UNIFORM CODE.—GENERAL BASIS OF DESIGNING AND FLOOR-LOADS.

1. *Methods of Design.*—Every building and structural part thereof shall be designed in accordance with such detailed methods of design as are set forth in this code and are applicable to said building. In the absence of definite detailed provisions in this code for the design of any building or structural part thereof, no method of design shall be employed that will not admit of a rational analysis and that is not in accordance with the established principles of mechanics and of structural design.

2. *Loads to be used in Design.*—Every building and all structural parts thereof shall be of sufficient strength to support the estimated or actual imposed loads, including lateral forces, without exceeding the allowable working unit stresses specified in this code for the material, materials, or permissible combinations thereof, of which said building and structural parts thereof are constructed; but no building or structural part thereof shall be designed for live loads which are less than those specified herein and which are applicable to said building by virtue of its type of occupancy.

3. *Limitations of Specified Allowable Working Stresses.*—Unless specifically stated otherwise in each instance, all specified allowable working unit stresses given hereinafter for the various materials of construction, and permissible combinations thereof, are the maximum that shall be employed for the most adverse combination of dead and live loads that are hereinafter specified, or, in the absence of definite specifications relative thereto, may reasonably be expected to occur.

4. *Increase of Working Stresses for Lateral Forces.*—Wind: In resistance to the combination of wind load and other loads except earthquake, and in resistance to wind load alone, the specified allowable working unit stresses of this code for any material of construction, or permissible combinations of materials of construction, may be increased by an amount not to exceed $33\frac{1}{3}$ per cent.: but the effective section and size of any structural member shall not be less than required to resist the combination of dead and live loads alone, as specified herein, without exceeding the allowable working unit stresses specified for said combination of dead and live loads alone.

Earthquake: In resistance to the combination of (1) forces due to earthquake, as specified herein, and (2) dead and live loads, the specified allowable working unit stresses of this code may be increased by an amount as specified in the General Earthquake Building By-law; but the effective section and size of any structural member shall not be less than required to resist the combination of dead and live loads alone as specified herein, without exceeding the allowable working unit stresses specified for said combination of dead and live loads alone.

5. *Members subject to both Tension and Compression.*—Each member and its connections which are subject to resultant stresses of both tension and compression due to the action of live loads shall be designed to sustain the arithmetical sum of (1) that resultant stress giving the largest section, and (2) 50 per cent. of that resultant stress giving the smaller section. The nature of said combination of said resultant tensile and compressive stresses shall be taken to be tensile or compressive as the individual resultant stresses giving the largest section of member and connections thereof is tensile or compressive respectively. If the reversal of stress is due to lateral forces only, said member and its connections need not be designed for a stress larger than the greater of the two stresses.

6. *Members subject to Direct and Flexural Stresses.*—Every structural element subject simultaneously to both direct and flexural stresses shall be so proportioned that the sum of (1) the average unit stress on the cross-section of said structural element due to concentric axial load and (2) the maximum unit stress on said structural element due to flexure shall not exceed the unit stress f_{ca} given by the formula—

$$f_{ca} = \left(\frac{f_d}{f_d + f_b} \times f_{da}\right) + \left(\frac{f_b}{f_d + f_b} \times f_{ba}\right)$$

Where f_{ca} = allowable maximum total unit stress; f_d = computed unit stress due to concentric axial load; f_b = computed maximum unit flexural stress; f_{da} = allowable maximum unit stress in member when subject only to concentric axial loading; f_{ba} = allowable maximum unit flexural stress in member when subject only to bending: Provided that, if the unit stress f_b does not exceed 10 per cent. of the unit stress f_d no account of the bending stress f_b need be taken in the design.

7. *Eccentric Loads.*—Every structural member subject to the action of an eccentric load or force shall be designed to provide for any stress due to that eccentricity whenever the increase in unit stress due solely to said eccentricity exceeds 10 per cent. of the unit stress due to concentric axial loads alone. Should the unit stress due to said eccentricity exceed 10 per cent. of the unit stress due to said concentric axial load, the design of said structural element shall be made in accordance with the provisions of Section 6.

8. *Impact.*—The effect of impact shall be provided for in such manner and in such members as the Engineer may deem necessary, except that no impact need be considered in the design of structural members of wood.

Loads: Dead, Live, and Impact.

1. *Dead Loads.*—The dead load is to consist of the actual weights of walls, floors, &c., and is to include steelwork, casing, floor-finishings, ceilings, and all other permanent parts of the building. It shall include all loads that are to be attached to the building, such as masts, poles, signs, awnings, wires, &c.