just sufficient to span the intervals between each pair of supports. Fastening timbers rigidly at the ends, where they are to be loaded uniformly, increases their strength by one half, but this can seldom be done in practice. If the ends of the timbers are built solidly into the wall they will have a tendency to strain and injure the masonry. The want of a free circulation of air causes timber to decay, and in any case it would soon shrink and become loose. All floor joists, wherever possible, should be laid with a slight camber in the center, say about one inch in twenty feet, to compensate for settlement of support and shrinkage of timbers.

Floors near the ground should be ventilated to secure a perfect circulation of air round all their parts. This is easily done by using ventilating bricks about ten feet apart all around the building. For the same purpose openings should be left in all dwarf walls in order to allow the air to have free passage.

Floors of timber constructed in the usual manner, with joists and beams set apart, have but little power to resist fire, but if the spaces between the joists or beams be filled up solid with other woodwork, which thus closes up the openings against the passage of the flames, and the under surface be coated with mortar containing a large proportion of plaster of Paris, and finished smooth, the floor will resist the action of fire longer than a floor of iron beams and brick arches. The wooden beams should be secured to each other by dowels or spikes.

All floors where joists are more than ten feet in length should have one or more courses of bridging nailed through them. The rule is to put a tier of bridging every eight feet. The stuff used for bridging should not be less than 1½ × 1-inch section. A little larger would not be objectionable. The pieces forming the bridging should be kept in a straight line, and each piece should fit into its place pretty snug and be well nailed to the joists. If this work is well done the timbers forming the skeleton of the floor will be tied solid together, and there will be no sagging or springing to the floor when in use.

In framing trimmers for chimneys or for stairs double joists should be employed for the "carrying," or outside joists, particularly if the trimmers are framed into the joists. The trimmers may be framed into, or spiked (a bad practice) to, the first joist, and the second joist may then be spiked to the first, which makes a much better and stronger piece of work than if both "carriers" were mortised through. — National Builder.

The Dominion Glass Company has augmented its capital from $20,000 to $490,000.

USEFUL HINTS.

In refinishing old floors, if the floor has been treated with oil and varnish and has been allowed to become very dirty and rough, the old finish should be removed with steel shavings. With these every particle of the old finish can be removed. The floor should be finished as a new floor.

Pipes made by winding thick paper or cellulose around a solid core are described in a German technical paper. Between each turn a layer of molten asphalt is laid on, and the pipe is thus made impervious to air and water. The pipes are joined together by means of paper sockets and asphalt. They are said to be light and not liable to fracture.

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