Unsafe Condition Examples
Interpretation

Issue Date:	September 23, 2025
Code/Section:	2024 Amended IBC Section 116
Developed By:	Matthew Miles, John-Jozef "JJ" Proczka, Rost Sapon, Robert Runge, Larry Walsh, Dennis Beck, Ruben Aceves

Purpose:
The 2024 IBC Amended Section 116 describes what may be an unsafe condition and generically defines both an unsafe condition and an imminent unsafe condition. This document gives examples of what unsafe conditions are and which of them are imminently unsafe. These examples are not all inclusive, and the definitions in the code apply in other situations.

Common unsafe condition causes:
There are frequently unsafe conditions where a structure has been damaged by fire or is occupied illegally without a certificate of occupancy.

Structural – Unsafe, but not imminently so examples:

1. Where the capacity of any component of a structure is less than 75 percent of that allowed in this code for the component in new structures, unless it is undamaged and compliant with the code in effect at the time of original construction.
2. Where any portion of a structure has been damaged to such an extent that the structural strength or stability is materially less than it was before the damage and is also less than the minimum requirements of this code for new structures.
3. Where the structure lacks the necessary support of a foundation or the ground, which will likely lead to excessive settlement but will not lead to structural strength failures in the short term, other than the foundation elements themselves.
4. Where there exists a significant risk of detachment of nonstructural components, such as low weight finishes and veneer, whose failure does not appear to be able to cause the death or maiming of a person during detachment, or because of the rubble it would subsequently cause after detachment under permanent, routine, or frequent loads; or under wind, rain, flood, earthquake aftershock, or other environmental loads.
5. Where there exists a significant risk of collapse, detachment or dislodgment of any portion, member, appurtenance, or ornamentation of the structure under wind, rain, flood, earthquake aftershock, or other environmental loads when such loads are **not** imminent.
6. Where uniform section (prismatic) intended vertical structural members, under significant axial compressive load list, lean, or are deformed in such a manner that a vertical line passing through the center (centroid) of any symmetrical section of the member, or the maximum capacity pure bending neutral axis for nonsymmetrical members, does not fall within one-third of its base. Where members are not intended to

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EXTERNAL New 09/25
Web File Name: dsd_trt_pdf_00220

be vertical but are under significant axial compressive load, this rule with appropriate extrapolation applies.

7. Where an excavation is within a 45° angle zone of influence to the horizontal of an existing foundation, but not directly beneath an existing foundation, without underpinning.

Structural – IMMINENTLY unsafe examples:

1. Where the capacity of any component of a structure is less than 67 percent of that allowed in this code for the component in new structures, unless it is undamaged and compliant with the code in effect at the time of original construction.
2. Where the structure has collapsed, partially collapsed, has moved off its foundation, or lacks the necessary support of the ground, other than as described in example 3 above, under "Structural – Unsafe, but not imminently so examples".
3. Where there exists a significant risk of collapse, detachment or dislodgment of any portion, member, appurtenance, or ornamentation of the structure under permanent, routine, or frequent loads; under actual loads already in effect; or under wind, rain, flood, earthquake aftershock, or other environmental loads when such loads are imminent other than as described in example 4 and 5 above, under "Structural – Unsafe, but not imminently so examples".
4. Where an excavation is directly beneath, at any depth, below an existing foundation without underpinning.

Egress and Fire Resistance – Unsafe, but not imminently so examples:

1. Where any component of a structure has less than 67 percent of the fire resistance that is required for newly constructed structures of like area, height, construction type, and occupancy in the same location.
2. Where the structure is being used for a higher relative hazard occupancy than it was built to support or shelter, but has sufficient means of egress for this occupancy, other than occupancy category H.
3. Where any required door, aisle, corridor, stairway, or other means of egress component is constricted to prevent safe and adequate means of egress.
4. Where guards (commonly called guardrails) deflect to an extent that the capacity to stop a person from falling is in question.
5. Where guards are insufficiently high or possess larger openings than are permitted for the occupancy.
6. Where an excavation away from common pedestrian paths is greater than 4 inches in both horizontal dimensions and is deeper than 3 feet without being covered, fenced, or otherwise enclosed in a manner that the general public does not have access.

Egress and Fire Resistance – IMMINENTLY unsafe examples:

1. Where any required door, aisle, corridor, stairway, or other means of egress is locked, blocked, or constricted to appreciably prevent safe and adequate means of egress.
2. Where the structure is being used for a higher relative hazard occupancy than it was built to support or shelter including all H occupancies and all occupancies without sufficient means of egress.

3. Where *guards* (commonly called guardrails) are in an area that has ready access, and the *guard* is unable to resist the required loads.
4. Where an excavation along or adjacent to common pedestrian paths is greater than 4 inches in both horizontal dimensions and is deeper than 3 feet without being covered, fenced, or otherwise enclosed in such a way that the general public does not have access.

Electrical systems – Unsafe, but not imminently so examples:

1. Loose or poor electrical connections which create a fire or shock hazard.
2. Equipment or circuits which are not properly grounded and bonded.
3. Misuse of flexible cords and cables.
4. Wiring method or equipment which is not properly structurally supported.
5. Wiring methods or equipment which is improperly installed or not suitable for the intended use and location.
6. Improper access to overcurrent protective devices protecting the occupancy.

Electrical systems – IMMINENTLY unsafe examples:

1. Uninsulated or exposed live parts and a fire or shock hazard exists.
2. Overloaded branch circuits, feeders, or service equipment.
3. Equipment or conductors which are not properly protected from overload, short circuit, or ground fault.
4. Equipment short-circuit, interrupting, or withstand ratings insufficient for the available fault current at the line terminals of the equipment.
5. Inadequate maintenance, dilapidation, damage, obsolescence, or abandonment of wiring methods or equipment.
6. Equipment located in an electrically classified (Hazardous) location that is not rated or suitable for the location.

Mechanical systems – Unsafe, but not imminently so examples:

1. Excessive scaling, corrosion, or cracks in seams, tubes, or shells.
2. Defective or improperly installed operational controls, burners, or other appurtenances.
3. Hazardous operation or location of equipment.
4. Unacceptable means available for boiler blowdown, where required.
5. Insufficient fresh air supply for complete combustion of fuel and vent operation.
6. A boiler or pressure vessel operated above its allowable pressure or temperature.
7. Inadequate ventilation of machinery rooms.
8. Inadequate sizing, setting capacity, or venting of pressure-relief valves.
9. Defective or improperly installed safety controls.
10. Refrigerants of a type or quantity which are prohibited for conditions under which they are used.

Mechanical systems – IMMINENTLY unsafe examples:

1. Defective or improperly installed safety valves, or safety valves of improper setting, capacity, or acceptable means of discharge.
2. Defective or improperly installed vent system for products of combustion.
3. Insufficient fresh air supply for complete combustion of fuel and vent operation.

4. Systems using ammonia as a refrigerant, where it is leaking.

Plumbing and fuel gas systems – Unsafe, but not imminently so examples:

1. Defective heat exchangers.
2. Defective or improperly installed and adjusted controls and appurtenances.
3. Equipment locations which will constitute a fire or explosion hazard.
4. Defective or improperly installed equipment.
5. Where the drinking water does not meet the standards for potability as required by the Maricopa County Environmental Services Department.
6. The existence of cross connection, backflow, or back siphonage which creates health hazards or pollution.
7. Lack of running water to operate plumbing fixtures required for the use or occupancy of the premises.
8. No trap seal is provided, or the seal is inadequate.
9. Lack of sewer venting or venting into an enclosed building or structure.
10. Leaking water or sewer gas inside or outside a building that can lead to long term issues.
11. Drainage systems which are clogged, fouled, or depositing solids.

Plumbing and fuel gas systems – IMMINENTLY unsafe examples:

1. Defective or deteriorated vents, venting, or flues which permit leakage of flue gases through the flue walls.
2. Defective or leaking fuel supply lines.
3. Insufficient fresh air supply for combustion of fuel and vent operation.
4. Heating appliances which are not property vented.
5. Excessive exhaust in boiler, furnace rooms, or areas where gas, liquid, or solid fuel-fired equipment is located.
6. Sewer gas build-up which creates a toxic or flammable atmosphere.
7. Leaking sewage inside a building.
8. Abandoned cesspools or open septic tanks.
9. Where the drinking water is toxic.
10. Equipment locations which constitute a fire or explosion hazard with a present fire fuel source.

Elevator systems – Unsafe, but not imminently so examples:

1. Elevators with mildly undersized suspension ropes or ropes with strand breaks.
2. Elevators that have non-working emergency communications.
3. Elevator doors that are not working properly.
4. Traction elevators with mildly worn or improperly adjusted brakes.

Elevator systems – IMMINENTLY unsafe examples:

1. Elevator suspension means which have excessive broken strands or lays.
2. Elevators that land out of level with the landing by more than 0.75 inches.
3. Elevator doors with no working door edge detection system.
4. Elevators that move away from the floor with the doors open.
5. Traction elevators with severely worn or improperly adjusted brakes.

6. Escalators / Moving Walks with broken or missing steps.
7. Escalators / Moving Walks with broken or missing comb teeth or comb segments.

Pools – IMMINENTLY unsafe examples:

1. Where any pool or spa is not enclosed with the barriers required by this code.
2. Where any suction outlet system is missing a listed suction outlet fitting assembly. (See United States Code/Title 15/Chapter 106 – The Virginia Graeme Baker Pool and Spa Safety Act).
3. Where there are insufficient handholds along the perimeter of a pool.
4. Where the barriers around the pool have spaces that are too large or are of insufficient height, where gates or doors swing in the wrong way or are not self-closing or self-latching, or where there are climbable features on the non-pool side.
5. Where a pool does not conform to the required diving envelope without appropriately provided signage for “No Diving”.
6. Improper equipotential bonding.
7. Improper GFCI protection.