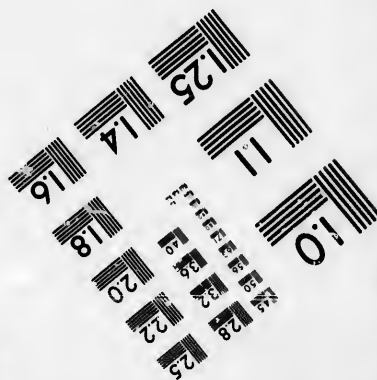
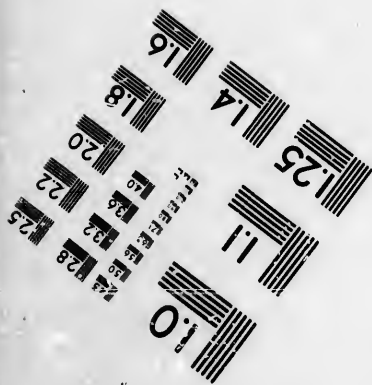
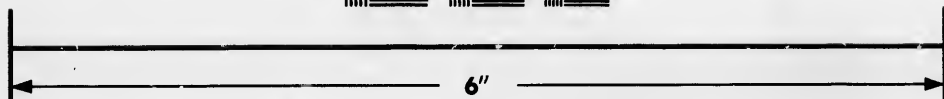
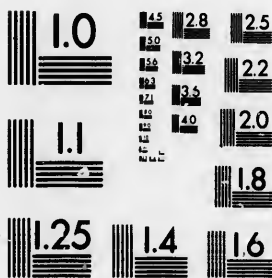


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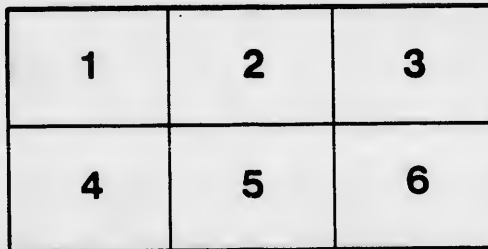
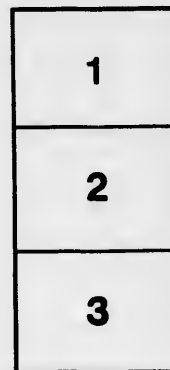
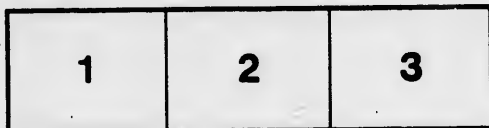
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# Practical Hints

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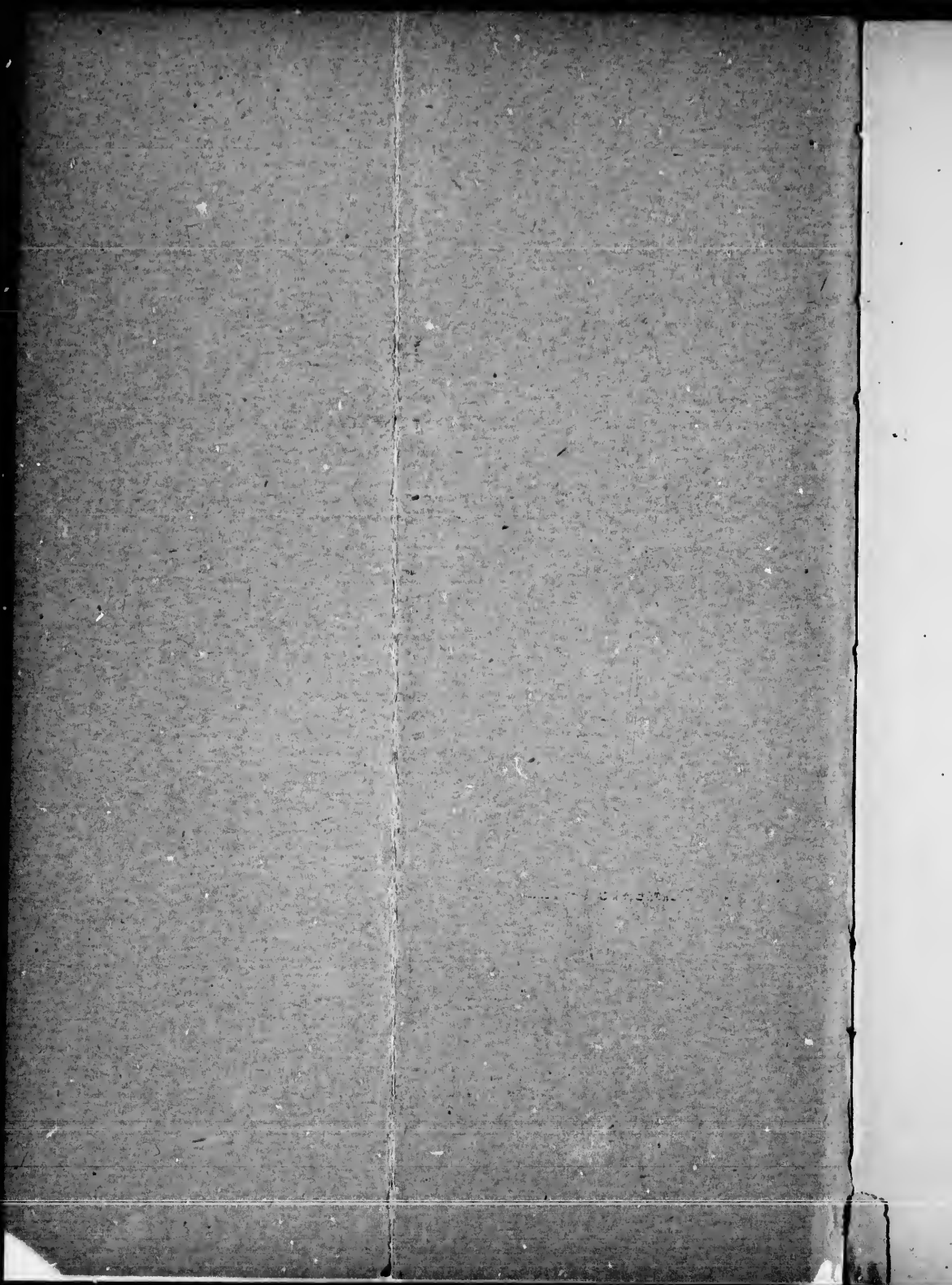
Queenston

Cement

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## TO THE PUBLIC.



WE again thank our patrons for their liberal and ever increasing patronage bestowed on us from year to year. In return we can truthfully say that we are giving our whole time and are using our best efforts to develop the most perfect and practical farm buildings, both as to design and durability of work. We especially thank the agriculturists of the Dominion, as we find that fully 90 per cent. of our large output is used by them for farm structures.

We would ask those intending to build to read carefully the letters and testimonials in the back of this pamphlet. These testimonials have been received from some of the most prominent and successful farmers in Ontario, and give very full information as to actual cost of concrete structures of every kind.

In this pamphlet we are making our instructions as brief and as plain as we possibly can, but in districts where our cement has not been thoroughly introduced we will send, at our own expense, an expert to lay out all sorts of structures, and give all required instructions. When our instructions are carried out we guarantee all work to be absolutely perfect.

The first essential for good, rapid, perfect work is a good platform of ordinary boards or plank—the larger the better. The platform should be laid level, so the water will flow evenly through concrete when mixing. No sides should be used on platform.

On this platform place six pails gravel and one pail cement, keeping these proportions until the pile is as large as is required to be used at one time. Don't mix more, at any one time, than



is required for immediate use. After getting the proportions of gravel and cement on the platform, pile the mixture in a cone shape and then turn it over twice, with shovels, open from the center to the sides, leaving the mixture about equal all around; pour into the center two pailfuls of water, turn the backs of shovels from you and push the mixture from all sides into the water, making the shovels go down to the platform every time, so that all the mixture is moistened. This will form a small trench all round inside of the dry mixture. Now pour more water all round in this trench, then push in more dry mixture as before. Repeat this until the mixture is all moistened. Again pile in a cone shape and turn over twice, and the concrete is ready for use. The old plan of using a box and hoes in mixing concrete is a mistake. When concrete is slushy, the sand and gravel sink to the bottom, and the cement, being lighter, rises to the top, which, besides seriously weakening the cement, renders a uniform mixture and thorough ramming—which is absolutely necessary—impossible. (See Government report.)

#### FOUNDATIONS.

Excavate to the depth required, at least below frost. Foundations should not be less than eighteen inches wide, and where the ground is soft and springy, increase the width to twenty or twenty-four inches, as required. Begin work by spreading concrete two or three inches thick over the bottom of the foundation, and fill in with stone (if they are available), well hammered down, and kept apart so that concrete may be rammed firmly between them. Level up to the largest stone with concrete and smaller stone, then put on not less than two inches of concrete, followed by more stone, hammered and rammed as before. On no account put tile or any drain lengthwise under the walls. If drains are needed for surface water, on the outside, or for springs inside, keep some distance from the walls, and, if necessary, pass under them at right angles. Foundations should be finished as nearly level as ground will permit.

#### FRAMES FOR BUILDING WALLS.

Bed planks on each side of foundation to exact wall line. For the outside corners, nail two planks firmly together at right angles, then put in angle a three-cornered strip, made by ripping a two-inch square piece diagonally. For the inside corners, set up a 4x4 scantling to the exact wall line. Then set up scantlings to support the two-inch plank on each side of wall, and toe-nail

the bottom of upright scantling to plank bedded at foundation. Keep the upright scantlings about six feet apart and opposite each other, three inches from wall line at each side. Nail small strips across from one scantling to the other, brace firmly to stakes driven in the ground. If the concrete mixing bed is on the inside of building, put braces on the outside, otherwise on the inside, so as not to interrupt building operations. When the strips joining inside and outside scantlings are in the way of raising plank, put others higher up, then knock the old ones off and raise plank. Be sure to drive good solid stakes behind all the planks bedded on foundation, to keep them from pressing outward. Brace all corners and upright scantlings firmly, so as to insure perfectly straight walls and perpendicular corners (less the batter on each side). Have plank enough to go around building inside and outside; arrange the plank to proper wall lines by wedges between plank and upright scantling. Now fill with concrete in this way:—Spread about three inches of concrete between planks; ram both faces of wall firmly, then put in field stone in center of wall, and hammer them down solid, having no stone nearer than two inches to the face of plank or wall line. Now put in more concrete, and ram the face firmly, so as to insure a good, smooth surface when planks are raised. Keep on in this way until all the planks are filled around the building. In raising planks, slack out top and bottom wedges; now the planks are loose. Raise plank so that the lower edge has about two inches hold on the completed walls; drive lower wedge just enough to hold plank firmly in position, put a nail in the top end of upper wedge and hang over the outside plank on top, between plank and upright scantling; this upper wedge will be loose, but in ramming down concrete the planks will find their proper line by pressing wedge against upright scantling. If top of last course built is very dry, sprinkle with water before putting on more concrete. It is very important when the concrete is setting to have moisture to insure good work, and until concrete is thoroughly set it draws moisture for many feet. After concrete structures have been built, say from two to five days, the hotter the weather the more water required. In dry weather it is impossible to give concrete structures too much water.

### COW STABLE FLOORS.

First establish the grades of all parts of floors, and where it is intended to put in our patent system of ventilation locate the position of the walls which form the sides of the elevated feed alley. These walls are only 4 inches thick and extend from 8 to

12 inches above the finished floor. We prefer the 12 inch, as that is high enough for the back of any feed manger for cattle.

This system of ventilation consists in placing a 4 to 8 inch tile (according to the size of the building) under the feed alley floor, and extending through walls admitting the fresh air from the outside, with 1 inch iron lateral pipes leading from the tile mentioned to the parting blocks in feed manger in centre of each double stall, where the air is distributed in a fine spray, in this way each pipe spraying pure fresh air to two animals. The air, absolutely pure, is partially warmed in passing through the large pipe under feed alley, in unfrozen ground. We find the temperature of this earth is about 49° or 50°.

Mr. W. S. Hawkshaw, of Glanworth, one of our largest importers and breeders of Shropshire sheep, kept a record during the whole of last winter of his thermometer in his large bank barn stable, ventilated with our system, and he informs us that in going into his stables at different hours, night and morning, he has never found the thermometer below 45° or above 50°, and the atmosphere pure at all times. This stable is about 60x80, and was as full of stock as it could be, consisting of horses, cattle, sheep and swine. The great difficulty in ventilating by doors and windows is that the air is not introduced where the cattle need it, and the whole atmosphere is cooled by heavy currents, that strike and chill the animals. With our system of ventilation we prefer to keep all doors and windows tightly closed, so as to admit no draughts.

After the little walls are formed for the elevation of feed alleys, put in foundation for the manure drops, (we find ideas differ as to width and depth of manure drops, but they are usually from 12 to 18 inches wide and from 4 to 10 inches deep.)

The bottom of the manure drop should be laid first, and this should be, say 6 inches wider than the finished drop, giving room to set on edge a plank say 2x8 to form the face of each side of manure drop.

Along the top of each plank nail a bevelled strip to cut off the sharp edge or angle of the concrete, on each side of the drop or trench.

The concrete behind these planks must be well rammed in, and as soon as set the planks may be removed, leaving a smooth, well-finished trench.

In building stable floors of all kinds, get grades all properly fixed. Cover the ground, if convenient, with one or more inches

of sand or gravel, well rammed, before putting down concrete. Cover this with three inches of rough concrete, gauged six of gravel to one of cement. Ram this solid, and put on a finishing coat, one inch in thickness, of two parts clean coarse sharp sand to one part cement, which is also firmly rammed while the lower concrete is still soft. The work can be best done by setting a two by four scantling on edge, commencing at one end of the building, about three feet from the wall, holding the scantling in place by two iron or wooden pins. Ram the rough concrete approximately level within an inch of the top of the scantling. Then spread on fine concrete, so that when thoroughly rammed it will be level with top of scantling. Trowel the surface true to grade. Now move along the scantling another three feet, and repeat the process until the floors are finished.

Where fine gravel can be obtained, these floors may be put on in one coat, three inches thick, mixed three parts gravel to one part of cement, well rammed down and finished smooth and true to grade.

It is absolutely necessary that an iron rammer (which we can supply) should be used, so that all concrete, both upper and lower, is thoroughly rammed. (See Government report).

Concrete for floors should not be mixed too wet, but should be only sufficiently moist to ram well and to work up to a good smooth finish. In horse stable floors the utmost care should be taken to have all concrete well rammed.

#### DOOR AND WINDOW FRAMES.

Make and set all door and window frames to the batter and width of your walls, have no lugs or projections past the upright sides of your door or window frames, but nail on pieces of two by four scantling, perpendicular, in the center of the outside of frames; these will stiffen the frames and hold them firmly in place. Have all door and window frames come up to the sills; it is not best to have any concrete on the top of window or door frames, as the walls are not sufficiently set to support it, consequently, the concrete is liable to crack above such frames, and that additional weight coming on the side jams of the frames is liable to cause a fine crack under them.

#### HOG PENS.

The construction of walls for hog pens does not differ from ordinary walls.

The grade of the floor of each pen is obtained by placing a stake at each corner, on a dead level; now place another two

inches below this level at the middle point of rear wall, which is pierced by a tile. Now place scantling diagonally across the pen from the upper corner posts, meeting at middle lower point; this will divide the floor into three parts. Lay the floor on the sides first; remove both scantlings and finish middle portion. The troughs are made by placing frame the height, length and width required, outside measurement, where the trough is to be set. The core will be made of inch stuff, V-shaped (see drawing), about  $2\frac{1}{2}$  inches wide on bottom, and of such size as will leave  $2\frac{1}{2}$  to 3 inches of concrete on each side, top of trough. This core, well water-soaked, must be suspended in place by nailing three strips across to the outside frame, one at each end and one in the middle; when all is fixed properly, ram concrete firmly but gently around this core, until it is filled smooth and level to top of frame. In a few hours the core and outside frame of two-inch plank may be removed if required for more troughs. The concrete for this purpose should be mixed of one part cement, one and one half clean sharp sand; do not get this concrete too wet, as it cannot then be rammed solid. In about two days fill troughs gently with water and keep them so until required for use.

#### SILOS.

Concrete silos are beyond question the most durable, cheapest, and most successful that can be built; the foundations should not be less than two feet wide, and excavated to good solid material below frost line; the walls should be 18 inches thick above footings, and 12 inches at top. The inside top measurement should be at least two inches smaller than the inside bottom measurement; this insures perfect settling of the ensilage, which is very important. Silos may be built to any height. (See plans.) A floor (well rammed) two inches thick will be sufficient. Special care is necessary in placing the upright scantling to keep them solidly in place, so that walls, when finished, are true to lines. Besides having the short strips nailed across the walls from outside to inside studding, it is also necessary to put in wires below the plank in concrete, and fasten securely, say about every eight feet in height. The door for each silo should extend from bottom to top, and about 16 inches in width. The opening is closed by matched boards driven close together, and covered by tar paper and another layer of boards. A 12-inch plank should be set up in each corner to form the cut-off inside. Do not forget to leave a gutter on the top of the finished wall, to be kept full of water till the plate is put on. It is much better to build a double silo than one large one. The only extra cost is the dividing wall,

and the saving in feeding the ensilage is very great. In the gable end one door is sufficient, if placed in front of the partition; the shoot then can be moved to either side. Build silos as early in season as convenient; they are much stronger for first filling.

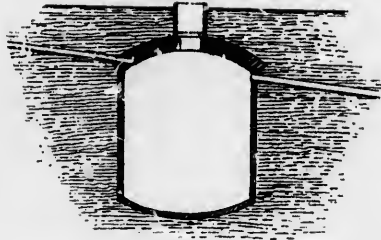
#### FOUNDATION AND CELLAR WALLS FOR DWELLING HOUSES, EITHER BRICK OR FRAME.

The foregoing instructions will be sufficient for building all structures of this class. Where a perfectly smooth surface is desired inside, or outside above ground, float the surface whilst the walls are green with a little fine plaster made with cement.

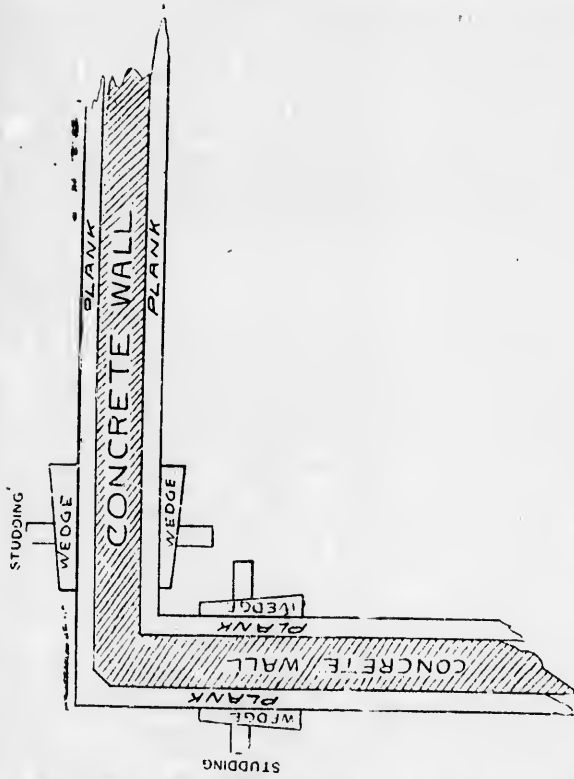
When putting walls under a barn or other building that has been raised, raise the building to the height required, and finish the walls under the sills by raising the outside plank a little above the bottom of the sill and keep the inside plank 3 inches below, and drive the concrete from the inside of the building against the outside plank.

#### CISTERNS.

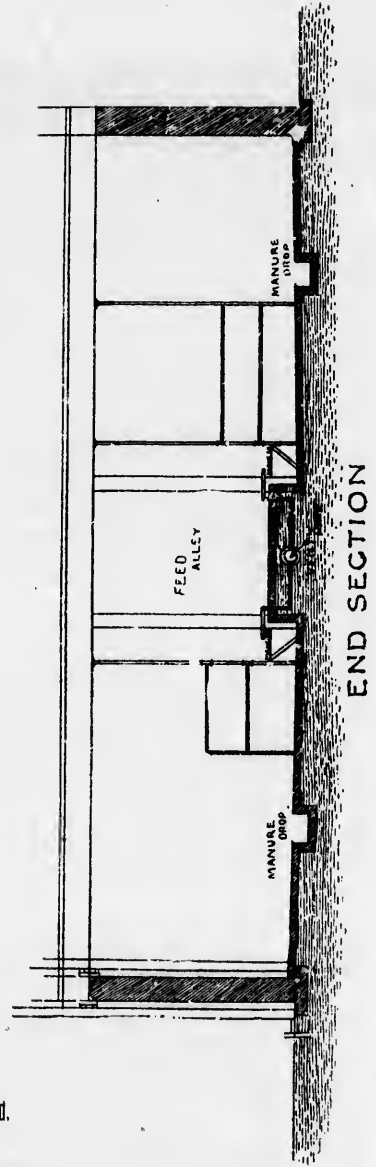
Cisterns are best built by using a circular wooden frame; the circle for top and bottom is usually made from two-inch plank, with two by four scantling as staves nailed to top and bottom of the segments; these circles, for convenience in handling and to get through the manhole of cistern, are divided into twelve segments—this refers to cistern six feet across. Dig the cistern perpendicular and true, twelve inches larger than the frame, so as to allow two inches for staves and four inches for concrete walls. Now put frame in place, and ram all around with concrete evenly until finished one inch above the staves; be sure to ram thoroughly. Across the opening on top, place a two-inch plank, just long enough to catch, say, two inches on each side of frame. Support on each end and middle of this plank with uprights from below. Now place short boards from this plank to side of segments. Should there be any small holes, cover with paper. Now pile sand in a cone shape, and place the cast-iron manhole ring on the top of the cone. Cover the sand before putting on concrete arch with empty paper cement sacks. Now commence and ram the concrete all around against the clay, about eight inches thick; keep doing so until arch is finished. In about eight days, take



CONCRETE CISTERN.



Corner Section of Wall Showing How Studding, Plank and Wedges are Placed.



END SECTION

out through manhole all the wooden frame, and plaster the inside with a very thin coat of one part cement and one part fine sand, all over inside. Put on bottom of cistern about one inch thick of two parts sand and one part cement. Be sure to place a few stones or brick on the bottom where the water drops. The inlet and outlet pipes can be placed where required.

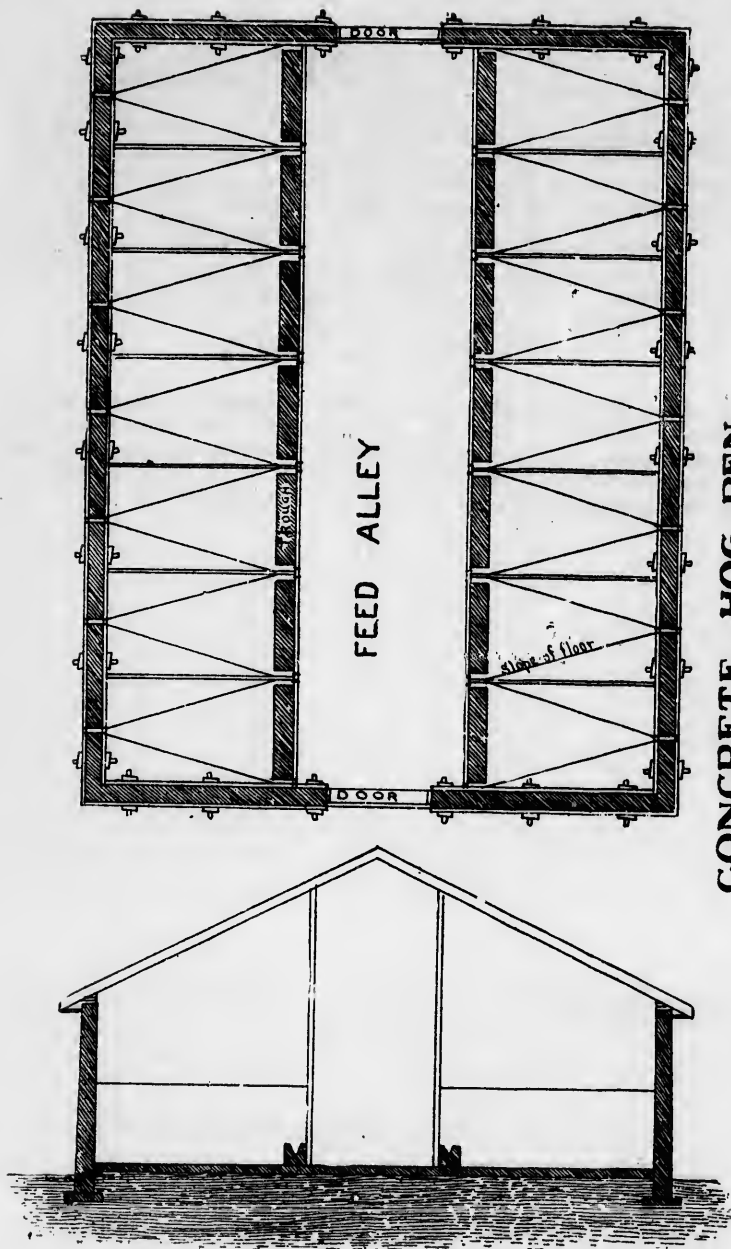
We will be glad to educate one man in every locality just how to build cisterns. Write us and we will go or send a man at any time.

### CULVERTS AND BRIDGES.

Culverts and bridges can be built of ordinary concrete, using wooden centres of the required size, up to six feet span; for larger arches, the arch stone moulded of concrete, and set as cut stone, which work is first-class and cheap. In Europe, as well as in this country, this kind of work is almost universal.







FEED ALLEY

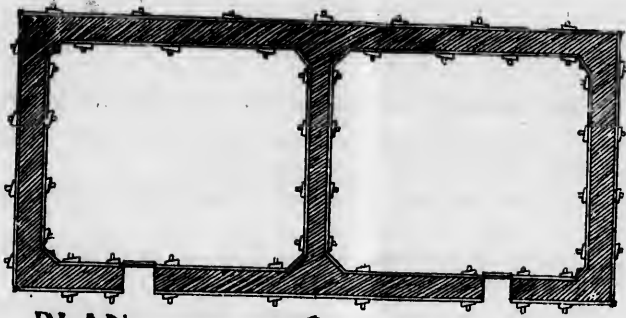
slope of floor

DOOR

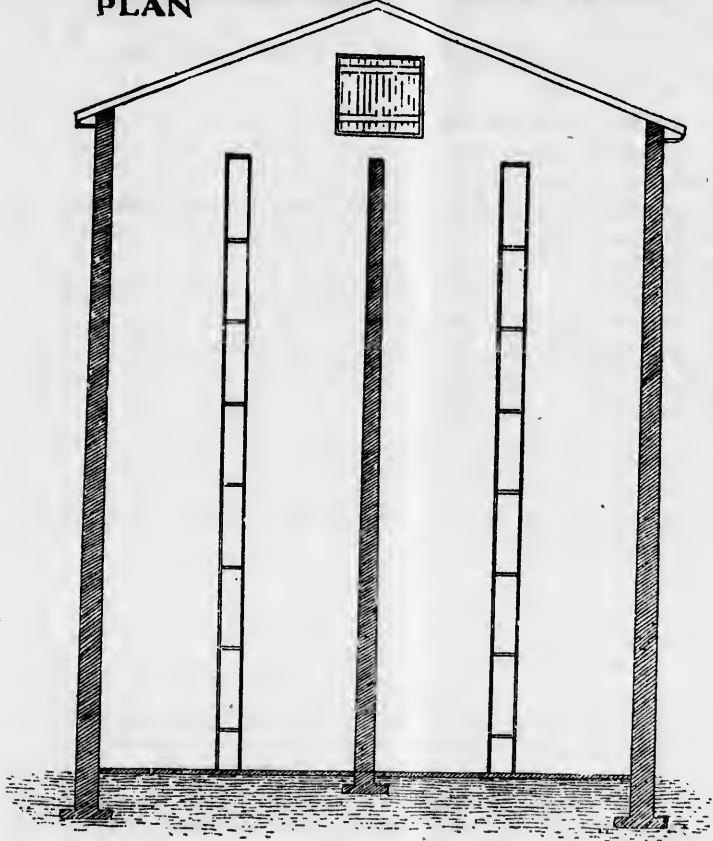
DOOR

CONCRETE HOG PEN

CONCRETE HOG PEN



PLAN



## POINTERS.

1. Mix thoroughly all concrete before using any water.
2. Do not use too much water. Concrete made sloppy is very much weakened.
3. All concrete material must be clean and free from earthy matter.
4. Ramming doubles the strength of all concrete. (See Government reports).
5. No stone should come nearer than two inches to either face of walls.
6. In no case must concrete be left unused during noon hour or over night.
7. Keep finished work of all kinds wet.
8. Ram firmly between stone in centre of wall and the plank, so as to have smooth surface on both faces of wall.
9. All concrete walls against embankments must have an outside batter, so that embankment rests on walls, not walls on embankment; this is a protection against frosts.
10. Do not attempt concrete work in frosty weather, unless you can cover so as to protect it thoroughly.
11. All walls should be finished by October 1st, and floors that are put in late should be covered with boards to protect them from the first winter.

## CAUTION.

SS  
We again call the attention of our patrons to the folly of using loamy gravel or sand.

It is a waste of time and money to attempt any concrete work without proper materials.

All finish for floors must be *good, clean, coarse* sand. Fine sand, though clean, must be condemned.

N.B.—We do not class our cement with the Water Limes or Hydraulic Cements of the country, but equal to any Portland, either domestic or foreign, for all sorts of farm structures.

Our barrel, though not weighing quite so much as a barrel of Portland, contains just as many cubic inches of cement, consequently will go just as far as any barrel of Portland.

# Notice.

**WE** ASK OUR PATRONS to kindly read the following testimonials, as they give the experience of persons who have used Queenston Cement, as well as the actual cost of concrete structures of every kind :

**Strongly Endorsed by Hon. John Dryden, Ontario Minister  
of Agriculture.**

*Isaac Usher & Sons, Queenston, Ont. :* Toronto, Dec. 16, 1897.

DEAR SIRS,—About a year ago I decided to build an additional silo. We at first contemplated building it of wood, but as I preferred a permanent structure, I finally decided to use your cement. Accordingly an order was given, which your company filled in due time. May I be permitted to say that I am rather proud of the outcome. We have constructed a silo about 28 feet high. It is eight sided, so that it has all the advantages of a round silo, but its special advantages are its neatness and durability. It was constructed under the personal superintendence of my foreman, who is, as you know, a graduate of the Ontario Agricultural College. He had no difficulty whatever with your cement, and I am certain that the ordinary farmer would find it easy to use it for very many purposes, which would be decidedly to his advantage. We are now taking out the ensilage, and it is the most perfect I have ever used.

We have also used your cement for the construction of floors in the stable. I find it answers the purpose perfectly. My foreman also constructed a wall on one side of our feed room, which was done without difficulty, and answers every purpose. Those who desire to use your cement need not fear to undertake the experiment, especially as I know of your voluntary efforts to give

such instruction and assistance as may be needed. I hope we shall be able to use a further quantity for similar purposes.

Yours very truly,

JNO. DRYDEN.

Brownsville, Jan. 3rd, 1896.

*Isaac Usher & Sons :*

GENTLEMEN,—In answer to your enquiry in reference to your Cement, I am glad to say it has proved in every way satisfactory. As you know, my barns were struck by lightning on May 10th, 1894, and entirely consumed. I then built a new barn, 50 x 80 ft., using your Queenston Cement in my concrete walls. The foundations were 2 ft. deep and 1 ft. 8 in. in width; then I built on that the walls 7 ft. high (the walls were 16 inches thick), set on the centre of foundation, finishing 12 inches thick on top to receive sills 10 inches square (the joists were laid on top of sills), making walls for my stables 7 ft. 10 in. in the clear. The outside face of walls were plumb; the inside face of walls were battering 4 in. We used, in the foundation and walls, 90 barrels of your Cement. I superintended the construction of the walls personally. I had in my employ four men. We were ten days in building the 9 feet of wall. We commenced to build on the 18th of June, and finished walls on the 28th. We raised the barn on the 6th of July: a very heavy frame of hardwood timber; posts 19 feet long (hipped roof). On the 15th of July we commenced hauling in hay, and then grain as fast as we could harvest it until I had at least 200 tons in the barn. The walls stood this great pressure; there is not the least crack anywhere. I believe I have as good and perfect a wall as it is possible to build, and I am sure it will stand for generations. In October I put in my floor all over the barn, all for cattle manure drops, stalls, etc. In this I used 76 barrels of your Cement, and as a comparative test I used one barrel of Portland Cement. The floors have been in daily use over a year, and I have never been able to see any difference between the Queenston Cement and the Portland Cement. I consider I have a perfect floor, that will last more than a lifetime, and at much less cost than plank. No liquid manure is lost, and stables can be kept clean and sweet with less than half the labor with plank floors.

We have this year built another barn of the following dimensions: 32x56, 9-foot walls from bottom of foundations, with lighter walls 12 inches thick at ground line and 10 inches under the sills, which I consider strong enough for any ordinary barn. We used, in this structure, 50 barrels of your Queenston Cement;

and I am satisfied that when your instructions are carried out, one will have perfect work every time.

Any further information yourselves or your customers may desire I will write cheerfully at any time.

Very truly yours,

E. B. BROWN.

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From F. W. Hodson, Superintendent Farmers' Institutes,  
Province of Ontario.

Parliament Buildings, Toronto, Dec. 15th, 1897.

*Messrs. Isaac Usher & Sons, Queenston, Ont. :*

GENTLEMEN,—The Cement ordered by me was duly received and has been used to lay a floor in a dairy room, a feed room, a cow stable, and pig pen, and to build a front wall under a large shed. The floor and wall have given excellent satisfaction and were cheaply built. When we first commenced laying floors we employed a mason, but after your son, Mr. Hudson Usher, visited us, we dispensed with the services of the mason, and my partner with the ordinary farm hands did the work. The result was they put in first-floors and built an A 1 wall. It took three of them 2½ days to lay a floor 40x30 ft., together with 40 ft. of wall 2½ ft. high. A month after building we used the pens and stalls for stock. It is now about three months since they were finished, and they are as hard and smooth as a plate. I have examined a good many walls and floors in various sections of the country which were built with your Cement, and in every case I have found the farmers were well satisfied with the results obtained. I think it a very great pity that our forefathers had not known of this material long ago, and had used a material similar to your own, instead of putting in plank floors, which have been an expense and a nuisance to their descendants and a cause of untold loss in the saving of manure. Had they done this the Canadian farmers would have been thousands of dollars better off than they are to-day. From several years' observation among farmers, both as an agricultural newspaper man and as Superintendent of Farmers' Institutes, I have come to the opinion that the concrete wall and floor is much to be preferred, for many reasons, to the plank floor and the stone wall.

Your system of ventilation is a very important subject, and one that should become well known among farmers.

Yours very truly,

F. W. HODSON.

Mr. Robert E. McKinney, of Springfield, Ont., who has built one of the most complete two-story brick residences in Ontario, writes us:—

My basement built of your Queenston Cement is absolutely all that can be desired. The walls are dry, true to line, and perfect in every way—no frost coming through them. The air seems pure all the time. My outside walls, above ground, are stained and penciled to imitate stone, and have a neat appearance. I am sure that the walls built as you direct are the best that can be built, and I think my walls are strong enough to carry a dozen such buildings as mine. In the near future I intend to raise my barns, and put under basement stabling. I will build the walls and floors of your Queenston Cement, and will do all I can for your Cement in this neighborhood. Wishing you every success,

Yours truly,      ROBT. E. MCKINNEY.

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From A. J. Miscampbell, M.P.P. for East Simcoe,

*Isaac Usher & Sons.*

GENTLEMEN—In answer to your letter of inquiry as to how I like my stable floor put in of your Queenston Cement, at my farm, near Churchill, Co. Simcoe. They are entirely satisfactory. The size of my stable floors all cemented are 36x60 feet. I used 35 bbls. cement; cost of labor for putting down the same was \$18.00; total cost of floors was \$56.50. This does not include the cost of hauling gravel, which is a less cost than putting in sleepers and plank, and it seems to me to be practically indestructible.

Very truly yours,      A. J. MISCAMBELL.

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Derwent P. O., Middlesex Co., Dec. 17th, 1897.

*Isaac Usher & Sons, Queenston, Ont. :*

DEAR SIRS,—Five years ago I built walls for my bank barn of Queenston Cement Concrete. My building is 44 ft. wide, 112 ft. long; walls from bottom of foundation to the sills, 12 ft. high. I hauled the gravel and field stone in the winter, and my whole expenditure in the spring, for cement and labor, in building the above mentioned walls, was \$196.75, which is less than half what a good stone wall can be built for. I believe it is impossible to build as good a wall as mine of either brick or stone. Two years ago I had occasion to break two door openings through the walls, making box stalls under the approaches to my barn. It was al-

most impossible to break the walls down. The gravel cobblestone in the heart of the wall would break much easier than the cement. My walls are absolutely like one solid stone, and they are always dry—no frost or dampness of any kind coming through them. I built my horse stable and cow stable floors both with Portland and Queenston Cements, and find the Queenston wholly as good as the Portland. There are a great many bank barn walls, silos and house basements, stable floors and hog pen floors built throughout the Township of Dorchester, in which I live, and as far as I have heard, they are all good. I am satisfied that where Queenston Cement is properly used, it is absolutely perfect for all kinds of farm structures.

Very truly yours,

CHAS, BEATTY

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From John McMillan, M.P. for Huron.

Seaforth, Dec. 20th, 1897.

*Isaac Usher & Sons, Queenston, Ont. :*

GENTLEMEN,—After having used over 450 barrels of your Queenston Cement, we beg to forward you this letter for publication in your pamphlet, for the especial information and benefit of the farming public. We have built two cement concrete silos 20x20 ft. inside, and 30 feet high, in which we have harvested our corn crop, and find everything entirely satisfactory. Taking strength, durability and cost into consideration, the concrete silo is unquestionably the best silo for the farmer to build. We built an implement and poultry house 26x54 ft., and 10 ft. high. The walls of this building are 8 in. thick, and cost us for cement and gravel just \$41, which is much cheaper than masonry foundation, with frame structures, and enclosed with matched pine lumber.

The partition wall separating the poultry from the implements, is just 4 inches thick and absolutely satisfactory. The concrete structure, when properly ventilated, makes a first class poultry house.

We have also put concrete floors in our cattle and horse stables, feed rooms, etc., the first cost of which is rather less than a good plank floor, and much more desirable in every way; they preserve all the liquid manure; it is a pleasure to work upon them; and they have the great advantage of being practically permanent.

We have built and completed all these structures with Usher's Queenston Cement; we performed the work under in-



structions from the manufacturers of this cement, without any skilled labor. It does not require any skilled labor, as any ordinarily intelligent farmer can, under instructions, perform the work himself; and to the farming public we wish to say that in our experience we consider this Cement, when used under proper instructions (as all cements must be if properly used) entirely satisfactory in the construction of concrete work.

We also desire to state that we believe the Messrs. Usher are pushing the business in an honest, conscientious manner. They realize that the interest of their Patrons is their interest; the care and attention which they manifest in the oversight of the work of construction is most gratifying, and in our dealings we have found them in the best sense of terms, "business men" and "gentlemen." Yours respectfully,

JOHN McMILLAN, M. P., & SONS.

Bothwell, Ont., Dec. 8th, 1895.

*Isaac Usher & Sons, Queenston Cement Mfrs., Queenston. Ont. :*

GENTLEMEN,—It is with much pleasure I answer your questions in reference to the cost of my basement walls and floors under my new brick residence on my farm here. You promised me, if I built my walls and floors of Queenston Cement Concrete, that I would have the best and most perfect basement in the township in which I live, and I am glad to say your promise has been more than fulfilled. Walls are smooth and absolutely dry; there is no dampness as in stone or brick walls. The atmosphere is pure all the time in my basement. The dimensions of my building are as follows:—Main part is 24x30; wing 16x24 feet; walls 7 feet 6 inches high. My basement is divided into four rooms, so I have three concrete partition walls 6 inches thick. My outside cellar steps, walls and floors throughout are concrete. The whole cost for labor and cement, without the gravel, was \$140.00. I have seen silos and other walls and floors in this vicinity, and am happy to tell you they are all good. I am sure your business will largely increase in this vicinity, and in fact all over the Dominion, when the use of your Queenston cement is properly understood. To any one writing me, I will gladly give any further information I can.

Wishing you every success, I am,

Yours very truly,

JOHN SHEPHERD.

This is a letter which we have received from the Hon. Thos. Ballantyne & Son, importers and breeders of Ayrshire cattle, Neidpath Stock Farm, Stratford, Ont. :

*Isaac Usher & Sons :*

Gentlemen,—We have used your Queenston Cement in all our stable floors and feed mangers, for our cow stables, hog pen floors and troughs, silo and large stock water cistern, and in our opinion the work could not be better. To any one contemplating such work, we will be pleased to show our structure and give them all the information we can.

We are, very truly yours,

THOS. BALLANTYNE & SON.

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From Geo. N. Kidd, M.P.P. for Carleton.

Carp, Dec. 17th, 1897.

*Isaac Usher & Sons :*

Gentlemen,—I have very great pleasure in writing to you that the floors put in my bank barn stabling with your Queenston Cement are first class in every particular. I superintended the work myself after your coming and laying out the floors and showing me how, for which I thank you. I think your plan of going personally and showing the farmers of this province just how to build these walls and floors without the employment of expensive labor, should and will be appreciated by them.

I am satisfied that the cement floor does not cost more than plank, sleepers, nails, etc., and if the work is properly done the cement floor should be everlasting. I have put in your system of ventilating, which I believe is a grand thing. Should you see fit to come in the Ottawa Valley, I will introduce you to the farmers in my vicinity, and aid you all I can.

Wishing you every success, I am,

Very truly yours,

G. N. KIDD.

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W. S. Hawkshaw, Glanworth, Middlesex Co., importer and breeder of Shropshire Sheep, writes us :

*Isaac Usher & Sons :*

Gentlemen,—I built walls for my new basement barn, 51 ft. by 65 ft.; walls 10 ft. 6 in. high and 12 in. thick. I put in stalls

for six horses. The balance of my basement was cemented for cow stables, except a portion which I need for sheep, which has no cement floor. The total cost of my walls and floor was \$184. This does not include the cost of hauling stone and gravel. I elevated my feed alleys to get the benefit of your plan of ventilation, which I like very much, and I fully believe that concrete walls and floors are cheaper, drier and stronger, and in every way better than either stone or brick.

Very truly yours,

W. S. HAWKSHAW.

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Kintyre P.O., Elgin Co., Ont., December, 1895.

*Isaac Usher & Sons :*

Gentlemen,—In answer to your letter of inquiry as to the size and cost of my cement concrete walls and floors, my barn is 55x65 ft.; basement walls of concrete, 9½ ft. high from bottom of foundations; footings for foundations are 18 in. deep and 20 in. wide. My walls above foundation footings of concrete are 8 ft. high, 14 in. thick at the bottom and 12 in. thick at the top. Six men were nine days building wall. To one man, who had quite an experience in building concrete walls and floors, I paid \$1.25 per day; the balance of men I paid 75 cents per day and board. The total cost of building my walls was \$52.50; this also includes one man hauling gravel, which was not so coarse as is usually used for walls. I mixed five parts gravel to one part cement. I used 100 barrels of cement in construction of walls, costing \$100. Total cost of walls, in cash, \$152.50, which is less than half the cost of stone or brick. I am satisfied my walls are stronger, drier, smoother, and better in every way than either stone or brick. My stable floors, which are 38x63 feet, took three men six days to build, at a total cost of \$18 for labor. I used 53 barrels of cement for my floors. I consider my floors perfect—smooth, dry, clean and sweet—so easily kept clean, and at a much less cost than properly built plank floors. I used Queenston Cement in my work. Mr. Usher, the proprietor, came and showed me how to mix and build my cement concrete, without cost to me, and I am sure that when his instructions are carried out, and they are very simple, Queenston Cement Concrete structures of every kind will be perfect. I will take great pleasure in answering any letters of inquiry from the farmers of this country who contemplate building,

and would be glad if every farmer in Ontario had as good walls and floors as I have. I remain, dear sirs,

Very truly yours,

JAMES FLEMING.

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Claremont, Jan. 19th, 1897.

*Messrs. Isaac Usher & Sons, Queenston, Ont.:*

Gentlemen,—It is with pleasure that I comply with the request of Mr. W. J. Devitt, your agent at Greenwood, to send you particulars of my silo constructed last summer of your Queenston Cement. First, let me say that I found your cement an A1 article, and all that it was represented to be. The walls built with it are strong and firmly set, and impervious to the action of the elements. My silo is a double or twin silo, made by running a centre wall through it. This I find not only gives additional strength to the structure by relieving the outer walls of a great deal of the enormous pressure they are subject to, but saves fodder, as by feeding from one division of the silo there is not so much surface exposure of the ensilage, and consequently no moulding or souring, as well as greater convenience in feeding. I strongly advise this centre wall in silos the size of mine. My silo is 15x28 feet, 25½ feet high; walls 18 inches at base and 15 inches at top. No. of barrels of cement used, 98. Entire cost of construction, exclusive of gravel and drawing same, but including roof and all materials concerned, \$201. My silo will pay for itself this year. I am not feeding one-half the grain I did last year and am getting better results from my cows. For the month of December, 14 milch cows produced 1130 imperial gallons of milk; some of them had been milking from January previous. I noticed an increase in milk as soon as I commenced using the ensilage. I raised 12 acres of corn last year, and have been feeding 22 milch cows since 15th October from one silo, and expect to feed them from this same side of silo until the 15th of March. There is no waste of ensilage around the outer edges in my silo, and the fodder is of a uniform sweetness and wholesomeness throughout. Such, I understand from the experience of those having wooden silos, is not the case, as there is with the wooden a waste of 6 to 8 inches on the outside. This in itself is considerable of an item to the farmer, and I strongly advise the erection of cement silos from the standpoint of saving as well as

that of durability. Any additional information I can furnish you or your patrons will be cheerfully given.

Yours very truly,

DANIEL FORSYTH.

Norval P. O., Peel Co., Ont., Dec. 15th, 1896.

*Isaac Usher & Sons, Queenston, Ont.:*

Dear Sirs,—We have great pleasure in telling you that our stable floors, that we put in with your Queenston Cement, in the fall of 1894, are absolutely perfect, and seem to be getting harder all the time. They seem to be more like iron than cement floors. You will remember that when you came to show us how to do the work, that our floors had all been put in with White's Portland Cement, which was an absolute failure. There are many stable floors in this vicinity, and we are happy to tell you, that as far as we can learn, they are all good. During the past summer we built a concrete silo of your Queenston Cement. It is 15 ft. square and 30 ft in height, which we like very much, and believe that we have a perfect silo. Wishing you every success in the good work that you are doing for the farmers of Ontario,

We are, respectfully yours,

SMELLIE BROS.

Portage la Prairie, Manitoba, Jan. 3rd, 1898.

*Messrs. Isaac Usher & Sons, Queenston, Ont.:*

Dear Sirs,—I built a stock barn last summer 40x70 feet, and put in a floor of your Queenston Cement in both horse and cattle stables, which is giving entire satisfaction, and is much cheaper than a plank floor—not saying anything about its outlasting a dozen plank floors. The cement for this floor laid down at my farm cost me \$121.90, where the very cheapest lumber I could buy here that was fit to put in a floor at all would have cost me \$142.80. There I have a saving of nearly \$21.00, which will more than cover any extra drawing of gravel, etc.

I also think that for any work of this kind your cement is equal to any Portland cement, and only about half the price per barrel, and would advise all farmers in Manitoba where lumber is dear, to use Queenston Cement.

Yours respectfully,

F. W. BROWN.

Cookston, Jan. 7th, 1898.

*Issue Usher & Sons, Queenston, Ont. :*

Gentlemen,—I raised my barn last spring, and built my walls of your Queenston Cement Concrete. I had a large quantity of stone on hand and intended building stone walls, but hearing through a friend of the excellency of concrete walls, I determined to see some concrete work in other localities, and after doing so I felt sure that this class of work was the best. I built the walls myself with my farm hands and other common labor, and I am sure that it is impossible to build a brick or stone wall that is as good as my wall in any respect. My building is 52 ft. wide and 92 ft. long, the average height of walls is about 9 ft. After your Mr. Bonewell came, at your expense, and helped us lay out the work, and showed me how to mix and ram the concrete in the walls, I had no trouble in going on and finishing the most perfect wall I have ever seen, and at a much less cost than a stone wall. The walls seem to be dry and frost proof, and only about half the thickness of the usual stone wall. We built the walls before the harvest, and after our crops were in the barn we put in our stable floors of your cement concrete, putting in your system of ventilation, which is very simple, and I am sure most perfect. I have between 30 and 40 head of cattle, besides pigs and poultry, in my stabling. The air seems pure and sweet all the time. I am feeding about 30 bushels of turnips daily from my turnip bin that is also in this stable, and it is almost impossible to detect any smell from them. My manure drops and every part of my floors are perfect, and I believe did not cost me any more money than plank floors. I shall be glad to show any one contemplating building, my walls and floors, and give them all the information I can. I am sure everything I have built with your cement could not be better.

Very truly yours,

D. K. ROSS.

# TESTS OF CEMENT MADE BY THE GOVERNMENT

During Progress of Work at Kingston Graving Dock.

## DEPARTMENT OF PUBLIC WORKS OF CANADA.

CHIEF ENGINEER'S OFFICE, OTTAWA, 9th Feb., 1892.  
GENTLEMEN.—In accordance with my promise to your Mr. C. Wright, I enclose for your information a copy of tests of different Cements made at the Kingston Graving Dock.  
Yours obediently,  
LOUIS COSTE, Acting Chief Engineer.

	TIME IN WATER.	C. B. Wright & Sons, Portland.	English Portland Anchor Brand.	German Portland Lion Brand.	Syracuse Portland.	Montreal Imperial Portland.	Esher's Quebec Portland Cement.	Thorold Cement.	Quebec Cement.	Napawee Cement.	Hamilton (Golden Cement,
Average tensile strength of 25 to 50 briquettes each, 1 in. square, made of neat Cement, consistency of mortar.	7 days	371 04	319 04	192 96	357 12	303 52	<b>93 12</b>	54 20	69 60	28 52	
	30 "	528 70	445 96	242 32	523 44	447 00	<b>190 80</b>	130 28	111 72	55 32	
	3 months	519 12	549 20	350 84	551 84	448 20	<b>349 56</b>	257 88	214 00	134 24	
	6 "	654 52	226 20	394 76	589 72	531 20	<b>308 24</b>	326 40	311 80	178 68	not given
	9 "	666 16	646 56	not given	629 36	601 20	<b>406 88</b>	353 96	370 20	199 76	
	12 "	686 76	648 60	not given	644 00	615 96	<b>428 28</b>	367 96	383 12	221 00	
Average tensile strength of 35 to 50 briquettes of each Cement, 1 in. square, neat Cement rammed in mould.	7 days	376 12	467 70	395 80	434 72	343 32	<b>196 18</b>	206 92	172 12	69 92	
	30 "	421 22	512 30	379 40	532 40	423 88	<b>271 08</b>	181 02	164 16	60 77	
	3 months	587 94	544 30	420 60	688 20	510 24	<b>417 58</b>	314 76	293 92	158 16	
	6 "	614 74	623 40	427 60	636 84	542 88	<b>472 16</b>	393 36	400 32	236 82	not given
	9 "	637 24	641 12	408 20	648 52	546 08	<b>484 84</b>	389 36	389 32	264 09	
	12 "	649 24	628 40	446 12	640 56	533 12	<b>509 86</b>	456 32	390 03	278 82	
Average tensile strength of 25 to 50 briquettes neat Cement, 1 in. square, made with press.	7 days	315 60	not given	not given	not given	388 92	<b>182 60</b>	111 76	106 48	37 61	
	30 "	445 76	not given	not given	not given	333 84	<b>198 96</b>	131 02	122 44	59 92	
	3 months	598 76	not given	not given	not given	420 80	<b>236 24</b>	272 52	181 16	145 96	
	6 "	618 76	not given	not given	not given	441 84	<b>353 24</b>	280 84	221 72	160 64	not given
	9 "	632 00	not given	not given	not given	452 08	<b>364 76</b>	301 12	232 80	165 56	
Dry test, exposed to air 24 to 168 hours, then tested in usual manner.	7 days	295 60				245 10	<b>155 60</b>	142 60	165 30	70 50	
Crushing test of 1 in. cube neat Cement, average of twelve briquettes.	7 days	2206 80	1697 30	1456 36		1862 00		619 83	880 00	488 90	512 90
	30 "	2315 00	2607 48	1491 16		1744 20		1508 84	804 50	598 83	528 83
	3 months	2565 86	2048 16	1842 83		1867 91		not given	1084 84	653 33	675 33
	6 "	2602 25	2639 83	2203 00		2039 08		1644 25	1287 00	845 00	912 00

average of twelve bri- 3 months  
 quettes. 6 "

2515 00	2607 48	1491 16	not given	1744 20	1508 84	804 50	528 83	528 83
2555 86	2048 16	1842 83	2039 08	1867 91	1814 16	1034 84	675 83	675 83
2602 25	2639 83	2203 00			1644 25	1287 00	845 00	845 00







