Table 4-1, shall be permitted to be reduced in accordance with the requirements of Sections 4.7.2 through 4.7.6.

4.7.2 Reduction in Uniform Live Loads
Subject to the limitations of Sections 4.7.3 through 4.7.6, members for which a value of $K_{LL}A_T$ is 400 ft^2 (37.16 m^2) or more are permitted to be designed for a reduced live load in accordance with the following formula:

$$L = L_o\left(0.25 + \frac{15}{\sqrt{K_{LL}A_T}}\right) \qquad (4.7\text{-}1)$$

In SI:

$$L = L_o\left(0.25 + \frac{4.57}{\sqrt{K_{LL}A_T}}\right)$$

where

L = reduced design live load per ft^2 (m^2) of area supported by the member
L_o = unreduced design live load per ft^2 (m^2) of area supported by the member (see Table 4-1)
K_{LL} = live load element factor (see Table 4-2)
A_T = tributary area in ft^2 (m^2)

L shall not be less than $0.50L_o$ for members supporting one floor and L shall not be less than $0.40L_o$ for members supporting two or more floors.

EXCEPTION: For structural members in one- and two-family dwellings supporting more than one floor load, the following floor live load reduction shall be permitted as an alternative to Eq. 4.7-1:

$$L = 0.7 \times (L_{o1} + L_{o2} + \ldots)$$

L_{o1}, L_{o2}, … are the unreduced floor live loads applicable to each of multiple supported story levels regardless of tributary area. The reduced floor live load effect, L, shall not be less than that produced by the effect of the largest unreduced floor live load on a given story level acting alone.

4.7.3 Heavy Live Loads
Live loads that exceed 100 lb/ft^2 (4.79 kN/m^2) shall not be reduced.

EXCEPTION: Live loads for members supporting two or more floors shall be permitted to be reduced by 20 percent.

4.7.4 Passenger Vehicle Garages
The live loads shall not be reduced in passenger vehicle garages.

EXCEPTION: Live loads for members supporting two or more floors shall be permitted to be reduced by 20 percent.

4.7.5 Assembly Uses
Live loads shall not be reduced in assembly uses.

4.7.6 Limitations on One-Way Slabs
The tributary area, A_T, for one-way slabs shall not exceed an area defined by the slab span times a width normal to the span of 1.5 times the slab span.

4.8 REDUCTION IN ROOF LIVE LOADS

4.8.1 General
The minimum uniformly distributed roof live loads, L_o in Table 4-1, are permitted to be reduced in accordance with the requirements of Sections 4.8.2 and 4.8.3.

4.8.2 Flat, Pitched, and Curved Roofs
Ordinary flat, pitched, and curved roofs, and awning and canopies other than those of fabric construction supported by a skeleton structure, are permitted to be designed for a reduced roof live load, as specified in Eq. 4.8-1 or other controlling combinations of loads, as specified in Chapter 2, whichever produces the greater load effect. In structures such as greenhouses, where special scaffolding is used as a work surface for workers and materials during maintenance and repair operations, a lower roof load than specified in Eq. 4.8-1 shall not be used unless approved by the authority having jurisdiction. On such structures, the minimum roof live load shall be 12 psf (0.58 kN/m^2).

$$L_r = L_oR_1R_2 \quad \text{where} \quad 12 \le L_r \le 20 \qquad (4.8\text{-}1)$$

In SI:

$$L_r = L_oR_1R_2 \quad \text{where} \quad 0.58 \le L_r \le 0.96$$

where

L_r = reduced roof live load per ft^2 (m^2) of horizontal projection supported by the member
L_o = unreduced design roof live load per ft^2 (m^2) of horizontal projection supported by the member (see Table 4-1)

The reduction factors R_1 and R_2 shall be determined as follows:

$$R_1 = \begin{cases} 1 & \text{for } A_T \le 200 \text{ ft}^2 \\ 1.2 - 0.001A_t & \text{for } 200 \text{ ft}^2 < A_T < 600 \text{ ft}^2 \\ 0.6 & \text{for } A_T \ge 600 \text{ ft}^2 \end{cases}$$