Ladders and Lofts

The building code does not permit ladders to be used as normal means of travel or egress in buildings. Nevertheless, the practice of installing ladder-accessed sleeping lofts is very common in live/work and is permitted in varying permutations in different cities. The closest code equivalent to a "sleeping loft" in the code is a mezzanine, which normally must be accessed by stairs, have a minimum of seven feet clearance above and below, be open to the room in which it sits, and not in more than 1/3 of that larger room's area.

Ever since people have lived in loft spaces, there have been sleeping lofts. They are an integral part of this building type, and must be accommodated one way or another.

Issues to consider in regulating ladders and lofts are listed below in bold, and the answers to each question as interpreted by the City of Oakland follow:

How steep can the ladder or ship's stair be?

The ladder can be vertical, if so desired.

What is the rise of each ladder rung or step?

Maximum rise is 12" per step or rung.

How narrow must the ladder or ship's stair be?

Minimum width is 16" (inside dimension).

Does the ladder or ship's stair need railings, handrails?

A handrail should run from a point 3' from the main floor up to the top of the ladder along one side or vertically on an adjoining wall if it is within 12" of the ladder.

What should the floor loading capacity of the loft be?

Most jurisdictions have required either 40 (residential) or 50 (light storage) psi, partly based on the supposition that it is difficult to carry anything too heavy up a ladder.

Should there be a maximum or minimum size of the loft?

Oakland has designated three types of sleeping lofts:

A true (in all but sloping ceiling height) mezzanine is limited in size only by the size of the room in which it opens, which should be 3 times the mezzanine size. Oakland's code also includes a provision allowing mezzanines to be 1/2 of the area of the room into which they open if certain upgrades to the life safety elements of the building (which must be existing and must be sprinklered) are performed. Mote: a mezzanine is not a story, and calling a level rather than a mezzanine can sometimes place the entire building in a more favorable construction type or other major code condition.

A sleeping mezzanine is intended to be one that walks up to but which doesn't accommodate much more than sleeping. Its maximum size is 120 square feet.

A built-in sleeping bunk, as the name implies, is intended to be one you climb up to and on which you crawl into your bed almost immediately at the top of the ladder. Its maximum area is 60 square feet and its minimum dimension in at least one direction is 7 feet.

How open should the loft be to the room below?

At least 25% of the sleeping mezzanine or the built-in sleeping bunk must be open to the room below. This is to guarantee some modicum of light and ventilation and adequate visibility between the loft and a complying emergency escape opening.

Does the loft require a railing, and if so, how high?

Depending on the type of loft. True mezzanines within live/work units usually require a 36" guardrail. Sleeping mezzanines and built-in sleeping lofts require a guardrail that is 2/3 of the height between their edge surface and the ceiling directly above -- or 36", whichever is lower. This is to guarantee some openness and assumes that if the ceiling is low one won't be standing.

Does the loft have light and ventilation requirements?

Sleeping lofts preferably do not consist of dark, airless shelves on which to store mattresses and fitfully sleeping bodies. Good ventilation is at least as important while resting and sleeping as it is during the daytime, and while light is hardly a necessity for sleeping, knowing what kind of day it is when you wake up can be a positive feature in a live/work space. Bedrooms in residences, as habitable space, require both light and ventilation in minimum but quite specific quantities expressed in ratio of the area of natural opening to the floor area. Oakland's live/work code requires the area of any kind of sleeping loft to be included in light and ventilation and if the loft is more than 25 feet from its source of light or ventilation, the lofts floor area should be doubled in calculating required light and ventilation sources.

Are there any other life safety requirements to compensate for the less easy access and egress of a ladder-accessed loft?

As noted above, the building code does not normally permit ladders for normal egress paths. Additionally, sleeping loft head heights can often be lower. Some cites have elected to compensate for this combination of conditions by requiring extra life safety measures such as a residential sprinkler head at the top of the ladder, under the theory that a sleepy resident may require extra time to get down from a loft in an emergency. Other cities have not considered this a problem.

How much headroom does a loft require?

Sleeping lofts are a pragmatic solution to the need for a place to sleep or retreat from the main floor of a tall-ceilinged space, at minimal expense. Equally pragmatic it follows that a loft you access by proper staircase and in which you expect to walk around will require more headroom than one designed and sized to permit clambering up a ladder and crawling to the other end of the bed (which often fills the loft).

In Oakland, built-in sleeping lofts, which can't be over 60 square feet in area, need only be 3'-6" in height if they have flat ceilings and if their ceilings slope the minimum can be 3'-0". Sleeping mezzanines, which can't be over 120 square feet or 4'-0" sloping ceiling. True mezzanines are normally required to have 7'-0" clear above and below at all times. Oakland permits sloping live/work ceiling heights above mezzanines to be calculated as per a habitable room in a residence, which means that the ceiling's height must average 7'-0". Other cities, such as San Francisco, allow 6'-6" headroom above and below mezzanines in live/work conversions of existing buildings.

How much space is required below a loft before it's not just a raised platform?

This is a rather technical question which in a recent code ruling in Oakland spoke to whether the unit was required to be accessible, adaptable, or exempt from either requirement. Under California's Title 24 accessibility regulations, "multi-level" units are exempt. However, to be considered "multi-level" a unit must contain a loft or mezzanine of some sort, which is in part defined by the presence of habitable space (with a minimum 7'-0" height) below that loft or mezzanine. Less space below the loft causes it to be considered a raised platform, which in Oakland is not subject to any special live/work code relaxations.