



What is “designed for human occupancy”?

In areas that are built for people, laws have builders and manufacturers design and construct buildings as well as equipment that enables people to work safely and effectively. In your normal operation, machines are guarded, lighting and ventilation systems ensure good air quality and egress systems are designed to evacuate people in an emergency. However, most traditional confined spaces (eg. pits and tanks) or those areas that might be a confined space (eg. crawl spaces or reservoirs), are only accessed by worker(s) for short time periods. Workers are entering these spaces to perform work (eg. cleaning operations or maintenance) that support the work process that normally occurs in the area. Having a person inside the area all the time is either not possible and/or not practical. Therefore human occupancy to conduct work was not really considered during the design and building process. These areas do not have the required ventilation, heating, egress facilities, lighting appliances, and ceiling height for occupancy as set out in the Building Code of the jurisdiction having authority.

In confined spaces this lack of safe design causes problems. For example the dirt floor could support a large colony of mould spores that the worker inside may be allergic to. The mould spores will consume the oxygen and could create an oxygen deficient atmosphere. Poor ventilation contributes to the problem by not replacing the oxygen and not drying out the air allowing the mould to continue growing.

The Fire Code contains a chart outlining the objectives of the Code. It's first objective is "... to limit the probability that, as a result of specific circumstances related to the **building** or **facility**, a person in or adjacent to the **building** or **facility** will be exposed to an unacceptable risk of injury. In addition, Functional Statement (FS) 11 states "(must have the ability) to notify people, in a timely manner, of the need to take action in an emergency. FS 13 states "(must have the ability) to notify emergency responders, in a timely manner, of the need to take action in an emergency.

Confined spaces are often isolated from the general work population. Either a wall or their location makes it all but impossible for someone to see the worker inside. This isolation will adversely affect their ability to call for help or be notified if an emergency has occurred outside the space. In addition the isolation coupled with the missing design criteria, make it difficult for the local emergency response services to effectively provide aid should an incident occur. Even many Safety Regulations (eg. Regulation 231/91, Section 18) require a communication system to notify both those in an area as well as emergency responders of an emergency.

This lack of design attention places workers at risk of injury or in a case of emergency, hampers those inside getting out to a safe location. Therefore, ensure these shortcomings are included in the hazard identification process.

Human Occupancy Criteria

Item	Definition	Present
Egress Facilities	The space has doorway less than 21 5/8" x 35"	
	Space has no permanent elevator installed if it is more than 10 m (33') above or below grade.	
Work Area	Has work/access area less than 23 5/8" x 23 5/8" to 2' 11" beyond work area.	
Communication System	Ability to notify people in the area of an emergency	
	Ability to notify people outside the area that an emergency has occurred.	
Floor	Has less than 2" thick smooth asphalt/concrete floor or 10 mil poly tarps covering the entire floor. If multiple tarps are used each tarp must overlap the other sheets by 4" and overlapped areas are weighted down.	
Lighting	The space does not have a permanently installed lighting system consisting of electrical outlets and fixtures controlled by a wall switch or panel that supplies more than 50 lx (4.6 foot candles) at floor or tread level or 5 Watts/m ² (.46 watts/ft ²)	
Heating	The space does not have a permanently installed system to ensure the temperature in the area remains above 15 ^o C or 59 ^o F.	
Ventilation	The space does not have a permanently installed system to supply at least 7.5 L/s or 15.9 cfm of outside air to the area or natural venting of .1 m/50 m ² or 1.1 ft ² /538 ft ²	