

Ward. This locality has in recent years become the dwelling place of thousands of foreigners and is in such an overcrowded condition as to be a menace to health and morals. The city has been urged to go into the building business and provide apartment houses to replace the dilapidated buildings in which these foreigners now find shelter. On this point it may be said that there are many other directions in which the efforts of the City Government might with more profit be directed than in investing the money of the citizens in building houses for the poor. It is open to question if the erection of apartment houses in this locality is the best solution of the difficulty. The locality is even now almost in the heart of the business district and will very soon be required for business purposes. The proposed enlargement of the Armouries and the erection of the new hospital buildings will necessarily take the place of many of the old houses in with section, and, as stated, the remainder of the space will in time be required for business purposes. Toronto has become widely known and has attained an enviable position as a city of homes. In order that this position may be retained, it would seem to be desirable, instead of crowding this foreign element into the smallest possible space, to distribute it in the outlying districts by removing some of the restrictions which now prevent the building of moderate cost houses outside the central district. There is no reason why these restrictions should not be modified, and the poorer classes encouraged to build and own their individual homes.

New materials, which it is proposed to use for paving, flooring, and various building

Test of Materials.

purposes, generally require the test of time under actual conditions before they are regarded with any confidence, and this fact has been the greatest possible hindrance to manufacturers and inventors advocating such materials. Various schemes and devices have been put forward by means of which certain substances may be tested to show their wearing qualities, but none of these has ever been truly satisfactory. Each has its advantages, of course, but all have disadvantages, and hence an invention universally applicable in the testing of almost all such substances is a matter worthy of comment. There are in use to-day many methods for conducting abrasion tests, which generally consist either in grinding specimens of material on cast iron discs with carborundum, or in treating the materials in revolving cylinders known as rattlers, either with or without steel balls. The grinding process is most unsatisfactory, as it gives a perfectly smooth surface to the material under test, and the cutting grains are themselves changed in form and characteristics, and thus their effect is materially modified. The grains also, when used with a soft specimen, become embedded, and hence a grinding takes place between the surfaces of such grains and the new grinding medium. The use of rattlers has a similar disadvantage, for particles of the material which are ground off have a very serious effect in reducing the action through clogging. It is to Germany that we owe thanks for the introduction of a new sys-

tem of testing. The effect of a sand blast has been thoroughly appreciated for years, although no one seemed to consider the fact that if a sand blast were directed against a test piece, the peculiarities of the material would be fully shown. There is a machine now being used in the Royal Institute, at Lichterfelde, in which a sand blast is directed upwards against a test sample. This blast is operated by dry steam under a pressure of approximately thirty pounds to the square inch, and the sand used is a natural quartz sand of fine and nearly rounded grains. The standard test has been fixed upon as two minutes, and it has been estimated that a wear is produced in the test sample equivalent to at least one year. The test material is naturally held in a fixed position by means of clamps, and the surface which is subjected to the blast is protected by a cast iron disc, having a circular opening of fixed diameter. Thus, when the sample is removed from the machine, the depth of the abraded portion can be accurately measured, using the protected portions of the surface as a base. The beauty of this test is that an accurate comparison can be made between almost every class of material, as there is practically nothing which the sand will not cut. The surface of the test piece, after the operation is completed, presents an appearance in accord with the characteristics of the material; thus the disadvantage of the smooth surface obtained by the grinding process is eliminated. Also with the sand blast there is no interference in the grinding medium, the abrading and abraded particles falling clear of the sample. If a soft spot exists in the material under test, this spot will be cut out, and thus accurate information can be obtained as to homogeneity, coarseness of grain, and uniformity, as well as equal or unequal hardness. The value of this system will be thoroughly appreciated, and it will probably be but a short time before such testing devices are in universal use.

OUR ILLUSTRATIONS.

DESCRIPTION OF HOUSE SUBMITTED BY "TEKTON"
(MR. S. DOUGLAS RITCHIE) IN C. A. AND B.
STUDENTS' COMPETITION.

- Foundations of rubble.
- Exterior walls to be of stucco stained cream white.
- House to be balloon framed.
- Roof to be shingled with cedar shingles, weathered.
- Exterior woodwork to be of cypress stained a dark brown. Front door of ash stained sap green.
- Interior woodwork in principal rooms, ground floor, to be cypress stained.
- Ground floors to be birch or maple. All other floors to be of B. C. fir. First floor woodwork of white wood painted. Walls papered.
- Living Room.—Fireplace to have quarry tile 6 in. square facings and outer hearth, red brick back and under fire. Walls to have 7 ft. high wood dado, ceiling and walls to dado to be of sand-finished plaster. Beamed ceiling, plaster between. Woodwork to be weathered.
- Dining room to be finished in delf blue and white. Wall to have 6 ft. high burlap dado, with plate rail. Ceiling and walls to plate rail of cream plaster.