to wharf, \$500; Longueuil, repairs to wharf, \$2,000; Lotbiniere, new wharf, \$4,000; Montmagny, super-structure of wharf, \$4,000; Riviere du Loup lock, \$2,400; Riviere du Sud, protection works, \$4,000; St. Valentine, new wharf and approach, \$5,500; telegraphs, \$7,000, of which \$2,500 is to connect Isle aux Cochons with the mainland, and \$4,500 to connect St. Alexis with St. Jean, Saugenay line.—At a meeting of the building committee of the Protestant hospital held last week, Mr. A. C. Hutchison, of Montreal, was finally commissioned to prepare the necessary plans and specifications for the proposed extension to the building. An Ottawa architect will be appointed as clerk of works and supervising architect. It is probable that contracts will be awarded this fall.—A number of local physicians last week went up the Gatineau Valley prospecting for a suitable site for a sanatorium for consumptive.

MONTREAL, QUE.—At the last meeting of the Finance Committee Mr. St. George, City Surveyor, reported that the estimated cost of constructing conduits by the city would be from five to six million dollars. He was instructed to prepare plans and make a complete report to Council.—Alderman Lefebvre, Chairman Police Committee, has received an offer from a resident of Ste. Therese to donate to the city a site and building materials for the construction of a poor house in the parish of Ste. Therese. It is probable that some action in this direction will be taken by the City Council.—Tenders are invited until the 10th inst. for the supply of timber, lumber, cast and wrought iron, hardware, oils, cement, etc., required by the various canals throughout the province. Tenders to be addressed to Ernest Marcéau, superintending engineer, 1709 Notre Dame street.—A project is on foot to utilize the site of the St. Lawrence hall for a commodious hotel and office building. A company of capitalists has been organized, who have engaged two architects, Mr. G. F. Hammond, of Cleveland, Ohio, and Mr. Maurice Perrault, of this city, to prepare plans. The structure is to be composed of two distinct buildings, one fronting on St. James, St. Francis Xavier and Fortification lane, and the other on Craig, St. Francis Xavier, St. George and Fortification lane. The former will be the offices and stores section, and will be twelve stories in height. The latter portion will be the hotel proper, and will be fifteen storeys in height. The two structures will be connected by a 20 foot hallway running from St. James street and leading into a rotunda, which in turn will be surrounded by the reading rooms, billiard rooms, cafe and office counter. This hallway will also lead straight to Craig street by an easy staircase and three elevators. It is also proposed to extend an immense roof garden with conservatory attached from St. James to Craig street, and a small auditorium will be built on the east end of the hotel. The plans are now being prepared and tenders will shortly be asked.—Messrs. Perrault & Lesage, architects, are calling tenders for several houses for Mde. D. Monast.—Mr. Eric

Mann, architect, is calling for tenders for two residences to be erected at the corner of Albert and Cote St. Antoine road for Messrs. R. B. Hutcheson and F. W. Hibbard.—J. E. Huot, architect, is preparing plans for two houses to be erected at St. Henry for Jos. Lenoire.—W. McLea Walbank, architect, is taking tenders for the construction of an iron fence on Redpath street. Same architect will let contracts this week for a building to be erected at the corner of Prince Arthur and St. Dominique streets for Mr. W. F. Lighthall.

FIRES.

A disastrous fire occurred at Gananoque, Ont., on the 23rd inst. Among the losers are J. B. Abbot, building; three frame buildings occupied by L. Fraid; J. B. Turner, three frame buildings. The loss is largely covered by insurance.—A residence on La Salle street, Maisonneuve, owned by M. Gagnon, was completely destroyed by fire a few days ago.—The C. P. R. station building at Stonewall, Man., was destroyed by fire last week.—A rotary saw mill situated at East St. Martins, N. B., and owned by White, Fownes & White, was burned last week. Loss, \$1,200; no insurance. The company propose rebuilding at once.—The chemical works of Lyman Bros. & Co., corner Front and Sherbourne streets, Toronto, were badly damaged by fire on Monday last. The loss on building is placed at \$4,000, and on machinery at \$3,000, covered by insurance.—The mills, dwellings and barns at Tracadie, N. S., belonging to the Trappist monks, have been destroyed by fire. The loss is nearly \$40,000, with no insurance.—The general stores of C. R. Beardsley at Winchester, Ont., was burned last week, also the dwelling of R. G. Holmes.—The tailoring establishment of Martin Foley, on Mountain Hill, Quebec, was consumed by fire on the 5th inst. The loss is well covered by insurance.

CONTRACTS AWARDED.

OTTAWA, ONT.—J. Foley, of this city, has secured a contract for the laying of a large block of asphalt roadway in Renfrew.

BRANTFORD, ONT.—A bulk contract has been awarded Schultz Bros. to erect a dwelling house on Dufferin ave., this city, from plans by Hewitt & Maclaren, architects.

STRATFORD, ONT.—D. G. Baxter, architect, has let the contract for seating the St. Marys Methodist church to the Globe Furniture Company, of Walkerville, for \$1,425, and the fresco work to Elliott, of Toronto.

OWEN SOUND, ONT.—J. C. Forster, architect, has awarded contracts as follows for a 4 storey bk. addition, 46 x 106 feet, to the North American Bent Chair Co.'s factory: Masonry, Grier & Sinclair; carpenter work, Alex. Green. Other trades not let.

BARRIE, ONT.—Eden Smith and Eustace Bird, architects, have let contracts as follows in connection with the Simcoe County gaol. Mason and concrete work, John Stapleton & Son, Barrie, at \$546; hot water heating, ventilating, etc., Moore & McDonald, Barrie, at \$658.

ST. JOHN, N. B.—Tenders have been invited by the Public Works Department for the erection of a warehouse at Sand Point, from plans prepared by Hurd Peters, C. E. The following were received: D. W. Clarke & Son, \$7,235 (accepted); Thomas Thomson, \$7,890.

NIAGARA FALLS, ONT.—The contract for steam heating for the public school has been let to Cole & McMurray. Geo. Fuller has the mason work.—Contracts for Mrs. Flynn's house have been let as follows: Carpenter work, Frank Nugent; mason work, James Campbell.

TORONTO, ONT.—Tenders have been let as follows for an addition to Bay street fire hall. Brick work, \$844, carpenter work, \$1,477, E. Hollett & Co., galvanized iron, \$167, A. B. Oimsby & Co.; wrought and cast iron, \$249, St. Lawrence Foundry, painting and glazing, \$147.50, Egles & Linington, plumbing, \$140, J. T. Aggett; total, \$3,024.50.

LONDON, ONT.—Robinson, Little & Co., wholesale dry goods, will build an addition to their warehouses, from plans prepared by McBride & Farncombe, architects. The contract for brick work has been let to Martyn & Hammett, and the carpenter work to Wm. Tytler.—Geo. White & Sons, engine builders, have let the contract for their new machine shop to John Hayman & Son. The building will be 100 x 40 feet.

HAMILTON, ONT.—Malcolm & Souter have been awarded the contract for putting in a new bar fixture for Mrs. Tindall, corner King & Wentworth streets.—Leather & Watson, of this city, have been awarded the contract for the material for the renewing of the Hamilton and Dundas railway line, and work will be commenced within two weeks. New 65 pound rails will be laid on the entire line, and steel culverts will take the place of the present structures.

MONTREAL, QUE.—The contract for the concrete dam, power house, and rock excavation in connection with the Chambly, Que., Power Co.'s works has been let. The price is between \$300,000 and \$400,000. The work will be begun at once.—J. Alcide Chausse, architect, has awarded contracts as follows for reparations of a house, two stories, on St. Denis street, for Henri St. Pierre: Masonry, P. Mainville; carpenter and joiner's work, J. B. St. Pierre. Other trades not let. Same architect has let contracts as follows for one house, two stories, on Lafontaine street, for C. Masson: masonry, F. Bleau; carpentry and joinery, O. Masson.—P. B. Williams, architect, has let contracts for one building, two stories, on Centre street for J. J. Rutherford as follows: masonry and brickwork, John Quinlan; carpenter and joiner's work, J. J. Rutherford. Other trades not let.—Building permits have been granted as follows: Two buildings, 48 ft. x 66 ft., three stories, on Mathewson street, for M. Deslauriers—masonry, N. Guilbault; carpenter and joiner's work, M. Deslauriers. Probable cost \$8,000.

BIDS.

QUEBEC, QUE.—Tenders were received as follows for the construction of a bridge over the St. Charles river, to connect the city and St. Sauveur: Excavation, embankment, carpentry, stone filling, masonry, cut stone, iron spiking, etc., Ignace Bilodeau, \$21,753, C. Giguere, \$19,734; superstructure, with woodwork forming part thereof, Carrier, Laine & Co., of

Levis, \$6,239.27; for the bridge complete, A. Rousseau & Co., Montreal, \$16,200, for the superstructure only, Dominion Bridge Company, \$3,888, Canadian Bridge & Iron Company, \$2,790, Messrs. Carrier, Laine & Co., of Levis, \$4,500; A. Rousseau & Co., of Montreal, \$12,695 for one plan and \$12,995 for another. The City Engineer has been asked to report on the tenders.

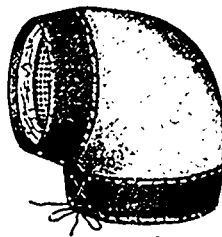
BRICKWORK.

In some of the ruder kinds of early masonry bricks were often employed as mere lacing or stringcourses, to bind together at varying vertical heights the whole of the underlying constituent parts of the masonry; and when so used in the construction of arches in combination with stone, the object of their use with the builders seem to have been to obtain even and equal bedding planes here and there throughout the arch by the insertion, as it were, of bricks or brick courses, irregularly alternating with the rough, unworked, or rudely "scraped" stones of uneven beds, chiefly composing the body of the arch. Bricks are still sometimes employed, not as inclosures to flint diaper work, but more in the capacity of ornamentation, and units or scales of a known lumentation, to aid the eye in the realization of the extent and effect of the composition as a whole, than as parts of constructive necessity.

In modern work some of the greatest achievements of engineering have been carried out chiefly in brickwork, and in some instances almost to the entire exclusion of the aid of stone.

This being so, it will not be out of place to consider the essential conditions of what is now universally accepted as being worthy of the name of good brickwork. In the first place brickwork has made rapid and well-marked strides in the last quarter of a century, or since the decade of the stuccoed front, and the revival and use of red bricks and terra cotta under the sympathetic and able advocacy of our architects and masters of modern refined thought as applied to architecture. Prior to the time mentioned, the shuff, the grizzle, and the rough stock was mostly in demand, but they are now happily supplanted by bricks of a better class and quality, except in the erection of suburban villas and other jerrybuilt structures. One of

(Concluded on Page 4.)



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the recommending advantages of the use of brick over stones is through the perfect bonding which may be obtained throughout the mass of the work; the ease and certainty of obtaining solid and homogenous bedding of the bricks when laid by skilled bricklayers working under the recognized conditions essential to the production of good work—also the imperishable nature of the material as compared with most of the building stones in use—even the granites, and the ease with which they lend themselves to the construction and production of complex forms and outlines under a skilled treatment as compared with the vastly greater expenditure of labor and material required to bring about similar results in stone. Of the importance and necessity of solidly bedding the bricks and effectually flushing up the interior joints (known as cross-joints and wall joints), no one is so fully alive as the civil or municipal engineer long experienced in the construction or personal superintendence of sewers, waterworks, and hydraulic work generally. Apart from flushing up brickwork, as a means of obtaining the maximum amount of tensile strength, in addition to that obtained by good transverse and longitudinal bonding, to carry the loads to which most walls are subjected, and to provide against the possible lateral movement of any of the constituent parts when the whole is under strain, the question has its sanitary aspects also; and by reference to most of the published engineers' pocket books will be found formulæ to find the amount of air in a cubic foot which will, in a given time, under certain conditions stated, pass through walls of varied thickness built of different kinds of material. The walls of dwelling houses, defectively flushed up, are therefore, admittedly, air filters on a very large scale. They are also liable to be receptacles of damp driven in by storms, and induced by the hollow, or partially hollow, state of the brickwork, leading up to disease, and in some cases, probably to fatal consequences.—Builder and Woodworker.

AS TO ADVERTISING.

A man does not have to get his head very far above the sea of mediocrity to command attention. Nine cases in ten, when a man says that advertising does not pay, he has arrived at this conclusion because he has expected the newspaper to do it all. If he were to neglect his show window and his store front as he neglects his advertising space, he would have still other complaints to make about business in general. If the windows were never washed and the display of goods never changed, he would not expect many people to stop and lose themselves in an ecstasy of admiration; and yet he does seem to expect just this sort of thing for an old, moss-covered advertisement.—C. A. Bates.

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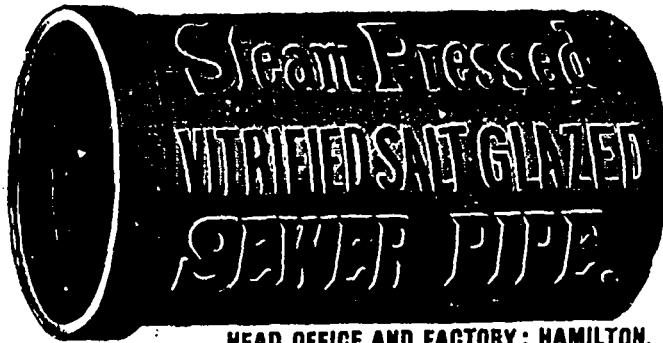
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MUNICIPAL DEPARTMENT

NARROWER PAVEMENTS.

Commenting on the tendency in many cities and towns to reduce the width of the paved portion of the streets, the Engineering Record says:

In the city of Toronto, under the direction of City Engineer Edward H. Keating and his assistant, Mr. H. D. Ellis, the present practice is to reduce the width of the paving on residential streets to 24 feet, and this is found sufficient for all purposes. In Albany, N. Y., we are informed by City Engineer Horace Andrews that a width of from 24 to 30 feet is found ample, and in repaving the old streets a reduction of 5 or 6 feet in their paved width has improved the appearance of the streets and given great satisfaction to its residents. In Albany householders are allowed to have stoops projecting 6 or 8 feet into the sidewalk so that an increased width of sidewalk is desirable, regardless of a grass strip. In cities where the snow is allowed to accumulate in winter, the additional space between the sidewalk and curb is a great convenience, as when the sidewalk and gutter are adjacent, there is no place for the snow to go but into the gutter, where it piles up, blocking drainage in times of thaw and making traffic extremely dangerous. Moreover, in summer time there is just so much less dusty pavement to be cleaned and sprinkled. No man likes to clean the pavement before his house, but give him a chance to have a neat grass plot between the sidewalk and curb and his attitude is immediately changed to one of active interest in keeping it neat and attractive. Where surface railways run through the streets an increased width is necessary, but this extra width should not be paved until actually needed, and then the expense should be borne by the corporations obtaining the franchise.

Another phase of this desire to get the best returns for money expended is the use of old pavements as a foundation for the new. In New York City in several instances the Department of Public Works has put down an asphalt pavement on streets first paved with granite by simply covering the granite blocks with the asphalt and avoiding all expense for foundation. So in the narrowing of the Toronto streets above referred to, Mr. Ellis recommends that the old foundations of the cedar block pavement be used for the foundation of a new brick pavement, and that the brick pavement be so laid as to allow it to be covered with asphalt at any time the property owners may desire.

It is unfortunate that our system of laying pipes in streets does not admit of more of this utilization of old pavements. The first pavement in a street is usually

macadam of some sort, and this if well cared for should serve as a foundation for asphalt, brick, stone, or wood, without necessitating the use of concrete. At present when a new pavement is ordered the first step is to put all piping under the street in good condition to save tearing up the new pavement. With our single lines of sewer, gas, and water pipe, except in the broadest streets, and cross-trenches for the house connections, this practically destroys the old pavement, and a concrete foundation for the new pavement is a necessity. On streets where there is room for strips between the carriageway and sidewalk it would seem cheaper in the end to have lines of pipe on each side of the street and put them under those strips or under the sidewalks and not under the paved portion. This system is quite common in Europe and is gaining a foothold here.

FILTERING MUNICIPAL WATER SUPPLIES.

Two methods of slow filtration are now advocated—the continuous and intermittent—says Mr. Rudolph Herring, in an article on this subject in the Engineering Magazine. The former is the more common. It implies a constant application of the water until the efficiency of the filter is so much reduced as to require the cleansing or washing of the upper layers of the sand; this may be once a month or less often, depending, of course, on the turbidity of the water. The intermittent method requires a cessation of the filtration at intervals of one or two days, so that air can penetrate the pores of the sand and assist in the destruction of the organic matter.

In continuous filtration, as the air is at once permanently driven out of the sand, the purification depends, so far as air is concerned, entirely upon that which is dissolved in the water itself. Yet this is sufficient in many cases for all the oxidation that can take place while the water is passing through the filter. In intermittent filtration the water drains out completely after every application, thus allowing air to be drawn into the pores and to come in better contact with the water of the subsequent application.

Generally the water passes more rapidly through an intermittent filter than through a continuous one. Therefore its straining action is less perfect, and, because of the more frequent disturbance of the sand grains at every fresh application, the water is less clear. But the oxidizing efficiency of the intermittent filter is greater, and the affluent water therefore contains slightly less organic matter. So far as we know at present, there is practically no difference in the efficiency of the two processes in removing bacteria.

The preference will have to be decided according to the circumstances in each particular case. Where the water is but slightly polluted and contains a high percentage of oxygen in solution, continuous filtration is generally preferable. Where the water is greatly polluted, intermittent filtration may be the only means of making it safe for a water supply. In a bad case it may be necessary to resort to a double treatment.

The cost of filtering water by the slow method depends very greatly on the local conditions and on the character of the water. To give a general idea of the cost, however, it may be said that filter basins, when open, can be built in the United States for an amount ranging from \$30,000 to \$60,000 per acre, and, when covered, from \$50,000 to \$90,000 per acre. One acre may be roughly considered as necessary to filter 2,000,000 gallons per day. The cost of operation, including interest on the cost of the plant, depreciation, etc., may vary from \$6 to \$15 per 1,000,000 gallons.

WATER METERS.

The water meters with revolving vanes (inferential meters) labor under the disadvantage that they fail to record when little water is consumed in the unit of time. This defect naturally increases with the size of the meter. It has hence become customary to combine the large sluggish meters with smaller meters, and insert a valve between the two in such a way that the small meter registers the total consumption, whilst the large meter remains inactive until a certain difference of pressure has been reached. This plan answers under certain conditions, but by no means always, as experience teaches. Friedrich Lux discusses the merits of the different types of valves used for this purpose, loaded valves, valves with an elastic spring and hydraulic valves, in the "Zeitschrift des Vereines Deutsches Ingenieure." For constructive and other reasons the hydraulic valves are preferable to the others; but as regards the point in question, they are not reliable either. They recently proposed a double valve, with one balanced and one unbalanced part; but this valve, though superior in certain respects, can also fail, and it is, moreover, complicated. The solution which Lux finds is surprisingly simple and hardly new, we should think, though probably not applied with this object. The pressure acts first on a small piston or disc, which has a short travel. As soon as this has been raised a little the valve disc proper comes into play, and the whole valve is pushed forward; a small difference of pressure hence suffices to start the valve. This construction has proved entirely successful, and secures correct records, whilst the other apparatus register less water than has actually passed through the meter.

The City Engineer of Toronto, in reply to questions, has stated that, taking block pavements at 70 cents per square yard, the foundation would cost about 26 per cent. and the blocks 74 per cent. In streets where cedar blocks are laid and worn out, the cheapest pavement would be the renewal of the blocks, at a cost of about 55 cents per square yard. Bricks on present foundation, with about three inches of new gravel added, would cost \$1.20. As examples, the engineer reported that a new cedar block pavement, 24 feet wide, on gravel foundation, would cost approximately \$2.40 per lineal foot, or an assessment to the property owners on each side of the street of \$1.20 per lineal foot frontage. A cedar block pavement relaid on the old foundation, with new wooden curbing, would cost, approximately, \$1.94 per lineal foot, or an assessment to the property owners on each side of the street of 97 cents per foot frontage.

A brick pavement on concrete foundation, with stone curbs, would cost about \$6.60 per lineal foot, or an assessment to property owners on each side of the street of \$3.30 per foot frontage.

A brick pavement on gravel foundation, with wood curbing, would cost about \$4 per lineal foot, or an assessment of \$2 per foot frontage.

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Prices of Building Materials.

CONDITION OF THE MARKET.

TORONTO: In most lines of builders' supplies a little more activity is apparent than existed a week ago, probably as the result of the approach of the winter season, when buildings are nearing completion. Plumbers' supplies have improved, some houses being quite busy. The heavy metal trades are quiet. Hamilton pig iron is being sold at \$16.50 for No. 1 in 100-ton lots, while the Southern furnace people have withdrawn their quotations from the Toronto market. Iron pipe and lead pipe and traps are in some request.

MONTREAL: A feature of the market has been the lower quotations for Hamilton pig iron, which has been offered at \$17.75 per ton. Some Nova Scotia brands have been placed at \$16.50. It is stated that the United States manufacturers of wrought iron and steel pipe are about to form an organization, embracing the most extensive plants in America. A better feeling is reported in paints and oils, and prices remain firm. In cement a decided improvement has taken place, some large contracts having been made for public works, amounting to 50,000 or 60,000 barrels, and three other sales are reported of 4,000 barrels. Stocks are light, and all the cement coming forward is sold, consequently higher values are looked for in the near future.

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Toronto. Montreal.

Table listing lumber prices for various types of wood, including clear picks, three uppers, pickings, and different grades of siding and shingles.

VALID QUOTATIONS.

Table listing valid quotations for mill cull boards, shipping cull boards, hemlock scantling and joist, and various sizes of cedar.

Table listing prices for flooring, dressing, and various types of sawn lumber, including red oak, white, basswood, and cherry.

Toronto. Montreal.

BRICK—M

Table listing brick prices for common walling, wood facing, sewer, and various types of red and buff bricks.

Per Load of 1 1/2 Cubic Yards.

SAND.

STONE.

Table listing prices for common rubble, large flat rubble, foundation blocks, Kent Freestone Quarries, and various types of granite and ashlar.

OHIO FREESTONE, FROM THE GRAFTON STONE CO.'S QUARRIES.

Table listing prices for Ohio freestone in various sizes and types, including buff promiscuous, blue promiscuous, and sawed ashlar.

SLATE.

Table listing prices for roofing slate in various colors and types, including red, purple, and unflaking green.

PAINTS. (In oil, @ lb.)

Table listing prices for various types of paint, including white lead, zinc, red lead, and yellow ochre.

CEMENT, LIME, etc.

Table listing prices for Portland cements from different manufacturers, including German and London brands.

Toronto. Montreal.

Table listing prices for various types of Portland cements, including Newcastle, Belgian, English, and Canadian brands.

Hydraulic Cements.

Table listing prices for hydraulic cements from different regions, including Thorold, Napanee, Hill, and Ontario.

Keene's Coarse "Whites"

Table listing prices for Keene's coarse whites and fire bricks.

Lime, Per Barrel, Grey.

Plaster, Calcined, N. S.

Hard Plasterers', per bag.

Cut nails, 5c & 6c, per keg.

Steel " " " "

CUT NAILS, FENCE AND CUT SPIKES.

Table listing prices for cut nails and cut spikes in various sizes and quantities.

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CASING AND BOX, FLOORING, SHOOK AND TOBACCO BOX NAILS.

Table listing prices for casing and box nails, flooring nails, and shook and tobacco box nails.

FINISHING NAILS.

Table listing prices for finishing nails in various sizes and quantities.

SLATING NAILS.

Table listing prices for slating nails in various sizes and quantities.

COMMON BARREL NAILS.

Table listing prices for common barrel nails in various sizes and quantities.

CLINCH NAILS.

Table listing prices for clinch nails in various sizes and quantities.

SHARP AND FLAT PRESSED NAILS.

Table listing prices for sharp and flat pressed nails in various sizes and quantities.

STEEL WIRE NAILS.

Table listing prices for steel wire nails, including a discount from the print ad list.

Iron Pipe:

Table listing prices for iron pipe in various sizes and quantities.

Lead Pipe:

Table listing prices for lead pipe and waste pipe.

Galvanized Iron:

Table listing prices for galvanized iron, including Adam's-Mar's Best and Queen's Head.

Structural Iron:

Table listing prices for structural iron, including steel beams, channels, angles, tees, plates, and sheared steel bridge plate.

(Corrected up to October 7th)