Measurement of Lumber.

A *foot of lumber*, called also *board foot*, is 1 ft. long, 1 ft. wide, and 1 in. thick. Lumber less than 1 in. thick is considered an inch thick in measuring. Fractions of an inch in the width to be omitted, and the nearest integer taken. A *bundle of shingles* contains 250 shingles of an average width of 4 in. The bundle is 20 in. wide and has 25 courses on each side. Allowing for waste, 4 bundles will lay 100 sq. ft. laid 4 in. to the weather. 800 shingles laid 4½ in. to the weather will cover a square. A *bundle of laths* consists of 100 laths, each 4 ft. long, 1½ in. wide. Allowing for waste, 1 bundle of laths laid ¼ in. apart will cover 7 sq. yd.

Measurement for Plastering, Papering, etc.

Plastering, painting, and kalsomining are usually computed by the square yard, payment being generally allowed for half of the openings. Ordinary wall-paper is 18 in. wide and has 8 yd. in a single roll and 16 yd. in a double roll. Borders or friezes are sold by the yard.

Measurement for Stone and Brickwork.

Custom varies as to allowance for corners and for openings in estimating material and labor for stonework. Generally in estimating labor the corners are measured twice, and one-half of the openings is deducted. Brickwork is estimated by the thousand, 22 common bricks to the cubic foot. Bricks vary in size, the common bricks being 8 in. by 4 in. by 2 in.

Practical Measurements.

To find the :

Area of a parallelogram: Multiply the base by the altitude.

Area of a triangle: Multiply the base by half the altitude.

Area of a trapezoid: Multiply half the sum of parallel sides by the altitude.

Area of any polygon: Divide into triangles and find the sum of their areas.

Area of a circle: Multiply the square of radius by 3.1416.

Circumference of a circle: Multiply the diameter by 3.1416.

Diameter of a circle: Divide the circumference by 3.1416.

Hypothenuse of a right-angled triangle: Extract the square root of the sum of the squares of the base and perpendicular.

Base or perpendicular of a right-angled triangle: From the square of the hypothenuse subtract the square of the given side and extract the square root of the remainder.

Volume of a prism or cylinder: Multiply the area of the base by the altitude.

Convex surface of a right prism or cylinder: Multiply the perimeter of base by height.

Volume of a pyramid or cone: Multiply the area of the base by one-third the altitude.

Convex surface of a pyramid or cone: Multiply the perimeter of the base by half the slant height.

Volume of the frustum of a regular pyramid or cone: Multiply the sum of the areas of the two bases plus the square root of their product by one-third the altitude.

Convex surface of the frustum of a regular pyramid or cone: Multiply half the sum of the perimeters of the two bases by the altitude.

Surface of a sphere: Multiply the area of a great circle of the sphere by 4.

Volume of a sphere: Multiply the convex surface by one-third of the radius.

Mean diameter of a cask or barrel: Add to the head diameter two-thirds of the difference between the head and bung diameters.