

APPENDIX A EMPLOYEE QUALIFICATIONS

NOT ADOPTED

APPENDIX B BOARD OF APPEALS

NOT ADOPTED

APPENDIX C GROUP U—AGRICULTURAL BUILDINGS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User note:

About this appendix: *Agricultural buildings are given special consideration in Appendix C. Often such buildings have unique uses and structural needs. Where an agricultural building is surrounded by 60 feet of open area on all sides, size limits are waived. Automatic sprinkler protection may be required.*

SECTION C101 GENERAL

C101.1 Scope.

The provisions of this appendix shall apply exclusively to *agricultural buildings*. Such buildings shall be classified as Group U and shall include the following uses:

1. Livestock shelters or buildings, including shade structures and milking barns.
2. Poultry buildings or shelters.
3. Barns.
4. Storage of equipment and machinery used exclusively in agriculture.
5. Horticultural structures, including detached production *greenhouses* and crop protection shelters.
6. Sheds.

7. Grain silos.

8. Stables.

C101.2 Occupancy Thresholds. Buildings that exceed an occupancy load of 100, that would otherwise be classified as Group U Agricultural, shall be classified in accordance with their intended use.

EXCEPTION: Riding arenas shall have an occupancy load limit of 100.

C101.3 H-Use. Agricultural buildings used to store commercial fertilizers, herbicides, or pesticides shall comply with 527 CMR, 780 CMR, and M.G.L. c. 132B with its associated regulations, as applicable.

SECTION C102 ALLOWABLE HEIGHT AND AREA

C102.1 General.

Buildings classified as Group U Agricultural shall not exceed the area or height limits specified in Table C102.1.

**TABLE C102.1
BASIC ALLOWABLE AREA FOR A GROUP U, ONE STORY IN HEIGHT AND MAXIMUM
HEIGHT OF SUCH OCCUPANCY**

I		II		III and IV		V	
A	B	A	B	III A and IV	III B	A	B
ALLOWABLE AREA (square feet) ^{a, b}							
Unlimited	60,000	27,100	18,000	27,100	18,000	21,100	12,000
MAXIMUM HEIGHT IN STORIES							
Unlimited	12	4	2	4	2	3	2
MAXIMUM HEIGHT IN FEET							
Unlimited	160	65	55	65	55	50	40

For SI: 1 square foot = 0.0929 m².

a. See Section C102 for unlimited area under certain conditions.

b. Greenhouses that comply with snow-load requirements are exempt from the area requirements set forth in C102.

C102.2 One-story unlimited area.

The area of a one-story Group U *agricultural building* shall not be limited if the building is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

~~C102.3 Two-story unlimited area.~~

~~The area of a two-story Group U *agricultural building* shall not be limited if the building is surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.~~

~~and is provided with an approved automatic sprinkler system throughout in accordance with Section 903.3.1.1.~~

SECTION C103 MIXED OCCUPANCIES

C103.1 Mixed occupancies.

Mixed occupancies shall be protected in accordance with Section 508.

SECTION C104 EXITS

C104.1 Exit facilities.

Exits shall be provided in accordance with Chapters 10 and 11.

Exceptions:

1. The maximum travel distance from any point in the building to an approved *exit* shall not exceed 300 feet (91 440 mm).
2. One *exit* is required for each 15,000 square feet (1393.5 m²) of area or fraction thereof.

APPENDIX D FIRE DISTRICTS

NOT ADOPTED

APPENDIX E SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS

NOT ADOPTED

APPENDIX F RODENTPROOFING

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User notes:

About this appendix: *The provisions of Appendix F are minimum mechanical methods to prevent the entry of rodents into a building. These standards, when used in conjunction with cleanliness and maintenance programs, can significantly reduce the potential of rodents invading a building.*

Code development reminder: Code change proposals to this appendix will be considered by the IBC—Structural Code Development Committee during the 2022 (Group B) Code Development Cycle.

SECTION F101 GENERAL

F101.1 General.

Buildings or structures and the walls enclosing habitable or occupiable rooms and spaces in which persons live, sleep or work, or in which feed, food or food-stuffs are stored, prepared, processed, served or sold, shall be constructed in accordance with the provisions of this section.

F101.2 Foundation wall ventilation openings.

Foundation wall ventilation openings shall be covered for their height and width with perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick, expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick, cast-iron grills or grating, extruded aluminum load-bearing vents or with hardware cloth of 0.035 inch (0.89 mm) wire or heavier. The openings therein shall not exceed $\frac{1}{4}$ inch (6.4 mm).

F101.3 Foundation and exterior wall sealing.

Annular spaces around pipes, electric cables, conduits or other openings in the walls shall be protected against the passage of rodents by closing such openings with cement *mortar*, concrete masonry or noncorrosive metal.

F101.4 Doors.

Doors on which metal protection has been applied shall be hinged so as to be free swinging. When closed, the maximum clearance between any door, door jambs and sills shall be not greater than $\frac{3}{8}$ inch (9.5 mm).

F101.5 Windows and other openings.

Windows and other openings for the purpose of light or ventilation located in *exterior walls* within 2 feet (610 mm) above the existing ground level immediately below such opening shall be covered for their entire height and width, including frame, with hardware cloth of not less than 0.035-inch (0.89 mm) wire or heavier.

F101.5.1 Rodent-accessible openings.

Windows and other openings for the purpose of light and ventilation in the *exterior walls* not covered in this chapter, accessible to rodents by way of exposed pipes, wires, conduits and other appurtenances, shall be covered with wire cloth of at least 0.035-inch (0.89 mm) wire. In lieu of wire cloth covering, said pipes, wires, conduits and other appurtenances shall be blocked from rodent usage by installing solid sheet metal guards 0.024 inch (0.61 mm) thick or heavier. Guards shall be fitted around pipes, wires, conduits or other appurtenances. In addition, they shall be fastened securely to and shall extend perpendicularly from the *exterior wall* for not less than 12 inches (305 mm) beyond and on either side of pipes, wires, conduits or appurtenances.

F101.6 Pier and wood construction.

F101.6.1 Sill less than 12 inches above ground.

Buildings not provided with a continuous foundation shall be provided with protection against rodents at grade by providing either an apron in accordance with Section F101.6.1.1 or a floor slab in accordance with Section F101.6.1.2.

F101.6.1.1 Apron.

Where an apron is provided, the apron shall be not less than 8 inches (203 mm) above, nor less than 24 inches (610 mm) below, grade. The apron shall not terminate below the lower edge of the siding material. The apron shall be constructed of an approved nondecayable, water-resistant rodentproofing material of required strength and shall be installed around the entire perimeter of the building. Where constructed of masonry or concrete materials, the apron shall be not less than 4 inches (102 mm) in thickness.

F101.6.1.2 Grade floors.

Where continuous concrete-grade floor slabs are provided, open spaces shall not be left between the slab and walls, and openings in the slab shall be protected.

F101.6.2 Sill at or above 12 inches above ground.

Buildings not provided with a continuous foundation and that have sills 12 inches (305 mm) or more above ground level shall be provided with protection against rodents at grade in accordance with any of the following:

1. Section F101.6.1.1 or F101.6.1.2.
2. By installing solid sheet metal collars not less than 0.024 inch (0.6 mm) thick at the top of each pier or pile and around each pipe, cable, conduit, wire or other item that provides a continuous pathway from the ground to the floor.
3. By encasing the pipes, cables, conduits or wires in an enclosure constructed in accordance with Section F101.6.1.1.

APPENDIX G FLOOD-RESISTANT CONSTRUCTION

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User notes:

About this appendix: Appendix G is intended to provide the additional flood-plain management and administrative requirements of the National Flood Insurance Program (NFIP) that are not included in the code. Communities that adopt the International Building Code® and Appendix G will meet the minimum requirements of NFIP as set forth in Title 44 of the Code of Federal Regulations.

Code development reminder: Code change proposals to this appendix will be

SECTION G101 ADMINISTRATION

G101.1 Purpose.

~~The purpose of this appendix is to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas designed to:~~

- ~~1. Prevent unnecessary disruption of commerce, access and public service during times of flooding.~~
- ~~2. Manage the alteration of natural flood plains, stream channels and shorelines.~~
- ~~3. Manage filling, grading, dredging and other development that may increase flood damage or erosion potential.~~
- ~~4. Prevent or regulate the construction of flood barriers that will divert floodwaters or that can increase flood hazards.~~
- ~~5. Contribute to improved construction techniques in the flood plain.~~

G101.2 Objectives.

~~The objectives of this appendix are to protect human life, minimize the expenditure of public money for flood control projects, minimize the need for rescue and relief efforts associated with flooding, minimize prolonged business interruption, minimize damage to public facilities and utilities, help maintain a stable tax base by providing for the sound use and development of flood-prone areas, contribute to improved construction techniques in the flood plain and ensure that potential owners and occupants are notified that property is within flood hazard areas.~~

G101.3 Scope.

~~The provisions of this appendix shall apply to all proposed development in a flood hazard area established in Section 1612 of this code, including certain building work exempt from permit under Section 105.2.~~

G101.4 Violations.

~~Any violation of a provision of this appendix, or failure to comply with a permit or variance issued pursuant to this appendix or any requirement of this appendix, shall be handled in accordance with Section 114.~~

G101.5 Designation of floodplain administrator.

~~The [INSERT JURISDICTION'S SELECTED POSITION TITLE] is designated as the floodplain administrator and is authorized and directed to enforce the provisions of this appendix. The floodplain administrator is authorized to delegate performance of certain duties to other employees of the jurisdiction. Such designation shall not alter any duties and powers of the building official.~~

SECTION G102 DEFINITIONS

G102.1 General.

The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

DEVELOPMENT. Any man-made change to improved or unimproved real estate, including but not limited to, buildings or *other structures*, temporary structures, temporary or permanent storage of materials, mining, dredging, filling, grading, paving, excavations, operations and other land-disturbing activities.

FUNCTIONALLY DEPENDENT FACILITY. A facility that cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities necessary for the loading or unloading of cargo or passengers, and shipbuilding and ship repair facilities. The term does not include long-term storage, manufacture, sales or service facilities.

MANUFACTURED HOME. A structure that is transportable in one or more sections, built on a permanent chassis, designed for use with or without a permanent foundation when attached to the required utilities, and constructed to the Federal Manufactured Home Construction and Safety Standards and rules and regulations promulgated by the U.S. Department of Housing and Urban Development. The term also includes mobile homes, park trailers, travel trailers and similar transportable structures that are placed on a site for 180 consecutive days or longer.

MANUFACTURED HOME PARK OR SUBDIVISION. A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

RECREATIONAL VEHICLE. A vehicle that is built on a single chassis, 400 square feet (37.16 m²) or less when measured at the largest horizontal projection, designed to be self-propelled or permanently towable by a light-duty truck, and designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect-type utilities and security devices and has no permanently attached additions.

VARIANCE. A grant of relief from the requirements of this section that permits construction in a manner otherwise prohibited by this section where specific enforcement would result in unnecessary hardship.

VIOLATION. A development that is not fully compliant with this appendix or Section 1612, as applicable.

SECTION G103 APPLICABILITY

G103.1 General.

This appendix, in conjunction with this code, provides minimum requirements for development located in *flood hazard areas*, including:

- ~~1. The subdivision of land.~~
- ~~2. Site improvements and installation of utilities.~~
- ~~3. Placement and replacement of manufactured homes.~~
- ~~4. Placement of recreational vehicles.~~
- ~~5. New construction and repair, reconstruction, rehabilitation or additions to new construction.~~
- ~~6. Substantial improvement of existing buildings and structures, including restoration after damage.~~
- ~~7. Installation of tanks.~~
- ~~8. Temporary structures.~~
- ~~9. Temporary or permanent storage, utility and miscellaneous Group U buildings and structures.~~
- ~~10. Certain building work exempt from permit under Section 105.2 and other buildings and development activities.~~

G103.2 Establishment of flood hazard areas.

~~Flood hazard areas are established in Section 1612.3 of this code, adopted by the applicable governing authority on [INSERT DATE].~~

SECTION G104 POWERS AND DUTIES

G104.1 Permit applications.

~~All applications for permits shall comply with the following:~~

- ~~1. The floodplain administrator shall review all permit applications to determine whether proposed development is located in flood hazard areas established in Section G103.2.~~
- ~~2. Where a proposed development site is in a flood hazard area, all development to which this appendix is applicable as specified in Section G103.1 shall be designed and constructed with methods, practices and materials that minimize flood damage and that are in accordance with this code and ASCE 24.~~

G104.2 Other permits.

~~It shall be the responsibility of the floodplain administrator to ensure that approval of a proposed development shall not be given until proof that necessary permits have been granted by federal or state agencies having jurisdiction over such development.~~

G104.3 Determination of design flood elevations.

If ~~design flood elevations~~ are not specified, the floodplain administrator is authorized to require the applicant to meet one of the following:

1. ~~Obtain, review and reasonably utilize data available from a federal, state or other source.~~
2. ~~Determine the design flood elevation in accordance with accepted hydrologic and hydraulic engineering techniques. Such analyses shall be performed and sealed by a registered design professional. Studies, analyses and computations shall be submitted in sufficient detail to allow review and approval by the floodplain administrator. The accuracy of data submitted for such determination shall be the responsibility of the applicant.~~

G104.4 Activities in riverine flood hazard areas.

In riverine ~~flood hazard areas~~ where ~~design flood elevations~~ are specified but ~~floodways~~ have not been designated, the floodplain administrator shall not permit any new construction, ~~substantial improvement~~ or other development, including fill, unless the applicant submits an engineering analysis prepared by a ~~registered design professional~~, demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated ~~flood hazard area~~ encroachment, will not increase the ~~design flood elevation~~ more than 1 foot (305 mm) at any point within the community.

G104.5 Floodway encroachment.

Prior to issuing a ~~permit~~ for any ~~floodway~~ encroachment, including fill, new construction, ~~substantial improvements~~ and other development or land-disturbing activity, the floodplain administrator shall require submission of a certification, prepared by a ~~registered design professional~~, along with supporting technical data, demonstrating that such development will not cause any increase of the ~~base flood level~~.

G104.5.1 Floodway revisions.

A ~~floodway~~ encroachment that increases the level of the ~~base flood~~ is authorized if the applicant has applied for a conditional ~~Flood Insurance Rate Map (FIRM)~~ revision and has received the approval of the Federal Emergency Management Agency (FEMA).

G104.6 Watercourse alteration.

Prior to issuing a ~~permit~~ for any alteration or relocation of any watercourse, the floodplain administrator shall require the applicant to provide notification of the proposal to the appropriate authorities of all adjacent government jurisdictions, as well as appropriate state agencies. A copy of the notification shall be maintained in the permit records and submitted to FEMA.

G104.6.1 Engineering analysis.

The floodplain administrator shall require submission of an engineering analysis, prepared by a ~~registered design professional~~, demonstrating that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased. Such watercourses shall be maintained in a manner that preserves the channel's flood-carrying capacity.

G104.7 Alterations in coastal areas.

Prior to issuing a ~~permit~~ for any alteration of sand dunes and mangrove stands in ~~coastal high-hazard areas~~ and coastal A zones, the floodplain administrator shall require submission of an engineering analysis, prepared by a ~~registered design professional~~, demonstrating that the proposed alteration will not increase the potential for flood damage.

G104.8 Records.

The floodplain administrator shall maintain a permanent record of all ~~permits~~ issued in ~~flood hazard areas~~, including supporting certifications and documentation required by this appendix and copies of inspection reports, design certifications and documentation of elevations required in Section 1612 of this code and Section R322 of the *International Residential Code*.

G104.9 Inspections.

Development for which a ~~permit~~ under this appendix is required shall be subject to inspection. The floodplain administrator or the floodplain administrator's designee shall make, or cause to be made, inspections of all development in ~~flood hazard areas~~ authorized by issuance of a ~~permit~~ under this appendix.

G104.10 Use of changed technical data.

The floodplain administrator and the applicant shall not use changed ~~flood hazard area~~ boundaries or base flood elevations for proposed buildings or developments unless the floodplain administrator or applicant has applied for a conditional *Flood Insurance Rate Map* (FIRM) revision and has received the approval of the Federal Emergency Management Agency (FEMA).

SECTION G105 PERMITS

G105.1 Required.

Any person, owner or owner's authorized agent who intends to conduct any development in a flood hazard area shall first make application to the floodplain administrator and shall obtain the required ~~permit~~.

G105.2 Application for permit.

The applicant shall file an application in writing on a form furnished by the floodplain administrator. Such application shall:

1. Identify and describe the development to be covered by the ~~permit~~.
2. Describe the land on which the proposed development is to be conducted by legal description, street address or similar description that will readily identify and definitely locate the site.
3. Include a site plan showing the delineation of ~~flood hazard areas~~, ~~floodway~~ boundaries, ~~flood zones~~, ~~design flood elevations~~, ground elevations, proposed fill and excavation and drainage patterns and facilities.
4. Include in subdivision proposals and other proposed developments with more than 50 lots or larger than 5 acres ($20\ 234\text{ m}^2$), ~~base flood elevation~~ data in accordance with Section 1612.3.1 if such data are not identified for the ~~flood hazard areas~~ established in Section G103.2.
5. Indicate the use and occupancy for which the proposed development is intended.

~~6. Be accompanied by construction documents, grading and filling plans and other information deemed appropriate by the floodplain administrator.~~

~~7. State the valuation of the proposed work.~~

~~8. Be signed by the applicant or the applicant's authorized agent.~~

G105.3 Validity of permit.

~~The issuance of a *permit* under this appendix shall not be construed to be a *permit* for, or approval of, any violation of this appendix or any other ordinance of the jurisdiction. The issuance of a *permit* based on submitted documents and information shall not prevent the floodplain administrator from requiring the correction of errors. The floodplain administrator is authorized to prevent occupancy or use of a structure or site that is in violation of this appendix or other ordinances of this jurisdiction.~~

G105.4 Expiration.

~~A *permit* shall become invalid if the proposed development is not commenced within 180 days after its issuance, or if the work authorized is suspended or abandoned for a period of 180 days after the work commences. Extensions shall be requested in writing and justifiable cause demonstrated. The floodplain administrator is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each.~~

G105.5 Suspension or revocation.

~~The floodplain administrator is authorized to suspend or revoke a *permit* issued under this appendix wherever the *permit* is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or code of this jurisdiction.~~

SECTION G106 VARIANCES

G106.1 General.

~~The *board of appeals* established pursuant to Section 113, or other established or designed board, shall hear and decide requests for variances. The board shall base its determination on technical justifications, and has the right to attach such conditions to variances as it deems necessary to further the purposes and objectives of this appendix and Section 1612.~~

G106.2 Records.

~~The floodplain administrator shall maintain a permanent record of all variance actions, including justification for their issuance.~~

G106.3 Historic structures.

~~A variance is authorized to be issued for the repair or rehabilitation of a historic structure upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure, and the variance is the minimum necessary to preserve the historic character and design of the structure.~~

Exception: ~~Within flood hazard areas, historic structures that do not meet one or more of the following designations:~~

- ~~1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.~~
- ~~2. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.~~
- ~~3. Designated as *historic* under a state or local historic preservation program that is approved by the Department of Interior.~~

G106.4 Functionally dependent facilities.

~~A variance is authorized to be issued for the construction or *substantial improvement* of a functionally dependent facility provided that the criteria in Section 1612.1 are met and the variance is the minimum necessary to allow the construction or *substantial improvement*, and that all due consideration has been given to methods and materials that minimize *flood* damages during the *design flood* and do not create additional threats to public safety.~~

G106.5 Restrictions.

~~The board shall not issue a variance for any proposed development in a *floodway* if any increase in flood levels would result during the *base flood* discharge.~~

G106.6 Considerations.

~~In reviewing applications for variances, the board shall consider all technical evaluations, all relevant factors, all other portions of this appendix and the following:~~

- ~~1. The danger that materials and debris may be swept onto other lands resulting in further injury or damage.~~
- ~~2. The danger to life and property due to *flooding* or erosion damage.~~
- ~~3. The susceptibility of the proposed development, including contents, to *flood* damage and the effect of such damage on current and future owners.~~
- ~~4. The importance of the services provided by the proposed development to the community.~~
- ~~5. The availability of alternate locations for the proposed development that are not subject to *flooding* or erosion.~~
- ~~6. The compatibility of the proposed development with existing and anticipated development.~~
- ~~7. The relationship of the proposed development to the comprehensive plan and flood plain management program for that area.~~
- ~~8. The safety of access to the property in times of *flood* for ordinary and emergency vehicles.~~
- ~~9. The expected heights, velocity, duration, rate of rise and debris and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site.~~

- ~~10. The costs of providing governmental services during and after *flood* conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, streets and bridges.~~

G106.7 Conditions for issuance.

~~Variances shall only be issued by the board where all of the following criteria are met:~~

- ~~1. A technical showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site renders the elevation standards inappropriate.~~
- ~~2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.~~
- ~~3. A determination that the granting of a variance will not result in increased *flood* heights, additional threats to public safety, extraordinary public expense, nor create nuisances, cause fraud on or victimization of the public or conflict with existing local laws or ordinances.~~
- ~~4. A determination that the variance is the minimum necessary, considering the *flood* hazard, to afford relief.~~
- ~~5. Notification to the applicant in writing over the signature of the floodplain administrator that the issuance of a variance to construct a structure below the *base flood* level will result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage, and that such construction below the *base flood* level increases risks to life and property.~~

SECTION G107 SUBDIVISIONS

G107.1 ~~General.~~

~~Any subdivision proposal, including proposals for manufactured home parks and subdivisions, or other proposed new development in a *flood hazard area* shall be reviewed to verify all of the following:~~

- ~~1. Such proposals are consistent with the need to minimize *flood* damage.~~
- ~~2. Public utilities and facilities, such as sewer, gas, electric and water systems, are located and constructed to minimize or eliminate *flood* damage.~~
- ~~3. Adequate drainage is provided to reduce exposure to *flood* hazards.~~

G107.2 Subdivision requirements.

~~The following requirements shall apply in the case of any proposed subdivision, including proposals for manufactured home parks and subdivisions, any portion of which lies within a *flood hazard area*:~~

- ~~1. The *flood hazard area*, including *floodways*, *coastal high hazard areas* and *coastal A zones*, as appropriate, shall be delineated on tentative and final subdivision plats.~~

- ~~2. Design flood elevations shall be shown on tentative and final subdivision plats.~~
- ~~3. Residential building lots shall be provided with adequate buildable area outside the floodway.~~
- ~~4. The design criteria for utilities and facilities set forth in this appendix and appropriate International Codes shall be met.~~

SECTION G108 SITE IMPROVEMENT

G108.1 Development in floodways.

~~Development or land-disturbing activity shall not be authorized in the floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice, and prepared by a registered design professional, that the proposed encroachment will not result in any increase in the base flood level.~~

G108.2 Coastal high hazard areas and coastal A zones.

~~In coastal high hazard areas and coastal A zones:~~

- ~~1. New buildings and buildings that are substantially improved shall only be authorized landward of the reach of mean high tide.~~
- ~~2. The use of fill for structural support of buildings is prohibited.~~

G108.3 Sewer facilities.

~~All new or replaced sanitary sewer facilities, private sewage treatment plants (including all pumping stations and collector systems) and on-site waste disposal systems shall be designed in accordance with Chapter 7, ASCE 24, to minimize or eliminate infiltration of floodwaters into the facilities and discharge from the facilities into floodwaters, or impairment of the facilities and systems.~~

G108.4 Water facilities.

~~All new or replacement water facilities shall be designed in accordance with the provisions of Chapter 7, ASCE 24, to minimize or eliminate infiltration of floodwaters into the systems.~~

G108.5 Storm drainage.

~~Storm drainage shall be designed to convey the flow of surface waters to minimize or eliminate damage to persons or property.~~

G108.6 Streets and sidewalks.

~~Streets and sidewalks shall be designed to minimize potential for increasing or aggravating flood levels.~~

SECTION G109 MANUFACTURED HOMES

G109.1 Elevation.

~~All new and replacement manufactured homes to be placed or substantially improved in a flood~~

~~hazard area shall be elevated such that the lowest floor of the manufactured home is elevated to or above the design flood elevation.~~

G109.2 Foundations.

~~All new and replacement manufactured homes, including substantial improvement of existing manufactured homes, shall be placed on a permanent, reinforced foundation that is designed in accordance with Section R322 of the International Residential Code.~~

G109.3 Anchoring.

~~All new and replacement manufactured homes to be placed or substantially improved in a flood hazard area shall be installed using methods and practices that minimize flood damage. Manufactured homes shall be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement. Methods of anchoring are authorized to include, but are not limited to, use of over the top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.~~

G109.4 Protection of mechanical equipment and outside appliances.

~~Mechanical equipment and outside appliances shall be elevated to or above the design flood elevation.~~

~~**Exception:** Where such equipment and appliances are designed and installed to prevent water from entering or accumulating within their components and the systems are constructed to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to the elevation required by Section R322 of the International Residential Code, the systems and equipment shall be permitted to be located below the elevation required by Section R322 of the International Residential Code. Electrical wiring systems shall be permitted below the design flood elevation provided that they conform to the provisions of NFPA 70.~~

G109.5 Enclosures.

~~Fully enclosed areas below elevated manufactured homes shall comply with the requirements of Section R322 of the International Residential Code.~~

SECTION G110 RECREATIONAL VEHICLES

G110.1 Placement prohibited.

~~The placement of recreational vehicles shall not be authorized in coastal high-hazard areas and in floodways.~~

G110.2 Temporary placement.

~~Recreational vehicles in flood hazard areas shall be fully licensed and ready for highway use, or shall be placed on a site for less than 180 consecutive days.~~

G110.3 Permanent placement.

~~Recreational vehicles that are not fully licensed and ready for highway use, or that are to be placed on a site for more than 180 consecutive days, shall meet the requirements of Section G109 for manufactured homes.~~

SECTION G111 TANKS

G111.1 Tanks.

~~Underground and above-ground tanks shall be designed, constructed, installed and anchored in accordance with ASCE 24.~~

SECTION G112 OTHER BUILDING WORK

G112.1 Garages and accessory structures.

~~Garages and accessory structures shall be designed and constructed in accordance with ASCE 24.~~

G112.2 Fences.

~~Fences in floodways that have the potential to block the passage of floodwaters, such as stockade fences and wire mesh fences, shall meet the requirement of Section G104.5.~~

G112.3 Oil derricks.

~~Oil derricks located in flood hazard areas shall be designed in conformance with the flood loads in Sections 1603.1.7 and 1612.~~

G112.4 Retaining walls, sidewalks and driveways.

~~Retaining walls, sidewalks and driveways shall meet the requirements of Section 1804.5.~~

G112.5 Swimming pools.

~~Swimming pools shall be designed and constructed in accordance with ASCE 24. Above-ground swimming pools, on-ground swimming pools and in-ground swimming pools that involve placement of fill in floodways shall also meet the requirements of Section G104.5.~~

G112.6 Decks, porches, and patios.

~~Decks, porches and patios shall be designed and constructed in accordance with ASCE 24.~~

G112.7 Nonstructural concrete slabs in coastal high-hazard areas and coastal A zones.

~~In coastal high-hazard areas and coastal A zones, nonstructural concrete slabs used as parking pads, enclosure floors, landings, decks, walk-ways, patios and similar nonstructural uses are permitted beneath or adjacent to buildings and structures provided that the concrete slabs shall be constructed in accordance with ASCE 24.~~

G112.8 Roads and watercourse crossings in regulated floodways.

~~Roads and watercourse crossings that encroach into regulated floodways, including roads, bridges, culverts, low water crossings and similar means for vehicles or pedestrians to travel from one side of a watercourse to the other, shall meet the requirement of Section G104.5.~~

SECTION G113 TEMPORARY STRUCTURES AND TEMPORARY STORAGE

G113.1 Temporary structures.

~~Temporary structures shall be erected for a period of less than 180 days. Temporary structures~~

shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the *design flood*. Fully enclosed temporary structures shall have flood openings that are in accordance with ASCE 24 to allow for the automatic entry and exit of floodwaters.

G113.2 Temporary storage.

Temporary storage includes storage of goods and materials for a period of less than 180 days. Stored materials shall not include hazardous materials.

G113.3 Floodway encroachment.

Temporary structures and temporary storage in *floodways* shall meet the requirements of G104.5.

SECTION G114 UTILITY AND MISCELLANEOUS GROUP U

G114.1 Utility and miscellaneous Group U.

Utility and miscellaneous Group U includes buildings that are accessory in character and miscellaneous structures not classified in any specific occupancy in this code, including, but not limited to, *agricultural buildings*, aircraft hangars (accessory to a one- or two-family residence), barns, carports, fences more than 6 feet (1829 mm) high, grain silos (accessory to a residential occupancy), greenhouses, livestock shelters, private garages, retaining walls, sheds, stables and towers.

G114.2 Flood loads.

Utility and miscellaneous Group U buildings and structures, including *substantial improvement* of such buildings and structures, shall be anchored to prevent flotation, collapse or lateral movement resulting from *flood loads*, including the effects of buoyancy, during conditions of the *design flood*.

G114.3 Elevation.

Utility and miscellaneous Group U buildings and structures, including *substantial improvement* of such buildings and structures, shall be elevated such that the *lowest floor*, including basement, is elevated to or above the *design flood elevation* in accordance with Section 1612 of this code.

G114.4 Enclosures below design flood elevation.

Fully enclosed areas below the *design flood elevation* shall be constructed in accordance with ASCE 24.

G114.5 Flood damage-resistant materials.

Flood damage resistant materials shall be used below the *design flood elevation*.

G114.6 Protection of mechanical, plumbing and electrical systems.

Mechanical, plumbing and electrical systems, including plumbing fixtures, shall be elevated to or above the *design flood elevation*.

Exception: Electrical systems, equipment and components; heating, ventilating, air conditioning and plumbing appliances; plumbing fixtures, duct systems and other service equipment shall be permitted to be located below the *design flood elevation* provided that they are designed and installed to prevent water from entering or accumulating within the

components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in compliance with the flood-resistant construction requirements of this code. Electrical wiring systems shall be permitted to be located below the design flood elevation provided that they conform to the provisions of NFPA 70.

SECTION G115 REFERENCED STANDARDS

G115.1 General.

See Table G115.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title, and the section or sections of this appendix referenced in the standard.

**TABLE G115.1
REFERENCED STANDARDS**

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
ASCE 24—14	<i>Flood-Resistant Design and Construction</i>	G104.1, G108.3, G108.4, G111.1, G112.1, G112.5, G112.6, G112.7, G113.1, G114.4
HUD 24 CFR Part 3285 (2008)	<i>Manufactured Home Construction and Safety Standards</i>	G102
IBC—21	<i>International Building Code®</i>	G103.2, G114.1, G114.3
IRC—21	<i>International Residential Code®</i>	G109.2, G109.4, G109.5
NFPA 70—20	<i>National Electric Code®</i>	G109.4, G114.6

G301.1 General. Work subject to the requirements of this appendix shall be designed by a registered design professional. Work located in both flood hazard areas and coastal dunes shall meet the requirements for both areas. Where requirements are duplicative the more stringent requirement shall apply.

G301.2 Construction Documents. Construction documents in accordance with section 1612.5 shall be submitted as applicable for work in coastal dunes. Construction documents shall indicate proposed details of floor, wall, foundation support components, loading computations, and other essential technical data used to meet the requirements of this appendix. In addition and as part of the permit application for construction in coastal dunes the building official shall require submission of one of the construction documents specified in (a) through (d) along with a notarized statement by the applicant that the order, determination or notice is in effect and is not the subject of any administrative appeals before the Department of Environmental Protection or the Division of Administrative Law Appeals. No building permit shall be issued unless and until a construction document that conforms to the requirements of this section is submitted.

- (a) An order of conditions establishing the boundaries of all coastal wetland resource areas in a plan referenced in and accompanying the order. The order shall determine whether the coastal wetland resource areas are significant to any of the interests identified in the Wetlands Protection Act, M.G.L. c. 131, § 40 including the interests of flood control and storm damage prevention. If the order indicates that the proposed construction work is located within a coastal dune that is significant to the interests of flood control and/or storm damage prevention, the order of conditions shall allow the proposed construction.
- (b) An order of resource area delineation stating that the proposed construction work is outside the boundaries of all coastal wetland resource areas as shown on a plan referenced in and accompanying the order.
- (c) A determination of applicability stating that the proposed construction work is outside the boundaries of all coastal wetland resource areas as shown on a plan referenced in and accompanying the determination or will not fill, dredge or alter a coastal wetland resource area.
- (d) A notice of non-significance evidencing that the proposed construction work is within a coastal wetland resource area as shown on a plan referenced in and accompanying the notice and stating that the coastal wetland resource area is not significant to any of the interests identified in M.G.L. c. 131, § 40: Removal, Fill, Dredging or Altering of Land Bordering Waters (the Wetlands Protection Act).

G301.3 Elevation of Structures in Coastal Dunes. For new buildings and structures, new foundations, replacement or substantial repair of a foundation, or repair of a substantially damaged structure where damage is the result of a storm or flooding the entire structure shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings or pile caps is located at the elevation required by the order of conditions of the local conservation commission in accordance with the Wetlands Protection Act, M.G.L. c. 131, § 40 and Wetlands Protection regulations, 310 CMR 10.21 through 10.35. For lateral additions that are not a substantial improvement, only the addition shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings or pile caps is located at the elevation required by the order of conditions of the local conservation commission in accordance with the Wetlands Protection Act, M.G.L. c. 131, § 40 and the Wetlands Protection regulations at 310 CMR 10.21 through 10.35. Enclosures are not permitted below the lowest horizontal structural member of the lowest floor.

G301.4 Foundations. Foundations shall be designed in accordance with section 18, ASCE 7 and ASCE 24. Anchorage of buildings and structures shall be designed and connected to resist flotation, collapse or permanent lateral movement due to structural loads and stresses from flooding equal to the base flood. Foundations for work meeting the elevation requirements of section G301.3 shall consist of open pilings without footings to allow the movement of the dune.

EXCEPTION: Where surface or subsurface conditions consist of non-erodible soil that

prevents the use of pile foundations, spread footings or mat foundations may be permitted. Such foundations shall be anchored to prevent sliding, uplift or overturning of the footing and the non-erodible soil it is attached to and be designed to withstand any combination of loads.

APPENDIX H SIGNS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User notes:

About this appendix: Appendix H gathers in one place the various standards that regulate the construction and protection of outdoor signs. Wherever possible, the appendix provides standards in performance language, thus allowing the widest possible application.

Code development reminder: Code change proposals to this appendix will be considered by the IBC—Structural Code Development Committee during the 2022 (Group B) Code Development Cycle.

SECTION H101 GENERAL

H101.1 General.

A sign shall not be erected in a manner that would confuse or obstruct the view of or interfere with exit signs required by Chapter 10 or with official traffic signs, signals or devices. Signs and sign support structures, together with their supports, braces, guys and anchors, shall be kept in repair and in proper state of preservation. The display surfaces of signs shall be kept neatly painted or posted at all times.

H101.2 Signs exempt from permits.

The following signs are exempt from the requirements to obtain a *permit* before erection:

1. Painted nonilluminated signs.
2. Temporary signs announcing the sale or rent of property.
3. Signs erected by transportation authorities.
4. Projecting signs not exceeding 2.5 square feet (0.23 m^2).
5. The changing of moveable parts of an approved sign that is designed for such changes, or the repainting or repositioning of display matter shall not be deemed an alteration.

SECTION H102 DEFINITIONS

H102.1 General.

The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

COMBINATION SIGN. A sign incorporating any combination of the features of pole, projecting and roof signs.

DISPLAY SIGN. The area made available by the sign structure for the purpose of displaying the advertising message.

ELECTRIC SIGN. A sign containing electrical wiring, but not including signs illuminated by an exterior light source.

GROUND SIGN. A billboard or similar type of sign that is supported by one or more uprights, poles or braces in or upon the ground other than a combination sign or pole sign, as defined by this code.

POLE SIGN. A sign wholly supported by a sign structure in the ground.

PORTABLE DISPLAY SURFACE. A display surface temporarily fixed to a standardized advertising structure that is regularly moved from structure to structure at periodic intervals.

PROJECTING SIGN. A sign other than a wall sign that projects from and is supported by a wall of a building or structure.

ROOF SIGN. A sign erected on or above a roof or parapet of a building or structure.

SIGN. Any letter, figure, character, mark, plane, point, marquee sign, design, poster, pictorial, picture, stroke, stripe, line, trademark, reading matter or illuminated service, which shall be constructed, placed, attached, painted, erected, fastened or manufactured in any manner whatsoever, so that the same shall be used for the attraction of the public to any place, subject, person, firm, corporation, public performance, article, machine or merchandise, whatsoever, which is displayed in any manner outdoors. Every sign shall be classified and conform to the requirements of that classification as set forth in this chapter.

SIGN STRUCTURE. Any structure that supports or is capable of supporting a sign as defined in this code. A sign structure is permitted to be a single pole and is not required to be an integral part of the building.

WALL SIGN. Any sign attached to or erected against the wall of a building or structure, with the exposed face of the sign in a plane parallel to the plane of said wall.

SECTION H103 LOCATION

H103.1 Location restrictions.

Signs shall not be erected, constructed or maintained so as to obstruct any fire escape or any window or door or opening used as a *means of egress* or so as to prevent free passage from one part of a roof to any other part thereof. A sign shall not be attached in any form, shape or manner to a fire escape, nor be placed in such manner as to interfere with any opening required for ventilation.

SECTION H104 IDENTIFICATION

H104.1 Identification.

Every outdoor advertising display sign hereafter erected, constructed or maintained, for which a permit is required, shall be plainly marked with the name of the person, firm or corporation erecting and maintaining such sign and shall have affixed on the front thereof the permit number issued for said sign or other method of identification *approved* by the *building official*.

SECTION H105 DESIGN AND CONSTRUCTION

H105.1 General requirements.

Signs shall be designed and constructed to comply with the provisions of this code for use of materials, *loads* and stresses.

H105.2 Permits, drawings and specifications.

Where a permit is required, as provided in Chapter 1, construction documents shall be required. These documents shall show the dimensions, material and required details of construction, including *loads*, stresses and anchors.

H105.3 Wind load.

Signs shall be designed and constructed to withstand wind pressure as provided for in Chapter 16.

H105.4 Seismic load.

Signs designed to withstand wind pressures shall be considered capable of withstanding earthquake *loads*, except as provided for in Chapter 16.

H105.5 Working stresses.

In outdoor advertising display signs, the allowable working stresses shall conform to the requirements of Chapter 16. The working stresses of wire rope and its fastenings shall not exceed 25 percent of the ultimate strength of the rope or fasteners.

Exceptions:

1. The allowable working stresses for steel and wood shall be in accordance with the provisions of Chapters 22 and 23.

2. The working strength of chains, cables, guys or steel rods shall not exceed one-fifth of the ultimate strength of such chains, cables, guys or steel.

H105.6 Attachment.

Signs attached to masonry, concrete or steel shall be safely and securely fastened by means of metal anchors, bolts or approved expansion screws of sufficient size and anchorage to safely support the loads applied.

SECTION H106 ELECTRICAL

H106.1 Illumination.

A sign shall not be illuminated by other than electrical means, and electrical devices and wiring shall be installed in accordance with the requirements of NFPA 70. Any open spark or flame shall not be used for display purposes unless specifically *approved*.

H106.1.1 Internally illuminated signs.

Except as provided for in Section 2611, where internally illuminated signs have facings of wood or of approved plastic complying with the requirements of Section 2606.4, the area of such facing section shall be not more than 120 square feet (11.16 m^2) and the wiring for electric lighting shall be entirely enclosed in the sign cabinet with a clearance of not less than 2 inches (51 mm) from the facing material. The dimensional limitation of 120 square feet (11.16 m^2) shall not apply to sign facing sections made from flame-resistant-coated fabric (ordinarily known as "flexible sign face plastic") that weighs less than 20 ounces per square yard (678 g/m^2) and that, when tested in accordance with NFPA 701, meets the fire propagation performance requirements of both Test 1 and Test 2 or that, when tested in accordance with an approved test method, exhibits an average burn time of 2 seconds or less and a burning extent of 5.9 inches (150 mm) or less for 10 specimens.

H106.2 Electrical service.

Signs that require electrical service shall comply with NFPA 70.

SECTION H107 COMBUSTIBLE MATERIALS

H107.1 Use of combustibles.

Wood, plastics complying with the requirements of Section H107.1.1 or plastic veneer panels as provided for in Chapter 26, or other materials of combustible characteristics similar to wood, used for moldings, cappings, nailing blocks, letters and latticing, shall comply with Section H109.1 and shall not be used for other ornamental features of signs, unless approved.

H107.1.1 Plastic materials.

Notwithstanding any other provisions of this code, plastics that burn at a rate not faster than 2.5 inches per minute (64 mm/s) when tested in accordance with ASTM D635 shall be approved for use as the display surface material and for the letters, decorations and facings on signs and outdoor display structures.

H107.1.2 Electric sign faces.

Individual plastic facings of electric signs shall not exceed 200 square feet (18.6 m^2) in area.

H107.1.3 Area limitation.

If the area of a display surface exceeds 200 square feet (18.6 m²), the area occupied or covered by plastics complying with the requirements of Section H107.1.1 shall be limited to 200 square feet (18.6 m²) plus 50 percent of the difference between 200 square feet (18.6 m²) and the area of display surface. The area of plastic on a display surface shall not in any case exceed 1,100 square feet (102 m²).

H107.1.4 Plastic appurtenances.

Letters and decorations mounted on a plastic facing or display surface can be made of plastics complying with the requirements of Section H107.1.1.

SECTION H108 ANIMATED DEVICES

H108.1 Fail-safe device.

Signs that contain moving sections or ornaments shall have fail-safe provisions to prevent the section or ornament from releasing and falling or shifting its center of gravity more than 15 inches (381 mm). The fail-safe device shall be in addition to the mechanism and the mechanism's housing that operate the movable section or ornament. The fail-safe device shall be capable of supporting the full dead weight of the section or ornament when the moving mechanism releases.

SECTION H109 GROUND SIGNS

H109.1 Height restrictions.

The structural frame of ground signs shall not be erected of combustible materials to a height of more than 35 feet (10 668 mm) above the ground. Ground signs constructed entirely of noncombustible material shall not be erected to a height of greater than 100 feet (30 480 mm) above the ground. Greater heights are permitted where approved and located so as not to create a hazard or danger to the public.

H109.2 Required clearance.

The bottom coping of every ground sign shall be not less than 3 feet (914 mm) above the ground or street level, which space can be filled with platform decorative trim or light wooden construction.

H109.3 Wood anchors and supports.

Where wood anchors or supports are embedded in the soil, the wood shall be pressure treated with an approved preservative.

SECTION H110 ROOF SIGNS

H110.1 General.

Roof signs shall be constructed entirely of metal or other approved noncombustible material except as provided for in Sections H106.1.1 and H107.1. Provisions shall be made for electric grounding of metallic parts. Where combustible materials are permitted in letters or other ornamental features, wiring and tubing shall be kept free and insulated therefrom. Roof signs

shall be so constructed as to leave a clear space of not less than 6 feet (1829 mm) between the roof level and the lowest part of the sign and shall have not less than 5 feet (1524 mm) clearance between the vertical supports thereof. Roof sign structures shall not project beyond an *exterior wall*.

Exception: Signs on flat roofs with every part of the roof accessible.

H110.2 Bearing plates.

The bearing plates of roof signs shall distribute the load directly to or on masonry walls, steel roof girders, columns or beams. The building shall be designed to avoid overstress of these members.

H110.3 Height of solid signs.

A roof sign having a solid surface shall not exceed, at any point, a height of 24 feet (7315 mm) measured from the roof surface.

H110.4 Height of open signs.

Open roof signs in which the uniform open area is not less than 40 percent of total gross area shall not exceed a height of 75 feet (22 860 mm) on buildings of Type 1 or Type 2 construction. On buildings of other construction types, the height shall not exceed 40 feet (12 192 mm). Such signs shall be thoroughly secured to the building on which they are installed, erected or constructed by iron, metal anchors, bolts, supports, chains, stranded cables, steel rods or braces and they shall be maintained in good condition.

H110.5 Height of closed signs.

A closed roof sign shall not be erected to a height greater than 50 feet (15 240 mm) above the roof of buildings of Type 1 or 2 construction or more than 35 feet (10 668 mm) above the roof of buildings of Type 3, 4 or 5 construction.

SECTION H111 WALL SIGNS

H111.1 Materials.

Wall signs that have an area exceeding 40 square feet (3.72 m^2) shall be constructed of metal or other approved noncombustible material, except for nailing rails and as provided for in Sections H106.1.1 and H107.1.

H111.2 Exterior wall mounting details.

Wall signs attached to *exterior walls of solid masonry*, concrete or stone shall be safely and securely attached by means of metal anchors, bolts or expansion screws of not less than $\frac{3}{8}$ inch (9.5 mm) diameter and shall be embedded not less than 5 inches (127 mm). Wood blocks shall not be used for anchorage, except in the case of wall signs attached to buildings with walls of wood. A wall sign shall not be supported by anchorages secured to an unbraced *parapet wall*.

H111.3 Extension.

Wall signs shall not extend above the top of the wall or beyond the ends of the wall to which the signs are attached unless such signs conform to the requirements for roof signs, projecting signs or ground signs.

SECTION H112 PROJECTING SIGNS

H112.1 General.

Projecting signs shall be constructed entirely of metal or other noncombustible material and securely attached to a building or structure by metal supports such as bolts, anchors, supports, chains, guys or steel rods. Staples or nails shall not be used to secure any projecting sign to any building or structure. The *dead load* of projecting signs not parallel to the building or structure and the *load* due to wind pressure shall be supported with chains, guys or steel rods having net cross-sectional dimension of not less than $\frac{3}{8}$ inch (9.5 mm) diameter. Such supports shall be erected or maintained at an angle of not less than 45 percent (0.78 rad) with the horizontal to resist the *dead load* and at angle of 45 percent (0.78 rad) or more with the face of the sign to resist the specified wind pressure. If such projecting sign exceeds 30 square feet (2.8 m^2) in one facial area, there shall be provided not fewer than two such supports on each side not more than 8 feet (2438 mm) apart to resist the wind pressure.

H112.2 Attachment of supports.

Supports shall be secured to a bolt or expansion screw that will develop the strength of the supporting chains, guys or steel rods, with a minimum $\frac{5}{8}$ -inch (15.9 mm) bolt or lag screw, by an expansion shield. Turnbuckles shall be placed in chains, guys or steel rods supporting projecting signs.

H112.3 Wall mounting details.

Chains, cables, guys or steel rods used to support the live or *dead load* of projecting signs are permitted to be fastened to *solid masonry* walls with expansion bolts or by machine screws in iron supports, but such supports shall not be attached to an unbraced *parapet wall*. Where the supports must be fastened to walls made of wood, the supporting anchor bolts must go through the wall and be plated or fastened on the inside in a secure manner.

H112.4 Height limitation.

A projecting sign shall not be erected on the wall of any building so as to project above the roof or cornice wall or, on buildings without a cornice wall, above the roof level except that a sign erected at a right angle to the building, the horizontal width of which sign is perpendicular to such a wall and does not exceed 18 inches (457 mm), is permitted to be erected to a height not exceeding 2 feet (610 mm) above the roof or cornice wall or above the roof level where there is no cornice wall. A sign attached to a corner of a building and parallel to the vertical line of such corner shall be deemed to be erected at a right angle to the building wall.

H112.5 Additional loads.

Projecting sign structures that will be used to support an individual on a ladder or other servicing device, whether or not specifically designed for the servicing device, shall be capable of supporting the anticipated additional *load*, but not less than a 100-pound (445 N) concentrated horizontal load and a 300-pound (1334 N) concentrated vertical *load* applied at the point of assumed or most eccentric loading. The building component to which the projecting sign is attached shall be designed to support the additional *loads*.

SECTION H113 MARQUEE SIGNS

H113.1 Materials.

Marquee signs shall be constructed entirely of metal or other approved noncombustible material except as provided for in Sections H106.1.1 and H107.1.

H113.2 Attachment.

Marquee signs shall be attached to approved *marquees* that are constructed in accordance with Section 3106.

H113.3 Dimensions.

Marquee signs, whether on the front or side, shall not project beyond the perimeter of the *marquee*.

H113.4 Height limitation.

Marquee signs shall not extend more than 6 feet (1829 mm) above, or 1 foot (305 mm) below such *marquee*. Signs shall not have a vertical dimension greater than 8 feet (2438 mm).

SECTION H114 PORTABLE SIGNS

H114.1 General.

Portable signs shall conform to requirements for ground, roof, projecting, flat and temporary signs where such signs are used in a similar capacity. The requirements of this section shall not be construed to require portable signs to have connections to surfaces, *tie-downs* or foundations where provisions are made by temporary means or configuration of the structure to provide stability for the expected duration of the installation.

SECTION H115 THICKNESS OF SIGNS

H115.1 General.

Tables H115.1(1) and H115.1(2) provide requirements for the size, thicknesses and types of glass panels and projection signs, respectively.

TABLE H115.1(1)
SIZE, THICKNESS AND TYPE OF GLASS PANELS IN SIGNS

MAXIMUM SIZE OF EXPOSED PANEL		MINIMUM THICKNESS OF GLASS (inches)	TYPE OF GLASS
Any dimension (inches)	Area (square inches)		
30	500	$\frac{1}{8}$	Plain, plate or wired
45	700	$\frac{3}{16}$	Plain, plate or wired
144	3,600	$\frac{1}{4}$	Plain, plate or wired
> 144	> 3,600	$\frac{1}{4}$	Wired glass

For SI: 1 inch = 25.4 mm, 1 square inch = 645.16 mm².

TABLE H115.1(2)
THICKNESS OF PROJECTION SIGN

PROJECTION (feet)	MAXIMUM THICKNESS (feet)
5	2
4	2.5
3	3
2	3.5
1	4

For SI: 1 foot = 304.8 mm.

SECTION H116 REFERENCED STANDARDS

H116.1 General.

See Table H115.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title, and the section or sections of this appendix that reference the standard.

TABLE H116.1
REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
ASTM D635—14	<i>Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position</i>	H107.1.1
NFPA 70—20	<i>National Electrical Code</i>	H106.1, H106.2
NFPA 701—19	<i>Methods of Fire Test for Flame Propagation of Textiles and Films</i>	H106.1.1

APPENDIX I PATIO COVERS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User notes:

About this appendix: Appendix I provides standards applicable to the construction and use of patio covers. It is limited in application to patio covers accessory to dwelling units. Covers of patios and other outdoor areas associated with restaurants, mercantile buildings, offices, nursing homes or other nondwelling occupancies would be subject to standards in the main code and not this appendix.

Code development reminder: Code change proposals to this appendix will be considered by the IBC—Structural Code Development Committee during the 2022 (Group B) Code Development Cycle.

SECTION I101 GENERAL

I101.1 General.

Patio covers shall be permitted to be detached from or attached to *dwelling units*. Patio covers shall be used only for recreational, outdoor living purposes and not as carports, garages, storage rooms or habitable rooms.

SECTION I102 DEFINITION

I102.1 General.

The following term shall, for the purposes of this appendix, have the meaning shown herein. Refer to Chapter 2 of this code for general definitions.

PATIO COVER. A structure with open or glazed walls that is used for recreational, outdoor living purposes associated with a *dwelling unit*.

SECTION I103 EXTERIOR WALLS AND OPENINGS

I103.1 Enclosure walls.

Enclosure walls shall be permitted to be of any configuration, provided that the open or glazed area of the longer wall and one additional wall is equal to not less than 65 percent of the area below not less than 6 feet 8 inches (2032 mm) of each wall, measured from the floor. Openings shall be permitted to be enclosed with insect screening, translucent or transparent plastic conforming to the provisions of Sections 2606 through 2610, glass conforming to the provisions of Chapter 24 or any combination of the foregoing.

I103.2 Light, ventilation and emergency egress.

Exterior openings of the *dwelling unit* required for light and ventilation shall be permitted to open into a patio structure. However, the patio structure shall be unenclosed if such openings are serving as emergency egress or rescue openings from sleeping rooms. Where such exterior openings serve as an exit from the dwelling unit, the patio structure, unless unenclosed, shall be provided with exits conforming to the provisions of Chapter 10.

SECTION I104 HEIGHT

I104.1 Height.

Patio covers shall be limited to one-story structures not more than 12 feet (3657 mm) in height.

SECTION I105 STRUCTURAL PROVISIONS

I105.1 Design loads.

Patio covers shall be designed and constructed to sustain, within the stress limits of this code, all *dead loads* plus a minimum vertical *live load* of 10 pounds per square foot (0.48 kN/m^2)

except that snow *loads* shall be used where such snow *loads* exceed this minimum. Such patio covers shall be designed to resist the minimum wind and seismic loads set forth in this code.

I105.2 Footings.

In areas with a frost depth of zero, a patio cover shall be permitted to be supported on a concrete slab on grade without footings, provided that the slab conforms to the provisions of Chapter 19 of this code and is not less than $3\frac{1}{2}$ inches (89 mm) thick, and the columns do not support *loads* in excess of 750 pounds (3.36 kN) per column.

APPENDIX J GRADING

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User notes:

About this appendix: Appendix J provides standards for the grading of properties. The appendix also provides standards for the administration and enforcement of a grading program, including permit and inspection requirements. Appendix J was originally developed in the 1960s and used for many years in jurisdictions throughout the western United States. It is intended to provide consistent and uniform code requirements anywhere grading is considered an issue.

Code development reminder: Code change proposals to this appendix will be considered by the IBC—Structural Code Development Committee during the 2022 (Group B) Code Development Cycle.

SECTION J101 GENERAL

J101.1 Scope.

The provisions of this chapter apply to grading, excavation and earthwork construction, including fills and embankments. Where conflicts occur between the technical requirements of this chapter and the geotechnical report, the geotechnical report shall govern.

J101.2 Flood hazard areas.

Unless the applicant has submitted an engineering analysis, prepared in accordance with standard engineering practice by a *registered design professional*, that demonstrates the proposed work will not result in any increase in the level of the *base flood*, grading, excavation and earthwork construction, including fills and embankments, shall not be permitted in *floodways* that are in *flood hazard areas* established in Section 1612.3 or in *flood hazard areas* where *design flood elevations* are specified but *floodways* have not been designated.

SECTION J102 DEFINITIONS

J102.1 Definitions.

The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of this code for general definitions.

BENCH. A relatively level step excavated into earth material on which fill is to be placed.

COMPACTION. The densification of a fill by mechanical means.

CUT. See "*Excavation.*"

DOWN DRAIN. A device for collecting water from a swale or ditch located on or above a slope, and safely delivering it to an approved drainage facility.

EROSION. The wearing away of the ground surface as a result of the movement of wind, water or ice.

EXCAVATION. The removal of earth material by artificial means, also referred to as a cut.

FILL. Deposition of earth materials by artificial means.

GRADE. The vertical location of the ground surface.

GRADE, EXISTING. The grade prior to grading.

GRADE, FINISHED. The grade of the site at the conclusion of all grading efforts.

GRADING. An excavation or fill or combination thereof.

KEY. A compacted fill placed in a trench excavated in earth material beneath the toe of a slope.

SLOPE. An inclined surface, the inclination of which is expressed as a ratio of horizontal distance to vertical distance.

TERRACE. A relatively level step constructed in the face of a graded slope for drainage and maintenance purposes.

SECTION J103 PERMITS REQUIRED

J103.1 Permits required.

Except as exempted in Section J103.2, grading shall not be performed without first having obtained a *permit* therefor from the *building official*. A grading *permit* does not include the construction of retaining walls or other structures.

J103.2 Exemptions.

A grading *permit* shall not be required for the following:

1. Grading in an isolated, self-contained area, provided that the public is not endangered and that such grading will not adversely affect adjoining properties.
2. Excavation for construction of a structure permitted under this code.
3. Cemetery graves.
4. Refuse disposal sites controlled by other regulations.
5. Excavations for wells, or trenches for utilities.
6. Mining, quarrying, excavating, processing or stockpiling rock, sand, gravel, aggregate or clay controlled by other regulations, provided that such operations do not affect the lateral support of, or significantly increase stresses in, soil on adjoining properties.
7. Exploratory excavations performed under the direction of a *registered design professional*.

Exemption from the *permit* requirements of this appendix shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

SECTION J104 PERMIT APPLICATION AND SUBMITTALS

J104.1 Submittal requirements.

In addition to the provisions of Section 105.3, the applicant shall state the estimated quantities of excavation and fill.

J104.2 Site plan requirements.

In addition to the provisions of Section 107, a grading plan shall show the existing grade and finished grade in contour intervals of sufficient clarity to indicate the nature and extent of the work and show in detail that it complies with the requirements of this code. The plans shall show the existing grade on adjoining properties in sufficient detail to identify how grade changes will conform to the requirements of this code.

J104.3 Geotechnical report.

A geotechnical report prepared by a *registered design professional* shall be provided. The report shall contain not less than the following:

1. The nature and distribution of existing soils.
2. Conclusions and recommendations for grading procedures.
3. Soil design criteria for any structures or embankments required to accomplish the proposed grading.
4. Where necessary, slope stability studies, and recommendations and conclusions regarding site geology.

Exception: A geotechnical report is not required where the *building official* determines that the nature of the work applied for is such that a report is not necessary.

J104.4 Liquefaction study.

For sites with mapped maximum considered earthquake spectral response accelerations at short periods (S_s) greater than 0.5g as determined by Section 1613, a study of the liquefaction potential of the site shall be provided and the recommendations incorporated in the plans.

Exception: A liquefaction study is not required where the *building official* determines from established local data that the liquefaction potential is low.

SECTION J105 INSPECTIONS

J105.1 General.

Inspections shall be governed by Section 110 of this code.

J105.2 Special inspections.

The *special inspection* requirements of Section 1705.6 shall apply to work performed under a grading permit where required by the *building official*.

SECTION J106 EXCAVATIONS

J106.1 Maximum slope.

The slope of cut surfaces shall be not steeper than is safe for the intended use, and shall be not more than one unit vertical in two units horizontal (50-percent slope) unless the owner or the owner's authorized agent furnishes a geotechnical report justifying a steeper slope.

Exceptions:

1. A cut surface shall be permitted to be at a slope of 1.5 units horizontal to 1 unit vertical (67-percent slope) provided that all of the following are met:
 - 1.1. It is not intended to support structures or surcharges.
 - 1.2. It is adequately protected against erosion.
 - 1.3. It is not more than 8 feet (2438 mm) in height.
 - 1.4. It is approved by the building code official.
 - 1.5. Ground water is not encountered.
2. A cut surface in bedrock shall be permitted to be at a slope of 1 unit horizontal to 1 unit vertical (100-percent slope).

SECTION J107 FILLS

J107.1 General.

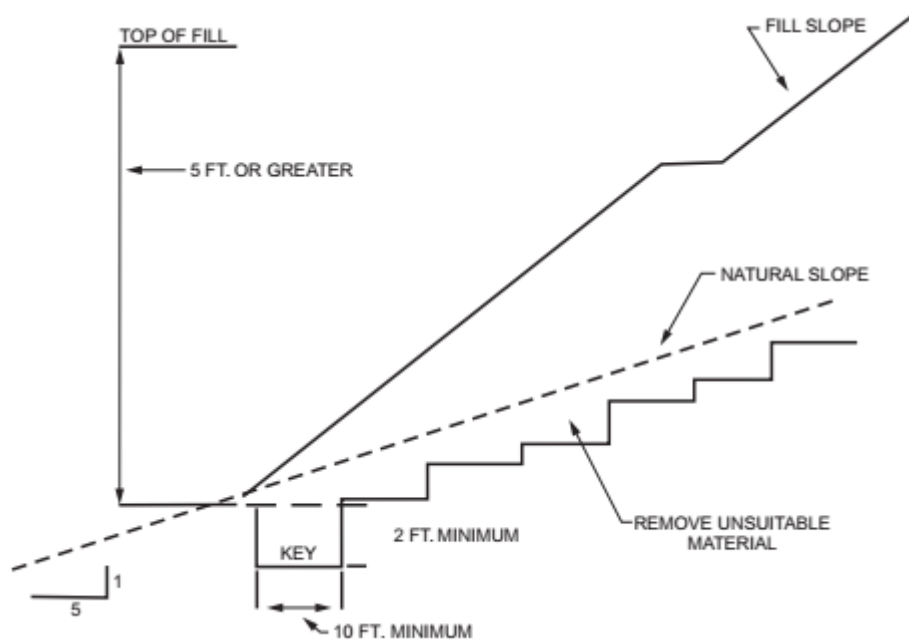
Unless otherwise recommended in the geotechnical report, fills shall comply with the provisions of this section.

J107.2 Surface preparation.

The ground surface shall be prepared to receive fill by removing vegetation, topsoil and other unsuitable materials, and scarifying the ground to provide a bond with the fill material.

J107.3 Benching.

Where existing grade is at a slope steeper than one unit vertical in five units horizontal (20-percent slope) and the depth of the fill exceeds 5 feet (1524 mm) benching shall be provided in accordance with Figure J107.3. A key shall be provided that is not less than 10 feet (3048 mm) in width and 2 feet (610 mm) in depth.



For SI: 1 foot = 304.8 mm.

**FIGURE J107.3
BENCHING DETAILS**

J107.4 Fill material.

Fill material shall not include organic, frozen or other deleterious materials. Rock or similar irreducible material greater than 12 inches (305 mm) in any dimension shall not be included in fills.

J107.5 Compaction.

All fill material shall be compacted to 90 percent of maximum density as determined by ASTM D1557, Modified Proctor, in lifts not exceeding 12 inches (305 mm) in depth.

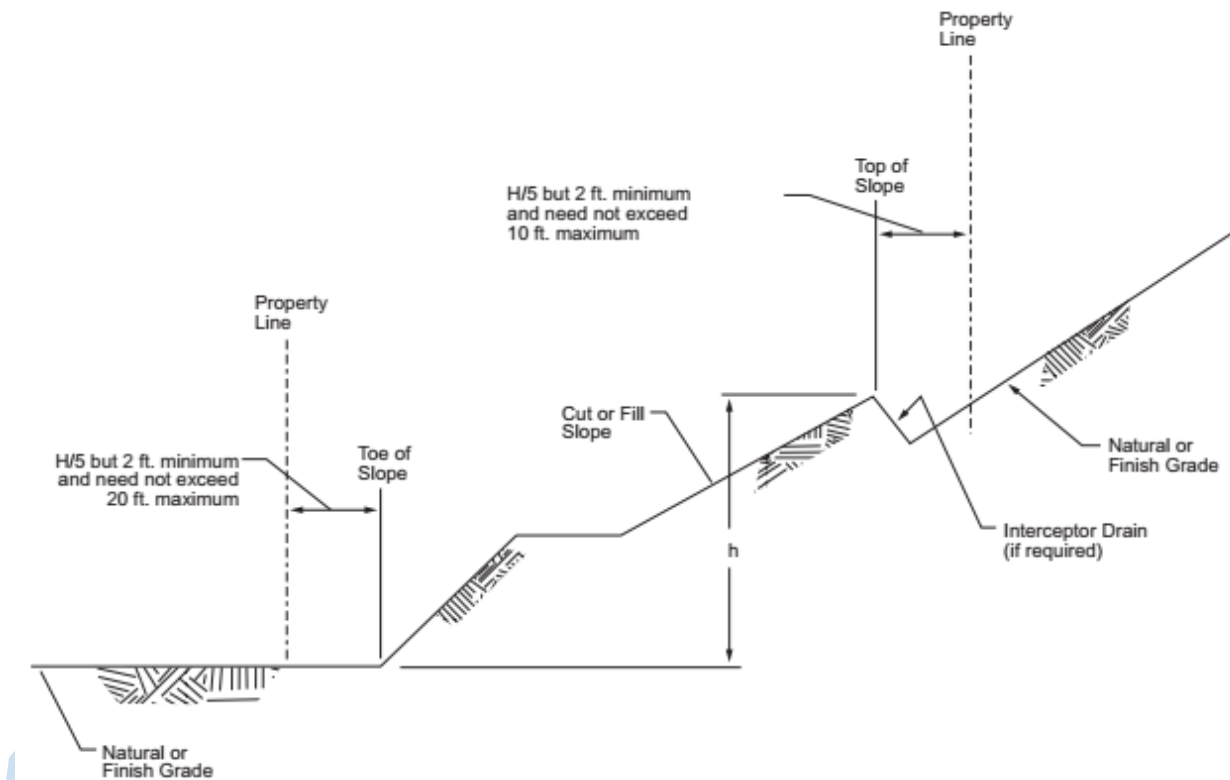
J107.6 Maximum slope.

The slope of fill surfaces shall be not steeper than is safe for the intended use. Fill slopes steeper than one unit vertical in two units horizontal (50-percent slope) shall be justified by a geotechnical report or engineering data.

SECTION J108 SETBACKS

J108.1 General.

Cut and fill slopes shall be set back from the property lines in accordance with this section. Setback dimensions shall be measured perpendicular to the property line and shall be as shown in Figure J108.1, unless substantiating data is submitted justifying reduced setbacks.



For SI: 1 foot = 304.8 mm.

**FIGURE J108.1
DRAINAGE DIMENSIONS**

J108.2 Top of slope.

The setback at the top of a cut slope shall be not less than that shown in Figure J108.1, or than is required to accommodate any required interceptor drains, whichever is greater.

J108.3 Slope protection.

Where required to protect adjacent properties at the toe of a slope from adverse effects of the grading, additional protection, *approved* by the *building official*, shall be included. Examples of such protection include but are not be limited to:

1. Setbacks greater than those required by Figure J108.1.
2. Provisions for retaining walls or similar construction.
3. Erosion protection of the fill slopes.
4. Provision for the control of surface waters.

SECTION J109 DRAINAGE AND TERRACING

J109.1 General.

Unless otherwise recommended by a *registered design professional*, drainage facilities and terracing shall be provided in accordance with the requirements of this section.

Exception: Drainage facilities and terracing need not be provided where the ground slope is not steeper than one unit vertical in three units horizontal (33-percent slope).

J109.2 Terraces.

Terraces not less than 6 feet (1829 mm) in width shall be established at not more than 30-foot (9144 mm) vertical intervals on all cut or fill slopes to control surface drainage and debris. Suitable access shall be provided to allow for cleaning and maintenance.

Where more than two terraces are required, one terrace, located at approximately mid-height, shall be not less than 12 feet (3658 mm) in width.

Swales or ditches shall be provided on terraces. They shall have a minimum gradient of one unit vertical in 20 units horizontal (5-percent slope) and shall be paved with concrete not less than 3 inches (76 mm) in thickness, or with other materials suitable to the application. They shall have a depth not less than 12 inches (305 mm) and a width not less than 5 feet (1524 mm).

A single run of swale or ditch shall not collect runoff from a tributary area exceeding 13,500 square feet (1256 m^2) (projected) without discharging into a down drain.

J109.3 Interceptor drains.

Interceptor drains shall be installed along the top of cut slopes receiving drainage from a tributary width greater than 40 feet (12 192 mm), measured horizontally. They shall have a minimum depth of 1 foot (305 mm) and a minimum width of 3 feet (915 mm). The slope shall be *approved* by the *building official*, but shall be not less than one unit vertical in 50 units horizontal (2-percent slope). The drain shall be paved with concrete not less than 3 inches (76 mm) in thickness, or by other materials suitable to the application. Discharge from the drain shall be accomplished in a manner to prevent erosion and shall be approved by the *building official*.

J109.4 Drainage across property lines.

Drainage across property lines shall not exceed that which existed prior to grading. Excess or concentrated drainage shall be contained on site or directed to an approved drainage facility. Erosion of the ground in the area of discharge shall be prevented by installation of nonerosive down drains or other devices.

SECTION J110 EROSION CONTROL

J110.1 General.

The faces of cut and fill slopes shall be prepared and maintained to control erosion. This control shall be permitted to consist of effective planting.

Exception: Erosion control measures need not be provided on cut slopes not subject to erosion due to the erosion-resistant character of the materials.

Erosion control for the slopes shall be installed as soon as practicable and prior to calling for final inspection.

J110.2 Other devices.

Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

SECTION J111 REFERENCED STANDARDS

J111.1 General.

See Table J111.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title, and the section or sections of this appendix that reference the standard.

**TABLE J111.1
REFERENCED STANDARDS**

STANDARD ACRONYM	STANDARD NAME	SECTIONS HEREIN REFERENCED
ASTM D1557—12E1	<i>Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort [56,000 ft-lb/ft³ (2,700 kN-m/m³)].</i>	J107.5

APPENDIX K ADMINISTRATIVE PROVISIONS

NOT ADOPTED

APPENDIX L EARTHQUAKE RECORDING INSTRUMENTATION

NOT ADOPTED

APPENDIX M TSUNAMI-GENERATED FLOOD HAZARDS

NOT ADOPTED

APPENDIX N REPLICABLE BUILDINGS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User notes:

About this appendix: Appendix N provides jurisdictions with a means of incorporating guidelines for replicable buildings into their building code adoption process. The intent of these provisions is to give jurisdictions a means of streamlining their document review process while verifying code compliance.

Code development reminder: Code change proposals to this appendix will be considered by the IBC—Structural Code Development Committee during the 2022 (Group B) Code Development Cycle.

SECTION N101 ADMINISTRATION

N101.1

Purpose.

The purpose of this appendix is to provide a format and direction regarding the implementation of a replicable building program.

N101.2

Objectives.

Such programs allow a jurisdiction to recover from a natural disaster faster and allow for

consistent application of the codes for replicable building projects. It will result in faster turnaround for the end user, and a quicker turnaround through the plan review process.

SECTION N102 DEFINITIONS

N102.1 Definitions.

The following words and terms shall, for the purposes of this appendix, have the meanings shown herein.

REPLICABLE BUILDING. A building or structure utilizing a replicable design.

REPLICABLE DESIGN. A prototypical design developed for application in multiple locations with minimal variation or modification.

SECTION N103 REPLICABLE DESIGN REQUIREMENTS

N103.1 Prototypical construction documents.

A replicable design shall establish prototypical construction documents for application at multiple locations. The construction documents shall include details appropriate to each wind region, *seismic design category*, and climate zone for locations in which the replicable design is intended for application. Application of replicable design shall not vary with regard to the following, except for allowable variations in accordance with Section N106.

1. Use and occupancy classification.
2. Building heights and area limitations.
3. Type of construction classification.
4. *Fire-resistance ratings.*
5. *Interior finishes.*
6. Fire protection system.
7. *Means of egress.*
8. Accessibility.
9. Structural design criteria.
10. Energy efficiency.
11. Type of mechanical and electrical systems.
12. Type of plumbing system and number of fixtures.

SECTION N104

REPLICABLE DESIGN SUBMITTAL REQUIREMENTS

N104.1 General.

A summary description of the replicable design and related construction documents shall be submitted to an *approved* agency. Where approval is requested for elements of the replicable design that is not within the scope of the *International Building Code*, the construction documents shall specifically designate the codes for which review is sought. Construction documents shall be signed, sealed and dated by a registered design professional.

N104.1.1 Architectural plans and specifications.

Where approval of the architectural requirements of the replicable design is sought, the submittal documents shall include architectural plans and specifications as follows:

1. Description of uses and the proposed occupancy groups for all portions of the building.
2. Proposed type of construction of the building.
3. Fully dimensioned drawings to determine *building areas* and height.
4. Adequate details and dimensions to evaluate *means of egress*, including *occupant loads* for each floor, exit arrangement and sizes, corridors, doors and *stairs*.
5. Exit signs and means of egress lighting, including power supply.
6. Accessibility scoping provisions.
7. Description and details of proposed special occupancies such as a covered mall, high-rise, *mezzanine*, *atrium* and public garage.
8. Adequate details to evaluate fire-resistance-rated construction requirements, including data substantiating required ratings.
9. Details for plastics, insulation and safety glazing installation.
10. Details of required fire protection systems.
11. Material specifications demonstrating fire-resistance criteria.

N104.1.2 Structural plans, specifications and engineering details.

Where approval of the structural requirements of the replicable design is sought, the submittal documents shall include details for each wind region, *seismic design category* and climate zone for which approval is sought; and shall include the following:

1. Signed and sealed structural design calculations that support the member sizes on the drawings.
2. Design *load* criteria, including: frost depth, *live loads*, snow *loads*, wind *loads*, earthquake design date, and other special *loads*

3. Details of foundations and superstructure.

4. Provisions for *special inspections*.

N104.1.3 Energy conservation details.

Where approval of the energy conservation requirements of the replicable design is sought, the submittal documents shall include details for each climate zone for which approval is sought; and shall include the following:

1. Climate zones for which approval is sought.

2. Building envelope details.

3. Building mechanical system details.

4. Details of electrical power and lighting systems.

5. Provisions for system commissioning.

SECTION N105 REVIEW AND APPROVAL OF REPLICABLE DESIGN

N105.1 General.

Proposed replicable designs shall be reviewed by an approved agency. The review shall be applicable only to the replicable design features submitted in accordance with Section N104. The review shall determine compliance with this code and additional codes specified in Section N104.1.

N105.2 Documentation.

The results of the review shall be documented indicating compliance with the code requirements.

N105.3 Deficiencies.

Where the review of the submitted construction documents identifies elements where the design is deficient and will not comply with the applicable code requirements, the approved agency shall notify the proponent of the replicable design, in writing, of the specific areas of noncompliance and request correction.

N105.4 Approval.

Where the review of the submitted construction documents determines that the design is in compliance with the codes designated in Section N104.1, and where deficiencies identified in Section N105.3 have been corrected the approved agency shall issue a summary report of Approved Replicable Design. The summary report shall include any limitations on the approved replicable design including, but not limited to climate zones, wind regions and *seismic design categories*.

SECTION N106 SITE-SPECIFIC APPLICATION OF APPROVED REPLICABLE DESIGN

N106.1 General.

Where site-specific application of a replicable design that has been approved under the provisions of Section N105 is sought, the construction documents submitted to the building official shall comply with this section.

N106.2 Submittal documents.

A summary description of the replicable design and related construction document shall be submitted. Construction documents shall be signed, sealed and dated by the registered design professional. A statement, signed, sealed and dated by the registered design professional, that the replicable design submitted for local review is the same as the replicable design reviewed by the approved agency, shall be submitted.

N106.2.1 Architectural plans and specifications.

Architectural plans and specifications shall include the following:

1. Construction documents for variations from the replicable design.
2. Construction for portions that are not part of the replicable design.
3. Documents for local requirements as identified by the building official.
4. Construction documents detailing the foundation system.

SECTION N107 SITE-SPECIFIC REVIEW AND APPROVAL OF REPLICABLE DESIGN

N107.1 General.

Proposed site-specific application of replicable design shall be submitted to the building official in accordance with the provisions of Chapter 1 and Appendix N.

N107.2 Site-specific review and approval of replicable design.

The building official shall verify that the replicable design submitted for site-specific application is the same as the approved replicable design reviewed by the approved agency. In addition, the building official shall review the following for code compliance.

1. Construction documents for variations from the replicable design.
2. Construction for portions of the building that are not part of the replicable design.
2. Documents for local requirements as identified by the building official.

[A] APPENDIX O

PERFORMANCE-BASED APPLICATION

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User notes:

About this appendix: Appendix O provides an optional design, review and approval framework for use by the building official. Typical uses would include cases of alternate methods in Chapter 1, select areas of the code that require a rational analysis such as Section 909 and elsewhere. It simply extracts the relevant administrative provisions from the ICC Performance Code into a more concise, usable appendix format for a jurisdiction confronted with such a need. Currently there are multiple, varying jurisdictional rules and procedures in many communities regarding procedure and none in even more. The building official is often left alone to reach decisions not just on the merits of a design, but must first also decide on the submittal and review process. As an appendix, the provisions herein are entirely optional to a jurisdiction. This appendix can be adopted, adopted with local modifications, or even used on a case-by-case basis as part of a Memorandum of Understanding or similar legal agreement between the jurisdiction and the owner/design team. It simply represents another tool for the jurisdiction to reach for in cases of need; it neither encourages nor creates any additional opportunity for performance-based design.

Code development reminder: Code change proposals to this appendix will be considered by the Administrative Code Development Committee during the 2022 (Group B) Code Development Cycle.

[A] SECTION O101

GENERAL

O101.1 Introduction.

The following administrative provisions are excerpted from the *ICC Performance Code for Buildings and Facilities* and can be used in conjunction with the Alternate Methods provisions in Chapter 1, or for a review of submittals requiring a rational analysis or performance-based design. These provisions provide an established framework for the building official in terms of the design expertise needed, the necessary submittals, a review framework and related items.

O101.2 Qualifications.

Registered design professionals shall possess the knowledge, skills and abilities necessary to demonstrate compliance with this code.

O101.3 Construction document preparation.

Construction documents required by this code shall be prepared in adequate detail and submitted for review and approval in accordance with Section 107.

O101.3.1 Review.

Construction documents submitted in accordance with this code shall be reviewed for code compliance with the appropriate code provisions in accordance with Section 107.

O101.4 Construction.

Construction shall comply with the approved construction documents submitted in accordance with this code, and shall be verified and approved to demonstrate compliance with this code.

O101.4.1 Facility operating policies and procedures.

Policies, operations, training and procedures shall comply with approved documents submitted in accordance with this code, and shall be verified and approved to demonstrate compliance with this code.

O101.4.2 Maintenance.

Maintenance of the performance-based design shall be ensured throughout the life of the building or portion thereof.

O101.4.3 Changes.

The owner or the owner's authorized agent shall be responsible to ensure that any change to the facility, process, or system does not increase the hazard level beyond that originally designed without approval and that changes shall be documented in accordance with the code.

O101.5 Documentation.

The registered design professional shall prepare appropriate documentation for the project, clearly detailing the approach and rationale for the design submittal, the construction and the future use of the building, facility or process.

O101.5.1 Reports and manuals.

The design report shall document the steps taken in the design analysis, clearly identifying the criteria, parameters, inputs, assumptions, sensitivities and limitations involved in the analysis. The design report shall clearly identify bounding conditions, assumptions and sensitivities that clarify the expected uses and limitations of the performance analysis. This report shall verify that the design approach is in compliance with the applicable codes and acceptable methods and shall be submitted for concurrence by the building official prior to the construction documents being completed. The report shall document the design features to be incorporated based on the analysis.

The design report shall address the following:

1. Project scope.
2. Goals and objectives.
3. Performance criteria.
4. Hazard scenarios.
5. Design fire loads and hazards.
6. Final design.
7. Evaluation.

8. Bounding conditions and critical design assumptions.
9. Critical design features.
10. System design and operational requirements.
11. Operational and maintenance requirements.
12. Commissioning testing requirements and acceptance criteria.
13. Frequency of certificate renewal.
14. Supporting documents and references.
15. Preliminary site and floor plans.

O101.5.2 Design submittal.

Applicable construction documents shall be submitted to the building official for review. The documents shall be submitted in accordance with the jurisdiction's procedures and in sufficient detail to obtain appropriate permits.

O101.6 Review.

Construction documents submitted in accordance with this code shall be reviewed for code compliance with the appropriate code provisions.

O101.6.1 Peer review.

The owner or the owner's authorized agent shall be responsible for retaining and furnishing the services of a registered design professional or recognized expert, who will perform as a peer reviewer, where required and approved by the building official.

O101.6.2 Costs.

The costs of special services, including contract review, where required by the building official, shall be borne by the owner or the owner's authorized agent.

O101.7 Permits.

Prior to the start of construction, appropriate permits shall be obtained in accordance with the jurisdiction's procedures and applicable codes.

O101.8 Verification of compliance.

Upon completion of the project, documentation shall be prepared that verifies performance and prescriptive code provisions have been met. Where required by the building official, the registered design professional shall file a report that verifies bounding conditions are met.

O101.9 Extent of documentation.

Approved construction documents, the operations and maintenance manual, inspection and testing records, and certificates of occupancy with conditions shall be included in the project documentation of the building official's records.

O101.10 Analysis of change.

The registered design professional shall evaluate the existing building, facilities, premises,

processes, and contents, and the applicable documentation of the proposed change as it affects portions of the building, facility, premises, processes and contents that were previously designed for compliance under a performance-based code. Prior to any change that was not documented in a previously approved design, the registered design professional shall examine the applicable design documents, bounding conditions, operation and maintenance manuals, and deed restrictions.

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