

STRENGTH OF WIRE ROPES.

An iron wire rope reaches its limit of safety at 3,000 feet, one made of steel wire at 4,790 feet, and one of plow steel at 7,185 feet. The tensile resistance of the wires is readily ascertained by taking out a few feet of wire from one end of the rope. Suspending the wire from some convenient attachment, it is made to hold up an empty tub at the lower end. Water is then carefully poured into the tub until when the tensile limit of the wire is reached it breaks. Afterwards the water in the tub can be measured and the breaking strain calculated. The resistance to torsion is, however, of no less importance. For the purpose of testing this, a piece of the wire to be tested, 8 inches long, is screwed up tight at one end in an ordinary smith's vise, and the other is held fast between the plain faces of a pair of dies in stocks, which have only to be rotated, and the number of whole turns before the wire breaks carefully counted, to ascertain the torsional limit. Steel wire should stand 28 twists. Great care has to be taken that wire is properly fastened at each end in this test, and hence it is well to have the wire marked and watched whilst the test is proceeding.

PRESERVATION OF IRON AND STEEL STRUCTURAL WORK.

A contributor to *The Railroad and Engineering Journal*, in a recent issue of that journal, expresses a very decided opinion in favor of the use of red lead for preserving iron and steel structural work, and gives what appears to be good reasons in support of his views.

After briefly going over the matter of choice of paints and pointing out some of the shortcomings of asphalt, coal tar, and iron oxide paints, he points out that red lead has the property of forming with linseed oil a hard, elastic coating, clinging with great tenacity to the metal. It has (he states) no oxidizing effect on iron, and does not act as a carrier of oxygen from the atmosphere after the paint has set, neither does it render the oil brittle nor promote rust.

When red lead fails it is principally by gradual wear or friction from the outside. It does not scale or blister, which both thereby requiring a thorough scraping and removal of old material before a new coat is applied. Any red lead pigment adhering to the metal forms a permanent base for subsequent paintings, and is utilized in further preserving the metal.

The value of red lead depends upon its forming a hard, elastic coating having a great tenacity for the iron. This is owing to its forming certain combinations with the oil and actually setting very much the same as plaster of Paris or cement sets when mixed with water.

To successfully work with the latter substances it is necessary to put them in shape as quickly as possible after mixing with water before the setting takes place. If the chemical action of setting has partly taken place the material may be moulded, but it is well known that good results will not be obtained. Red lead, like these sub-

stances, must be applied to the work before it sets with the oil. It is on this point that failures in the use of the pigment have generally occurred, because if it be applied after the combining or setting process has taken place, the hard, elastic, clinging coating will not be formed on the iron surface.

The following is the practice of one of the largest ship building establishments in applying red lead to the hulls of Government vessels: The plates are first pickled in a dilute solution of muriatic acid, then passed through rapidly revolving wire brushes, which remove all scale and dirt, leaving the iron with a bright, smooth surface, then thoroughly washed with pure water and rubbed entirely dry and immediately coated with red lead and pure raw linseed oil. The red lead is first thoroughly mixed with just enough linseed oil to form a very thick, tough paste, which will keep for several days without hardening. This paste, as wanted for use, is thinned down to the proper consistency for spreading with pure linseed oil, and applied at once, care being taken to leave paint-pots empty at night. A gallon of paint thus prepared contains about 5 lbs. of oil and 18 lbs. of red lead, and will cover on first coat about 500 sq. feet, the second coat about 600 sq. feet.

The Canadian Contractors' Hand-Book, 50 cents to RECORD subscribers.

Prices of Building Materials.

LUMBER.

CAR OR CARGO LOTS.

1 1/2 and thicker clear picks, Am. ins.	\$30 00	\$32 00
1 1/2 and thicker, three uppers, Am ins.	37 00	
1 1/2 and thicker, pickings, Am ins.	27 00	
1 x 10 and 12 dressing and better.	18 00	20 00
1 x 10 and 12 mill run.	13 00	14 00
1 x 10 and 12 dressing.	14 00	16 00
1 x 10 and 12 common.	12 00	13 00
1 x 10 and 12 spruce culls.	10 00	11 00
1 x 10 and 12 maple culls.	9 00	
1 inch clear and pickings.	28 00	30 00
1 inch dressing and better.	18 00	20 00
1 inch siding, mill run.	14 00	16 00
1 inch siding, common.	11 00	12 00
1 inch siding, ship culls.	\$10 00	\$11 00
1 inch siding, mill culls.	8 00	9 00
Cull scantling.	8 00	9 00
1 1/2 and thicker cutting up plank.	22 00	25 00
1 inch strips, 4 in. to 8 in. mill run.	14 00	15 00
1 inch strips, common.	12 00	12 00
1 1/2 inch flooring.	14 00	15 00
1 1/2 inch flooring.	14 00	16 00
XXX shingles, sawn.	2 30	2 35
XX shingles, sawn.	1 30	1 35

Metallic Roofing Co. of Canada:

Per Square.	
Eastlake steel shingles (galvanized).	\$2 25 to \$5 75
Eastlake steel shingles (painted).	3 75 4 00
Improved Broad Rib Roofing, (galvanized).	5 00 5 75
Improved Broad Rib Roofing (painted).	3 50 4 00
North Western steel siding (painted).	3 25 3 50
Manitoba steel siding (painted).	3 25 3 50
Metallic Finished Brick.	3 25 3 50
Tower or Mansard shingles, (galvanized).	6 25
Tower or Mansard shingles (painted).	4 50
Metallic Terra Cotta Tiles.	7 00
Price of Copper shingles according to weight, and "Hayes" Patent Metallic Lathing according to quantity.	

Canada Galvanizing & Steel Roofing Co.:

Corrugated Iron, galvanized, 26 W. G., per lb.	5 cts.
Corrugated Iron, galvanized, 28 W. G., per square.	5 1/2
Corrugated Iron, painted, 26 W. G., per square.	4 00
Corrugated Iron, painted, 28 W. G., per square.	3 50
Broad Rib Roofing, galvanized, per square.	5 50
Broad Rib Roofing, painted.	4 00
Westlake shingles, steel, galvanized, per square.	5 00
Westlake shingles, steel, painted.	3 50
Standard shingles, "Walter's patent," galvanized, per square.	5 50
Standard shingles, "Walter's patent," painted.	4 00
North Western steel siding, patented, per square.	3 50
Metallic Finish Brick, per square.	3 25
Metallic Finish Clapboard, per square.	3 50

YARD QUOTATIONS.

Mill cull boards and scantling.	10 00
Shipping cull boards, promiscuous widths.	13 00
Shipping cull boards, stocks.	1 00
Hemlock cantling and joist up to 16 ft.	11 00 14 00
" " " " 18 " "	12 00 13 00
" " " " 20 " "	13 00 14 00
Scantling and joist, up to 16 ft.	14 00
" " " " 18 ft.	15 00
" " " " 20 ft.	17 00
" " " " 22 ft.	19 00
" " " " 24 ft.	21 00
" " " " 26 ft.	23 00
" " " " 28 ft.	25 00
" " " " 30 ft.	27 00
" " " " 32 ft.	29 50
" " " " 34 ft.	31 00
" " " " 36 ft.	33 00
" " " " 38 ft.	35 00
" " " " 40 to 44 ft.	37 00
Cutting up planks, 1 1/2 and thicker, dry	25 00 26 00
" " " " board.	18 00 18 00
Cedar for block paving, per cord.	5 00
Cedar for Kerbing, 4 x 14, per M.	14 00

B. M.

1 1/2 inch flooring, dressed, F. M.	18 00	21 00
1 1/2 inch flooring rough, B. M.	18 00	22 00
1 1/2 " " dressed, F. M.	25 00	28 00
" " " undressed, B. M.	18 00	19 00
" " " dressed.	18 00	22 00
" " " undressed.	12 00	15 00
Beaded sheeting, dressed.	22 00	25 00
Clapboarding, dressed.	15 00	17 00
XXX sawn shingles, per M, 16 in.	2 65	2 75
Sawn lath.	2 00	2 20
Red oak.	30 00	40 00
White.	15 00	45 00
Basswood, No. 1 and 2.	18 00	20 00
Cherry, No. 1 and 2.	70 00	70 00
White ash, No. 1 and 2.	25 00	25 00
Black ash, No. 1 and 2.	20 00	30 00
Dressing stocks.	16 00	22 00
Picks, American inspection.	40 00	
Three uppers, American inspection.	50 00	

BRICK—B. M.

Common Walling.	\$7 50
Good Facing.	9 00
Sewer.	8 50 9 00

Pressed Brick:

Plain brick, f. o. b. at Milton, per M.	\$18 00
" " " and quality, per M.	14 00
" " " 3rd	10 00
Hard Building.	8 00
Moulded and Ornamental, per 100.	\$3 to 10 00
Roof Tiles.	24 00
Diamond locking tile.	16 00
First quality, f. o. b. at Campbellville, per M	18 00
2nd " " " "	14 00
3rd " " " "	12 00
Ornamental, per 100.	\$3 to 10 00
Tiles.	24 00

Stone.

Common Rubble, Per Toise, delivered	14 00
Large flat " " "	18 00
Foundation Blocks, " Cubic Foot.	50

Slate: Roofing (per square).

" " red.	18 00
" " purple.	9 00
" " untinting green.	9 00
" " black slate.	7 75
Terra Cotta Tile, per sq.	25 00
Ornamental Black Slate Roofing.	8 25

Sand:

Per Load of 1 1/2 Cubic Yards.	1 25
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PAINTS. (In oil, per lb.)

White lead, Can.	6 25	6 50
" " zinc, Can.	6 1/2	7 50
Red lead, Eng.	5 1/2	6 1/2
" " venetian.	1 60	1 75
" " vermilion.	90	1 00
" " Indian, Eng.	10	12
Yellow ochre.	5	10
Yellow chrome.	15	20
Green, chrome.	7	12
" " Paris.	25	40
Black, lamp.	15	25
Blue, ultramarine.	15	20
Oil, linseed, raw (& Imp. Gallen).	68	75
" " " boiled.	72	70
" " " refined.	78	85
Putty.	2 1/2	2 1/2
Whiting, dry.	75	1 00
Paris white Eng., dry.	90	1 25
Litharge, Am.	6 1/2	8
Sienna, burnt.	15	20
Umber, " "	8 1/2	12

CEMENT, LIME, etc.

Lime, Per Barrel of 2 bushels, Grey.	40
" " " " White	55
Plaster, Calcined, New Brunswick.	2 00
" " " Nova Scotia.	2 00
Hair, Plasterers', per bag.	1 00
Cement, Portland, per bbl.	3 00 3 50
" " Thorold, " "	1 50
" " Queenston, " "	1 50
" " Napanee, " "	1 50
" " Hull, " "	1 50

HARDWARE.

Cut Nails:

American Pattern, 1 1/2 inch, per keg.	4 30
" " " 1 1/2 to 1 3/4 inch, per keg	3 15
Canadian Pattern, 1 1/2 inch, per keg	3 50
" " " 1 1/2 to 1 3/4 inch, per keg	1 30
" " " 2 to 2 1/2 inch, " "	2 30
" " " 2 1/2 to 3 inch, " "	3 15
" " " 1 inch and larger.	2 80
Steel nails 10c. per keg extra.	
Finishing nails, 1 inch, per keg	5 00
" " " 1 1/2 inch, " "	5 20
" " " 1 3/4 " " "	4 65
" " " 1 1/2 " " "	4 35
" " " 1 3/4 " " and larger.	3 30