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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL

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 THROUGHOUT CANADA.

Vol. 4.

NOVEMBER 16, 1893

No. 39

THE CANADIAN CONTRACT RECORD,
PUBLISHED EVERY THURSDAY
As an Intermediate Edition of the "Canadian Architect and Builder."

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CONFEDERATION LIFE BUILDING, TORONTO.
Telephone 2362.
64 Temple Building - Montreal.
Bell Telephone 2399.

Information solicited from any part of the Dominion regarding contracts open to tender.

ADVERTISING RATES ON APPLICATION.

At its Convention held in Toronto, Nov. 30 and 31, 1890, the Ontario Association of Architects signified its approval of the CANADIAN CONTRACT RECORD, and pledged its members to use this journal as their medium of communication with contractors with respect to advertisements for tenders.

The following resolution was unanimously adopted at the First Annual Meeting of the Province of Quebec Association of Architects, held in Montreal, Oct. 10th and 11th, 1890: "Moved by M. Ferrault, seconded by A. P. Dunlop, that the Architects of the Province of Quebec now assembled in Convention being satisfied that the CANADIAN CONTRACT RECORD affords us a direct communication with the Contractors, resolved, that we pledge our support to it by using its columns when calling for Tenders."

Subscribers who may change their address should give prompt notice of same. In doing so, give both old and new address. Notify the publisher of any irregularity in delivery of paper.

TO CONTRACTORS

Sealed Tenders, endorsed "New Parliament Buildings, Victoria, Contract No. 2," will be received by the Honourable Chief Commissioner of Lands and Works up to one o'clock p.m. of Thursday, 30th November, 1893, for the several trades required in the erection of New Parliament Buildings at James Bay, Victoria, B.C., viz.:-

1. The excavator, mason and bricklayer's work.
2. The carpenter and joiner's work.
3. The slater's and plasterer's work.
4. The coppersmith's work.
5. The smith and ironfounder's work.
6. The plumber's work.
7. The painter's work.

Tenders will be received for any one trade or for the whole work.

The plans, details, &c., as prepared by F. M. Rattenbury, Architect, can be seen at the office of the undersigned on or after Monday, October 16th, 1893, and complete quantities clearly describing the whole of the work can be obtained on payment of \$20 for each trade. This sum will be returned to the contractors on receipt of a bona fide tender.

Each tender must be accompanied by an accepted bank cheque equal to two per cent on the amount of each trade tendered for, which will be retained as part security for the due performance of the work. The cheque will be returned to unsuccessful competitors, but will be forfeited by any bidder who may decline to execute a contract if called upon to do so.

The lowest or any tender not necessarily accepted.

W. S. GORE,
Deputy Commissioner of Lands & Works,
Lands and Works Department,
Victoria, B. C., September 28th, 1893.

PRACTICAL man wanted to invest \$5,000 and have oversight of factory employing 30 men; preference to one favorably known to the architects and capable of taking off quantities, drawing details, etc. State experience; communications confidential. Address "F," office of CANADIAN CONTRACT RECORD.

TENDERS

FOR AN

ARC ELECTRIC LIGHT PLANT

Sealed tenders will be received at my office up to 6 o'clock on THURSDAY, NOVEMBER 30th, for an ARC ELECTRIC LIGHT PLANT for the City of London, Canada, including boilers, engines, etc.

Plans and specifications may be seen at this office.

A. ORMSBY GRAYDON,
ALD. F. J. FITZGERALD, City Engineer.
Chairman No. 3 Committee.

Notice to Contractors

CANADIAN CONTRACTORS' HAND-BOOK

A new and thoroughly revised edition of the *Canadian Contractors' Hand-Book*, consisting of 150 pages of the most carefully selected material, is now ready, and will be sent post-paid to any address in Canada on receipt of price. This book should be in the hands of every architect, builder and contractor who desires to have readily accessible and properly authenticated information on a wide variety of subjects adapted to his daily requirements.

Price, \$1.50; 10 subscribers of the CANADIAN ARCHITECT AND BUILDER, \$1.00. Address

C. H. MORTIMER, Publisher,
Confederation Life Building, TORONTO
Montreal Office:
64 Temple Building.

CONTRACTS OPEN.

MCGREGOR, MAN.—A new Episcopal church will shortly be built here.

HALIFAX, N. S.—The Orange order has decided to erect a new hall in this city.

BRANTFORD, ONT.—It is rumored that a concert hall will shortly be erected here.

MORDEN, MAN.—The C. P. R. will probably erect a new station here in the spring.

SEKIRIK, MAN.—Mr. H. B. Mitchell proposes building a large saw mill here next spring.

CHARLOTTETOWN, P. E. I.—A movement has been commenced to secure an improved system of sewerage.

BROCKVILLE, ONT.—Plans have been prepared for alterations to two houses on King street east, for Mr. John M. Gill.

PETERBORO, ONT.—The Light and Power Company have decided to purchase a steam plant. The engine will be 150 horse power.

ST. BONIFACE, MAN.—The town authorities are inviting plans for a bridge to be constructed across the Assiniboine river at this place.

ARNPRIOR, ONT.—G. A. Allan, architect, of Brockville, is preparing plans for a new brick Methodist church to be erected here next spring.

WOODSTOCK, ONT. Mrs. Warwick has donated a site at the corner of Riddle and Brant streets on which to erect the proposed hospital building.

CHATHAM, ONT.—R. G. Fleming, Town Treasurer, will receive proposals until Monday, the 27th inst., for the purchase of \$27,000 worth of debentures.

VANCOUVER, B. C.—Application will be made next session of Parliament for an Act of incorporation to build a canal from Burrard Inlet, near Port Moody, to Pitt River.

ALEXANDRIA, ONT.—A by-law has been carried by the ratepayers in this vicinity to issue debentures to cover the cost of erecting a new High School building in this village.

LONDON, ONT.—Mr. Thomas Hamlyn has taken out a permit for a two-story brick residence at 421 Hill street, to cost, \$2,000.—Mr. W. Culbert, 144 Clarence street, will erect a brick cottage, to cost \$2,000.

WINCHESTER, ONT.—The Presbyterian congregation have decided to erect a new church. A committee composed of Geo. Irving, J. P. Fox, Alex. Cameron and John Rowat has been appointed to secure plans.

SOREL, QUE.—The directors of the Richelieu and Ontario Navigation Company have decided to rebuild their workshop here, the municipality having granted them a site at the junction of the Richelieu and St. Lawrence rivers.

MONCTON, N. B.—The Intercolonial Railway are asking for tenders for the supply of 285,000 sleepers, 50,000 fence posts, timber and lumber for use during the year 1894. Particulars can be obtained at head office in this town.

SMITH'S FALLS, ONT.—The Public School Board have accepted the plans of Mr. J. A. Ellis, architect, of Toronto Junction, for a four room school. Tenders for the erection of the same will be called for shortly through the CONTRACT RECORD. The estimated cost, exclusive of heating, for which the contract has been awarded, is \$7,500.

NIAGARA FALLS, ONT.—At the annual meeting of the directors of the Grand Trunk Railway Company held in London recently, the construction of a new bridge across the gorge here was decided upon. It will be a steel arch bridge, 600 feet long and will cost in the neighborhood of \$200,000.—The Niagara Falls Park and River Railway Co. are about to commence the erection of a machine shop 30x80 feet, and a storage building, 70x160 feet.

WINNIPEG, MAN.—Mr. G. H. West, Chairman Committee on Works, will receive tenders until Thursday, the 23rd inst., for the supply of 1,500 cords cedar paving wood.—The congregation of St. Andrew's church contemplates the erection next spring of a new church on the corner of Egin avenue and Ellen street.—At a recent meeting of the Board of Works of the City Council, the question of constructing bridges over the Assiniboine river was discussed. It was decided to request the City Engineer to report on the cost of constructing a bridge at Main street, and as the work must be completed by the 1st of April, 1894, immediate action will likely take place.

VICTORIA, B. C.—The managers of the Bank of Montreal are contemplating the erection of a new stone building here. The Esquimalt Marine Railway Company, with W. F. Bullen as managing director, have begun construction in Esquimalt harbor of a marine railway for docking and repairing vessels. Shops for repairing machinery and wood work will be erected, the whole to cost \$60,000. The plant will be in readiness for operation in February.—Messrs. Pemberton and Pearse, Civil Engineers, have investigated generally the drainage system and sanitation of the Town. They urge the employment of a thoroughly competent outside engineer to report on the best method of establishing a complete sewerage system for the city.

MONTREAL, QUE.—It has been decided to erect a monument in Viger Gardens in memory of Dr. Chemir, costing probably \$5,000. A committee has been appointed, W. A. Voyer, secretary, to make arrangements.—Messrs. John McDougall & Co., engine manufacturers, have in contemplation extensive additions and improvements, to their foundry on Wilcox street. Plans have been prepared for a pattern house 150 feet long by 50 feet wide and three stories high.—The Council of Ste Cunegonde has passed a resolution asking the City Council of Montreal to co-operate in the construction of a bridge over the Lachine canal at Atwater ave.—Plans are now in course of preparation for Messrs. Ogilvy & Son's new store to be erected at the corner of Mountain and St. Antoine sts.—Plans are being prepared and will be completed in about a month for an annex to the medical faculty building of McGill University. It is not likely that work will commence before next spring.—The Canada Life Assurance Company will commence the construction of its new building at the corner of St. James and St. Peter streets next spring.

HAMILTON, ONT.—The Hamilton Iron and Steel Company has been incorporated with a capital stock of \$1,000,000. The company is composed chiefly of New York capitalists, Messrs. J. H. Tilden and John Milne, of Hamilton, and Robert Jaffray, of Toronto, being the only Canadian members. Some of the objects of the company will be to erect and operate works, mills, factories, warehouses and other buildings, to construct and operate tramways, to build, or lease steam and other vessels, boats, piers, and wharves, telegraph and telephone lines, aqueducts, dams, water-power, roads and other works in connection with the works of the company.—Building permits have been granted as follows: Wm. Richard, building on Hughson street, between Murray and Barton streets, cost \$25,000; Frank Slater, two-story brick dwelling on Blythe street, between Stunton and Alanson street, cost \$1,400; Hiram Barker, block of houses at the corner of Park and Cannon streets, cost \$2800. At the last meeting of the City Council a resolution was passed urging the Government to construct a draw-bridge over Burlington canal.

TORONTO, ONT.—Mr. R. Harper, architect, has been commissioned by the Glover Harrison estate to remodel their building on King street east.—Mr. Thompson, of the Army and Navy clothing store, King street east, is talking of

making improvements to the building. — The building No. 31 King street west, is to be remodelled. It is rumored that it is the intention of the owners to turn it into an hotel. — The City Engineer has been requested by the Property Committee to prepare plans and specifications for the improvements to the Yonge street wharf. — A meeting of the Sheppard Company will be held in the company's offices on the 21st inst., when the purchase of a site and the erection of a suitable building thereon will be discussed. — A water main is to be laid on Blair avenue, cost \$475. — The fittings are to be placed in the new Isolation Hospital at once. The cost will be in the neighborhood of \$6,000. — At the regular meeting of the Board of Works on Monday last, the recommendation of the City Engineer for the extension of the Yonge street sewers was adopted, and the work ordered to be done at once. — At a meeting held last week of the directors of the National Club, which has purchased the leasehold of the old United Empire Club's building on King street, it was decided to submit a suggestion to the members to expend the sum of \$33,000 in making improvements and alterations to the building. Should the suggestion meet with approval, Messrs. Strickland & Symons, will in all probability be entrusted with the supervision of the work. — Building permits have been granted as follows: J. M. Dickson, pr. b. f. dwellings, 42 McGee st., cost \$2,200; W. H. Cornack, 15 Russell st., det. 2 story and attic blk. and stone dwelling, e side Madison ave., n of Lowther ave., cost \$7,000. J. H. Farr & Co., 1 story blk. factory w. side Moose st., cost \$1,200.

FIRES.

The Mission City hotel Mission City, B. C., was completely destroyed by fire on the 10th inst. — Mr. F. G. McMullen's large steam saw mill at Ryan's Creek, N. S., four miles from Shubenacadie, was burned to the ground on Friday of last week. Loss, \$3,000. — G. W. Ayer & Co.'s shingle mill and a grist mill occupied by Manson & Boright at Magog, Que., were burned on the 28th inst. Loss, \$6,000. — The Roman Catholic Glebe House at Church Point, N. B., was burned last week. Loss, partially covered by insurance. — J. L. Lyon's store and dwelling at Tusket, N. S., was totally consumed by fire on the 8th inst. Insurance, \$3,800. — The Thomas McDonald Manufacturing Company's works on Inspector st, Montreal, were damaged by fire recently to the extent of \$40,000. Loss, \$27,000. — I. G. Findlay's mill at Wallaceburg, Ont., was burned on the 6th inst. Loss, \$2,000. — Buildings owned by Levi Bros., C. Bouthillette, and A. P. Ferguson, at Mattawa, Ont., were destroyed by fire on Thursday of last week. — The residence of Mr. Evans Ingram at Otonabee, Ont., has been destroyed by fire. — Mr. Donald Brown's dwelling at St. Lambert, Que., was burned to the ground on the 13th inst. Loss, \$2,500; insurance, \$1,400. — J. S. Henderson's factory at Parrsboro', N. S., was burned on Sunday last. — Edmond Teclerc's door and window sash factory at L'Islet, Que., was burned recently. Loss, \$5,000. — A disastrous fire occurred at Regina, N. W. T., on the 14th inst. The following are the names of owners of the buildings destroyed: Mowat Bros., John Dawson, Mr. McCarthy, Mr. Curtis, Hugh Armour, George Webb, Mr. Lunan and Charles Howson.

CONTRACTS AWARDED.

TORONTO, ONT. — The Metallic Roofing Co. are manufacturing 200,000 square feet of galvanized corrugated iron for covering the train sheds of the new Union Station in this city.

MONTREAL, QUE. — The municipality of St. Cuthbert have awarded the contract to Messrs. Bastien & Valiquette for constructing pavements next year on St. Antoine, Notre Dame, Duerney, William and Levis streets.

The Ronald Fire Appliance Works, have sold to the town of Regina, N. W. T., the World's Fair engine and a house heater for the same. The same firm have also contracted for a complete outfit for Edmonton, N. W. T., and have been given an order for a 50 gallon chemical engine for Springfield, N. S.

Mr. Emile Dubé, of River du Loup, Que., has purchased the lumber business carried on by the Estate of the late Mr. F. C. Dubé. He will continue alone in business as lumber merchant and contractor.

TEST LOADS ON PILES.

A report has appeared giving details of tests which were applied a few months ago to piles by Mr. Weydert, the superintendent of buildings, Chicago. The public library was to be built on piles driven into the clay, and it was assumed that they would be able to carry a load of 30 tons on each. Mr. Weydert ordered that a platform 7 feet by 7 feet, consisting of 12 inches by 12 inches yellow pine timbers resting on steel I-beam 16 inches deep should be placed on four piles, and on this platform pig-iron was piled to a height of 38 feet. This test was commenced in the morning, January 6th, a week after the piles to be tested had been driven. The surveyors marked points on top of the piles and took levels on them after the pig-iron had been piled to a height of 4 feet, and the load was about 45,200 lbs. The piling up of the pig-iron continued irregularly, owing to the severe weather, until January 10, when it had attained a height of 21 feet, and a weight of 224,500 lb. Levels were taken, but no settlement was discoverable. On January 16 at 2 P.M. all the pig iron had been piled on; it had then reached the height of 38 feet and the load on the four piles was about 504,800 lb. or about 50.7 tons per pile. On January 18 levels were taken and no settlement was discovered. The levels were repeated on January 20th, after the above load had remained for three days; also on January 28, after the load had remained for eleven days, in both cases no settlement being observable. Further tests, not being deemed necessary, and the tests hindering the progress of the work, orders were given on January 29 to proceed with the removal of the pig-iron. The four piles, therefore, sustained a load of a little over 50 net tons each for practically a fortnight, without giving any indication of settlement.

The piles were driven by a steam-hammer of the Nasmyth type; weight 4,500 lb.; fall 42 inches, making 54 blows per minute. The last 20 feet were driven with a follower of oak. It was found that it required 48 to 64 blows to drive the last foot with the follower, and as the ratio of blows without follower to blows with follower is as one to two, it may be estimated that it would have required from twenty-four to thirty-two blows of the hammer to drive the last foot directly without follower. In the same soil it required about sixteen blows of a drop-hammer weighing 3,000 lb. and falling 30 feet to drive the last foot with a follower as above, and thirty-two to thirty-six blows of the same drop-hammer falling 15 feet with a follower.

The piles were driven 2½ feet between centres, nearly, three in a row along the trench. This is deemed to be as close as they can be driven with ease. They were about 54 feet long, and were driven about 52½ feet. They had an average diameter of 13 inches, circumference of 41 inches, and an area at tip of 80 square inches. If a pile similar to the test piles is left for 24 hours, it is found that it requires 300 to 600 blows of the above described hammer to drive it the last foot, or a repetition of 300 to 600 blows of 189,000 inch pounds each. The heads of the piles, after being sawed off, were 27 feet below the street, and the tips about 80 feet below the same. They were driven about 27 feet in soft plastic clay, 23 feet in tough, compact clay, and two feet in hard pan. The bearing power of this hard pan may be estimated by Rankine's formulas at 170 lb. per square inch, and by empirical results at 250 lb. per square inch; in this case it may be a fair assumption that it would carry 200 lb. per square inch. The extreme average frictional resistance per square inch of sides of piles like those described, as deduced from experiments made under analogous conditions, may be placed at 15 lb. per square inch.

The average area of the tip of the above piles is 80 square inches. Therefore their extreme point of resistance will be 16,000 lb. The surface of their sides is about 25,000 square inches, so that

their total extreme frictional resistance will amount to 376,000 lb. As the point resistance in comparison to the latter is but small, it may be neglected, and the ultimate bearing capacity of a pile similar to the test piles may be estimated at 375,000 lb., or about 180 tons. But inasmuch as the ultimate crushing strength of wet Norway pine may not be over 1,600 lb. per square inch, or using a factor of safety of 3,533 lb. per square inch, and whereas the minimum area of piles specified to be not less than 8 inches at the top and 16 inches at the butt is about 113 square inches, each pile should not carry more than 60,000 lb., or 30 tons. This provides a factor of safety of 2 for the crushing resistance of the timber, and a factor of safety of 6 for the frictional resistance of the soil. If the timber be loaded to one-half of its ultimate strength, a load of 90,000 lb., or 45 net tons may be assigned to one pile. But in the library building the conservative load of 30 tons per pile was adopted, which gives assurance that this building will not be likely to suffer from any want of strength in its foundations.

PILE DRIVING

A falling body cannot do more work when its progress is arrested than has been done on it in lifting it up to the height from which it has fallen. This is a fundamental and unalterable principle. Thus, for example, let us suppose that the ram of a pile driver weighs one ton, and that it falls four feet on to the head of a pile; then the work in the ram cannot be either more or less than that which is equivalent to four foot tons. Thus, the work in the ram at the moment it touched the head of the pile would be sufficient to raise the ram up again to the point from which it fell; or to raise a weight of four tons to a height of one foot; or to raise one pound through a height of 8,960 feet; or to raise 48 tons through a height of one inch. Now, it is clear that if the ram were employed to raise one ton through a height of four feet, it must exert a force of one ton through the distance of four feet. If it did not, it would not move one ton at all, for it would be overbalanced. If it were called upon to raise four tons through a height of one foot, then it must exert a push of four tons through a distance of one foot; if to lift a weight of 48 tons, then it must exert a push of 48 tons through a distance of one inch, and so on. Bearing this in mind, there will be no difficulty in understanding the following simple rule: The force of a blow is measured by dividing the whole distance passed through by the ram before impact by the distance passed through after impact, and multiplying the weight by the quotient. Thus, let the ram weigh one ton, let the fall be 48 inches, let the pile descend one inch at each blow, then the push or effort exerted by the ram on top of the pile will be

$$\frac{48}{1} = 48, \text{ and } 48 \times 1 = 48 \text{ tons.}$$

It must be understood that this is the mean or average force of the blow. Its initial effort may be much less, because at the instant of impact the ram is moving at its full velocity, while at the instant the pile ceases to descend it will have no motion at all, and consequently, will exert no push, except that due to its weight. Three factors are in all cases necessary, namely, the weight, the height of fall, and the distance through which the body receiving the blow moves. In practice it is by no means easy to ascertain the latter with precision; and the energy in the falling body can be expended in more ways than one. For example, when the head of the pile is struck, two effects take place simultaneously, the ram is shortened and so is the pile. The elastic rebound of each immediately takes place, and the ram jumps up from the top of the pile. Again, the top of the pile becomes highly heated. The elasticity of the pile plays an important part in influencing the rate of its descent. A ram weighing 100 pounds, falling a height of 50 feet, will have stored in it on impact 5,000 pounds, and

if the progress of the pile were one inch, its driving force would be 60,000 pounds. A ram weighing 1,000 pounds and falling 5 feet, would also have 5,000 foot-pounds of work in it, and would exert a driving force of 60,000 pounds over a space of one inch; but it does not follow that the former would be equally effective in driving the pile. On the contrary, the lighter ram striking the pile with a higher velocity might be much the less efficient of the two because the force of the blow would not be transmitted through the pile, but would be expended in compressing the top of it.

When a pile is struck on the top, what is known as a wave of compression passes through it; and this wave requires time for its passage. Such a wave is set up in all columns when stress is suddenly brought on one end. The effect of a heavy ram falling a short distance on a pile head resembles a push, in a sense, and gives time for the transmission of the effort throughout the whole pile, but when a light ram falls the effect may be confined to the top of the pile, which is shattered.

The velocity with which a ram strikes a pile head is calculated by extracting the square root of the height of the fall in feet and multiplying it by eight. Thus, let the ram fall four feet; the velocity will be 16 feet per second. If the ram falls 50 feet it would strike the pile with a velocity of 56 feet per second. If the speed was greater than that at which the wave of transmission could pass through the pile, then little or no effect would be produced in the way of causing its descent; as nearly the whole of the work would be done in compressing the top of the pile, or in shattering it, and the driving effect would be nothing. The effect of the element of time is not sufficiently well understood. About the only thing fully understood or accepted is that a heavy ram falling from a moderate height is, other things being equal, much more efficient than a light ram falling from a great height.

MUNICIPAL DEPARTMENT.

LEGAL DECISIONS AFFECTING MUNICIPALITIES.

In the case of J. A. Cherrier vs. the Township of Ascott, the plaintiff sued for \$15,000 damages, on behalf of the minor child of Joseph A. Perreau and his wife, caused by drowning of the child's father and mother, while attempting to drive over that part of the travelled road leading from Capleton to Lennoxville on the 26th day of June 1892. The Coaticook river had overflowed the road. The municipality pleaded negligence on the part of Perreau, which Judge Brooks admitted in so far as to give only \$500 to plaintiff.

A decision of much interest to municipalities was rendered recently by Mr. Justice Rose at Osgoode Hall in an action brought by the city of Toronto against Mr. Daniel Larsch for obstructing the highway. The obstruction complained of consists in the encroachment upon the sidewalk by the old MacDonald estate on Queen street west, near Gladstone avenue. It was contended on behalf of the defendant that no action could be brought except by the authority of the Attorney-General of Ontario, because all highways were vested in the crown. The court decided that the municipal corporation could protect itself without the leave of any other party.

Sewers and water conduits are being built at Grand Rapids, Mich., under the direction of City Engineer, N. A. Collar in rather an interesting manner, says the *Engineering Record*. The work lies along the bank of the Grand River, and its object is to intercept a quantity of sewage now discharged above the intake of the waterworks and convey it to a point farther down the stream where it will be away from the point of water supply. In the rocky bed of the river a conduit of about 25 square feet area is being excavated from the intake crib in the middle

MUNICIPAL ENGINEERS, CONTRACTORS, AND MATERIALS.

of the river to a subsiding basin on the shore. This conduit is 6 feet wide and 5 feet high with an arched top turned to a radius of 5 feet. Above the arch, which, like the sides, is of stone masonry, the top of the trench is levelled off with concrete. Running down stream on the bank is the culvert which intercepts the sewage and polluted brook water formerly discharged above the intake. This culvert is 10 feet wide and 9 feet high, having a brick arch rounded to a radius of 5 feet and a concrete invert plastered with an inch of mortar. This culvert runs directly over the concreted top of the conduit from the intake and discharges its contents into the rapidly flowing stream below the intake.

DEBENTURES WANTED.

Municipalities issuing debentures, no matter for what purpose, will find a ready purchaser by applying to **G. A. STIMSON, 9 Toronto Street, Toronto.** N.B.—Money to loan at lowest rates on first mortgage.

Established 1841.

THOROLD CEMENT

MANUFACTURED BY
ESTATE OF JOHN BATTLE,
Thorold, Ontario.

GRAND TRUNK RAILWAY CO. OF CANADA.
CHIEF ENGINEER'S OFFICE,
HAMILTON, ONT., Oct. 17, 1893.

REPRESENTATIVES OF THE
ESTATE OF JOHN BATTLE,
THOROLD, ONT.

Gentlemen: In reply to yours of September 10th last as to the cement manufactured at the John Battle Works, Thorold, Ontario, we have been using it on this Division of the Grand Trunk Railway for many years, and have found it to be of good quality.

Yours truly,
JOSEPH HOBSON,
Chief Engineer.

WILLIS CHIPMAN, B.A.Sc.,

M. Can. Soc. C.E.; M. Am. Soc. C.E.;
M. Am. W. W. Ass'n.

CIVIL AND SANITARY ENGINEER

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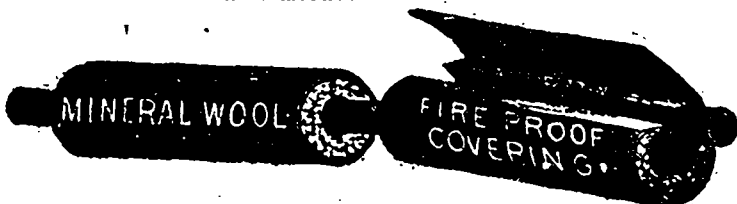
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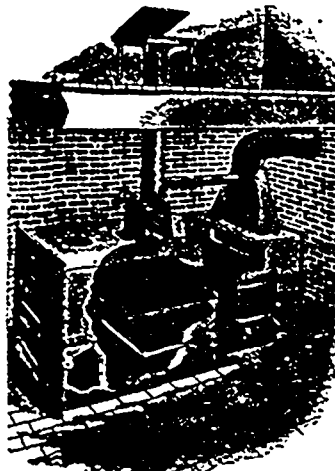
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Manufactured and erected in sizes suitable to any number of persons, by

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Specialties: Good workmanship and strict adherence
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Proved by Government tests to be the best Cana-
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OUR SALES OF
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for the past 8 months have been
25,499 CASKS.
"Burham" Brand outranks all others.
Try it and be convinced.
Sole Consignees for Canada:
MCRAE & CO., OTTAWA

Prices of Building Materials.

CONDITION OF THE MARKET.
The condition of the market remains un-
changed. Window glass is in good demand.
Hardware and paints and oils are somewhat
quieter than last week. Portland cement is in
fair demand, and stocks on spot are light for
this season of the year. There are three or four
steamers yet to arrive in Montreal with round
lots, and there will probably be an average quan-
tity of stock to be carried over for the spring trade.

LUMBER.
CAR OR CARGO LOTS.

	Toronto.	Montreal.
1 1/2 to 2 clear picks, Am ins.	33 00	36 00
1 1/2 to 2 three uppers, Am ins.	37 00	40 00
1 1/2 to 2, pickings, Am ins.	26 00	27 00
3 inch clear	52 50	60 00
1 x 10 and 12 dressing and better	20 00	22 00
1 x 10 and 12 mill run	16 00	17 00
1 x 10 and 12 dressing	20 00	22 00
1 x 10 and 12 common	13 00	14 00
1 x 10 and 12 spruce culls	10 00	11 00
1 x 10 and 12 culls	9 00	10 00
1 inch clear and picks	28 00	33 00
1 inch dressing and better	20 00	22 00
1 inch siding, mill run	14 00	15 00
1 inch siding, common	12 00	13 00
1 inch siding, ship culls	11 00	12 00
1 inch siding, mill culls	9 00	10 00
Call scantling	8 00	9 00
1/2 and thicker cutting up plank	24 00	26 00
1 inch strips, 4 in. to 8 in. mill run	14 00	15 00
1 inch strips, common	11 00	12 00
1/2 inch flooring	16 00	17 00
1/2 inch flooring	16 00	17 00
XXX shingles, sawn, per M	2 50	3 00
XX shingles, sawn	1 50	1 60
Lath	3 40	4 00
YARD QUOTATIONS.		
Mill cull boards and scantling	10 00	10 00
Shipping cull boards, prom- iscuous widths	13 00	13 00
Shipping cull boards, stocks	16 00	16 00
Hemlock scantling and joint up to 16 ft.	11 00	12 00
Hemlock scantling and joint up to 18 ft.	12 00	13 00
Hemlock scantling and joint up to 20 ft.	13 00	14 00
Scantling and joint, up to 16 ft	14 00	14 00
" " " " 18 ft	15 00	15 00
" " " " 20 ft	16 00	16 00
" " " " 22 ft	17 00	17 00
" " " " 24 ft	18 00	18 00
" " " " 26 ft	19 00	19 00
" " " " 28 ft	20 00	20 00
" " " " 30 ft	21 00	21 00
" " " " 32 ft	22 00	22 00
" " " " 34 ft	23 00	23 00
" " " " 36 ft	24 00	24 00
" " " " 38 ft	25 00	25 00
" " " " 40 ft	26 00	26 00

	Toronto.	Montreal.
Cutting up planks, 1 1/2 and thicker, dry	25 00	28 00
Cutting up planks, 1 1/2 and thicker, board	18 00	24 00
Cedar for block paving, per cord	5 00	5 00
Cedar for Kerbing, 4 x 14, per M	14 00	14 00
1 1/2 in. flooring, dressed, F.M.	26 00	30 00
1 1/2 inch flooring, rough, F.M.	18 00	22 00
1 1/2 " " dressed, F.M.	25 00	27 00
1 1/2 " " undressed, F.M.	18 00	19 00
1 1/2 " " dressed, I.M.	10 00	12 00
1 1/2 " " undressed, I.M.	12 00	15 00
Beaded sheeting, dressed	20 00	22 00
Clapboarding, dressed	20 00	22 00
XXX sawn shingles, per M	2 60	3 00
18 in.	2 50	2 60
Sawn lath	3 00	3 00
Cedar	4 00	4 00
Red oak	30 00	40 00
White	37 00	45 00
Basswood, No. 1 and 2	28 00	30 00
Cherry, No. 1 and 2	70 00	80 00
White ash, No. 1 and 2	74 00	80 00
Black ash, No. 1 and 2	20 00	20 00
Dressing stocks	16 00	16 00
Picks, American inspection	30 00	40 00
Three uppers, Am. inspection	50 00	50 00
BRICK—M		
Common Walling	7 50	6 00
Good Facing	9 00	8 50
Sewer	8 50	9 00
Pressed Brick, Per M:		
Plain brick, f. o. b. at Milton	16 00	14 00
" " and quality	14 00	8 00
" " 3rd	8 00	4 50
Hard Building	16 00	10 00
Moulded and Ornamental, per 100	30 00	24 00
Roof Tiles	24 00	16 00
Diamond locking tile	16 00	
First quality, f. o. b. at Camp- bellville		
and quality, f. o. b.	18 00	15 00
3rd	14 00	12 00
Ornamental, per 100	3 00	3 00
Tiles	24 00	26 00
Plain brick, "A" f. o. b. Don Valley	18 00	25 00
" " " " " " "	16 00	22 00
" " " " " " "	13 00	18 00
Trojan or Buff	24 00	30 00
Ornamental, per 100	3 00	3 00
Plain brick, f. o. b. Port Credit	18 00	13 00
" " and quality	13 00	10 00
" " 3rd	10 00	8 00
Hard Building	8 00	10 00
Ornamental, per 100	3 00	3 00
SAND.		
Per Load of 1 1/2 Cubic Yards	1 25	1 25
STONE.		
Common Rubble, per toise, delivered	14 00	14 00
Large flat Rubble, per toise, delivered	18 00	18 00
Foundation Blocks, per c. ft.	50	50
Kent Freestone Quarries Moncton, N. B., per cu ft., f. o. b.	1 00	
River John, N. S., brown Freestone, per cu. ft., f. o. b.	95	
Ballochmyle	80	90
New York Blue Stone	65	75
Granite (Stanstead) Ashlar, 6 in. to 12 in., rise 9 in., per ft.	1 05	
in. to 12 in., rise 9 in., per ft.	70	80
Moat Freestone	70	80
Thomson's Gatelawbridge, cu. ft.	75	80
Credit Valley Rubble, per toise, delivered	13 00	14 00
Credit Valley Brown Cours- ing, per superficial yard	2 50	3 00
Credit Valley Brown Dimen- sion, per cubic foot	90	90
Credit Valley Grey Coursing, per superficial yard	1 50	2 00
Credit Valley Grey Dimen- sion, per cubic foot	75	8
Madoc Rubble, delivered, per toise	14 00	14 50
Madoc dimension floating, f. o. b. Toronto, per cubic ft.	90	32
Ohio Freestone, No. 1 Blue Promiscuous, f. o. b.	60	
No. 1 Blue Dimension	65	
No. 1 Buff Promiscuous	80	
No. 1 Buff Dimension	85	
The above prices means freight and duty paid.		
2 in. sawed flagging per sq. ft.	11	
2 1/2 " " " "	13 1/2	
3 " " " "	16 1/2	
3 1/2 " " " "	19 1/2	
4 " " " "	22 1/2	
Duty to be added to these prices.		
Quebec and Vermont rough granite for building pur- poses, per c. ft. f. o. b. quarry	33	1 50
For ornamental work, cu. ft.	35	2 00
Granite paving blocks, 8 in. to 12 in. x 6 in. x 4 1/2 in., per M	50 00	
Granite curbing stone, 6 in. x 20 in., per lineal foot	70	
SLATE.		
Roofing (per square)		
" red	16 00	20 00
" purple	9 00	10 00
" unslating green	8 50	6 00
" black	8 00	7 50
Terra Cotta Tile, per sq.	22 00	
Ornamental Black Slate Roof- ing	8 00	
PAINTS. (In oil, per lb.)		
White lead, Can., per 100 lbs.	6 95	6 50
" zinc, Can., " "	6 50	7 50
Red lead, Eng.	5 1/2	6 1/2
" venetian, per 100 lbs.	1 60	1 75
" vermilion	1 90	1 90
" Indian, Eng.	1 30	1 20
Yellow ochre	5 30	4 6
Yellow chrome	15 30	15 30
Green, chrome	7 30	7 30
" Paris	15 40	20 30

	Toronto.	Montreal.
Black lamp	15	25
Blue, ultramarine	15	20
Oil, linseed, raw, 2 1/2 Imp. gal.	65	68
" " " " " "	68	71
" " " " " "	78	85
Putty	2 1/2	2 1/2
Whiting, dry, per 100 lbs.	75	1 00
Paris white, Eng., dry	90	1 25
Litharge, Am.	6 1/2	8
Sienna, burnt	15	20
Umber, " "	12	15
CEMENT, LIME, etc.		
Cement, Portland, per bbl.	2 50	
" English	2 75	2 10
" Belgium	3 25	1 95
" Thorold	1 50	
" Queenston	2 25	
" Napance	1 50	
" Hull	1 50	
" Geimar	2 65	2 85
" London	2 45	2 90
" Newcastle	2 35	2 50
" Belgian	2 30	2 40
" Canadian	2 25	2 30
" Roman	2 75	
" Poman	4 50	4 75
" Superfine	6 50	7 00
Keene's Coarse "Whites"	4 50	4 75
Calced plaster, per barrel	1 55	1 70
Fire Bricks, Newcastle, per M	16 50	21 00
Scotch	24 00	30 00
Lime, Per Barrel, Grey	40	
" White	55	
Plaster, Calced, N. B.	2 00	
" N. S.	2 00	
Hair, Plasterers', per bag	80	1 00
HARDWARE.		
Cut nails, 5-d & 6d, per keg	2 40	2 25
Steel " " "	2 50	2 35
CUT NAILS, FENCE AND CUT SPIKES.		
40d, hot cut, per 100 lbs.	5	5
30d, " " "	10	10
20d, 16d and 12d, hot cut, per 100 lbs.	15	15
rod, hot cut, per 100 lbs.	20	20
8d, 9d, " " "	25	25
6d, 7d, " " "	40	40
4d to 5d, " " "	60	60
3d, " " "	1 00	1 00
2d, " " "	1 50	1 50
4d to 5d cold cut, not polished or blued, per 100 lbs.	50	50

	Toronto.	Montreal.
3d to 5d cold cut, not polished or blued, per 100 lbs.	90	90
FINE BLUED NAILS.		
3d, per 100 lbs.	1 50	1 50
4d, " " "	2 00	2 00
CASING AND BOX, FLOORING, SMOOK AND TOBACCO BOX NAILS.		
12d to 30d, per 100 lbs.	50	50
10d, " " "	60	60
8d and 9d, " " "	75	75
6d and 7d, " " "	90	90
4d to 5d, " " "	1 10	1 10
3d, " " "	1 50	1 50
FINISHING NAILS.		
3/4 inch, per 100 lbs.	85	85
2 1/2 to 3 1/2 " " "	1 00	1 00
2 to 2 1/2 " " "	1 10	1 15
1 1/2 to 1 3/4 " " "	1 35	1 35
1 1/4 " " "	1 75	1 75
1 " " "	2 25	2 25
SLATING NAILS.		
5d, per 100 lbs.	85	85
4d, " " "	85	85
3d, " " "	1 25	1 25
2d, " " "	1 75	1 50
COMMON BARREL NAILS.		
1 inch, per 100 lbs.	1 50	1 50
3/4 " " "	1 75	1 75
3/8 " " "	2 25	2 25
CLINCH NAILS.		
1/2 and 3/4 inch, per 100 lbs.	85	85
2 and 2 1/2 " " "	1 15	1 15
1 1/2 and 1 3/4 " " "	1 35	1 35
1 1/4 " " "	2 00	2 00
1 " " "	2 50	2 50
SHARP AND FLAT PRESSED NAILS.		
3/4 inch, per 100 lbs.	1 35	1 35
2 and 2 1/2 " " "	1 50	1 50
2 and 1 1/2 " " "	1 65	1 65
1 1/2 and 1 1/4 " " "	1 85	1 85
1 1/4 " " "	2 50	2 50
1 " " "	3 00	3 00
Structural Iron:		
Steer. eams, per 100 lbs.	2 75	2 50
" channels, " "	2 85	2 60
" angles, " "	2 50	2 30
" tees, " "	2 80	2 65
" plates, " "	2 55	2 35
Sheared steel bridge plate	2 25	2 35

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