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A Weekly Journal of Advance Information and Public Works.

ITS PURPOSE: TO SUPPLY TO CONTRACTORS ADVANCE INFORMATION RESPECTING CONTRACTS OPEN TO FEM-DER, AND TO ARCHITECTS, ENGINEERS, MUNICIPAL AND OTHER CORPORATIONS, A DIRECT MEDIUM OF COM-MUNICATION WITH CONTRACTORS.

ITS MERIT: ECONOMICAL AND EFFECTIVE SERVICE.

Vol. 2.

Toronto and Montreal, Canada, January 2, 1892.

No. 47

THE CANADIAN CONTRACT RECORD.

A Weekly Journal of Advance Information and Public Works,

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.

C. H. MORTIMER, Publisher,

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

64 Temple Building. -Montreal. Bell Telephone 2299.

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

ADVERTISING RATES ON APPLICATION.

At its Convention held in Toronto, Nov. 90 and 21, 1889, the Ontario Association of Architects signified its approval of the TANADIAN GONTRACT RECORD, and pledged its members to use this journal as their medium of communication with contractors with respect to advertisements for

The following resolution was unanimously adopted at the First Annual Beeting of the Province of Quebec Association of Architects, held in Montreal, Oct. 10th and 11th, 1890 : " Moved by M. Perrault, seconded by A. F. Dunlop, that we the Architects of the Province of Quebee now assembled in Convention being satisfied that the CANADIAN CONTRACT RECORD affords us a direct communication with the Contractors,—Resolved, that we pledye 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.

"HE IS A BRICK."

The oldest bit of slang which can be traced to a historical origin is said to be, "He is a Brick." Plutarch in his "life" of Lycurgus, gives an account of a visit of an ambassador from Epirus to the city of Sparta, who saw much to admire and praise. But he wondered greatly that Sparta was not a walled town, and asked the explanation of its lack of defensive works. No answer was returned that day. Early the next morning, however-for the Spartans rose at dawn—the Epirote was awakened and conducted to the field of exercise outside the city, where the army of Sparta was drawn up in battle array. "There," said Lycurgus, "are the walls of Sparta, and every man is a brick.

VANCOUVER WATER WORKS.

Scaled tenders will be received, addressed to to "Thos. F. McGuigan. City Clerk, Vancouver, B. C.," up to 3 p. m., MONDAY, FEBRUARY 187, 1892 for about

1. 1,830 Tons Cast Iron Pipes and Special Castings.

80 Tons Pig Lead and Pipe.

100 Hydrants and 200 Valves.

Specifications and particulars may be obtained on application to the undersigned, or at the office of this paper.

The lowest or any tender not necessarily ac-

cepted. THOS. H. TRACY.

City Engineer.

Vancouver, Dec. 16th. 1801.

WATERWORKS.

Notice to Contractors.

Scaled tenders will be received until Friday, the

Stated tedders win be received until renday, the 8th day of January, 1892, at 6 p.m., for the construction of a system of Water Works for the Town of Springhill, Nova Scotia.

Plans, specifications and terms can be seen at the office of the Town Clerk, to whom all tenders must be addressed, marked "Tender for Water Works."

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By order, DANIEL McLEOD,

Springhill, N.S., Dec. 19th, 1891.

BLASTING PAPER.

The preparation of paper so that it may be used as a blasting material for tearing down ledges, blowing up buildings, or even firing cannon, is described as follows by a writer in the Paper Trade Journal. Almost any good unsized paper can be made into an explosive compound by coating it with a hot mixture of yellow prussiate of potash and charcoal. Take each of these, 17 parts; mixed with refined saltpetre, 35 parts; chloride of potassium, 70 parts; wheat starch, 10 parts, and water, 1,500 parts. The ingredients must be dissolved until they form a clear solution in the water. Dip the paper and soak it in the solution until it is thoroughly wet. It then may be dried, rolled into cartridges and fired in the ordinary manner, either with a fuse or with detonating caps similar to those used in firing cannon or dynamite when used in blasting ledges.

Blasting paper is especially useful in operating the guipowder pile driver, as several thicknesses of the explosive paper may be placed on top of the timber together with an explosive cap and fired by impact of the ram as it falls from the previous stroke. Cartridges of this paper may be rolled to any desired size, and are very handy when blasting a wheel-pit or flume, as the cartridge can be made of exactly the size to fill the drill hole.—

Mechanical News.

CONTRACTS OPEN.

PEMBROKE, ONT. - The erection of a hospital will shortly be commenced.

PETERBORO', ONT .- Thirteen more buildings are to be erected by the Edison Electric Co.

WEYMOUTH, N. S .- The Roman Catholics have purchased a site on which to erect a new church.

DELTA, ONT.-John E. Brown, Township Clerk, will receive tenders until the 28th inst. for the survey of the village.

VICTORIA, B. C.—The ratepayers will again be asked to grant the sum of \$50,000 for establishing a university for the province.

GUFFIFI, ONT. The citizens will vote on the by law on the 9th inst. to expend the sum of \$19,000 in extending the water works.

STRATFORD, ONT. - A joint stock company is being formed, with a capital of \$60,000, for the purpose of establishing a biscuit factory.

POINT LIMAKO, ONT. -It has been decided to offer a bonus of \$50,000 to the Grand Trunk Railway Co. to locate car shops at this place.

INGERSOLL, ONT .- Dr. McKay, M.P.P., has recently purchased the James Noxon residence, and intends converting it into a private hospital.

CLAYTON, ONT .- The New York Central Railroad Company have begun making surveys for the proposed extension of the company's dock.

WALLACKBURG, ONT. The ratepayers have carned the by-laws granting bonuses for the erection of an elevator and the establishment of glass works.

CALGARY, N. W. T .- The Imperial Bank has purchased the stone building formerly occupied by I. G. Barker & Co. Improvements will shortly be made to the premises, to cost \$14,000.

DARTMOUTH, N. S .- Mr. Hugh Grant intends erecting a new building next to Lawlor's bakery. -There is talk of cutting a channel from Cathill Lake to Lake Maynard, to supply the asylum with water.

LONDON, ONT. - Tenders will be received at the City Engineer's office until Thursday, the 7th inst., for building a stone breakwater at Victoria bridge.-The City Engineer will receive tenders until the 7th inst. for plumbing work for the City Hall.

AMHERSTBURG, ONT .- Tenders marked " Tenders for the Methodist Church, will be received at P. L. Wigle's hardware store, this town, until January 20th, for the erection of a brick church, and separate tenders for scating and glazing. Plans, etc., at above store.

OTTAWA, ONT .- The Ottawa City Passenger Railway Company will apply to Parliament for amendments to its charter to permit the company to extend its line across the Ottawa river by way of the Union Suspension bridge to Hull, and to use electric, pneumatic, or other power.

KINGSTON, ONT .- A movement is on foot to have the principal business streets paved .- Mr. James Swift has decided to erect a brick dwelling on Brock street, and is making preparations to commence work early in the spring .- New brick fronts, with plate glass windows, are to be added to the stores on Princess street occupied by Messrs, John Oakley & Sons,

WINNIPEG, MAN, — Messrs. Carscaden & Peck, wholesale clothing merchants, have purchased the Watson property on the northwest corner of Princess and McDermott streets, and next spring will erect thereon a brick and stone block, three stories high.—The city council have decided to grant the franchise for an electric street railway to Messrs. James Ross, of Montreal, and Wm, McKenzie, of Toronto.

TORONTO, ONT.—Mr. James Smith, of the Walker House, is endeavoring to obtain a renewal of lease of a lot adjoining the hotel, on Front street, with the object of enlarging the present building.—Mr. Richard West intends erecting four or five houses on the corner of Wilson avenue and King street, Parkdale, in the spring.—A building permit has been granted to J. Bedford & Sons for a detached 2 story and attic brick dwelling, west side Glen Road, north of Maple ave, cost \$12,000.

MONTREAL, QUE,—Mr. R. B. McConnell, Superintendent Waterworks, will receive tenders until Tuesday, the 5th inst., for 550 tons of cast iron water pipes.—The Harbor Commissioners invite tenders until the 5th inst. for the supply of Inmber for the hulls of three floating derricks and for rebuilding one dredge.—The City Clerk will receive tenders until Wednesday, the 13th inst., for the excavation, masonry and steel superstructure for a bridge over the Canadian Pacific Railway tracks on St. Catherine street.

FIRES.

The Canadian Pacific railway station at Calgary, N.W.T., was destroyed by fire on the 26th December.—The residence of W. Carmichael, Collingwood, Ont., was burned on the 27th inst. Insurance \$1,000.-The Continental hotel at Berlin, Ont., owned by Walper Bros., was burned on the 28th inst. Insurance \$2,500.-Court's block, St. Johns, N.B., was destroyed by fire on the 29th inst. Insurance \$4,000.—The Michigan Central freight depot at St. Thomas, Ont., was entirely gutted by fire on Wednesday last.-A house and outbuildings at Zurich, Ont., owned by Wm. Klapp and occupied by Mrs. Alexander Bosomberg, was burned on Tuesday last, -Sykes & Ainsley's woolen mill at Glenwilliams. Ont... was partially destroyed by fire on the 29th inst.

CONTRACTS AWARDED.

MONTREAL, QUE.—The Harbor Commissioners have awarded the contract for the supply of hemlock planks to Mr. W. H. Kelly.

PHILADELPHIA'S NEW CLOCK TOWER.

The clock-tower to surmount the new Public Building in Philadelphia, which is entirely of metal, rests on the marblework of the tower, which rises to a height of 337 feet 4½ inches from the ground. Set in the stone base are eight composite columns rising vertically to a height of 67 feet 8 inches above the marble work, and above that converging towards the centre to receive and support the cast-iron base-plate of the figure of William Penn, at a height of 173 feet 3 inches above the marble-work base. The whole of the outside shell, to a height of 67 feet 8 inches above the marble-work, is of castiron sectional plates of an average of one inch in thickness. Not to be included in this are the four figures, the four eagles, and the clock-face. These, together with the whole of the external covering of the dome, from the level of 67 feet 8 inches above the marble-work, upwards and including the central figure of William Penn on the apex, which rises to the additional height of 36 feet 8 inches,

are, states the Jewellers' Circular, to be made of aluminum bronze. All portions with large plain surfaces are made of sheet metal not less then one-eighth of an inch in thickness. The face of the clock is to be 23 feet in diameter and its altitude from the ground 250 feet. The clock will be wound by a steam engine. The bell is to weigh between 20,000 and 25,000 pounds, and will be second in weight to the great Montreal Cathedral bell, which weighs 28,000 pounds, and it is expected that its peal will be heard even in the most distant part of the city. Chimes similar to those of Westminster clock will be used, ringing at the quarter, half, three quarters, and hour. To distinguish the time at night, the dial will be illuminated by electricity, so that the position of the hands can be seen from any point of the city. The minute hand is to be 12 feet and the hour hand 9 feet in length, while the Roman figures on the dial will measure 2 feet 8 inches in length.

HOOKS FOR HEAVY WEIGHTS.

- (1) Assuming that a girder, such as is used in building elevated railroads, and weighing about eleven net tons, is to be lifted with a single hook, what size and thickness of iron hook would be required?
- (2) If in lifting such a heavy weight a hook breaks square off without bending, would that indicate the quality of iron used to make the hook; if so, of what quality of iron would it indicate that the hook was made?
- (3) If the quality of iron used in the hook was good and the weight required to be lifted was greater than the hook could stand, should not the latter bend before breaking? Would it, if made of good iron, break at all?
- (4) Assuming that hook, such as described, broke, was it not practical and easy to discover, before the hook was made, whether the iron to be used in making the hook was good or bad? If so, what test would be required to discover this?
- (5) Assuming that girders of from seven to eleven net tons weight are to be lifted, what should be done with respect to the hooks to be used in doing this work, to secure good and substantial hooks?
- (6) Does not the fact that a hook broke off at the end in lifting a girder without the hook bending, prove absolutely that the hook was made of bad iron?
- Ans. (1) Two and one half inch round iron having a tensile strength of 50,000 to 60,000 pounds per square inch; the bend in the curve having a radius of two and one-half inches. Or a somewhat smaller area of oval cross section in the curved portion.
- (2) It would show that the iron was brittle, and of bad quality; perhaps 'cold-short' or containing phosphorus.
- (3) A hook should open out if not strong enough to carry the load. It should bend and tear without breaking off short.
- (4) The quality of the iron can be determined before making up into hooks, by two tests; by nicking the bar and cutting off a piece and observing the

fracture; and by bending it cold to a very short radius. The very best iron will show a fine silky fibre, lustrous without glittering; not at all crystalline; and should bend back parallel upon itself, with a very small space between the two sides of the bend, or should even bend back flat upon itself without tearing open the outer side of the bend.

- (5) The hooks should be made of "refined" iron known to be of the best quality; should be made by a competent blacksmith so as not to injure their fibre in working; should be of a practical shape and sufficient size; and the iron should be tested before making up into hooks. Two hooks might very well be used in order to lessen the probability of accident. Such precautions are necessary to be taken because chains are liable to be kinked and to drop their loads a slight distance, suddenly, so that the load is removed from the chain and then instantly applied. Such a sudden application of a load doubles its effectiveness in breaking
- (6) The breaking of a hook at the bend without opening out at all is a proof in itself that it was made of bad iron, entirely irrespective of its dimensions and proportions.

Wax painting, the admixture of wax with the color, is growing in favor for the high grades of interior decoration, on account of the soft luster and the harmonious character of the work. In painting, the wax is dissolved in alcohol and is then ready to be mixed with any coloring materials. The mixture is not as plastic as ordinary paint and requires greater expedition in application to secure the best results.

PUTTY JOINTS V. INDIA RUBBER CONE JOINTS.—A correspondent writes to the editor of the Decorators' Gazette and Plumber and Gasfillers' Review, contending that putty joints for closet basins are superior, as far as durability goes, to rubber cone joints, especially those made of thin rubber, as they get perished out in about five years, more or less. He says: "As regards the arms bursting off closet basins in winter time, I have found just as many burst off with rubber cones as with putty joists." He gives the following advice to young plumbers: "Let the lead pipe fit inside the earthenware arm about three-quarter inch, so that there is a little play all round, say one-eighth inch. See that the work is thoroughly dry, then paint where the joint is to be made (there is not my better paint than red lead for the job); place the putty on and mould it; and press it tightly round with the hand (it does not require much; a piece about the size of an ordinary duck's egg will do for ordinary jobs); bind a slip of rag, about eighteen inches long and four inches wide, round the joint tightly; tie about two yards of string round the joint neatly, and if there is any surplus rag at the ends of the joint, cut it off. The joint should be well painted outside, because it makes the joint harder and preserves it from getting rotten with damp or mildew, also prevents rats, mice, beetles, etc., from eating it

HOT-WATER HEATING.

Without attempting to enter into the vexed question of the exact cause of the circulation in a hot-water system, about which Tredgold, Bramah, Hood, Mills, Baldwin have presented able arguments in support of their own theories, says the Heating Engineer, we will simply accept that there is motion, and that motion is occasioned in some way by the application of heat to some part, preferably the lowest, of the apparatus, thus causing a disturbance of the hydrostatic equilibrium, resulting in a flow.

One point here: it is a recognized fact that a clean, sharp fire, consuming about four-tenths of a pound of coal per square foot of heating surface per hour, results in a maximum economy of fuel. Dr. Chas. F. Emery, in his very able report on the Centennial Boiler Trials, was the first to demonstrate such a fact. And from the same there follows as a corrollary to this statement, that two boilers of radically different types, but of good design, burning the same coal at the above rate, the potential and economic merits will be found equal. This applies to our subject in this way: when we have a minimum amount of water in circulation in our system we can employ a minimum size of boiler, thus insuring a near approach to our figure above given. Agam, Baldwin, in his work on "Hot Water Heating and Fitting," states very clearly, concisely, and accurately (page 210): "Anything that quickens the circulation through or within a boiler or over its fire surfaces will increase its capacity per unit of surface." Hence, where a minimum amount of water is in circulation the difference in temperature between the flow and return will be greater; hence the velocity of the flow, and consequently the circulation, will be quickened, and we can use a smaller boiler than we could were our quantity of water greater and our circulation more sluggish. It may be argued here that when we increase our velocity we increase our friction: true, as far as such a general statement of fact goes, and if the velocity was as great as is frequently found in city water mains, an increase in rate of flow might be a serious consideration. But Box has shown ("Practical Treatise on Heat," page 200) that with a two-inch hot water heating pipe one hundred feet long, exposed to an at sixty degrees, the water leaving the boiler at two hundred and ten, returning at two hundred, the velocity in feet per second is less than four-tenths, and for greater difference in temperature between the flow and return and for larger-sized pipe the velocity is much smaller. We may, therefore, dispense with the idea that with an increased velocity the loss of heat by friction is sensibly increased.

Again, with the minimum quantity of water in the system, and consequently a more rapid circulation, it follows that the building will be more quickly warmed or cooled than when a greater quantity of water is employed. In other words, one of the great points claimed as a superiority of hot water over steam, viz., rusceptibility to automatic government by change in

outside conditions of temperature, is most apparent when we have a minimum amount of water in circulation per square foot of radiating surface.

The comparative rates of expansion of copper and iron are copper 3, iron 2; while the heat conducting power is in the ratio of copper 6, iron 1.

TO BUILDERS.

ALEX. MACLEAN,

9 Victoria Street, Toronto,

Ofters to builders, on advantageous terms, lots on Elizabeth St., Westmoreland Ave., Spencer Ave., Shaw St., Wellesley St. and Spadina road.

To Builders, Investors and Speculators.

Offers are invited to purchase that magnificent business site at the intersection of Dundas and Arthur streets and Ossington Ave. The lot has a frontage of 100 feet on Dundas and 120 feet on Arthur St., and is undoubtedly the best business corner west of Yoage St. Offers to be sent to F. J. Smith & Co., Estate Agents, 90 Church St.

J. A. NESBITT. ESTATE AND FINANCIAL AGENT AND ARBITRATOR.

Office: 9 Adelaide St. Kart, - TORONTO. Office Telephone 1631. House Telephone 3692.
Money advanced on mortgage. Fire insurance at lowest rates. Values carefully estimated.

W. PARSONS,

No. 4 Adelaide St. East, Toronto.

Estate, Loan and Builders' Exchange.

I make a specialty of builders' loans and builders' properties. Money to loan, W. PARSONS. Telephone 2536.

Prices of Building Materials.

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Canada Galvanizing & Steel Roofing Co.:

Canada Garvaniang & Steel Roomig	
Corrugated Iron, galvanized, 22, 24, and 26 W. G., par lb	4½ cts
Corrugated Iron, galvanized, 28 W.G., Corrugated Iron, painted, 26 W.G.,	5%
Corrugated Iron, painted, 28 W. G.,	4 00
Corrugated Iron, painted, 28 W. G., Broad Rib Roofing, galvanized, per	3 50
square	5 50
Broad Rib Roofing, painted Westlake shingles, steel, galvanized,	4 00
per square	5 00
Westlake shingles, steel, painted Standard shingles, "Walter's patent,"	3 \$
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Common Rubbl. Large flat " Foundation Bloc Slate: Roofing (" " " " Terra Cotta Tile Ornamental Blac Sand: Per Load of 1½ PA1 White lead, Can. " zinc, Can. Red lead, Eng. " venetian " venetian " venetian " vermillion. " Indian, Eng Yellow ohrome Yellow ohrome Green, chrome " Paril " Foundation Blac " Paril " Paril " Paril " Paril " Paril " Paril " " Foundation Blac " " " " " " " " " " " " " " " " " " "	cks, "Cubic Foot (**) square). red purple unitading green black slate c, per sq. ck Slate Roofing Cubic Yards. INTS. (In oil, **) lb.)	14 00 18 00 50 18 00 9 50 9 50 7 75 75 00 8 25 61/4
Common Rubbl. Large flat "Foundation Bloc Slate: Roofing of the Common Slate: Roofing of the Common Slate: Roofing of the Common Slate: Red Common Slate: Red Lead, Can. "inc. Can. Red Lead, Eng. "vermillion of the Common Slate: Vellow ochre "Yellow ochre "Yellow chrome. Green, chrome "Paril"	cks, "Cubic Foot (\$\partial \text{square}\).	14 00 18 00 50 18 00 9 50 9 50 7 75 75 00 8 25 61/4
Common Rubbl. Large flat "Foundation Bloc Slate: Roofing of the Common Slate: Roofing of the Common Slate: Roofing of the Common Slate: Red Common Slate: Red Lead, Can. "inc. Can. Red Lead, Eng. "vermillion of the Common Slate: Vellow ochre "Yellow ochre "Yellow chrome. Green, chrome "Paril"	cks, "Cubic Foot (\$\partial \text{square}\).	14 00 18 00 9 00 9 53 7 75 7 60 8 23 1 23 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1
Common Rubbl. Large flat " Foundation Bloc Slate: Roofing (" " " " " " " " " " " " " " " " " " "	cks, "Cubic Foot (**B square*). (**cell square	14 00 18 00 9 50 9 57 7 00 8 25 6 1/2 6 1/2 6 1/2 1 00 1 0 1 0 1 0 1 0 1 0 1 0 1
Common Rubbl. Large flat " Foundation Bloc Slate: Roofing (" " " " " " " " " " " " " " " " " " "	cks, "Cubic Foot (**B square*). (**cell square	14 00 18 00 9 50 9 50 9 50 7 75 77 00 8 25 6½ 6½ 6½ 6½ 6½ 105 5½ 6½ 1 00 1 10 1 10
Common Rubbl. Large flat " Foundation Bloc Slate: Roofing (" " " " " " " " " " " " " " " " " " "	cks, "Cubic Foot (**B square*). (**cell square	14 00 18 00 18 00 9 50 9 50 9 50 18 00 9 50 18 00 18 00
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MONTREAL PRICES.		BOILER COVERING.		Ornahental Plasterers.	
Lumber, Blo.	offis on	Gast & Co		Baker, J. D	III viii
Ath, 2 to 4 in , M	25 00	Adamson, Jos	1	Wright, Jas.	III
Basawood	200 00	Brodie, James	ij	PAINTS, VARNISHES, &C.	_
Butternut, per M	4 00 00	Brodigan & Co., J	ii viii	Muirhead, Andrew	x
Cedar, flat	0 80 00		vi	Dill & O'Hearn	П
Elm, Soit, 11. 23 or Maple, hard, M. 20 or Maple, Soft 16 or Oak, M. 40	30 00	Builders' Hardware.	***	Gilmor & Casey Polito, T	
Maple, Solt	18 00	Rice Lewis & Son	IV xv	Paving,	•
Pine, select, M	40 00	CEMENTS.		Excelsior Pavement Co	, x
Shipping Culls 13 00	, 10 00	Adamant Mfg. Co	X I	Forsyth, Robert	xiii IV
Lath, M		MeNally & Co., Wm	iv iv	PLASTEREPS.	
Spruce Culls	6 600	McRae & Co	iv	Hynes, W. J. Watson Bros	I
Spruce Culls	1 50	Rathbun Co. Terry, Edward.	viii iv	PLASTERING FIBRE.	
Portland Coments, etc. German brands, per barrel \$ 2 (Se - 8e	Wright & Sons, C. B.	ij	Nowell & Co., R. L.	xiii
London " " 3	15 2 90	CHURCH AND SCHOOL FURNITURE.		PLATE GLASS,	
Newcastle " 2 Belgian " 2 Canadian " 2 Koman " 2 Keene's Coarse "Whites" 4 " Parlan " 4 " Superfine " 6 Coloine on hard	2 40	Canadian Office & School Furniture Co Office Specialty Co	xv xiv	McCausland & Son	v vii
Canadian " " " " " " " " " " " " " " " " " " "	15 2 30	CHIMNEY TOPPING.		PI.UMBERS.	
Reene's Coarse "Whites" 4 !	0 4 75	Hansen, Harald M	xiv	Bennett & Wright	
		CONSULTING ENGINEER.		McCrae & Watson	vi
Fire Bricks, Newcastle, per M 20 Scotch 18 C	0 24 00 10 25 CO	Ватту, А. В	ii	PLUMBING SUPPLIES, Booth & Son	v
Sandstones.		CONTRACTORS AND BUILDERS.	**	Garth & Co.	YV
	55 85 58 80	Davidson & Kelly	II vi	Malcolm, W. B. Sanitas Mfg. Co. St. Johns Stone Chinaware Co	ı V
Bath Stone Quarties Stone "Cut Nails:	55 85	Dagenais, J Benjamin	vi II	St. Johns Stone Chinaware Co	iii
Hot-cut Am. or Can. pattern, 3 inch		Hancock, Thomas	H	ROOFING MATERIALS.	ii
Hot-cut Am. or Can. pattern, 21/4 inch	5 \$2 85	Hamilton, Edward	vi iii	Merchant & Co	×
Hot-Cut Am, or Can, pattern, 21/2 and	× 3 25	Lyall, Peter	П	Samuel, Benjamin & Co	XV
a inch	5 4 20	Murison & Burge	Vi II	SANITARY APPLIANCES. Booth & Son	v
Can. Pattern, cold-cut, 114 and 114 inch 3:	25 5 80 25 4 45	Thomas & Howell	I I vi	Sanitas Mfg. Co	v
Finishing Nails, per 100 lb, keg, 136	5 5 95	Webb & Claxton	II	Ives & Co., H. R. Malcolm, W. B.	i
and 1% inch	4 50	CUT STONE CONTRACTORS.		St. Johns Stone Chinaware Co	iii
to 1 1 inch	3 85	Adamson, Jos	I	ROOPERS. Baird Bros.	П
and up	3 50	Hibbard, H. & T	II	Duthie & Sons, G	II
Paints, etc. White Lead, pure, 25 to 200 lb. kegs. 6 oc	6 25	Istac BrothersOakley 冬 Holmes	II	Forbes, Duncan	ii
" No. 1 5 23	5 5 50	ELECTRIC LIGHTING.		Hutson, W. D	11
" No. 3	4 50	Royal Electric Co	I	Saulter, Wm	H
Vanasian Dad English T 60	1 75	Toronto Electrical Works DERRICK BUILDERS.	xiv	Shales, John HStewart, W. T	II II
Whiting, London, washed 0 6	0 75	Rowe, Geo	ii	Toronto Roofing Co	II
Olls:	1 10	ELEVATORS.		SASH BALANCE	11
Linseed, raw o 6		Ives & Co., H. R.		Hargreaves, John	Ш
Olive, pure 1 10	1 15	Leitch & Turnbull	I	SEWER PIPE	
machinery	3 2 4	ENGRAVERS. Canadian Photo-Eng Bureau	XVI	Adamson, Jos	I iv
" extra, qt, per case	3 10	FIRE BRICK AND CLAY.	,	McNally & Co., W	vii V
Spirits turpentine 0 6	0 70	Adamson, Jos	I	McRae & Co	iv
INDEX TO ADVERTISEMEN	27	Colman-Hamilton Co	iii 11	Terry, Edward The Ontano Terra Cotta Pressed Brick &	
IN THE CANADIAN ARCHITECT AND BU		GALVANIZED IRON WORKS.	••	Sewer Pipe Co The Colman-Hamilton Co	rii iii
IN THE CARADIAN ARCHITECT AND DO		Baird Bros	11	Wright & Sons, C. B	ir
ARCHITECTS.		Douglas & Plunkett	II II	SLIDING BLINDS.	
Ontario Directory	III vi	Tucker & Dillon	11	Clatworthy, Geo	x
ARCHITECTURAL SCULPTORS AND CARVI		GRATES AND TILES.		STAINED AND DECORATIVE GLASS. Castle & Son	iv
Carnovsky, B. H	xii	Holbrook & Mollington	Xii IV	Dominion Stained Glass Co	įv
Holbrook & Mollington	. xii	HEATING.		Elliott & Scn. Faircloth Bros	I
Turner, Frederic	II	Garth & Co	xv xiii	Grimson, G. & J. E. Longhurst & Co., H.	iv iv
Wagner, Zeidler & Co	vii	Howard Furnace Co	XII	Lewis, R	¥
ARCHITECTURAL IRON WORK	1V	Ives & Co., H. R. King & Son, Warden	IV xvi	McCausland & Son	v i▼
B. Greening Wire Co	iv	McClary Mfg. Co	xii xii	The Bell Art Stained Glass Works Victoria Stained Glass Co	٧
The Dominion Bridge Co	I	Toronto Radiator Mfg Co	χi	STENOGRAPHERS.	v
ART WOODWORK.	•• ••	IRON FENCES.	***	Holland Bros. & Young	vi
Carnovsky, B. H	xiji	Ives & Co., H. R	-17	TERRA COTTA.	
Wagner, Zeidler & Co	vii	Ives & Co., H. R	IV	The Hynes Terra Cotta & Brick Co Toronto Pressed Brick & Terra Cotta Co.	
Richardson, I. T	III	LIME AND STONE.		The Ontario Terra Cotta, Brick & Sewer	
Bent Glass Manufacturers. Polito, T	111	Wright & Sons, C. B	ii	Pipe Co	xi
BRICKS (PRESSED).	.,	Denton, Dods & Denton	777	TERRA COTTA FIREPROOFING. Rathbun Co	viii
Hynes Term Cotta & Brick Co	viii	MANTELS AND OVERMANTELS.	111	The Montreal Terra Cotta Lumber Co	viii
The Don Valley Pressed Brick Works. Toronto Pressed Brick & Terra Cotta C	o. iii	Millichamp Mfg. Co	xiv	TOWER CLOCKS AND BELLS. Gillett & Johnston	
The Ontario Terra Cotta, Brick & Sew	cr.	METALLIC LATH.			
Pipe Co Builders' Supplies.	vii	B. Greening Wire Co		WALL PAPER AND CEILING DECORATIONS. Ellion & Sor	11
Adamant Mig. Co	ц	Metallic Roofing Co	ii	Faircloth Bros	v
Adamson, Joseph	I	MORTAR COLORS AND SHINGLE STAINS. Cabot, Samuel	xvi	WALL PLASTER. Adamant Mig. Co	11
McNally & Co	iv	Maguire, Wm	iv	Boynton Wall Plaster Co	٧i
Rathbun Co	viii ii	Muirhead, Andrew	xvi jii	WALL TIE. Weese & Co., D. A	x