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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF THE CONTRACTORS' INTERESTS

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.

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MAY 28, 1896
No. 17.

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

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A new and thoroughly revised edition of the *Canadian Contractor's 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.

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C. H. MORTIMER, Publisher,
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PETROLEA WATER WORKS

NOTICE TO CONTRACTORS

Sealed tenders will be received by the Chairman Water Works Committee, Petrolea, until 6 p. m. on MONDAY, JUNE 15, 1896, for the construction of a system of water works for the town, as follows:—

- A. Intake pipe at Lake Huron.
- B. Buildings, well and chimney.
- C. Furnishing cast-iron pipe for eleven miles of force main.
- D. Laying the force main.
- E. Furnishing pipe and laying force main.
- F. Furnishing 7/8 miles of pipe for distribution system.
- G. Furnishing hydrants and valves.
- H. Laying distribution system.
- I. Furnish materials for and laying distribution system.
- J. Water tower.
- K. Bulk bid.

Plans, specifications, contracts, etc., may be seen and forms of tender obtained at the Town Hall, Petrolea, or at the office of the Chief Engineer, on and after June 1st, 1896.

ALBERT DUNCAN,
 Chairman W. W. Committee, Petrolea, Ont.
 WILLIS CHIPMAN,
 Chief Engineer, Toronto, Ont.
 Dated May 22, 1896.

FOR SALE

A crimped wire cage and about 30 ft. of grille, three double-standing desks, and a quantity of bank furniture of wauwat. For particulars address

POWER & SON,
 Lion Block, Kingston.

TENDERS WANTED

Tenders will be received up to noon on MONDAY, JUNE 1st, for excavating and building foundation walls under five houses, and for plumbing, hot air heating, painting and papering same.

CURRY, BAKER & CO., Architects,
 70 Victoria Street, Toronto.

TO CONTRACTORS

Tenders will be received up to 5 p. m., JUNE 4TH, for the whole of the trades required in the erection of

SIX ATTACHED BRICK RESIDENCES

on Terauley street, Toronto. Plans and specifications may be seen and all particulars obtained at the office of the undersigned.

The lowest or any tender not necessarily accepted.

F. H. HERBERT, Architect,
 City and County Loan Building,
 32 Queen St. East, Toronto.

TO CONTRACTORS

Tenders will be received up to 5 p. m., JUNE 5TH, for the whole of the trades, with the exception of carpenter work, required in the erection of

A Pair of Semi-Detached Residences

on the S. W. Cor. of Spadina Road and Lowther Ave. Plans and specifications may be seen and all particulars obtained at the office of the undersigned.

The lowest or any tender not necessarily accepted.

F. H. HERBERT, Architect,
 City and County Loan Building,
 32 Queen St. East, Toronto.

TENDERS FOR WATER METERS

The City of Vancouver, B. C., are prepared to receive offers for about

150 WATER METERS

from 3/4 in. up to 4 in., delivered at their shops on Hastings Street free of all charges.

Full particulars of meters offered to be sent to the City Engineer, Col. T. H. Tracy, as soon as practicable.

Tenders to be in the hands of the undersigned on or before Wednesday, June 24th.

T. F. MCGUIGAN, City Clerk.

TENDERS

The undersigned will receive tenders for lighting the streets of the Town of Newmarket for a term of eight or ten years by electricity, as follows:—

24 arc light lamps of 4 ampere, or 100 incandescent lamps of 32 candle power. Lights to be run from dark until twelve o'clock every night except moonlight nights.

Tenders to be in by JUNE 1st. The lowest or any tender not necessarily accepted.
 For further particulars apply to

H. S. CANE,
 Newmarket, Ont.

CONTRACTS OPEN.

BRACEBRIDGE, ONT.—Mr. Bowerman will build a new dwelling.

PRESTON, ONT.—The town will erect a new market shed 80 x 20 feet.

BETHANY, ONT.—F. W. Galbraith is preparing to rebuild his saw mill.

DIGBY, N. S.—H. Green, of the Bank of Nova Scotia, will build a new residence.

MOUNT FOREST, ONT.—The by-law to expend \$4,500 for waterworks extensions has been defeated.

ST. THOMAS, ONT.—Tenders will shortly be asked for a new convent. Evan McDonald, architect.

SHERBROOKE, QUE.—The by-law authorizing the construction of an electric street railway has been carried.

WALKERVILLE, ONT.—A brick building, 20 x 40 feet, will probably be erected as an armory for the volunteers.

TECUMSEH, ONT.—A cyclone has destroyed upwards of fifty houses in this section, at a loss of about \$75,000.

UPPER KENNETCOOK, N. B.—Nelson Weir, municipal clerk, will receive offers until June 27th, for a loan of \$1,500.

PETROLEA, ONT.—The town invites proposals until the 4th June for the purchase of \$172,000 of waterworks debentures. Address A. E. Edward, mayor.

WILLOWDALE, ONT.—Peter S. Gibson & Son, engineers, invite tenders until the 30th inst. for the construction of a bridge over ravine at west end of Lambton avenue.

GALT, ONT.—The waterworks improvements and new market sheds, for which by-laws were recently passed, will not be commenced until three months from polling day.

ST. JOHNS, Nfld.—Work on the railway across the Island has been resumed, and it is hoped to complete the road this summer. One hundred and thirty miles of the line remain unbuild.

MONCTON, N. B.—Tenders for a brick and stone passenger station to be built here are invited until Monday, the 15th of June. Address D. Pottinger, general manager Intercolonial railway.

LISTOWEL, ONT.—The Council is considering the question of installing an electric light plant. A committee has recommended that an electrical engineer be employed to report upon the cost.

ST. MARYS, ONT.—Amos Picard will receive tenders until the 29th inst. for the erection of a brick church at Wellburn. Plans may be seen at the parsonage, or at the office of D. G. Baxter, architect, Stratford.

CALGARY, N. W. T.—The Governor-General-in-Council has approved of the application of the Springbank irrigation district for the right to divert sufficient water from the Elbow river to irrigate some 212,000 acres of land, and construct necessary works to enable the water so

diverted to be used for irrigation purposes. The district has been given five years from February, 1895, to complete construction of all necessary works.

TILBURY, ONT.—Mr. Henry, C. E., places the cost of the foundation of the pump house in connection with the water-works extension at \$1,408, and also recommends putting in a sand filter, at a cost of \$7,896.

PETERBORO', ONT.—The Town Council have appointed a committee to interview the Minister of Railways and Canals urging the construction of a new railway bridge over the Otonabee river, near the Auburn mills.

AINSWORTH, B. C.—The work of rebuilding the burned portion of the town has commenced. A. A. McKinnon and Charles Olson have lumber on the ground for hotels. The former will rebuild on the old Vancouver hotel site, and the latter on the site of the Club saloon.

NEW WESTMINSTER, B. C.—In consequence of the refusal of the Provincial government to make satisfactory terms regarding the financial aid to be given to the Fraser river bridge scheme, the city is now in negotiation with private capitalists to undertake to carry out the enterprise.

KINGSTON, ONT.—Power & Son, architects, will receive tenders until the 29th inst. for the erection of a house on Alfred street for Alex. Snodden.—Tenders are invited by Arthur Ellis, architect, until June 1st, at 5 p.m., for erecting a brick residence on University ave., for Anthony Malone.

TRURO, N. S.—Tenders are invited by W. D. McCallum, Town Clerk, until Saturday, June 30th, for the construction of a reservoir, dam and head works, and the laying of about $\frac{1}{2}$ mile of 14 inch pipe, in accordance with plans to be seen at the Town Clerk's office, and for supplying about half a mile of cast iron water pipe. The Town Clerk will also receive tenders until the 4th of June for the construction of about one-half mile of asphalt sidewalk on Inglis street and Prince street.

WOODSTOCK, N. B.—The Woodstock and Centreville Railway Co. have elected directors as follows: Patrick O'Mullen, Halifax, Geo. W. White, W. T. Drysdale, Woodstock; R. W. Connor, St. John; Bernard Mahon, Antonio Rasines, T. W. Smith, New York. Mr. Killen says work will be begun as soon as the right of way is secured. The location survey is about completed as far as Centreville.—The by-law to authorize the town council to expend \$10,000 on sewerage construction has been carried.

MONTREAL, QUE.—The Fire Committee has recommended a grant of \$3,000 for repairs to apparatus and stations.—The Council of the Board of Trade will urge upon the government the deepening of the ship channel between Montreal and Quebec to 30 feet, low water, with a width of, at least, 500 feet at the narrowest points, so that the large sized steamers likely to be engaged in the St. Lawrence trade in the near future will be able to reach Montreal without difficulty.—The Montreal Gas Company invites proposals for the purchase of \$350,000 of debentures. Address N. N. Moore, secretary.

HALIFAX, N. S.—Elliot & Hopson, architects, are preparing plans for a corner block on Church and Prince streets, to be built of red sandstone, buff brick and terra cotta. Estimated cost, \$18,000.—Steps are about to be taken by John J. Middlemore, of England, for the erection in this city of a home for boys and girls; a site is now being selected.—Work will shortly be commenced on the new drill shed. The basement will be of granite, rock-faced, extending to ground floor, above which will be Pugwash freestone. The roof will be covered with corrugated galvanized iron, and will be supported by

eighteen iron tresses. There will be four towers.—The Golden Group Mining Co. will receive tenders until the 30th inst. for the construction and delivery of a boiler. Address A. A. Hayward, managing director.

LONDON, ONT.—A two-storey brick residence will be erected on Central ave. by W. F. Darch.—The Southwold Township Council has decided to erect two new steel bridges at Payne's mills and at the Bambery bridge.—J. & D. Ross have purchased the store No. 196 Dundas street, at present occupied by Mr. H. J. Boyd, and intend to reconstruct and enlarge the building in modern style, with an entire new plate glass front.—John Taylor, of St. James Park, will erect a two-storey brick house on Becher street, to cost \$1,500.—The Southern Congregationalists have finally decided to build a new church. The present frame structure will be moved back and a commodious brick edifice erected on the site.—A \$10,000 annex will probably be built to the Sunday School room of the new Dundas street Methodist church.

OTTAWA, ONT.—The advertisement asking for tenders for the enlargement of the Grenville canal has been withdrawn.—J. H. Balderson, Secretary Department of Railways and Canals, will receive tenders until Wednesday, 10th June, for the erection of a residence for the superintendent of the Sault Ste. Marie canal. Plans can be seen at the office of the Chief Engineer, Ottawa or Sault Ste. Marie.—Tenders close on Saturday next for the erection of a residence. G. M. Bayly, architect.—Ald. Morris has offered the Trades and Labour Council a free site on which to build a new labor hall.—E. F. E. Roy, Secretary of the Department of Public Works, will receive tenders until Friday, the 19th of June, for the erection of a court house at Prince Albert, N.W.T. Plans can be seen at the Department of Public Works, this city, at the Dominion Public Works office, Winnipeg, and at the court house, Prince Albert.—The Royal Society has memorialized the Dominion government to erect a suitable building for a national museum.

WINNIPEG, MAN.—The Building Committee of the Exhibition Association has recommended that new plans be prepared and tenders invited for the machinery hall, on the plan of a building, say 30 x 300 feet, with platform of 20 feet for machinery, and a passage for the public 200 feet in width.—Barre Bros. intend to enlarge their Main street premises and will make their store twenty-five feet deeper. A large French plate glass mirror will be erected in the west end to occupy the entire width of the store.—St. John's cathedral is to be improved. A new roof will be placed on the building and a small tower erected in front. W. Chesterton has charge of the plans.—The old frame building back of the Union bank is being torn down to make room for the new block to be built on the property by Mr. R. R. Taylor.

TORONTO, ONT.—Residents on Danforth avenue, Greenwoods avenue, Ross and Chatham streets have petitioned for water main extensions. The cost is placed at \$4,500.—The petition for a brick pavement on Robert street, between College and Bloor street, has been sufficiently signed. The Court of Revision will meet on June 5 to confirm the assessment for a brick pavement on Henry street, from Baldwin street to College street. The cost is \$6,700.—Tenders will probably be invited next week for the new buildings for the Dominion Cold Storage Company, from plans prepared by Burke & Horwood, architects. The building will cost \$50,000, and the total cost of the plant will be about \$150,000.—Property owners on Yonge street have petitioned for an asphalt pavement from Bloor street to Davenport road. A macadam roadway

on Blevin's place has also been petitioned for.—Building permits have been granted as follows: Wm. Luke, 142 Dowling ave., det. 2 storey and attic bk. dwelling, 22 Maynard ave., cost \$2,500; H. S. Strathy, 2 storey bk. stable, rear 71 Queen's Park, cost \$2,000.

CHATHAM, ONT.—The Secretary of the School Board has been instructed to advertise for tenders for the proposed school buildings.—Thirty thousand dollars of the appropriation to extend the Chatham waterworks has been approved by order-in-council.—Plans have just been prepared by James L. Wilson & Son for a one-roomed school house at Raglan, in the county of Kent, brick veneered, on stone foundation, with basement, to be heated with hot air. Cost \$2,200. Same architects also have plans for a two-storey solid brick residence and surgery for Dr. S. G. Story, of the town of Blenheim, with stone basement, heated with combination hot air and hot water, cost \$2,500; a brick veneered residence for John Jardine, in the township of Tilbury West, cost \$2,000, heated by hot air; a brick veneered residence for E. S. Hubble, Thamesville, cost \$2,000, heated by hot air; a two-storey brick veneered business block in Tilbury Centre for M. Stewart, cost \$3,500, heated by steam. The same architects have under construction a municipal hall and fire station at Blenheim, cost \$8,000, heated by hot air; the new Presbyterian church, Blenheim, and a two-storey brick residence for H. Davis, Chatham, cost \$2,500. A new brick vault for the township hall of Harwich Township Council, at Blenheim, from the plans of the same architects, is nearing completion.

HAMILTON, ONT.—A project is on foot to build an electric road from the head of Garth street to Alberton, through Ancaster. The projectors are asking a bonus of \$15,000 when the road is built to Ancaster, and an additional \$15,000 when completed to Alberton.—The congregation of Haynes avenue church have been granted permission by the Hamilton presbytery to borrow \$1,500 to complete their new church.—The Canadian Pacific Railway Company has obtained a lease for twenty years of the property at the corner of King and James streets, now occupied by A. Hamilton & Co., druggists. They intend fitting up the building suitable for offices.—Chas. Mills, architect, has completed plans for the Radial Railway Co.'s power house, to cost \$10,000. He has prepared plans for alterations to the following buildings: Stanley Mills departmental store; Grafton & Co.'s store; Mr. Grafton's house, Dundas; residence of Jno. Knox, of Knox, Morgan & Co.; Frank H. Mill's residence; Mr. Morgan's house, Erie avenue, and the Duncan Lithographing Co.'s building. Same architect has in charge the following: J. J. Grafton's stable in Dundas; a Credit Valley stone entrance porch for Wm. Hendrie; a residence on Bay street for John R. McMaster; residence for Mrs. Tyndall, cost \$3,000.—Stewart McPhie is preparing plans for a large warehouse, 80 x 60 ft.—Wm. & Walter Stewart, architects, will let the contract for the Beamsville Presbyterian church in a few days. It will cost \$7,000. They have in hand alterations for two stores for the D. Nicholson Estate and will shortly call for tenders.—Building permits have been granted as follows: Mrs. Tindill, hotel building, corner King and Wentworth sts., cost \$2,500; J. B. Grafton, alterations to store on James street, cost \$800; Wm. & Walter Stewart, dwelling, corner Park and Hannah streets, cost \$7,500; W. P. Witton, pair two-storey brick dwellings on Markland street, cost \$2,500, and one two-storey brick dwelling on Grove street, cost \$1,000; Victoria Skating Rink Company, new rink, head of Victoria avenue, cost \$3,600.

FIRES.

A saw mill at Norwood, N. S., owned by Capt. D. A. Saunders, together with 180,000 feet of lumber, has been burned. Loss, \$4,500; insurance on mill, \$1,300, on lumber \$1,000.—Jasper Martin's shingle mill at Hillsdale, Ont., was burned last week. Loss about \$3,000. No insurance. Mr. Martin will rebuild.—A. C. & C. W. Elderkin's saw mill at Advocate Harbor, N. B., has been consumed by fire. Loss \$800.—The saw mill and brick and tile works of Jervis & Kellar at Stratford, Ont., has been burned. Loss, between \$3,000 and \$4,000; partially insured.—McCulloch & Company's extensive woolen, yarn and cloth mills at Rapid City, Man., were completely destroyed by fire last week; insurance \$3,000.—The farmers' elevator at Treherne, Man., has been burned. The loss is about \$18,000, with little insurance.—The residence and drive house of Geo. Kyle, at Picton, Ont., has been destroyed by fire. Loss \$3,000.—A large flour mill at Barrie, Ont., owned by N. Dymont, was totally consumed by fire on the 20th inst. Building fully insured.—The village of Deseronto, Ont. was visited by a disastrous fire on the 26th inst., which destroyed a large portion of the village. Among the burned buildings are the Rathbun Co.'s flour mill, grain elevator, storehouses and several employee's residences, the Roman Catholic church, the Cave Club boat house, and many other stores and dwellings. The loss is placed at \$300,000.—Eleven houses at Mechanicsville, Ont., were burned on Saturday last. Loss \$15,000.—Fire at Parrsboro, N. S., destroyed the Parrsboro' Athletic Club Hall, Mayor Smith's residence and a dwelling adjoining.—The residence of Eugene O'Sullivan, at L'Auge Gardien, Que., has been burned. Loss, \$3,000, mostly covered by insurance.—Mundell's furniture factory at Elora, Ont., has been burned. Loss \$12,000, partially covered by insurance.—The residences of Mrs. Orr, Ross Wilson and W. S. Duffield at Burlington Beach, Ont., were destroyed by fire on Tuesday last. Fully insured.

CONTRACTS AWARDED.

RENFREW, ONT.—The contract for building the Presbyterian manse has been awarded to J. & J. D. McNicol.

LISTOWEL, ONT.—The Silica Barytic Stone Co., of Ingersoll, have secured the contract for granolithic walks, at 12 cents per foot.

HULL, QUE.—Fortin & Gravelle, of this town, have signed the contract for the new public building at Arnprior; contract price, \$15,000.

ST. JOHN, N. B.—The contract for the Lefebvre memorial hall has been let to Sylvan Gaudet. It will be built of stone and will cost \$17,000.

PORT HOPE, ONT.—The tender of Geo. Macbeth, Toronto, offering \$1,352.75, has been accepted for the purchase of \$10,000 of High School debentures.

NEWCASTLE, N. B.—C. E. Fish, of the French Fort Cove quarry, is supplying the stone required for the new Roman Catholic cathedral at Charlottetown, P.E.I.

OTTAWA, ONT.—The Board of Works have accepted the tender of the Canadian Granite Company for a syenite pavement on Sussex street. Contract price, \$4,992.

WINNIPEG, MAN.—The Exhibition Association have accepted the following tenders for improvements: main building, Kelly Bros., \$4,050; horse stables, Chamberlin & Co., \$4,750; also speed stables, \$1,800; cattle stalls, John Robinson, \$4,179; also pig pens, \$581, and grand stand, \$1,290; machinery hall \$4,645; and judges' stand, \$90.

QUEBEC, QUE.—Contracts for annual supplies have been awarded as follows:

stone sidewalks and iron brick crossings, Frances Parent, stone sidewalks and iron bricks, Ignace Bilodeau; forge work, J. B. P. Pelletier; curb stone and stone paving, Ignace Bilodeau; pig iron, Terreau & Racine; brass, pig lead and malleable iron, James McGuire; cement, The Chicnic Company; clay pipes, C. A. Parent.

TORONTO, ONT.—Three tenders for soft coal for the water works were received by the Board of Control. The contract was awarded to the Rochester and Pittsburg Coal and Iron Company at \$2.40 per ton by vessel, and \$2.54 per ton delivered by rail.—Mr. Geo. W. Gouinlock, architect, has awarded the contract for an extension of the Foresters Temple on Bay street, and an additional storey covering the entire building. Oakley & Holmes have the cut stone, mason, brick and fireproofing, at \$43,968, and the Dominion Bridge Co. the structural iron and steel work, at \$13,998.

HAMILTON, ONT.—Wm. & Walter Stewart, architects, have let the following contracts for a residence for Mr. Watkins: Brick, stone and excavation work, Wm. Hancock; carpenter work, Phillips & Warren; hardwood finish, Valley City Seating Co., Dundas; slate, Jas. Findlay; plumbing, Geo. A. Trueman; copper and iron work, J. Wallace & Son; plasterers, S. Pork & Son; electric wiring, Lowe & Farrell. The last named contractors have the electric wiring contract for Stanley Mills store and the Collegiate Institute.—The contract for the power house for the Hamilton Radial Railway has been let. It will be situated this side of the Brant house at Burlington.—The directors of the Hamilton Radial Railway Company have awarded the contract for track-laying to contractor Gridley, who will commence work very shortly.

GUELPH, ONT.—George Stevens has been awarded the contract for improvements to Chalmers church. Contract price \$3,285. Sub-contracts have been let as follows: Slating, Brown Bros., Brantford; tinsmithing, D. E. Rudd; plastering, P. Martin; painting, John Moffatt; woodwork, Mr. Stevens.—The Guelph Norway Iron & Steel Co. have been awarded the contract for supplying the bar iron required for the new civic buildings in Toronto.—Geo. R. Bruce, architect, has let contracts as follows for a double dwelling, corner Waterloo avenue and Manchester street, for J. D. Hutton: H. Benallick, mason and brick work; John Hughes, carpenter work; J. J. Mahoney, plastering; Feek & Phillips, plumbing, heating and gas fitting; A. Cornie, painting; D. Rudd, tinsmithing. It will be built of Milton pressed brick, with stone foundations, having laundries, furnace rooms, cellar, etc., in basement. Cost \$4,500.

MONTREAL, QUE.—Under the supervision of Mr. Hutcheson, architect, the

Academy of Music building will be re-constructed. The contract has been awarded to Amos Cowen, while Simpson & Peel will have charge of the carpenter work. The interior refitting will be done by the new manager, upon plans prepared by Messrs. McEldrick, of New York, with Mr. Louis Taft as supervisor. The contract for the construction of the Royal Victoria College for Women has been awarded to P. Lyall & Sons. The building will be 166 x 76 feet, five stories, built of rock, faced with Montreal limestone, estimated cost \$225,000. The basement will contain the gymnasium, laboratory, laundry, heating apparatus, etc. On the first floor will be the dining hall, professors' and president's rooms, secretary's office and four large class rooms. The second floor will contain the library, six class rooms and a large assembly hall. On the third floor the young ladies' bedrooms and lavatories will be situated, on the fourth bedrooms, bathrooms, etc., and on the fifth floor, servants' bedrooms, bathrooms, etc. The architect is Mr. Bruce Price, of New York.—Building permits have been granted as follows: one house, 48 x 78 feet, stone and brick, on St. Hubert street for M. Anartasic Poissant. Probable cost \$4,000. Contracts let as follows: Masonry, Jules Durocher & Bros.; carpenter and joiner's work, George Bail. Three houses, 60 x 70 feet, brick front, on Cadieux street, for Martin Egan: Contractors, masonry, O. Latour; carpenter and joiner's work, Desiré Houle.

BUSINESS NOTES.

W. E. Coc, plumber, Hamilton, has assigned to C. S. Scott.



D. Cyr & Co., builders, Montreal have formed new partnership.

The Port Credit Pressed Brick Co., Port Credit and Toronto, has sold out to Mrs. H. M. Parker.

A. E. Bishop, plumber, Côte St. Paul, has removed to Montreal and commenced business under the style of Bishop & Madden.

The Ontario General Construction Co. has been incorporated by J. C. S. Shields, Sarah Gould, R. H. Hill, James Gowanlock and F. A. Shields, of Toronto, as general contractors. The capital stock is \$50,000.

PROTECTING WOOD AND BRICK WORK FROM DAMPNES.—For the purpose of protecting wood and brick work from damp weather take 3 pecks of air slacked lime, 2 pecks of wood ashes and 1 peck of white sand. Sift them fine and add linseed oil sufficient to add with a paint brush. Thin the first coat and for the second coat use it as thick as it will work. Grind it fine and put it in a trough.

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Railway and Contractors' Plant.
BRIDGE BUILDERS
BELLEVILLE, ONT.

FINISH OF OAK.

A correspondent of the Building News says:—During my long experience I have had largely to deal with first-class oak work, both ecclesiastical and domestic. I have always found oiling unsatisfactory except for large flat horizontal surfaces, where the oil will lie evenly, and so that plenty of friction can be obtained very frequently. French polishing is altogether out of the question—it is unsatisfactory at first and does not improve with age.

Where dust is very prevalent it is desirable to wax the surface with beeswax and turpentine, this should be very thin—just sufficient to fill up the pores of the wood, and little, if any, left on the surface), brushed well in and then well rubbed and polished with clean white cloths, taking care to clean out all wax, etc., from mitts, quirks, etc.

The most satisfactory way of finishing in my opinion is as follows:—Never attempt to do it either cheaply or in dusty places. If wainscot is used it should be the best quality Crown Riga; no other quality of oak has the same richness of colour and tone; it requires perfect seasoning in an atmosphere free from smoke, and to be worked by skillful joiners used in this class of wood only. All mouldings and ornamental work should be worked on the solid—none should be permitted to be planted—as nothing has a worse effect than framings to be of one color and grain with mouldings and ornaments of another; the wood should be carefully selected to harmonize in color and be free from dark streaks and other defects; the work left entirely from the plane and not touched with sand-paper, having nothing put upon its surface, but left in its natural tint; then it will soon tone down to a beautiful color and will improve with age.

All one-sided work, such as framing on walls, should have two or three coats of red-lead paint before fixing, to stop the porosity of the wood, otherwise the grains of the wood will soon get choked with dust and spoil the color of the wood. No sprig, nail, or screw-holes to be seen on the wood. All work should be screw-

slotted on grounds or specially made irons, for the purpose of secret fixing.

FORCE OF THE WIND

On the 30th of October, at the first meeting for the Session of the City of London College Science Society, Professor Henry Adams, M. I. C. E., one of the vice-presidents, read a paper on "The Force of the Wind." After reviewing a number of the recorded experiments on wind pressure, he tabulated the results upon a common basis to show that within certain limits the intensity of the pressure increased with the area of the receiving surface; but over large areas the maximum was not reached in practise, owing to the wind moving in concentrated gusts. An account was given of the pressure said to have been reached in various historical gales and extracts from various standard works as to the proper pressure to be estimated for in designing structures. In conclusion he suggested

that, although 56 lbs. per square foot might be looked upon as the standard, this should be modified according to the circumstances of the case—viz., with the height from ground level, the unsupported width, and the angle of incidence. The pressures, according to the tables submitted, varied from 16 lbs. at ground level, to 80 lbs. at a height of 200 ft., and in the latter case from 80 lbs. at a width of 10 ft. to 40 lbs. at a width of 1,000 ft., while the multiplier for angle varied from .45 at 5° to 1.00 at 60° to 90°.

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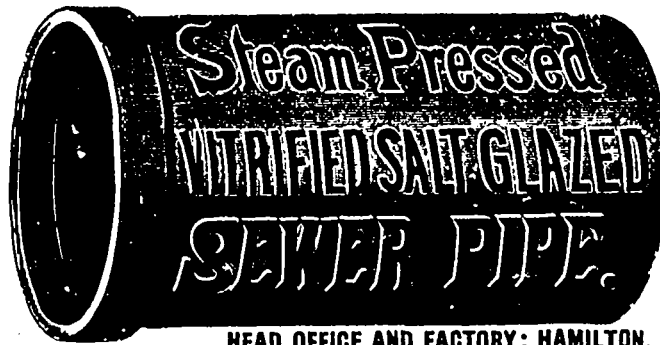
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MUNICIPAL DEPARTMENT

THE ACTION OF HEAT ON CEMENT.

By J. S. DOME, Grad. S. P. S.
(Concluded.)

A number of briquettes were heated, and rapidly cooled by being immersed in cold water, after being heated for different lengths of time at different temperatures. In every case the briquettes cracked when immersed; and, if they were red-hot before immersion, they completely disintegrated—in most cases being reduced to a heap of soft mud. The sand briquettes acted precisely similarly to the neat ones; and it appears conclusive that if cement or concrete is allowed to become red-hot, and is then immersed in cold water, the effect would be ruinous in the extreme. Some briquettes were also heated, and, instead of being immersed, were placed under a small stream of water flowing at the rate of about two litres a minute. The results were the same. Red-hot cement completely disintegrated. In some cases, when heat had not been applied sufficiently long to heat the briquette through and through, and where the edges only glowed, the glowing parts chipped off when water was applied, leaving an irregular mass comprising that part of the briquette which had not been heated so much. Even when not completely disintegrated, this central mass showed cracks, was very soft, and had no strength to resist any pressure.

From these experiments, then, the following conclusions may be drawn:

(1) While there is no doubt that a covering of Portland cement concrete will afford some protection to a metal column or girder, still there appears to be no doubt that the concrete itself will be ruined by the action of the fire, and will have to be removed as soon as the fire is subdued. The concrete covering may remain upon the ironwork during a fire, but the heat will damage it to such an extent that it will disintegrate afterwards. The impression appears to exist that the concrete will be in as good condition after a fire as before. This is a mistake, as a fire of ordinary intensity is sufficient to ruin, completely, a very large covering of concrete.

(2) The concrete covering, if heated, will not stand the action of water; all the experiments show that water applied to hot cement is extremely ruinous. This is a very important point, when we come to consider the immense amount of water thrown into a building during a conflagration. The cement is certain to become red-hot; and then, when the hose is turned on, the water strikes the protecting covering, and it breaks off, leaving the ironwork bare and filling the air with a shower of dangerous falling pieces. In a fireproofed building the usual construction is to have a system of concrete arches and slabs between the joists and girders. The walls are of concrete, and have metal doors to confine the fire, if started, to one spot as much as possible. The floor is usually cemented over, or boarded with thin flooring, and is, therefore, more or less water-tight. The ceiling, or under part, might be exposed to intense heat, while immense quantities of water were being poured upon the upper portion, causing an immense strain on the concrete, not from the weight of water, but from the opposite strains which the cement would undergo, on

account of one side being expanded by the intense heat, while the other side is kept cold by the water upon it. All this time the fire below is eating away the strength of the cement, and a collapse is the result.

(3) In calculating for the design of the columns and girders, and especially for floors, no allowance should be made for the strength of the concrete, but the cement covering should be considered as so much extra load on the system. It is the usual custom, in designing a fireproof system, to consider that the concrete bears its share of the loads upon the girder; and, in a great many cases, the girder is designed on that assumption. If no fire occurs, this is all right; but, during a severe fire, the concrete loses its cohesive properties, both on account of its water of hydration, and on account of the great internal strains caused by the expansion of one side under heat, and, consequently, becomes unable to resist any stress anywhere near what it was originally able to bear, and in most cases would not even be self-supporting. The experiments have shown that sudden heating is extremely ruinous, much more so than heat suddenly applied; and, in the average fire, a very high temperature is generated in an incredibly short time,

and concrete subjected to its action would, in a very short time, be unable to bear any strain whatever.

It appears from this that, in a fireproof building, floor should never be constructed of slabs of cement, forming short spans or arches from girder to girder, without any support. If no load were placed on the floor, and it were subjected to heat, it might possibly retain its form, provided water was not thrown upon it; but if loaded, as any floor would be, a collapse is inevitable. Concrete, then, should always have a metal system of some sort imbedded in it, sufficiently to bear the weight of the concrete itself, and all external loads which may come upon it.

The great advantages possessed by cement or concrete, as a fire-protecting material, are its low heat-conducting power and its very small expansion under heat. These advantages, however, are entirely off-set by the fact that it loses its strength under heat, is ruined by water applied during a fire, and will disintegrate after a fire, if not during the fire itself. These experiments tend to show, therefore, that the value of concrete as a fire-protecting material has been greatly over-estimated, and that disastrous results may follow from confidence in a building protected with such a material.

TABLE I.—RESULTS OF 26 BRIQUETTES HEATED SUDDENLY. Temp., 1775° Fah. (approx.)

Weight in Grammes.		Per Cent. Lost.	Tensile Strength.		Per Cent. Lost.
Before.	After.		Before.	After.	
\$140.02	125.57	10.4	530	190	64.1
\$139.28	117.47	15.4	"	200	62.3
\$140.06	115.75	17.3	"	185	65.1
\$139.07	113.72	18.7	"	53	90.0
\$140.46	125.99	11.6	"	180	66.1
\$140.98	132.87	5.7	"	235	55.7
\$139.23	137.68	1.1	"	330	37.7
\$140.11	120.89	13.7	"	140	73.6
\$139.47	133.57	2.9	"	280	47.1
\$139.21	112.07	19.5	"	15	97.1
\$140.17	121.17	13.4	"	155	70.7
\$138.71	119.70	13.7	"	145	72.7
\$135.77	131.70	2.9	930	0	100.0
†133.75	118.85	11.1	"	20	97.8
†132.75	dropped from				
†131.16	123.05	6.2	930	50	94.6
†132.76	118.95	10.4	"	20	97.8
†134.15	128.70	4.8	"	23	97.5
†139.22	125.72	9.7	515	85	83.5
†138.41	128.39	7.2	"	75	85.4
†140.00	134.23	4.1	"	122	76.3
†137.35	135.54	1.3	"	200	61.2
†138.47	131.38	5.1	"	97	81.1
†138.21	135.68	1.8	"	185	64.1
†140.04	112.87	19.4	"	0	100.0
†137.26	113.24	17.5	"	10	98.1

§ "Star" Brand. † Briquettes, 4 years old, brand unknown. ‡ "Jossen" Brand.

TABLE II.—RESULTS OF TWENTY-ONE BRIQUETTES HEATED VERY GRADUALLY AND BROKEN. Maximum Temperature, 1000°—1025° Fah.

Weight in Grammes.		Per Cent. Lost.	Tensile Strength.		Per Cent. Lost.
Before.	After.		Before.	After.	
*139.27	132.34	4.9	530	395	25.6
*138.31	130.16	5.9	"	390	26.3
*140.26	128.32	8.5	"	348	34.3
*140.06	129.16	7.8	"	351	33.7
*138.07	126.23	8.6	"	327	38.2
*139.04	120.13	12.9	"	152	71.2
*139.26	116.27	16.5	"	73	84.3
*138.35	113.31	18.1	"	29	94.5
*140.21	119.26	14.9	"	110	79.0
*139.32	125.34	10.04	"	237	55.2
†137.79	129.32	6.1	515	348	32.3
†139.42	130.26	6.6	"	348	32.3
†140.31	133.58	4.8	"	398	22.6
†139.27	127.31	9.3	"	232	49.0
†140.32	120.15	14.3	"	182	64.7
†138.37	136.32	1.5	"	440	14.7
†139.46	134.31	3.7	"	400	22.3
†140.07	121.31	13.4	"	195	62.3
†139.36	117.26	15.8	"	130	74.6
†140.21	122.31	12.5	"	193	62.4
†139.36	112.60	19.2	"	10	98.0

* "Star" Brand. † "Jossen" Brand.

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CONDITION OF THE MARKET.

TORONTO: Of the city trade in builders' supplies no activity can be reported. The trade secured is principally on country account. In cut nails the sales have increased during the past week, while wire nails are firmer than cut nails. The manufacturers of plumbers' supplies have recently organized and have withdrawn prices for the present, with a view, no doubt, of revision. Some good sales are reported in lead pipe and galvanized iron. In the latter, import orders are being freely placed, and increased activity is early anticipated.

MONTREAL: A fair demand is experienced for builders' supplies from outside points, but city trade is quiet. In general hardware a fair jobbing trade is being done. The wire nail manufacturers have increased the trade discount in the Maritime provinces from 70 and 10 to 70 and 12 1/2 per cent. off list. The basis in Ontario, Quebec and the west remains the same. Cut and wire nails are in moderate demand. Sheet steel and sheet iron are quiet, with no change to note. The receipts for cement for the past week were 3,900 barrels of English against 2,000 for the week previous, which makes a total to date of 10,120 English and 5,205 Belgian. The market has no special features, the call being for small lots.

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Table listing prices for Keene's Coarse Whites and Fire Bricks.

HARDWARE.

Table listing prices for cut nails and steel.

CUT NAILS, FENCE AND CUT SPIKES.

Table listing prices for various sizes of cut nails and spikes.

WIRE BLUED NAILS.

Table listing prices for wire blued nails.

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

Table listing prices for casing and box nails.

FINISHING NAILS.

Table listing prices for finishing nails in various sizes.

SLATING NAILS.

Table listing prices for slating nails.

COMMON BARREL NAILS.

Table listing prices for common barrel nails.

CLINCH NAILS.

Table listing prices for clinch nails.

SHARP AND FLAT PRESSED NAILS.

Table listing prices for sharp and flat pressed nails.

STEEL WIRE NAILS.

Table listing prices for steel wire nails and iron pipe.

Lead Pipe.

Table listing prices for lead pipe and waste pipe.

Galvanized Iron.

Table listing prices for galvanized iron in various gauges.

Structural Iron.

Table listing prices for structural iron including steel beams and plates.