

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Covers damaged/
Couverture endommagée

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Cover title missing/
Le titre de couverture manque

Coloured maps/
Cartes géographiques en couleur

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Bound with other material/
Relié avec d'autres documents

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Coloured pages/
Pages de couleur

Pages damaged/
Pages endommagées

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Pages detached/
Pages détachées

Showthrough/
Transparence

Quality of print varies/
Qualité inégale de l'impression

Continuous pagination/
Pagination continue

Includes index(es)/
Comprend un (des) index

Title on header taken from: /
Le titre de l'en-tête provient:

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments: /
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL

PUBLIC WORKS • TENDERS •
ADVANCE INFORMATION •
AND MUNICIPAL PROGRESS

EVERY SATURDAY

Vol. 3.

Toronto and Montreal, Canada, February 27, 1892.

No. 3

THE CANADIAN CONTRACT RECORD,

A Weekly Journal of Public Works, Tenders, Advance Information and Municipal Progress.

PUBLISHED EVERY SATURDAY

As an Intermediate Edition of the "Canadian Architect and Builder."

Subscription price of "Canadian Architect and Builder" (including "Canadian Contract Record"), \$2 per annum, payable in advance.

G. H. MORTIMER, Publisher,

114 KING ST. WEST, TORONTO, CANADA.
Telephone 2362.

64 Temple Building, Montreal.
Bell Telephone 2349.

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. Perrault, seconded by A. F. Dumont, 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."

The publisher desires to ensure the regular and prompt delivery of this Journal to every subscriber, and requests that any cause of complaint in this particular be reported at once to the office of publication. Subscribers who may change their address should also give prompt notice of same, and in doing so, should give both old and new address.



NOTICE TO CONTRACTORS.

Tenders will be received by registered post, addressed to the City Engineer, Toronto, up to eleven o'clock a. m., on TUESDAY, MARCH 31st, 1892, for

A SAWING MACHINE.

Specifications and forms of tender obtained on and after Feb. 26th, 1892, at the office of the City Engineer.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 5 per cent. on the value of the work tendered for under \$1,000, and 2½ per cent. over that amount, must accompany each and every tender, otherwise it will not be entertained. All tenders must bear the bona fide signatures of the contractor and his sureties (see specifications), or they will be ruled out as informal.

The Committee do not bind themselves to accept the lowest or any tender.

JOHN SHAW

Chairman Committee on Works.

Committee Room, Toronto, Feb. 24, 1892.

TENDERS

Will be received until SATURDAY, MARCH 5TH, for the erection of a FACTORY ON TEMPERANCE STREET.

CHAS. J. GIBSON, Architect,
9½ Adelaide St. East, Toronto.

TO BUILDERS.

Tenders will be received by the undersigned till 5 p. m. on FRIDAY, MARCH 4TH, for the erection of several cottages on Toronto Island.

LANGLEY & BURKE, Architects,
Canada Life Building.

TENDERS WANTED.

Tenders will be received at the office of the undersigned until SATURDAY, MARCH 5TH, 1892, for all trades required in the erection of a brick and stone dwelling at Montreal Junction. The lowest or any tender will not necessarily be accepted.

JAMES AMESS, Architect.

TO CONTRACTORS.

Tenders will be received by the undersigned until THURSDAY NIGHT, MARCH 3RD, for the Mason, Brick, Carpenter and Joiner, Painting and Glazing, and Steel Beams and Cast Iron Column work required in the remodeling of shop front of building north-west corner of Yonge and Queen Sts., Toronto, for P. Jamieson, Esq.

Plans and specifications may be seen and all information obtained at the office of the architect,
GEO. W. GOUNLOCK, Architect,
53 King St. East.

The lowest or any tender not necessarily accepted.

TENDERS.

Sealed tenders will be received up to February 29, 1892, for the building of an

IRON OR STEEL BRIDGE

on boundary line between the Townships of Downie and Blanshard, in the County of Perth, same to be completed by August 1st, 1892.

Span 77 feet in the clear, 80 feet over all, square abutments, roadway 14 feet in the clear, timber for the floors and joists to be of best white oak.

Tenders will be opened in the Committee Room, Stratford Court House, March 1st, at 2 p. m. Bridge Committee do not bind themselves to accept the lowest or any tender.

Tenders to be addressed to

JOHN CORRIE,

Bridge Inspector, County of Perth,
Stratford, February 16, 1892.

It is a common error to "set and anchor" joists in a wall, so that when a building happens to burn, the joists fall, and pull a part or all of the walls down. Joists should be so set and fastened to the wall that if they burn out and fall, no damage is done to the brick work. There are so many simple ways of doing this, they will suggest themselves to the builder. In fact, there is very little added to the strength of brick work, by fastening wood work to it. If brick work be well done, on true principles, it needs no bracing up with anything, and nothing should be fastened to a brick wall that would endanger it in case of fire, or overloading the floors.

CONTRACTS OPEN.

NANAIMO, B.C.—An ice house is to be erected, at a cost of \$1,200.

SWAN LAKE, MAN.—A bridge will be built this spring across the Pembina river.

VIRKON, MAN.—Dennis St. Andrews' Society has decided to erect a large public hall.

PEMBROKE, ONT.—A hospital to cost \$16,000 will be erected by the Roman Catholics.

GLENCOE, ONT.—The McKellar House recently destroyed by fire will be rebuilt at once.

CHILLIWILACK, B.C.—Mrs. Knowell is going to erect a two-storey building on Westminster street.

PRESCOTT, ONT.—It is stated that the council will shortly call for tenders for the erection of a new high school building.

MELITA, MAN.—Plans are now being prepared for the proposed new grist mill to be erected by the Melita Milling Company.

FAKENHAM, ONT.—A new church will shortly be erected here. The sum of \$4,000 has been subscribed by five members towards its erection.

BURNSIDE, MAN.—The Burnside Farmers Elevator Company are looking for a suitable site for the erection of a 50,000 bushel grain elevator.

IWKED, ONT.—A by-law will shortly be submitted to the ratepayers to loan the sum of \$5,000 to Mr. G. Easterbrooke to enable him to rebuild his mill.

ST. CATHARINES, ONT.—Mr. S. G. Dolson, architect, has prepared plans for a suitable building for council meetings, to be erected at a cost of about \$4,000.

ST. BONIFACE, MAN.—At the last meeting of the town council a by-law to aid the building of a traffic bridge over the Red river was passed though its first reading.

FORT WILLIAM, ONT.—Tenders are now being called for the erection of three cottages for Mr. E. A. Morton. Building operations will be commenced in the spring.

WOODSTOCK, ONT.—The Court House Committee will shortly visit the cities of Stratford and Hamilton with a view of deciding on the furnishings necessary for the new building.

ST. THOMAS, ONT.—It is said that Mr. Amassa Wood intends erecting a handsome building for the Young Men's Christian Association, costing between \$10,000 and \$15,000.

WELLAND, ONT.—Mr. Nicholls architect, has completed plans for a new separate School building, to cost about \$5,000. Tenders will be called for early in March—Plans have been prepared for a two-storey brick building for Mr. McHattie.

CALGARY, N.W.T.—The town council has decided that unless private parties accept the bonus of \$3,000 offered for building a grist mill by the 1st of March, the corporation will proceed with the construction of a 150 barrel mill immediately thereafter.

ACTON, ONT.—Mr. Geo. Hynds, Chairman Public School Board, will receive tenders until the 10th March for the erection of a four-roomed brick school. Plans and specifications at Mr. Hynds' office.—Mr. H. P. Moore is preparing to erect a new publishing house.

OLD FORT ERIC, ONT.—Plans are being prepared by Mr. Swan, architect, of Buffalo, for a new hotel. When completed the hotel will contain 530 sleeping rooms. The first story will be built of rock faced Potsdam sandstone and the remainder will be frame and shingle.

KINGSTON, ONT.—Archbishop Cleary has subscribed the sum of \$3,000 towards the erection of a new church which is being talked of at Portsmouth. The building will be of cut stone and will cost in the neighborhood of \$10,000. The city council has decided to purchase 3,000 feet of hose.

VANCOUVER, B.C.—A seven mile telephone service is to be established by the Hudson Bay Company between Fort Simpson and Cochrane town.—It is reported that a rich English syndicate proposes buying out the Peters & Ward Company at Lillooet, B.C., and developing the same on a large scale. Washing will be done by hydraulic power, for which purpose a ditch is to be constructed three miles long, capable of carrying about 2,000 inches of water.

HAMILTON, ONT.—Plans are being prepared for the lower depot of the Inland Railway.—Mr. Wm. Stewart, architect, will receive tenders until Tuesday, the 1st day of March, for the erection of a brick residence on Main street east.—The City Engineer has decided that a new bottom will have to be put in the James street sewer south of Main street. A building permit has been granted to Wm. Smith for the erection of a two-storey brick dwelling on Melbourne street, between Locke and Garth streets, cost \$1,500.—Mr. G. R. Smith has received a communication from the National Conduit Manufacturing Company, of New York city, stating that the company would locate here and erect a factory in return for a bonus of \$4,000.

OTTAWA, ONT.—E. F. E. Roy, Secretary Department of Public Works, will receive tenders until Monday, the 21st of March, for the erection of an industrial school at Brandon, Man. Specifications may be seen at the Department of Public Works, this city, and at the office of W. R. Marshall, architect, Brandon, Man.—A deputation from Rat Portage, Man., recently interviewed the Minister of Public Works for the purpose of urging upon the Government the necessity of completing the improvements in the Rainy river at the Long Sault and Manitou rapids. The sum of \$20,000 will be required for the work.—A syndicate of leading citizens has decided to erect an opera house on Wellington St. at a cost of \$120,000, with a seating capacity for 1,600.

WINNIPEG, MAN.—The Northern Pacific Railway Company has decided to extend their line to Vancouver, B.C., and a corps of surveyors has been sent out to locate the line of the proposed railway.—The Building Committee of the Exhibition Association has decided to recommend the expenditure of \$12,000 for improvements, \$5,000 of which is to be expended in increasing the accommodation in the main building, and the remainder in improving the grounds and other buildings.—The promoters of the Manitoba and South-eastern railway are carrying on negotiations with a view of constructing the line as far as St. Anne's this year.—Plans prepared by Messrs. Langley & Burke, architects, of

Toronto, for a new church have been adopted by the congregation of the First Baptist Church.—Major Jones, United States army engineer, has made a survey of the Red river with a view of estimating the cost of improving the navigation. He reports that the entire cost would be \$860,000. He proposes to create two large reservoirs, which he will accomplish by means of canals and dams, thereby making the river navigable for 615 miles south of Lake Winnipeg.

TORONTO JUNCTION, ONT.—Mr. Smith, of this town, is about to erect a block of four stores in Toronto Junction.

OWEN SOUND, ONT.—A movement has been commenced by the Board of Trade to petition the Dominion Government to build a new post office here.

MONTREAL, QUE.—The Mainwaring syndicate are again petitioning the council for leave to construct an electric railway on Bleury street.—A movement has been started to petition the Council to extend Dominion Square from Osborne street to St. James street. The cost of this work is estimated at half a million dollars.—Mr. R. Bickudike has presented a petition to the council asking permission to construct an electric railway along St. James street to Cote St. Paul, and along Craig and Notre Dame streets to Harbor street and thence along St. Catherine street to the eastern limits of Maisonneuve.—The city council has decided to build a bridge across the gully on the mountain summit.—Mr. J. X. Perrault has petitioned the council for permission to construct a narrow gauge electric railway around the Mountain Park.—The City Surveyor has reported that he could not complete the Berri street tunnel plan until he knew whether the street was to be 50 or 60 feet wide. The former would cost about \$66,000 and the latter \$113,000. The Road Committee has decided to report to the council that the Committee had not sufficient funds for the sixty foot scheme.—Mr. C. C. Corneille will erect a residence on Upper Dorchester street.—A. Raza, architect, is preparing plans for five stores and tenements for Ald. A. Dubuc on Ontario and St. Constant streets.—The old Rasco Hotel on St. Paul street will be changed into stores and tenements.—C. St. John, architect, is preparing plans for a church at St. Casaire, P. Q.—Perrault & Mesnard, architects, are preparing plans for stores and dwellings on Notre Dame street east, for Dr. Thayer and Messrs. E. Belanger, Holpinc & Co. They are also preparing plans for a dwelling for Dr. Brossard.—J. B. Resther & Son, architects, have completed plans for the new church for the Fathers of the Holy Sacrament on Mount Royal avenue. A large monastery will also be erected on the same site later on.

TORONTO, ONT.—The Board of Works has approved of the recommendations of the City Engineer that a block pavement be constructed on Roxborough avenue, at a cost of \$7,700, and a sewer on Hazleton avenue, at a cost of \$1,150.—The Superintendent of Water Works recommends that the brick work and furnace at the main pumping station be repaired.—The Property Committee of the council has appropriated the sum of \$1,200 for the building of stables at Wilton avenue police station.—A deputation from Lindsay recently interviewed the Ontario Legislature, requesting a grant of \$2,000 for dredging the Scugog river at that town.—A new Sunday School building is to be erected in connection with the College Street Presbyterian Church.—Mr. J. S. Powley, of Harbord street, has under consideration the erection of a pair of semi-detached brick houses on his land in South Parkdale.—Building permits have been granted as follows: Scanlan & Normandy, two det. 2-storey and attic bk. dwellings, w. side Dunn ave., s. of Home for Incurables, cost \$9,000; Anderson & Sproule, pr. att. 2-storey and attic bk. dwellings, 98 and 100 Duke st., cost \$7,000; W. Wood, 113 College st., pr. s. d. 2-storey bk. dwellings, s. w. cor. Dufferin and College sts., cost \$3,000; J. Clark, 363 Delaware ave., pr. s. d. 2-storey and attic bk. dwellings, e. side Gore Vale ave., n. of College st., cost \$4,200; Rogers Bros., det. 3-storey bk. dwelling, 209 Simcoe st., and one ditto in rear facing Queen's Park, cost \$9,000; Chas. Parker, 17 Boswell ave., pr. s. d. 2-storey and attic bk. dwellings, 32 Elgin ave., cost \$4,600; Baptist Church, Walmer road, cost \$45,000; a rough cast Episcopal Church, cor. of Dupont and Christie sts., cost \$3,000; Lanskill

& Booth three 2-storey and attic bk. dwellings, Pine Hill road, running w. of Rosedale road, cost \$15,000; Robert Brown, eleven att. 3-storey bk. dwellings, John st., n. e. cor. Adelaide st., also three att. same kind, facing on Adelaide st., cost \$3,500.—M. Sheard, architect, Yonge street, wants tenders for the erection of house on Murray street.

FIRES.

Lea's wood-working factory at Moncton, N. B., was burned recently. Loss \$20,000.—The brick building owned and occupied by Charles Stickle and a frame building owned by L. B. Parker, at Stirling, Ont., were burned on the 18th inst. Insurance on Mr. Stickle's building, \$1,800.—The residence of Samuel Pagu, of Windsor, Ont., with all its contents, was consumed by fire on Monday inst. Loss \$5,000.

CONTRACTS AWARDED.

BRANDON, MAN.—Mr. H. J. Halpin has let the contract for a brick block to Messrs. Bel Bros.

PILOT BAY, B. C.—Hamilton Byers, manager of the Galena Trading Co., has let the contract for a two-storey building, 30 x 80 ft.

PRESCOTT, ONT.—Messrs. Ward & Steele have been awarded the contract for building a new Presbyterian church and manse.

VICTORIA, B. C.—McGregor & Jones have been awarded the contract for building the Victoria brewery, at the price of \$7,000.

LONDON, ONT.—The contract for seating the new Methodist church in East London has been given to Messrs. Pennington & Baker, of Hamilton, for \$9,631.18.

OTTAWA, ONT.—The Government has awarded the contract for building a new steel steamer to the Polson Iron Works Company, of Toronto. The contract price is said to be between \$40,000 and \$50,000.

MONTREAL, QUE.—Mr. W. Livermore, architect, has awarded contracts as follows for the erection of two stores and dwellings on Guy St. for Graham Bros.: Stonework, W. Oman; brickwork, T. W. Pest; carpenter work, Simpson & Peel; roofing, Montreal Roofing Co.; plastering, Thos. Phillips; painting, Jas. Kimber & Son; plumbing, John Date. The cost of the building will be \$20,000.—The Road Committee has finally awarded the contract for the Ontario St. subway to the Dominion Bridge Co.

HAMILTON, ONT.—The city council have accepted the tender of the Gutta Percha and Rubber Manufacturing Co., of Toronto, for the supply of 1,000 feet of two-ply Baker hose, with couplings complete, at 75 cents per foot.—The successful tenderers for remodelling the post office are John Clayton for painting and Donaldson & Patterson for carpentering.—The Water Works Committee of the city council have awarded contracts as follows for the annual supplies: Iron pipes, A. Gartshore; castings, S. J. Moore; stop valves, Wood, Vallance & Co.; stop cock boxes, Nic & Lynch; pig lead, Bowman & Moore; lead pipe, Wood, Vallance & Co.; brass castings, Hamilton Brass Company.

STAIR-TREADS OF LEAD AND STEEL.

Stairways are by no means so important a feature of public and business structures as in the days anterior to the introduction of elevators. But they still have their use, and are well worn, especially the two or three flights nearest the ground. An essential quality in a stair-tread is its durability; and this is said to be secured in a high degree in a tread of recent English invention, made of alternate strips of lead and steel. The lead which gives the foot a firm hold, is cast in grooves in a plate of steel, the latter being specially adapted to resist the wear of travel.

Mr. John Douglas, builder, of Toronto has made an assignment for the benefit of his creditors.

MUNICIPAL DEPARTMENT.

LEGAL DECISIONS AFFECTING MUNICIPALITIES.

MEANING OF "DEALERS."—The Supreme Court of Pennsylvania held, in the recent case of *The Commonwealth vs. Teller*, that the word "dealers" occurring in the 11th section of the act of April 22, 1846, relating to mercantile taxes, included only such persons as were engaged in the sale of goods, or had a store or warehouse for that purpose in the county where the tax was assessed, and that one who had a place in one county for the storage of goods which he purchased there, while his sales were all made from a warehouse in another county, was taxable only in the latter.

MAKING-UP STREETS.—At the Tunstall (Eng.) Stipendiary Court, Mr. John Grosvenor, builder and contractor, and a member of the Board of Health, was summoned at the instance of the Tunstall Board for the recovery of 56l. 8s. 11d. for private improvements. It was stated that the defendant built a number of houses in Henry Street, and on May 3, 1889, the medical officer reported that the condition of the street was unsatisfactory. On the recommendation of the Sanitary and Highways Committees the property-owners, including the defendant, were called upon to put the street in order. This they failed to do, and the Board accordingly accepted a contract for the carrying out of the work, and apportioned the cost amongst the owners, the defendant's share amounting to the sum claimed. Mr. Grosvenor claimed that he was not liable on account of work previously done to the street; but the Board contended that the street never was put into a condition that would justify them in taking it over. Mr. A. R. Wood, surveyor to the Board, stated when the owners were called upon to do the work the street was in a bad state, only partially sewered, and not in a condition to give satisfaction to the Board. What had been previously done to it was only sufficient to satisfy the Building Committee in allowing the defendant to proceed with the erection of his houses. Mr. J. Lobley, borough surveyor of Hanley, and Mr. R. Dain, surveyor, gave evidence that it was the practice that before houses were erected in a street, such street was required to be made for the purpose of the buildings, and then, when it was thought that the street would be useful to the public, Section 150 of the Public Health Act was put in force, requiring the owners to make the street in such a way that it could be taken over by the Local Authority. A street as formed for building purposes was not in the condition required by Section 150, and frequently the work done previous to building became so worn that it had to be done over again. For the defence, it was submitted that, though this might have been the practice, the law did not require work of this class, which was once done to the satisfaction of the authority, to be done a second time. Mr. Grosvenor stated that when the street was made in 1874 it was properly made in accordance with the by-laws, and in 1889 his portion of the street was as good as it was after the work had been done by the Board. The Stipendiary held that the defendant was liable, and ordered the amount claimed, with costs, to be paid.

THE FIRE HAZARD.

Whenever a town or small city improves its water supply and adds to its fire extinguishing facilities a little, underwriters are at once importuned to reduce rates, and the reduction demanded is usually to the lowest point. Companies very properly encourage these protective improvements, for it is sound underwriting to fit the rate to the hazard; but we question whether too much credit is not sometimes given to these improvements in the average town. A town of a few thousand inhabitants is usually a pretty combustible town, wooden structures prevailing, and fire department discipline and equipment, at the best, very imperfect. Some of our readers will remember that previous to the sweeping fire which destroyed Spokane Falls on the Pacific Coast, a little over two years ago, the young city improved its water supply, and organized a paid fire department to which it pointed with pride, and that its people and the newspapers loudly demanded a reduction of rates accordingly. In a few days the place was an ash heap. It is well to scan the situation closely from all standpoints before making sweeping reductions on the strength of a few improvements.—*Insurance and Finance Chronicle.*

PROGRESSIVE STEPS IN IMPROVING PUBLIC HIGHWAYS AND STREETS.

By JOHN BEERS, C. E.

In all ages of the world's history among the more enlightened races of people, the improvement of the various highways of travel has afforded an important theme for discussion, a great field for experiment and an opportunity for the expenditure of vast sums of money, the public necessity for which has also given rise to a multitudinous amount of legislation.

The great Macadam introduced the broken stone road; then Thomas Telford, the great public benefactor, came with his improved macadam, until now, all over the great broad land, the march of civilization is manifest in the magnificent public highways of travel that exist. The cities and towns over the country have also felt the impulse of increased commercial intercourse; have experienced the benefits and seen the increased public health among their citizens, largely brought about by better roads and better streets, until they, too, have expended untold millions in that direction in the way of trying various plans and various pavements, until there, also, we have seen in the busier portions of the cities the gravel, the cobble-stones, the macadam and the Nicholson come and go. They have served their day and purpose. The beautiful elastic sheet asphalt and the asphaltum blocks came but for a brief interim, to be superseded, under heavy traffic, by the Belgian block, the last only holding its day for one redeeming quality—durability. And now we are on the advent of the vitrified brick pavement, wherein the acme of perfection under all circumstances has been nearer reached than in any other pavement that has ever been devised. Brick pavements have been in use in Europe for over a century; Amsterdam has one over a hundred years old; the Hague has one over thirty-six years old; they are found in Rotterdam and other large cities of Holland; and

yet, nowhere are they so perfect as in hundreds of the cities and towns of America, where they are being used today. In the latter, some of which are seventeen years old, all are in good condition and proving highly satisfactory, and so it has come to stay.

The cost of vitrified brick pavements in most of the nearer cities and towns in this country, all complete, material, labor and foundation, without grading, is from \$1.75 to \$2.25 per square, being among the cheapest known.

This is what we might call an ideal street of the future down the thoroughfare of some large city. It will be a metal floor of iron, covered with an elastic substance, upon which vitrified brick will be paved, and supported with columns, with a large open subway beneath for electric street cars, pipes and wires. The busy world is making great strides in this direction, and the intelligence and enterprise in this country will accomplish wonders; and who knows what the future will bring forth in the next twenty years to come?—*Paving and Municipal Engineering.*

EASY METHODS OF LAYING SERVICE PIPES.

At the September meeting of the New England Water Works Association, H. C. Holden, superintendent of the Nashua, N. H., water works, stated that owing to the sandy-loam soil in that city he was enabled to put in his service pipes at very little expense. In the principal part of the city it is customary to dig a trench from the main to the sidewalk, approximately as long as the proposed service, which is now always galvanized iron, and then tap the main for a corporation cock. A piece of one-inch hose, about twenty feet long, is then connected by a union to a corporation cock, and at the other end by another union to a length of galvanized pipe. When everything is ready water is turned on at the corporation cock and the pipe pushed into the earth for its entire length. It is then disconnected and another length added, which is pushed in by the same means. In this manner it is often possible to run as far as fifty feet and save tearing up a lawn. Two men will frequently put in four services in a day, and Mr. Holden estimates that nine-tenths of the supply pipes are thus put in. At Springfield, in this State, the soil is also a sandy loam, and much the same manner of laying services has been used there. The pipes used are tinned wrought iron, from one to two inches in diameter. Galvanized iron could not be used, as the pipes so made became filled with rust in two years. J. C. Hancock, superintendent of the water works in that city, recently stated that it was possible to push the pipe from a trench, sometimes for seventy-five or eighty feet, through the earth. Often it was possible to do this without using water. Sometimes it has been found expedient to bore a hole with a long sand auger, and insert the pipe in this.

CONSTRUCTION OF SMOKE FLUES.—One of the greatest evils in brick work, is the careless, imperfect building of smoke flues. There should be no sharp angles or turns in a smoke flue. It should be uniformly and smoothly "pargeed," and no offsets should be left where mortar can lodge and choke the flue, and all smoke flues should be at least six inches from any wood work. Now that terra cotta is cheap and easy to get, it should be used for smoke flues, whenever and wherever practicable.

TEST FOR LEAD TIN IN LINING.—The testing of tin piping, or other similar articles for the purpose of determining whether lead is present, is very simple, and may be done by anyone. The *modus operandi* is as follows:—On the tinned surface place some strong nitric acid, and,

with a splinter of wood, rub it over a surface as large as a five-shilling piece, allow it to dry, then two drops of potassium iodide should be dropped on the same place. If the tin contains lead, a bright yellow crust of iodide of lead will form on the spot.—*Specialties.*

GLASS ENAMELLED BRICK.

A company for the manufacture of glass enameled brick is about to be organized at Pittsburg, Pa. The patentees of the process are two glass workers of the South Side, and it is claimed by them that the brick will be much superior to those used at present. The enamel can be used to any thickness and several colors can be obtained. The works of the company may be located at Saltsburg, Pa. The capitalization will likely be \$50,000.

THE CENTRAL BRIDGE WORKS

Peterborough, Ont.

WM. H. LAW, Proprietor and Engineer.

MANUFACTURER OF

RAILWAY AND HIGHWAY BRIDGES

Viaducts, Piers, Roofs, Turntables and Girders in Steel and Iron.

Tension members forged without welds. Riveting done by hydraulic or compressed air machines. Specialties: Good workmanship and strict adherence to specifications and drawings.

CAPACITY, 2,000 TONS PER ANNUM.

ALAN MACDOUGALL,

CIVIL AND SANITARY ENGINEER,
32 ADELAIDE STREET EAST,
TORONTO.

R. E. H. BUGKNER,

39 Adelaide St. East, TORONTO.
PATENT CAST IRON GULLIES,
Vitrified Clay Sewers - Dust Bins - Sewer Pipe
Cements - Steam Road Rollers - Stone
Breakers - Street Scrapers
Horse Brushes, etc.

THE STANDARD DRAIN PIPE CO.

OF ST. JOHNS, P. Q. (LIM.)



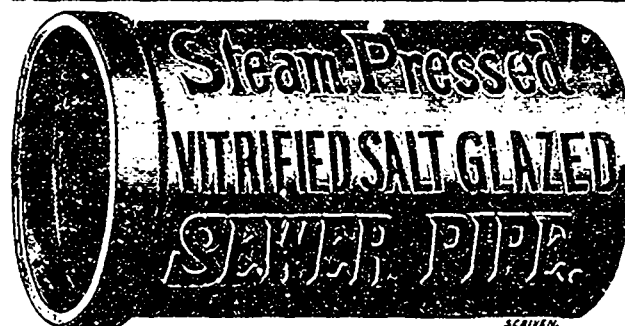
Manufacturers of
Salt-Glazed,
Vitrified
**SEWER
PIPES**

Double Strength
Railway Culvert Pipes,
Inverts, Vents,

AND ALL KINDS OF FIRE CLAY GOODS.

CANADIAN BRIDGE & IRON CO.
MONTREAL.

Architectural Ironwork a specialty. Pleased to furnish estimates.



THE HAMILTON AND TORONTO SEWER PIPE CO., HAMILTON, CANADA

DEBENTURES WANTED.

Municipalities issuing debentures, in matter for what purpose, will find a ready purchaser by applying to G. A. SIMMONS, 9 Toronto Street, Toronto. N. B.—Money to loan at lowest rates on first mortgage

GOWER & CO.

204 St. James St., MONTREAL.

Riveted Girders,

Iron and Steel Rolled Beams,

Columns and Stanchions,

Roofs and Trusses.



HYATT'S FILTERS,

CROWN, EMPIRE and Nash WATER METERS

Cast Iron Pipes and Specials,

VALVES, HYDRANTS,

SEWER PIPES, ETC.

THE EXAMINATIONS

OF THE

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

NOTICE IS HEREBY GIVEN that after the close of the year 1893 all gentlemen who desire to qualify for candidature as ASSOCIATE of the Royal Institute of British Architects (except in special cases submitted to and approved by the Council) will be required to enter for the PRELIMINARY Examination, and having passed it, work up through the INTERMEDIATE to the FINAL Examination, which in 1894 will take the place of the present "Examination in Architecture." The only Examinations to which young Architects who are in practice and who desire to become Architects without passing the Progressive Examinations can enter, take place twice in the year 1892 and twice in the year 1893. Those therefore who may not be prepared to enter for the "EXAMINATION IN ARCHITECTURE" before the close of 1893, should take immediate steps to secure registration as Probationers, which they can do by passing the Preliminary Examination or obtaining the GRANT OF EXEMPTION THEREFROM.

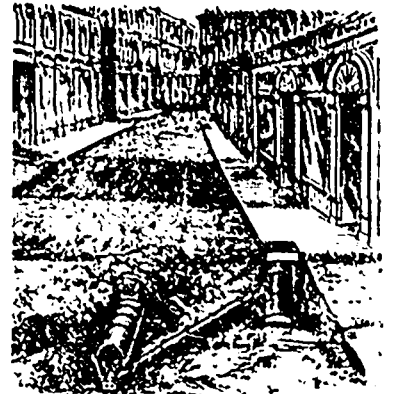
ASHTON WEBB, Hon. Secretary.
WILLIAM H. WHITE, Secretary.

The Royal Institute of British Architects, 9 Conduit Street, Hanover Square, London W., 25th January, 1892.

St. George's Patent Sectional VITRIFIED CLAY SEWER

— AND —

CAST IRON STREET GULLEY.



LEWIS SKAIFE,
Engineer and Contractor,

New York Life Building, - MONTREAL AGENT.

Prices of Building Materials.

LUMBER.

CAR OR CARGO LOTS.

	Toronto.	Montreal.
1 1/2 to 2 clear picks, Am. ins.	30 00	32 00
1 1/2 to 2 three uppers, Am. ins.	27 00	40 00
1 1/2 to 2 pickings, Am. ins.	37 00	27 00
3 inch clear	30 00	52 50
1 x 10 and 12 dressing and better.	18 00	20 00
1 x 10 and 12 mill run.	13 00	14 00
1 x 10 and 12 dressing.	14 00	16 00
1 x 10 and 12 common.	12 00	13 00
1 x 10 and 12 spruce culls.	10 00	11 00
1 x 10 and 12 maple culls.	9 00	10 00
1 inch clear and picks.	28 00	33 00
1 inch dressing and better.	18 00	20 00
1 inch siding, mill run.	14 00	16 00
1 inch siding, common.	12 00	13 00
1 inch siding, ship culls.	10 00	11 00
1 inch siding, mill culls.	8 00	9 00
Cull scantling.	8 00	9 00
1/2 and thicker cutting up plank	22 00	25 00
1 inch strips, 4 in. to 8 in. mill run.	14 00	15 00
1 inch strips, common.	11 00	12 00
1 1/2 inch flooring.	14 00	15 00
1 1/2 inch flooring	14 00	16 00
XXX shingles, sawn, per M	2 30	2 35
16 in.	1 30	1 35
XX shingles, sawn, per M	1 30	1 35
YARD QUOTATIONS.		
Mill cull boards and scantling	10 00	11 00
Shipping cull boards, miscellaneous widths.	13 00	14 00
Shipping cull boards, stocks	16 00	17 00
Hemlock scantling and joist up to 16 ft.	11 00	12 00
Hemlock scantling and joist up to 18 ft.	12 00	13 00
Hemlock scantling and joist up to 20 ft.	13 00	14 00
Scantling and joist, up to 16 ft.	14 00	15 00
" " " 18 ft.	15 00	16 00
" " " 20 ft.	16 00	17 00
" " " 22 ft.	17 00	18 00
" " " 24 ft.	18 00	19 00
" " " 26 ft.	19 00	20 00
" " " 28 ft.	20 00	21 00
" " " 30 ft.	21 00	22 00
" " " 32 ft.	22 00	23 00
" " " 34 ft.	23 00	24 00
" " " 36 ft.	24 00	25 00
" " " 38 ft.	25 00	26 00
" " " 40 to 44 ft.	26 00	27 00
Cutting up planks, 1 1/2 and thicker, dry	25 00	26 00
Cutting up planks, 1 1/2 and thicker, board	18 00	19 00
Cedar for block paving, per cord.	5 00	5 00
Cedar for Kerbing, 4 x 14, per M.	14 00	14 00
S. M.		
1 1/2 in flooring, dressed, F. M.	28 00	31 00
1 1/2 inch flooring, rough, F. M.	28 00	31 00
1 1/2 " " dressed, F. M.	27 00	30 00
1 1/2 " " undressed, F. M.	26 00	29 00
1 1/2 " " dressed, F. M.	28 00	31 00
1 1/2 " " undressed, F. M.	27 00	30 00
2 x 4 sheeting, dressed	22 00	25 00
2 x 4 sheeting, dressed	22 00	25 00
Clapboarding, dressed	1 00	1 00
XXX sawn shingles, per M	2 65	2 75
16 in.	2 00	2 10
Sawnlath.	2 00	2 10
Cedar.	2 50	2 60
Red oak.	30 00	30 00
White.	35 00	35 00
Basswood, No. 1 and 2.	18 00	20 00
Cherry, No. 1 and 2.	70 00	70 00
White ash, No. 1 and 2.	25 00	25 00

Toronto, Montreal

Black ash, No. 1 and 2.....	18 00 30 00	18 00 30 00
Dressing stocks.....	16 00 22 00	16 00 22 00
Hicks, American inspection.....	40 00	40 00
Three uppers, Am. inspection.....	50 00	50 00

BRICK

Common Walling.....	7 10	6 00
Good Facing.....	9 00	8 50
Sewer.....	8 50 9 00	8 50 9 00

Pressed Brick, Per M:

Plain brick, f. o. b. at Milton	18 00
" " and quality	14 00
" " 3rd	10 00
Hard Building.....	8 00

SAND.

Per Load of 1/2 Cubic Yards	1 25	1 25
-----------------------------	------	------

STONE.

Common Rubble, per ton, delivered.....	14 00	14 00
Large flat Rubble, per ton, delivered.....	18 00	18 00

ROOFING.

Eastlake steel shingles (galvanized).....	5 25 5 75
Improved Broad Rib Roofing, (galvanized).....	5 00 5 75

SLATE.

Roofing (per square).....	18 00	1 00
" red.....	9 00	8 00

PAINTS, (In oil, & lb.)

White lead, Can., per 100 lbs.	6 25 6 50	6 00 6 25
Red lead, Eng.....	5 50 6 25	5 00 5 50

Toronto, Montreal.

Oil, linseed, raw, 1/2 imp. gal.	65	68	61	65
" boiled,	68	71	66	68
" refined,	78	81	75	75

CEMENT, LIME, etc.

Cement, Portland, per bbl. #60	3 00
Thorold,	1 21
Queenston,	1 50

HARDWARE.

Cut nails, 5 d & 6 d, per keg	2 40	2 25
Steel	2 50	2 35

CUT NAILS, FENCE AND CUT SPIKES.

40d, hot cut, per 10 lbs	5	5
30d, " " " " " "	10	10
20d, " " " " " "	15	15

PINK BLUED NAILS.

3d, per 1 c lbs.	1 50	1 50
2d, " " " " " "	2 00	2 00

SLATING NAILS.

5d, per 100 lbs.	85	85
4d, " " " " " "	85	85

CLINCH NAILS

2 1/2 inch, per 100 lbs.	85	85
2 1/4 " " " " " "	1 00	1 00

Structural Iron:

Steel beam, per 100 lbs.....	2 75	2 50
" angles,	2 85	2 50

Bricks (Pressed).

Beamsville Pressed Brick Co.....	22
Don Valley Pressed Brick Works.....	22

Builders' Supplies.

Adamant Mfg. Co.....	viii
Adamson, Joseph.....	i

Boiler Covering.

Gast & Co.....	ix
----------------	----

Building Stone Dealers.

Adamson, Jos.....	i
Brodigan & Co., J.....	ii

Builders' Hardware.

Rice Lewis & Son.....	iv
Samuel, Benjamin & Co., M. & L.....	li

Cements.

Adamant Mfg. Co.....	viii
Adamson, Jos.....	i

Church and School Furniture.

Canadian Office & School Furniture Co.....	i
Office Specialty Co.....	ix

Chimney Toppling.

Bremner, Alexander.....	iv
Hansen, Harald M.....	xiv

Contractors and Builders.

Davidson & Kelly.....	ii
Dick, James, sr.....	vi

Consulting Engineer.

Barry, A. B.....	ii
------------------	----

Derriek Builders.

Rowe, Geo.....	ii
----------------	----

Mantels and Overmantels.

Millicham Mfg. Co.....	ix
------------------------	----

Metallic Lath.

R. Greening Wire Co.....	iv
Metallic Roofing Co.....	ii

Mortar Colors and Shingle Stains.

Cabot, Samuel.....	iii
Maguire, Wm.....	iv

Ornamental Plasterers.

Baker, J. D.....	iii
Wright, Jas.....	iii

Paints, Varnishes, &c.

Muirhead, Andrew.....	x
-----------------------	---

Painters.

Dill & O'Hearn.....	ii
Gilmor & Casey.....	ii

Paving.

Excelsior Pavement Co.....	x
Forsyth, Robert.....	xiii

Plasterers

Hynes, W. J.....	i
Watson Bros.....	ii

Plate Glass

McCauley & Son.....	v
Toronto-Plate Glass Importing Co.....	vii

Plastering Fibre

Nowell & Co., R. L.....	ii
-------------------------	----

Plumbers

Bennett & Wright.....	ii
Horton, F.....	vi

INDEX TO ADVERTISEMENTS
IN THE CANADIAN ARCHITECT AND BUILDER.

Architects.

- Ontario Directory III
- Quebec Directory vi

Architectural Sculptors and Carvers.

- Carnovsky, B. H. ix
- Hicks, W. Stevens II
- Holbrook & Mollington..... xii
- Turner, Frederic II
- Mowbray, Thos. II
- Wagner, Zeidler & Co. vii

Architectural Iron Work.

- B. Greening Wire Co. IV
- Ives & Co., H. R. IV
- The Dominion Bridge Co. I
- Whitefield, John IV

Art Woodwork.

- Carnovsky, B. H. ix
- Wagner, Zeidler & Co. vii

Bellhanger.

- Richardson, I. T. III

Best Glass Manufacturers.

- Polito, T. IV

Bricks (Pressed).

- Beamsville Pressed Brick Co..... 22
- Don Valley Pressed Brick Works..... 22
- Hynes Term Cotta & Brick Co.... viii
- Milton Pressed Brick & Sewer Pipe Co.. 22
- Morris, E. D. iv
- Toronto Pressed Brick & Terra Cotta Co. iii
- The Ontario Terra Cotta, Brick & Sewer Pipe Co..... vii

Builders' Supplies.

- Adamant Mfg. Co..... viii
- Adamson, Joseph..... i
- Bremner, Alex..... 1V
- Maguire, William..... iv
- Morris, E. D. iv
- McNally & Co..... iv
- Rathbun Co..... viii
- Rowe, Geo..... ii

Boiler Covering.

- Gast & Co..... ix

Building Stone Dealers.

- Adamson, Jos..... i
- Brodigan & Co., J..... ii
- Rathbun Co..... viii
- Samuel & Sons, Thomas..... ii

Builders' Hardware.

- Rice Lewis & Son..... iv
- Samuel, Benjamin & Co., M. & L..... li

Cements.

- Adamant Mfg. Co..... viii
- Adamson, Jos..... i
- Bremner, Alexander..... 1V
- McNally & Co., Wm..... ix
- Maguire, William..... iv
- McRae & Co..... iv
- Morris, E. D. iv
- Rathbun Co..... viii
- Wright & Sons, C. B..... ii

Church and School Furniture.

- Canadian Office & School Furniture Co.. i
- Office Specialty Co..... ix

Chimney Toppling.

- Bremner, Alexander..... iv
- Hansen, Harald M..... xiv

Contractors and Builders.

- Davidson & Kelly..... ii
- Dick, James, sr..... vi
- Hood & Co., C..... ii
- Hancock, Thomas..... ii
- Mortimore, Geo. T..... ii
- Murison & Burge..... vi
- Roberts, William..... ii
- Thomas & Howell..... ii
- Turner & Co., G. W..... vi

Consulting Engineer.

- Barry, A. B..... ii

Derriek Builders.

- Rowe, Geo..... ii

Electric Lighting

- Royal Electric Co..... i
- Toronto Electrical Works..... iv

Elevators.

- Ives & Co., H. R..... IV
- Leitch & Turnbull..... I

Engravers.

- Canadian Photo-Eng Bureau..... xiv

Fire Brick and Clay.

- Adamson, Jos..... i
- Bremner, Alexander..... 1V
- Colman-Hamilton Co..... iii
- Morris, E. D. iv
- Wright & Sons, C. B..... ii

Galvanized Iron Works.

- Douglas & Plu-kett..... II
- Hedges & Lankin..... II
- Tucker & Dillon..... II

Grates and Tiles.

- Hollbrook & Mollington..... xii
- Rice Lewis & Son..... iv

Heating.

- Garth & Co..... xii
- Gurney Co., E. & C..... vii
- Howard Furnace Co..... xii
- Ives & Co., H. R..... 1V
- King & Son, Warden..... xiv
- McClary Mfg. Co..... xii
- Miller Bros. & Toms..... xii
- Toronto Radiator Mfg Co..... xi

Iron Fences.

- Ives & Co., H. R..... IV

Iron Pipe.

- Ives & Co., H. R..... IV
- King & Son, Warden..... xiv

Lime and Stone.

- Morris, E. D. iv
- Wright & Sons, C. B..... ii

Legal.

- Denton Dodds & Denton..... III

Mantels and Overmantels.

- Millicham Mfg. Co..... ix

Metallic Lath.

- R. Greening Wire Co..... iv
- Metallic Roofing Co..... ii

Mortar Colors and Shingle Stains.

- Cabot, Samuel..... iii
- Maguire, Wm..... iv
- Muirhead, Andrew..... iii

Ornamental Plasterers.

- Baker, J. D..... iii
- Wright, Jas..... iii

Paints, Varnishes, &c.

- Muirhead, Andrew..... x

Painters.

- Dill & O'Hearn..... ii
- Gilmor & Casey..... ii
- Polito, T..... v

Paving.

- Excelsior Pavement Co..... x
- Forsyth, Robert..... xiii
- Gardner & Co., A..... 1V

Plasterers

- Hynes, W. J..... i
- Watson Bros..... ii

Plate Glass

- McCauley & Son..... v
- Toronto-Plate Glass Importing Co..... vii

Plastering Fibre

- Nowell & Co., R. L..... ii

Plumbers

- Bennett & Wright..... ii
- Horton, F..... vi
- McCrae & Watson..... vi

Plumbing Supplies

- Booth & Son..... v
- Garth & Co..... xv
- Sanitas Mfg. Co..... v
- St. Johns Stone Chinaware Co..... iii

Roofing Materials

- Merchant & Co..... ii
- Metallic Roofing Co..... x
- Samuel, Benjamin & Co..... xv

Sanitary Appliances

- Booth & Son..... v
- Sanitas Mfg. Co..... v
- Ives & Co., H. R..... 1V
- St. Johns Stone Chinaware Co..... iii

Roofers

- Duthie & Sons, G..... ii
- Fordes, Duncan..... ii
- Metallic Roofing Co..... ii
- Hutton, W. D..... ii
- Rennie & Son, R..... 1I
- Saulter, Wm..... ii
- Stewart, W. T..... ii
- Toronto Roofing Co..... ii
- Williams & Co., H..... ii

Sewer Pipe

- Adamson, Jos..... I
- Bremner, Alexander..... iv
- Hamilton and Toronto Sewer Pipe Co.. iv
- McNally & Co., W..... vii
- Maguire, William..... v
- McRae & Co..... iv
- Milton Pressed Brick & Sewer Pipe Co., Morris, E. D. xi
- The Ontario Terra Cotta Pressed Brick & Sewer Pipe Co..... vii
- The Colman-Hamilton Co..... iii
- Wright & Sons, C. B..... 1V

Sliding Blinds

- Clatworthy, Geo..... v

Stained and Decorative Glass

- Castle & Son..... iv
- De minion Stained Glass Co..... iv
- Elliott & Son..... I
- Faircloth Bros..... v
- Grimson, G. & J. E..... iv
- Longhurst & Co., H..... iv
- Lewis, R..... v
- McCauley & Son..... v
- Spence & Son, J. C..... iv
- Victoria Stained Glass Co..... v

Stenographers

- Holland Bros. & Young..... vi

Terra Cotta

- Morris, E. D. iv
- Toronto Pressed Brick & Terra Cotta Co. iii
- The Ontario Terra Cotta, Brick & Sewer Pipe Co..... xi

Terra Cotta Fireproofing

- Morris, E. D. iv
- Rathbun Co..... viii

Tower Clocks and Bells

- Gillett & Johnston..... ii

Wall Paper and Ceiling Decorations

- Elliott & Son..... ii
- Faircloth Bros..... v

Wall Plaster

- Adamant Mfg. Co..... viii
- Boymont Wall Plaster Co..... ix
- Strathy, W. T..... viii

Wall Tio

- Weese & Co., D. A..... ii