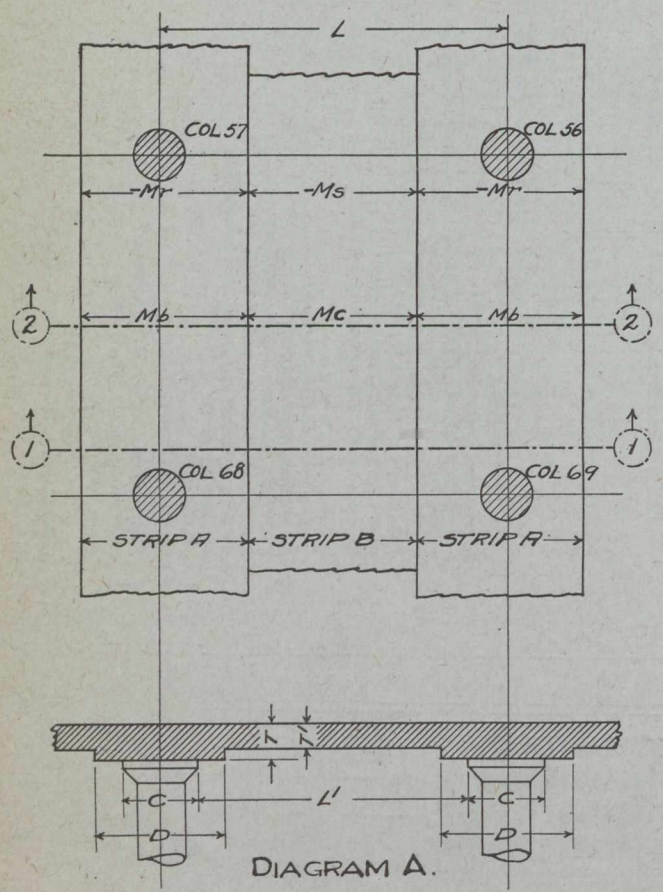

DIAGRAM A.

TABLE No. 1

BY-LAW	STRIP A	STRIP B	Mr	Mb	Ms	Mc	C	D	T	T'
CHICAGO	$\frac{L}{2}$	$\frac{L}{2}$	$\frac{WL}{30}$	$\frac{WL}{60}$	$-\frac{WL}{120}$	$\frac{WL}{120}$	.225L			6" or $\frac{L}{32}$
PHILADELPHIA	$\frac{45L}{100}$	$\frac{45L}{100}$	$-\frac{WL}{31}$	$\frac{WL}{77.5}$	$-\frac{WL}{124}$	$\frac{WL}{124}$	.2L	$\frac{38}{100}L$	$1\frac{2}{3}T'$	
JOINT COMMITTEE	$\frac{L}{2}$	$\frac{L}{2}$	$-\frac{WL}{25}$	$\frac{WL}{55}$	$-\frac{WL}{100}$	$\frac{WL}{133}$	.2L			6" or $\frac{L}{32}$

NOTE. T. T'. C and D are minimum dimensions allowed by Codes.

TABLE No. 2.

Comparison of stresses for Live and Dead loads combined according to various by-laws with those found by test

Stresses given in lbs. per sq. inch

BY-LAW	Reading No. 12. Stress in Concrete	Readings Nos. 140 & 141 Stress in Steel	Reading No. 16. Stress in Concrete	Reading No. 132. Stress in Steel.	Reading No. 134. Stress in Concrete	Reading No. 136. Stress in Concrete	Reading No. 1. Stress in Steel	Reading No. 2. Stress in Steel.
CHICAGO	-556	13860	-237	15900	-215·8	-215·8	15050	15050
PHILADELPHIA	-537	13410	-258	16650	-235	-235	15880	15880
PITTSBURG	-723	9750						
Joint Committee	-667	16600	-288·5	18930	-194·5	-194·5	13590	13590
TEST	-142	+2080	-316	+824	-355	-331	+4850	1656.

TABLE No. 3.

Comparison of stresses for Live and Dead loads combined according to various by-laws with those found by test using the section modulus determined by deformation readings.

BY-LAW.	Reading No. 12. Stress in Concrete.	Readings Nos. 140 & 141 Stress in Steel.	Reading No. 16 Stress in Concrete	Reading No. 132. Stress in Steel	Reading No. 134. Stress in Concrete	Reading No. 136. Stress in Concrete	Reading No. 1. Stress in Steel	Reading No. 2. Stress in Steel
CHICAGO	-105	2100	144	448	-141	-141		940
PHILADELPHIA	$-101\frac{1}{2}$	1625	155	516	$-151\frac{1}{2}$	$-151\frac{1}{2}$		1010
JOINT COMMITTEE	-126	2520	173	576	-127	-127		848
TEST	-142	+2080	-316	825	-355	-331	4850	1656

Chicago Code

Extracts from Chicago Code, using the above notation:

The negative bending moment taken at a cross-section of each strip A at the edge of a column capital or over it shall be taken as $-\frac{WL}{30}$.

The positive bending moment taken at a cross-section of each strip A midway between column centres shall be taken as $\frac{WL}{60}$.

The positive bending moment taken at a cross-section of each strip B in the middle of the panel shall be taken as $\frac{WL}{120}$.

The negative bending moment taken at a cross-section of each strip B on the centre line of the columns shall be taken as $-\frac{WL}{120}$.

Referring to the plan of first floor, it will be noted that $L = 16'\ 0''$ and that the first load applied to the four panels was 142 lbs. per square foot.

The readings around column No. 69 for the stresses in strip A at the column capital will now be considered.

The plan of the first floor gives the readings for the stresses in the steel and the plan of the basement ceiling gives the corresponding stresses in the concrete.

NOTE: The stresses given on the plans are for the live loads of 142 lbs. per square foot and 300 lbs. per square foot.

The stresses for the dead load would be approximately correct if taken in the direct proportion of the dead to the live load; therefore, the stresses due to the dead load are 82/142, or about 4/7 of those due to the live load (if the elastic limit of the material is not passed. Most authorities give the elastic limit of concrete as very indefinite.)

The following stresses are for a live load of 142 lbs. per square foot:

Reading No. 137 gives
stress in steel = 900 lbs. tension in top.
Reading No. 11 gives
stress in concrete = 0 lbs. in bottom.
Reading No. 140 gives
stress in steel = 1,500 lbs. tension in top.
Reading No. 12 gives
stress in concrete = 90 lbs. compression in bottom.
Reading No. 153 gives
stress in steel = 2,625 lbs. tension in top.