

2012 Phoenix Building Construction Code

Amendments

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[A] 101.2 Scope.

The provisions of this code shall apply to the construction, *alteration*, relocation, enlargement, replacement, *repair*, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

Exception: ~~Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures shall comply with the *International Residential Code*.~~

Exceptions. The provisions of this code shall not apply to:

1. Federally, state or county owned projects (building and land) are exempt from the required, permits, inspections and fees of Appendix A.2 of the *Phoenix City Code*.
2. Work primarily located within a public way such as streets, roads, sidewalks, bridges, drainage structures, street lights and traffic control signs or equipment. Pedestrian tunnels or bridges which cross a public way are regulated by this code when they directly connect one or more buildings located outside of the public way.
3. Canals, dams and hydraulic flood control structures constructed by or under contract with a governmental agency or jurisdiction.
4. Utility towers, poles, equipment or systems under the exclusive control of an electric utility and directly used to generate, transmit, transform, control or distribute electrical energy to utility customers. Electrical installations in buildings used by the electric utility, such as office buildings, that are not an integral part of a generating plant, substation or control center, and electrical installations located on the premises of a utility customer, such as exterior lighting, service entrance equipment or customer- owned substation equipment, are regulated by this code.
5. Installation of communications equipment under the exclusive control of communications utilities and located outdoors or in building spaces used exclusively for such installations. Communications wiring run inside a building is regulated by this code.
6. Piping and equipment owned and operated by a public service utility and directly used to produce, treat, distribute or meter water to utility customers, or directly used to collect, treat or dispose of sewage or waste water from utility customers. Domestic plumbing systems within water or sewer utility plants are regulated by this code.
7. Piping and equipment owned and operated by a public service utility and directly used to produce, distribute or meter natural gas to utility customers.
8. Construction methods and sequencing. This code does not regulate construction methods or the scheduling or coordination of construction work, except that the contractor(s) and property owner(s) are responsible for obtaining all permits, tests and city inspection approvals as specified in this code.
9. Construction site safety. This code does not regulate construction means, methods or safety. The property owner(s), the contractor(s) and all construction workers are each responsible for compliance with applicable federal and state occupational health and safety laws and regulations.

Reasons:

These provisions for scoping more accurately delineate the city's responsibilities and establish the limits of this code pertaining to utilities, jobs under construction and other jurisdictions.

Cost Impact: No Impact

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101.3 Intent. The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment and to provide safety to fire fighters and emergency responders during emergency operations.

The purpose of this Code is not to create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefited by the terms of this code. Although the Planning & Development Director (hereinafter referred to as the "Director") or designee is directed to obtain substantial compliance with the provisions of this code, a guarantee that all buildings, structures or utilities have been constructed in accordance with all the provisions of the code is neither intended nor implied.

Reasons:

This establishes that the Director will endeavor to obtain substantial compliance with the Code, but cannot guarantee that the project complies in all respects. The responsibility for compliance with this code lies with the owner of the project.

Cost Impact: No Impact

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101.4 Referenced codes. The other codes listed in Sections 101.4.1 through 101.4.68 and referenced elsewhere in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference.

101.4.1 Gas. The provisions of the International Fuel Gas Code, as amended, shall apply to the installation of gas piping from the point of delivery, gas appliances and related accessories as covered in this code. These requirements apply to gas piping systems extending from the point of delivery to the inlet connections of appliances and the installation and operation of residential and commercial gas appliances and related accessories.

101.4.2 Mechanical. The provisions of the International Mechanical Code, as amended, shall apply to the installation, alterations, repairs and replacement of mechanical systems, including equipment, appliances, fixtures, fittings and/or appurtenances, including ventilating, heating, cooling, air-conditioning and refrigeration systems, incinerators and other energy related systems.

101.4.3 Plumbing. The provisions of the Uniform Plumbing Code, as amended, shall apply to the installation, alteration, repair and replacement of plumbing systems, including equipment, appliances, fixtures, fittings and appurtenances, and where connected to a water or sewage system and all aspects of a medical gas system. The provisions of the ~~International Private Sewage Disposal Code~~ Uniform Plumbing Code shall also apply to private sewage disposal systems.

101.4.4 Property maintenance. RESERVED

101.4.5 Fire prevention. The provisions of the International Fire Code, as amended, shall apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, repair, alteration or removal of fire suppression and alarm systems or fire hazards in the structure or on the premises from occupancy or operation.

101.4.6 Energy. The provisions of the International Energy Conservation Code, as amended, shall apply to all matters governing the design and construction of buildings for energy efficiency.

101.4.7 Electrical. The provisions of the National Electrical Code shall apply to the installation of electrical systems, including alterations, repairs, replacement, equipment, appliances, fixtures, fittings and appurtenances thereto.

101.4.8 Existing Building Code. The provisions of the International Existing Building Code shall apply to existing buildings.

101.4.9 Residential Code. The provisions of the International Residential Code shall apply to detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures.

Reasons:

The changes reflect the current codes and local amendments that will apply in the City.

Cost Impact: No impact

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[A] 102.6 Existing structures.

The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code ~~the *International Property Maintenance Code*~~ or the *International Fire Code*, or as is deemed necessary by the *building official* for the general safety and welfare of the occupants and the public.

Reasons:

The City uses the Neighborhood Preservation Ordinance for maintenance of existing and abandoned buildings, therefore the Property Maintenance Code is not adopted.

Cost Impact: No Impact

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102.7 Applicability of this Code. All applications submitted on or after the effective date of this code shall be subject to the requirements of the codes adopted by Ordinance G- 5809.

Exception:

1. Application under the provisions of the International Code Council Performance Code requires approval of the Building Official.

Reasons:

This addition allows the use of International Performance Code by approval of the Building Official.

Cost Impact: Use of this code may produce considerable construction cost savings.

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SECTION 103 DEPARTMENT OF BUILDING SAFETY Planning and Development Department

[A] 103.1 Creation of enforcement agency.

The Department of Building Safety is hereby created and the official in charge thereof shall be known as the *building official*. The authority and responsibility for administration and enforcement of this Code is hereby assigned to the Director of the Planning & Development Department. The Director may designate a person or persons to fulfill these duties.

A] 103.2 Appointment.

The *building official* shall be appointed by the ~~chief appointing authority of the jurisdiction.~~ Director of the Planning & Development Department.

[A] 103.3 Deputies.

In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the ~~*building official*~~ Director of the Planning & Development Department shall have the authority to appoint a deputy *building official*, the related technical officers, inspectors, plan examiners and other employees. Such employees shall have powers as delegated by the *building official*. ~~For the maintenance of existing properties, see the *International Property Maintenance Code*.~~

103.4 City Manager's Representative. The Director shall appoint a representative to hear initial technical appeals of various development-related city codes, ordinances, policies and procedures as provided for in *The Phoenix City Code* and *City of Phoenix Zoning Ordinance*, and shall be known as the City Manager's Representative for Technical Appeals.

Reasons:

This is the organization of the department as dictated by the City Charter.

Cost Impact: No Impact

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104.5 Identification.

The *building official* and all Planning & Development employees shall carry proper identification when inspecting structures or premises in the performance of duties under this code.

Reasons:

City policy requires all employees to carry City identification.

Cost Impact: No impact.

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104.10 Modifications, Administrative review, interpretations, modifications and appeals.

Any person dissatisfied with a code enforcement decision made by a Planning & Development Department employee may request an administrative review, formal interpretation, or a modification of a code requirement.

104.10.1 Administrative review. Any person dissatisfied with a code enforcement decision made by a Planning & Development Department employee may request a review of that decision by the employee's supervisor.

Any person dissatisfied with a decision of the supervisor may appeal that decision to the building official. The appeal shall be made in writing on a form provided by the Planning & Development Department, and shall be accompanied by a non-refundable administrative processing fee as set forth in Appendix A.2 of the *Phoenix City Code*. The decision of the building official shall be final except as provided in Section 113 of these administrative provisions.

104.10.2 Interpretation. Any person may request a written interpretation of a code requirement. The request shall be in writing on a form provided by the Planning & Development Department, shall include all information, calculations or other data necessary to describe the specific condition in detail, and shall be accompanied by a non-refundable administrative processing fee as set forth in Appendix A.2 of the *Phoenix City Code*. The decision of the building official shall be recorded in the files of the department.

104.10.3 Modifications.

Wherever there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifications for individual cases, upon application of the owner or owner's representative, provided the *building official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements.

Requests for modification of a code requirement shall be made in writing on a form provided by the Planning & Development Department, and shall be accompanied by a non-refundable fee as set forth in Appendix A.2 of the *Phoenix City Code*. The applicant is responsible for providing all information, calculations or other data necessary to document or substantiate each request. The building official may approve, approve with stipulations, or deny the application based upon the substantiating data submitted and the building official's determination that the modification results in substantial compliance with the intent of this code. In deciding each case, the building official may consider or require alternate methods or systems to be used in compensation for the particular code provision to be modified.

The details of action granting modifications shall be recorded and entered in the files of the department of building safety.

104.10.4.3.1 Flood hazard areas. Reserved.

104.10.4 Appeals. Any person may appeal a decision made by the building official to the Development Advisory Board as set forth in Section 113 of these administrative provisions.

Reasons:

This code change sets up a policy of easy second opinions, reviews, interpretations and modifications providing customers alternative means of appealing a decision made by any single employee of Planning & Development

Cost Impact: No Cost Impact.

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SECTION 104.12 LOCATION ON PROPERTY

104.12.1 General. Buildings shall adjoin or have access to a public way or yard on not less than one side. Required yards shall be permanently maintained.

For the purpose of this section, the center line of an adjoining public way shall be considered an adjacent property line. (See also Section 1206.)

Required yards and all sewer and water services shall be on the same property as the building, and no building or sewer or water service shall be built across a recorded property line, except in accordance with the following provisions:

104.12.1.1 Utility Easements. A modification request is required to approve the provision of private sewer or water services to a lot or building site when such service is located within a permanent, non-revocable private utility easement duly-recorded in the deed records of Maricopa County for all the properties involved.

104.12.1.2 Lot Combinations. Where two or more adjacent lots or parcels are owned by the same person or persons, such lots or parcels shall be combined into a single building site by platting or replatting such lots or parcels into a single lot, or shall be combined by recording in the deed records of Maricopa County for all of the lots or parcels involved, a permanent, non-revocable lot combination agreement in a form approved by the building official. In addition, the property owner shall provide evidence that all of the lots or parcels combined are taxed and assessed by the Maricopa County Assessor as a single tax parcel.

104.12.1.3 Integrated Developments with Multiple Owners. As a modification to the Building Code (see Section 104.10.3), the building official may approve a permanent agreement between multiple property owners for purposes of considering two or more separately owned properties as one building site for purposes of this code. Such agreement shall stipulate the reasons for the lot consolidation and the permanent requirements or prohibitions necessary to fully comply with this code as if all improvements were located on the same single lot.

104.12.1.4 Open Space Easements. As a modification to the Building Code (see Section 104.9, Item 3), the building official may approve a permanent open space, nonbuilding easement on one property for purposes of providing yard areas or open space sufficient to satisfy building code setback or egress requirements on the adjacent property.

104.12.1.5 Agreement Conditions. Agreements proposed or required under this section shall be permanent and binding on all property owners, their heirs and assigns. The agreements shall be in writing, shall be approved by the building official and shall be recorded in the deed records of Maricopa County for all the properties involved. The agreements shall be enforceable by the building official and by each of the property owners, their heirs and assigns. The agreements shall require physical modification of any structures to fully comply with all applicable code requirements prior to alteration or expiration of the agreement. Alteration of the agreements or any condition or provision therein, or expiration or elimination of any such agreement, is prohibited except with the prior written approval of the building official. The building official shall have authority to revoke any agreement for noncompliance with any of its provisions, and thereafter to require the property owners to individually make each of their properties physically and fully compliant with all applicable code requirements without benefit of the agreement conditions. The building official shall not initiate or negotiate any such agreement, but shall consider agreements offered jointly by adjacent property owners.

Reasons:

This change brings an IBC amendment into the relevant administrative portion for transparency.

Cost Impact: No impact

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[A] 105.1 Required. Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the *building official* and obtain the required *permit* for each building, structure or building service equipment.

1. Separate permits shall be obtained from the fire marshal for automatic fire extinguishing systems, fire alarm systems, and other uses or equipment regulated by the *Phoenix Fire Code*.
2. Separate permits shall be obtained from the Planning & Development Department for work within the public right of way including off-site sewer or water extensions; sewer or water taps and all connections to public sewer and water; paving, curb- cuts, driveways and sidewalks, and landscaping. See Chapter 32 of the International Building Code for permits and restrictions on work within the public right of way.
3. Separate permits shall be obtained from the Planning & Development Department for site development work in accordance with the Phoenix City Code.
4. Factory-built buildings, manufactured homes and mobile homes require permits from both the State of Arizona Office of Manufactured Housing in accordance with ARS Title 41, Chapter 16, Article 2, and from the Planning & Development Department in accordance with Section 31 of the *International Building Code* or Appendix E of the *International Residential Code*.

[A] 105.1.1 Annual permit.

In lieu of an individual *permit* for each *alteration* to an already *approved* electrical, gas, mechanical or plumbing installation, the *building official* is authorized to issue an annual *permit* upon application therefor to any person, firm or corporation regularly employing one or more qualified tradepersons in the building, structure or on the premises owned or operated by the applicant for the *permit*.

[A] 105.1.2 Annual permit records.

The person to whom an annual *permit* is issued shall keep a detailed record of *alterations* made under such annual *permit*. The *building official* shall have access to such records at all times or such records shall be filed with the *building official* as designated.

Reasons:

Carried over from previous codes. Specifies requirements for permits from other municipalities and departments within the city. Requirements for annual permits are specified in IBC Section 117.

Cost Impact: N/A

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[A] 105.2 Work exempt from permit.

Exemptions from *permit* requirements of this code 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 codes, laws or ordinances of ~~this jurisdiction~~ the city of Phoenix. *Permits* shall not be required for the following:

Building:

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided the ~~aggregate~~ total floor area is not greater than ~~420~~ 200 square feet (~~44~~ 18.58 m²).
 2. Fences not over ~~3~~ 7 feet (2134 mm) high. Fences not included in this exception, not over 7 feet (1829 mm) high, shall require a building permit demonstrating compliance with the zoning ordinance requirements and city code requirements for site drainage only.
 3. Oil derricks.
 4. Retaining walls that are not over ~~4 feet~~ 40 inches (4219 1016 mm) in height measured from the ~~bottom~~ top of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.
 5. Water tanks supported directly on grade if the capacity is not greater than 5,000 gallons (18 925 L) and the ratio of height to diameter or width is not greater than 2:1.
 6. Platforms, sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any basement or story below and are not part of an accessible route.
 7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
 8. Temporary motion picture, television, seasonal celebration and theater stage sets and scenery. Associated bleachers and grandstands are not included in this exemption.
 9. Prefabricated swimming pools accessory to a Group R-3 occupancy that ~~are less than 24 inches (610 mm) deep,~~ are not greater than 5,000 gallons (18 925 L) and are installed entirely above ground. Barriers shall be installed in accordance with Appendix G, Section AG105 of the International Residential Code. A permit is required for the barrier.
 10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.
 11. Swings and other playground equipment ~~accessory to detached one- and two-family dwellings.~~
 12. Window awnings in Group R-3 and U occupancies, supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
 13. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.
 14. Ground or roof supported structures, such as radio and television antenna towers and flagpoles which do not exceed 200 pounds (90 kg) in weight or 45 feet (13 700 mm) in height above the ground surface.
 15. Contractors' temporary construction offices which are associated with a permitted construction project in compliance with the city of Phoenix Zoning Ordinance and are intended to be removed from the site upon completion of the project. Structures which include sales offices which are open to the public do require a permit.
 16. Re-roofing with the same type of material as the original roofing and provided not more that two layers of asphalt shingles are applied over an existing asphalt shingle roof.
 17. Installation of a nonstructural weatherproof exterior covering over an existing weatherproof covering on an existing structure so long as the new covering will not affect the fire-resistive classification of the existing structure.
- Exception: Installation of an Exterior Insulation and Finish System (EIFS).**
18. Minor repair or replacement in kind of non-structural components such as glass or glazing materials, sash, doors and hardware, patching walls or ceilings and replacing pieces of siding, soffits or fascia. Installation of locking or security hardware on egress doors, or changing the types of locking devices requires a permit.
 19. Existing Construction. Construction that has existed for at least 15 years before the adoption date of this code, provided there are no visible unsafe conditions, defects, or zoning violations.

Electrical:

~~Repairs and maintenance:~~ ~~Minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.~~

~~Radio and television transmitting stations:~~ ~~The provisions of this code shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power~~

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~~supply and the installations of towers and antennas.~~

Temporary testing systems: ~~A permit shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.~~

1. Installation or replacement of equipment such as appliances, lamp holders, lamps and other utilization equipment manufactured, approved and identified for cord- and plug-connection to suitable permanently installed receptacles.
2. Repair or replacement of motors rated 50 HP or less, transformers rated 45 kVA or less, or fixed approved appliances of the same type and rating in the same location.
3. Temporary decorative lighting approved and identified for cord- and plug-connection.
4. Repair or replacement in kind of any switch, other than a service disconnect, receptacle, contactor, control device or other utilization equipment rated 60 amperes or less.
5. Replacement in kind of any circuit breaker other than a service disconnect, rated at 125 amperes or less, or any fuse.
6. Repair or replacement of electrodes or transformers of the same size and capacity for signs or gas tube systems.
7. Temporary wiring for experimental purposes in suitable experimental laboratories.
8. Temporary wiring for theaters, motion picture and television studios, performance areas, and similar locations where not accessible to the general public.
9. Class 2 and Class 3 control and signal circuits not essential for safety to human life.
10. Installation, repair or replacement of electrical systems and components within machinery or equipment which is not defined by this Code as building service equipment.

Gas:

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.
2. Portable ventilation equipment.
3. Portable cooling unit.
4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.
5. Replacement of any part that does not alter its approval or make it unsafe.
6. Portable evaporative cooler.
7. Self-contained refrigeration system containing 10 pounds (5 kg) or less of refrigerant and actuated by motors of 1 horsepower (746 W) or less.
8. Repair or replacement in kind of refrigeration units not over 5 tons (17.5 kW) of refrigeration capacity, when located outdoors. Replacement equipment shall be in the same location and equal to or less than the weight of that which is replaced. Repair or replacement of refrigeration systems located inside a building shall require a permit and compliance with all requirements of this Code for the classification of refrigerant utilized in the new equipment.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a *permit* shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.
3. Replacement of water closets, valves or fixtures with new valves or fixtures complying with the water conservation requirements of this Code, except that a permit shall be required for the relocation of any valves, pipes or fixtures.
4. Repair or replacement of portable or built-in appliances which are not regulated by this code as building service equipment and which connect to the building water, drain or gas piping systems by

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approved means.

5. Replacement, in kind, of an existing water heater in one-and two-family dwellings when the work is performed by a licensed contractor.

6. Repair or replacement of existing 2" and smaller secondary backflow prevention assemblies. A test report, completed by a certified backflow assembly tester, shall be submitted for approval to the authority having jurisdiction at the time of installation or repair.

Reasons:

Majority of the exceptions are carried over from previous codes. IRC exempts one story detached accessory structures up to 200 sf. Allows for placement of 8' x 20' shipping containers (standard size) without a permit. Retaining wall heights are consistent with maximum allowable heights per the Phoenix Zoning Ordinance. Addition of platforms not more than 30" provides more flexibility and is consistent with past amendments. Construction that has been maintained and has existed for at least 15 years has demonstrated that it poses no obvious danger to the occupant or the public. Permitting existing construction is problematic, in that the inspections may not reveal all the defects, but the city is, in effect, stating it is substantially code compliant when it is finalized. Specific exemptions for electric, mechanical and plumbing provide for more consistency and allows for additional permit exemptions for routine maintenance.

Aggregate was an added amendment to clarify multiple structures, without required separations, to be considered as one structure not exceeding 200 sf. The term has caused confusion by implying that all accessory structures on a property, even with proper separations, could not have a total combined area greater than 200 sf. The removal of the term aggregate brings the provision back to the original base code language.

Cost Impact: Specific exemptions save the customer time and money if a permit is not required.

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[A] 105.3 Application for permit or standard plan.

To obtain a *permit or standard plan approval*, the applicant shall first file an application therefor in writing on a form furnished by the ~~department of building safety~~ Planning & Development Department for that purpose. Such application shall:

1. Identify and describe the work to be covered by the *permit* for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address or similar description that will readily identify and definitely locate the proposed building or work.
3. Indicate the use and occupancy for which the proposed work is intended.
4. Be accompanied by *construction documents* and other information as required in Section 107.
5. State the valuation of the proposed work.
6. Be signed by the ~~applicant owner~~, or the ~~applicant's~~ owner's authorized agent.
7. Give such other data and information as required by the *building official*.

Reasons:

Carried over from previous codes. Clarifies department responsibilities and identifies who can apply for the permit.

Cost Impact: N/A

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[A] 105.3.2 Time limitation of application.

An application for a *permit or standard plan approval* for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a *permit* has been issued; except that the *building official* is authorized to grant one or more extensions of time for additional periods not exceeding ~~90~~ 180 days each. The extension shall be requested in writing and justifiable cause demonstrated. The application for extension shall include payment of a non-refundable fee as set forth in Appendix A.2 of the Phoenix City Code.

Reasons:

Carried over from previous codes. The proposed change provides more flexibility to resume abandoned projects and allows P&D to recover administrative costs associated with the application extension.

Cost Impact: Extension application fees are set in Appendix A.2 of the Phoenix City Code. The additional time could save the owner money in applicable extension fees.

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[A] 105.3.2.1 Standard plan expiration.

Standard plans shall expire upon the adoption of a new code.

Reasons:

Clarifies the time limitation and expiration of standard plans. Standard plans are unique as multiple permits can be issued at various times.

Cost Impact: N/A

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[A] 105.5 Expiration.

Every *permit* issued, except demolition permits and permits subject to section 114 of this code, shall expire 24 months after the date of permit issuance or become invalid unless the work on the site authorized by such *permit* is commenced within 180 days after its issuance, or if the work authorized on the site by such *permit* is suspended or abandoned for a period of 180 days after the time the work is commenced. ~~The building official is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing and justifiable cause demonstrated. The work shall not be considered suspended or abandoned if the permit holder has done one or more of the following:~~

1. Requested one or more Planning & Development inspections that demonstrate substantial progress in construction;
2. Conducted legally authorized site preparation such as demolition, clearing or excavation; or
3. Pursued other activities deemed by the building official to indicate intent to start and complete the project.

[A] 105.5.1 Extension. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods not more than one year each. The extension shall be requested in writing and justifiable cause demonstrated. The application for extension shall include payment of a non-refundable fee as set forth in Appendix A.2 of the Phoenix City Code.

Exception:

1. The building official is authorized to extend a permit for 30 days if it can be demonstrated the permit holder requires no more than two inspections per each discipline to obtain a Certificate of Occupancy or Certificate of Completion. The fee for a 30 day extension shall be based on the hourly rate for Building Safety Inspections (two hour minimum for each discipline) and shall include an administrative fee based on the general hourly plan review rate (two hour minimum) as set forth in Appendix A.2 of the Phoenix City Code.

[A] 105.5.2 Reinstatement. When a permit has expired, as described in section 105.5, the building official is authorized to grant, in writing, reinstatement of the permit for a period of not more than one year provided the following conditions are met:

1. No changes have been made or will be made in the original plans and specifications for such work; and
2. The original permit expired less than one year from the request to reinstate.

The reinstatement shall be requested in writing and justifiable cause demonstrated. The application for reinstatement shall include payment of a non-refundable fee as set forth in Appendix A.2 of the Phoenix City Code.

Exception:

1. The building official is authorized to reinstate a permit for 30 days if it can be demonstrated the permit holder requires no more than two inspections per each discipline to obtain a Certificate of Occupancy or Certificate of Completion. The fee for a 30 day extension shall be based on the hourly rate for Building Safety Inspections (two hour minimum for each discipline) and shall include an administrative fee based on the general hourly plan review rate (two hour minimum) as set forth in Appendix A.2 of the Phoenix City Code.

[A] 105.5.3 Demolition. Demolition permits shall expire if the work authorized by such permit is not commenced within 30 days or completed within 60 days from the date of permit issuance, or if active and continuous demolition work is suspended or abandoned for any period of five days or more prior to final completion and clearance of all debris from the site. Reasonable and continuous progress shall be made to complete all demolition work as expeditiously as possible. See Section 3303 of the International Building Code for demolition permit conditions.

The building official is authorized to grant, in writing, one extension of not more than 30 days. The extension shall be requested in writing and justifiable cause demonstrated. The application for extension shall include payment of a non-refundable fee as set forth in Appendix A.2 of the Phoenix City Code.

The *building official* is authorized to grant, in writing, reinstatement of an expired demolition permit, for a

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period of not more than 30 days. The reinstatement shall be requested in writing and justifiable cause demonstrated. The application for extension shall include payment of a non-refundable fee as set forth in Appendix A.2 of the Phoenix City Code.

Reasons:

The proposed changes provide more flexibility to extend and reinstate permits and allow P&D to recover administrative costs associated with the approvals.

Cost Impact: Greater flexibility with extensions and reinstatements saves the developer unnecessary costs associated with resubmittal of plans and payment of new permit fees.

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[A] 105.6 Suspension or revocation.

The *building official* is authorized to suspend or revoke a *permit* issued under the provisions of this code wherever the *permit* is issued in error or on the basis of incorrect, inaccurate or incomplete information; or in violation of any ordinance or regulation or any of the provisions of this code; or reasonable and continuous progress has not been made to complete the construction; or the continuance of any work becomes dangerous to life or property.

It shall be unlawful to proceed with any work for which a permit was issued after notice of permit suspension or revocation is served on the permit holder, the owner or the person having responsible charge of the work. Reinstatement of a suspended permit shall be by written notice from the building official authorizing work to resume, with or without conditions. Revoked permits shall be canceled and the permit fee shall not be refunded except as may be provided in Section 108.6 of these administrative provisions.

Reasons:

Carried over from previous codes and gives the building official greater flexibility to suspend or revoke a permit when necessary.

Cost Impact: N/A

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[A]105.7 Placement of permit.

~~The building permit or copy shall be kept on the site of the work until the completion of the project. Work requiring a permit shall not be commenced until the permit holder or an agent of the permit holder shall have posted a visible sign which identifies the permit number and the street address or suite number where construction work is authorized. This sign may be a copy of the permit or a permit notice card provided by the building official. Other forms of identification may be used when approved by the building official. This permit notice shall be maintained by the permit holder until the required final approval has been granted by the building official.~~

Reasons:

Carried over from previous codes. Informs the public of permitted construction activity. Identifies premises for construction inspections.

Cost Impact: N/A

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[A] 105.8 Record changes.

[A] 105.8.1 Owner name change. Any time after a permit has been issued a new owner may be substituted for the original owner, provided the new owner submits an affidavit of ownership and agrees to assume all code compliance obligations related to the permit, including responsibility for correcting any work previously installed in violation of any code requirement.

[A] 105.8.2 Business name change. Any time after a permit has been issued, the name of the tenant or business may be changed provided the intended occupancy or use of the premises is not changed.

[A] 105.8.3 Contractor change. Any time after a permit has been issued, the recorded owner of the property may by affidavit request substitution of a new contractor for the contractor named on the original permit, provided the new contractor agrees to assume all code compliance obligations related to the permit including assuming responsibility for correcting any work previously installed in violation of any code requirement. Nothing in this section shall be construed as preventing a new contractor from obtaining a new permit to authorize only that work intended to be performed by the new contractor.

[A] 105.8.4 Registered Design Professional Change. Any time after a permit has been issued, a new architect or engineer shall submit a new special inspection certificate to the Planning & Development Inspector at the site prior to performing any special inspections. Any changes to the permitted drawings shall be approved either by the Planning and Development Inspector at the site or in the plan review process as revision submittal. The new registered design professional must be registered in the state of Arizona.

[A] 105.8.5 Address changes. A permit is not transferable from one property to another and no address change shall be processed which would have this effect. Any time after a permit has been issued or any time a property owner wishes to change the official address of any property, the recorded owner may request an address change in writing on a form provided by the department. The application shall be accompanied by a nonrefundable processing fee as set forth in section 108 of these administrative provisions. The department shall assign all addresses in accordance with established City regulations and may approve, modify or deny any request accordingly. Where an address change requires revising more than 10 records, the department may charge an administrative fee based upon the hourly rate for plan revisions.

[A] 105.8.6 Scope of work changes. Permit records shall be changed to increase or decrease the scope of work or valuation of any project. Any increase in scope of work or valuation requires an application for a new permit and payment of additional permit fees for the supplemental work. Any decrease in scope of work or valuation will be grounds for changing the permit record. In the case where a project scope is reduced after permit issuance, the original permit shall be revised to authorize the reduced scope of work, or, if no work has been started, the owner may in writing request to cancel the original permit and obtain a refund in accordance with Section 108.6 of these administrative provisions. In this case a new permit shall then be obtained for the actual work proposed.

[A] 105.8.7 Fees. The fee for record changes shall be as set forth in Appendix A-2 of The Phoenix City Code.

Reasons:

Carried over from previous codes and gives specific requirements for various record changes.

Cost Impact: N/A

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105.9 Annexations. A building under construction with a building permit issued by the Maricopa County Building Department prior to the effective date of annexation, and the footings and stem walls of which have been completed, shall not be required to have a city building permit; however the Planning & Development Department shall inspect for compliance with the documents upon which the County permit was issued. A city building permit shall be required for any construction remaining uncompleted 24 months after the effective date of annexation.

A building under construction on the effective date of annexation which is completed to a lesser degree than stated above, shall be required to have a city building permit and all the fees paid as set forth in Appendix A.2 of the *Phoenix City Code*. If in such cases plan review has been done by Maricopa County, the city permit may be issued based upon approved plans from the County with no additional plan review fee.

In either case, construction shall conform to pertinent County zoning regulations in effect at the time the permit is issued.

Reasons:

Carried over from previous codes. Provides requirements for projects started in Maricopa County and then annexed into the city of Phoenix.

Cost Impact: N/A

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107.1 General.

Submittal documents consisting of *construction documents*, statement of *special inspections*, geotechnical report and other data shall be submitted in two or more sets with each *permit* application. The *construction documents* shall be prepared by a *registered design professional* ~~where required by the statutes of the jurisdiction in which the project is to be constructed.~~ as required by the State of Arizona Board of Technical Registration.

Where special conditions exist, the *building official* is authorized to require additional *construction documents* to be prepared by a *registered design professional* licensed by the state of Arizona.

Exception: The *building official* is authorized to waive the submission of *construction documents* and other data not required to be prepared by a *registered design professional* if it is found that the nature of the work applied for is such that review of *construction documents* is not necessary to obtain compliance with this code.

Reasons:

Carried over from previous code

Cost Impact: No additional cost impact. Continues department policy to waive construction documents when deemed to be unnecessary.

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[A] 107.2 Construction documents.

Construction documents shall be in accordance with Sections 107.2.1 through 107.2.5.

[A] 107.2.1 Information on construction documents.

Construction documents shall be dimensioned and drawn upon suitable material. Electronic media documents are permitted to be submitted when *approved* by the *building official*. *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the *building official*.

107.2.1.1 Fire Life Safety Report (FLSR). Prior to submitting construction drawings for high-rise buildings, covered mall buildings, buildings containing atriums and other structures as determined by the building official, the design team shall prepare and submit a Fire Life Safety Report. This FLSR shall provide a description of the occupancies, design codes, egress, emergency systems, smoke control and other related systems, and a conceptual description of the suppression system. The first submittal of the building construction plans must incorporate the first review comments of the FLSR.

[A] 107.2.2 Fire protection system shop drawings.

Shop drawings for the *fire protection system(s)* shall be submitted to indicate conformance to this code and the *construction documents* and shall be *approved* prior to the start of system installation. Shop drawings shall contain all information as required by the referenced installation standards in Chapter 9.

[A] 107.2.3 Means of egress.

The *construction documents* shall show in sufficient detail the location, construction, size and character of all portions of the *means of egress* including the path of the *exit discharge* to the *public way* in compliance with the provisions of this code. In other than occupancies in Groups R-2, R-3, and I-1, the *construction documents* shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces.

[A] 107.2.4 Exterior wall envelope.

Construction documents for all buildings shall describe the *exterior wall envelope* in sufficient detail to determine compliance with this code. The *construction documents* shall provide details of the *exterior wall envelope* as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, water-resistive membrane and details around openings.

The *construction documents* shall include manufacturer's installation instructions that provide supporting documentation that the proposed penetration and opening details described in the *construction documents* maintain the weather resistance of the *exterior wall envelope*. The supporting documentation shall fully describe the *exterior wall* system which was tested, where applicable, as well as the test procedure used.

107.2.5 Site plan.

A site plan shall be submitted prior to submittal of construction documents. The site plan shall include information as specified on the published City of Phoenix pre-application submittal requirements. Upon receipt of preliminary site plan approval, construction documents may be submitted.

The *construction documents* submitted with the application for *permit* shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from *lot lines*, the established street grades and the proposed finished grades and, as applicable, flood hazard areas, floodways, and *design flood* elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The building official is authorized to waive or modify the requirement for a site plan when the application for *permit* is for *alteration* or repair or when otherwise warranted.

[A] 107.2.5.1 Design flood elevations.

Where *design flood* elevations are not specified, they shall be established in accordance with Section 1612.3.1.

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Reasons:

Continues department policy.

Cost Impact: No additional cost impact.

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[A] 107.3 Examination of documents.

The *building official* shall examine or cause to be examined the accompanying submittal documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of this code and other pertinent laws or ordinances. The plans may also be reviewed by other departments of this jurisdiction to verify compliance with any applicable laws under their jurisdiction.

Reasons:

Carried over from previous code.

Cost Impact: No additional costs from current policies in place.

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107.4 Amended construction documents.

Work shall be installed in accordance with the *approved construction documents*, and any changes made during construction that are not in compliance with the *approved construction documents* shall be resubmitted for approval as an amended set of *construction documents*. Amended sets of construction documents shall be subject to revision fees as set forth in Appendix A.2 of *The Phoenix City Code*.

Reasons:

Carried over from previous code. Identifies the method to collect plan review fees.

Cost Impact: No additional costs or requirements from current policies.

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107.5 Retention of construction documents.

One set of approved construction documents shall be retained by the *building official* ~~for a period of not less than 180 days from date of completion of the permitted work, or as required by state or local laws.~~ in accordance with the retention schedules set by the Phoenix City Clerk Department Records Management Program.

107.5.1 Standard plans. Standard plans are valid under the code in effect at the time of submittal and valid for the duration of the code cycle as long as the plan remains active. Upon adoption of a new code, standard plans shall expire and be discarded by the *building official* in accordance with the retention schedules set by the Phoenix City Clerk Department Records Management Program.

Reasons:

107.5

- ** Continues department policy.
- ** Coordinates department policy with city clerk records management program requirements.

(opening paragraph)

** "The State recently gave cities and towns more flexibility in how records are managed...the State only sets minimum timeframes for retention; cities and towns can keep records for longer periods of time as long as the State minimums are met." Ben Lane – Deputy City Clerk

Cost Impact: No additional cost impact.

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SECTION 108 TEMPORARY STRUCTURES AND USES

108.1 General.

The *building official* is authorized to issue a *permit* for temporary structures and temporary uses. Such *permits* shall be limited as to time of service, but shall not be permitted for more than 180 days. The *building official* is authorized to grant extensions for demonstrated cause.

Exception: Temporary fences not associated with a construction project, shall not be permitted for more than one year unless approved by a use permit granted by the Planning & Development department.

[A] 108.2 Conformance.

Temporary structures and uses shall conform to the structural strength, fire safety, *means of egress*, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.

108.3 Temporary power.

The *building official* is authorized to give permission to temporarily supply and use power in part of an electric installation before such installation has been fully completed and the final certificate of completion has been issued. The part covered by the temporary certificate shall comply with the requirements specified for temporary lighting, heat or power in NFPA 70 - National Electrical Code.

[A] 108.4 Termination of approval.

The *building official* is authorized to terminate such *permit* for a temporary structure or use and to order the temporary structure or use to be discontinued.

Reasons:

108.1 - The exception helps to control the use of temporary fences per the zoning ordinance.

108.3 - For clarification.

Cost Impact: No additional costs from current policies in place.

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[A] 109.1 Payment of fees. A *permit* shall not be valid until the fees prescribed by law have been paid, nor shall an amendment to a *permit* be released until the additional fee, if any, has been paid.

109.1.1 Administrative fees. The *building official* is authorized to charge and collect administrative service fees for providing goods and services such as code consultation; inspections or plan review services not specifically listed in this Code; extensive research of official records; providing copies of codes, records or department documents; recovering the cost of postage, handling or special data transmission services; and the cost of providing special functions such as education seminars given for trade or industry groups. Administrative services fees shall be in the amount set by the City Manager's Office for citywide services or shall be based on the department's hourly rate for professional services. The retail charge for sale of books or supplies shall be set to recover purchase costs plus reasonable inventory, handling and overhead expenses as determined by the department.

109.1.2 Record change fees. An administrative service fee shall be assessed and collected by the *building official* for each request to change a permit record. No permit fee shall be reduced or refunded because of any record change.

Reasons:

Carried over from previous code.

Cost Impact: Recovers costs for administrative services.

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[A] 109.2 Schedule of permit fees.

On buildings, structures, electrical, gas, mechanical and plumbing systems or *alterations* requiring a *permit*, a fee for each *permit* shall be paid as required, in accordance with the schedule ~~as established by the applicable governing authority~~ set forth in Appendix A.2 of the Phoenix city code. Fees paid for plan reviews, permits or other services are not transferable.

109.2.1 Supplemental permits. The fee for a supplemental permit to cover any additional work or additional valuation not included in the original permit shall be computed based on the valuation of the supplemental work. A new permit for a building addition shall be required to increase the building area authorized by a permit. Supplemental work started prior to obtaining a supplemental permit is subject to an investigation fee set forth in Section 109.4 of these administrative provisions.

Reasons: Carried over from previous code.

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[A] 109.3 Building permit valuations.

The applicant for a *permit* shall provide an estimated ~~permit value~~ project valuation at time of application. *Permit* Project valuations shall include total value of work, including materials and labor, for which the *permit* is being issued, such as electrical, gas, mechanical, plumbing equipment, finish work and permanent systems. ~~If, in the opinion of the *building official*, the valuation is underestimated on the application, the *permit* shall be denied, unless the applicant can show detailed estimates to meet the approval of the *building official*.~~ Project valuation is the higher of the minimum project valuation as calculated by Planning & Development, or the project valuation as provided by the applicant. The minimum project valuation is calculated using the International Code Council Building Valuation Data adjusted for the city of Phoenix. Final building *permit* valuation shall be set by the *building official*.

Reasons:

Carried over from previous code and clarifies “minimum” project valuation.

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[A] 109.6 Refunds. The *building official* is authorized to establish a refund policy.

109.6.1 Unused permits. The *building official* may authorize refunding of not more than 80 percent of the permit fee paid when no work has been done under a permit issued in accordance with this Code or where the permit issued is found to be a duplication of a previously issued permit. In all cases, a minimum amount shall be retained to pay for processing the refund request.

109.6.2 Withdrawn applications. The *building official* may authorize refunding of not more than 80 percent of the plan review fee paid when an application for a permit for which a plan review fee has been paid is withdrawn or canceled before any plan review is done. In all cases, a minimum amount shall be retained for processing the refund request.

109.6.3 Special conditions. In paragraphs 1 and 2 above, the *building official* may at their discretion authorize a refund of more than 80 percent of the permit fee or plan review fee when the applicant demonstrates unique and unusual circumstances, provided the department retains an amount sufficient to recover all direct and indirect costs attributable to the project. In all cases, a minimum amount shall be retained for processing the refund request.

109.6.4 Impact fees. Requests for recalculation and refund of development occupation fees or impact fees shall be subject to an hourly charge for staff time plus a minimum amount shall be retained for processing the refund.

109.6.5 Refund requests. The *building official* shall not authorize the refunding of any fee paid except upon written application filed by the original permit holder. The written request must be submitted to the Planning & Development Department before the permit expires or no later than 180 days after the date of fee payment, whichever occurs first.

Reasons:

Carried over from previous code.

Cost Impact: Ensures cost recovery for administrative work involved in fee refunds.

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109.7 Plan review fees. When submittal documents are required by Section 107.3.4.1 of these administrative provisions, a plan review fee shall be paid at the time of submittal. The plan review fees specified in this section are separate fees from, and in addition to, the permit fees specified in Section 109.2 of these administrative provisions.

When submittal documents are incomplete or changed so as to require additional plan review or when the project involves deferred submittal items as defined in Section 107.3.4.1 of these administrative provisions, an additional plan review fee shall be charged as set forth in this section.

109.7.1 Deferred submittals. When the building official has agreed to accept deferred submittals on a project, the full plan review fee for the entire project shall be paid upon first submittal. Thereafter, the plan review fee for each additional submittal shall be determined as set forth in Appendix A.2 of the Phoenix city code.

109.7.2 Plan review corrections. No additional fee shall be charged for checking corrections required by the building official on the first re-submittal. However, if the same or related corrections must again be noted on subsequent submittals, an additional rechecking fee shall be assessed and paid prior to re-submittal for a third or subsequent review.

109.7.3 Plan revisions. When plans are changed or revised so as to require additional plan review, an additional plan review fee shall be assessed. Changes or revisions which add to the scope of work included in the original plan submittal or on an issued permit shall be treated as new work requiring a new permit application, new plan review fee and new permit fee.

109.7.4 Standard plans. The plan review fee for a non-site specific standard plan shall be determined as set forth in Appendix A.2 of the Phoenix city code. In addition, a separate site plan review fee shall be assessed each time a reviewed standard plan is referenced and used for purposes of obtaining a site specific building permit.

109.7.5 Special plan review services. Additional fees shall be charged for special plan review services, but in no case less than an hourly rate sufficient to pay all direct and indirect expenses related to any special services provided.

Reasons: Carried over from previous code.

Cost Impact: Recovers staff costs for deferred submittals, standard plans, revisions, and corrections.

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109.8 Inspections and re-inspections. Permit fees provide for customary inspections only. When inspections are requested for weekends, holidays, or any time other than the regular working hours of the building official, an additional fee will be required.

A re-inspection fee may be assessed for each inspection or re-inspection when such portion of work for which inspection is called is not complete or when corrections called for are not made.

Re-inspection fees may also be assessed when the approved plans are not readily available to the inspector, for failure to provide access on the date for which inspection is requested, or for deviating from plans requiring the approval of the building official.

When inspections are requested for weekends, holidays, or any time other than the regular Planning & Development inspection hours, an additional fee will be required.

Reasons: Carried over from previous code.

Cost Impact: Recovers staff costs for after-hours and re-inspections.

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110.1 General. Construction or work for which a *permit* is required shall be subject to inspection by the *building official* and such construction or work shall remain accessible and exposed for inspection purposes until *approved*. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction shall not be valid. It shall be the duty of the *permit* applicant to cause the work to remain accessible and exposed for inspection purposes. Neither the *building official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection. A survey of the lot may be required by the building official to verify that the structure is located in accordance with the approved plans where existing, legal corner boundary markers are not readily verifiable.

Reasons:

Greater specificity in what is required by the permit applicant. This clarifies the responsibilities of the public and the city.

Cost Impact: The cost of the survey.

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110.3.8.1 Building service equipment inspections. All building service equipment for which a permit is required by this Code shall be inspected by the *building official*. No portion of any building service equipment intended to be concealed by any permanent portion of the building shall be concealed until inspected and approved. When the installation of any building service equipment is complete, an additional and final inspection shall be made. Building service equipment regulated by the technical codes shall not be connected to the water, fuel or power supply or sewer system until authorized by the *building official*.

1. Electrical inspections. A rough-in inspection is required for all conduit, semi-rigid piping or wiring after installation but prior to being concealed. A final inspection is required when all conduit, wires, fixtures and equipment including covers has been installed and connected, but prior to energizing any such circuit or equipment.

2. Mechanical inspections. All mechanical equipment and systems for which a permit is required by this Code, including all associated ductwork, flues, condensate and refrigeration lines, shall be subject to inspection and shall remain accessible and exposed for inspection purposes until approved.

3. Plumbing inspections. A rough-in or underground inspection is required for all sewer, drainage and vent piping, and for all water and gas distribution systems prior to their being buried or concealed. A final inspection is required when all fixtures are set and operating or ready to operate pending final utility connection. Tests shall be performed as required by the *applicable Plumbing Code*.

4. Operation of building service equipment. The requirements of this section shall not be considered to prohibit the operation of any building service equipment installed to replace existing equipment serving an occupied portion of the building in the event a request for inspection of such equipment has been filed with the *building official* not more than 72 hours after such replacement work is completed and before any portion of such equipment is concealed by any permanent portion of the building.

Reasons:

Clarifies required inspections

Cost Impact: None- no change to current procedure.

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110.3.8.2 Swimming pool inspections. In addition to the inspections required in Section 110.3.1 of these administrative provisions, a rough-in inspection is required after all fixed metal parts are in place and electrically bonded but prior to concealing or placement of any concrete or gunite. A final inspection is required before plaster is placed and before the pool is filled with water. At the time of final inspection, all of the following must be complete:

1. Installation of all motors, lights and electrical circuits, including connection to approved overcurrent protection devices.
2. Installation and electrical bonding of all fixed metal parts within 5 feet (1524 mm) of the inside edge of the pool.
3. Installation of approved backflow prevention devices on the nearest hose bib(s) providing water supply for the pool.
4. Installation of all pool enclosures and barriers required by this Code.

Reasons:

Clarifies required inspections for pools.

Cost Impact: None-no change to current procedure.

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SECTION 111 CERTIFICATE OF OCCUPANCY

[A] 111.1 Use and occupancy.

No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made, until the *building official* has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the ~~jurisdiction~~ City of Phoenix.

Exception: Certificates of occupancy are not required for work exempt from *permits* under Section 105.2.

[A] 111.2 Certificate issued.

After the *building official* inspects the building or structure and finds no violations of the provisions of this code or other laws that are enforced by the ~~department of building safety~~, Planning and Development Department, the *building official* shall issue a certificate of occupancy that contains the following:

1. The building *permit* number.
2. The address of the structure.
3. The name and address of the owner.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.
6. The ~~name of the building official~~ date of issuance.
7. The edition of the code under which the *permit* was issued.
8. The use and occupancy, in accordance with the provisions of Chapter 3.
9. The type of construction as defined in Chapter 6.
10. The area, story location, and the design occupant load for each occupancy group in the building.
11. If an *automatic sprinkler system* is provided, whether the sprinkler system is required.
12. Any special stipulations and conditions of the building *permit*.

[A] 111.3 Temporary occupancy.

The *building official* is authorized to issue a temporary certificate of occupancy before the completion of the entire work covered by the *permit*, provided that such portion or portions shall be occupied safely. The *building official* shall set a time period during which the temporary certificate of occupancy is valid.

111.3.1 Application. Application for a temporary certificate of occupancy shall be on a form supplied by the Planning & Development Department and shall include payment of a nonrefundable inspection fee as set forth in Section 108 of these administrative provisions. Issuance of a temporary certificate of occupancy shall be subject to the property owner and the permit holder agreeing in writing to compliance with all stipulations set forth by the Planning and Development Department.

111.3.2 Duration. The maximum duration for temporary occupancy of a building, or a portion thereof, shall be the expiration date of the permit under which the temporary Certificate of Occupancy was issued, at which time all requirements of the Phoenix Building Construction Code, Phoenix Fire Code, the City of Phoenix Zoning Ordinance and other applicable codes and ordinances shall have been completed.

[A] 111.4 Revocation.

The building official is authorized to, in writing, suspend or revoke a certificate of occupancy or completion issued under the provisions of this code wherever the certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure or portion thereof is in violation of any ordinance or regulation or any of the provisions of this code.

111.5 New use certificate of occupancy. Application may be made for the building official to consider issuing a new certificate of occupancy for a change in use or for new use of an existing building when no construction permit has been issued. Application for such a certificate shall be on a form provided by the Planning and Development Department, and shall include payment of a nonrefundable application and inspection fee. This fee shall be in addition to any plan review fee or subsequent permit fee that may be required by Section 109 of these

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administrative provisions.

111.6 Duplicate certificates of occupancy. Duplicate copies of a valid certificate of occupancy may be obtained from the Planning and Development Department upon payment of an administrative service fee sufficient to cover records search and copy costs.

Reasons: To be consistent with current administrative code language and procedures.

Cost Impact: N/A

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SECTION 113 BOARD OF APPEALS

[A] 113.1General.

In order to hear and decide appeals of orders, decisions or determinations made by the *building official* relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals called the Development Advisory Board (hereinafter called "the board". The ~~board of appeals~~ shall be appointed by the applicable governing authority and shall hold office at its pleasure. The scope and responsibility of the board shall adopt rules of procedure for conducting its business ~~be governed by City Code Section 2, Article IX.~~

Reasons:

To provide the name of the city's Board of Appeals and the Code Section that governs the Board.

Cost Impact: No impact.

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SECTION 113 BOARD OF APPEALS

~~[A] 113.3 Qualifications.~~ **RESERVED**

~~The board of appeals shall consist of members who are qualified by experience and training to pass on matters pertaining to building construction and are not employees of the jurisdiction.~~

Reasons:

Development Advisory Board members are appointed by City Council as designated in City Code Section 2, Article IX.

Cost Impact: No impact.

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SECTION 114 VIOLATIONS

[A] 114.1 Unlawful Acts. It shall be unlawful for any person, firm or corporation to erect, construct, alter, extend, repair, move, remove, demolish or occupy any building, structure or equipment regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code.

Whenever, by the provisions of this Code, the performance of any act is prohibited or wherever any regulation, dimension or limitation is imposed on the erection, alteration, repair, maintenance, demolition or occupancy of any building, structure or building service equipment, a failure to comply with the provisions of this Code shall constitute a violation. Every day on which a violation exists shall constitute a separate violation and a separate offense. The remedies herein are cumulative and the city of Phoenix may proceed under one or more such remedies.

114.1.1 Responsible parties. For the purpose of this Code, unless a particular section, subsection or clause placed compliance responsibility upon a different person, the property owner, the tenant or occupant in responsible control of the premises and the person, firm or corporation performing the work all have the duty to ensure that all applicable requirements of this Code are complied with. Failure to comply with the provisions of this Code or with a lawful order of the Building official, subjects the owner, the tenant or occupant, and the person, firm or corporation performing the work to the criminal penalties and civil remedies prescribed in this section.

114.1.2 Submittal information. It shall be unlawful and a violation of this Code for any person, firm or corporation to falsify or to materially misrepresent information submitted to the Building official as part of any application or request for approval required by this Code.

114.1.3 Alternate methods, materials and equipment. It shall be unlawful and a violation of this Code for any person, firm or corporation to use any method, material or equipment as an alternate to the methods, materials or equipment permitted by this Code without first having obtained approval from the Building official in the manner provided in this Code.

114.1.4 Permits. It shall be unlawful and a violation of this Code for any person, firm or corporation to perform any work for which a permit is required by this Code until such permit has been obtained from the building official and been posted on the premises where the work is to be performed. Working beyond the authorized scope of a permit constitutes work without a permit.

It shall also be unlawful and a violation of this Code for any person, firm or corporation to occupy, use or maintain any building, structure or other property improvement that was built, erected, altered or improved without a valid permit issued by the building official when such permit is required by this Code.

114.1.4.1 Nonpermitted construction enforcement. In cases of nonpermitted construction, an investigation shall be made before a permit may be issued for the work. Nonpermitted construction is grounds for the building official to stop all work on the project until appropriate permits are obtained. Nonpermitted construction cases shall be subject to the enforcement procedures set forth herein.

114.1.4.1.1 Application for permit. The applicant must apply for a permit within 15 calendar days of receipt of a notice of violation or the date indicated on the notice of violation by which to obtain a permit.

Exception: Additional time may be granted when deemed necessary depending on the complexity of work.

114.1.4.1.2 Permits. Permits for work commenced without a permit must be obtained no later than 60 calendar days from the date of application.

Exception: Additional time may be granted when deemed necessary depending on the complexity of work.

114.1.4.1.3 Job-site meeting. Upon issuance of the permit(s) a job meeting will be scheduled for the inspector to meet with the owner or authorized agent at the job site. The purpose of the job meeting is to determine corrective action required for compliance and to establish an inspection

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schedule. The fee for the job-site meeting shall be set forth in Appendix A-2 of the *Phoenix City Code*. The Planning and Development Department may waive the job-site meeting fee where it can be demonstrated that the nonpermitted construction was completed by a previous owner. The permit shall be suspended if the jobsite meeting is not held within 45 days of permit issuance.

114.1.4.1.4 Completion of work. All work must be completed within 180 calendar days from date of permit issuance. No action or inaction by the City shall relieve the permit holder from their duty to complete construction with 180 days from the permit issuance.

114.1.4.1.5 Extension. A one-time extension, not-to-exceed 90 calendar days, may be granted with the approval of the building official and is subject to a fee as set forth in Appendix A-2 of the *Phoenix City Code*. Applications for permit extensions must be received prior to expiration of the permit.

114.1.5 Approval conditions. It shall be unlawful and a violation of this Code for any person, firm or corporation to install or perform any construction work or to maintain, occupy or use any building, structure or other property improvement that deviates from the plans, designs, specifications or materials approved by the building official at the time of permit issuance, unless such deviation has received subsequent approval from the building official.

It shall be unlawful and a violation of this Code for any person, firm or corporation to fail to comply with any condition or stipulation required by the building official as part of the approval of any modification request; any request for use of alternate methods, materials or equipment; any plan approval; any permit issuance; any inspection notice; or any conditional or permanent certificate of occupancy approval.

It shall be unlawful and a violation of this Code for any person, firm or corporation to violate any requirement, condition, specification or prohibition contained in any provision of this Code.

114.1.6 Inspections. It shall be unlawful and a violation of this Code for any person, firm or corporation to fail to request all inspections required by the provisions of this Code.

It shall be unlawful and a violation of this Code for any person, firm or corporation to cover or conceal any work requiring inspection until such inspection has been made and approved by the building official.

114.1.7 Certificate of Occupancy. It shall be unlawful and a violation of this Code for any person, firm or corporation to occupy or use any building or structure without first having obtained a Certificate of Occupancy as required by the provisions of this Code.

It shall be unlawful and a violation of this Code for any person, firm or corporation to occupy or use any building or structure for any use or activity other than that authorized by a Certificate of Occupancy for such building or structure.

It shall be unlawful and a violation of this Code for any person, firm or corporation to change the occupancy, use or character or use of any building or structure without first obtaining a new Certificate of Occupancy for such new use.

It shall be unlawful and a violation of this Code for any person, firm or corporation to continue to occupy or use any building or structure in violation of the conditions of any temporary Certificate of Occupancy or after the expiration of a temporary Certificate of Occupancy.

114.1.8 Unsafe buildings and building service equipment. It shall be unlawful and a violation of this Code for any person, firm or corporation to cause or to create any unsafe condition as defined in this Code.

It shall be unlawful and a violation of this Code for any person, firm or corporation to use or occupy any building or structure, or to use or operate any building service equipment, when such building, structure or building service equipment has been declared unsafe in accordance with the provisions of this Code. These requirements shall apply to all buildings, structures and building service equipment, whether new, existing,

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under construction or being demolished.

It shall be unlawful and a violation of this Code for any person, firm or corporation to fail to make repairs or otherwise fail to correct or abate any unsafe condition as defined in this Code.

It shall be unlawful and a violation of this Code for any person, firm or corporation to fail to comply with an unsafe condition abatement order issued by the building official in accordance with Section 116.8 of these administrative provisions.

114.1.9 Rubbish and debris. It shall be unlawful and a violation of this Code for any person, firm or corporation to allow any rubbish, refuse or loose material resulting from construction operations to remain uncontained or to be swept, thrown, blown or deposited on any public property or any adjoining private property.

114.1.10 Public streets and sidewalks. It shall be unlawful and a violation of this Code for any person, firm or corporation to occupy, obstruct, block-off, damage, remove or remove from service any public street, alley or sidewalk without first obtaining and complying with a barricade permit from the City.

114.1.11 Lawful orders. It shall be unlawful and a violation of this Code for any person, firm or corporation to fail to comply with any lawful notice or order of the building official issued in accordance with the provisions of this Code.

114.2 Notice of violation. The *building official* is authorized to serve a notice of violation or order on the person responsible for the erection, construction, *alteration*, extension, repair, moving, removal, demolition or occupancy of a building or structure in violation of the provisions of this code, or in violation of a *permit* or certificate issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

Notices of violation of this Code shall be in writing and shall be served by personal service or by certified mail with return receipt requested. Service shall be deemed complete upon delivery.

The notice of violation shall identify the address or legal description of the property in question and shall state the nature and extent of the violation in such detail as to allow the correction or abatement of the violation. The notice shall provide the name and phone number of a City representative to contact concerning the violation and acceptable methods of correction or abatement. The notice shall state the remedies available to the City for correction or abatement of the violation and the procedures to follow should the recipient wish to appeal the issuance of the notice.

Nothing herein shall preclude the building official from giving additional verbal or written information notices. Nothing herein shall require the issuance of a notice of violation prior to commencement of emergency abatement or civil or criminal violation proceedings.

114.2.1 Recording a violation. The City of Phoenix may record a notice of violation with the County recorder. A recorded notice of violation shall run with the land. Failure to record a notice of violation shall not affect the validity of the notice as to persons who receive the notice. When the property is brought into compliance, a satisfaction of notice of violation shall be filed at the request of the owner or responsible party at the requester's expense.

114.3 Prosecution of violation.

If the notice of violation is not complied with promptly, the *building official* is authorized to request the legal counsel of the jurisdiction to institute the appropriate proceeding at law or in equity to restrain, correct or abate such violation, or to require the removal or termination of the unlawful occupancy of the building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

114.4 Violation penalties.

Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the *approved construction documents* or

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directive of the *building official*, or of a *permit* or certificate issued under the provisions of this code, shall be subject to penalties as prescribed by law.

114.4.1 Fees. Any person who commences any work on a building, structure, electrical, gas, mechanical or plumbing system without first obtaining the necessary permit(s) shall be subject to the following penalties and fees in addition to the required permit fees.

1. Investigation fee. An investigation fee, in addition to the permit fee, shall be assessed whether or not a permit is then or subsequently issued. The investigation fee shall be as set forth in Appendix A-2 of *The Phoenix City Code*.

2. Permit fees. The permit fee for work commenced without permits shall be twice the published permit fees as set forth in Appendix A-2 of *The Phoenix City Code*.

Exceptions:

1. The Planning and Development Department may waive the investigation fee and/or additional permit fee where it can be demonstrated that the nonpermitted construction was completed by a previous owner.

2. When work without permits is to be totally demolished by the owner, the demolition permit fee shall be as set forth in Appendix A-2 of the Phoenix City Code.

114.4.2 Abatement orders. The Municipal Court of the City of Phoenix shall have jurisdiction to issue orders to the property owner of record, as recorded in the Maricopa County Recorder's Office, to abate unsafe conditions or any other violation of this Code, or to issue orders permitting the City of Phoenix to abate unsafe conditions as defined in this Code. Abatement orders may be issued by the Municipal Court pursuant to a request from the Building official, or may be initiated by the Court in addition to any civil sanction or criminal penalty assessed for violations of this Code. The costs of any abatement by the City shall be the responsibility of the property owner and may be collected as set forth in Article 4 of the *Phoenix City Code* Chapter 39.

114.4.3 Civil actions. Any person, firm or corporation who causes, permits, facilitates, aids or abets any violation of this Code or who fails to perform any act or duty required by this Code is subject to a civil sanction of not less than 500 dollars (\$500) nor more than 2,500 dollars (\$2,500).

114.4.3.1 Commencement of civil action. Any civil action to enforce the provisions of this Code shall be commenced, and summons shall be issued, in accordance with the procedures set forth in Arizona Revised Statutes, City ordinance or as provided in the Local Rules of Practice and Procedure – City Court – City of Phoenix.

114.4.3.2 Admission or denial of allegation; hearing; findings of Court; civil sanction.

1. A person served with a civil citation or complaint shall appear at the time and place stated in the citation or summons, or may appear prior to the time, and admit or deny the allegations of the complaint. Allegations not denied at the time of appearance are deemed admitted.

2. If the allegations are admitted, the Court shall enter judgment for the City and impose a civil sanction.

3. If the person denies the allegations, the Court shall set the matter for hearing. Civil hearings are informal and held without a jury, and the City of Phoenix is required to prove the violation charged by a preponderance of the evidence. Technical rules of evidence do not apply, except for statutory provisions relating to privileged communications. If the person elects to be represented by counsel, the person shall so notify the Court at least 10 days prior to the hearing date. Hearings may be recorded. If the Court finds in favor of the person, the Court shall enter an order dismissing the citation or complaint. If the Court finds in favor of the City, the Court shall enter judgment for the City and impose a civil sanction.

4. If the person served with a civil citation or complaint fails to appear on or before the time directed to appear or at the time set for hearing by the Court, the allegations shall be deemed admitted and the Court shall enter judgment for the City and impose a civil sanction.

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114.4.4 Criminal Penalties. Whenever in any section of this Code the doing of any act is required, prohibited or declared to be unlawful or a violation, any person, firm or corporation who shall be convicted of a violation of any such section shall be guilty of a Class I misdemeanor.

114.4.5 Injunctive Relief. The imposition of any civil action or criminal penalty provided in this Code shall not preclude the Building official from instituting any appropriate action or proceeding to require compliance with the provisions of this Code and with administrative orders and determinations made hereunder. In the event that any building, structure or building service equipment is erected, constructed, reconstructed, altered, repaired, converted, demolished, moved or maintained, or any building, structure or building service equipment is used or occupied in violation of this Code, the Building official may institute any appropriate action or proceedings to prevent such unlawful erection, construction, reconstruction, alteration, repair,

Reasons:

Non-permitted construction continues to be a serious problem for the city and its citizens. These code provisions outline clear procedures and processes to deal with this problem. Substantial fines are provided to deter unscrupulous contractors/owners, but relief is provided for owners who purchase property with unpermitted construction done before their ownership.

Cost Impact: The cost of enforcement of these code sections is subsidized by the citizens who purchase building permits; the civil fines generated are allocated to the general fund of the city.

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SECTION 116 UNSAFE STRUCTURES AND EQUIPMENT

[A] 116.1 Conditions. Replaced

[A] 116.2 Record. Replaced

[A] 116.3 Notice. Replaced

[A] 116.4 Method of service. Replaced

[A] 116.5 Restoration. Replaced

116.1 General. All buildings or structures regulated by this Code that are structurally unsafe or not provided with adequate egress, or that constitute a fire hazard, or are otherwise dangerous to human life are unsafe. Any use of buildings or structures constituting a hazard to safety, health or public welfare by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster, damage or abandonment is an unsafe use.

In addition to the provisions of this Code, all buildings, structures and property shall be maintained in compliance with the provisions of *Phoenix City Code* Chapter 39, the "Neighborhood Preservation Ordinance," and all unsafe buildings or structures shall be subject to the abatement and enforcement provisions of that ordinance.

116.2 Definitions. Unsafe conditions or defects shall be classified as imminent or incipient hazards.

IMMINENT HAZARD is defined as a high, real and immediate risk to life, health or property.

INCIPIENT HAZARD is defined as a condition that can become an imminent hazard if further deterioration occurs or if reasonable additional loads are applied.

116.3 Unsafe buildings or structures. Conditions or defects that render a building or structure unsafe include, but are not limited to:

1. Where any door, aisle, passageway, stairway or other means of egress is locked, blocked or constricted so as to prevent safe and adequate means of egress in case of fire or panic.
2. Where the stress in any materials, member or portion thereof, due to all dead and live loads, is more than one and one-half times the working stress or stresses allowed in this code for new buildings of similar structure, purpose or location.
3. Where any portion thereof has been damaged by fire, earthquake, wind, flood or any other cause to such an extent that the structural strength or stability thereof is materially less than it was before such catastrophe and is less than the minimum requirements of this Code for new buildings of similar structure, purpose or location.
4. Where any portion of a building, or any member, appurtenance or ornamentation on the exterior thereof, is not of sufficient strength or stability or is not so anchored, attached or fastened in place so as to be capable of resisting a wind pressure of one-half of that specified in this code for new buildings of similar structure, purpose or location without exceeding the working stresses permitted for such buildings.
5. Where any portion thereof has wracked, warped, buckled or settled to such an extent that walls or other structural portions have materially less resistance to winds or earthquake than is required in the case of similar new construction.
6. Where the building or structure, or any portion thereof, is likely to partially or completely collapse because of dilapidation, deterioration or decay; faulty construction; the removal, movement or instability of any portion of the ground necessary for the purpose of supporting such building; the deterioration, decay or inadequacy of its foundation; or any other cause.
7. Where, for any reason, the building or structure, or any portion thereof, is manifestly unsafe for the purpose for which it is being used.
8. Where the exterior walls or other vertical structural members list, lean or buckle to such an extent that a plumb line passing through the center of gravity does not fall inside the middle of one-third of the base.
9. Where the building or structure, exclusive of the foundation, shows 33 percent or more damage or

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deterioration of its supporting member or members, or 50 percent damage or deterioration of its non-supporting members, enclosing our outside walls or coverings.

10. Where the building or structure has been so damaged by fire, wind, earthquake or flood, or has become so dilapidated or deteriorated as to become an attractive nuisance to children or a harbor for vagrants, criminals or immoral persons.

11. Where any building or structure which, whether or not erected in accordance with all applicable laws and ordinances or not, has any non-supporting part, member or portion less than 50 percent, or in any supporting part, member or portion less than 66 percent, of the strength or fire-resisting qualities required by law in the case of a newly constructed building of like area, height and occupancy in the same location.

12. Where any swimming pool is not enclosed with all barriers required by this Code.

116.4 Unsafe Building Service Equipment. Unsafe building service equipment is equipment which constitutes a fire hazard or hazard to life, health, property or the public welfare by reason of use, construction, quality of materials or inadequate maintenance or dilapidation. Conditions or defects that render equipment unsafe include, but are not limited to:

116.4.1 Gas-fired, oil-fired or solid-fuel-fired appliance, devices or apparatus which have any of the following defects:

1. Defective heat exchangers.
2. Defective or deteriorated vents, venting or flues which permit leakage of flue gases through the flue walls.
3. Defective or leaking fuel supply lines.
4. Insufficient fresh air supply for combustion of fuel and vent operation.
5. Heating appliances which are not properly vented.
6. Defective or improperly installed and adjusted controls and appurtenances.
7. Equipment locations which will constitute a fire or explosion hazard.
8. Defective or improperly installed equipment.
9. Excessive exhaust in boiler, furnace rooms or areas where gas, liquid or solid fuel fired equipment is located.

116.4.2 Elevators, escalators, dumbwaiters or similar conveyances or apparatus which have any of the following defects:

1. Hoisting, counter-weight or governor ropes with frayed or broken strands.
2. Storage of any material other than elevator equipment within any hoistway, including the pit and the elevator equipment and control room
3. The accumulation of dust or other highly combustible material on the elevator mechanism or in the hoistway, pit or elevator or equipment and control room.
4. Defective or inoperable elevator or escalator brake mechanism.
5. Defective, disconnected or inoperable safety devices.
6. Hoistway entrance protection which does not meet the requirements of this Code.
7. Missing, damaged or defective escalator guardrails, handrails or treads.

116.4.3 Electrical systems, appliances, devices or apparatus which have any of the following defects:

1. Uninsulated or exposed live parts and a fire or shock hazard exists.
2. Loose or poor electrical connections creating a fire or shock hazard.
3. Overloaded branch circuits, feeders or service equipment.
4. Equipment or circuits not properly grounded and bonded.
5. Equipment or conductors not properly protected from overload, short circuit or ground fault.
6. Misuse of flexible cords and cables.
7. Wiring method or equipment not properly supported.
8. Equipment short-circuit, interrupting or withstand ratings insufficient for the available fault current at the line terminals of the equipment.
9. Improperly installed or not suitable for the intended use and location.
10. Inadequate maintenance, dilapidation, damage, obsolescence or abandonment.

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116.4.4 Boilers or pressure vessels which have any of the following conditions:

1. Excessive scaling or corrosion, or cracks in seams, tubes or shells.
2. Defective or improperly installed safety valves, or safety valves of improper setting, capacity or acceptable means of discharge.
3. Defective or improperly installed operational controls, burners or other appurtenances.
4. Defective or improperly installed vent system for products of combustion.
5. Hazardous operation or location of equipment.
6. Unacceptable means for blowdown where required.
7. Insufficient fresh air supply for complete combustion of fuel and vent operation.
8. A boiler or pressure vessel operated above its allowable pressure or temperature.

116.4.5 Refrigeration equipment which has any of the following defects:

1. Inadequate ventilation of machinery rooms.
2. Inadequate sizing, setting capacity or venting of pressure-relief valves.
3. Hazardous location or operation of equipment.
4. Defective or improperly installed safety controls.
5. Refrigerants of a type or quantity which is prohibited for conditions under which it is used.
6. Systems using ammonia as a refrigerant where inadequate provisions have been made for disposal as required elsewhere in this Code.

116.4.6 Plumbing systems which have any of the following defects:

1. Where the water does not meet the standards for potability as required by the Maricopa County Environmental Services Department.
2. The existence of cross connection, backflow or back siphonage, which creates health hazards or pollution.
3. Lack of running water to operate plumbing fixtures required for the use or occupancy of the premises.
4. Drainage systems which are clogged, fouled or depositing solids.
5. No trap seal is provided or the seal is inadequate.
6. Lack of sewer venting or venting into an enclosed building or structure.
7. Leaking water, sewage or sewer gas inside or outside a building.
8. Open or abandoned cesspools or septic tanks.

116.5 Unsafe excavations. An unsafe excavation is any abandoned swimming pool or any active or abandoned mining shaft, test hole, well, pit, trench or other excavation which is more than 4 inches (102 mm) in any lateral dimension and more than 3 feet (914 mm) in depth, whenever such excavation is not covered, fenced or otherwise enclosed such that the general public is exposed to an imminent hazard. This does not apply to active sand or gravel mines being operated in compliance with City and State laws.

116.6 Reporting of unsafe conditions. The person or persons occupying or having control of any unsafe building, structure or building service equipment who knows or should have known an unsafe condition exists shall take immediate steps to vacate the building or structure or to otherwise safeguard the health and safety of the public including all building occupants, and shall notify the appropriate agency or agencies of the situation as follows:

1. The fire department shall be notified immediately of all personal injuries, fires, explosions or hazardous materials incidents.
2. The Water Services Department shall be notified immediately of all backflow, back siphonage or cross-connection incidents according to City procedures.
3. The gas utility shall be notified immediately of any unsafe conditions relating to gas piping or gas-fired building service equipment.
4. The electric utility shall be notified immediately of any shock injuries, fire or explosion relating to any electrical building service equipment.
5. In addition to the above notifications, the building official shall be notified within four hours of the occurrence of any structural failure or of any unsafe condition.
6. In addition to the above notifications, the building official shall be notified within 72 hours of the occurrence of any fire that caused structural damage or damage to required building service equipment.

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any plumbing cross-connection, or any other unsafe condition relating to building service equipment.

Notification of the building official shall be deemed to have occurred upon receipt of a request for inspection or upon receipt of an application for a permit to barricade, demolish, repair or replace the unsafe condition or defective building service equipment.

116.7 Authority for Inspection and Evaluation. The building official may inspect any property, building, structure or building service equipment to determine compliance with this section whenever the building official has probable cause to suspect that an unsafe condition exists. Except in cases of emergencies or readily apparent imminent hazards, the building official shall make reasonable attempts to obtain permission from the property owner or the person or persons occupying or having control of the property prior to conducting the inspection. All entry onto property or into buildings or structures for purposes of this inspection shall be in accordance with legal requirements governing such entry.

When the building official has reason to suspect that an unsafe condition exists, the building official is authorized to immediately issue abatement orders in accordance with Section 115.8 of these administrative provisions, or the building official may require the property owner to obtain a detailed engineering evaluation of the suspected unsafe condition before the building official determines the extent of abatement required.

1. When so ordered by the building official, the owner of any building or property suspected of containing an unsafe condition shall engage the services of a design professional registered in Arizona to conduct a detailed investigation and analysis of the suspected unsafe condition. The cost of such an investigation and report shall be paid by the property owner.
2. The registered design professional retained by the owner shall conduct a detailed investigation and evaluation of the suspected unsafe condition and shall issue a written report to the property owner and to the building official on the condition of the building, structure, or building service equipment, including recommendations for steps necessary to abate any unsafe condition found. The report shall be delivered to the building official on or before the date specified in the building official order requiring such report.
3. The content, findings and recommendations contained in the owner's engineering report may be utilized by the building official to determine whether or not an unsafe condition exists, whether the condition creates an imminent or incipient hazard and what, if any, abatement orders shall be issued.
4. Failure of a property owner to produce an engineering report on or before the date specified in the building official order shall be grounds for the building official to proceed with abatement proceedings up to and including orders to immediately vacate or demolish the subject building or structure.

116.8 Abatement of Unsafe Buildings, Structures or Building Service Equipment. The building official shall, after inspection, determine whether a building, structure or building service equipment is unsafe and, if so, whether it constitutes an imminent hazard or an incipient hazard, as defined in Section 116.2 of these administrative provisions.

116.8.1 Incipient hazards. If a building, a structure or any building service equipment is determined to be an incipient hazard, the building official shall issue a written notice to the property owner or occupant of the premises describing the incipient hazard and ordering its repair or abatement within a certain time as necessary to prevent creation of an imminent hazard. The time allowed for repair or abatement shall be not less than 10 days and not more than 90 days from the date of the notice. Failure to repair or abate the incipient hazard within the time specified shall constitute grounds for the building official to declare the condition an imminent hazard and to thereafter initiate formal abatement procedures.

116.8.2 Imminent hazards. If a building, structure, or any building service equipment is determined to be unsafe and an imminent hazard, the building official shall serve a written notice of violation on the person or persons occupying or having control of the building, structure or building service equipment and on the person or persons having recorded interest in the property. The notice of violation shall declare the unsafe condition to be a nuisance and shall order its immediate abatement in accordance with the provisions of this section.

- 1. Notice of Violation.** Notices of violation declaring imminent hazards shall be served by personal service or by certified mail return receipt requested. Service shall be deemed complete upon delivery.

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The notice of violation shall identify the address and legal description of the property in question and shall state the nature and extent of the unsafe condition in such detail as to allow the property owner to identify and abate the unsafe condition. The notice shall provide the name and phone number of a city representative to contact concerning the unsafe condition and acceptable methods of abatement. The notice shall state the City's authority to abate the violation if the owner fails to do so and the City's ability to assess the costs of such abatement against the property. The notice shall state the procedures to follow should the owner wish to appeal the decision of the building official.

Nothing shall preclude the building official from giving additional oral or written information notices. Nothing herein shall require the issuance of a notice of violation prior to commencement of emergency abatement or civil or criminal violation proceedings.

2. Unsafe buildings or structures. In the case of an unsafe building or structure containing imminent hazards, the building official shall order the hazard abated by repair or by demolition of the building or structure. The unsafe building or structure and any buildings or structures placed in jeopardy by the unsafe buildings or structures shall be posted in accordance with this Code. The buildings or structures shall not be occupied or reoccupied until determined safe by the Building official.

3. Unsafe building service equipment. In the case of an unsafe building service equipment installation containing imminent hazards, the building official shall attach or affix a warning red tag to the equipment declared to be unsafe. Where equipment is declared to be unsafe, the building official shall order such equipment disconnected or its use discontinued until the nuisance created thereby is abated. In addition, the building official may order any building or structure which is placed in jeopardy by the unsafe equipment to be vacated, or the building official may order the disconnection of the affected utility service to the building, structure or equipment, and these buildings or structures shall not be occupied, reoccupied or building service equipment reconnected until determined safe by the building official.

4. Posting of signs. When necessary to protect life, health or public welfare, the building official may post signs which shall prohibit entry into an unsafe building or structure provided, however, that with permission of the building official it shall be lawful to enter the building for the purposes of removing personal property or affecting any required repairs, rehabilitation or demolition.

It shall be unlawful to remove any such sign without permission from the building official. It shall be unlawful to enter, occupy or inhabit such unsafe building or structure without the express written permission of the building official.

5. Emergency barricades. If any building or structure is a hazard to life or limb of persons using a public street, alley or sidewalk, the public way shall be barricaded to prevent public use. The necessary barricades shall be erected on order from the building official. The costs for barricading of a public way under this section shall be assessed to and paid by the owner of the unsafe building or structure causing the need for such barricades.

6. Emergency abatement. In the event an emergency should occur wherein the continued existence of a building, structure or building service equipment would constitute an imminent hazard to life, health or other property, the building official may cause such building or structure to be demolished, building service equipment removed or disconnected, swimming pool fenced or pumped dry or cesspool or tank filled at once, all without notice. Such abatement shall be limited to the minimum work necessary to remove the imminent hazard.

7. Abatement by City. If the owner of any unsafe building, structure or building service equipment fails to abate an imminent hazard within the time specified in the notice of violation, the City may abate any such unsafe condition by repair, removal or demolition in accordance

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with the provisions of *Phoenix City Code*, Chapter 39, Sections 39-22 through 39-24. The costs of any City abatement, including emergency abatement or temporary repairs, shall be paid by the property owner as set forth in *Phoenix City Code* Chapter 39, Sections 39-22 through 39-24.

8. Court-ordered abatement. In addition to any other abatement procedures provided in this Code, the building official may apply to the Municipal Court of the City of Phoenix for an order allowing the City to abate any unsafe condition in accordance with the provisions of *Phoenix City Code* Chapter 39, Section 39-20.

116.8.3 Appeals. Decisions, orders and notices of violation relating to unsafe buildings, structures or building service equipment may be appealed to the building official and to the Development Advisory Board in accordance with Section 113 of this Code, except that any appeal of an order by the building official to vacate an unsafe building or to demolish part or all of an unsafe building or structure shall be made to the Rehabilitation Appeals Board in accordance with Article 5 of the *Phoenix City Code*, Chapter 39.

116.10 Conditions. Structures or existing equipment that are or hereafter become unsafe, unsanitary or deficient because of inadequate means of egress facilities, inadequate light and ventilation, or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance, shall be deemed an unsafe condition. Unsafe structures shall be taken down and removed or made safe, as the building official deems necessary and as provided for in this section. A vacant structure that is not secured against entry shall be deemed unsafe.

Reasons:

Provisions in our previous Code are more specific and definitive.

Cost Impact: N/A

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SECTION 117 ANNUAL FACILITIES PERMIT

117.1 Scope. The Annual Facilities Program is an administrative system intended to simplify the permitting and inspection process for qualified facilities. This program allows inspector review of plans and maintains an inspection staff familiar with the construction history of qualified facilities. Qualified facilities enrolled in this program are exempt from Section 105 of these administrative provisions when the proposed work does not increase the floor area. Additional permits shall be required in accordance with Section 105 of these administrative provisions for work that increases floor area or establishes or changes the occupancy of a space. The Annual Facilities Program shall administer all permits issued for qualified facilities registered under this program. This permit process shall not preempt compliance with the technical requirements of this Code or with other city, county, state or federal laws and regulations.

117.2 Definitions. For the purpose of this section, certain terms are defined as follows:

AGENT means a person employed by a qualified facility owner as full-time staff or by contract, who is an architect or engineer registered and residing in the State of Arizona.

CAMPUS means two or more buildings located on the same property and under the control of the qualified facility owner.

QUALIFIED FACILITY means a building, campus, structure, or building service equipment registered with the Annual Facilities Permit Program.

QUALIFIED FACILITY OWNER means a firm, corporation, political entity or property management company that occupies or controls the buildings, campus, structure or building service equipment and maintains such buildings and equipment in compliance with all provisions of this Code.

117.3 Annual Facilities Permits.

117.3.1 Initial application. Every applicant for an Annual Facilities Permit shall fill out a form provided by the Planning & Development Department and shall pay an application and registration fee as set forth in Appendix A.2 of the *Phoenix City Code*. The form shall include the following:

1. The name of the person authorized to act on behalf of the qualified facility owner(s).
2. The name of the agent who will be responsible for code compliance of the work performed under the Annual Facilities Permit. When the agent is employed by contract, the builder and the person who is authorized to act on behalf of the qualified facility owners cannot be the same individual.
3. The location and total square footage of the entire facility at the site(s) intended to be included in the program.

The *building official* shall take action on the application and the applicant shall be notified accordingly.

117.3.2 Validity of the annual facilities permits. An Annual Facilities Permit shall be valid only as long as the named agent remains in the employ of the qualified facility owner in an active capacity.

If the agent should leave the employ of the qualified facility owner, such facility shall notify the *building official* within seven calendar days. The qualified facility owner shall obtain a replacement agent within 45 days of notification to the *building official*. If the *building official* is not notified within the prescribed period that a new agent has been obtained, the Annual Facilities Permit shall be suspended until such agent is obtained.

117.3.3 Annual facilities permit transfers. An Annual Facilities Permit is not transferable.

117.4 Annual facilities permit renewal. Annual Facilities Permits shall be renewed every 12 months by payment of a renewal fee as set forth in Appendix A.2 of the *Phoenix City Code*. Renewal fees shall be due and payable before the date of expiration of the permit or when a new application is required.

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Any work performed after expiration or without a permit as specified in Section 105 of these administrative provisions shall be a violation of this Code.

117.5 Annual Facilities Permit operation. The agent shall notify the Planning & Development Department before the start of any work on facilities registered with the Annual Facilities Permit Program. The *building official* shall determine the nature and extent of plan review or inspections required. The qualified facility shall pay to the Planning & Development Department an hourly fee for professional services rendered as set forth in the Appendix A.2 of the *Phoenix City Code*.

The agent shall be responsible for ensuring that qualified facilities comply with the substantive provisions of this Code. The agent, as authorized by rules established by the Arizona Board of Technical Registration, shall assure work has been performed in accordance with this Code.

117.5.1 Plan reviews. Plans, drawings, diagrams, and /or other data describing such work shall be provided to the *building official* for review before work commences. Plans shall be complete and comply with all of the codes and ordinances applicable to the proposed work.

117.5.2 Work report and inspections. All structural, architectural, plumbing, mechanical and electrical installations or construction shall be inspected in accordance with this Code. Facilities shall be subject to inspection at regular intervals not to exceed six months.

117.5.3 Construction Compliance. The agent and the qualified facility owner are jointly responsible for assuring that all work performed at the qualified facility complies with all technical requirements of all applicable construction codes whether or not such work is specifically inspected.

117.6 Revocation of annual facilities permit. The *building official* may suspend or revoke an Annual Facilities Permit when the qualified facility fails to comply with any of the program policies or for willful violation of any provision of this Code. Violations that may result in annual permit suspension or revocation include, but are not limited to, one or more of the following:

1. Performing construction work without an agent as required in this section.
2. Performing construction work without the agent's knowledge or consent.
3. Concealing work without inspection approval or authorization.
4. Refusal to uncover concealed work.
5. Construction or installing work contrary to inspection orders.
6. Performing construction work prior to approval from the Annual Facilities Program.
7. Failure to report all construction work done under authority of the annual permit.
8. Refusal to eliminate unsafe hazards listed in Section 116 of these administrative provisions.
9. Failure to remain current on payment for plan review and inspection services.

An Annual Facilities Permit may be reinstated after all violations have been remedied to the satisfaction of the *building official*. If compliance involves actual work, a separate permit as required under Section 105 of these administrative provisions must be obtained and such permit is subject to regular permit fees as required under Section 109 of these administrative provisions. An investigation fee shall be paid in the amount equal to that prescribed in Section 114 of these administrative provisions.

Reinstatement of an annual permit, which has been suspended or revoked, requires payment of a new Annual Facilities Permit Fee as prescribed in this Section.

Reasons:

These provisions create the Annual Facilities Permit and are carried forward from previous editions of the Phoenix Building Construction Code.

Cost Impact: This program frequently represents a time and cost savings for customers.

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SECTION 118 BUILDING MAINTENANCE REGISTRATION

118.1 General. The holder of a building maintenance registration is exempt from Section 105.1 of these administrative provisions for Level 1 alterations as defined in Section 503 of the *International Existing Building Code* and repair or maintenance of the electrical, mechanical or plumbing equipment in or on buildings, structures or premises owned and controlled by the registrant when he or she complies with all the provisions of this section. All other provisions of this Code shall be complied with, including but not limited to, requirements for city inspection of structural, plumbing, mechanical or electrical installations prior to covering any such work.

118.2 Definition. For the purpose of this section, this term is defined as follows:

BUILDING MAINTENANCE REGISTRATION means authority granted to a person, firm, corporation or political entity to perform work as specifically authorized in this section when such parties have full-time supervisory employees in the proper classification as described in Section 118.3 of these administrative provisions.

118.3 Supervisor(s) required. All structural, electrical, mechanical or plumbing work done under a building maintenance registration shall be performed or supervised by a licensed supervisor of the proper classification.

A licensed electrical supervisor may perform or supervise the electrical work.

A licensed mechanical supervisor may perform or supervise the mechanical work.

A licensed plumbing supervisor may perform or supervise the plumbing work.

A licensed structural supervisor may perform or supervise the structural work.

118.3.1 Application and fee for supervisor licenses. Every person desiring to qualify for a supervisor's license shall file an application with the Planning and Development Department. The application shall be accompanied by a nonrefundable application fee as set forth in Appendix A.2 of the *Phoenix City Code*. Unless revoked for cause, a supervisor's license shall run with the building maintenance registration as long as the supervisor is employed by the registrant.

118.3.2 Supervisor qualification. A qualified supervisor must meet one of the following criteria:

A person licensed by the State of Arizona as a licensed contractor (qualified person) in a category of work covered by this section.

A licensed electrical supervisor must hold a current IAEI Electrical General or ICC Commercial Electrical Inspector certification.

A licensed mechanical supervisor must hold a current IAPMO Mechanical Inspector or ICC Commercial Mechanical Inspector certification.

A licensed plumbing supervisor must hold a current IAPMO Plumbing Inspector or ICC Commercial Plumbing Inspector certification.

A licensed structural supervisor must hold a current ICC Commercial Building Inspector certification.

118.3.3 Revocation of supervisor's license. The *building official* may revoke or temporarily suspend any supervisor's license granted hereunder for cause. Before taking such action, the *building official* shall request, in writing, the person against who such action is contemplated to appear before him or her to show cause why such disciplinary action should not be taken. The supervisor whose license is revoked or suspended shall be notified of such action by certified mail. It shall be unlawful to perform any work in conflict with such notice.

118.4 Application and fee for building maintenance registration. Every applicant for a building maintenance registration shall fill out a form provided by the Planning and Development Department and shall pay an

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application fee at time of filing in the amount as set forth in Appendix A.2 of the *Phoenix City Code* for each class of supervisor in his or her employ. The form shall include at least the following:

1. The name of the holder of the registration who is authorized and has the authority to act for the building owner(s).
2. The name of the licensed supervisor(s) or the contractor who will supervise or perform the work.

Action shall be taken by the *building official* on such application and the applicant shall be notified accordingly.

118.5 Registration renewal. Registrations shall be renewed not later than 12 months after initial registration by payment of a renewal fee equal to the application fee. Any work performed after expiration shall be a violation of this Code.

118.6 Validity of registration. The registrations shall be valid only as long as the named licensed supervisor(s) shall remain in the employ of the registrant in an active full-time capacity. If these personnel should leave the employ of the registrant, the registrant shall notify the *building official* immediately. The registrant shall be required to obtain proper personnel according to the requirements of this code within 90 days of notification to the *building official*. If personnel are not obtained within the 90-day period, the registration shall be deemed suspended until such personnel are obtained.

118.7 Revocation of registration. The *building official* may suspend or revoke a registration when the registrant fails to comply with any of the registration responsibilities or for violation of any provision of this Code. Violations which may result in revocation of a building maintenance registration include, but are not limited to, one or more of the following:

1. Performing construction work outside the scope of the registration without obtaining a separate permit.
2. Performing construction work without a licensed supervisor as required in this section, or without the supervisor's knowledge, consent or oversight.
3. Concealing work without inspection approval or authorization.
4. Refusal to uncover concealed work.
5. Constructing or installing work contrary to inspection orders.
6. Failure to report all construction work done under authority of the building maintenance registration.
7. Refusal to eliminate unsafe conditions listed in Section 116 of this code.

When the building official determines that a violation has occurred and that suspension or revocation of the registration is warranted, the registrant shall be notified in writing by certified mail and shall be given an opportunity for an administrative hearing with the *building official*. The suspension or revocation shall take effect 10 days after the date of notification unless, within such time, the registrant requests an administrative hearing. When an administrative hearing is requested, the *building official* shall consider all evidence submitted at the hearing and shall notify the registrant in writing of the final decision within 10 days following such hearing. All final decisions of the *building official* to suspend or revoke a building maintenance registration may be appealed in accordance with Section 113 of these administrative provisions.

118.8 Work report and inspections. A brief outline of all work done under the registration shall be prepared by the licensed supervisor(s) and shall be available to the *building official* during periodic inspections. Work shall not be concealed without first obtaining inspection approval from the building official. Work performed under the building maintenance registration shall be inspected at regular intervals not exceeding six months.

Reasons:

These provisions create the Building Maintenance Registration and are carried forward and expanded from previous editions of the Phoenix Building Construction Code. This allows minor work to be done under the supervision of a Licensed Supervisor without plan review or prior approval from P&D.

Cost Impact: This simplification and streamlining of the process for minor projects at registered facilities would save customers time and money.

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SECTION 119 JOURNEYMAN AND APPRENTICE LICENSES

119.1 License Required. All work performed on plumbing and mechanical systems where a permit is required according to Section 105 of these administrative provisions, is required to be performed by a Licensed Journeyman or by an Apprentice as defined in this Section.

Exceptions:

1. A person licensed by the State of Arizona as a licensed contractor (qualified person) in a category of work covered by this section.
2. The owner/occupant of a single-family residence when performing work covered by this section on their residence or accessory buildings or structures.

119.2 Definitions. For purposes of this section, terms are defined as follows:

JOURNEYMAN LICENSE is the authority to perform or observe work requiring certain skills as identified in this section and is issued by the *building official* upon successful completion of an examination administered by the City of Phoenix.

LICENSED JOURNEYMAN is a person skilled in an area of work covered by this section with sufficient work experience to pass the Journeyman Test administered by the City of Phoenix and is capable of performing work covered by their Journeyman License and supervising the work of Apprentices covered by this section.

APPRENTICE is a person learning a skill and working in an area of work covered by this section and working under the direct supervision of a Licensed Journeyman or State of Arizona Licensed Contractor.

119.3 Journeyman licenses. Journeyman licenses shall be divided into classifications as follows:

1. **Journeyman plumber.** A Journeyman plumber may install plumbing systems within the scope of the *Phoenix Building Construction Code*.
2. **Journeyman gas fitter.** A Journeyman gas fitter may install gas appliances, including the piping and venting of these appliances within the scope of the *Phoenix Building Construction Code*.
3. **Journeyman mechanical systems installer.** A Journeyman mechanical systems installer may install all heating, ventilating, cooling, refrigeration or other mechanical systems and equipment within the scope of the *Phoenix Building Construction Code*.
4. **Apprentice.** An Apprentice license may be issued to an individual who cannot qualify for the Journeyman status in one of the categories listed above. Apprentice licenses are valid for a period of one year.

119.4 Apprentice. An apprentice must work under the supervision of a Licensed Journeyman or Arizona State Licensed Contractor at all times work is being performed. The Licensed Journeyman or state licensed contractor is responsible for the work of the apprentice.

119.5 Application for licenses. Applicants shall submit either verification of experience (Journeyman) or notarized letter of request (Apprentice) with appropriate fees and application forms supplied by the Planning & Development Department. Applicants for Journeyman licenses shall schedule a test date subsequent to their application being accepted, or provide evidence that they have passed an approved third-party Journeyman license exam.

119.6 Fees. Fees shall be paid upon submittal of the application for licensing. Test fees are refundable with cause prior to any test being taken. No fees are refundable after a test has been taken, regardless of the outcome. Fees are set forth in Appendix A.2 of the *Phoenix City Code*.

119.7 Examinations.

119.7.1 Frequency of examinations. ~~The Planning & Development Department~~ Approved third-party agencies shall hold examinations no less frequently than once every three months, in a suitable place.

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and for each classification for which there are applications on file. Examinations shall be held more frequently when necessary. The Planning & Development Department may also hold examinations when necessary.

119.7.2 Scope of examinations. Each written examination shall relate specifically to that aspect of the trade(s) for which licensing is being requested. Examinations shall be in writing, and shall be sufficiently comprehensive to test the Code related knowledge of an applicant seeking Journeyman status. A prerequisite to testing is verification that the applicant has four or more years of practical experience in the discipline for which licensing is requested.

119.7.3 Notification of test results. Licenses shall be issued to successful candidates within reasonable time after successful completion of an examination. Applicants who fail to pass their examination(s) shall be notified within 10 days after the examination. A retest date shall be established within 30 days.

119.8 Expiration and Renewal. Unless revoked for cause, all Journeyman licenses shall expire 36 months after the month in which they were issued. To renew a Journeyman license it is necessary to pass a renewal examination and to pay a renewal fee as set forth in Appendix A.2 of the *Phoenix City Code*. An examination will be mailed to each holder of a Journeyman license prior to expiration of the current license. This examination is to be completed and returned within 60 days of license expiration. Failure to renew within 60 days after expiration of a license will result in its revocation, and will require that the initial Journeyman examination be taken before issuance of a new Journeyman license.

119.9 Journeyman or Apprentice Identification Card. At the time of licensing each Journeyman or Apprentice, and at the time of renewing each license, the Planning & Development Department shall provide each successful applicant with an identification card showing the classification for which that person is licensed.

At all times when performing work that requires a license, such person shall have a Journeyman or Apprentice card in their immediate possession, and shall produce it upon request of a Planning & Development Department representative. It shall be the responsibility of the contractor to determine that their workers are properly licensed.

Journeyman or apprentice licenses shall be issued only to individual persons and shall not be transferable.

119.10 Revocation of Licenses. The Planning & Development Department may revoke any license granted hereunder for cause. Upon notification, the licensee shall be given 30 days to justify in writing why revocation of the license is unwarranted. Failure to respond to such notification will be taken as voluntary forfeiture of the license and acceptance of any action revoking said license. Appeal of a final administrative decision may be filed within 10 days of formal notification as provided in Section 113 of these administrative provisions.

Reasons:

This retains the Journeyman Licensing program that has historically been in place in Phoenix. The program helps to insure quality construction and is supported by the construction industry.

The Journeyman Exam Committee has worked with the International Code Council (ICC), and local representatives of the Piping Industry Progress and Education Trust Fund (P.I.P.E.), Plumbing, Heating and Cooling Contractors (PHCC), and the Arizona Sheet Metal Joint Apprenticeship Training Committee to develop exams that can be offered and proctored by these organizations. This will increase flexibility for trade workers, allowing them to choose from multiple sites and test dates and times. The committee proposes changing the above three code sections to accommodate this change in testing procedure.

Cost Impact: There may be a minimal additional cost to a project due to the requirement to use qualified staff, however this is frequently offset by reduction in rework. The provision has been included in the Phoenix Building Construction Code for many years. The city's cost of administering an exam will be reduced. The cost to the applicant may increase slightly based on third-party testing charges; however, the increased flexibility in testing times will allow applicants to take the exam without missing a day of work (generally unpaid in the construction industry).

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Section 202. Definitions

BASE FLOOD. The flood having a 1-percent chance of being equaled or exceeded in any given year. See design flood.

BASE FLOOD ELEVATION. The elevation of the base flood, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other datum specified on the Flood Insurance Rate Map (FIRM). See design flood elevation.

Reasons:

The definitions for Base Flood and Base Flood Elevation are defined similarly to Design Flood and Design Flood Elevation.

DESIGN FLOOD. The flood associated with the greater of the following two areas:

1. Area with a flood plain subject to a 1-percent or greater chance of flooding in any year; or
2. Area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated.

DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

Cost Impact: No cost impact.

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Section 202. Definitions

FLOOD DAMAGE-RESISTANT MATERIALS. ~~Any construction material capable of withstanding direct and prolonged contact with floodwaters without sustaining any damage that requires more than cosmetic repair.~~ Any building product [material, component or system] capable of withstanding direct and prolonged contact [at least 72 hours] with floodwaters without sustaining significant damage [any damage requiring more than cosmetic repair consisting of cleaning, sanitizing, and resurfacing of the material]. The cost of cosmetic repair should be less than the cost of replacement of affected materials and systems. Individual materials that are considered flood damage-resistant must not cause degradation of adjacent materials or the systems of which the material is a part.

Reasons:

Revised to match FEMA's definition in "Technical Bulletin 2/ August 2008."

Cost Impact: N/A.

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Section 202. Definitions

~~**FLOOD HAZARD AREA.** The greater of the following two areas:~~

- ~~1. The area within a flood plain subject to a 1 percent or greater chance of flooding in any year.~~
- ~~2. The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated.~~

Reasons:

The definitions for Flood Hazard Area and Special Flood Hazard Area are similar.

SPECIAL FLOOD HAZARD AREA. The land area subject to flood hazards and shown on a Flood Insurance Rate Map or other flood hazard map as Aone A, AE, A1-30, A99, AR, AO, AH, V, VO, VE OR V1-30.

Cost Impact: No cost impact.

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Section 202. Definitions

COMMON AREA. For the purposes of ADA compliance for visual notification, a common area shall be a room, space, or element made available for the use of a restricted group of people (for example, occupants of a homeless shelter; the occupants of an office building, or the guests of such occupants). Common areas shall include restrooms, hallways, lobbies, meeting and conference rooms, classrooms, cafeterias, filing and photocopy rooms, employee break rooms, open office areas exceeding 300 square feet, examination and treatment rooms, and similar areas that are not used solely as employee work areas in accordance with the U.S. Access Board Technical Bulletin on Visual Alarms. Mechanical, electrical and telephone closets, janitor's closets, and similar non-occupiable spaces that are not common areas or assigned work areas are not required to have visual alarms.

MAINTENANCE. The repair or replacement of defective or damaged equipment, systems or programming with an exact duplicate model. Maintenance also includes testing of equipment.

MODIFICATION. Any change or reprogramming of any existing equipment or system that is not the exact same model or programming. Also as the term modification is used in Section 104.10.3.

Reasons:

To match Phoenix Fire Code.

Cost Impact: No cost impact.

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Section 202. Definitions

Artist Gallery. A space, up to 5,000 square feet, used to display the artist's work for sale, shall be viewed as a Mercantile Occupancy with an occupant load factor of 30 square feet per occupant. Occupant loads shall be posted in the space and noted in the body of the permit.

Artist Studio. A space, up to 5,000 square feet, used to produce the artist's work in various stages of completion, shall be viewed as a Business Occupancy with an occupant load factor of 100 square feet per occupant.

Reasons:

To define terms used for Business & Mercantile Occupancies.

Cost Impact: No cost impact.

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304.1 Business Group B

Add: Artist studio to list of business occupancies

Reasons:

This item was amended for the 2006 International Building Code to address these specific uses and shall be carried forward.

Cost Impact: N/A

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309.1 Mercantile Group M

Add: Artist Gallery to list of business occupancies

Reasons:

This item was amended for the 2006 International Building Code to address these specific uses and shall be carried forward.

Cost Impact: N/A

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706.1.1 Party Walls. Any wall located on a lot line between adjacent buildings, which is used or adapted for joint service between two buildings, shall be constructed as a fire wall in accordance with Section 706. Party walls shall be constructed without openings and shall create separate buildings.

Exception: Openings in a party wall separating an anchor building and a mall shall be in accordance with Section 402.7.3.1.

Reasons:

This section was originally amended out of the Phoenix Building Construction Code based on past practice. This code section will provide better service by not requiring an agreement between separate owners through a code modification.

This section distinguishes party walls from other fire walls in that it is on the property line and serves to separate buildings usually owned by two separate parties. When two separate structures are built up to the property line, the designer has the option of using two separate exterior walls with zero FSD or a party wall. Since there is a real property line involved, the prohibition for openings between the two buildings is important and even utilities cannot penetrate the party wall.

Cost Impact: Reduces cost - no code modification fee.

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[F] 901.1 Scope. The provisions of this chapter shall specify where *fire protection systems* are required and shall apply to the design, installation ~~and~~, inspection, operation, testing and maintenance of all fire protection systems. All fire protection systems where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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902.1 Definitions. The following terms are defined in Chapter 2:

[F] Common Area

[F] Maintenance

[F] Modification

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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[F] 903.1 General. Bret Tarver Sprinkler Ordinance

~~Automatic sprinkler systems shall comply with this section.~~ An approved automatic sprinkler system shall be installed throughout all levels of all new Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies of any size and throughout all R-3 including one- and two-family dwellings built under the *International Residential Code*, and U occupancies of more than 5,000 square feet (464 square meters).

The calculated area of Group R-3 occupancies shall include all livable space and the area of any attached garage and carports or areas located under living spaces.

Automatic sprinkler systems shall be installed in accordance with NFPA 13 for Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies. NFPA 13R for residential occupancies up to and including four stories in height, in Groups R-1, R-2, R-4 occupancies and NFPA 13D for one- and two-family dwellings and mobile homes in group R-3 and R-4 occupancies with 6-10 licensed beds. Exceptions to or reductions in code requirements are not allowed for the installation of residential sprinkler systems installed in accordance with NFPA 13R and NFPA 13D unless specifically allowed by the *International Building Code*. Exceptions to or reductions in code requirements for NFPA 13 systems allowed in the International Building code are allowed.

EXCEPTIONS:

1. Detached gazebos, temporary tents and ramadas for residential and public use.
2. Detached buildings of 700 square feet (65 square meters) or less other than Group E or H.
3. Detached non-combustible carports or parking canopies regardless of size, Detached non-combustible canopies used exclusively for automotive motor fuel dispensing station not exceeding 5,000 square feet (464 square meters).
4. Factory built buildings utilized as temporary office buildings similar to real estate leasing offices and construction offices.

[F] 903.1.1. Retrofit.

Existing buildings are required to comply with the provisions of Section 903.2 when any of the following apply:

[F] 903.1.2 Retrofit in R-3 occupancies.

One or more additions within any 3 year period are made to a Group R-3 occupancy and comply with all of the following:

1. The aggregate of the additions exceeds 50% of the square footage of the house as of June 17, 2002.
2. The new total area of the building is greater than 5,000 square feet (464 square meters).

The calculated area of Group R-3 occupancies shall include all livable space and the area of any attached garage, carports, aircraft hangar or basement.

[F] 903.1.3 Building Additions. Building additions in existing occupancies other than Group R-3 shall be protected by an automatic fire sprinkler when:

1. Building additions that equal 50% or more of the existing building floor area, or exceed 10,000 square feet (929 square meters); whichever is less.
2. Two or more building permits related to increased square footage are issued over any three consecutive years where:
 - 2.1 The aggregate of the additions exceeds 50% of the square footage of the building as of June 17, 2002.
 - 2.2 The new total area of the building is greater than 10,000 square feet (929 square meters).
3. Are required to be protected in accordance with the City of Phoenix Building Code or City of Phoenix Residential Code.

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[F] 903.1.4 Building remodels.

An automatic fire sprinkler system shall be installed when 50% or more of the roof assembly structure is replaced or repaired or, when the removal of existing fire rated assemblies results in an increase of the original basic fire area.

[F] 903.1.5 Change of occupancy within hazard level 1.

An automatic fire sprinkler system shall installed when a building regardless of the building area, undergoes a change of occupancy within hazard level 1.

[F] 903.1.6 Change of occupancy over 2,500 square feet (232 square meters).

An automatic fire sprinkler system shall installed in any building 2,500 square feet (232 square meters) or greater that undergoes a change of occupancy.

[F] 903.1.7 Change of occupancy under 2,500 square feet (232 square meters)

An automatic fire sprinkler system shall installed in any building 2,500 square feet (232 square meters) or less that undergoes a change of occupancy to a higher hazard level as defined by Table 903.1.5.

EXCEPTIONS:

An automatic fire sprinkler system is not required when:

1. The occupancy is 1,500 square feet (139 square meters) or less and;
2. There are openings entirely above the adjoining ground level totaling at least 20 square feet (1.86 square meters) in each 50 linear feet (15240 mm) or fraction thereof, of exterior wall in the story on at least one side. Openings shall have a minimum dimension of not less than 30 inches (762 mm). Such openings shall be accessible to the fire department from the exterior and shall not be obstructed in a manner that fire fighting or rescue cannot be accomplished from the exterior, and
3. The occupancy is not classified as Group H.

[F] Table 903.1.5 Hazard Level

Hazard Level	1997 UBC Occupancy Type	201FC Occupancy Type
1 (highest)	H, I, A, R-1, R-2	H, I, A, R-1, R-2, R-4, S-3, B-(ACF) ¹
2	S-1, S-5, F-1	S-1, F-1
3	E, F-2, S-2, S-3, S-4	E, F-2, S-2
4 (lowest)	B, M, U, R-3	B, M, U, R-3

¹ Business, Ambulatory Care Facility

[F] 903.1.8 Sprinkler systems – partially sprinklered buildings.

When existing non-sprinklered buildings of mixed occupancy are required to install sprinklers based on a change of occupancy classification, sprinklers shall be installed throughout the fire area that includes the new occupancy. The fire resistance rating of fire barriers or horizontal assemblies separating sprinklered and non-sprinklered fire areas shall be a minimum of 2 hours. Fire Department connection signage shall be in accordance with Section 912.

[F] 903.1.9 Design Documents.

For fire sprinkler systems, the following are considered to be professional registrant activities in accordance with the requirements of the Arizona Board of Technical Registration:

1. Consider the range of hazards of the project;
 - 1.1 Automatic sprinkler system design shall be based on the hazard classification of the building or area in accordance with NFPA 13.
 - 1.2 Automatic sprinkler system designs for high-piled storage shall be in accordance with Chapter 32 and Chapter 57 for Flammable/Combustible Liquids.
2. Prepare hazard analysis; identify the hazard classification of the intended occupancy, including any special hazards;
3. Determine the applicable codes and standards and appropriate engineering practices;

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4. Ascertain the availability and adequacy of the water supply for the project;
5. Determine the appropriate design density and area of operation for each hazard area.

These activities shall be completed prior to development of construction documents to be submitted for permit.

Exception: Automatic Sprinkler Systems installed in accordance with NFPA 13D.

[F] 903.1.9.1 Owner responsibilities.

The owner of a building or structure where the fire sprinkler system is going to be installed or their authorized agent shall provide the design professional with the following information prior to preparation of design documents.

1. Intended use of the building.
2. A description of the materials to be used or stored within the building.
3. A description of how the materials are to be used in the building.
4. A description of the commodity stored and proposed storage configuration including the maximum height.
5. A preliminary plan of the building or structure along with the design concepts necessary to prepare the design documents listed in 903.1.1.
6. Speculative buildings shall be in accordance with Chapter 23.

These activities need to be completed prior to development of construction documents to be submitted for permit.

Exception: Automatic Sprinkler Systems installed in accordance with NFPA 13D.

[F] 903.1.4 903.1.10 Alternative protection. Alternative automatic fire-extinguishing systems complying with Section 904 shall be permitted in lieu of automatic sprinkler protection where recognized by the applicable standard and *approved by the fire ~~Fire Marshal~~ code official.*

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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[F] 903.2 ~~Where required.~~ **Occupancy specific requirements.**

~~Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.~~

Exception: ~~Spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided these spaces or areas are equipped throughout with an automatic smoke detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than 1-hour **fire barriers** constructed in accordance with Section 707 or not less than 2-hour **horizontal assemblies** constructed in accordance with Section 711 or both.~~

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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[F] 903.2.8 Group R. An *automatic sprinkler system* installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R *fire area*.

Exception: Detached one-family dwellings shall comply with the Bret Tarver Sprinkler Ordinance Section 903.2 of the Phoenix Fire Code.

Reasons:

A clarification, in accordance with Arizona Revised Statutes Title 9, Chapter 7, Article 1, Section 9-907, municipalities shall not adopt an ordinance that prohibits a person from choosing not to install fire sprinklers in a single family detached residence. This section does not apply to any ordinance requiring sprinklers that were adopted prior to December 31, 2009, so the existing Tarver Ordinance can remain in effect.

Cost Impact: No cost impact.

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[F] 903.3 Installation requirements.

Automatic sprinkler systems shall be designed and installed in accordance with Sections 903.3.1 through ~~903.3.6~~ 903.3.7.

[F] 903.3.1 Standards.

Sprinkler systems shall be designed and installed in accordance with Section 903.3.1.1 unless otherwise permitted by Sections 903.3.1.2 and 903.3.1.3 and other chapters of this code, as applicable.

[F] 903.3.1.1 NFPA 13 sprinkler systems.

Where the provisions of this code require that a building or portion thereof be equipped throughout with an *automatic sprinkler system* in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in Section 903.3.1.1.1. Automatic sprinkler designs for high-piled storage shall be in accordance with Chapter 32 and Chapter 57 for Flammable/Combustible Liquids.

[F] 903.3.1.1.1. Exempt locations.

Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance rated construction or contains electrical equipment.

1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard. When determined by a technical opinion and report prepared in accordance with Section 104.7.2 of the Phoenix Fire Code and approved by the Fire Marshal.
2. Any room or space where sprinklers are considered undesirable because of the nature of the contents, ~~when approved by the fire code official~~ when determined by a technical opinion and report prepared in accordance with Section 104.7.2 of the Phoenix Fire Code and approved by the Fire Marshal.
3. Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a *fire-resistance rating* of not less than 2 hours.
4. Rooms or areas that are of noncombustible construction with wholly noncombustible contents.
5. Fire service access elevator machine rooms and machinery spaces.
6. Machine rooms and machinery spaces associated with occupant evacuation elevators designed in accordance with Section 3008.
7. Sprinklers may be omitted from electrical vaults where access to the vault is under control of the electrical utility company and the vaults are separated from the rest of the building by fire resistive construction in accordance with the NFPA 70.
8. Linen closets or pantries that have multiple level shelving and cannot be walked into shall be considered cabinetry and shall not require sprinkler protection.
9. Dedicated pedestrian walkways meeting the criteria of NFPA 13.

[F] 903.3.1.1.2 Changes in commodity hazard. Changes of commodity to a higher hazard classification or storage configuration that exceeds the capabilities of the existing sprinkler system design shall require the sprinkler system to be modified. The sprinkler system shall be modified to provide an approved design in accordance with NFPA 13, or other applicable design standard, for the

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commodity present in the building or area.

[F] 903.3.1.1.3 Canopies and patio protection. Industrial Shade Canopies

Industrial shade canopies shall be protected by an automatic sprinkler system.

Exceptions:

1. Industrial shade canopies attached to buildings that are not otherwise required to be protected by an automatic sprinkler system.
2. Detached Industrial Shade Canopies which do not exceed 1,000 square feet (93 m²) in area.
3. Detached Industrial shade canopies that are made of noncombustible material with a flame spread index no greater than 25 when tests in accordance with ASME E84 which does not exceed 5,000 square feet (372 m²).
4. Where a slatted, lattice or louvered canopy roof system is not less than 50 percent open to the sky.

[F] 903.3.1.1.4 Mercantile shade canopies.

Mercantile shade canopies shall be protected by an automatic sprinkler system.

Exceptions:

1. Where a slatted, lattice or louvered canopy roof system is not less than 50 percent open to the sky.
2. Where shade membrane fabric is used to cover garden, greenhouse, landscaping or plant nursery products or materials, not exceeding 5,000 square feet (372 square meters).
3. Mercantile shade canopies attached to buildings that are not otherwise required to be protected by an automatic sprinkler system.
4. Mercantile shade canopies that are made of noncombustible material with a flame spread index no greater than 25 when tested in accordance with ASME E84 not exceeding 1,000 square feet (93 square meters).
5. Where sprinklers are permitted to be omitted for noncombustible shaded walkway or pedestrian entry areas.

[F] 903.3.1.1.5 Nonresidential patios.

Nonresidential patio covers shall be protected by an automatic sprinkler system.

Exceptions:

1. Patio covers attached to buildings that are not otherwise required to be protected by an automatic sprinkler system.
2. Patio covers which do not exceed 400 square feet (37 square meters) in area.
3. Where a slatted, lattice or louvered patio roof system is not less than 50 percent open to the sky.
4. Where sprinklers are permitted to be omitted for noncombustible shaded walkway or pedestrian entry areas.
5. Nonresidential patio covers that is made of noncombustible material with a flame spread index no greater than 25 when tested in accordance with ASME E84 not exceeding 1,000 square feet (93 square meters)

[F] 903.3.1.2 NFPA 13R sprinkler systems. *Automatic sprinkler systems* in Group R occupancies up to and including four stories in height shall be permitted to be installed throughout in accordance with NFPA 13R.

[F] 903.3.1.2.1 Balconies and decks. Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of *dwelling units* where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

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[F] 903.3.1.2.2 Exterior storage closets. Sprinkler protection shall be extended into attached exterior storage closets in R-1 and R-2 occupancies protected by sprinkler systems installed according to NFPA 13R.

[F] 903.3.1.2.3 Attached garages, carports and balconies. Attached garages, carports with living space directly above shall be provided with sprinkler protection. Open patios or balconies with living spaces directly above shall be provided with sprinkler protection.

[F] 903.3.1.2.4 Residential combination services. With Water Services Department approval a single combination water supply shall be permitted provided that the domestic demand is added to the sprinkler demand as required by NFPA 13R.

[F] 903.3.1.3 NFPA 13D sprinkler systems. Automatic sprinkler systems installed in one and two-family dwellings, Group R-3 and R-4 congregate living facilities and townhouses shall be permitted to be installed throughout in accordance with NFPA 13D.

[F] 903.3.1.3.1 Attached garages, carports and balconies.

Attached garages and carports shall be provided with sprinkler protection. Open patios or balconies with living spaces directly above shall be provided with sprinkler protection.

[F] 903.3.1.3.2 Domestic services.

Where the domestic service provides the water supply for the automatic sprinkler system, the supply shall be in accordance with this section.

[F] 903.3.1.3.3 Residential combination services.

With Water Services Department approval a single combination water supply shall be permitted provided that the domestic demand is added to the sprinkler demand as required by NFPA 13D.

[F] 903.3.1.3.4 Sizing of residential water meters for combined fire sprinkler and domestic sprinkler systems. When a water meter is installed in a NFPA 13D sprinkler system, the meter shall be sized to meet the greater domestic or fire flow demand. All new 13D Sprinkler systems require a minimum one inch meter.

Fine Print Note (FPN): One and two family homes equipped with a sprinkler system installed in accordance with NFPA 13D utilizing a combined fire/domestic supply line are required by the City Water Services Department to be provided with a water meter. The flow allowed by the meter shall be adequate to supply the system demand (see NFPA 13D, 2012 ed., Section 8.4.4). The meter shall be sized to provide for the required sprinkler flow according to the manufacturer's listing for the "Maximum Continuous Operation" given in gallons per minute and shall be a minimum of ¾"-inch. The meter is also required to be sized in a different manner for the domestic water flow demand (see PDD Technical Guideline – Water Meter Sizing, July 17, 2007). The meter shall be sized to meet the greatest flow demand (domestic or fire). These meters are acceptable for sprinkler waterflow demand as follows:

- a) A 5/8 x ¾ -inch meter is acceptable for flows up to 24 gpm, and
- b) A ¾ -inch meter is acceptable for flows up to 35 gpm, and
- c) A 1-inch meter is acceptable for flows up to 50 gpm, and
- d) A 1 ½-inch meter is acceptable for flows of 51 – 70 gp

Reasons:

Needed to match the Phoenix Fire Code.

DAB Technical Subcommittee Modification:

[F] 903.3.1.1.3 Canopies and patio protection. Industrial Shade Canopies

Cost Impact: None

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[F] 903.3.2 Quick-response and residential sprinklers. Where *automatic sprinkler systems* are required by this code, quick-response or residential automatic sprinklers shall be installed in the following areas in accordance with Section 903.3.1 and their listings:

1. Throughout all spaces within a smoke compartment containing care recipient *sleeping units* in Group I-2 in accordance with the *International Building Code*.
2. Throughout all spaces within a smoke compartment containing treatment rooms in ambulatory care facilities.
3. *Dwelling units* and *sleeping units* in Group I-1 and R occupancies.
4. Light-hazard occupancies as defined in NFPA 13.

[F] 903.3.2.1 Installation of quick response sprinklers in existing light hazard occupancy sprinkler systems being modified. When existing occupancies and sprinkler systems are being remodeled or renovated, existing standard response sprinklers shall be replaced with quick response sprinklers as follows:

1. When any tenant improvement, system repair or replacement is made to a existing fire area, existing standard response sprinklers shall be replaced with quick response sprinklers and

2. When an existing system with standard response sprinklers is being modified, the standard response sprinklers shall be replaced with quick-response sprinklers throughout the tenant space, floor or suite. When 50% of the floor sprinklers are replaced, all sprinklers on the entire floor shall be replaced with quick response sprinklers.

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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[F] 903.3.5 Water supplies.

Water supplies for *automatic sprinkler systems* shall comply with this section and the standards referenced in Section 903.3.1. The potable water supply shall be protected against backflow in accordance with the requirements of this section and the ~~International~~ City of Phoenix Plumbing Code.

[F] 903.3.5.1 Water supply tests.

Hydrant flow tests used to design sprinkler systems, standpipe systems, and fire supply mains shall be performed on public hydrants by the City of Phoenix Water Services Department within 180 days of fire plans submittal. A copy of the City's hydrant flow test report shall be submitted with the construction documents and calculations. When conducting a hydrant flow test for the design of automatic fire sprinkler systems the minimum flow volume of the test shall meet or exceed the system demand.

[F] 903.3.5.2 Water supply tests on private hydrants.

Hydrant flow tests performed on private hydrants by the property owner or his representative to be used in the design of fire protection systems shall be witnessed by the Phoenix Fire Department. When conducting a hydrant flow test for the design of automatic fire sprinkler systems the minimum flow volume of the test shall meet or exceed the system demand.

903.3.5.3 Sprinkler design safety factor.

Sprinkler systems for NFPA 13, 13R and 13D systems shall be designed with a minimum safety factor as follows:

1. When the static pressure exceeds 90 psi, the maximum design static pressure shall be 80 psi regardless of actual test pressure. The slope of the original water supply curve shall be used even though the design pressure is reduced to 80 psi.

The actual flow test pressures shall be used to determine the need for sizing fire pumps, pressure reducing valves, and hanger requirements in accordance with NFPA 13, 13D and 13R.

2. When the static pressure is less than 90 psi, a minimum 10 psi safety factor shall be provided between the available water supply and the system flow and pressure demand and shall include hose stream allowances required by NFPA 13, 13D and 13R.

903.3.5.4 Protection of exterior exposed sprinkler system components.

Protection for exterior exposed sprinkler system components shall be as follows:

1. Sprinkler pipe and components located on the exterior of a building shall be either galvanized or painted to protect from corrosion.

2. Non-steel sprinkler pipe smaller than 2-inches in diameter shall be insulated to protect from freezing. Providing insulation on any exterior piping part of the sprinkler system or its supply smaller than 2 inches in diameter is an allowable alternative.

3. Hydraulic design information signs shall be metal with the information maintained clearly and permanently stamped onto the sign.

[F] 903.3.5.1 903.3.5.5 Domestic services.

Where the domestic service provides the water supply for the *automatic sprinkler system*, the supply shall be in accordance with this section.

[F] ~~903.3.5.1.4~~ 903.3.5.5.1 Limited area sprinkler systems.

Limited area sprinkler systems serving fewer than 20 sprinklers on any single connection are permitted to be connected to the domestic service where a wet automatic standpipe is not available. Limited area sprinkler systems connected to domestic water supplies shall comply with each of the following requirements:

1. Valves shall not be installed between the domestic water riser control valve and the

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sprinklers.

Exception: An *approved* indicating control valve supervised in the open position in accordance with Section 903.4.

2. The domestic service shall be capable of supplying the simultaneous domestic demand and the sprinkler demand required to be hydraulically calculated by NFPA 13, NFPA 13D or NFPA 13R.

[F] 903.3.5.1.2 903.3.5.5.2 Residential combination services.

A single combination water supply shall be allowed provided that the domestic demand is added to the sprinkler demand as required by NFPA 13R.

[F] 903.3.5.2 903.3.5.6 Secondary water supply. An automatic secondary on-site water supply having a capacity not less than the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings in Seismic Design Category C, D, E or F as determined by the *International Building Code*. An additional fire pump shall not be required for the secondary water supply unless needed to provide the minimum design intake pressure at the suction side of the fire pump supplying the *automatic sprinkler system*. The secondary water supply shall have a duration of not less than 30 minutes as determined by the occupancy hazard classification in accordance with NFPA 13.

Exception: Existing buildings.

[F] 903.3.6 Hose threads. Fire hose threads and fittings used in connection with *automatic sprinkler systems* shall be ~~as prescribed by the fire code official~~ installed according to NFPA 13 and Section 912 of the Phoenix Fire Code.

[F] 903.3.7 Fire department connections. The location of fire department connections shall be installed according to NFPA 13 and Section 912 of the Phoenix Fire Code.

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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[F] 903.4.1 Monitoring.

Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an *approved* supervising station or, when *approved* by the *fire code official*, shall sound an audible signal at a constantly attended location.

Exceptions:

1. In building occupancies in Group A-2 that do not exceed 5,000 square feet (465m²)
2. In all other buildings occupancies other than Group H that do not exceed 12,000 square feet (1115m²).
3. Single- and multiple-station smoke alarms required by Section 907.2.10 of the *Phoenix Building Construction Code*.
4. Smoke detectors in Group I-3 occupancies.
5. Supervisory service is not required for automatic sprinkler systems in one- and two-family dwellings other than R-4.
6. A local signaling service that will initiate an audible signal at a constantly attended location.
47. Underground key or hub valves in roadway boxes provided by the municipality or public utility are not required to be monitored.
28. Backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position. In occupancies required to be equipped with a fire alarm system, the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.

[F] 903.4.1.1 Zones.

Each floor shall be zoned separately and a zone shall not exceed 22,500 square feet (2090 m²). The length of any zone shall not exceed 300 feet (91 440 mm) in any direction.

Exception: Automatic sprinkler system zones shall not exceed the area permitted by NFPA 13.

[F] 903.4.1.2 Zoning indicator panel.

A zoning indicator panel and the associated controls shall be provided in an *approved* location. The visual zone indication shall lock in until the system is reset and shall not be canceled by the operation of an audible alarm-silencing switch.

[F] 903.4.1.3 Location. In buildings greater than one story or 22,500 square feet, the fire alarm panel or a fire alarm annunciator panel shall be installed in a location that is visible from the lobby or area adjacent to the primary fire department response entrance. It shall be permissible to locate the fire alarm panel in a room immediately adjacent to this lobby provided the door to this room is accessible to the fire department, visible from the lobby and is provided with a permanent, visible placard noting the location of the fire alarm control panel.

[F] 903.4.1.4 Monitoring at a constantly attended location.

When monitoring of sprinkler system is required per section 903.4.1 the facilities owner may request to monitor the system(s) at the facility site using facility personnel. Where the alarm monitoring station does not strictly comply with the NFPA 72 requirements for a proprietary supervising station, the following minimum provisions shall be met and approved by the fire code official.

1. The policies and procedures for monitoring the sprinkler system shall be written and submitted to the fire code official for approval prior to occupancy or terminating central station service or remote service. A copy of the approved fire alarm policies and procedures shall be maintained at the constantly attended location.

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2. The alarm monitoring station shall be constantly attended by competent trained personnel. At least one person shall monitor the fire alarm panel at all times. Provisions shall be made to relieve the alarm monitor prior to shift changes, during breaks, or performance of other assigned duties outside of the alarm monitoring room.
3. A list of trained personnel qualified to monitor the sprinkler system shall be maintained at the alarm monitoring station. Documentation of the alarm monitoring training shall be approved by the fire code official and maintained at the alarm monitoring station and made available to the fire code official on request.
4. The policies and procedures shall address the dispensation of the various fire alarm signals. The fire department shall be immediately notified upon the activation of a fire alarm signal (smoke or heat detector, sprinkler water flow, manual pull station, special extinguishing system, etc.). Any investigation by the facility staff shall occur after or concurrent to notification of the fire department. If the investigation by facility staff determines that there is no emergency condition at the facility, the fire department shall be immediately notified to allow them to modify their response.
5. The fire department shall not be summoned for emergency response upon receipt of a supervisory or trouble signal, but procedures shall address dispensation of those signals by facility personnel.
6. A log shall be maintained at the monitoring station that note all of the signals received and the dispensation of those signals. The log sheet shall be made available to the Phoenix Fire Department on request for one year.

[F] 903.4.1.5 Multi-tenant buildings with different addresses.

The alarm monitoring station shall identify all addresses of buildings or suites protected by the same sprinkler system and provide this information to the Phoenix Fire Department alarm room center.

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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[F] 903.4.2 Alarms. An approved audible device, located on the exterior of the building in an *approved* location, shall be connected to each *automatic sprinkler system*. Such sprinkler water-flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Where a fire alarm system is installed, actuation of the *automatic sprinkler system* shall actuate the building fire alarm system.

[F] 903.4.2.1 Fire alarm systems. Fire alarm systems required by the provisions of Section 903 of this code shall be monitored by an approved supervising station in accordance with Section 903.4.1.

Exceptions:

1. Single- and multiple-station smoke alarms required by Section 907.2.10 of the *Phoenix Building Construction Code*.
2. Smoke detectors in Group I-3 occupancies.
3. Supervisory service is not required for automatic sprinkler systems in one- and two-family dwellings.

[F] 903.4.3 Floor control valves/water flow switches.

Approved supervised indicating control valves shall be provided at the point of connection to the riser on each floor. ~~in high-rise buildings.~~

Exception:

1. Residential occupancies three stories or less with a total building square footage less than 52,000 square feet (4831 m²).
2. All other occupancies two stories or less with a total building square footage less than 22,000 square feet (2044 m²).

[F] 903.5 Testing and maintenance. Sprinkler systems shall be tested and maintained in accordance with the International Phoenix Fire Code.

[F] 903.6 Where required in existing buildings and structures.

An *automatic sprinkler system* shall be provided in existing buildings and structures where required in the Phoenix Fire Code.

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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[F] 904.2 Where required. Automatic fire-extinguishing systems installed as an alternative to the required *automatic sprinkler systems* of Section 903 shall be *approved* by the ~~fire code official~~ Fire Marshal. Automatic fire-extinguishing systems shall not be considered alternatives for the purposes of exceptions or reductions allowed by other requirements of this code.

[F] 904.3.4 Alarms and warning signs. Where alarms are required to indicate the operation of automatic fire-extinguishing systems, distinctive audible, visible alarms and warning signs shall be provided to warn of pending agent discharge. Where exposure to automatic-extinguishing agents poses a hazard to persons and a delay is required to ensure the evacuation of occupants before agent discharge, a separate warning signal shall be provided to alert occupants once agent discharge has begun. Audible signals shall be in accordance with Section 907.5.2.

[F] 904.3.4.1 Kitchen hood systems. When kitchen hood systems are installed in buildings equipped with a fire alarm system designed to notify the building occupants, actuation of the hood system shall initiate the fire alarm system.

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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[F] 905.1 General. Standpipe systems shall be provided in new buildings and structures in accordance with this section. Fire hose threads used in connection with standpipe systems shall be *approved* and shall be compatible with Phoenix Fire Department hose threads. The location of fire department hose connections shall be ~~approved~~ in accordance with Section 912 of the Phoenix Fire Code. In buildings used for *high-piled combustible storage*, fire protection shall be in accordance with Chapter 32 of the International Phoenix Fire Code. Temporary standpipes installed during construction shall be in accordance with Chapter 33 of the Phoenix Fire Code.

[F] 905.2 Installation standard. Standpipe systems shall be installed in accordance with this section and NFPA 14.

[F] 905.3 Required Installations. Standpipe systems shall be installed where required by Sections 905.3.1 through 905.3.8. Standpipe systems are allowed to be combined with *automatic sprinkler systems*.

Exception: Standpipe systems are not required in Group R-3 occupancies.

[F] 905.3.1 Height. Class III standpipe systems shall be installed throughout buildings where the floor level of the highest story is located more than 30 feet (9144 mm) above the lowest level of the fire department ~~vehicle~~ apparatus access, or where the floor level of the lowest story is located more than 30 feet (9144 mm) below the highest level of fire department vehicle access.

Exceptions:

1. Group R-3 occupancies 4 stories or less shall not require a standpipe system.
2. The residual pressure(s) as noted in NFPA 14 are not required to be maintained in buildings less than 75 feet in height which are equipped throughout with an approved automatic fire suppression system installed in accordance with NFPA 13. However the system shall be designed to accommodate the outlet pressures and water flows in accordance with NFPA 14 and inlet pressures consistent with Phoenix Fire Department equipment; 150 psi @ 1,500 gpm.
 1. ~~Class I standpipes are allowed in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.~~
 2. ~~Class I manual standpipes are allowed in open parking garages where the highest floor is located not more than 150 feet (45 720 mm) above the lowest level of fire department vehicle access.~~
 3. ~~Class I manual dry standpipes are allowed in open parking garages that are subject to freezing temperatures, provided that the hose connections are located as required for Class II standpipes in accordance with Section 905.5.~~
 4. ~~Class I standpipes are allowed in basements equipped throughout with an automatic sprinkler system.~~
 5. ~~In determining the lowest level of fire department vehicle access, it shall not be required to consider:~~
 - 5.1. ~~Recessed loading docks for four vehicles or less, and~~
 - 5.2. ~~Conditions where topography makes access from the fire department vehicle to the building impractical or impossible~~

Reasons:

To match the Phoenix Fire Code.

Cost Impact: Significant cost savings to customers by eliminating the maintenance of the hoses.

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[F] 905.3.4 Stages. Stages greater than 1,000 square feet (93 m²) in area shall be equipped with a ~~Class III~~ Class I wet standpipe system with ~~1½-inch and a 2 ½ -inch (38 mm and 64 mm)~~ hose connections on each side of the stage.

Exception: Where the building or area is equipped throughout with an *automatic sprinkler system*, a 1½ inch (38 mm) hose connection shall be installed in accordance with NFPA 13 or in accordance with NFPA 14 for Class II or III standpipes.

[F] 905.3.4.1 Hose and cabinet.

~~The 1 ½ -inch (38 mm) hose connections shall be equipped with sufficient lengths of 1 ½ -inch (38 mm) hose to provide fire protection for the stage area. Hose connections shall be equipped with an approved adjustable fog nozzle and be mounted in a cabinet or on a rack.~~

[F] 905.3.6 Helistops and heliports. Buildings with a rooftop *helistop* or *heliport* shall be equipped with a Class I ~~or III~~ standpipe system extended to the roof level on which the *helistop* or *heliport* is located in accordance with Section 2007.5 of the Phoenix Fire Code.

[F] 905.5 Location of Existing Class II standpipe hose connections.

Class II standpipe hose connections shall be accessible and maintained and shall be located so that all portions of the building are within 30 feet (9144 mm) of a nozzle attached to 100 feet (30 480 mm) of hose.

[F] 905.5.1 Groups A-1 and A-2. In Group A-1 and A-2 occupancies ~~having with occupant loads of more than exceeding 1,000 persons~~, Class I hose connections shall be located on each side of any stage, on each side of the rear of the auditorium, on each side of the balcony, and on each tier of dressing rooms. Class I hose connections shall be installed in accordance with NFPA 14.

[F] 905.6 Location of Existing Class III standpipe hose connections.

Class III standpipe systems shall have hose connections located as required for Class I standpipes in Section 905.4 and shall have Class II hose connections as required in Section 905.5.

Reasons:

To match the Phoenix Fire Code.

Cost Impact: Significant cost savings to customers regarding hose installation and maintenance.

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[F] 906.1 Where required. Portable fire extinguishers shall be installed in the following locations.

1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.
Exception: In Group R-2 occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each *dwelling unit* is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C.
2. Within 30 feet (9144 mm) of commercial cooking equipment.
3. In areas where flammable or *combustible liquids* are stored, used or dispensed.
4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 3315.1.
5. Where required by the sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the *fire code official*.
7. Minimum 2A water portable fire extinguishers shall be provided in areas where oxidizers that can release chlorine are stored. The placement and use of dry chemical extinguishers containing ammonium compounds (Class A:B:C) is prohibited in areas where oxidizers that can release chlorine are stored. Halon extinguishers shall not be used in areas where oxidizers are stored.

[F] 906.9.1 Extinguishers weighing 40 pounds or less.

Portable fire extinguishers having a gross weight not exceeding 40 pounds (18 kg) shall be installed so that their tops are not more than ~~5~~ 4 feet (~~1524~~ 1219 mm) above the floor.

Reasons:

To match the Phoenix Fire Code. Water base extinguishers are more effective on oxidizers and 4 foot height reflects ADA height requirements.

Cost Impact: No cost impact.

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[F] 907.1 General. This section covers the application, installation, performance and maintenance of fire alarm systems and their components in new and existing buildings and structures. The requirements of Section 907.2 are applicable to new buildings and structures. The requirements of Section 907.9 are applicable to existing buildings and structures.

[F] 907.1.1 Construction documents. *Construction documents* for fire alarm systems shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code, the *International Building Phoenix Fire Code*, and relevant laws, ordinances, rules and regulations, as determined by the *fire code official*.

[F] 907.1.1.1 Design documents. For fire alarm and other code regulated alarm systems, the following are considered to be professional registrant activities in accordance with the requirements of the Arizona Board of Technical Registration:

1. Determine the system type;
2. Determine the applicable codes and standards and appropriate engineering practices;
3. Determine device types and locations;
4. Prepare generalized riser diagram;
5. Coordinate and interface with other systems;
6. Develop system specifications

Exception:

Where the modification of fire protection systems does not require mathematical calculations or hazard analysis.

These activities need to be completed prior to the development of construction documents to be submitted for permit.

Reasons:

To match the Phoenix Fire Code and design documents, information provided to comply with State law for registrants responsibilities.

Cost Impact: Minimum savings in change orders as a result.

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[F] 907.2.13.1 Automatic smoke detection. Automatic smoke detection in high-rise buildings shall be in accordance with Sections 907.2.13.1.1 and 907.2.13.1.2. Duct smoke detectors shall provide a supervisory signal.

[F] 907.3.1 Duct smoke detectors. Smoke detectors installed in ducts shall be *listed* for the air velocity, temperature and humidity present in the duct. Duct smoke detectors shall be connected to the building's fire alarm control unit when a fire alarm system is required by Section 907.2. Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a constantly attended location and shall perform the intended fire safety function in accordance with this code and the *International Mechanical Code*. Duct smoke detectors shall not be used as a substitute for required open area detection. Access shall be provided to each detector for periodic inspection, maintenance and testing.

Reasons:

To match the Phoenix Fire Code. Maintenance is needed on duct detectors for false alarms.

Cost Impact: No cost impact.

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[F] 907.5.2.1 Audible alarms. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm. Group A, B, E, F, H, I, M, R, S and U occupancies shall meet Public Mode Audible Requirements of NFPA 72.

Exceptions:

1. Visible alarm notification appliances shall be allowed in lieu of audible alarm notification appliances in critical care areas of Group I-2 occupancies.
2. Where provided, audible notification appliances located in each occupant evacuation elevator lobby in accordance with ~~Section 3008.5.4~~ 3008.10.1 of the *International Building Code* shall be connected to a separate notification zone for manual paging only.
3. Group I occupancies shall be allowed to use Private Mode Audible Requirements of NFPA 72, when approved. Registered design professionals shall specify on plans and in construction documents the specific mode for each area of the occupancy. When the Private Mode is specified, the designer shall provide written documentation for the use of this mode.

[F] 907.5.2.1.1 Average sound pressure. The audible alarm notification appliances shall provide and maintain a sound pressure level of 15 decibels (dBA) above the average ambient sound level or 5 dBA above the maximum sound level having duration of at least 60 seconds, whichever is greater, in every occupiable space within the building.

[F] 907.5.2.2 Emergency voice/alarm communication systems.

Emergency voice/alarm communication systems required by this code shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler waterflow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving *approved* information and directions for a general or staged evacuation in accordance with the building's fire safety and evacuation plans required by Section 404. In high-rise buildings, the system shall operate on a minimum of the alarming floor, the floor above and the two floors below. Speakers shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:

1. Elevator groups.
2. *Exit stairways*.
3. Each floor.
4. *Areas of refuge* as defined in Chapter 2.

Exception: In Group I-1 and I-2 occupancies, the alarm shall sound in a constantly attended area and a general occupant notification shall be broadcast over the overhead page.

[F] 907.5.2.3 Visible alarms.

Visible alarm notification appliances shall be provided in accordance with Sections 907.5.2.3.1 through 907.5.2.3.4.

Exceptions:

1. Visible alarm notification appliances are not required in *alterations*, that do not involve changing the floor plan by the addition, removal, or relocation of walls or result in a change in occupancy classification except where an existing fire alarm system is modified, upgraded or replaced, or a new fire alarm system is installed.
2. Visible alarm notification appliances shall not be required in *exits* as defined in Chapter 2.
3. Visible alarm notification appliances shall not be required in elevator cars.
4. Visual alarms are not required in operating rooms or treatment rooms of Group-I occupancies where patients are under supervision by trained facility personnel.

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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[F] 907.6.3.1.1 Location.

In buildings greater than one story or 22,500 square feet (2090 m²) the fire alarm panel or a fire alarm annunciator panel shall be installed in a location that is visible from the lobby or area adjacent to the primary fire department response entrance. It shall be permissible to locate the fire alarm panel in a room immediately adjacent to this lobby provided the door to this room is accessible to the fire department, visible from the lobby and is provided with a permanent, visible placard noting the location of the fire alarm control panel.

[F] 908.3 Highly toxic and toxic materials. A gas detection system shall be provided to detect the presence of highly toxic or toxic gas at or below the permissible exposure limit (PEL) or ceiling limit of the gas for which detection is provided. The system shall be capable of monitoring the discharge from the treatment system at or below one-half the immediately dangerous to life and health (IDLH) limit. A gas detection system shall be provided for indoor storage and use of highly toxic and toxic compressed gases.

Exception: A gas-detection system is not required for toxic gases when the physiological warning threshold level for the gas is at a level below the accepted PEL for the gas.

Reasons:

To match the Phoenix Fire Code and operational response requires information from which fire devices are activated.

Cost Impact: No cost impact.

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[F] 909.18.8 Special inspections for smoke control. Smoke control systems shall be tested by a special inspector prior to the final acceptance test. The City of Phoenix Fire Department shall witness and approve the final acceptance test of the system.

[F] 910.2 Where required. Smoke and heat vents shall be installed in the roofs of buildings or portions thereof occupied for the uses set forth in Sections 910.2.1 and 910.2.2. Smoke and heat vents shall be approved and labeled and shall be capable of being operated by approved automatic and manual means from inside the building or from the roof. Smoke and heat vents shall operate automatically by actuation of a heat-responsive device. The device shall be rated a minimum of 50°F above the rating of the automatic sprinklers but not more than 386°F above ambient.

[F] 910.4.1 Location. Exhaust fans shall be uniformly spaced within each ~~draft-protected~~ area and the maximum distance between fans shall not be greater than 100 feet (30 480 mm). Exhaust fans shall be listed for the environmental conditions to which they will be subjected.

[F] 910.4.3 Operation. Mechanical smoke exhaust fans shall be automatically activated by the *automatic sprinkler system* or by *heat detectors* having operating characteristics equivalent to those described in Section 910.3.2. Individual manual controls for each fan unit shall also be provided and shall be installed in an approved location.

Reasons:

To match the Phoenix Fire Code and give good design guidance.

Cost Impact: No cost impact.

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909.21 Elevator hoistway pressurization alternative.

Where elevator hoistway pressurization is provided in lieu of required enclosed elevator lobbies, the pressurization system shall comply with sections 909.21.1 through 909.21.11 and ASME A17.1 -2.1.4.

Reasons:

To reference ASME A17.1 2010 code edition

Cost Impact: No cost impact.

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[F] 912.1 Installation.

Fire department connections shall be installed in accordance with the NFPA standard applicable to the system design and shall comply with Sections 912.2 through ~~912.5~~ 912.6.

[F] 912.1.1 Threads. Fire department connection hose threads greater than 2½-inch (63.5 mm) shall be Phoenix threads. See Figure 912.1.1A and 912.1.1B.

[F] 912.1.2 Inlet Connection. The minimum size of a fire department inlet connection shall be 2 ½ inch (63.5 mm) with Phoenix threads.

[F] 912.1.3 Underground pipe. All fire department connection underground piping shall be installed as a minimum Class 200.

[F] 912.2 Location. With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located that fire apparatus and hose connected to supply the system will not obstruct access to the buildings for other fire apparatus. The location of fire department connections shall be *approved* by the ~~fire chief~~ *fire code official*. A site plan detail shall be submitted to the fire code official for approval as part of the construction documents. See Section 105 of the Phoenix Fire Code.

[F] 912.2.1 Visible location.

Fire department connections shall be located on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department vehicle access or as otherwise *approved* by the ~~fire chief~~ *fire code official*.

The location of fire department connections shall be approved and installed:

Within 50 feet (15 240 mm) of an approved roadway or driveway, and arranged so that hose lines can be readily attached to the inlets without interference from any nearby objects including buildings, fences, posts, plantings, or other fire department connections.

1. Within 200 feet (60 960mm) of an approved hydrant.
2. So that the inlet height shall not be less than 18 inches (457 mm) nor more than 48 inches (1 219 mm) above grade.

A site plan detail shall be submitted to the fire code official for approval as part of the construction documents. See Section 105 of the Phoenix Fire Code.

[F] 912.2.2 Existing buildings. On existing buildings, wherever the fire department connection is not visible to approaching fire apparatus, the fire department connection shall be indicated by an *approved* sign mounted on the street front or on the side of the building. ~~Such sign shall have the letters "FDC" at least 6 inches (152 mm) high and words in letters at least 2 inches (51 mm) high or an arrow to indicate the location.~~ All such signs shall be subject to the approval of the *fire code official*. Signs shall be in accordance with Section 912.4.

[F] 912.3 Access. Immediate access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls, mechanical equipment, retention ponds or any other fixed or moveable object. Access to fire department connections shall be *approved* by the ~~fire chief~~ *fire code official*. A minimum of 3 feet (914 mm) clearance shall be maintained around fire department connections in the approach path.

Exception: Fences, where provided with an access gate equipped with a sign complying with the legend requirements of Section 912.4 and a means of emergency operation. The gate and the means of emergency operation shall be *approved* by the ~~fire chief~~ *fire code official* and maintained operational at all times.

[F] 912.3.1 Locking fire department connection caps. ~~The fire code official is authorized to~~ shall require locking caps on fire department connections for new and tampered-with water-based *fire protection systems*

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where the responding fire department carries appropriate key wrenches for removal.

[F] 912.3.2 Clear space around connections. A working space of not less than 36 inches (762 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height shall be provided and maintained in front of and to the sides of wall-mounted fire department connections and around the circumference of free-standing fire department connections, except as otherwise required or *approved* by the fire chief.

[F] 912.3.3 Physical protection. Where fire department connections are subject to impact by a motor vehicle, vehicle impact protection shall be provided in accordance with Section 312 of the ~~International~~ Phoenix Fire Code. Guard posts or other approved means may be required to protect fire department inlet connections from vehicular damage. When guard posts are installed, the posts shall be in accordance with Chapter 5 of the Phoenix Fire Code.

~~**[F] 912.4 Signs.** A metal sign with raised letters at least 1 inch (25 mm) in size shall be mounted on all fire department connections serving automatic sprinklers, standpipes or fire pump connections. Such signs shall read: AUTOMATIC SPRINKLERS or STANDPIPES or TEST CONNECTION or a combination thereof as applicable. Where the fire department connection does not serve the entire building, a sign shall be provided indicating the portions of the building served.~~

Each fire department connection (FDC) shall be identified by a permanent weather resistant sign. The sign face shall be a minimum 12" x 12" (309 x 309 mm) and fabricated from .080 (2.032 mm) aluminum sheet or equivalent. The sign face shall have a white 3M diamond grade sheeting or equivalent applied as background.

When the system supplied by the FDC does not supply the entire building or supplies multiple buildings the sign shall identify the buildings or areas of the building supplied by the FDC. The fire department connection sign shall identify the building address or area, where necessary, and type of systems the FDC supplies. See Figure 912.4.

[F] 912.5 Backflow protection.

The potable water supply to automatic sprinkler and standpipe systems shall be protected against backflow as required by the ~~International~~ City of Phoenix Plumbing Code.

[F] 912.6 Inspection, testing and maintenance.

All fire department connections shall be periodically inspected, tested and maintained in accordance with NFPA 25.

Reasons:

To match the Phoenix Fire Code.

Cost Impact: No cost impact.

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[F] 913.2 Protection against interruption of service.

The fire pump, driver, and controller shall be protected in accordance with NFPA 20 against possible interruption of service through damage caused by explosion, fire, flood, earthquake, rodents, insects, windstorm, freezing, vandalism and other adverse conditions. Where the building, or a portion of the building, served by the fire pump is intended to remain occupied during a utility power outage through the use of an electrical standby power system, whether required or optional; the electric fire pump shall be connected to both the normal electrical service and the standby power system. A U.L. listed fire pump automatic transfer switch is required on the power supply to this pump.

Reasons:

The intent of this amendment is as follows:

The normal utility service is considered reliable and in most cases an alternate source of power to serve the fire pump would not be required. However, if the owner/tenant intends on using a standby power system to remain occupied; the standby system must also serve the fire pump. This affords the same level of fire protection to the occupied building under standby power as the building has under normal power. This amendment is not intended to require standby power to the fire pump in cases where the space is not remaining occupied during a power outage, such as standby power provided only to keep food from spoiling or data loss or for emergency power provided for emergency egress lighting.

Cost Impact: None

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1016.2.2 Group F-1 and S-1 increase. The maximum exit access travel distance shall be 400 feet (122 m) in Group F-1 or S-1 occupancies where all of the following are met:

1. The portion of the building classified as Group F-1 or S-1 is limited to one story in height;
2. The minimum height from the finished floor to the bottom of the ceiling or roof slab or deck is 24 feet (7315.2 mm); and
3. The building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1.
4. Additional building access shall be provided in accordance with the Phoenix Fire Code, Sections 3206.6 through 3206.6.1.3.

1016.2.2.1 Group F-1 and S-1 with a storage area greater than 500,000 square feet (46451.52 square meters) shall have the following Special fire protection provisions including, but not limited:

1. Where fireproofing of building columns is not provided and storage heights are in excess of 15 feet (4572 mm) protection of building columns within the rack structure or vertical rack members supporting the building shall be protected in accordance with one of the following:
 - 1.1. Storage exceeding 15 feet (4572 mm) through 20 feet (6096 mm) in height — one sidewall sprinkler directed to one side of the column at a 15 feet (4572 mm) level
 - 1.2 Storage exceeding 20 feet (6096 mm) in height — two sidewall sprinklers, one at the top of the column and the other at a 15 ft (4.6 m) level, both directed to the side of the column
 - 1.3 The flow from a column sprinkler(s) shall be permitted to be omitted from the sprinkler system hydraulic calculations
2. Smoke and Heat vents install in accordance with section 910.3
 - 2.1. Smoke and Heat vents shall be designed to operate automatically
 - 2.2. Smoke and heat vents installed in areas of buildings with a control mode sprinkler system shall have operating elements with a higher temperature than the automatic fire sprinkler system in accordance with NFPA 13.
 - 2.3. Smoke and heat vents installed in areas of buildings with early suppression fast response (ESFR) sprinkler system shall have operating elements with a minimum temperature rating of 360 F or 100 f above the operating temperature of the fire sprinkler, whichever is higher in accordance with NFPA 13.

1016.2.2.2 When the designated storage height is great than 40 feet (12192 mm) a technical report shall be prepared by an Arizona Registered Design Professional and shall be submitted to the Phoenix Fire Marshal for approval.

1016.2.2.3. Additional fire department hose connections shall be provided when required by the fire code official.

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**TABLE 1016.2
EXIT ACCESS TRAVEL DISTANCE a**

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200	250 b
I-1	Not Permitted	250 c
B	200	300 c
F-2, S-2, U	300	400 c
H-1	Not Permitted	75 c
H-2	Not Permitted	100 c
H-3	Not Permitted	150 c
H-4	Not Permitted	175 c
H-5	Not Permitted	200 c
I-2, I-3, I-4	Not Permitted	200 c

For SI: 1 foot = 304.8 mm.

- a. See the following sections for modifications to *exit access* travel distance requirements:

Section 402.8: For the distance limitation in *malls*.

Section 404.9: For the distance limitation through an *atrium* space.

Section 407.4: For the distance limitation in Group I-2.

Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.

Section 411.4: For the distance limitation in special amusement buildings.

Section 1015.4: For the distance limitation in refrigeration machinery rooms.

Section 1015.5: For the distance limitation in refrigerated rooms and spaces.

Section 1016.2.2 for increase distance limitation Group F-1 and Group S-1

Section 1021.2: For buildings with one *exit*.

Section 1028.7: For increased limitation in assembly seating.

Section 1028.7: For increased limitation for assembly open-air seating.

Section 3103.4: For temporary structures.

Section 3104.9: For pedestrian walkways.

- b. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where *automatic sprinkler systems* are permitted in accordance with Section 903.3.1.2.

- c. Buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

Reasons:

This code change proposal was approved to be in the 2015 IBC. The change is needed now to accommodate the larger Group F-1 and S-1 facilities. The travel distance of 400 feet is currently allowed in the 2006 IBC and needs to be allowed in the 2012 IBC to remain competitive in this market. Operationally venting larger warehouses is extremely more challenging for firefighters the larger the building is, therefore this requirement for venting is needed.

Cost Impact: No cost impact.

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1101.1 Scope. The provisions of this chapter and Arizona Revised statutes, ARS sections 41-1492 through 41-1492.12 shall control the design and construction of facilities for accessibility to physically disabled persons.

Reasons:

This is a current amendment to the 2006 IBC. This is a state law that must be enforced. It references the current ADA Standards which are more restrictive than the IBC and ICC/ANSI 2009.

Cost Impact: No cost impact.

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1101.2 Design. Buildings and facilities shall be designed and constructed to be *accessible* in accordance with this code and ICC A117.1 and in accordance with provisions State of Arizona Attorney General Administrative Rules R10-3-401 through R-10-3-404 (2010 ADA Standards for Accessible Design, referred to as "2010 Standards", adopted by the U.S. Department of Justice), whichever standard provides the greatest degree of accessibility.

Reasons:

This is a current amendment to the 2006 IBC. This is a state law that must be enforced. It references the current ADA Standards which are more restrictive than the IBC and ICC/ANSI 2009.

Cost Impact: No cost impact.

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1103.2.4 Detached dwellings. Detached one- and two- family dwellings and accessory structures, and their associated *dwellings* and accessory structures, and their associated sites and facilities, are not required to be *accessible*. Home Occupancies as defined in the Phoenix Zoning Ordinance are not required to be accessible.

Reasons:

This is a current amendment to the 2006 IBC. This is an issue, which had caused confusion in the past so addition of the clarification helps avoid that.

Cost Impact: No cost impact.

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1103.2.6 Construction sites. Structures.....are not required to be *accessible*. The public portions of temporary sales offices/trailers are required to be accessible. There shall be accessible parking and an accessible route from the accessible parking aisle to the sales office/trailer and throughout the public portion of the sales office/trailer, including the design center. Accessible toilet rooms shall be provided according to this code.

Reasons:

This is a current amendment to the 2006 IBC. This is an issue, which had caused confusion in the past so addition of the clarification helps avoid that.

Cost Impact: No cost impact.

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PARKING AND PASSENGER LOADING FACILITIES

1106.1 ~~Required.....for the facility.~~ **General.** Where parking lots, garages or passenger loading zones are provided, they shall be provided in accordance with the Phoenix Zoning Ordinance and the 2010 ADA Standards for Accessible Design

1106.2

1106.3

1106.4

1106.5

1106.6

1106.7

Reasons:

This matches a current amendment to the 2006 IBC for sections 1106.1 through 1106.5. Sections 1106.6 and 1106.7 are also now being deleted and replaced by the reference to the Zoning Ordinance and 2010 ADA Standards.

Cost Impact: No cost impact.

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1107.6.2.1.1 Type A units. In Group R-2 occupancies containing more than 20 *dwelling units or sleeping units*, at least 2 percent but not less than one of the units shall be a *type A unit*. All R-2 units on a *site* shall be considered to determine the total number of units and the required number of *Type A units*. *Type A units* shall be dispersed among the various classes of units. In R-2 occupancies containing more than 20 dwelling units or sleeping units, which are located within thirteen hundred twenty feet of the light rail station platform, at least 6 percent, but not less than one, of the units shall be a type A unit.

Reasons:

This is a current amendment to the 2006 IBC, slightly reworded. This is a current COP Ordinance G-4509.

Cost Impact: No cost impact.

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1107.7.2 Multistory units. *A multistory dwelling or sleeping unit which is not provided with elevator service is not required to be a Type A or Type B unit.*

Reasons:

This is a current amendment to the 2006 IBC. This amendment complies with Fair Housing Act and is supported by Kim Paarlberg of ICC. Accessibility requirements for townhouses conforming to the requirements of the IRC are referred back to IBC section 1107.6.3 which has requirements for only the type B units and not type A unit. The same requirements should apply to two-story units complying with either the IRC or IBC.

Background: When COP was proposing this amendment for the 2006 IBC Kim Paarlberg of ICC wrote “When Type A (Adaptable) units were developed, the use group they were applied to was only apartment buildings. Two story apartments were exceptionally rare in 1975. With the development of the IBC, there are situations where townhouse configurations can end up being classified as Group R-2, thus requiring Type A units. I do not believe the original planners ever dreamed of that application.” Regarding our proposal for the amendment for the 2012 IBC Kim said that this amendment matches a code change proposal that was submitted to ICC several times in the past but has been misunderstood and therefore was still not approved for the 2012 IBC. She wrote “This did not pass, but I think mostly due to not understanding that townhouses can end up under Group R-2. We have a similar proposal in this cycle that NHAB spoke against – which indicated definite misunderstanding since for them this, would be a “give”. This would be consistent with FHA and the original requirements which only had Type A units in apartment buildings.”

Cost Impact: Reduced cost for compliance.

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**SECTION 1204
TEMPERATURE CONTROL**

1204.1 Equipment and systems. Habitable spaces ~~Interior spaces intended for human occupancy shall be provided with active or passive space-heating and space-cooling systems capable of maintaining a minimum indoor temperatures between 70-~~of 68~~°F (20~~1~~°C) and 90°F (32°C) at a point 3 feet (914 mm) above the floor on the design heating day. The installation of portable space heaters or coolers shall not be used to achieve compliance with this section.~~

Exception: Space heating and cooling systems are not required for interior spaces where the primary purpose of the space is not associated with human comfort.

Reasons:

The 2012 IMC and IBC text covers heating concerns only and does not distinguish between residential or commercial buildings. The intent of this proposed amendment is to recognize that the cooling season in Phoenix is the dominant design condition. The City Council of Phoenix included provisions for space cooling in all residential dwellings during the update of the Neighborhood Preservation Ordinance approved on June 16, 1998. The cooling requirement for dwellings was incorporated into the adoption of the 1997 Uniform Building Code and was approved with an effective date of March 12, 1999. The adoption of the 2003 I-codes included mandatory heating and cooling for occupied interior spaces. An exception allowed for no heating and cooling when the primary purpose was not associated with human comfort, such as warehouses. The 2006 I-codes were amended by Phoenix to require heating and cooling in habitable spaces. This proposed amendment re-establishes the City Council mandate to provide heating and cooling in residential dwellings and allows for designers and building owners to determine if it is required in commercial buildings based on the definition of habitable spaces.

Cost Impact: No cost impact.

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Table 1607.1

OCCUPANCY OR USE	Uniform (psf)
25. Residential Habitable attics and sleeping areas ^k	30 <u>40</u>

Reasons:
 Habitable attics can be used as floor space and 40 psf more closely reflects floor live loading.

Cost Impact: Minimal cost impact.

**City of Phoenix Amendments
to the 2012 International Building Code**

1609.1.1 Determination of wind loads. Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. The type of opening protection required, the ultimate design, wind speed, Vult, and the exposure category for a site is permitted to be determined in accordance with Section 1609 or ASCE 7. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

Exceptions:

1. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 buildings.
2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AF&PA WFCM.
3. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AISI S230.
4. Designs using NAAMM FP 1001.
5. Designs using TIA-222 for antenna-supporting structures and antennas, provided the horizontal extent of Topographic Category 2 escarpments in Section 2.6.6.2 of TIA-222 shall be 16 times the height of the escarpment.
6. Wind tunnel tests in accordance with Chapter 31 of ASCE 7.
7. For design wind loads on solid freestanding walls not over 7 feet, a net force coefficient, $C_f = 1.2$ may be used.

Reasons:

Amendment carried forward from previous code specifically for fences not over 7 feet.

Cost Impact: None

**City of Phoenix Amendments
to the 2012 International Building Code**

1612.3 Establishment of flood hazard areas. To establish *flood hazard areas*, the applicable governing authority shall adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled "The Flood Insurance Study for ~~[INSERT NAME OF JURISDICTION]~~," dated Maricopa County, Arizona and Incorporated Areas ~~[INSERT DATE OF ISSUANCE]~~, revised on July 19, 2001, as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this section.

Reasons:

Jurisdiction specific section.

Cost Impact: None.

**City of Phoenix Amendments
to the 2012 International Building Code**

1613.3.5.3 ASCE 7-10, Section 11.7. Modify ASCE 7-10, Section 11.7 to read:

11.7 DESIGN REQUIREMENTS FOR SEISMIC DESIGN CATEGORY A. Buildings and other structures assigned to Seismic Design Category A, excluding those assigned to Risk Categories III and IV, need only comply with the requirements of Section 1.4.

Reasons:

Buildings that are determined to be essential facilities, and that are expected to be operational during an emergency, should not be designed using non-conservative design methods.

Cost Impact: Possible cost of earthquake analysis.

**City of Phoenix Amendments
to the 2012 International Building Code**

**SECTION 1704
SPECIAL INSPECTIONS, CONTRACTOR
RESPONSIBILITY AND ~~STRUCTURAL~~ OBSERVATIONS**

1704.1 General. This section provides minimum requirements for special inspections, the statement of special inspections, contractor responsibility and ~~structural~~ observations.

Reasons:

Special Inspections and Observations for all disciplines: structural, mechanical and plumbing are to now be included in this chapter.

Cost Impact: None.

**City of Phoenix Amendments
to the 2012 International Building Code**

1704.5.3 Structural observations for special conditions. Structural observations shall be provided for those structures where one or more of the following conditions exists:

1. The height of the structure is greater than 75 feet (22 860 mm), or greater than three stories above the base.
2. For elevated post-tensioned concrete structures.
3. Prefabricated deferred units and their connections, when such units are utilized structurally in the lateral-force-resisting systems of a structure.
4. When such observation is specifically required by the Building Official.

Reasons:

These requirements were previously amended in 2006 IBC.

Cost Impact: Increased costs associated with hiring a Special Inspector for special structural conditions. This amendment is carried forward from the 2006 IBC and has been in place for the past six years.

**City of Phoenix Amendments
to the 2012 International Building Code**

1704.6 Electrical Observations. The owner shall employ the engineer responsible for the electrical design, or another engineer designated by the engineer responsible for the electrical design, to perform visual observation of complex electrical equipment and systems for general conformance to the approved plans and specifications, including but not limited to, placement and interconnection of equipment. Electrical observation shall be performed at significant stages of the construction and when the installation is complete and ready to be inspected. Electrical Observations are in addition to the inspections required by Section 110 of the *Phoenix Building Construction Code* and the special inspections required by Section 1705.18, and shall be provided when one of the following conditions exist:

1. Installation or alteration of that portion of health care facility electrical systems which falls within the scope of Article 517 of the *National Electrical Code*, including such systems installed in facilities where outpatient surgical procedures are performed.
2. Installations or alteration of high voltage electrical systems which fall within the scope of Article 490 of the *National Electrical Code*.
3. Installation or alteration of electrical systems within locations classified as hazardous by provisions of the *National Electrical Code*, except for gasoline dispensing installations and systems located within storage garages, repair garages or lubricatoriums.
4. When such observation is specifically required by the building official.

1704.6.1 Procedures. The engineer responsible for electrical observation shall personally visit the site prior to completion of the Certificate of Compliance and periodically during the course of construction requiring electrical observation as set forth in the inspection and observation program for each project.

The engineer responsible for performing electrical observation shall complete a signed written report after each site visit. A copy of each report shall be kept on the job site for review by an inspector at all times until the inspector has issued final approval. Any and all deviations from the approved plans or specifications shall be immediately reported to the contractor for correction and then, if uncorrected, shall be reported to the engineer or architect of record and to the building official.

In addition to individual reports, the engineer or architect of record shall file with the building official a written monthly progress report indicating the dates of each site visit, the special inspections or observations performed, any deviations noted from approved plans and specifications and any resulting instructions or change orders issued to the contractor.

1704.6.2 Certificate of Compliance. Upon completion of the portions of the work requiring electrical observation, a Certificate of Compliance shall be issued to the building official under the seal and signature of the engineer responsible for such observation. A Certificate of Occupancy will not be issued until the building official receives all required special inspection reports and the Certificates of Compliance.

The Certificate of Compliance for electrical observation shall read as follows:

"I certify to the best of my knowledge the electrical requirements of the *Phoenix Building Construction Code* and approved plans and specifications have been complied with insofar as the portion of the work requiring electrical observation is concerned, except for those deviations that have been previously reported. A guarantee that the contractor has constructed the building in full accord with the plans and specifications is neither intended nor implied."

Reasons:

These requirements were previously included in an amendment in 2006 IBC, Chapter 27 and specify the items in electrical design that require Electrical Observation. It is intended to consolidate all Observations to Chapter 17.

Cost Impact: Increased costs associated with hiring an engineer to perform electrical observations of the required electrical systems.

**City of Phoenix Amendments
to the 2012 International Building Code**

1704.7 Mechanical Observations. The owner shall employ the engineer responsible for the Mechanical design, or another engineer designated by the engineer responsible for the Mechanical design, to perform visual observation of complex Mechanical equipment and systems for general conformance to the approved plans and specifications, including, but not limited to, placement and interconnection of equipment. Mechanical observation shall be performed at significant stages of the construction and when the installation is complete and ready to be inspected. These Mechanical Special Observations are in addition to the inspections required by Section 110 of the *Phoenix Building Construction Code* and the special inspections required by Section 1705.19, and shall be provided when one of the following conditions exist:

1. When such observation is specifically required by the building official.

1704.7.1 Procedures. The engineer responsible for Mechanical observation shall personally visit the site prior to completion of the Certificate of Compliance and periodically during the course of construction requiring Mechanical observation as set forth in the inspection and observation program for each project.

The engineer responsible for performing Mechanical observation shall complete a signed written report after each site visit. A copy of each report shall be kept on the job site for review by an inspector at all times until the inspector has issued final approval. Any and all deviations from the approved plans or specifications shall be immediately reported to the contractor for correction and then, if uncorrected, shall be reported to the engineer or architect of record and to the building official.

In addition to individual reports, the engineer or architect of record shall file with the building official a written monthly progress report indicating the dates of each site visit, the special inspections or observations performed, any deviations noted from approved plans and specifications and any resulting instructions or change orders issued to the contractor.

1704.7.2 Certificate of Compliance. Upon completion of the portions of the work requiring mechanical observation, a Certificate of Compliance shall be issued to the building official under the seal and signature of the engineer responsible for such observation. A Certificate of Occupancy will not be issued until the building official receives all required special inspection reports and the Certificates of Compliance.

The Certificate of Compliance for mechanical observation shall read as follows:

"I certify to the best of my knowledge the mechanical requirements of the *Phoenix Building Construction Code* and approved plans and specifications have been complied with insofar as the portion of the work requiring mechanical observation is concerned, except for those deviations that have been previously reported. A guarantee that the contractor has constructed the building in full accord with the plans and specifications is neither intended nor implied."

Reasons:

These requirements were previously amended in 2006 IBC, Chapter 28 and specify the items in mechanical design that require mechanical Observation. It is intended to consolidate all Observations to Chapter 17.

Cost Impact: Increased costs associated with hiring an engineer to perform mechanical observation. This amendment is carried forward from the 2006 IBC and has been in place for the past six years.

**City of Phoenix Amendments
to the 2012 International Building Code**

1704.8 Plumbing Observations. The owner shall employ the engineer responsible for the Plumbing design, or another engineer designated by the engineer responsible for the Plumbing design, to perform visual observation of complex Plumbing equipment and systems for general conformance to the approved plans and specifications, including, but not limited to, placement and interconnection of equipment. Plumbing observation shall be performed at significant stages of the construction and when the installation is complete and ready to be inspected. These Plumbing Observations are in addition to the inspections required by Section 110 of the *Phoenix Building Construction Code* and the special inspections required by Section 1705.20 and shall be provided when one of the following conditions exist:

1. When such observation is specifically required by the building official

1704.8.1 Procedures. The engineer responsible for Plumbing observation shall personally visit the site prior to completion of the Certificate of Compliance and periodically during the course of construction requiring Plumbing observation as set forth in the inspection and observation program for each project.

The engineer responsible for performing Plumbing observation shall complete a signed written report after each site visit. A copy of each report shall be kept on the job site for review by an inspector at all times until the inspector has issued final approval. Any and all deviations from the approved plans or specifications shall be immediately reported to the contractor for correction and then, if uncorrected, shall be reported to the engineer or architect of record and to the building official.

In addition to individual reports, the engineer or architect of record shall file with the building official a written monthly progress report indicating the dates of each site visit, the special inspections or observations performed, any deviations noted from approved plans and specifications and any resulting instructions or change orders issued to the contractor.

1704.8.2 Certificate of Compliance. Upon completion of the portions of the work requiring plumbing observation, a Certificate of Compliance shall be issued to the building official under the seal and signature of the engineer responsible for such observation. A Certificate of Occupancy will not be issued until the building official receives all required special inspection reports and the Certificates of Compliance.

The Certificate of Compliance for plumbing observation shall read as follows:

"I certify to the best of my knowledge the plumbing requirements of the *Phoenix Building Construction Code* and approved plans and specifications have been complied with insofar as the portion of the work requiring plumbing observation is concerned, except for those deviations that have been previously reported. A guarantee that the contractor has constructed the building in full accord with the plans and specifications is neither intended nor implied."

Reasons:

These requirements were previously amended in 2006 IBC, Chapter 29 and specify items in plumbing design that require plumbing observation. It is intended to consolidate all Observations to Chapter 17.

Cost Impact: Increased costs associated with hiring an engineer for plumbing systems. This amendment is carried forward from the 2006 IBC and has been in place for the past six years.

**City of Phoenix Amendments
to the 2012 International Building Code**

1705.18 Special Electrical Inspections. The types of equipment or installations noted below shall be tested or inspected by a special inspector.

1. Ground-fault protection performance tests for equipment provided with ground-fault protection.
2. Switchboards, panelboards, motor control centers and other equipment rated at 1,000 amperes or more, or over 600 volts.
3. Transformers rated 100 KVA or more, single phase, or 300 kVA or more, three phase.
4. Conductors that supply equipment rated at 1,000 amperes or more, or over 600 volts.
5. Emergency and standby power systems, including switchboards, panelboards, distribution boards, transfer equipment, power source, conductors, fire pumps and exhaust and ventilation fans. This also includes verification of the installation in accordance with the required selective coordination study.
6. Special cases – Work which, in the opinion of the building official, involves unusual hazards or conditions.

Exception: The building official may waive the requirement for the employment of a special inspector if the construction is of a minor nature.

Reasons:

These requirements were previously included in an amendment in 2006 IBC, Chapter 27 and specify the items in electrical design that require Special Inspection. It is intended to consolidate all Special Inspections to Chapter 17.

Cost Impact: Increased costs associated with hiring a Special Inspector for electrical systems.

**City of Phoenix Amendments
to the 2012 International Building Code**

1705.19 Mechanical Special Inspections. The types of equipment or installations noted below shall be tested or inspected by a special inspector in accordance with regulations established by the building official:

1. Duct smoke detectors for air distribution systems as required by *International Mechanical Code* section 606.5.
2. Fire and smoke damper operation for dampers required by *International Mechanical Code* section 607.2.
3. Installation of grease duct enclosure alternative systems allowed under the exceptions to the *International Mechanical Code* section 506.3.11.
4. Special cases—Work which, in the opinion of the building official, involves unusual hazards or conditions.

Exception: Special inspections are not required for work of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.

Reasons:

These requirements were previously amended in 2006 IBC, Chapter 28 and specify the items in mechanical design that require Special Inspection. It is intended to consolidate all Special Inspections to Chapter 17.

Cost Impact: Increased costs associated with hiring a Special Inspector for mechanical systems. This amendment is carried forward from the 2006 IBC and has been in place for the past six years.

**City of Phoenix Amendments
to the 2012 International Building Code**

1705.20 Plumbing Special Inspections. The types of equipment or installations noted below shall be tested or inspected by a special inspector.

1. Medical Gas and Vacuum Systems as required by *International Plumbing Code* section 1202 and *Uniform Plumbing Code* Chapter 13.
2. Special cases - Work which, in the opinion of the building official, involves unusual hazards or conditions.

Exception: Special inspections are not required for work of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.

Reasons:

These requirements were previously amended in 2006 IBC, Chapter 29 and specify the items in plumbing design that require Special Inspection. It is intended to consolidate all Special Inspections to Chapter 17.

Cost Impact: Increased costs associated with hiring a Special Inspector for plumbing systems. This amendment is carried forward from the 2006 IBC and has been in place for the past six years.

**City of Phoenix Amendments
to the 2012 International Building Code**

1803.5.13 Post-tensioned slabs on ground. A soil investigation is required for the design of all post-tensioned slabs on ground. The investigation report shall include all soil parameters as outlined in the applicable design manuals published by the Post-Tensioning Institute. Information required on the drawings includes, but is not limited to, slab type, soil parameters, bearing value and depth, coefficient of subgrade friction, soil subgrade modulus, e_m and y_m for expansive soils and all special inspection requirements.

Reasons:

Post-tensioned slabs are structured slabs the design of which requires specific information about the soil on which it is supported. The IBC does not provide presumptive values as they are site specific and require testing and analysis by a registered design professional qualified to perform such tests.

Cost Impact: A geotechnical investigation and report is required for all locations that include a post-tensioned slab on ground.

**City of Phoenix Amendments
to the 2012 International Building Code**

1806.1 Load combinations. The presumptive load-bearing values provided in Table 1806.2 shall be used with the allowable stress design load combinations specified in Section 1605.3. The values of vertical foundation pressure and lateral bearing pressure given in Table 1806.2 shall be permitted to be increased by one-third where used with the alternative basic load combinations of Section 1605.3.2 that include wind or earthquake loads.

Exception: Allowable foundation and lateral pressure values for Class 1, 2 and 3 soils shall be determined as classified by a soil investigation or in accordance with ASTM D 2487.

Reasons:

Soils bearing in soil class 1, 2 and 3 soils vary greatly depending on the actual values versus the presumptive values. The values provided in Table 1806.2 are conservative and not consistent with values provided in investigation reports.

Cost Impact: Projects where foundations are bearing in soil class 1, 2 and 3 materials require a soil investigation and report.

**City of Phoenix Amendments
to the 2012 International Building Code**

Table 1806.2 changes to Vertical Foundation Pressure (psf) column for the Class of Materials 4 & 5:

- 4. ~~2,000~~ 1,500
- 5. ~~4,500~~ 1,000

Added footnote to table:

c. Where the Building Official determines that in-place soils with an allowable bearing capacity of less than the values shown are likely to be present at the site, the allowable bearing capacity shall be determined by a soils investigation.

Reasons:

The geography of Phoenix incorporates native desert as well as previously farmed land that exhibit inconsistent bearing values. Geotechnical engineers practicing in the Phoenix area have provided their professional opinions and recommend the adjustment in the bearing values.

Cost Impact: Nominal footing size increases in the absence of a soils investigation and report.

**City of Phoenix Amendments
to the 2012 International Building Code**

1905.1.8 ACI 318, Section 22.10.

22.10 – Plain concrete in structures ~~assigned to Seismic Design Category C, D, E or F.~~

22.10.1 – Structures assigned to Seismic Design Category C, D, E or F shall not have elements of plain concrete, and structures of any seismic design category shall not have any new elements of structural plain concrete, except as follows:

Reasons:

Phoenix has historically required minimal reinforcing in concrete structures as prescribed in the seismic design forces to provide structural integrity and minimize cracking during microbursts.

Cost Impact: Minimal

**City of Phoenix Amendments
to the 2012 International Building Code**

1907.2 Post-tensioned slabs on ground. All post-tensioned slabs on ground shall be stamped, marked or otherwise identified in a conspicuous location indicating the slab is a post-tensioned slab. Conspicuous locations include, but are not limited to, entrance porches, slabs at garage doors or patio slabs.

Reasons:

Many residential structures have been, and continue to be, constructed with post-tensioned slabs on ground. If a tendon is cut from during repair or remodel work, it can cause serious injury to people in the area. The stamp provides a rapid identification that the slab is constructed with tendons and the contractor will know to identify tendon locations prior to cutting or drilling into the slab.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Building Code**

2106.1 Seismic design requirements for masonry. Masonry structures and components shall comply with the requirements in section 1.18 of TMS 402/ACI 530/ASCE 5 depending on the structure's seismic design category. All new masonry elements, regardless of seismic design category, shall meet the following minimum reinforcement requirements:

1. Connections to columns shall comply with Section 1.18.4.3.2.1 of TMS 402/ACI 530/ASCE 5.
2. Vertical wall reinforcement of at least 0.20 square inch (130 mm²) in cross-sectional area shall be provided continuously from support to support at each corner, at each side of each opening, at the ends of walls and at maximum spacing of 4 feet (1219 mm) apart horizontally throughout the wall.
3. Horizontal wall reinforcement not less than 0.20 square inch (130 mm²) in cross-sectional area shall be provided (1) at the bottom and top of wall openings and extend not less than 24 inches (610 mm) or less than 40 bar diameters past the opening, (2) continuously at structurally connected roof and floor levels and at the top of walls, (3) at the bottom of walls or in the top of foundations when doweled in walls, and (4) at maximum spacing of 10 feet (3048 mm) unless uniformly distributed joint reinforcement is provided.
4. Where anchor bolts are used to connect horizontal elements to the tops of columns, anchor bolts shall be placed within lateral ties. Lateral ties shall enclose both the vertical bars in the column and the anchor bolts. There shall be a minimum of two No. 4 (M #13) or three No. 3 (M #10) in the top 5 inches (127 mm) of the column.

Reasons:

Phoenix has historically required minimal reinforcing in masonry structures as prescribed in the seismic design forces to provide structural integrity and minimize cracking during microbursts.

Cost Impact: Minimal

**City of Phoenix Amendments
to the 2012 International Building Code**

2702.1 Installation. Emergency and standby power systems required by this code or the *International Phoenix Fire Code* shall be installed in accordance with this code, the *National Electrical Code (NFPA 70)*, NFPA 110, and 111. Emergency power systems shall be as defined in the *National Electrical Code* Section 700.2. Standby power systems shall be as defined in the *National Electrical Code* Section 701.2.

2702.2.1 Group A occupancies. Emergency power shall be provided for emergency voice/alarm communication systems in Group A occupancies in accordance with Section 907.5.2.2.-4-5

Section 2702.2.9 Membrane Structures. Standby power shall be provided for auxiliary inflation systems in accordance with Section 3102.8.2. Emergency power shall be provided for *exit* signs in temporary tents and membrane structures in accordance with the *International Phoenix Fire Code*.

Section 2702.2.11 Highly toxic and toxic materials. Emergency power shall be provided for occupancies with highly *toxic* or *toxic* materials in accordance with the *International Phoenix Fire Code*.

Section 2702.2.12 Organic peroxides. Standby power shall be provided for occupancies with silane gas in accordance with the *International Phoenix Fire Code*.

Section 2702.2.13 Pyrophoric materials. Emergency power shall be provided for occupancies with silane gas in accordance with the *International Phoenix Fire Code*.

Section 2702.3 Maintenance. Emergency and standby power systems shall be maintained and tested in accordance with the *International Phoenix Fire Code*.

Reasons:

Clarifies referenced codes to the adopted versions.

Clarifies the definition of emergency and standby power systems consistent with the installation code covering these systems, the National Electrical Code.

Corrects errant code reference in 2702.2.1 from 907.5.2.2.4 to 907.5.2.2.5.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Building Code**

**[P] Table 2902.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES^a
(See Sections 2902.2 and 2902.3)**

Delete all service sink requirements from Table 2902.1

f. Drinking fountains are not required for an occupant load of 45-50 or fewer.

~~g. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.~~

Reasons:

These revisions are made to provide consistency between the UPC and IPC and the minimum plumbing fixture table found in the 2012 International Building Code.

Cost Impact: Savings from removing the requirement for service sinks in all occupancies.

**City of Phoenix Amendments
to the 2012 International Building Code**

[P] 2902.2 Separate Facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
3. Separate facilities shall not be required in mercantile and business occupancies in which the maximum occupant load is 50 ~~400~~ or fewer.

Reasons:

These revisions are made to provide consistency between the 2012 IBC, 2012 UPC section 422.2 and 2012 IPC section 403.2 to allow for small business and mercantile occupancies to provide a single toilet facility for up to 50 occupants.

Cost Impact: Cost savings for small mercantile and business occupancies.

**City of Phoenix Amendments
to the 2012 International Building Code**

3002.4 Elevator car to accommodate ambulance stretcher. Where elevators are provided in buildings four or more stories above or four or more stories below, grade plane, at least one elevator shall be provided for fire department ~~emergency access~~ and emergency medical access to all floors. All elevators that require emergency medical access shall be in accordance with 3002.4.1 through 3002.4.5.

3002.4.1 Size of the emergency access elevator (EMS) cab. The elevator car shall be of such a size and arrangement to accommodate ambulance stretcher 24-inch by 84-inch (610mm by 2134mm) with not less than 5-inch (127mm) radius corners, in the horizontal, open position. ~~and~~

3002.4.2 Identification of the emergency access elevator. All EMS elevators shall be identified by the international symbol for emergency medical services (star of life). The symbol shall not be less than 3 inches (76mm) in height and shall be placed on both sides of the elevator hoistway door frames at all floors.

3002.4.3 Emergency medical access (EMS) key switches and markings.

1. The medical service operation shall be activated and or controlled by a two position on/off keyed switch, mounted near the elevator at every elevator floor landing and in the elevator cab enclosure. Key shall be removable only in the off position at the lobbies and in the elevator cab enclosure.
2. Keys for EMS shall be of tubular 7 pin style 137 construction and shall have a bitting code of 6143521. The key shall be coded "EMS"
3. All fixtures for EMS shall be provided with a jewel light which will illuminate when activated and shall be identified with the words "MEDICAL EMERGENCY".
4. The "MEDICAL EMERGENCY" lettering shall be a minimum of 6 mm (0.25 in.) (in height with a color blue background.

3002.4.4 Lobby Medical emergency operation.

1. When any of the elevator lobby EMS key switch are turned to the "on" position it shall activate a continuous audible signal in the car. It shall also activate a visual "MEDICAL EMERGENCY" signal in the car and at the floor landing where initiated.
2. After turning the switch to the "on" position the elevator shall return non-stop to the floor where activated. All car calls shall be cancelled and unable to be registered. An elevator on ems shall not respond to hall calls.
3. Upon arrival to a floor in response to the EMS call the elevator audible signal shall cease and the doors shall remain open until the lobby key switch is turned to the "off" position. If the key switch is turned to the "off" position the visual indication shall remain illuminated for 60 seconds. During this time emergency personnel must activate the car ems key switch to retain control of the car. Upon expiration of the delay without activation of the car ems switch the car shall return to normal service.

3002.4.5 Car Operation.

1. Upon entering the car it shall not accept a car call until the in car EMS key switch is turned to the "on" position. After turning the key on and registering a call, the car shall automatically close and proceed to the call. All door zone detection devices shall be operative. If more than one call is registered it shall stop at the nearest call and cancel all others at which time a second choice can be made.
2. Upon arriving at the desired floor, the doors shall open automatically and the elevator shall remain on EMS until the key is turned to the "off" position.
3. If the car is on any other form of special service such as inspection, fire fighters, etc. when EMS service is initiated the audible and visual signal shall be activated but the elevator shall not respond to the EMS call.
4. If the car has responded to a medical emergency call prior to a fire fighters service call the EMS service shall not be overridden by fire fighters service call until the car returns to the main floor but the fireman service audible and visual signal shall be activated.

Reasons:

Original request in 2006 from Phoenix Fire Department. 2012 request for clarification from elevator companies.

Cost Impact: Cost for software and hardware.

**City of Phoenix Amendments
to the 2012 International Building Code**

3003.1.4 Venting

Where standby-power is connected to elevators, the machine room, ~~ventilation or air conditioning machine space, control room or control space~~ air conditioning shall be connected to the stand-by power.

Reasons:

- (1) To prevent elevator equipment from overheating while on building stand-by power.
- (2) To clarify existing policy.

Cost Impact: Cost of independent air conditioning system.

**City of Phoenix Amendments
to the 2012 International Building Code**

3006.1 Access

An approved means of access shall be provided to elevator machine rooms, control rooms, machine spaces, and control spaces and overhead machinery spaces.

Reasons:

To provide safe access to elevator equipment and to harmonize with A17.1.

Cost Impact: Cost of lockbox.

**City of Phoenix Amendments
to the 2012 International Building Code**

3006.2 Machine room venting

Elevator machine rooms, ~~control rooms, machine spaces, and control spaces~~ that contain solid state equipment for elevator operation shall be provided with independent ~~ventilation or~~ air conditioning system to protect against the overheating of the electrical equipment. The system shall be capable of maintaining temperatures ~~within the range established for the elevator equipment. Not greater than 90 degrees to ensure safe and normal operation of the elevator.~~

Reasons:

(1) Experience with existing elevator equipment that have been installed with air conditioning set to the upper limit of the manufactures operating range has shown a higher percentage of equipment failures and shortened life cycle occur due to the extreme temperatures in Phoenix. (2) This results in unsafe conditions as controller doors are left open and extra fans are brought into equipment rooms to try and solve the problem. (3) To avoid shut downs.

(Related amendments A17.1-2.7.9.2, A17.1- 2.7.6.3.2, A17.1-2.8.5, and IBC 3003.1.4, IBC 3006.2)

Cost Impact: Cost of independent air conditioning system.

**City of Phoenix Amendments
to the 2012 International Building Code**

3006.3 Pressurization

The atmospherically connected elevator machine room, control room, machine space, and control space serving a pressurized elevator hoistway shall be pressurized upon activation of a heat or smoke detector located in the elevator machine room, control room, machine space, and control space.

Reasons:

For further clarification.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Building Code**

3006.5 Shunt trip

Where elevator hoistway or elevator machine rooms, machine spaces, control rooms or control spaces containing elevator control equipment are protected with automatic sprinklers, a means installed in accordance with NFPA 72, Section 3-9.4 Elevator Shutdown, shall be provided to disconnect automatically the mainline power supply to the affected elevator prior to the application of water. This means shall not be self-re-setting. The activation of sprinklers outside the hoistway, machine room, machine space, control room or control space shall not disconnect the main power supply.

Reasons:

Added: machine space, control room or control space, to harmonize with A17.1.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Building Code**

SECTION 3105

AWNINGS, AND CANOPIES, AND SHADE STRUCTURES

3105.1 General. Awnings, shade structures or canopies shall comply with the requirements of Sections 3105.2 through 3105.4 this section and other applicable sections of this Code. All provisions of this Code shall apply to nonresidential shade structures except as specifically modified by this section. The intent of this section is to provide less restrictive construction standards than this Code would otherwise require, provided all of the special design and construction requirements of these sections are met.

3105.2 Definitions. The following terms is defined in Chapter 2: **RETRACTABLE AWNING** for the purposes of this section and as used elsewhere in this Code, shall have the meanings shown herein.

INDUSTRIAL SHADE CANOPY. An industrial shade canopy is an awning, canopy or roof structure which provides solar protection for outdoor Group F or Group S factor, industrial or storage uses or equipment. Industrial shade canopies shall be classified as to Occupancy Group in accordance with Chapter 3 of this Code.

MERCANTILE SHADE CANOPY. A mercantile shade canopy is an awning, canopy or roof structure which provides solar protection for the outdoor storage, display or sale of merchandise as part of a Group M occupancy and includes the following:

1. A roof structure with not less than 50 percent of its perimeter wall area unenclosed; or
2. A slatted, lattice or louvered roof structure with not less than 25 percent of the roof area open to the sky; or
3. An open structural framework covered with shade cloth fabric as specified in Section 3105.4.

Mercantile shade canopies shall not apply to motor fuel dispensing facilities.

NON-RESIDENTIAL PATIO COVER. A non-residential patio cover is an awning, canopy or roof structure which provides solar protection for outdoor seating, dining, walkway or pedestrian entry areas accessory to a building of any occupancy and includes the following:

1. A roof structure with not less than 50 percent of its perimeter wall area unenclosed; or
2. A slatted, lattice or louvered roof structure with not less than 25 percent of the roof area open to the sky; or
3. An open structural framework covered with shade cloth fabric as specified in Section 3105.4.

Non-residential patio covers shall not apply to canopies or roof structures over vehicle drive-through lanes or porte-cocheres used by motor vehicles.

PARKING LOT SHADE STRUCTURE. A parking lot shade structure is a modified Group S-2 open parking garage. A parking lot shade structure is a freestanding roof supported on columns and entirely open on all sides with no enclosures beneath the roof.

RETRACTABLE AWNING. A retractable awning is a cover with a frame that retracts against a building or other structure to which it is entirely supported.

3105.3 Design and construction. Awnings, shade structures and canopies shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. Awnings shall have frames of noncombustible material, fire-retardant-treated wood, wood of Type IV size, or 1-hour construction with combustible or noncombustible covers and shall either be fixed, retractable, folding or collapsible.

3105.4 Canopy and shade structure materials. Canopies and shade structures shall be constructed of a rigid frame work with an approved covering that meets the fire propagation performance criteria of NFPA 701 or has a flame spread index not greater than 25 when tested in accordance with ASTM E 84 or UL723.

3105.5 Industrial shade canopies. Industrial shade canopies shall comply with the provisions of Chapter 3 for their designated occupancy except as specifically modified below.

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3105.5.1 Construction and Height. Industrial shade canopies shall be limited to one story in height and shall be entirely of Type I or Type II non-combustible construction. Industrial shade canopies shall meet the design requirements of Chapter 16.

3105.5.2 Location on Property. Industrial shade canopies shall comply with Table 601 and 602 for the fire-resistive protection. Shade canopies attached to unlimited area buildings shall not encroach within the required 60 foot (18288 mm) open yard area. Not less than 50 percent of the shade canopy perimeter area shall be unenclosed.

3105.5.3 Allowable Area. Industrial shade canopies may be attached to a Group F or a Group S occupancy building of any construction type when the total combined area of the building and the shade canopy does not exceed the area limits specified in Sections 503 and 506 for the type of construction for the building.

3105.5.4 Sprinkler Systems. Industrial shade canopies shall be protected by an automatic sprinkler system as specified in this code and the Phoenix Fire Code.

3105.5.5 Special Hazards. Outdoor hazardous material storage areas including compressed gas storage tanks, portable tanks or cylinders and related equipment, required by the Phoenix Fire Code to be weather protected, may be covered by a non-combustible industrial shade canopy when all of the following additional conditions are met. In all cases, the most restrictive requirement of the building code or the fire code shall apply:

3105.5.5.1 Fire code requirements. The location of outdoor hazardous material storage areas and weather-protection shade canopies shall comply with the Phoenix Fire Code for distance to buildings, property lines, streets, alleys, public ways and exits to a public way based upon the type and quantity of material stored. No hazardous material shall be stored or used under an industrial shade canopy except in compliance with the fire code.

3105.5.5.2 Building code requirements. In addition to fire code requirements, weather-protection shade canopies attached to buildings shall also comply with Table 601 and 602 for the fire-resistive protection. Weather-protection shade canopies shall not encroach into or obstruct any yard area, fire access or exit path required by this code.

3105.5.5.3 Extent of enclosure. Weather-protection shade canopy supports and walls shall not obstruct more than 25 percent of the perimeter wall area of the canopy or storage area. Openings shall be arranged to permit natural ventilation and air flow through the space.

1. Where a weather-protection shade canopy is located less than 5 feet (1524 mm) from a building or a property line, a four-hour fire-resistive concrete or masonry separation wall without openings shall be provided.
2. Where a weather-protection shade canopy is located 5 feet (1524 mm) or more but less than 20 feet (6096 mm) from a building or a property line, a two-hour fire-resistive concrete or masonry separation wall without openings shall be provided. Where allowed by the Phoenix Fire Code, this two-hour separation wall may be a line of sight shield or protective structure less than the full height of the canopy.
3. Where a weather-protection shade canopy is located 20 feet (6096 mm) or more from a building or a property line, the requirement for installation of a fire-resistive separation wall, shield or protective structure shall be as determined by the Phoenix Fire Code.

3105.5.5.4 Sprinkler Systems. Weather-protection shade canopies shall be protected by an automatic sprinkler system when required in this code and the Phoenix Fire Code.

3105.6 Mercantile shade canopies and non-residential patio covers. Mercantile shade canopies and non-residential patio covers shall comply with the provisions of Chapter 3 for their designated occupancy except as specifically modified below.

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3105.6.1 Construction and Height. Mercantile shade canopies and non-residential patio covers shall be limited to one story in height and shall be entirely of type I or type II non-combustible construction. Tables 601 and 602 shall not apply for these structures.

Exceptions:

1. Shade membrane fabric compliant with Section 3105.4.

Mercantile shade canopies and non-residential patio covers including the supporting framework for membrane fabric shall meet the design requirements of Chapter 16.

3105.6.2 Location on Property. Mercantile shade canopies and non-residential patio covers shall be located not less than 5 feet (915 mm) from the property line.

Mercantile shade canopies and non-residential patio covers attached to unlimited area buildings shall not encroach within the required 60 foot (18 288 mm) open yard area.

3105.6.3 Allowable Area. Mercantile shade canopies may be attached to a Group M occupancy building and non-residential patio covers may be attached to any non-residential building when the total combined area of the building and the shade canopy does not exceed the area limits specified in Sections 503 and 506 for the occupancy and type of construction of the building. Mercantile shade canopies and non-residential patio covers with a roof covering of shade membrane fabric shall not exceed 5,000 square feet in area.

3105.6.4 Sprinkler Systems. Mercantile shade canopies and non-residential patio covers shall be protected by an automatic sprinkler system as specified in this code and the Phoenix Fire Code.

3105.7 Parking lot shade structures. Parking lot shade structures shall be used exclusively for the solar protection of parked motor vehicles and shall not be used to shelter any other use.

3105.7.1 Construction and Height. Parking lot shade structures shall be entirely of type I or type II non-combustible construction.

Exceptions:

1. Shade membrane fabric compliant with Section 3105.4 can only be used with a maximum allowable area of 12,000 square feet in compliance with Section 3105.7.3.

Parking lot shade structures shall meet the design requirements of Chapter 16.

Parking lot shade structures shall have a clear height of not less than 7 feet (2134 mm). Where van accessible shaded parking is required by this code or by the Phoenix Zoning Ordinance, the clear height shall be not less than 98 inches (2490 mm).

3105.7.2 Location on Property. Parking lot shade structures shall be located not less than 3 feet (915 mm) from any building or property line. Parking lot shade structures which meet all the requirements of this section shall be permitted in any required yard without affecting any of the general building limitations specified in Chapter 5 of this code.

3105.7.3 Allowable Area. Parking lot shade structures shall not exceed 300 feet (91440 mm) in length or 40 feet (12192 mm) in width. A clear separation of not less than 20 feet (6096 mm) shall be maintained between shade structures on the same property. No shade structure shall cover or encroach into any required fire lane.

3105.7.3.1 Allowable area for minimum 21 feet clear high parking lot shade structures.

The allowable area may be determined by Section 406.5.5 of this code provided the site fire apparatus access is approved by the Fire Marshal.

3105.7.4 Roof-top Shade Structures. Parking lot shade structures complying with the provisions of this section may be installed to shade open parking on the roof of Group S-2 parking garages. This installation shall not be

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construed as affecting the construction type, allowable area, height, or number of tiers of the parking garage. Where the parking garage is required to be protected by an automatic sprinkler system, all parking lot shade structures on the roof shall also be so protected.

3105.7.5 Sprinkler Systems. Parking lot shade structures shall be protected by an automatic sprinkler system as specified in this code and the Phoenix Fire Code.

Reasons:

Mercantile shade canopies and non-residential shade structures may be located 5 feet from a property line for following reason:

The framework is of non-combustible construction, open on all sides and limiting the fire loading area to 5,000 square feet, it seemed rational that the radiant heat from either a fire in the structure or from an adjacent structure would affect the frame in the same way. Therefore the allowance of an unrated frame at 5 feet versus the 10 feet required by strict adherence to the code, seems reasonable since the code would allow the a combustible roof overhang to project within 5 feet of a property line. The fire loading underneath the overhang would be allowed by code. The columns in these structures are not considered exterior walls, per the definition of wall in the code, opening protection would not be required.

Limiting the area to 5,000 square feet was based on Group M occupancies used for display and sale of upholstered furniture or mattresses where an automatic sprinkler system would not be required under base code.

Parking lot shade structures meeting the following criteria have been allowed in the City of Phoenix for over a decade: maximum 40 feet by 300 feet in area, non-combustible framework, a minimum of 3 feet from a property line with a non-combustible or shade membrane fabric roof. The need to expand the area is a result of solar industry utilizing established parking lots for their product. By placing the minimum height and fire apparatus access requirements to increase the area of non-combustible construction it seemed rational the effect on building safety would be no more severe than the original uncovered parking lot. The setback of 3 feet is allowed for a non-combustible roof overhang with the same reasoning as above for not rating the frame.

Cost Impact: No cost impact.

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3107.1 General. Signs shall be designed, constructed and maintained in accordance with this code and the Phoenix Zoning Ordinance.

Reasons:

This item was amended for the 2006 International Building Code to refer applicants to the Phoenix Zoning Ordinance for additional requirements for signs.

Cost Impact: N/A

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DELETE ENTIRE SECTION 3109 AND REPLACE WITH THE FOLLOWING:

SECTION 3109

SWIMMING POOL ENCLOSURES AND SAFETY DEVICES

3109.1 General. The provisions of this Section shall control the design and construction of swimming pools, spas and hot tubs.

3109.2 Definitions. For the purposes of these requirements, the terms used shall be defined as follows and as set forth in Chapter 2.

ABOVE-GROUND/ON-GROUND POOL. See Swimming pool.

BARRIER. A fence, wall, building wall or combination thereof that completely surrounds the swimming pool and obstructs access to the swimming pool.

HOT TUB. See Swimming pool.

IN-GROUND POOL. See Swimming pool.

SPA, NONPORTABLE. See Swimming pool.

SPA, PORTABLE. A nonpermanent structure intended for recreational bathing, in which all controls, water-heating and water-circulating equipment are an integral part of the product.

SWIMMING POOL. Any structure intended for swimming or recreational bathing that contains water over 24 inches (610mm) deep. This includes in-ground, above ground and on-ground swimming pools, hot tubs, spas, and fixed in place wading pools.

SWIMMING POOL, INDOOR. A swimming pool which is totally contained within a structure and surrounded on all four sides by walls of said structure.

SWIMMING POOL, OUTDOOR. Any swimming pool which is not an indoor pool.

3109.3 SWIMMING POOLS

3109.3.1 In-ground pools. In-ground pools shall be designed and constructed in conformance with ANSI/NSPI-5 as listed in Section 3109.7.

3109.3.2 Above-ground and on-ground pools. Above-ground and on-ground pools shall be designed and constructed in conformance with ANSI/NSPI-4 as listed in Section 3109.7.

3109.4 SPAS AND HOT TUBS

3109.4.1 Permanently installed spas and hot tubs. Permanently installed spas and hot tubs shall be designed and constructed in conformance with ANSI/NSPI-3 as listed in Section 3109.7.

3109.4.2 Portable spas and hot tubs. Portable spas and hot tubs shall be designed and constructed in conformance with ANSI/NSPI-6 as listed in Section 3109.7.

3109.5 BARRIER REQUIREMENTS

3109.5.1 Application. The provisions of this chapter shall control the design of barriers for all swimming pools, spas and hot tubs. These design controls are intended to provide protection against potential drownings and near drownings by restricting access to swimming pools, spas and hot tubs.

The swimming pool barrier detail requirements of this section apply to all new swimming pools installed on or

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after May 4, 1990, and to all additions, alterations, repairs or replacements made to existing swimming pool barriers. All swimming pools installed prior to May 4, 1990, shall be completely enclosed as required in this section on or before May 4, 1991 except as provided in Section 3109.5.5.3.

3109.5.2 Outdoor swimming pool. It is the responsibility of the property owner and any other person in responsible charge of a swimming pool to ensure that the required swimming pool barrier, including all gates, doors, locks, latches, and other portions of the barrier are maintained safe and in good working order at all times. No person shall alter or remove any portion of a swimming pool barrier except to repair, reconstruct, or replace the barrier in compliance with the provisions of this section. All barriers shall be installed, inspected, and approved prior to plastering or filling with water. An outdoor swimming pool, including an in-ground, aboveground or on-ground pool, hot tub or spa shall be provided with a barrier that shall comply with the following:

1. The top of the barrier shall be at least 5 feet (1524 mm) above grade measured on the side of the barrier which faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches (51 mm) measured on the side of the barrier which faces away from the swimming pool. The maximum clearance at the bottom of the barrier may be increased to 4 inches (102 mm) when grade is a solid, non-removable surface. Where the top of the pool structure is above grade, such as an aboveground pool, the barrier may be at ground level, such as the pool structure, or mounted on top of the pool structure. Where the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102 mm).
2. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.
3. Solid barriers which do not have openings, such as a masonry or stonewall, shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.
4. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 1.75 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1.75 inches (44 mm) in width.
5. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1.75 inches (44 mm) in width.
6. Maximum mesh size for chain link fences shall be a 2.25-inch (57 mm) square and provided with slats fastened at the top or the bottom which reduce the openings to not more than 1.75 inches (44 mm). The mesh shall not be less than 11 gage.
7. Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members shall not be more than 1.75 inches (44 mm).
8. Access gates shall comply with the requirements of Section ~~3109.4.2~~ 3109.5.2, Items 1 through 7, and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Gates other than pedestrian access gates need not be self-closing or self-latching and shall be equipped with a padlock or similar locking device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate, the release mechanism and openings shall comply with the following:
 - 8.1. The release mechanism shall be located on the pool side of the gate at least 3 inches (76 mm) below the top of the gate, and

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8.2. The gate and barrier shall have no opening greater than 0.5 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

9. Where a building wall serves as part of the barrier, one of the following conditions shall be met:

9.1. The pool shall be equipped with a key operated powered safety cover in compliance with ASTM F1346. The keyed pool cover switch shall be located not less than 54 inches (1372 mm) above the floor or adjacent ground level and where the entire pool cover can be visually inspected; or

9.2. All doors leading from the building, directly into a yard with a swimming pool, shall swing away from the pool, shall be self-closing and self-latching, and shall be equipped with a locking device. The release mechanism for the latch or a secondary locking device, shall be located not less than 54 inches (1372 mm) above the floor. A locking latch which uses a key, electronic opener, or integral combination lock may be located at any height on the door. Sliding doors shall not form any part of a required barrier unless the self-closing and self-latching mechanism is specifically approved.

Windows used for emergency escape or rescue which face into a yard with a swimming pool shall be equipped with a latching device located not less than 54 inches (1372 mm) above the floor. All other operable windows facing into a yard with a swimming pool shall be equipped with a screwed in place wire mesh screen, a keyed lock that prevents opening the window more than 4 inches (102 mm), or a latching device not less than 54 inches (1372 mm) above the floor.

9.3 Required exit doors or means of egress serving an occupant load of 50 or more shall not open into or pass through a swimming pool enclosure.

10. Where an aboveground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, then:

10.1 The ladder or steps shall be capable of being secured in an inaccessible position with a lock or latch located 54 inches (1372 mm) above the adjacent ground level, or

10.2 The ladder or steps shall be surrounded by a barrier that meets the requirements of Section 3109.4.2, Items 1 through 9. When the ladder or steps are secured, locked or removed, any opening created shall not allow the passage of a 4-inch-diameter (102 mm) sphere.

11. Where there are natural barriers between properties, such as lakes and solid rock vertical cliffs not less than 10 feet (3050 mm) in height and a slope of not less than 1 horizontal to 10 vertical, fence barriers shall not be required between properties where the natural barriers exist. To ensure proper natural barriers are maintained, barrier fences shall project a minimum of 24 inches (610 mm) into lakes to where there is at least 24 inches (610 mm) depth from the lake surface to the top of the submerged horizontal member or the lake bottom when there is no submerged horizontal member. There shall be no horizontal member less than 45 inches above the lake surface. Where the solid rock cliff extends above the property, the intersecting barriers, with the solid rock cliff, shall not allow passage of a 4 inch diameter (102 mm) sphere.

3109.5.3 Indoor swimming pool. All walls surrounding an indoor swimming pool shall comply with Section 3109.4.2, Item 9.

3109.5.4 Prohibited locations. Barriers shall be located not less than 45 inches (1143 mm), measured horizontally from permanent structures, equipment or similar objects from being used to climb the barriers.

3109.5.5 Barrier exceptions.

1. For portable spas and hot tubs with a safety cover which complies with ASTM F 1346, as listed in Section 3109, shall be exempt from the provisions of this appendix.
2. For spas and hot tubs, a hard safety cover that is latched or locked may be used provided the spa or hot tub is not more than 8 feet (2.44 m) in width at any point.
3. Existing swimming pools located on one-family dwelling property on or before May 4, 1990, need not be

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retroactively fitted with a barrier between the dwelling and the pool provided all occupants of the dwelling are at least six years of age or older. All other portions of the swimming pool barrier separating properties shall be installed and maintained as in this section.

1. This exception does not eliminate an owner's responsibility for providing a temporary barrier or otherwise physically restricting visiting children's direct access from the dwelling to the swimming pool.
2. This exception shall expire and the required permanent barrier shall be retroactively installed between the dwelling and the swimming pool whenever:
 1. One or more children under six years of age become occupants of the property
 2. There is a change of use or character to the primary building occupancy on the property
 3. A new pool or spa is being installed on the same property including spa additions to the existing swimming pool.

3109.6 PROTECTION FOR SWIMMING POOL AND SPA SUCTION OUTLETS

3109.6.1 Suction Entrapment Avoidance. Pools, spas, hot tubs, catch basins and other similar bather accessible bodies of water associated with swimming pool construction shall be designed to produce circulation throughout the body of water and provide means to protect against user suction entrapment.

3109.6.2 Surface skimming or perimeter overflow system. To avoid suction entrapment, fully submerged suction outlets (main drains) shall not be required in swimming pools, wading pools, spas, hot tubs and catch basins. Surface skimming or perimeter overflow system shall be permitted in lieu of fully submerged suction outlet fittings and shall provide 100% of the required system flow.

3109.6.3 Fully submerged suction outlets (main drains). Fully submerged manufactured suction outlets (main drains) for use in swimming pools, wading pools, hot tubs and catch basins shall be listed by a nationally recognized testing laboratory in accordance with ASME/ANSI A112.19.9M.

Exception: Custom designed suction outlet fittings certified by a licensed professional engineer that conform to Section 3. General requirements of ASME/ANSI A112.19.8M.

3109.6.4 Methods of entrapment avoidance. Entrapment avoidance of fully submerged suction outlets can be achieved by one of the following methods:

3109.6.4.1 Dual Drains. A minimum of two (2) suction outlets shall be provided for each pump or pumps in the suction outlet system, separated by a minimum of three feet (3') [91.44 cm] measured from center to center of suction pipes or located on two (2) different planes; i.e. one (1) on the bottom and one (1) on the vertical wall, or one (1) each on two (2) separate vertical walls. These suction outlets shall be plumbed such that water is drawn through them simultaneously through a common line to the system. Each suction outlet fitting shall be rated for the maximum system flow.

3109.6.4.2 Channel Drain System. One or more channel gates shall be acceptable as protection against suction entrapment if they are 3 inches or greater in width and 31 inches or greater in length and fastened to prevent removal as specified in ASME/ANSI A112.19.8M.

3109.6.4.3 Gravity flow system. A Gravity Flow system shall be acceptable as protection against suction entrapment if it has one or more submerged suction outlet(s) with approved cover/grates in any combination fed by gravity into a collection tank vented to atmosphere. However, a modulating float valve allowing direct suction is not permitted.

3109.6.4.4 Combination Inlet/Outlet Fixtures for Swim Jets. Combination Inlet/Outlet Fixtures shall be acceptable as protection against suction entrapment for a Swim Jet system not related to the filtration system, if they are manufactured and have their own dedicated pump(s), and the suction outlet and the return are located in a single fitting.

3109.6.4.5 Venturi Debris Removal Systems. Venturi Debris Removal Systems shall be acceptable as

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protection against suction entrapment if they are intended to remove debris through a single, floor mount suction outlet where low pressure is created by the entrainment of water within a deck mount canister that is not directly or indirectly connected to a pump's suction. The single action outlet shall have an approved cover/gate.

3109.6.5 Shallow Water Suction Outlets. Where all suction fittings are located less than 24 inches below normal operating water level, one of the following shall be required:

1. gravity flow system
2. one (1) additional drain
3. vent system to atmosphere
4. suction vacuum release device tested and approved for the purpose by a nationally recognized testing laboratory in accordance with ASME A112.19.17.

3109.6.6 Wall Vacuum Fittings. Where provided, the vacuum cleaner fitting(s) shall be located in an accessible position(s) at least 6 inches and no greater than 18 inches below the water level and shall comply with IAPMO SPS 4.

SECTION 3109.7 ABBREVIATIONS

3109.7.1 General.

ANSI. American National Standards Institute
11 West 42nd Street, New York, NY 10036

ASTM. American Society for Testing and Materials
1916 Race Street, Philadelphia, PA 19103

NSPI. National Spa and Pool Institute
2111 Eisenhower Avenue, Alexandria, VA 22314

SECTION 3109.8 STANDARDS

3109.8.1 General.

IAPMO

IAPMO SPS-4-2009 Special Use Suction Fittings for swimming pools, spas and hot tubs (for suction side automatic swimming pool cleaners)..... 3109.6

ANSI/NSPI-4-99 Standard for Above-ground/On-ground Residential Swimming Pools.3109.6

ANSI/ASME A112.19.8M-1987 Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs and Whirlpool Bathing Appliances 3109.53109.6

ASME

ASME A112.19.17 Manufacturers Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub and Wading Pool.3109.6

Reasons:

The 2006 International Building Code was amended by the city of Phoenix to include this revised section on Swimming Pool Enclosures and Safety Devices.

Cost Impact: N/A

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<p>3110.1 General. Automatic vehicular gates shall comply with the requirements of Sections 3110.2 through 3110.4, <u>other applicable sections of this code and the Phoenix Fire Code.</u></p>
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<p>Reasons:</p>

<p>This item shall be amended to refer applicants to the Phoenix Fire Code for additional requirements.</p>

<p>Cost Impact: N/A</p>

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3111.1 General. Solar photovoltaic panels/modules shall comply with the requirements of this code and the ~~International Fire Code~~ Phoenix Fire Code.

Reasons:

This item shall be amended to refer applicants to the Phoenix Fire Code for additional requirements.

Cost Impact: No cost impact.

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SECTION 3112 FACTORY-BUILT BUILDINGS

3112.1 General. Factory-built buildings, manufactured homes and mobile homes shall comply with applicable laws of the State of Arizona and this code. The provisions of this section for factory-built buildings, manufactured homes and mobile homes take precedence over other code provisions which are inconsistent therewith. The general provisions of this code shall apply in all areas where there are not specific provisions in this section.

3112.1.1 Arizona law. The construction of factory-built buildings and manufactured homes is regulated by the State of Arizona, Arizona Revised Statutes ARS 41-2142 et seq, and is not included in this Code.

3112.1.2 Manufactured home installation. The installation of manufactured homes and mobile homes, including connection to utilities, is regulated by the State of Arizona and is not included in this code, except that a City of Phoenix On-Site Permit is required for Zoning Code administration purposes. Connection to a City water or sewer tap requires a separate permit from the Planning and Development Department.

3112.1.3 Factory-built building installation. The installation of factory-built buildings including their foundations and direct connection to sewer, water, gas or electric utilities, is regulated by the State of Arizona and is not included in this code, except that a City of Phoenix On-Site Permit is required for compliance with Zoning Code requirements and with Building Code requirements pertaining to location on property and setback from other buildings or structures on the property. A City of Phoenix building permit is required for all on-site construction (except foundations) including connection to or alteration of existing on-site sewer, water, gas or electrical systems, and for construction of all site improvements required by the Zoning Code such as design review elements, signs, parking, landscaping, site amenities and disabled accessibility. Connection to a City water or sewer tap requires a separate permit from the Planning and Development Department.

3112.1.4 Alterations and additions. Repairs, alterations and site-built additions to factory-built buildings, mobile homes and manufactured homes are regulated by this code and by the Phoenix Zoning Ordinance and require City of Phoenix permits.

3112.1.5 Occupancy and Use. Occupancy and use of a factory built-building, manufactured home or mobile home is prohibited without first obtaining inspection approval and a certificate of occupancy from the building official, to verify compliance with the Phoenix Zoning Ordinance and other applicable city codes and ordinances.

3112.2 Definitions. For the purpose of this Section, the following definitions shall apply:

FACTORY BUILT BUILDING is a residential or non-residential building including a dwelling unit or habitable room thereof which is either wholly or in substantial part manufactured at an off-site location to be assembled on-site, except it does not include a manufactured home, recreational vehicle or mobile home (ARS 41-2142).

MANUFACTURED HOME is a structure built in accordance with the National Manufactured Home Construction and Safety Standards Act.

MOBILE HOME is a structure built prior to June 15, 1976, on a permanent chassis, capable of being transported in one or more sections and designed to be used with or without a permanent foundation as a dwelling when connected to on-site utilities except that it does not include recreational vehicles or factory-built buildings.

ON-SITE PERMIT is the permit issued by the building official which authorizes the placement of a factory-built building, manufactured home or mobile home on a site. The on-site permit shall authorize only the placement, foundation or unit tie-down, and specific connections to utility services which are authorized by a permit issued by the State of Arizona Office of Manufactured Housing. All other work on the site shall require a building permit issued by the building official in accordance with Section 105 of this code. Connection to a City water or sewer tap requires a separate permit from the Planning and Development Department.

3112.3 Installation Requirements. No factory-built building, manufactured home or mobile home shall be moved onto or installed on any lot or site in the City of Phoenix except in compliance with these provisions.

**City of Phoenix Amendments
to the 2012 International Building Code**

3112.3.1 State insignia required. No person, firm or corporation shall move onto any site any factory-built building or manufactured home building unless such building bears a current, valid insignia of approval of the State of Arizona.

3112.3.2 State permit required. No person, firm or corporation shall move onto any site any factory-built building, manufactured home or mobile home unless and until a permit for such installation has been obtained from the State of Arizona.

3112.3.3 On-site permit required. No person firm or corporation shall move onto any site, or relocate on any site, any factory-built building, manufactured home or mobile home until an On-Site Permit has been issued by the City of Phoenix building official.

A site plan shall be submitted to the building official which shows all utility connections and all other information necessary to ascertain compliance with the separation and area restrictions of other sections of this code and with all provisions of the Phoenix Zoning Ordinance. If the building official is satisfied that the work described by the documents submitted conform to this section and other applicable law, the On-Site Permit shall be issued to the owner of the site or his authorized agent.

3112.3.4 Building permit required. The person, firm or corporation obtaining the On-Site Permit shall also apply for and obtain a building permit from the building official when one or more of the following conditions apply:

1. For all on-site construction which connects to or alters existing buildings or existing on-site sewer, water, gas or electrical systems.
2. For all on-site construction which is required by or regulated by the Phoenix Zoning Ordinance, such as for design review elements, signs, parking, landscaping, site amenities and accessibility.
3. For all construction or alteration which is not part of the State-approved factory-built building, manufactured home, or mobile home including all interior fit-up, tenant improvement or remodeling work which is not specifically included in such State permit.
4. When a City of Phoenix inspection is requested by the installer for work otherwise included in the State of Arizona installation permit, including but not limited to requests for utility clearance inspections.

3112.4 Repairs, Alterations, and Additions. No person shall repair, alter or add on to a factory-built building, manufactured home or a mobile home after the unit has been installed without first having obtained a permit from the building official for the specific work to be performed. All such work shall comply with the requirements of this Code.

3112.5 Fire Protection. Factory-built buildings shall be protected pursuant to the Phoenix Fire Code.

Reasons:

The 2006 International Building Code was amended by the city of Phoenix to add Factory Built Buildings.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Building Code**

3411.8.11 Toilet rooms. Where it is *technically infeasible* to alter existing toilet and bathing rooms to be *accessible*, an *accessible* family or assisted-use toilet or bathing room constructed in accordance with section 1109.2.1 is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. In existing construction, one of two or more fixtures (water closets and/or urinals) may be removed to create space for one accessible stall in each existing toilet room. This may result in the reduction of one required water closet which shall be permitted when this reduction is needed to create a conforming accessible toilet stall. Any alteration under this section shall not reduce other accessibility requirements including, but not limited to required clear floor spaces and maneuvering spaces.

Reasons:

This is a current amendment to the 2006 IBC. This supports barrier removal, an important part of the ADA law.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Building Code**

3412.2 Applicability. Structures existing prior to January 1, 1965, in which there is work involving additions, alterations or changes or occupancy shall be made to comply with the requirements of this section or the provisions of Sections 3403 through 3409. The provisions in Sections 3412.2.1 through 3412.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, M, R, S and U. These provisions shall not apply to buildings with occupancies in Group H and I.

Reasons:

This requirement was previously amended in 2006 IBC.

Cost Impact: Cost may include minimum code-required life systems, accessibility upgrades and structural building upgrades.

**City of Phoenix Amendments
to the 2012 International Building Code**

3412.2.5 Accessibility requirements. ~~All portions of the buildings proposed for change of occupancy shall conform to the accessibility provisions of chapter 11.~~ For accessibility requirements see Section 3409 of this code.

Reasons:

This is a current amendment to the 2006 IBC, section 3410.2.5. Without this, the "Compliance Alternatives" section would be more restrictive than the standard requirements. This was passed by ICC for the 2015 IBC.

Cost Impact: Reduced cost for compliance

**City of Phoenix Amendments
to the 2012 International Building Code**

Recommendation for the following appendices:

Not Adopt

Appendix A: Employee Qualifications.
Appendix B: Board of Appeals.
Appendix C: Group U-Agricultural Buildings.
Appendix D: Fire Districts.
Appendix F: Rodentproofing.
Appendix G: Flood-resistant Construction.
Appendix H: Signs.
Appendix I: Patio Covers
Appendix J: Grading
Appendix K: Administrative Provisions.
Appendix L: Earthquake Recording Instrumentation
Appendix M: Tsunami-Generated Flood Hazard.

Adopt

Appendix E: Supplemental Accessibility Requirements.

Reasons:

Appendices A, B, C, D, F, G, H, I, J, K, L, M where needed are already covered by existing ordinances.

Appendix E was added to address items that were not typically enforceable through the traditional code enforcement process but were in the drafts of the 2004 ADAAG. The approved 2004 ADAAG is part of the 2010 ADA Standards. The requirements of this appendix do not match the 2010 ADA Standards and includes sections not subject to enforcement by the Phoenix Building Construction Code such as laundry equipment, mailboxes, telephones and clocks. The 2010 ADA Standards were adopted as part of the Phoenix Building Construction Code and those requirements are adequate.

Cost Impact: N/A

**City of Phoenix Amendments
to the 2010 ASME Code**

- 2.2.5.3** The light switch shall be so located as to be accessible from the pit access door, and
1. shall not be controlled by automatic means only,
 2. be illuminated, and
 3. when there are multiple pits, each switch shall control all pit lights.

Reasons:

(1) To eliminate any possible hazard while working on electrical and mechanical equipment if the lights go out. (2) To facilitate finding the light switch in darkened areas. (3) To harmonize with NEC 110.26(D).

(Related amendments: A17.1-2.7.9.1, A17.1-2.2.5.3, NEC 620.23(B), and NEC 620.24(B))

Cost Impact: Minimal cost of switches.

**City of Phoenix Amendments
to the 2010 ASME Code**

2.7.6.3.2 The motor controller shall be located in a machinery space, machine room, control space, or control room.

A motor controller shall be permitted to be located outside the specified spaces, provided it is enclosed in a locked cabinet. The locked cabinet shall be

- (a) readily accessible for maintenance and inspection at all times.
- (b) provided with cabinet door(s) or panel(s) that are not self-closing, that are self-locking, and that shall be kept closed and locked. Keys shall be Group 1 Security (see 8.1).
- (c) lit by permanently installed electric lighting with a lighting intensity of at least 200 lx (19 fc) at the floor level.
- (d) located in a space that is provided with ~~natural or mechanical means~~ independent air conditioning to keep the ambient air temperature and humidity ~~in the range specified by the elevator equipment manufacturer~~ not greater than 90 degrees F to ensure safe and normal operation of the elevator. The temperature and humidity range shall be permanently posted on the cabinet.

Reasons:

(1) Experience with existing elevator equipment that have been installed with air conditioning set to the upper limit of the manufactures operating range has shown a higher percentage of equipment failures and shortened life cycle occur due to the extreme temperatures in Phoenix. (2) This results in unsafe conditions as controller doors are left open and extra fans are brought into equipment rooms to try and solve the problem. (3) To harmonize with existing policy.

(Related amendments A17.1-2.7.9.2, A17.1- 2.7.6.3.2, A17.1-2.8.5, and IBC 3003.1.4, IBC 3006.2)

Cost Impact: Cost of independent air conditioning system.

**City of Phoenix Amendments
to the 2010 ASME Code**

2.7.9.1 Lighting. Permanently installed electric lighting shall be provided in all machinery spaces, machine rooms, control spaces, and control rooms. The illumination shall be not less than 200 lx (19 fc) at the floor level, at the standing surface of a working platform (see 2.7.5.3), or at the level of the standing surface when the car is in the blocked position (see 2.7.5.1). The light switch shall be located at the point of entry

- (a) for machinery spaces and control spaces, and
- (b) for machine rooms and control rooms, inside the room and where practicable on the lock-jamb side of the access door
- (c) all light switches for access to any elevator or escalator machine room, control room, machine space, or control space:
 - 1. shall not be controlled by automatic means only and
 - 2. shall be illuminated.

Reasons:

(1) To eliminate any possible hazard while working on electrical and mechanical equipment if the lights go out. (2) To facilitate finding the light switch in darkened areas. (3) To harmonize with NEC 110.26(D).

(Related amendments: A17.1-2.7.9.1, A17.1-2.2.5.3, NEC 620.23(B), and NEC 620.24(B))

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2010 ASME Code**

2.7.9.2 Temperature and Humidity. Machinery spaces, machine rooms, control spaces, and control rooms shall be provided with ~~natural or mechanical means~~ independent air conditioning to keep the ambient air temperature and humidity ~~in the range specified by the elevator equipment manufacturer~~ not greater than 90 degrees F to ensure safe and normal operation of the elevator. The temperature and humidity range shall be permanently posted in the machine room, control room, control space, or where specified by the equipment manufacturer, in the machinery space.

Reasons:

(1) Experience with existing elevator equipment that have been installed with air conditioning set to the upper limit of the manufactures operating range has shown a higher percentage of equipment failures and shortened life cycle occur due to the extreme temperatures in Phoenix.

(2) This results in unsafe conditions as controller doors are left open and extra fans are brought into equipment rooms to try and solve the problem. (3) To harmonize with existing policy.

(Related amendments A17.1-2.7.9.2, A17.1- 2.7.6.3.2, A17.1-2.8.5, and IBC 3003.1.4, IBC 3006.2)

Cost Impact: Cost of independent air conditioning system.

**City of Phoenix Amendments
to the 2010 ASME Code**

2.8.5 Air Conditioning

Independent air conditioning equipment ~~is permitted to~~ shall be provided for all elevator machinery spaces, machine rooms, control spaces, or control rooms for the purpose of cooling these areas only, subject to 2.8.5.1 through 2.8.5.5.

2.8.5.1 Air conditioning equipment shall not be located directly above elevator equipment or in the elevator hoistway.

2.8.5.2 The clear headroom below suspended air conditioning equipment shall conform to 2.7.4.

2.8.5.3 Means shall be provided to collect and drain condensation water from these spaces. Condensation drains shall not be located directly above elevator equipment. Drains connected directly to sewers shall not be installed.

2.8.5.4 Safe and convenient access within the elevator machinery space, machine room, control space, or control room shall be provided to the air conditioning equipment for servicing and maintaining.

Reasons:

(1) To harmonize with existing policy. (2) Servicing of air conditioning units inside the elevator hoistway is unsafe for untrained personnel and costly to the owner.

(Related amendments A17.1-2.7.9.2, A17.1- 2.7.6.3.2, A17.1-2.8.5, and IBC 3003.1.4, IBC 3006.2)

Cost Impact: Cost of independent air conditioning system.

**City of Phoenix Amendments
to the 2010 ASME Code**

2.12.5.1 When a car is outside the unlocking zone, the hoistway doors or car doors shall be so arranged that the hoistway doors or car doors cannot be opened more than 100 mm (4 in.) from inside the car. Electronic car door restrictors shall not be affected by smoke and if faulted out shall stop at the closest floor and shut down with doors open if:

- (a) there is insufficient power to operate the device, or
- (b) the device is not operating as designed.

Reasons:

(1) To clarify existing policy. (2) To prevent the possible entrapment of passengers or fire department personnel in an emergency.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2010 ASME Code**

2.14.1.5.3 On all cars with a total travel of seventy five feet (75) or more the requirements specified in 2.14.1.5 shall apply except that the emergency exit shall be so arranged that it can be opened from within the car by means of a keyed spring-return cylinder-type lock having not less than a five-pin or five-disk combination and opened from the top of the car without the use of a key and conform to 2.14.1.5.3.1 through 2.14.1.5.3.2.

2.14.1.5.3.1 The key required to open the emergency exit lock shall be kept on the premises in a location readily accessible to authorized persons, but not where it is available to the public. No other key to the building shall unlock the emergency exit lock except that where hoistway access switches conforming to 2.12.7 are provided, the key used to operate the access switches shall be permitted to also unlock the top emergency exit. This key shall be Group 1 Security (see 8.1). This key shall be a standardized key designated by the Local Authority Having Jurisdiction (AHJ).

2.14.1.5.3.2 The top emergency exit shall be provided with a car door electric contact conforming to 2.14.1.5.1(f) and

- (a) Be located as to be inaccessible from the inside of the car.
- (b) The opening of the electrical contact shall limit the car speed to not more than 0.75 m/s (150 ft/min) if the emergency exit override switch is on.
- (c) The emergency exit override switch shall be controlled automatically by the fire service emergency elevator recall devices.

Reasons:

Requested by the Phoenix Fire Department for safety.

Cost Impact: Minimal cost impact.

**City of Phoenix Amendments
to the 2010 ASME Code**

2.14.2.3.3 ~~Forced ventilation~~ Independent air conditioning conforming to the following shall be provided on observation elevators with glass walls exposed to direct sunlight:

- (a) There shall be a minimum air handling capacity to provide one air change per minute based on net inside car volume, and a temperature of not greater than 90 degrees F.
- (b) An auxiliary power source capable of providing the minimum air conditioning and air handling capacity for a continuous period of at least 1 h shall be provided on each elevator car.

NOTE (2.14.2.3.3): Special consideration should be given to elevators such as observation and parking garage elevators, when they are exposed to the elements. In extreme cases, emergency power may be required for this purpose.

Reasons:

Due to the extreme heat in Phoenix, an entrapment in an outside elevator can lead to serious injuries or even death. Response time varies from 30 minutes to 2 hours.

Cost Impact: Cost of independent air conditioning system.

**City of Phoenix Amendments
to the 2010 ASME Code**

2.26.1.4.2 Top-of-Car Inspection Operation. Top- of-car inspection operation shall conform to 2.26.1.4.1 and the following:

- (a) A stop switch (see 2.26.2.8) shall be permanently located on the car top and readily accessible to a person, while standing at the hoistway entrance normally used for access to the car top.
- (b) The transfer switch [see 2.26.1.4.1(b)] shall be located on the car top and shall be so designed as to prevent accidental transfer from the "INSPECTION" to "NORMAL" position.
- (c) A separate device of the continuous-pressure type labeled "ENABLE" shall be provided adjacent to the inspection operating devices.
- (d) The inspection operating devices shall become effective only when the "ENABLE" device is activated.
- (e) The inspection operating devices [see 2.26.1.4.1(c)], shall be permitted to be of the portable type, provided that
 - (1) the "ENABLE" device [see 2.26.1.4.2(c)], and a stop switch, in addition to the stop switch required in 2.26.1.4.2(a) are included in the portable unit
 - (2) the flexible cord is permanently attached so that the portable unit cannot be detached from the car top, and
 - (a) the flexible cord is long enough (10' max) to reach both sides of the crosshead on a front and rear installation to allow working on all rear devices safely, or
 - (b) if flexible cord can not safely be long enough to reach both sides of the crosshead on front and rear installations then two inspection stations shall be provided.
- (f) Separate additional devices of the continuous- pressure type shall be permitted to be provided on the car top to make power door opening and closing and automatic car leveling operative from the top of the car for testing purposes.
- (g) When on top-of-car inspection operation, a separate additional device shall be permitted to render ineffective the top final terminal stopping device, and the buffer switch for gas spring-return counterweight oil buffers, in conformance with the requirements of 2.26.4.3, 2.26.9.3.1(a), 26.9.3.2, and 2.26.9.4, and it shall allow the car to be moved to a position in conformance with the requirements of 2.7.4.5 and 2.7.5.1.3(c).
- (h) The inspection operating devices shall be readily accessible to a person while standing in one of the horizontal areas described in 2.14.1.6.2 on the car enclosure top.

Reasons:

To provide a safer working environment for service technicians and inspectors while working on top of elevator cars.

Cost Impact: Minor cost of longer cord.

**City of Phoenix Amendments
to the 2010 ASME Code**

2.27.8 Switch Keys

The key switches required by 2.27.2 through 2.27.5 for all elevators in a building shall be operable by the ~~FEO-K4~~ same key. The keys shall be Group 3 Security (see 8.1). A separate key shall be provided for each switch. These keys shall be kept on the premises in a location readily accessible to firefighters and emergency personnel, but not where they are available to the public. This key shall be ~~of a tubular, 7 pin, style 137 construction and shall have a bitting code of 6143521 starting at the tab sequenced clockwise as viewed from the barrel end of the key.~~ The key shall be coded the "AZFS" key as designated by the authority having jurisdiction. The possession of the ~~"FEO-K4"~~ "AZFS" key shall be limited to elevator personnel, emergency personnel, elevator equipment manufacturers, and authorized personnel during checking of Firefighters' Emergency Operation (see 8.1 and 8.6.11.1).

Where provided, a lock box, including its lock and other components, shall conform to the requirements of UL 1037 (see Part 9).

NOTE (2.27.8): Local authorities may specify additional requirements for a uniform keyed lock box and its location to contain the necessary keys

Reasons:

Existing fire service key used by fire department and emergency personnel.

Cost Impact: No cost impact. Existing keys already changed over to "AZFS".

**City of Phoenix Amendments
to the 2010 ASME Code**

2.29.1 Identification of Equipment

In buildings with more than one elevator, each elevator in the building shall be assigned a unique alphabetical or numerical identification, a minimum of 50 mm (2 in.) in height unless otherwise specified. The identification shall be painted on, engraved, or securely attached to:

- (a) the driving machine
- (b) MG set
- (c) controller
- (d) selector
- (e) governor
- (f) main line disconnect switch
- (g) the crosshead, or where there is no crosshead, the car frame, such that it is visible from the top of the car
- (h) the car operating panel, minimum of 13 mm (0.5 in.) in height
- (i) adjacent to or on every elevator entrance, at the designated level, ~~minimum of 75 mm (3 in.) in height~~ and at all other levels a minimum of 26 mm (1 in.) in height.

Reasons:

Requested by the Phoenix Fire Department for public safety.

Cost Impact: Minimal cost impact.

**City of Phoenix Amendments
to the 2010 ASME Code**

8.6.1.4.2 Record Availability. ~~The maintenance records shall be available to the elevator personnel that are listed under 8.6.1.4.1 shall be available to the elevator personnel. Records kept electronically must be provided upon request within two (2) business days or may have hard copies kept in the same room as the controller. Instructions to obtain electronic records shall be noted on the controller. Records shall be maintained for two (2) years, and are the property of the owner. Fire service and repair logs may be kept off site by the owner if they are readily available to authorized personnel and the location is noted on the controller.~~

Reasons:

(1) Continued difficulty of obtaining records stored offsite impede the ability of elevator personnel to perform their job in a safe manor. (2) Records become "lost" when management companies change their service provider. (3) During accident investigations records are sometimes not obtained without a subpoena.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2010 ASME Code**

Recommendation:

Adopt Appendix "N" with the following changes ~~NON-MANDATORY APPENDIX N RECOMMENDED INSPECTION~~

Reasons:

Provide for schedule of testing and inspections. Previously adopted for the 2004 & 2007 A17.1

Cost Impact: No change in cost.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

Part 2 – Administration and Enforcement - RESERVED

Reasons:

Administration and enforcement of the Phoenix Building Construction Code is specified in Chapter 1 of the 2012 International Building Code as amended by the city of Phoenix.

Cost Impact: N/A

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

[B] 410.8.11 Toilet rooms.

Where it is *technically infeasible* to alter existing toilet and bathing rooms to be *accessible*, an *accessible* family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. In existing construction, one of two or more fixtures (water closets and/or urinals) may be removed to create space for one accessible stall in each existing toilet room. This may result in the reduction of one required water closet which shall be permitted when this reduction is needed to create a conforming accessible toilet stall. Any alteration under this section shall not reduce other accessibility requirements including, but not limited to required clear floor spaces and maneuvering spaces.

Reasons:

This is a current amendment to the 2006 IBC & IEBC. This supports barrier removal, an important part of the ADA law.

Cost Impact: Reduced cost for compliance.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

Section 705.1.10 Toilet rooms. Where it is technically infeasible to alter existing toilet and bathing rooms to be accessible, an accessible family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 of the *International Building Code* is permitted. The family or assisted-use toilet or bathing room shall be located on the same floor and in the same area as the existing toilet or bathing rooms. In existing construction, one of two or more fixtures (water closets and/or urinals) may be removed to create space for one accessible stall in each existing toilet room. This may result in the reduction of one required water closet which shall be permitted when this reduction is needed to create a conforming accessible toilet stall. Any alteration under this section shall not reduce other accessibility requirements, including, but not limited to, required clear floor spaces and maneuvering spaces.

Reasons:

This is a current amendment to the 2006 IBC & IEBC. This supports barrier removal, an important part of the ADA law.

Cost Impact: Reduce costs for compliance.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

804.2.5 Supervision. Fire sprinkler systems required by this section shall be supervised by one of the following methods:

1. Approved central station system in accordance with NFPA 72;
2. Approved proprietary system in accordance with NFPA 72;
3. Approved remote station system of the jurisdiction in accordance with NFPA 72; or
4. When approved by the *code official*, approved local alarm service that will cause the sounding of an alarm in accordance with NFPA 72.

Exception: Supervision is not required for the following:

1. Underground gate valve with roadway boxes.
- ~~2. Halogenated extinguishing systems.~~
- ~~3. Carbon dioxide extinguishing systems.~~
- ~~4. Dry and wet chemical extinguishing systems.~~
- ~~5. Automatic sprinkler systems installed in accordance with NFPA 13R where a common supply main is used to supply both domestic and automatic sprinkler systems and a separate shutoff valve for the automatic sprinkler system is not provided~~

Reasons:

The Phoenix Fire Code requires supervision of these items.

Cost Impact: Unable to determine due to number and type of device that may be needed

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

804.3 Standpipes. Where the *work area* includes exits or corridors shared by more than one tenant and is located more than 50 feet (15 240 mm) above or below the lowest level of fire department access, a standpipe system shall be provided. Standpipes shall have an approved fire department connection with hose connections at each floor level above or below the lowest level of fire department access. Standpipe systems shall be installed in accordance with the *International Building Code*.

Exceptions:

1. No pump shall be required provided that the standpipes are capable of accepting delivery by fire department apparatus of a minimum of 250 gallons per minute (gpm) at 65 pounds per square inch (psi) (946 L/m at 448KPa) to the topmost floor in buildings equipped throughout with an automatic sprinkler system or a minimum of 500 gpm at 65 psi (1892 L/m at 448KPa) to the topmost floor in all other buildings. Where the standpipe terminates below the topmost floor, the standpipe shall be designed to meet (gpm/psi) (L/m/KPa) requirements of this exception for possible future extension of the standpipe.
2. The interconnection of multiple standpipe risers shall not be required.

Reasons:

The Phoenix Fire Code requires a fire pump for any Standpipe system where the municipal water supply cannot provide the needed pressure. The fire code does allow an appeal for this item but this appeal is done by the Fire Marshal on a case by case basis.

Cost Impact: Cost of a standpipe and required fire pump installation.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

1201.1.1 Preliminary meeting. If an applicant requests that a building meet the requirements of this chapter and the project is a project involving alterations and/or a change of occupancy, then the Planning and Development Department shall offer a preliminary meeting with the applicant upon payment of a fee as set forth in Appendix A.2 of Phoenix City Code, prior to the submission of a permit application. The preliminary meeting shall, to the extent possible, include the officials responsible for permit approval and enforcement with respect to the Phoenix Building Construction Code, Phoenix Fire Code and historic preservation ordinances.

Reasons:

This requirement was previously amended in 2006 IEBC code, and is consistent with departmental policies.

Cost Impact:

This is a cost-saving measure. The objective of this meeting is to identify proactively all the code, technical and policy requirements as early as feasible.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

1201.2 Report. *A historic building undergoing repair, alteration, or change of occupancy shall be investigated and evaluated. If it is intended that the building meet the requirements of this chapter, a written report shall be prepared and filed with the code official by a registered design professional when such a report is necessary in the opinion of the code official and the historic preservation officer. If the subject matter of the report does not require an evaluation by a registered design professional, the code official has the authority to allow the report to be prepared by a licensed contractor responsible for the work.* Such report shall be in accordance with Chapter 1 and shall identify each required safety feature that is in compliance with this chapter and where compliance with other chapters of these provisions would be damaging to the contributing historic features character. For buildings assigned to Seismic Design Category D, E or F, a structural evaluation describing, at a minimum, the vertical and horizontal elements of the lateral force-resisting system and any strengths or weaknesses therein shall be prepared. Additionally, the report shall describe each feature that is not in compliance with these provisions and shall demonstrate how the intent of these provisions is complied with in providing an equivalent level of safety.

Reasons:

This requirement was previously amended in 2006 IEBC code, and is consistent with departmental policies and state and federal regulations.

Cost Impact:

This is a cost-saving measure intended to streamline the report preparation process for uncomplicated projects and to preserve the historic integrity of the project.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

1201.5 Energy efficiency. Alterations and additions to an *historic building* shall be exempt from the provisions of the International Energy Conservation Code. New construction within designated historic districts shall be subject to the provisions of the International Energy Conservation Code.

Reasons:

This requirement was previously amended in 2006 IEBC code, and is consistent with departmental policies.

Cost Impact:

This cost-saving measure is intended to reduce the financial and technical infeasibility of energy upgrades to the entire building.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

1202.4 Repair and replacement. Repair and replacement of existing or missing features using original materials shall be permitted. Partial replacement for repairs that match the original in configuration, height, and size shall be permitted. Glazing is subject to the requirements of Section 1203.8.

Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Chapter 24 of the *International Building Code*.

Reasons:

This requirement was previously amended in 2006 IEBC code, and is consistent with departmental policies.

Cost Impact:

This cost-saving measure is intended to reduce the financial and technical infeasibility for uncomplicated projects.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

1203.3 Means of egress and emergency escape and rescue. Existing window and door openings and corridor and stairway widths less than those specified elsewhere in this code may be approved, provided that, in the opinion of the *code official*, there is sufficient width and height for a person to pass through the opening or traverse the means of egress. When approved by the *code official*, the front or main exit doors need not swing in the direction of the path of exit travel, provided that other approved means of egress having sufficient capacity to serve the total occupant load are provided.

Reasons:

This requirement was previously amended in 2006 IEBC code, and is consistent with departmental policies.

Cost Impact:

This cost-saving measure is intended to reduce the financial and technical infeasibility for projects.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

1204.1 Accessibility requirements. The provisions of Sections 705, 806 and 906, as applicable, shall apply to facilities designated as historic structures that undergo *alterations*, unless *technically infeasible*. Where compliance with the requirements for accessible routes, entrances and toilet rooms would threaten or destroy the historic significance of the building or *facility*, as determined by the *code official* and historic preservation officer, the alternative requirements of Sections 1204.1.1 through 1204.1.4 for that element shall be permitted.

Reasons:

This requirement was previously amended in 2006 IEBC code, and is consistent with departmental policies and permit requirements.

Cost Impact: None.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

1205.6 Means of egress and emergency escape and rescue. Existing window and door openings and corridor and stairway widths less than those that would be acceptable for nonhistoric buildings under these provisions shall be approved, provided that, in the opinion of the *code official*, there is sufficient width and height for a person to pass through the opening or traverse the exit and that the capacity of the exit system is adequate for the occupant load, or where the other operational controls to limit occupancy are approved by the *code official*.

Reasons:

This requirement was previously amended in 2006 IEBC code, and is consistent with departmental policies.

Cost Impact: This cost-saving measure is intended to reduce the financial and technical infeasibility for projects.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

1205.14 Natural light. When it is determined by the *code official* and the *historic preservation officer* that compliance with the natural light requirement of Section 1011.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered acceptable.

Reasons:

This requirement was previously amended in 2006 IEBC code, and is consistent with departmental policies.

Cost Impact: This cost-saving measure is intended to reduce the financial and technical infeasibility for projects.

**City of Phoenix Amendments
to the 2012 International Existing Building Code**

Recommendation for the following appendices:

Not adopt

Appendix A: Seismic Strengthening Provisions for Unreinforced Masonry Bearing Wall Buildings.

Appendix B: Supplementary Accessibility Requirements for Existing Buildings and Facilities.

Section B102: Fixed Transportation Facilities and Stations.

Section B103: Dwelling and Sleeping Units.

Appendix C: Guidelines for the Wind Retrofit of Existing Buildings.

Adopt

Appendix B: Supplementary Accessibility Requirements for Existing Buildings and Facilities.

Section B101: Qualified Historical Buildings and Facilities.

Section B104: Referenced Standards.

Reasons:

Appendix A: Not applicable to our region.

Appendix B:

Section B101 covers the enforcement of historic buildings. It covers historic buildings subject to Section 106 of the National Historic Preservation Act and the COP is responsible for enforcing the requirements of these buildings due to responsibilities delegated from the State Historic Preservation office. Therefore this section should be adopted.

Sections B102 and B103 are for fixed transportation facilities and stations and communication features in dwelling units and sleeping units. Our code reference to the 2000 ADA Standards is adequate and therefore these sections should not be adopted.

Appendix C: Not applicable to our region.

Cost Impact: No cost impact

**City of Phoenix Amendments
to the 2012 International Energy Conservation Code**

C101.2 Scope. This code applies to *commercial buildings* and the building sites and associated systems and equipment. Group R-2 when defined as a *Commercial Building* by section C202, shall have the option of complying under the Residential Provisions of the code, regardless of height. Once defined as such on the submittal documents, all components of the Residential Provisions shall be followed.

Reasons:

Would allow a multi-family developer to choose between residential and commercial provisions regardless of the height of the building. Aligns the commercial and residential provisions for multi-family construction. This amendment ensures that a three-story and a four-story (e.g. wood-framed) multi-family development have the same guidelines.

Cost Impact: Cost Savings

**City of Phoenix Amendments
to the 2012 International Energy Conservation Code**

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION C103 CONSTRUCTION DOCUMENTS

C103.1 General.

Construction documents and other supporting data shall be submitted in one or more sets with each application for a permit. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where special conditions exist, the *code official* is authorized to require necessary construction documents to be prepared by a registered design professional.

Exception: The *code official* is authorized to waive the requirements for construction documents or other supporting data if the *code official* determines they are not necessary to confirm compliance with this code.

C103.2 Information on construction documents.

Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted when *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Details shall include, but are not limited to, as applicable, insulation materials and their *R*-values; fenestration *U*-factors and SHGCs; area-weighted *U*-factor and SHGC calculations; mechanical system design criteria; mechanical and service water heating system and equipment types, sizes and efficiencies; economizer description; equipment and systems controls; fan motor horsepower (hp) and controls; duct sealing, duct and pipe insulation and location; lighting fixture schedule with wattage and control narrative; and air sealing details.

C103.3 Deleted

C103.4 Deleted

C103.5 Deleted

SECTION C104 INSPECTIONS Reserved

SECTION C105 VALIDITY Reserved

SECTION C106 REFERENCED STANDARDS

C106.1 Referenced codes and standards.

The codes and standards referenced in this code shall be those listed in Chapter 5, and such codes and standards shall be considered as part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections C106.1.1 and C106.1.2.

C106.1.1 Conflicts.

Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

C106.1.2 Provisions in referenced codes and standards.

Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

C106.2 Conflicting requirements.

Where the provisions of this code and the referenced standards conflict, the provisions of this code shall take precedence.

C106.3 Application of references.

References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

**City of Phoenix Amendments
to the 2012 International Energy Conservation Code**

C106.4 Other laws.

The provisions of this code shall not be deemed to nullify any provisions of local, state or federal law.

SECTION C107 FEES Reserved

SECTION C108 STOP WORK ORDERS Reserved

SECTION C109 BOARD OF APPEALS Reserved

Reasons:

The deleted provisions are contained in the Phoenix Building Construction Code IBC, which is being used as a centralized location, for the administrative provisions. These provisions may conflict with the adopted administrative code sections and retaining them is redundant.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Energy Conservation Code**

R101.2 Scope. This code applies to *residential buildings* and the building sites and associated systems and equipment. Group R-2 when defined as a *Residential Building* by section R202, shall have the option of complying under the Commercial Provisions of the code, regardless of height. Once defined as such on the submittal documents, all components of the Commercial Provisions shall be followed.

Reasons:

Would allow a multi-family developer to choose between residential and commercial provisions regardless of the height of the building. Aligns the commercial and residential provisions for multi-family construction. This amendment ensures that a three-story and a four-story (e.g. wood-framed) multi-family development have the same guidelines.

Cost Impact: Cost Savings

**City of Phoenix Amendments
to the 2012 International Energy Conservation Code**

R102.1.2 RESNET Testing & Inspection Protocol. The Residential Energy Services Network (RESNET) Mortgage Industry National Home Energy Rating System Standards Protocol for third party testing and inspections, shall be deemed to meet the requirements of sections R402.4.1.1, R402.4.1.2 and R403.2.2. and shall meet the following conditions:

1. Third Party Testing and Inspections shall be completed by RESNET certified Raters or Rating Field Inspectors and shall be subject to RESNET Quality Assurance Field Review procedures.
2. Sampling in accordance with Chapter 6 of the RESNET Standards shall be performed by Raters or Rating Field Inspectors working under a RESNET Accredited Sampling Provider.
3. Third Party Testing is required for the following items:
 - a. R402.4.1.1 – Building Envelope – Thermal and Air Barrier Checklist
 - b. R402.4.1.2 – Testing – Air Leakage Rate
 - c. R403.2.2 – Sealing – Duct Tightness
4. The other requirements identified as “mandatory” in Chapter 4 shall be met.
5. Alternate testing and inspection programs and protocols shall be allowed when approved by the Code Official.

Reasons:

1. Maricopa Association of Governments Building Code Committee has reviewed the Third Party Testing and Inspection procedures of the Residential Energy Services Network (RESNET) with the intent to promote and present uniform guidelines for the acceptance of the RESNET Mortgage Industry National Home Energy Rating System Standards (Standards) as an “Above Code Program” for the jurisdictions within Maricopa County; and
2. The inspection and testing required under the 2012 International Residential Code (IRC) and the 2012 International Energy Conservation Code (IECC) is currently being performed under the RESNET Standards for home builders participating in the Environmental Protection Agency’s ENERGY STAR for Homes Program; and
3. The RESNET Standards (Chapters 3,6, and 8) are in the process of being certified as ANSI Standards; and
4. The utilization of the RESNET Standards would assure home builders of the ability to continue a testing and inspection process that has been proven to be successful in saving energy while protecting the health, safety and welfare of the public in the building code sections covered by the program; and
5. The committee has researched and discussed this issue and determined that the intent of the code is being met by the acceptance of the testing and inspection protocols of the RESNET Standards; and
6. The committee will hear the final form and draft requested of the Ad Hoc committee (as proposed above) at their meeting scheduled for January 16, 2013, and will be voting on this item (after full committee review) as a new MAG standard.

Cost Impact:

1. There will be no cost additions to Cities and Towns.
2. There will be significant cost savings for the large production home builders.
3. There will be significant energy savings for the future homeowners.

**City of Phoenix Amendments
to the 2012 International Energy Conservation Code**

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION R103 CONSTRUCTION DOCUMENTS

~~**R103.3 Examination of documents. Deleted**~~

~~**R103.4 Amended construction documents. Deleted**~~

~~**R103.5 Retention of construction documents. Deleted**~~

SECTION R104 INSPECTIONS Reserved

SECTION R105 VALIDITY Reserved

SECTION R107 FEES Reserved

SECTION R108 STOP WORK ORDERS Reserved

SECTION R109 BOARD OF APPEALS Reserved

Reasons:

The deleted provisions are contained in the Phoenix Building Construction Code IBC, which is being used as a centralized location, for the administrative provisions. These provisions may conflict with the adopted administrative code sections and retaining them is redundant.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Energy Conservation Code**

R401.2.1 Alternative approach for compliance. A Home Energy Rating System (“HERS”) Index of 73 or less, confirmed in writing by a Residential Energy Services Network certified energy rater may be used in place of the approach described in section 401.2 above. Compliance may be demonstrated by sampling in accordance with Chapter 6 of the Mortgage Industry National Home Energy Rating Systems Standard as adopted by the Residential Energy Services Network.

Reasons:

With Energy Conservation the end result is all that matters and it should not matter to the City how that result is achieved. The HERS Index was developed as a way to quantify energy efficiency and standardize the results. The Index considers the entire building system when calculating the score. Allowing a HERS Index as a means for complying with the IECC would allow for additional innovation in energy efficiency in new residential construction, while at the same time ensuring the city meets its energy conservation goals. Moreover, it would allow builders to engage in a cost benefit analysis with different construction methods and materials in order to achieve a home which meets the energy efficiency goals.

Cost Impact: HERS Index Testing is done by private Raters and must be certified under the RESNET Standards. Therefore, there would be no additional cost to the city. By utilizing a HERS Index, builders are required to achieve a required level of energy efficiency, however, that are also provided increased flexibility to utilize a cost-benefit analysis on the methods used to achieve that efficiency.

**City of Phoenix Amendments
to the 2012 International Energy Conservation Code**

R403.2 Ducts. Ducts and air handlers shall be in accordance with Sections R403.2.1 through R403.2.3.

R403.2.1 Insulation (Prescriptive). Supply ducts in attics shall be insulated to a minimum of R-8. Ducts in floor trusses shall be insulated to a minimum of R-6.

Exceptions: ~~Ducts or portions thereof located completely inside the building thermal envelope.~~

1. Ducts or portions thereof located completely inside the building thermal envelope.

2. Supply ducts may be insulated to a minimum of R-6 when one or more of the following conditions are met;

2.1 Minimum SEER rating of space heating/cooling system is increased to 15.

2.2 Maximum U-factor is decreased to 0.35 and maximum SHGC is decreased to 0.22 for all fenestration products.

2.3 Wall cavity insulation minimum R-value is increased to R-19.

2.4 Residential buildings that meet the requirements of sections R102.1.1 or R405.

2.5 Residential buildings with attic radiant barriers in accordance with ASTM C1313, installed in accordance with ASTM C1743.

Reason:

The Arizona Homebuilders Association proposed efficiency improvements in heating/cooling equipment, glazing product performance, and increased thermal envelope insulation as an alternative to providing R-8 duct insulation required by the IECC. A Code Modification was approved in July 2006 to allow a trade-off to the use of R-6 insulation on HVAC ducts in residential attics. Energy simulation software was used to compare cost savings for each of the proposed areas of concentration. The benefits from improving the efficiency of the air conditioning system, window thermal resistance to heat gain, and wall cavity insulation were shown to surpass cost savings from increasing HVAC duct insulation. Based on these findings, staff recommendation is that this amendment be adopted for use in the 2012 IECC and the 2012 IRC Chapter 11.

** A public proposal was submitted to include attic radiant barriers in the list of trade-offs for the R-8 duct insulation. Simulation software was used to demonstrate cost savings when radiant barriers and R-6 insulation was incorporated, as compared to no radiant barriers and R-8 duct insulation. Based on these positive savings results and the requirement for listed products, staff recommends that this previously approved proposal be modified to include radiant barriers in the list of exceptions.

Cost Impact: Savings from reconfiguration of attic truss openings.

**City of Phoenix Amendments
to the 2012 International Energy Conservation Code**

R403.2.2.1. Sealed air handler. ~~Air Handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.~~

Reasons:

Air handler manufacturers are having difficulty manufacturing air handlers that are capable of meeting this requirement. Therefore, this equipment is not readily available on the marketplace for purchase and this requirement should be deleted. There is already a requirement for a duct leakage testing in the Code which will incorporate the measurement of leakage at the air handler. As long as the duct leakage requirements are met, the leakage from the air handler will have been accounted for making this requirement unnecessary.

Cost Impact: No additional cost to the city.

**City of Phoenix Amendments
to the 2012 International Fuel Gas Code**

CHAPTER 1, PART 2 – ADMINISTRATION AND ENFORCEMENT

Deleted and Reserved in its entirety.

Reasons: The deleted provisions are contained in the Phoenix Building Construction Code IBC, which is being used as a centralized location for the administrative provisions. These provisions may conflict with the adopted administrative code sections and retaining them is redundant.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Green Construction Code**

CHAPTER 1

[A] 101.1 Title.

These regulations shall be known as the Phoenix Green Construction Code of ~~[NAME OF JURISDICTION]~~ hereinafter referred to as "this code."

101.2 General.

The use of this code is optional, unless specifically required through ordinance by the city of Phoenix. This code is an overlay document to be used in conjunction with the other codes and standards adopted by the jurisdiction. This code is not intended to be used as a standalone construction regulation document and permits are not to be issued under this code. This code is not intended to abridge or supersede safety, health or environmental requirements under other applicable codes or ordinances.

SECTION 102 APPLICABILITY Reserved

SECTION 103 DUTIES AND POWERS OF THE CODE OFFICIAL Reserved

SECTION 104 CONSTRUCTION DOCUMENTS Reserved

SECTION 105 APPROVAL Reserved

SECTION 106 PERMITS Reserved

SECTION 107 FEES Reserved

SECTION 108 BOARD OF APPEALS Reserved

SECTION 109 CERTIFICATE OF OCCUPANCY Reserved

Reasons:

The change to Section 101.2 clarifies that compliance with this code is voluntary. The remaining sections are reserved as this information is contained within the Administrative Provisions of the Phoenix Building Construction Code.

Cost Impact: No impact.

**City of Phoenix Amendments
to the 2012 International Green Construction Code**

TABLE 302.1 REQUIREMENTS DETERMINED BY THE JURISDICTION

Section	Section Title of Description and Directives	Jurisdictional Requirements	
CHAPTER 1. SCOPE			
101.3 Exception 1.1	Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories in height above grade plane with a separate means of egress, their accessory structures, and the site or lot upon which these buildings are located, shall comply with ICC 700.	<input checked="" type="checkbox"/> Yes	No
101.3 Exception 1.2	Group R-3 residential buildings, their accessory structures, and the site or lot upon which these buildings are located, shall comply with ICC 700.	<input checked="" type="checkbox"/> Yes	No
101.3 Exception 1.3	Group R-2 and R-4 residential buildings four stories or less in height above grade plane, their accessory structures, and the site or lot upon which these buildings are located, shall comply with ICC 700.	<input checked="" type="checkbox"/> Yes	No
CHAPTER 4. SITE DEVELOPMENT AND LAND USE			
402.2.1	Flood hazard area preservation, general	Yes	<input checked="" type="checkbox"/> No
402.2.2	Flood hazard area preservation, specific	Yes	<input checked="" type="checkbox"/> No
402.3	Surface water protection	Yes	<input checked="" type="checkbox"/> No
402.5	Conservation area	<input checked="" type="checkbox"/> Yes	No
402.7	Agricultural land	<input checked="" type="checkbox"/> Yes	No
402.8	Greenfield sites	<input checked="" type="checkbox"/> Yes	No
407.4.1	High-occupancy vehicle parking	<input checked="" type="checkbox"/> Yes	No
407.4.2	Low-occupancy, hybrid and electric vehicle parking	<input checked="" type="checkbox"/> Yes	No
409.1	Light pollution control	<input checked="" type="checkbox"/> Yes	No
CHAPTER 5. MATERIAL RESOURCE CONSERVATION AND EFFICIENCY			
503.1	Minimum percentage of waste material diverted from landfills.	<input checked="" type="checkbox"/> 50%	
CHAPTER 6. ENERGY CONSERVATION, EFFICIENCY AND CO₂e EMISSIONS REDUCTION			
302.1, 302.1.1, 602.1	zEPI of Jurisdictional Choice – The jurisdiction shall indicate a zEPI of 46 or less in each occupancy for which it intends to require enhanced energy performance.	Occupancy: _____ zEPI: _____	
604.1	Automated demand response infrastructure	Yes	<input checked="" type="checkbox"/> No
CHAPTER 7. WATER RESOURCES CONSERVATION, QUALITY AND EFFICIENCY			
702.7	Municipal reclaimed water	<input checked="" type="checkbox"/> Yes	No
CHAPTER 8. INDOOR ENVIRONMENT QUALITY AND COMFORT			
804.2	Post-Construction Pre-Occupancy Baseline IAQ Testing	Yes	<input checked="" type="checkbox"/> No
807.1	Sound transmission and sound levels	<input checked="" type="checkbox"/> Yes	No
CHAPTER 10. EXISTING BUILDINGS			
1007.2	Evaluation of existing buildings	<input checked="" type="checkbox"/> Yes	No
1007.3	Post Certificate of Occupancy zEPI, energy demand and CO ₂ e emissions reporting	Yes	<input checked="" type="checkbox"/> No

Reasons:

Above jurisdictional requirements create design and construction framework for new and existing commercial buildings and the entire construction site. This code uses baseline approach and prescriptive method to differentiate the benefits over the standard design and construction methods and these requirements include regional variability for maximum cost efficiency.
ICC 700-2008 applies as code framework for residential project.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Green Construction Code**

603.6 Energy display. A permanent, readily accessible and visible display shall be provided adjacent to the main building entrance or on a publicly available Internet web site. The display shall be capable of providing all of the following:

1. The current energy demand for the whole building level measurements, updated for each fuel type at the intervals specified in Section 603.3.
2. The average and peak demands for the previous day and the same day the previous year.
3. The total energy usage for the previous 18 months.

Reasons:

The IGCC design requirements use whole building life cycle assessment and baseline approach to differentiate the benefits over the standard design and construction methods. As a voluntary measure, this code is a significant value-added feature for the customers, who would be motivated to operate their buildings as designed to realize the operational cost savings. Public display of the energy demands and consumption data is not a public safety issue; therefore, it is not unreasonable to allow the customers to choose how such data should be displayed and tracked otherwise.

Cost Impact: This is a cost-reducing measure by eliminating the cost of a power-sourced signage and its supporting structure.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION 103 DEPARTMENT OF MECHANICAL INSPECTION—Reserved

SECTION 104 DUTIES AND POWERS OF THE CODE OFFICIAL—Reserved

SECTION 105 APPROVAL Reserved

SECTION 106 PERMITS Reserved

SECTION 107 INSPECTIONS AND TESTING Reserved

SECTION 108 VIOLATIONS Reserved

SECTION 109 MEANS OF APPEAL Reserved

SECTION 110 TEMPORARY EQUIPMENT, SYSTEMS AND USES Reserved

Reasons:

The deleted provisions are contained in the Phoenix Building Construction Code – Administrative Provisions. These provisions may conflict with the adopted administrative code and retaining them is redundant.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

307.2.2 Drain pipe materials and sizes. Components of the condensate disposal system shall be cast iron, galvanized steel, copper, cross-linked polyethylene, polybutylene, polyethylene, ABS, CPVC or PVC pipe or tubing. Nonmetallic piping shall not be installed in exposed locations. All components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 of the ~~International~~ Phoenix Plumbing Code relative to the material type. Condensate waste and drain line size shall be not less than 3/4-inch (19 mm) internal diameter and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with Table 307.2.2.

Reasons:

Due to our extreme weather conditions, it is recommended that all nonmetallic condensate piping be prohibited from areas of direct sunlight, such as roofs. Nonmetallic piping subject to extreme heat will soften and sag between supports. This causes low spots in the drainage system and prevents gravity flow to the point of disposal. In addition, exposure to UV rays from the sun causes the pipe to become brittle and subject to fracture when placed under stress or strain. Both of these conditions lead to condensate disposal failure with the likely result of water ponding on the roof.

Cost Impact: Increase in cost of materials. This item is in the current 2006 code.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

[B] SECTION 309 TEMPERATURE CONTROL

[B] 309.1 ~~Space heating systems.~~ Heating and Cooling systems. ~~Habitable spaces~~ Interior spaces intended for human occupancy shall be provided with active or passive space-heating and space-cooling systems capable of maintaining a minimum indoor temperatures between 70-~~of 68~~^{of 68}F (20¹°C) and 90°F (32°C) at a point 3 feet (914 mm) above the floor on the design heating day. The installation of portable space heaters or coolers shall not be used to achieve compliance with this section.

Exception: Space heating and cooling systems are not required for interior spaces where the primary purpose is not associated with human comfort.

Reasons:

The 2012 IMC and IBC text covers heating concerns only and does not distinguish between residential or commercial buildings. The intent of this proposed amendment is to recognize that the cooling season in Phoenix is the dominant design condition. The City Council of Phoenix included provisions for space cooling in all residential dwellings during the update of the Neighborhood Preservation Ordinance approved on June 16, 1998. The cooling requirement for dwellings was incorporated into the adoption of the 1997 Uniform Building Code and was approved with an effective date of March 12, 1999. The adoption of the 2003 I-codes included mandatory heating and cooling for occupied interior spaces. An exception allowed for no heating and cooling when the primary purpose was not associated with human comfort, such as warehouses. The 2006 I-codes were amended by Phoenix to require heating and cooling in habitable spaces. This proposed amendment re-establishes the City Council mandate to provide heating and cooling in residential dwellings and allows for designers and building owners to determine if it is required in commercial buildings based on the definition of habitable spaces.

Cost Impact: None. This has been in effect since 1998.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

403.7 Balancing. The *ventilation air* distribution system shall be provided with means to adjust the system to achieve at least the minimum ventilation airflow rate as required by Sections 403.3 and 403.4. Ventilation systems shall be balanced using a nationally accepted air balancing test by an approved method. Such balancing shall verify that the ventilation system is capable of supplying and exhausting the airflow rates required by Sections 403.3 and 403.4. A final report shall be provided to the engineer of record and the mechanical inspector.

Exception: Residential occupancies shall be exempt from this provision.

Reasons:

Proposed amendment will require a qualified test and balance firm/ individual to perform balancing of ventilation air systems in commercial buildings. The original code language does not define what type of “approved method” is acceptable. The proposal will further require that such firms are required to follow national standards for air balancing methods.

Cost Impact: Minimal cost of nationally accepted air balancing test.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

502.14 Motor vehicle operation.

In areas where motor vehicles operate, mechanical ventilation shall be provided in accordance with Section 403. Additionally, areas in which stationary motor vehicles are operated shall be provided with a *source capture system* that connects directly to the motor vehicle exhaust systems. Makeup air for the required exhaust systems in areas where motor vehicles operate shall be provided through permanent unobstructed openings to the outdoors, such as louvers and grills. Mechanical equipment and louvers used for makeup air purposes shall be electrically interlocked with the exhaust system.

Exceptions:

1. This section shall not apply where the motor vehicles being operated or repaired are electrically powered.
2. This section shall not apply to one- and two-family dwellings.
3. This section shall not apply to motor vehicle service areas where engines are operated inside the building only for the duration necessary to move the motor vehicles in and out of the building.

Reasons:

Motor vehicle operation in a building depletes oxygen and causes a build-up of carbon monoxide and other products of combustion which could be fatal to occupants. It is critical to the health of occupants to remove these emissions from the occupied space. In the referenced section 403, an exhaust rate of 0.75 cfm/ft² is specified for both repair garages and enclosed parking garages. Repair garages that have stationary vehicle operation, such as engine tune-up services, radiator or transmission flushing, etc. require dedicated exhaust systems. This proposal adds specific requirements to provide permanent openings for makeup air or use mechanical makeup air units. This eliminates the use of open doors, which cannot be reliable. It also requires any mechanical equipment or mechanical louvers used for makeup air to be electrically interlocked with the dedicated exhaust system.

Cost Impact: Minimal cost increase to install openings. This requirement is also an amendment carried forward from the 2006 IMC.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

502.20 Storage and use of liquid carbon dioxide (CO₂) systems. Indoor or outdoor areas that contain liquid carbon dioxide (CO₂) stored in ASME pressure vessels in new and existing facilities shall be provided with mechanical exhaust ventilation in accordance with this section.

Exception: Outdoor storage areas in non-enclosed spaces designed to prevent the collection of vapors when approved by the *Fire Marshal*.

502.20.1 System requirements. Exhaust ventilation systems for liquid carbon dioxide (CO₂) tanks shall comply with all of the following:

1. The installation shall be in accordance with this code and the *Phoenix Fire Code*.
2. Mechanical ventilation shall be provided at a rate of not less than 1 cfm per square foot [0.00508 m³/(s • m²)] of floor area over the storage area.
3. The system shall operate continuously unless alternate designs are approved by the *Fire Marshal*.
4. A manual start control shall be provided outside of the room in a position adjacent to the access door to the room or in another approved location. The switch shall be a break-glass or other approved type and shall be labeled: VENTILATION SYSTEM EMERGENCY ON-ONLY.
5. Exhaust ventilation shall be designed to consider the density of the potential vapors released. For liquid CO₂ systems, exhaust shall be taken from a point within 12 inches (305 mm) of the floor.
6. Makeup air shall be provided. The location of both the exhaust and makeup air openings shall be designed to provide air movement across all portions of the floor or room to prevent the accumulation of vapors.
7. Exhaust air shall not be recirculated to occupied areas. Exhaust termination shall be located where it will not allow for a dangerous accumulation of vapors and in accordance with Section 501.3.1 (2).
8. Sensors, controls, alarms, piping and all accessory components shall be as prescribed by the *Phoenix Fire Department*.

Reasons:

This amendment clarifies that mechanical ventilation is required for liquid carbon dioxide (CO₂) bulk storage systems regardless of quantity. Businesses that provide carbonated drinks have been increasingly switching from dry to liquid CO₂ storage systems. Liquid CO₂ storage systems have been deemed potentially hazardous to human health by the Phoenix Fire Department. Separate Fire Department permits are also required for the CO₂ systems.

Cost Impact: Additional cost due to requirement for installation of dedicated mechanical exhaust system in the area of liquid CO₂ tanks.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

606.2 Where required. Smoke detectors shall be installed where indicated in Sections 606.2.1 through 606.2.3.

Exception: Smoke detectors shall not be required where air distribution systems are incapable of spreading smoke beyond the enclosing walls, floors and ceilings of the room or space in which the smoke is generated.

606.2.1 ~~Return air systems.~~ Air distribution systems. Smoke detectors shall be installed in ~~return air systems with~~ air distribution systems downstream of the filters and ahead of any branch connections in systems having a design capacity greater than 2,000 cfm (0.9 m³/s), ~~in the return air duct or plenum upstream of any filters, exhaust air connections, outdoor air connections, or decontamination equipment and appliances.~~

Exception: Smoke detectors are not required ~~in the return air system~~ where all portions of the building served by the air distribution system are protected by area smoke detectors connected to a fire alarm system in accordance with the *International Fire Code*. The area smoke detection system shall comply with Section 606.4.

Reasons:

Committee recommends that this section be revised to correlate with NFPA 90A Installation of Air-Conditioning and Ventilating Systems. The 2012 IMC references NFPA 72 National Fire Alarm Code, which in turn references NFPA 90A for installation of smoke detectors. These NFPA Standards are generally recognized as the national standards for smoke detector installation. A large amount of air distribution systems installed in Phoenix utilize a filtered grill for return air, typically installed in a ceiling or wall. In order to place a duct detector in front of this filter without having it attached to the grill, an additional length of plenum or duct is required. This leads to added construction costs and space restraints. The duct smoke detector may also be subjected to a higher frequency of false alarms from contaminants in the room. The committee reasons that any appreciable amount of smoke entering the return air system will pass through the filtered grill and reach the probe for the smoke detector. This proposed amendment will help to keep down the design costs while still providing an equivalent level of life safety based on the national standard. This amendment is carried forward from the 2006 IMC.

Cost Impact: Saves cost of additional duct work.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

606.5 Testing. Smoke detectors shall be tested by an approved testing agency or a qualified third party Special Inspector. The Special Inspector/testing agency shall be an independent third party individual or firm and shall not be the installing contractor. Special inspections shall be as specified in Chapter 17 of the *International Building Code as amended*.

Reasons:

Smoke detectors can save lives when they operate correctly. The Mechanical code requires that these devices be installed at specific locations in the building air distribution systems. Testing of the operation of each smoke detector is required to be completed by a special inspector that is independent of the installer. Such special inspector must also be qualified to complete the work. Special Inspections is covered in the International Building Code and has been extended in the City of Phoenix to include several life safety items related to Mechanical design. Due to the importance of these life safety devices, it is recommended by the committee that a Special Inspector submit a final report certifying that all devices operate as designed and the Registered Design Professional in Responsible Charge signs the certificate. To maintain consistency with the Special Inspections program, the testing agency and the registrant shall follow the guidelines set forth in the 2012 IBC as specified in Chapter 17.

Cost Impact: Increase costs associated with hiring a Special Inspector. However, this amendment is carried forward from the 2006 IMC and has been in place for the past six years.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

607.2 Installation. Fire dampers, smoke dampers, combination fire/smoke dampers and ceiling radiation dampers located within air distribution and smoke control systems shall be installed in accordance with the requirements of this section, and the manufacturer's installation instructions and listing. Dampers shall be tested by an approved testing agency or a qualified third party special inspector. The special Inspector/testing agency shall be an independent third party individual or firm and shall not be the installing contractor. Special inspections shall be as specified in ~~Section 2802~~ Chapter 17 of the *International Building Code as amended*.

Reasons:

Fire and smoke dampers can save lives when they operate correctly. The Mechanical code requires that these devices be installed at specific locations to prevent fire and smoke from spreading throughout a building. The IMC requires all dampers to be listed and tested at the factory. This proposal will verify that the dampers operate correctly after they are installed in the building. This amendment requires that testing of dampers shall be performed by a qualified third party testing agency and all results shall be verified by the professional design engineer. Special inspection requirements are listed in the 2012 IBC and a reference is provided in this proposal.

Cost Impact: Increase costs associated with hiring a Special Inspector. However, this amendment is carried forward from the 2006 IMC and has been in place for the past six years.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

SECTION 928 EVAPORATIVE COOLING EQUIPMENT

928.1 General. Evaporative cooling equipment shall:

1. Be installed in accordance with the manufacturer's instructions.
2. Be installed on level platforms in accordance with Section 304.10. An evaporative cooler supported by the building structure shall be installed on a substantial level base and shall be secured directly or indirectly to the building structure by suitable means to prevent displacement of the cooler. Modifications made to the supporting framework of buildings as a result of the installation shall be made in accordance with the requirements of the International Building Code as amended.
3. Have openings in exterior walls or roofs flashed in accordance with the *International Building Code as amended*.
4. Be provided with potable water backflow protection in accordance with ~~Section 608 of the *International Phoenix Plumbing Code*~~.
5. Have air intake opening locations in accordance with Section 401.4.
6. A permanent relief opening or other engineered design sufficient to assure positive airflow shall balance intake air.
7. Outside air shall be provided as specified in Section 403.2.
8. Air ducts and dampers, which are a portion of an evaporative cooling system, shall comply with Chapter 6.
9. Overflow drains shall be provided that discharge to an approved disposal location and comply with the Phoenix Plumbing Code.

Reasons:

This amendment clarifies installation requirements for evaporative coolers.

Cost Impact: There is no cost impact as these requirements are carried forward from the 2006 IMC.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

SECTION 929 WOOD STOVE/FIREPLACE INSTALLATION

929.1 Definitions. For purposes of this section, the following words and terms shall have the meaning ascribed thereto:

Fireplace: A built-in-place masonry hearth and fire chamber or a factory-built appliance, designed to burn solid fuel or to accommodate gas or electric log insert or similar device, and which is intended for occasional recreational or aesthetic use, not for cooking, heating, or industrial processes.

Solid fuel: Includes, but is not limited to, wood, coal, or other non-gaseous or non-liquid fuels, including those fuels defined by the Maricopa County Air Pollution Control Officer as "inappropriate fuel" to burn in residential wood burning devices.

Woodstove: A solid-fuel burning heating appliance including a pellet stove, which is either freestanding or designed to be inserted into a fireplace.

929.2 General. In accordance with the Phoenix City Council adopted Ordinance G-4062, on or after December 31, 1998, no person, firm or corporation shall construct or install a fireplace or a wood stove, and the Building Official shall not approve or issue a permit to construct or install a fireplace or a wood stove, unless the fireplace or wood stove complies with one of the following:

1. A fireplace which has a permanently installed gas or electric log insert;
2. A fireplace, wood stove or other solid fuel burning appliance which has been certified by the United States Environmental Protection Agency as conforming to 40 Code of Federal Regulations part 60, subpart AAA;
3. A fireplace, woodstove or other solid fuel burning appliance that has been tested and listed by a nationally recognized testing agency to meet performance standards equivalent to those adopted by 40 Code of Federal Regulations part 60, subpart AAA;
4. A fireplace, wood stove or other solid fuel burning appliance which has been determined by the Maricopa County Air Pollution Control Officer to meet performance standards equivalent to those adopted by 40 Code of Federal Regulations part 60, subpart AAA, as in effect on July 1, 1990.
5. A fireplace which has a permanently installed wood stove insert which complies with subparagraph 2, 3, or 4 above.

Exceptions: The following installations are not regulated and are not prohibited by this section:
Furnaces, boilers, incinerators, kilns, and other similar space heating or industrial process equipment.
Cook stoves, barbecue grills, and similar appliances designed primarily for cooking.
Fire pits, barbecue grills, and other outdoor fireplaces.

929.3 Fireplace or wood stove alterations prohibited. Fireplaces constructed or installed on or after December 31, 1998, that contain a gas or electric log insert or a woodstove insert, shall not be altered to directly burn wood or any other solid fuel. On or after December 31, 1998, no person, firm, or corporation shall alter a fireplace, woodstove, or other solid-fuel burning appliance in any manner that would void its certification or operational compliance with the provisions of this section.

Fireplaces constructed or installed on or after December 31, 1998, shall not be altered without first obtaining a permit from the City to ensure compliance with this section.

Reasons:

Recommendation to include code language based on City Ordinance G4062 and Maricopa County wood burning restriction ordinance. This amendment is carried over from the 2006 IMC and is also found in the 2012 IRC as Section R325.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Mechanical Code**

1105.10 Dimensions. Refrigeration machinery rooms shall be of such dimensions that all system parts are readily accessible with adequate space for service, maintenance, and operations. An unobstructed walking space at least three (3) feet (914 mm) in width and six (6) feet eight (8) inches (2032 mm) in height shall be maintained throughout allowing free access to at least two sides of all moving machinery and approaching each stop valve. Access to refrigeration machinery rooms shall be restricted to authorized personnel and posted with a permanent sign signage.

Reasons:

This section is needed to ensure adequate safe working space around the equipment in a refrigeration machinery room. Previously incorporated into the 2006 IMC.

Cost Impact: Minimal cost increase for signage and additional space.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

PART 2—ADMINISTRATION AND ENFORCEMENT

SECTION 103 DEPARTMENT OF PLUMBING INSPECTION RESERVED

SECTION 104 DUTIES AND POWERS OF THE CODE OFFICIAL RESERVED

SECTION 105 APPROVAL RESERVED

SECTION 106 PERMITS RESERVED

SECTION 107 INSPECTIONS AND TESTING RESERVED

SECTION 108 VIOLATIONS RESERVED

SECTION 109 MEANS OF APPEAL RESERVED

SECTION 110 TEMPORARY EQUIPMENT, SYSTEMS AND USES RESERVED

Reasons: The deleted provisions are contained in the Phoenix Building Construction Code, 2012 IBC, which is being used as a centralized location for the administrative provisions. These provisions may conflict with the adopted administrative code sections and retaining them is redundant.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

GREASE REMOVAL DEVICE. A plumbing appurtenance that is installed in the sanitary drainage system to intercept free-floating fats, oils and grease from waste water discharge. Such a device operates on a time-or event-controlled basis and has the ability to remove free-floating fats, oils and grease automatically without intervention from the use except for maintenance. These devices must be able to perform as a gravity interceptor if mechanical or electrical power is lost and provide continuous separation.

Reasons: Grease removal devices rely on moving parts and electricity to separate grease from the waste stream; therefore, if moving parts break down or electrical power is lost the device will still be able to operate as a passive device and prevent grease from entering the sewer system.

**DAB Technical asked for the last sentence to be reworked and accepted as modified.

Cost Impact: No cost impact. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

**Table 403.1 - continued
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES^a
(See Sections 403.2 and 403.3)
Delete all service sink requirements from Table 403.1**

f. Drinking fountains are not required for an occupant load of 45-50 or fewer.

~~g. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.~~

Reasons: These revisions are made to provide consistency between the UPC and IPC and the minimum plumbing fixture table that is found in the 2012 International Building Code.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

403.2 Separate Facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.
Exceptions:

4. Separate facilities shall not be required for dwelling units and sleeping units.
5. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.
6. Separate facilities shall not be required in mercantile and business occupancies in which the maximum occupant load is 50 ~~400~~ or fewer.

Reasons: These revisions are made to provide consistency between the 2012 UPC section 422.2, 2012 IBC section 2902.2 and the 2012 IPC to allow for small business and mercantile occupancies to provide a single toilet facility for up to 50 occupants.

Cost Impact: Cost savings for small mercantile and business occupancies.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

Sections 410.3, 410.4

Add new definitions as follows:

DRINKING FOUNTAIN. A plumbing fixture that is connected to the potable water distribution system and the drainage system. The fixture allows the user to obtain a drink directly from a stream of flowing water without the use of any accessories.

WATER DISPENSER. A plumbing fixture that is manually controlled by the user for the purpose of dispensing potable drinking water into a receptacle such as a cup, glass or bottle. Such fixture is connected to the potable water distribution system of the premises. This definition also includes a freestanding apparatus for the same purpose that is not connected to the potable water distribution system and that is supplied with potable water from a container, bottle or reservoir.

WATER COOLER. A drinking fountain that incorporates a means of reducing the temperature of the water supplied to it from the potable water distribution system.

410.3 Substitution. Where restaurants provide drinking water in a container free of charge, *drinking fountains* shall not be required in those restaurants. In other occupancies where *drinking fountains* are required, ~~water coolers or bottled~~ *water dispensers* shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains.

410.4 Prohibited location. *Drinking fountains, water coolers* and ~~bottle~~ *water dispensers* shall not be installed in public restrooms.

Reasons: There is often confusion regarding what is or is not a water cooler. Some people think that a water cooler is a drinking fountain since typically they also cool the water that is being dispensed. Others think that a water cooler is a bottled water dispenser that is capable of cooling the water dispensed. Currently the code does not define any of the terms. In reality, drinking fountains are drinking fountains and everything else is some form of a water dispenser. Whether or not the water is cooled is irrelevant. The code does not require cooled water. The code can be simplified in Section 410.3 by referring only to drinking fountains or their alternative, water dispensers. The new definitions establish that a drinking fountain and a water dispenser that is connected to the potable water supply system are both plumbing fixtures by definition and a bottled water dispenser is not a plumbing fixture by definition. It is necessary to be clear as to what the code requires to be provided and also what the code intends to allow as an alternative. This proposal also paves the way for new technology that is being marketed and installed today; namely water dispensers that are built into a wall, connected to the potable water supply system and dispense water into cups, glasses and bottles. These units typically treat the potable water with additional filtering and/or reverse osmosis treatment.

Cost Impact: Cost savings from replacing drinking fountain installations with water dispensers.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

419.2 Substitution for water closets. ~~In each bathroom or toilet room, urinals shall not be substituted for more than 67 percent of the required water closets in assembly and educational occupancies. Urinals shall not be substituted for more than 50 percent of the required water closets in all other occupancies.~~ Urinals shall not be substituted for more than 50 percent of the required water closets in all other occupancies.

Reasons: These revisions are made to provide consistency between the UPC and IPC and the minimum plumbing fixture table that is found in the 2012 International Building Code.

Cost Impact: None

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

Table 605.3 Water Service Pipe

MATERIAL

~~Acrylonitrile butadiene styrene (ABS) plastic pipe~~

STANDARD

~~ASTM D 1527; ASTM D 2282~~

Reasons:

ABS material conflicts with first sentence of IPC Section 605.3 which requires water service pipe to conform to NSF 61.

Cost Impact: None

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

Table 605.5 PIPE FITTINGS

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D 2468

Reasons: ABS material conflicts with second sentence of IPC Section 605.5 which requires pipe fittings utilized in water supply systems to comply with NSF 61.

Cost Impact: None

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

608.3.2 Access and Clearance. Access and clearance shall be provided for the required testing, maintenance, and repair. Access and clearance shall be in accordance with manufacturer's instructions, and not less than 12 inches between the lowest portion of the assembly and grade, floor, or platform. Elevated installations that exceed 5 feet above the floor or grade shall be provided with a platform capable of supporting a tester or maintenance person. Secondary backflow assemblies shall be installed above ground, as close as practicable to the point of service delivery. A minimum 3-foot (914 mm) clear space shall be maintained for testing, maintenance and repair.

Reasons:

- Inserts code language regarding elevated installations.
- Clarifies that secondary backflow prevention assemblies shall be installed above ground.
- Clarifies the minimum required clearance dimensions for secondary backflow prevention assemblies.
- Coordinates with Phoenix Fire Code Section 901.10 requirements for access to fire protection equipment.

Cost Impact: None

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

608.7.1 Prohibited Locations. Backflow prevention devices shall not be installed in pits, underground vaults, or submerged locations.

Reasons:

- Phoenix City Code Chapter 37-144 (d) regarding backflow assembly accessibility and testing presents design constraints for adequate clearance and drainage in a proposed vault installation. Proposed vault dimensions typically restrict full accessibility to all parts of an assembly.
- Eliminates the possibility of installing a backflow prevention assembly in a pit or vault.
- Reflects installation drawings shown in City of Phoenix Standard Details P1351 through P1355.
- Corresponds to manufacturer's installation instructions which restrict underground installations to AHJ approval.
- Above ground installation assures that Fire Department personnel have visual access to fire line backflow prevention assembly shut off valves and verifies that the assembly OS&Y (outside stem & yoke) shut-off valves are open by presence of a rising stem.

Cost Impact: None

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

608.7.2 Secondary Backflow Protection. The following activities or facilities shall have reduced pressure principle backflow prevention assemblies installed as close as practicable to the point of service delivery: Hospitals, surgical clinics, laboratories, morgues, mortuaries, veterinary hospitals, industrial occupancies, packing plants, slaughter houses, chemical plants, municipal waste treatment facilities, and construction water services.
Note: Multiple water services which are interconnected onsite shall be provided with not less than a Double Check Valve Assembly at each service connection.

Reasons: ADEQ, Maricopa County and City of Phoenix Water Department all require secondary protection for the services cited.

Cost Impact: None – This amendment carries over from previous code cycles.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

**SECTION 704
DRAINAGE PIPING INSTALLATION**

704.1 Slope of horizontal drainage piping. Horizontal drainage piping shall be installed in uniform alignment at uniform slopes. The slope of a horizontal drainage pipe shall be not less than that indicated by Table 704.1.

Exception: The Authority Having Jurisdiction may approve a lessor slope for building sewers in lieu of a sewage ejector or pumping station when a registered engineer or architect certifies the building sewer design and its installation, and when the building owner agrees in writing under notary to accept the lessor slope. Certification of the building sewer shall meet the special inspection requirements of the Phoenix Building Construction Code.

Reasons:

This amendment adds the option of using a lessor slope for building sewers based on engineering calculations. The owner will be required to sign under notary that they have accepted the lessor slope. The registrant shall certify the design and final installation through special inspection.

Cost Impact: This amendment will reduce the costs associated with the previous approval process for low slope sewer installations.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

803.2 Neutralizing device required for corrosive wastes. Corrosive liquids, spent acids or other harmful chemicals that destroy or injure a drain, sewer, soil or waste pipe, or create noxious or toxic flumes or interfere with the sewage treatment processes shall not be discharge into the plumbing system without being thoroughly ~~diluted~~, neutralized, or treated by passing through an *approved dilution* ~~or~~ neutralizing device. Such devices shall be ~~automatically~~ provided with a sufficient supply of ~~diluting water~~ ~~or~~ neutralizing medium so as to make the contents noninjurious before discharge into the drainage system. The nature of the corrosive or harmful waste and the method of its treatment ~~or dilution~~ shall be *approved* prior to installation.

Reasons: Diluting chemical wastes is prohibited by the Clean Water Act, 40 CFR, 403.6 (d).

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

1002.4 Trap seals. Each fixture trap shall have a liquid seal of not less than 2 inches (51 mm) and not more than 4 inches (102 mm), or deeper for special designs relating to accessible fixtures. Where a trap seal is subject to loss by evaporation, a trap seal primer valve shall be installed. Trap seal primer valves shall connect to the trap at a point above the level of the trap seal. A trap seal primer valve shall conform to ASSE 1018 or ASSE 1044.

Exception: Trap seal primer valves are not required when an alternative device is provided to prevent evaporation of the liquid seal. Barrier type floor drain devices used to prevent evaporation shall conform to ASSE 1072, be accessible for maintenance and installed in accordance with manufacturer's instructions. A source of water for filling of traps shall be located in the vicinity of the plumbing fixture.

Reasons:

A barrier-type device has been developed for installation in a floor drain that prevents evaporation of the required liquid seal. This type of device opens when liquid enters the drain and then closes to prevent the migration of sewer gases back into the building. The devices are installed in the body of the floor drain and are typically made of an elastomeric material. Many of these devices are tested to several national standards such as ASSE 1072 and are listed by both the ICC-ES (IPC) and IAPMO (UPC) major Code agencies. The current Code requires that a trap seal primer valve be installed where trap seals are subject to evaporation. Trap seal primer valves have been proven to be adversely affected by the hard water in Phoenix and very often fail, thus leaving no trap seal protection. Once the liquid in the trap evaporates, sewer gas will migrate into the building. This exception will allow use of the listed devices in place of the trap seal primer valves required by the Code section.

Cost Impact: Cost savings from replacement of trap seal primer valves with lower cost barrier-type devices and reduced maintenance.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

1003.2 Approval. The size, type and location of each interceptor and of each separator shall be designed and installed in accordance with the manufacturer's instructions and the requirements of ~~this section based on the anticipated conditions of use~~ the Authority Having Jurisdiction. Wastes that do not require treatment or separation shall not be discharged into any interceptor or separator.

Reasons: Phoenix City Code Section 28-13 gives approval authority for all interceptors to the Director of Water Services. This code change is an administrative change to clarify approval authority for these devices in the International Plumbing Code.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

1003.3.1 Grease interceptors and automatic grease removal devices. A grease interceptor or automatic grease removal device shall be required to receive the drainage from fixtures and equipment with grease laden waste located in food preparation areas, such as in restaurants, hotel kitchens, hospitals school kitchens, bars, factory cafeterias and clubs. Fixtures and equipment shall include pot sinks, prerinse sinks; soup kettles or similar devices; work stations; floor drains or sinks into which kettles are drained; automatic hood wash units and dishwashers without prerinse sinks. Grease interceptors and automatic grease removal devices shall receive waste only from fixtures and equipment that allow fats, oils or grease to be discharged. ~~Where lack of space or other constraints prevent the installation or replacement of a grease interceptor, one or more grease interceptors shall be permitted to be installed on or above the floor an upstream of an existing grease interceptor.~~

Reasons:

There is limited testing on the performance of grease interceptors installed in series. Installing a grease interceptor suspended above a floor space has the potential to become a public nuisance. The maintenance of these devices is generally neglected and over time the interceptor can deteriorate and leak on the floor below.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

1003.3.2 Food Waste Grinders. ~~Where food waste grinders connect to grease interceptors, a solids interceptor shall separate the discharge before connecting to the grease interceptor. Solids interceptors and grease interceptors shall be sized and rated for the discharge of the food waste grinder. All commercial food waste disposal units shall be discharged to a gravity grease interceptor.~~ Emulsifiers, chemicals, enzymes and bacteria shall not discharge into the food waste grinder.

Reasons:

Food waste grinders contribute grease and food waste to the building drainage system and have the potential to cause blockages in the public sewer system.

Cost Impact: There is a cost impact to install a gravity interceptor versus a solids interceptor if the facility chooses to install a food waste grinder. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

1003.3.4.1 Grease interceptor capacity. Grease interceptors shall have the grease retention capacity indicated in Table 1003.3.4.1 for the flow- through rates indicated.

TABLE 1003.3.4.1
CAPACITY OF GREASE INTERCEPTORS ^{ab}

<u>Total Number of Grease Retention Fixtures Connected</u>	<u>TOTAL FLOW-THROUGH RATING (gpm)</u>	<u>GREASE RETENTION CAPACITY (pounds)</u>
-	4	8
-	6	12
-	7	14
-	9	18
-	10	20
-	12	24
-	14	28
-	15	30
-	18	36
1	20	40
2	25	50
3	35	70
4	50	100
-	75	150
-	100	200

For SI: 1 gallon per minute = 3.785 L/m, 1 pound = 0.454 kg.

- a. ~~For Total flow – through ratings greater than 100 (gpm), double the flow through rating to determine the grease retention capacity (pounds).~~ 50 (gpm) shall be specially approved by the Authority Having Jurisdiction.
- b. For installations with more than (4) fixtures, the Authority Having Jurisdiction may permit the use of larger devices.

Reasons: The Total Number of Retention Fixtures, Total Flow–Through Ratings and Retention Capacities were developed from three public forums held in 1997 to standardize the design of interceptors. These forums provided design and sizing guidelines with input from the public and are still currently used to size interceptors in the City of Phoenix as well as neighboring cities.

Cost Impact: No cost impact. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

1003.3.4.3 Interceptor Maintenance. A two way cleanout shall be installed on the discharge side of all hydromechanical grease interceptors.

Reasons: The purpose of this code section is to provide an entry point to clean the line downstream of the device and back to the device.

Cost Impact: The cost impact is minimal to install additional piping for cleanouts. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

1106.1 General. The size of the vertical conductors and leaders, building storm drains, building storm sewers, and any horizontal branches of such drains or sewers shall be based on an hourly rainfall rate of three (3) inches per hour ~~the 100-year hourly rainfall rate indicated in Figure 1106.1 or on other rainfall rates determined from approved local weather data.~~

Reasons:

Current language in the 2006 UPC requires roof drain sizing based on six (6) inches per hour rainfall rate. The 2012 UPC and the 2012 IPC list rainfall rates for Phoenix as 2.2 and 2.5 inches per hour, respectively. It is recommended that a rainfall rate of three (3) inches per hour be used for ease of using the sizing tables and to provide consistency between the two plumbing codes.

** DAB Technical asked for further structural input on changing the rainfall rate to 3 inches per hour.

Cost Impact: Cost savings from decreasing the size of rainwater piping systems.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

1106.5 Parapet wall scupper location. ~~Parapet wall roof drainage scupper and overflow scupper location shall comply with the requirements of Section 1503.4 of the *International Building Code*. When scuppers are used for primary and/or secondary (emergency overflow) roof drainage, the quantity, size, location and inlet elevation of the scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1611.1 of the *2012 International Building Code*. Scupper openings shall be not less than 4 inches (102 mm) in height and have an opening width equal to the circumference of the roof drain required for the area served, sized in accordance with Table 1106.2(1). The flow through the primary system shall not be considered when locating and sizing scuppers. A rainfall rate of three (3) inches per hour shall be used for sizing purposes.~~

Reasons:

Current language in the 2012 IPC and IBC implies that scuppers are only approved for secondary roof drainage. It has been a long standing practice in Phoenix to allow the use of scuppers as primary roof drains. This proposal adds the acceptance of scuppers as primary roof drains and matches the sizing criteria found for the secondary scuppers in IPC 1108.3 and IBC 1503.4.2.

** DAB Technical asked for further structural input on changing the rainfall rate to 3 inches per hour.

Cost Impact: Cost savings from allowing scuppers for primary roof drainage.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

1108.3 Sizing of secondary drains. Secondary (emergency) roof drain systems shall be sized in accordance with Section 1106 based on the rainfall rate for which the primary system is sized in Tables 1106.2(1), 1106.2(2), 1106.3 and 1106.6. Scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.7. Scuppers shall have an opening dimension of not less than 4 inches (102 mm) in height and have an opening width equal to the circumference of the roof drain required for the area served, sized in accordance with Table 1106.2(1). The flow through the primary system shall not be considered when sizing the secondary roof drain system.

Reasons:

This proposal eliminates any confusion between this section and section 1106.5 regarding the required opening width dimensions for scuppers.

** DAB Technical asked for further structural input on changing the rainfall rate to 3 inches per hour.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

**SECTION 1109
COMBINED SANITARY AND STORM SYSTEM
(Reserved)**

1109.1 Size of combined drains and sewers. ~~The size of a combination sanitary and storm drain or sewer shall be computed in accordance with the method in Section 1106.3. The fixture units shall be converted into an equivalent projected roof or paved area. Where the total fixture load on the combined drain is less than or equal to 256 fixture units, the equivalent drainage area in horizontal projection shall be taken as 4,000 square feet (372 m²). Where the total fixture load exceeds 256 fixture units, each additional fixture unit shall be considered the equivalent of 15.6 square feet (1.5 m²) of drainage area. These values are based on a rainfall rate of 1 inch (25 mm) per hour.~~

Reasons:

The city of Phoenix does not allow for combined sanitary and storm drainage systems. This type of combined system is under the jurisdiction of the city of Phoenix Water Services Department.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Plumbing Code**

Adopt Appendices: E & F

Reasons:

Appendix E provides two methods of water pipe sizing not provided in the body of the code. Appendix F contains structural safety provisions that match those found in the IBC and the UPC

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 International Residential Code**

Chapter 1. ADMINISTRATION

Note: For reserved sections herein, refer to the city of Phoenix Building Construction Code - Administrative Provisions for these code requirements.

SECTION R101. TITLE, SCOPE AND PURPOSE

R101.1 Title. These provisions shall be known as the Residential Code for One- and Two-Family Dwellings, as amended by the city of Phoenix, and shall be cited as such and will be referred to herein as “this code.”

R101.2 Scope. The provisions of the International Residential Code for One- and Two-Family Dwellings shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above grade in height with a separate means of egress and their accessory structures.

Exceptions:

1. Live/work units complying with the requirements of 419 of the International Building Code shall be permitted to be built as one- and two-family dwellings or townhouses. Fire suppression required by Section 419.5 of the International Building Code when constructed under the International Residential Code for One- and Two-family Dwellings shall conform to Section P2904.
2. Owner-occupied lodging houses with five or fewer guestrooms shall be permitted to be constructed in accordance with the International Residential Code for One- and Two-family Dwellings when equipped with a fire sprinkler system in accordance with Section P2904.

R101.3 Intent. Reserved.

SECTION R102. APPLICABILITY

R102.1 General. Reserved.

R102.2 Other laws. Reserved.

R102.3 Application of references. Reserved.

R102.4 Referenced codes and standards. The codes and standards referenced in this code shall be considered part of the requirements of this code to the prescribed extent of each such reference and as further regulated in Sections R102.4.1 and R102.4.2.

Exception: Where enforcement of a code provision would violate the conditions of the listing of the equipment or appliance, the conditions of the listing and manufacturer's instructions shall apply.

R102.4.1 Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

R102.4.2 Provisions in referenced codes and standards. Where the extent of the reference to a referenced code or standard includes subject matter that is within the scope of this code, the provisions of this code, as applicable, shall take precedence over the provisions in the referenced code or standard.

R102.5 Appendices. Provisions in the appendices shall not apply unless specifically referenced in the adopting ordinance.

R102.6 Partial invalidity. Reserved.

R102.7 Existing structures. The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, ~~the International Property Maintenance Code Chapter 39 of the Phoenix City Code~~, or the International Fire Code, or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R102.7.1 Additions, alterations or repairs. Additions, alterations or repairs to any structure shall conform to that required for a new structure without requiring the existing structure to comply with all of the requirements of this code, unless otherwise stated. Additions, alterations or repairs shall not cause an existing structure to become unsafe or adversely affect the performance of the building.

Part 2 – Administration and Enforcement

SECTION R103. DEPARTMENT OF BUILDING SAFETY Reserved.

SECTION R104. DUTIES AND POWERS OF THE BUILDING OFFICIAL Reserved.

SECTION R105. PERMITS Reserved.

SECTION R106. CONSTRUCTION DOCUMENTS Reserved.

SECTION R107. TEMPORARY STRUCTURES AND USES Reserved.

SECTION R108. FEES Reserved.

SECTION R109. INSPECTIONS Reserved.

SECTION R110. CERTIFICATE OF OCCUPANCY Reserved.

SECTION R111. SERVICE UTILITIES Reserved.

SECTION R112. BOARD OF APPEALS Reserved.

SECTION R113. VIOLATIONS Reserved.

SECTION R114. STOP WORK ORDER Reserved.

Reasons:

The deleted provisions are contained in the Phoenix Building Construction Code – Administrative Provisions (Chapter 1 of the International Building Code). These provisions may conflict with the adopted administrative code and retaining them is redundant.

Cost Impact: No cost impact

**City of Phoenix Amendments
to the 2012 International Residential Code**

SECTION R202. DEFINITIONS

Fire separation distance. The distance measured from the building face to one of the following:

1. To the closest interior lot line; or
2. to the centerline of a street, an alley, or public way; or
3. to an imaginary line between two buildings on the lot.

The distance shall be measured at a right angle from the face of the framing wall.

Standard Plans. Plans authorized by the Planning & Development Department to be used in construction on a repetitive basis. Standard plans may include options allowing variations to the building design that may alter the interior and exterior appearance.

Reasons:

- This establishes a more exact point for measurement. Construction documents use this point for measuring distances.
- Definition allows standard plans to be used in lieu of separate submittals for each production home.

Cost Impact: Use of standards reduces cost for the department and home builders.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R301.1.4 Access to a public way. All buildings shall be located on lots fronting a public way or other approved access to a public way. Such approved access shall be recorded with the county of Maricopa with the approval of the building official or recorded on the approved plat in accordance with the *Phoenix City Code*. The access shall be in compliance with the *Phoenix Fire Code*.

Reasons:

Clarifies access requirements for all lots. Carried forward from previous amendments.

Cost Impact: No additional cost impact above what was approved in the 2006 amendments. The same text is used in this proposal as approved on December 1, 2006.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R301.1.5 Lot corner identification. In construction applications where legally surveyed lot corner identification markers are not readily verifiable or are missing, the building official, when deemed necessary, shall require lot boundary markers to be surveyed and permanently identified in accordance with State law at the owner's or applicant's expense. The survey shall be executed by a registrant licensed to do such work by the Arizona State Board of Technical Registration.

Reasons:

Often construction is started without locating the legal corners of a lot, leading to disputes after substantial completion of the work. This requirement would limit such cases and ensure compliance to both the Residential Code and the Zoning Ordinance.

Cost Impact: While there could be a possible cost for a survey, this code amendment could save cost by preventing construction in a prohibited location. The same text is used in this proposal as approved on 12-01-06.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R301.2 Climatic and geographic design criteria. Buildings shall be constructed in accordance with the provisions of this code as limited by the provisions of this section. ~~Additional criteria shall be established by the local jurisdiction and set forth in Table R301.2(1).~~

Table R301.2(1)

(Due to space limitations the table could not be reproduced; only the values are listed)

Ground snow load:	<u>0</u>
Wind speed (mph):	<u>90</u>
Seismic design category:	<u>B</u>
Weathering:	<u>Negligible</u>
Frost line depth:	<u>0</u>
Termite:	<u>Moderate to heavy</u>
Decay:	<u>None to slight</u>
Winter design temperature:	<u>N/A</u>
Ice shield underlayment required:	<u>N/A</u>
Flood hazards:	<u>See Phoenix City Code</u>
Air freezing index:	<u>0</u>
Mean annual temperature:	<u>70°F</u>

Reasons:

In order for this document to be adopted, the completed referenced table has to be part of it. The deleted sentence is meaningless as part of a code enforcement requirement.

Cost Impact: No additional cost impact from prior approved values.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R301.2.4 Floodplain construction. Buildings and structures constructed in whole or in part in flood hazard areas (~~including A or V Zones~~) as established in ~~Table R301.2(1)~~ shall be designed and constructed in accordance with ~~Section R322~~ the Phoenix City Code. Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

~~R301.2.4.1 Alternative provisions.~~

~~As an alternative to the requirements in Section R322.3 for buildings and structures located in whole or in part in coastal high hazard areas (V Zones) and coastal A Zones, if delineated, ASCE 24 is permitted subject to the limitations of this code and the limitations therein.~~

Reason:

The city's floodplain ordinance is contained in Chapter 32 of the Phoenix City Code.

Cost Impact: No cost impact. Current City Code requirements are in place.

**City of Phoenix Amendments
to the 2012 International Residential Code**

Table R301.5

USE	LIVE LOAD
Sleeping rooms	30 <u>40</u>

Table R301.5 Footnote "e."

e. See Section ~~R502.2.2~~ R507 for decks attached to exterior walls.

Reasons:

This amendment requires the entire floor to be designed for the same load. This provides flexibility for future remodels and was recommended by the Arizona Building Officials during the 2006 code adoption.

Cost Impact: Negligible

**City of Phoenix Amendments
to the 2012 International Residential Code**

SECTION R302 FIRE-RESISTANT CONSTRUCTION

R302.1 Exterior walls.

Construction, projections, openings and penetrations of *exterior walls* of *dwellings* and accessory buildings shall comply with Table R302.1(1); or *dwellings* equipped throughout with an *automatic sprinkler system* installed in accordance with Section P2904 shall comply with Table R302.1(2).

Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the *fire separation distance*.
2. Walls between of *dwellings* and *accessory structures* located on the same *lot*.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the *lot*. Projections beyond the *exterior wall* shall not extend over the *lot line*.
4. Detached garages accessory to a *dwelling* located within 2 feet (610 mm) of a *lot line* are permitted to have roof eave projections not exceeding 4 inches (102 mm).
5. Foundation vents installed in compliance with this code are permitted.
6. Residences constructed in residential developments which have received preliminary site plan approval prior to July 1, 2007 may continue to comply with the building setback requirements of the 2003 International Residential Code. This provision will expire on July 1, 2015.

Reasons:

2. Verbiage changed for clarification.
6. Added to include the language from Ordinance G-5506 which provided relief to home builders with lots that had been designed to meet the 3' setback of prior codes. This gave the home builders eight years to plan for the new setback requirements.

Cost Impact: No additional costs.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R302.5.1 Opening protection.

Openings from a private garage or carport directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage or carport and residence shall be equipped with solid wood doors not less than $1\frac{3}{8}$ inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than $1\frac{3}{8}$ inches (35 mm) thick, or 20-minute fire-rated doors, equipped with a self-closing device.

Reasons:

Whether a garage or carport, rooms used for sleeping purposes should be protected from the hazard inherent in this use. Industry is supportive of the self-closing provisions to provide an additional level of safety.

Cost Impact: Negligible

**City of Phoenix Amendments
to the 2012 International Residential Code**

SECTION R303. LIGHT, VENTILATION, ~~AND HEATING AND COOLING~~

R303.9 Required heating and cooling. ~~When the winter design temperature in Table R301.2(1) is below 60°F (16°C).~~ Every *dwelling unit* shall be provided with heating and cooling facilities capable of maintaining ~~a minimum~~ room temperatures between of 70°F(21°C) -68°F (20°C) and 90°F (50°C) at a point 3 feet (914 mm) above the floor and 2 feet (610 mm) from exterior walls in all habitable rooms ~~at the design temperature~~. The installation of one or more portable space heaters or portable space coolers shall not be used to achieve compliance with this section.

Reason:

The intent of this proposed amendment is to recognize that the cooling season in Phoenix is the dominant design condition. The City Council of Phoenix included provisions for space cooling in all residential dwellings during the update of the Neighborhood Preservation Ordinance approved on June 16, 1998. The cooling requirement for dwellings was incorporated into the adoption of the 1997 Uniform Building Code and was approved with an effective date of March 12, 1999. The adoption of the 2003 I-codes included mandatory heating and cooling for occupied interior spaces. An exception allowed for no heating and cooling when the primary purpose was not associated with human comfort, such as warehouses. The 2006 I-codes were amended by Phoenix to require heating and cooling in habitable spaces. This proposed amendment re-establishes the City Council mandate to provide heating and cooling in residential dwellings. Cost Impact: The cost associated with providing cooling, but this has been a requirement for over 20 years and is accepted practice.

Cost Impact: No additional costs. The verbiage is consistent with the Neighborhood Preservation Ordinance.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R310.4 Bars, grilles, covers and screens. Bars, grilles, covers, screens or similar devices are permitted to be placed over emergency escape and rescue openings, bulkhead enclosures, or window wells that serve such openings, provided the minimum net clear opening size complies with Sections R310.1.1 to R310.1.3, and such devices shall be releasable or removable from the inside without the use of a key, tool, special knowledge or force greater than that which is required for normal operation of the escape and rescue opening. The dwelling shall be equipped with smoke alarms installed in accordance with Section R314.

Reason:

Retains current requirements for smoke detectors when quick release security bars over bedroom windows are installed.

Cost Impact: Negligible

**City of Phoenix Amendments
to the 2012 International Residential Code**

SECTION R313 AUTOMATIC FIRE SPRINKLER SYSTEMS

R313.1 Townhouse automatic fire sprinkler systems. An automatic residential fire sprinkler system shall be installed in *townhouses*.

Exception: An automatic residential fire sprinkler system shall not be required when *additions* or *alterations* are made to existing *townhouses* that do not have an automatic residential fire sprinkler system installed - unless required by the Bret Tarver Sprinkler Ordinance Section ~~903.2~~ 903.1 of the Phoenix Fire Code.

R313.1.1 Design and installation. Automatic residential fire sprinkler systems for *townhouses* shall be designed and installed in accordance with Section P2904.

R313.2 One- and two-family detached dwellings automatic fire systems. An automatic residential fire sprinkler system shall be installed in detached one- and two-family dwellings as required by. ~~Detached one family dwellings shall comply with~~ the Bret Tarver Sprinkler Ordinance Section ~~903.2~~ 903.1 of the Phoenix Fire Code.

Exception: An automatic residential fire sprinkler system shall ~~not be required for~~ installed in *additions* or *alterations* to existing buildings ~~that are not already provided with an automatic residential sprinkler system~~ unless as required by the Bret Tarver Sprinkler Ordinance Section 903.2 of the Phoenix Fire Code.

R313.2.1 Design and installation. Automatic residential fire sprinkler systems shall be designed and installed in accordance with Section P2904 or NFPA 13D.

Reasons:

In accordance with Arizona Revised Statutes Title 9, Chapter 7, Article 1, Section 9-807, municipalities shall not adopt an ordinance that prohibits a person from choosing not to install fire sprinklers in a single family detached residence or any residential building that contains not more than two dwelling units. This section does not apply to any ordinance requiring sprinklers adopted prior to December 31, 2009, so the existing Bret Tarver Sprinkler Ordinance can remain in effect.

Cost Impact: There will be an added cost to the homebuilder when the scope of the project requires fire sprinklers.

**City of Phoenix Amendments
to the 2012 International Residential Code**

SECTION R320 ACCESSIBILITY

R320.1 Scope. Where there are four or more *dwelling* units or sleeping units in a single structure, the provisions of Chapter 11 of the *International Building Code* for Group R-3 shall apply.

R320.2 Model Home Complex

R320.2.1 No-step entrance. At least one single family dwelling as part of a Model Home Complex, as described in the Phoenix Zoning Ordinance, shall have a no-step entrance as described in Section R320.2.2.

R320.2.2 Dwellings. Residential single family dwellings, as part of a Model Home Complex, as described in the Zoning Ordinance, shall have a route of travel as described herein. The route of travel shall be a continuous no-step path connecting each subdivision sales office or public way to the primary entry.

The route of travel shall conform to the following requirements:

1. The running slope shall not exceed 1:12.
2. Routes of travel complying with this section are not required to have handrails.
3. The route of travel shall be a firm, stable, and slip resistant surface for a minimum width of 36 inches (914 mm) continuous and clear for a height of 7 feet (2.134 m) above the route.
4. The entry to the model home shall have a maneuvering space of a minimum 48 inches (1219 mm) by 48 inches (1219 mm) on the exterior side of the entry door.
5. The threshold at the entry shall not exceed ½ inch (13 mm).
6. The no step entry shall be identified by a readily viewable sign.

Reasons:

To provide a somewhat accessible route to the model home to allow access without traversing steps or steep slopes. This requirement was approved by the Development Advisory Board on May 17th, 2001 and has been in the Phoenix Building Construction Code since that time.

Cost Impact: There is a minimal additional cost for providing this access.

**City of Phoenix Amendments
to the 2012 International Residential Code**

SECTION R322 FLOOD-RESISTANT CONSTRUCTION <u>RESERVED</u>
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Reasons:

The city's floodplain ordinance is contained in Chapter 32 of the Phoenix City Code.
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Cost Impact: No cost impact. Current City Code requirements are in place.
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**City of Phoenix Amendments
to the 2012 International Residential Code**

325.0 FIREPLACE RESTRICTIONS

R325.1 Definitions

For purposes of this article, the following words and terms shall be defined as follows:

Fireplace: A built-in-place masonry hearth and fire chamber or a factory-built appliance, designed to burn solid fuel or to accommodate gas or electric log insert or similar device, and which is intended for occasional recreational or aesthetic use, not for cooking, heating, or industrial processes.

Solid fuel: Includes, but is not limited to, wood, coal, or other non-gaseous or non-liquid fuels, including those fuels defined by the Maricopa County Air Pollution Control Officer as "inappropriate fuel" to burn in residential wood burning devices.

Woodstove: A solid-fuel burning heating appliance including a pellet stove, which is either freestanding or designed to be inserted into a fireplace.

R325.2 General

In accordance with the Phoenix City Council adopted Ordinance G-4062, on or after December 31, 1998, no person, firm or corporation shall construct or install a fireplace or a wood stove, and the Building Official shall not approve or issue a permit to construct or install a fireplace or a wood stove, unless the fireplace or wood stove complies with one of the following:

1. A fireplace which has a permanently installed gas or electric log insert;
2. A fireplace, wood stove or other solid fuel burning appliance which has been certified by the United States Environmental Protection Agency as conforming to 40 Code of Federal Regulations part 60, subpart AAA;
3. A fireplace, woodstove or other solid fuel burning appliance that has been tested and listed by a nationally recognized testing agency to meet performance standards equivalent to those adopted by 40 Code of Federal Regulations part 60, subpart AAA;
4. A fireplace, wood stove or other solid fuel burning appliance which has been determined by the Maricopa County Air Pollution Control Officer to meet performance standards equivalent to those adopted by 40 Code of Federal Regulations part 60, subpart AAA, as in effect on July 1, 1990.
5. A fireplace which has a permanently installed wood stove insert which complies with subparagraph 2, 3, or 4 above.

Exceptions: The following installations are not regulated and are not prohibited by this section:

1. Furnaces, boilers, incinerators, kilns, and other similar space heating or industrial process equipment.
2. Cook stoves, barbecue grills, and similar appliances designed primarily for cooking.
3. Fire pits, barbecue grills, and other outdoor fireplaces.

R325.3 Fireplace or wood stove alterations prohibited.

Fireplaces constructed or installed on or after December 31, 1998, that contain a gas or electric log insert or a woodstove insert, shall not be altered to directly burn wood or any other solid fuel. On or after December 31, 1998, no person, firm, or corporation shall alter a fireplace, woodstove, or other solid-fuel burning appliance in any manner that would void its certification or operational compliance with the provisions of this section.

Fireplaces constructed or installed on or after December 31, 1998, shall not be altered without first obtaining a permit from the City to ensure compliance with this section.

Reasons: This amendment is included to comply with Chapter 40 of the Phoenix City Code and with Maricopa County Air Pollution Control regulations.

Cost Impact: No additional cost impact from current requirements.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R401.1 Application. The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for all buildings. In addition to the provisions of this chapter, the design and construction of foundations in flood hazard areas ~~as established by table R301.2.(1) shall meet the provisions of section R322~~ shall be in accordance with the Phoenix City Code. Wood foundations shall be designed and installed in accordance with AF&PA PWF.

Reason:

Flood hazards addressed in city of Phoenix Flood Management Plan (City Code). This is needed to reflect changes to section **R322**.

Cost Impact: No additional costs involved.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R401.3 Drainage. ~~All lot drainage shall comply with the requirements of Chapter 32A of the Phoenix City Code. Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard. Lots shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of 6 inches (152 mm) within the first 10 feet (3048 mm).~~

Exception: ~~Where lot lines, walls, slopes or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), drains or swales shall be constructed to ensure drainage away from the structure. Impervious surfaces within 10 feet (3048 mm) of the building foundation shall be sloped a minimum of 2 percent away from the building.~~

Reason:

Drainage is designed under Chapter 32 of the City Code

Cost Impact: No additional costs involved

**City of Phoenix Amendments
to the 2012 International Residential Code**

R401.4.1 Geotechnical evaluation. In lieu of a complete geotechnical evaluation, the load-bearing values in Table R401.4.1 shall be assumed. A complete geotechnical evaluation is required for presumptive load-bearing values greater than 1500 pounds per square foot (72kPa).

**TABLE R401.4.1
PRESUMPTIVE LOAD-BEARING VALUES OF
FOUNDATION MATERIALS^a**

CLASS OF MATERIAL	LOAD-BEARING PRESSURE (pounds per square foot)
Crystalline bedrock	12,000
Sedimentary and foliated rock	4,000
Sandy gravel and/or gravel (GW and GP)	3,000
Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM and GC)	2,000 <u>1500</u>
Clay, sandy clay, silty clay, clayey silt, silt and sandy silt (CL, ML, MH and CH)	1,500 <u>1000</u> ^b

For SI: 1 pound per square foot = 0.0479 kPa.

- a. When soil tests are required by Section R401.4, the allowable bearing capacities of the soil shall be part of the recommendations.
- b. Where the building official determines that in-place soils with an allowable bearing capacity of less than ~~4,500~~ 1000 psf are likely to be present at the site, the allowable bearing capacity shall be determined by a soils investigation.

Reasons:

The allowable bearing values were adjusted to match the typical soils found in the Phoenix area. Assumed values greater than 1500 psf are uncharacteristic for native soils found in the area and would require a soil report. The table was adjusted to match previous allowable values as recommended by a group of local geotechnical engineers during the amendments to the 2003 IBC.

Cost Impact: Some foundations in poor soil may need to be larger. Cost impact minimal.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R403.1.1 Minimum size.

Minimum sizes for concrete and masonry footings shall be as set forth in Table R403.1 and Figure R403.1(1). The footing width, W, shall be based on the load-bearing value of the soil in accordance with Table R401.4.1. Spread footings shall be at least 6 inches (152 mm) in thickness, T. Footing projections, P, shall be at least 2 inches (51 mm) and shall not exceed the thickness of the footing. The size of footings supporting piers and columns shall be based on the tributary load and allowable soil pressure in accordance with Table R401.4.1. Footings for wood foundations shall be in accordance with the details set forth in Section R403.2, and Figures R403.1(2) and R403.1(3).

Exception:

For enclosure of existing carport and patio covers, non-bearing wood framed exterior walls within the projection of the existing roof may be supported on an existing, uncracked concrete slab. The minimum slab thickness shall be 3.5 inches and the construction shall comply with the requirements of R317 for protection against decay.

Reasons:

This will allow enclosure of existing covered areas without requiring construction of a new footing. The only loads on the base of the wall are lateral loads from wind, which can be resisted by existing slab.

Cost Impact: Reduce cost for carport and patio enclosures.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R502.3.1 Sleeping areas and attic joists.

Table R502.3.1(4~~2~~) shall be used to determine the maximum allowable span of floor joists that support sleeping areas and *attics* that are accessed by means of a fixed stairway in accordance with Section R311.7 provided that the design live load does not exceed ~~30~~ 40 pounds per square foot (~~1.44~~ 1.92 kPa) and the design dead load does not exceed 20 pounds per square foot (0.96 kPa). The allowable span of ceiling joists that support *attics* used for limited storage or no storage shall be determined in accordance with Section R802.4.

Reasons:

This will correlate the required design table with the proposed amendment to Table R301.5 for live loads in sleeping areas and allow flexibility for future remodeling.

Cost Impact: Minimal additional design and construction costs will be incurred.

**City of Phoenix Amendments
to the 2012 International Residential Code**

R606.12 Seismic requirements.

All new masonry elements shall meet the minimum reinforcing requirements of R606.12.2.2.3 and R606.12.2.3.3. In addition, the seismic requirements of this section shall apply to the design of masonry and the construction of masonry building elements located in Seismic Design Category D₀, D₁ or D₂. Townhouses in Seismic Design Category C shall comply with the requirements of Section R606.12.2. These requirements shall not apply to glass unit masonry conforming to Section R610 or masonry veneer conforming to Section R703.7.

Reasons:

This will require minimum reinforcing in all new masonry construction. This reinforcing has been required in previous editions of the Phoenix Construction Code at the recommendation of the Structural Engineers Association of Arizona as an inexpensive way to greatly increase the safety of masonry construction. The amendment also correlates with the revised seismic design category "B" in Table R301.2(1).

Cost Impact: Minimum construction costs could be incurred due to additional reinforcing.

**City of Phoenix Amendments
to the 2012 International Residential Code**

SECTION 702 INTERIOR COVERING

702.8 Adhered masonry veneer. Adhered masonry veneer shall comply with the applicable requirements in Section 702.8.1 and Sections 6.1 and 6.3 of ACI 530/ASCE 5/TMS 402. Special inspection is not required.

702.8.1 Interior adhered masonry veneer. Interior adhered masonry veneers shall have a maximum weight of 20 psf (0.958 kg/m²) and shall be installed in accordance with Section 702.8. Where the adhered masonry veneer is supported by wood construction, the supporting members shall be designed to limit deflection to 1/600 of the span of the supporting members.

SECTION 703 EXTERIOR COVERING

703.12 Adhered masonry veneer installation.

Adhered masonry veneer shall be installed in accordance with the manufacturer's instructions, and Sections 6.1 and 6.3 of ACI 530/ASCE 5/TMS 402. Special inspection is not required.

Reasons:

Proposed amendments allow for flexibility of the application of adhered veneers and ensures consistency with provisions in the IBC and also exempts residential occupancies from a special inspection requirement.

Cost Impact: These proposals will reduce project cost for owners and developers.

**City of Phoenix Amendments
to the 2012 International Residential Code**

N1101.7.1 RESNET Testing & Inspection Protocol. The Residential Energy Services Network (RESNET) Mortgage Industry National Home Energy Rating System Standards Protocol for third party testing and inspections, shall be deemed to meet the requirements of sections N1102.4.1.1, N1102.4.1.2 and N1103.2.2. and shall meet the following conditions:

1. Third Party Testing and Inspections shall be completed by RESNET certified Raters or Rating Field Inspectors and shall be subject to RESNET Quality Assurance Field Review procedures.
2. Sampling in accordance with Chapter 6 of the RESNET Standards shall be performed by Raters or Rating Field Inspectors working under a RESNET Accredited Sampling Provider.
3. Third Party Testing is required for the following items:
 - a. N1102.4.1.1 –Building Envelope – Thermal and Air Barrier Checklist
 - b. N1102.4.1.2 –Testing – Air Leakage Rate
 - c. N1103.2.2 – Sealing – Duct Tightness
4. The other requirements identified as “mandatory” in Chapter 11 shall be met.
5. Alternate testing and inspection programs and protocols shall be allowed when approved by the Code Official.

Reasons:

1. Maricopa Association of Governments Building Code Committee has reviewed the Third Party Testing and Inspection procedures of the Residential Energy Services Network (RESNET) with the intent to promote and present uniform guidelines for the acceptance of the RESNET Mortgage Industry National Home Energy Rating System Standards (Standards) as an “Above Code Program” for the jurisdictions within Maricopa County; and
2. The inspection and testing required under the 2012 International Residential Code (IRC) and the 2012 International Energy Conservation Code (IECC) is currently being performed under the RESNET Standards for home builders participating in the Environmental Protection Agency’s ENERGY STAR for Homes Program; and
3. The RESNET Standards (Chapters 3,6, and 8) are in the process of being certified as ANSI Standards; and
4. The utilization of the RESNET Standards would assure home builders of the ability to continue a testing and inspection process that has been proven to be successful in saving energy while protecting the health, safety and welfare of the public in the building code sections covered by the program; and
5. The committee has researched and discussed this issue and determined that the intent of the code is being met by the acceptance of the testing and inspection protocols of the RESNET Standards; and
6. The committee will hear the final form and draft requested of the Ad Hoc committee (as proposed above) at their meeting scheduled for January 16, 2013, and will be voting on this item (after full committee review) as a new MAG standard.

Cost Impact:

1. There will be no cost additions to Cities and Towns.
2. There will be significant cost savings for the large production home builders.
3. There will be significant energy savings for the future homeowners.

** Note: The 2012 Code Committee modified the proposal to correct some section references and to require that the sampling occur within the same subdivision. We experience major variation in the quality of work from one crew and/or superintendent to the next and did not feel it was appropriate to eliminate the test requirement based on sampling that could be conducted on another product that was built by an entirely different crew in another city. The DAB Technical Subcommittee approved the amendment, but removed the staff requirement for the tests to occur in the same subdivision due to language in the test protocol that requires some testing within the subdivision. The Development Advisory Board approved the action as modified by the Technical Subcommittee.

**City of Phoenix Amendments
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N1101.15.1 (R401.2.1) Alternative approach for compliance. A Home Energy Rating System (“HERS”) Index of 73 or less, confirmed in writing by a Residential Energy Services Network certified energy rater may be used in place of the approach described in section N1101.15. Compliance may be demonstrated by sampling in accordance with Chapter 6 of the Mortgage Industry National Home Energy Rating Systems Standard as adopted by the Residential Energy Services Network.

Reasons:

With Energy Conservation the end result is all that matters and it should not matter to the City how that result is achieved. The HERS Index was developed as a way to quantify energy efficiency and standardize the results. The Index considers the entire building system when calculating the score. Allowing a HERS Index as a means for complying with the IECC would allow for additional innovation in energy efficiency in new residential construction, while at the same time ensuring the city meets its energy conservation goals. Moreover, it would allow builders to engage in a cost benefit analysis with different construction methods and materials in order to achieve a home which meets the energy efficiency goals.

Cost Impact: HERS Index Testing is done by private Raters and must be certified under the RESNET Standards. Therefore, there would be no additional cost to the city. By utilizing a HERS Index, builders are required to achieve a required level of energy efficiency, however, that are also provided increased flexibility to utilize a cost-benefit analysis on the methods used to achieve that efficiency.

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N1103.2 Ducts. Ducts and air handlers shall be in accordance with Sections N1103.2.1 through 1103.2.3.

N1103.2.1 Insulation (Prescriptive). Supply ducts shall be insulated to a minimum of R-8. Ducts in floor trusses shall be insulated to a minimum of R-6.

Exceptions: ~~Ducts or portions thereof located completely inside the building thermal envelope.~~

1. Ducts or portions thereof located completely inside the building thermal envelope.
2. Supply and return ducts may be insulated to a minimum of R-6 when one or more of the following conditions are met:
 - 2.1. Minimum SEER rating of space heating/cooling system is increased to 15
 - 2.2. Maximum U-factor is decreased to 0.35 and maximum SHGC is decreased to 0.22 for all fenestration products
 - 2.3. Wall cavity insulation minimum R-value is increased to R-19.
 - 2.4. Residential buildings that meet section N1101.7 or section R405 of the 2012 International Energy Conservation Code.
 - 2.5. Residential buildings with attic radiant barriers in accordance with ASTM C1313, installed in accordance with ASTM C1743.

Reason:

The Arizona Homebuilders Association proposed efficiency improvements in heating/cooling equipment, glazing product performance, and increased thermal envelope insulation as an alternative to providing R-8 duct insulation required by the IECC. A Code Modification was approved in July 2006 to allow a trade-off to the use of R-6 insulation on HVAC ducts in residential attics. Energy simulation software was used to compare cost savings for each of the proposed areas of concentration. The benefits from improving the efficiency of the air conditioning system, window thermal resistance to heat gain, and wall cavity insulation were shown to surpass cost savings from increasing HVAC duct insulation. Based on these findings, staff recommendation is that this amendment be adopted for use in the 2012 IECC and the 2012 IRC Chapter 11.

** A public proposal was submitted to include attic radiant barriers in the list of trade-offs for the R-8 duct insulation. Simulation software was used to demonstrate cost savings when radiant barriers and R-6 insulation was incorporated, as compared to no radiant barriers and R-8 duct insulation. Based on these positive savings results and the requirement for listed products, staff recommends that this previously approved proposal be modified to include radiant barriers in the list of exceptions.

Cost Impact: Savings from reconfiguration of attic truss openings.

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~~**N1103.2.2.1 (R403.2.2.1). Sealed air handler.** Air Handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.~~

Reasons:

Air handler manufacturers are having difficulty manufacturing air handlers that are capable of meeting this requirement. Therefore, this equipment is not readily available on the marketplace for purchase and this requirement should be deleted. There is already a requirement for a duct leakage testing in the Code which will incorporate the measurement of leakage at the air handler. As long as the duct leakage requirements are met, the leakage from the air handler will have been accounted for making this requirement unnecessary.

Cost Impact: No additional cost to the city.

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Section: M2302.2 Requirements. The installation, inspection, maintenance, repair and replacement of photovoltaic systems and all system components shall comply with the manufacturer's instructions, Section M2302.2.1 through M2302.2.3, Phoenix Fire Code and NFPA 70.

Reasons:

The Phoenix Fire Code has specific requirements for photovoltaic system installations on single one and two family dwellings in order to provide a level of safety for emergency responders.

Cost Impact:

Minimal, marking of conduits, equipment and providing access ways on roof for venting.

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R3908.8 Types of equipment grounding conductors.

The equipment grounding conductor run with or enclosing the circuit conductors shall be one or more or a combination of the following:

- (1) A copper, aluminum, or copper-clad aluminum conductor. This conductor shall be solid or stranded; insulated, covered, or bare; and in the form of a wire or a busbar of any shape.
- (2) Rigid metal conduit.
- (3) Intermediate metal conduit.
- (4) Electrical metallic tubing with an additional equipment grounding conductor.
- (5) Listed flexible metal conduit meeting all the following conditions:
 - a. The conduit is terminated in listed fittings.
 - b. The circuit conductors contained in the conduit are protected by overcurrent devices rated at 20 amperes or less.
 - c. The combined length of flexible metal conduit and flexible metallic tubing and liquidtight flexible metal conduit in the same ground-fault current path does not exceed 1.8 m (6 ft).
 - d. If used to connect equipment where flexibility is necessary to minimize the transmission of vibration from equipment or to provide flexibility for equipment that requires movement after installation, an equipment grounding conductor shall be installed.
- (6) Listed liquid tight flexible metal conduit meeting all the following conditions:
 - a. The conduit is terminated in listed fittings.
 - b. For metric designators 12 through 16 (trade sizes 3/8 through 1/2), the circuit conductors contained in the conduit are protected by overcurrent devices rated at 20 amperes or less.
 - c. For metric designators 21 through 35 (trade sizes 3/4 through 1-1/4), the circuit conductors contained in the conduit are protected by overcurrent devices rated not more than 60 amperes and there is no flexible metal conduit, flexible metallic tubing, or liquid tight flexible metal conduit in trade sizes metric designators 12 through 16 (trade sizes 3/8 through 1/2) in the ground-fault current path.
 - d. The combined length of flexible metal conduit and flexible metallic tubing and liquidtight flexible metal conduit in the same ground-fault current path does not exceed 1.8 m (6 ft).
 - e. If used to connect equipment where flexibility is necessary to minimize the transmission of vibration from equipment or to provide flexibility for equipment that requires movement after installation, an equipment grounding conductor shall be installed.
- (7) Flexible metallic tubing where the tubing is terminated in listed fittings and meeting the following conditions:
 - a. The circuit conductors contained in the tubing are protected by overcurrent devices rated at 20 amperes or less.
 - b. The combined length of flexible metal conduit and flexible metallic tubing and liquidtight flexible metal conduit in the same ground-fault current path does not exceed 1.8 m (6 ft).
- (8) Armor of Type AC cable as provided in 320.108.
- (9) The copper sheath of mineral-insulated, metal-sheathed cable.
- (10) Type MC cable that provides an effective ground-fault current path in accordance with one or more of the following:
 - a. It contains an insulated or uninsulated equipment grounding conductor in compliance with 250.118(1)
 - b. The combined metallic sheath and uninsulated equipment grounding/bonding conductor of interlocked metal tape-type MC cable that is listed and identified as an equipment grounding conductor
 - c. The metallic sheath or the combined metallic sheath and equipment grounding conductors of the smooth or corrugated tube-type MC cable that is listed and identified as an equipment grounding conductor
- (11) Cable trays as permitted in 392.10 and 392.60.

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- (12) Cablebus framework as permitted in 370.3.
- (13) Other listed electrically continuous metal raceways and listed auxiliary gutters.
- (14) Surface metal raceways listed for grounding.

Reasons:

This amendment requires that specific wiring methods include an individual equipment-grounding conductor. This amendment is more restrictive than the NEC, but provides for a higher degree of equipment grounding safety. The intent of the amendment is to supplement the low impedance path to ground and to attain reasonable compliance with requirements for the performance of the fault current path.

Note: This amendment is, essentially, a continuation of the amendment to the currently adopted code, 2008 NEC, with updated code language from the 2012 IRC.

Cost Impact: Minimal additional cost due to additional grounding conductor.

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Adopt the following Appendix Chapters:

Appendix A - Sizing and Capacities of Gas Piping

Reason: Provides guidance on pipe sizing with all the methods of sizing.

Appendix B – Sizing of venting systems

Reason: Provides a guide for inspectors and customers.

Appendix C - Exit Terminals of Mechanical Draft and Direct-Vent Systems.

Reason: Good graphical representation of vent terminals

Appendix E – Manufactured Housing Used as Dwellings

Reason: Continues factory-built building requirements

Appendix G – Swimming Pools

Reason: Continues pool barrier requirements and provides safety requirements for prevention of entrapment.

Appendix H – Patio Covers

Reason: Continuation of less restrictive structural requirements for patio covers.

Appendix J – Existing Buildings and Structures

Reason: Allows additional design flexibility when modifying an existing building

Appendix K - Sound Mitigation

Reason: Incorporates Phoenix Amendment for sound mitigation around City airport.

Appendix N - Venting Methods

Reason: Provides useful guidance for residential plumbing situations.

Appendix P – Sizing of Water Piping Systems

Reason: Provides useful guidance for pipe sizing

Appendix Q - ICC IRC / NEC Cross Reference

Reason: Useful information for inspectors and customers.

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**Appendix E
~~Manufactured Housing Used as Dwellings~~
Factory Built Buildings**

Replace entire Appendix E with the following text:

SECTION AE101 SCOPE

AE101.1 General. Factory-built buildings, manufactured homes and mobile homes shall comply with applicable laws of the State of Arizona and this code. The provisions of this section for factory-built buildings, manufactured homes and mobile homes take precedence over other code provisions which are inconsistent therewith. The general provisions of this code shall apply in all areas where there are not specific provisions in this section.

AE101.1.1 Arizona law. The construction of factory-built buildings and manufactured homes is regulated by the State of Arizona, Arizona Revised Statutes ARS 41-2141 et seq, and is not included in this Code.

AE101.1.2 Manufactured home installation. The installation of manufactured homes and mobile homes, including connection to utilities, is regulated by the State of Arizona and is not included in this code, except that a City of Phoenix On-Site Permit is required for Phoenix Zoning Ordinance administration purposes. Connection to a City water or sewer tap requires a separate permit from the Planning and Development Department.

AE101.1.3 Factory-built building installation. The installation of factory-built buildings including their foundations and direct connection to sewer, water, gas or electric utilities, is regulated by the State of Arizona and is not included in this code, except that a City of Phoenix On-Site Permit is required for compliance with Phoenix Zoning Ordinance requirements and with building code requirements pertaining to location on property and setback from other buildings or structures on the property. A City of Phoenix building permit is required for all on-site construction (except foundations) including connection to or alteration of existing on-site sewer, water, gas or electrical systems, and for construction of all site improvements required by the Zoning Ordinance such as design review elements, signs, parking, landscaping, site amenities and disabled accessibility. Connection to a City water or sewer tap requires a separate permit from the Planning and Development Department.

AE101.1.4 Alterations and additions. Repairs, alterations and site-built additions to factory-built buildings, mobile homes and manufactured homes are regulated by this code and by the Zoning Ordinance and require City of Phoenix permits.

AE101.1.5. Occupancy and Use. Occupancy and use of a factory built-building, manufactured home or mobile home is prohibited without first obtaining inspection approval and a certificate of occupancy from the building official, to verify compliance with the Zoning Ordinance and other applicable city codes and ordinances.

SECTION AE102 REPAIRS, ALTERATIONS, AND ADDITIONS

AE102.1 Repairs, Alterations, and Additions. No person shall repair, alter or add on to a factory-built building, manufactured home or a mobile home after the unit has been installed without first having obtained a permit from the building official for the specific work to be performed. All such work shall comply with the requirements of this Code. Additions and alterations shall be structurally separated from the manufactured home.

Exception: A structural separation need not be provided when structural plans, details and calculations are provided to justify the omission of such separation.

SECTION AE201 DEFINITIONS

AE201.1 General. For the purpose of this Section, the following definitions shall apply:

FACTORY BUILT BUILDING is a residential or non-residential building including a dwelling unit or habitable room thereof which is either wholly or in substantial part manufactured at an off-site location to be assembled on-site, except it does not include a manufactured home, recreational vehicle or mobile home (ARS 41-2142).

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MANUFACTURED HOME is a structure built in accordance with the National Manufactured Home Construction and Safety Standards Act.

MOBILE HOME is a structure built prior to June 15, 1976, on a permanent chassis, capable of being transported in one or more sections and designed to be used with or without a permanent foundation as a dwelling when connected to on-site utilities except that it does not include recreational vehicles or factory-built buildings.

ON-SITE PERMIT is the permit issued by the building official which authorizes the placement of a factory-built building, manufactured home or mobile home on a site. The on-site permit shall authorize only the placement, foundation or unit tie-down, and specific connections to utility services which are authorized by a permit issued by the State of Arizona Office of Manufactured Housing. All other work on the site shall require a building permit issued by the building official in accordance with Section 105 of this code. Connection to a City water or sewer tap requires a separate permit from the Planning and Development Department.

SECTION AE301 INSTALLATION REQUIREMENTS

AE301.1 Installation Requirements. No factory-built building, manufactured home or mobile home shall be moved onto or installed on any lot or site in the City of Phoenix except in compliance with these provisions.

AE301.1.1 State insignia required. No person, firm or corporation shall move onto any site any factory-built building or manufactured home building unless such building bears a current, valid insignia of approval of the State of Arizona.

AE301.1.2 State permit required. No person, firm or corporation shall move onto any site any factory-built building, manufactured home or mobile home unless and until a permit for such installation has been obtained from the State of Arizona.

AE301.1.3 On-site permit required. No person firm or corporation shall move onto any site, or relocate on any site, any factory-built building, manufactured home or mobile home until an On-Site Permit has been issued by the City of Phoenix building official.

A site plan shall be submitted to the building official which shows all utility connections and all other information necessary to ascertain compliance with the separation and area restrictions of other sections of this code and with all provisions of the Zoning Ordinance. If the building official is satisfied that the work described by the documents submitted conform to this section and other applicable law, the On-Site Permit shall be issued to the owner of the site or his authorized agent.

AE301.1.4 Fire protection. All factory-built buildings must be protected pursuant to the Phoenix Fire Code.

SECTION AE304 PERMITS

AE304.1 Building permit required. The person, firm or corporation obtaining the On-Site Permit shall also apply for and obtain a building permit from the building official when one or more of the following conditions apply:

1. For all on-site construction which connects to or alters existing buildings or existing on-site sewer, water, gas or electrical systems.
2. For all on-site construction which is required by or regulated by the Zoning Ordinance, such as for design review elements, signs, parking, landscaping, site amenities and accessibility.
3. For all construction or alteration which is not part of the State-approved factory-built building, manufactured home, or mobile home including all interior fit-up, tenant improvement or remodeling work which is not specifically included in such State permit.
4. When a City of Phoenix inspection is requested by the installer for work otherwise included in the State of Arizona installation permit, including but not limited to requests for utility clearance inspections.

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All work subject to a building permit under this section is subject to all inspections and all technical requirements of this code and all other applicable city codes and ordinances. For administrative purposes, the building official may combine the On-Site Permit and the city building permit into a single document.

Reasons:

Appendix E Manufactured Housing Used as Dwellings does not address the State of Arizona and the City of Phoenix requirements for Manufactured Housing (Factory Built Buildings). This amendment matches local laws and is carried over from previous codes.

Cost Impact:

There is no additional cost because this has been in effect for several code cycles.

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**Appendix G
SWIMMING POOLS**

Replace Appendix G with the following section:

SECTION AG101 GENERAL

AG101.1 General. The provisions of this appendix shall control the design and construction of swimming pools, spas and hot tubs installed in or on the lot of a one and two-family dwelling.

~~AG101.2 Pools in flood hazard areas.~~ Delete all.

SECTION AG102 DEFINITIONS

SWIMMING POOL. Any structure intended for swimming or recreational bathing that contains water over 24 inches (610mm) deep. This includes in-ground, above ground and on-ground swimming pools, hot tubs, ~~and spas,~~ and fixed in place wading pools.

SECTION AG105 BARRIER REQUIREMENTS

AG105.2 Outdoor swimming pool. It is the responsibility of the property owner and any other person in responsible charge of a swimming pool to ensure that the required swimming pool barrier, including all gates, doors, locks, latches, and other portions of the barrier are maintained safe and in good working order at all times. No person shall alter or remove any portion of a swimming pool barrier except to repair, reconstruct, or replace the barrier in compliance with the provisions of this section. All barriers shall be installed, inspected, and approved prior to plastering or filling with water. An outdoor swimming pool, including an in-ground, aboveground or on-ground pool, hot tub or spa shall be provided with a barrier which shall comply with the following:

1. The top of the barrier shall be at least ~~48 inches~~ 5 feet (1524 mm) above grade measured on the side of the barrier which faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches (51 mm) measured on the side of the barrier which faces away from the swimming pool. The maximum clearance at the bottom of the barrier may be increased to 4 inches (102 mm) when grade is a solid, non-removable surface. Where the top of the pool structure is above grade, such as an aboveground pool, the barrier may be at ground level, such as the pool structure, or mounted on top of the pool structure. Where the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102 mm).
2. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.
3. Solid barriers which do not have openings, such as a masonry or stonewall, shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.
4. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 1.75 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1.75 inches (44 mm) in width.
5. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed 1.75 inches (44 mm) in width.
6. Maximum mesh size for chain link fences shall be a 2.25-inch (57 mm) square and unless the fence is provided with slats fastened at the top or the bottom which reduce the openings to not more than 1.75 inches (44 mm). The mesh shall not be less than 11 gauge.

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7. Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members shall not be more than 1.75 inches (44 mm).
8. Access gates shall comply with the requirements of Section AG105.2, Items 1 through 7, and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Gates other than pedestrian access gates ~~shall have a~~ need not be self-closing or self-latching and shall be equipped with a padlock or similar locking device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate, the release mechanism and openings shall comply with the following:
 - 8.1. The release mechanism shall be located on the pool side of the gate at least 3 inches (76 mm) below the top of the gate, and
 - 8.2. The gate and barrier shall have no opening greater than 0.5 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.
9. Where a wall of a dwelling serves as part of the barrier, one of the following conditions shall be met:
 - 9.1 The pool shall be equipped with a key operated powered safety cover in compliance with ASTM F1346. The keyed pool cover switch shall be located not less than 54 inches (1372 mm) above the floor or adjacent ground level and where the entire pool cover can be visually inspected; or
 - 9.2 ~~All doors with direct access to the pool through that wall shall be equipped with an alarm which produces an audible warning when the door and/or its screen, if present, are opened. The alarm shall be listed in accordance with UL 2017. The audible alarm shall activate within 7 seconds and sound continuously for a minimum of 30 seconds immediately after the door and /or its screen is opened and be capable of being heard throughout the house during normal house hold activities. The alarm shall automatically reset under all conditions. The alarm system shall be equipped with a manual means, such as touchpad or switch, to temporarily deactivate the alarm for a single opening. Such deactivation shall last for not more than 15 seconds. The deactivation switch(es) shall be located at least 54 inches (1372 mm) above the threshold of the door; or~~
 - 9.32. ~~Other means of protection, such as self closing doors with self latching devices, which are approved by the governing body, shall be acceptable so long as the degree of protection afforded is not less than the protection afforded by Item 9.1 or 9.2 described above. All doors leading from the dwelling unit or guest room, directly into a yard with a swimming pool, shall swing away from the pool, shall be self closing and self latching, and shall be equipped with a locking device. The release mechanism for the latch or a secondary locking device, shall be located not less than 54 inches (1372 mm) above the floor. A locking latch which uses a key, electronic opener, or integral combination lock may be located at any height on the door. Sliding doors shall not form any part of a required barrier unless the self-closing and self-latching mechanism is specifically approved.~~

Windows used for emergency escape or rescue which face into a yard with a swimming pool shall be equipped with a latching device located not less than 54 inches (1372 mm) above the floor. All other operable dwelling unit windows facing into a yard with a swimming pool shall be equipped with a screwed in place wire mesh screen, a keyed lock that prevents opening the window more than 4 inches (102 mm), or a latching device not less than 54 inches (1372 mm) above the floor.
10. Where an aboveground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps:
 - 10.1 The ladder or steps shall be capable of being secured in an inaccessible position with a ~~locked or latch located 54 inches (1372 mm) above the adjacent ground level~~ removed to prevent access, or
 - 10.2 The ladder or steps shall be surrounded by a barrier which meets the requirements of Section AG105.2, Items 1 through 9. When the ladder or steps are secured, locked or removed, any opening

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created shall not allow the passage of a 4-inch-diameter (102 mm) sphere.

11. Where there are natural barriers between properties, such as lakes and solid rock vertical cliffs not less than 10 feet (3048 mm) in height and a slope of not less than 1 horizontal to 10 vertical, fence barriers shall not be required between properties where the natural barriers exist. To ensure proper natural barriers are maintained, barrier fences shall project a minimum of 24 inches (610 mm) into lakes to where there is at least 24 inches (610 mm) depth from the lake surface to the top of the submerged horizontal member or the lake bottom when there is no submerged horizontal member. There shall be no horizontal member less than 45 inches above the lake surface. Where the solid rock cliff extends above the property, the intersecting barriers, with the solid rock cliff, shall not allow passage of a 4 inch diameter (102 mm) sphere.

AG105.3 Indoor swimming pool. All walls surrounding an indoor swimming pool shall comply with Section AG105.2, Item 9.

AG105.4 Prohibited locations. Barriers shall be located not less than 45 inches (1143 mm), measured horizontally from so as to prohibit permanent structures, equipment or similar objects so as to prohibit them from being used to climb the barriers.

AG105.5 Barrier exceptions.

1. For portable Spas and or hot tubs with a safety cover which complies with ASTM F 1346, as listed in Section AG1078, shall be exempt from the provisions of this appendix.
2. For spas and hot tubs, a hard safety cover which is latched or locked may be used provided the spa or hot tub is not more than 8 feet (2.44 m) in width at any point.
3. Existing swimming pools located on a one-family dwelling property on or before May 4, 1990, need not be retroactively fitted with a barrier between the dwelling and the pool provided all occupants of the dwelling are at least six years of age or older. All other portions of the swimming pool barrier separating properties shall be installed and maintained as required by Section 105.2.
 1. This exception does not eliminate an owner's responsibility for providing a temporary barrier or otherwise physically restricting visiting children's direct access from the dwelling to the swimming pool.
 2. This exception shall expire and the required permanent barrier shall be retroactively installed between the dwelling and the swimming pool whenever:
 1. One or more children under six years of age become occupants of the property
 2. There is a change of use or character to the primary building occupancy on the property
 3. A new pool or spa is being installed on the same property including spa additions to the existing swimming pool.

SECTION AG106 ENTRAPMENT PROTECTION FOR SWIMMING POOL AND SPA SUCTION OUTLETS

AG106.1 General. ~~Suction outlets shall be designed and installed in accordance with ANSI/APSP-7.~~

AG106.1 Suction Entrapment Avoidance. Pools, spas, hot tubs, catch basins and other similar bather accessible bodies of water associated with swimming pool construction shall be designed to produce circulation throughout the body of water and provide means to protect against user suction entrapment in accordance with ANSI/APSP-7.

AG106.2 Surface skimming or perimeter overflow system. To avoid suction entrapment, fully submerged suction outlets (main drains) shall not be required in swimming pools, wading pools, spas, hot tubs and catch basins. Surface skimming or perimeter overflow system shall be permitted in lieu of fully submerged suction outlet fittings and shall provide 100% of the required system flow.

AG106.3 Fully submerged suction outlets (main drains). Fully submerged manufactured suction outlets (main drains) for use in swimming pools, wading pools, hot tubs and catch basins shall be listed by a nationally recognized testing laboratory in accordance with ASME/ANSI A112.19.9M.

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Exception: Custom designed suction outlet fittings certified by a licensed professional engineer that conform to Section 3. General requirements of ASME/ANSI A112.19.8M.

AG106.4 Methods of entrapment avoidance. Entrapment avoidance of fully submerged suction outlets can be achieved by one of the following methods:

AG106.4.1 Dual Drains. A minimum of two (2) suction outlets shall be provided for each pump or pumps in the suction outlet system, separated by a minimum of three feet (3') [91.44 cm] measured from center to center of suction pipes or located on two (2) different planes; i.e. one (1) on the bottom and one (1) on the vertical wall, or one (1) each on two (2) separate vertical walls. These suction outlets shall be plumbed such that water is drawn through them simultaneously through a common line to the system. Each suction outlet fitting shall be rated for the maximum system flow.

AG106.4.2 Channel Drain System. One or more channel gates shall be acceptable as protection against suction entrapment if they are 3 inches or greater in width and 31 inches or greater in length and fastened to prevent removal as specified in ASME/ANSI A112.19.8M.

AG106.4.3 Gravity flow system. A Gravity Flow system shall be acceptable as protection against suction entrapment if it has one or more submerged suction outlet(s) with approved cover/grates in any combination fed by gravity into a collection tank vented to atmosphere. However, a modulating float valve allowing direct suction is not permitted.

AG106.4.4 Combination Inlet/Outlet Fixtures for Swim Jets. Combination Inlet/Outlet Fixtures shall be acceptable as protection against suction entrapment for a Swim Jet system not related to the filtration system, if they are manufactured and have their own dedicated pump(s), and the suction outlet and the return are located in a single fitting.

AG106.4.5 Venturi Debris Removal Systems. Venturi Debris Removal Systems shall be acceptable as protection against suction entrapment if they are intended to remove debris through a single, floor mount suction outlet where low pressure is created by the entrainment of water within a deck mount canister that is not directly or indirectly connected to a pump's suction. The single action outlet shall have an approved cover/gate.

AG106.5 Shallow Water Suction Outlets. Where all suction fittings are located less than 24 inches below normal operating water level, one of the following shall be required:

1. gravity flow system
2. one (1) additional drain
3. vent system to atmosphere
4. suction vacuum release device tested and approved for the purpose by a nationally recognized testing laboratory in accordance with ASME A112.19.17.

AG106.6 Wall Vacuum Fittings. Where provided, the vacuum cleaner fitting(s) shall be located in an accessible position(s) at least 6 inches and no greater than 18 inches below the water level and shall comply with IAPMO SPS 4/ANSI/APSP-7.

IAPMO

IAPMO SPS-4-2000 SPS-4-2009 Special Use Suction Fittings for swimming pools, spas and hot tubs (for suction side automatic swimming pool cleaners)..... AG106.6

UL

UL2017-200 Standard for General-purpose Signaling Devices and Systems - with Revisions through June 2004
AG105.2

Reason:

Flood hazards are covered under the Phoenix city code. Changes conform to the Phoenix City Ordinances related to pool barriers. Entrapment protection changes give more detailed and prescriptive requirements to improve

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safety.

Cost Impact: Additional costs for barriers, however, this has been a Phoenix amendment since 1990.

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Appendix J EXISTING BUILDINGS AND STRUCTURES

AJ102.1 General. Regardless of the category of work being performed, the work shall not cause the structure to become unsafe or adversely affect the performance of the building; shall not cause an existing electrical, mechanical or plumbing system to become unsafe, hazardous, insanitary or overloaded; and unless expressly permitted by these provisions, shall not make the building any less conforming to this code or to any previously approved alternative arrangements than it was before the work was undertaken.

Reason: The section should also reference electrical modifications.

AJ102.1.1 Historic Buildings. The provisions of this code relating to the construction, repair, alteration, addition, restoration and movement of structures, and change of occupancy shall not be mandatory for historic buildings where such buildings are judged by the building official to not constitute a distinct life safety issue. Historic Buildings include any building or structure that is listed or preliminarily determined to be eligible for listing in the National Register of Historic Places; or 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; or designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

AJ401.2 Door and window dimensions. Minor reductions in the clear opening dimensions of replacement doors and windows that result from the use of different materials shall be allowed, whether or not they are permitted by this code.

Exception: Emergency escape and rescue openings.

If existing clear opening dimensions exceed the light and ventilation requirements of section R303 and for emergency escape and rescue openings in Section 310, the reduction in dimensions shall not make the windows non-compliant with these sections.

AJ501.2 Electrical service replacement or upgrade. Service to the one-family dwelling unit shall be a minimum of 100 amperes, three-wire capacity and service equipment shall be dead front having no live parts exposed whereby accidental contact could be made. ~~Type "S" fuses shall be installed when fused equipment is used.~~

Exception: Existing service of 60 amperes, three-wire capacity, and feeders of 30 ampere or larger two or three-wire capacity shall be accepted if adequate for the electrical load being served.

Reason:

- Section AJ102.1 should also reference electrical modification.
- AJ102.1.1 provides more flexibility when dealing with historic buildings on issues such as natural light and ventilation.
- Emergency escape openings should not be reduced if they are currently less than what current code requires. Also, openings should be allowed to be reduced to code minimums if the current areas exceed minimum area requirements.
- The section title includes the words replacement or upgrade to clarify the scope of this section applies only when the service is affected, not necessarily when an interior element is altered. The words one-family is inserted to mirror language in E3502.1 which mirrors NEC 230.79(c), unless the exception to AJ501.5.2 applies. Deleted text referring to S fuses, because there is no reason to disallow type T or R fuses. This was recommended by the IEBC Subcommittee.

Cost Impact:

There is no additional cost because this has been in effect for several code cycles.

**City of Phoenix Amendments
to the 2012 International Residential Code**

Appendix K SOUND TRANSMISSION

SECTION AK201 Sound Mitigation

GENERAL

AK201.1 General. New one and two – family and townhome residential construction shall be required to have sound mitigation due to noise generated by aircraft operations at Sky Harbor International airport.

The defined boundaries for airport sound mitigation requirements are shown in figure AK201.1 (a). The defined boundaries are composed of the three noise overlay areas:

- o Zone 1: 65-70dB DNL noise exposure area
- o Zone 2: 70-75dB DNL noise exposure area
- o Zone 3: >75dB DNL noise exposure area

SECTION AK202 REQUIREMENTS

AK202.1 General. All new structures referenced in AK 201.1 shall be sound mitigated so indoor noise levels do not exceed a DNL of 45 decibels in any zone. If any portion of a parcel is located in a zone, the structure on the parcel shall be sound mitigated. If a parcel is located in two zones, the structure shall be sound mitigated to the requirements of the higher zone.

AK202.2 Plans required. Plans shall be signed and sealed by an engineer licensed in Arizona with a proficiency in residential sound mitigation or noise control. The engineer shall note on the building plans: “The building design is capable of achieving the required Noise Level Reduction.” A notice recorded with the Maricopa County Recorder shall be submitted with the plans at time of permit application. The notice shall state that the property is within an airport noise impact area and the property, as a result of the improvements, is not eligible for purchase through the Phoenix Sky Harbor International or any other Airport Community Noise Reduction Program. The recorded document shall be on a form approved by the City Attorney’s Office.

AK 202.3 Airport Sound Mitigation Observation. The engineer of record is responsible for verifying that the construction meets the sound mitigation requirements for the zone in which the structure has been constructed. An airport sound mitigation observation certificate that has been signed and sealed by the engineer of record shall be present at the time of final inspection. The engineer shall note: “The structure as constructed complies with the Noise Level Reduction requirements for the overlay zone in which the structure has been constructed.” The certificate shall be retained by the Planning and Development Department Records Section for the life of the building.

Figure AK201.1 (a)

Reasons:

Residential and Commercial buildings are located in the vicinity of the flight paths for commercial airlines at Sky Harbor Airport and are subjected to increased noise levels. This additional requirement reduces those levels per the City of Phoenix Zoning Code Section 644.

Cost Impact:

There is no additional cost because this has been in effect for several code cycles.

**City of Phoenix Amendments
to the 2011 National Electrical Code**

ARTICLE 210 – Branch Circuits

Section 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.

(B) Other Than Dwelling Units. All 125-volt, single-phase, 15- and 20-ampere receptacles installed in the locations specified in 210.8(B)(1) through (8) shall have ground-fault circuit-interrupter protection for personnel.

(6) Indoor damp and wet locations

Reasons:

Added safety in damp locations indoors. This is a continuation of previous code amendments.

NEC Article 100 defines Damp Location as follows: Locations protected from weather and not subject to saturation with water or other liquids but subject to moderate degrees of moisture. Examples of such locations include partially protected locations under canopies, marquees, roofed open porches, and like locations, and interior locations subject to moderate degrees of moisture, such as some basements, some barns, and some cold-storage warehouses.

Additionally NEC Section 406.9(A) requires that a receptacle located in any damp location is installed in a weatherproof enclosure.

Since receptacles located in an outdoor damp location require GFCI protection, logically, receptacles located in an indoor damp location should also be provided with the same GFCI protection.

Cost Impact: Minimal additional cost.

**City of Phoenix Amendments
to the 2011 National Electrical Code**

250.118 Types of Equipment Grounding Conductors.

The equipment grounding conductor run with or enclosing the circuit conductors shall be one or more or a combination of the following:

- (4) Electrical metallic tubing with an additional equipment grounding conductor.

Reasons:

This amendment requires that specific wiring methods include an individual equipment-grounding conductor. This amendment is more restrictive than the NEC, but provides for a higher degree of equipment grounding safety. The intent of the amendment is to supplement the low impedance path to ground and to attain reasonable compliance with requirements for the performance of the fault current path.

Note: This amendment is, essentially, a continuation of the amendment to the currently adopted code, 2008 NEC, with updated code language from the 2011 NEC.

Cost Impact: Minimal additional cost due to additional grounding conductor.

**City of Phoenix Amendments
to the 2011 National Electrical Code**

ARTICLE 334 – Nonmetallic-Sheathed Cable; Types NM, NMC and NMS

II. Installation

334.10 Uses Permitted. Type NM, Type NMC, and Type NMS cables shall be permitted to be used in the following:

- (1) One- and two-family dwellings and their attached or detached garages, and their storage buildings.
- (2) Multifamily dwellings permitted to be of Types III, IV, and V construction except as prohibited in 334.12.
- (3) ~~Other dwelling unit accessory buildings and structures permitted to be of Types III, IV, and V construction except as prohibited in 334.12. Cables shall be concealed within walls, floors, or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies. in accordance with 334.10(1) and (2) and other provisions of this Code.~~

Informational Note No. 1: Types of building construction and occupancy classifications are defined in NFPA 220-2009, *Standard on Types of Building Construction*, or the applicable building code, or both.

Informational Note No. 2: See Informative Annex E for determination of building types [NFPA 220, Table 3-1].

- (4) Cable trays in structures permitted to be Types III, IV, or V in accordance with 334.10(1) and (2) where the cables are identified for the use.

Informational Note: See 310.15(A)(3) for temperature limitation of conductors.

- (5) Types I and II construction in accordance with 334.10(1) and (2) where installed within raceways permitted to be installed in Types I and II construction.

(A) Type NM. Type NM cable shall be permitted as follows:

- (1) For both exposed and concealed work in normally dry locations ~~except as prohibited in 334.10(3)~~
- (2) To be installed or fished in air voids in masonry block or tile walls

(B) Type NMC. Type NMC cable shall be permitted as follows:

- (1) For both exposed and concealed work in dry, moist, damp, or corrosive locations ~~except as prohibited in 334.10(3)~~
- (2) In outside and inside walls of masonry block or tile
- (3) In a shallow chase in masonry, concrete, or adobe protected against nails or screws by a steel plate at least 1.59 mm (1/16 in.) thick and covered with plaster, adobe, or similar finish

(C) Type NMS. Type NMS cable shall be permitted as follows:

- (1) For both exposed and concealed work in normally dry locations ~~except as prohibited in 334.10(3)~~
- (2) To be installed or fished in air voids in masonry block or tile walls

334.12 Uses Not Permitted.

(A) Types NM, NMC, and NMS. Types NM, NMC, and NMS cables shall not be permitted as follows:

- (1) In any dwelling or structure not specifically permitted in 334.10(1), (2), and (3)

**City of Phoenix Amendments
to the 2011 National Electrical Code**

~~(2) Exposed in dropped or suspended ceilings in other than one- and two-family and multifamily dwellings~~

~~(3) (2) As service-entrance cable~~

~~(4) In commercial garages having hazardous (classified) locations as defined in 511.3~~

~~(5) In theaters and similar locations, except where permitted in 518.4(B)~~

~~(6) In motion picture studios~~

~~(7) In storage battery rooms~~

~~(8) (3) In hoistways or on elevators or escalators~~

~~(9) (4) Embedded in poured cement, concrete, or aggregate~~

~~(10) In hazardous (classified) locations, except where permitted by the following:~~

~~a. 501.10(B)(3)~~

~~b. 502.10(B)(3)~~

~~c. 504.20~~

Reasons:

The use of Nonmetallic-Sheathed cable in commercial buildings has not typically been permitted in the Phoenix metropolitan area as well as many surrounding cities. Nonmetallic-Sheathed cable (NM) is traditionally used in dwelling units, whereas a more stout wiring method enclosed within raceways is traditionally used in commercial buildings. The code restrictions of the NEC, with respect to allowing type NM cable in a commercial building, would tend to make the installation impractical in most cases, (i.e. NM cable would not be allowed underground or in drop ceilings), and at best the resulting installation would likely be a mixture of several different wiring methods, (each with their own requirements). This type of mixture would actually tend to make the installation more complex, creating a larger hurdle to providing a code compliant installation. Concerns also exist that Nonmetallic-Sheathed Cable would be more subject to damage, such as nicks in the insulation, etc. The integrity of the insulation is critical to safety of the electrical installation. In dwelling units, the NEC requires AFCI (Arc-Fault Circuit Interrupter) protection for most circuits since a nick in the insulation, such as from a nail for hanging a picture, can cause an arcing fault which may not be cleared by a normal circuit breaker before a fire starts. The AFCI breaker was developed specifically to detect and clear arcing faults; however, the NEC does not require AFCI protection in other than dwelling units.

It is therefore the general consensus of the electrical section, and supported in general by the Electrical Focus Group, (made up of members of the local electrical engineering community and others members of the industry), that the use of Nonmetallic-Sheathed Cable should be restricted to dwelling units, as described within this document, to provide a higher degree of electrical safety in other occupancies.

Note: This amendment is, essentially, a continuation of the amendment to the currently adopted code, 2008 NEC, with updated code language from the 2011 NEC.

Cost Impact: Additional cost due to the cost difference between an installation consisting of Nonmetallic-Sheathed Cable and an installation consisting of another wiring method, depending on the wiring method chosen.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

209.0 Gravity Grease Interceptor. A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oils and greases (FOG) from a wastewater discharge and is identified by volume, ~~30~~ 12 or 17 minute retention time, baffle(s), not less than two compartments, a total volume of not less than ~~300~~ 500 gallons (~~1135~~ 1895 L), and gravity separation. [These interceptors comply with the requirements of Chapter 10 or are designed by a registered professional engineer and approved by the Authority Having Jurisdiction.] Gravity grease interceptors ~~are generally~~ shall be installed outside unless otherwise approved by the Authority Having Jurisdiction.

Reasons: The larger interceptor has two man-ways and two compartments which makes it easier for the user to clean and maintain the device. The 12 and 17 minute retention time is currently used to size interceptors in the City of Phoenix and was developed based on feedback from three public forums held in 1997 to address sizing of commercial grease interceptors. Gravity interceptors are generally installed outside to prevent sewer gases and odors from entering the building.

Cost Impact: The cost impact to install a 500 gallon interceptor versus a 300 gallon interceptor is minimal for a facility. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

209.0 Grease Removal Device (GRD). A hydromechanical grease interceptor that automatically, mechanically removes non-petroleum fats, oils and grease (FOG) from the interceptor, the control of which are either automatic or manually initiated. These devices must be able to perform as a gravity interceptor if mechanical or electrical power is lost and be able to provide continued separation.

Reasons: Grease removal devices rely on moving parts and electricity to separate grease from the waste stream; therefore, if moving parts break down or electrical power is lost the device will still be able to operate as a passive device and prevent grease from entering the sewer system.

**DAB Technical asked for the last sentence to be reworked and accepted as modified.

Cost Impact: No cost impact. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

210.0 Hydromechanical Grease Interceptor. A plumbing appurtenance or appliance that is installed in a sanitary drainage system to intercept nonpetroleum fats, oil and grease (FOG) from a wastewater discharge and is identified by flow rate, and separation and retention efficiency. The design incorporates air entrainment, hydromechanical separation, interior baffling, or barriers in combination or separately, and one of the following:

A - External flow control, with air intake (vent), directly connected

B - ~~External flow control, without air intake (vent), directly connected~~ Internal flow control, directly connected

C - ~~Without external flow control, directly connected~~

D - ~~Without external flow control, indirectly connected~~

These interceptors comply with the requirements of Table 1014.2.1 and Table 1014.2.1A. Hydromechanical grease interceptors are generally installed inside and they must be able to function as gravity interceptors if mechanical or electrical power is lost.

Reasons:

Flow control is necessary to regulate the flow into a hydromechanical interceptor and prevent connected plumbing fixtures from exceeding the grease retention capacity of the device. Installing a hydromechanical device without this control valve will negatively affect the grease retention and separation efficiency of the device.

Hydromechanical grease interceptors must be able to function as gravity interceptors if mechanical or electrical power is lost otherwise the device will allow grease to enter the sanitary drainage system.

Cost Impact: No cost impact. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

DRINKING FOUNTAIN. A plumbing fixture that is connected to the potable water distribution system and the drainage system. The fixture allows the user to obtain a drink directly from a stream of flowing water without the use of any accessories.

WATER DISPENSER. A plumbing fixture that is manually controlled by the user for the purpose of dispensing potable drinking water into a receptacle such as a cup, glass or bottle. Such fixture is connected to the potable water distribution system of the premises. This definition also includes a freestanding apparatus for the same purpose that is not connected to the potable water distribution system and that is supplied with potable water from a container, bottle or reservoir.

WATER COOLER. A drinking fountain that incorporates a means of reducing the temperature of the water supplied to it from the potable water distribution system.

415.2 Where required. Where food is consumed indoors, water stations shall be permitted to be substituted for drinking fountains. ~~Where food is consumed indoors, water stations shall be permitted to be substituted for drinking fountains~~ restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants. In other occupancies where drinking fountains are required, water dispensers shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains. Drinking fountains shall not be required for an occupant load of ~~30~~ 50 or less.

415.4 Prohibited location. Drinking fountains, water coolers and water dispensers shall not be installed in toilet rooms.

Reasons:

There is often confusion regarding what is or is not a water cooler. Some people think that a water cooler is a drinking fountain since typically they also cool the water that is being dispensed. Others think that a water cooler is a bottled water dispenser that is capable of cooling the water dispensed. Currently the code does not define any of the terms. In reality, drinking fountains are drinking fountains and everything else is some form of a water dispenser. Whether or not the water is cooled is irrelevant. The code does not require cooled water. The code can be simplified in Section 415.2 by referring only to drinking fountains or their alternative, water dispensers. The new definitions establish that a drinking fountain and a water dispenser that is connected to the potable water supply system are both plumbing fixtures by definition and a bottled water dispenser is not a plumbing fixture by definition. It is necessary to be clear as to what the code requires to be provided and also what the code intends to allow as an alternative. This proposal also paves the way for new technology that is being marketed and installed today, namely water dispensers that are built into a wall, connected to the potable water supply system and dispense water into cups, glasses and bottles. These units typically treat the potable water with additional filtering and/or reverse osmosis treatment.

The number of occupants for exempt status is revised to coordinate with the 2012 IPC footnote "f" to Table 403.1.

Cost Impact: Cost savings from replacing drinking fountain installations with water dispensers.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

**Table 422.1
Minimum Plumbing Facilities**

Replace the entire table and footnotes with Table 403.1 including amended footnotes from the 2012 IPC. Rename as Table 422.1. Also delete all service sink requirements from the table.

f. Drinking fountains are not required for an occupant load of 45-50 or fewer.

~~g. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.~~

h. Where urinals are provided they may be substituted for water closets, provided the number of water closets is not reduced to less than 50% of the minimum required by Table 422.1.

Reasons:

These revisions are made to provide consistency between the UPC and IPC and the minimum plumbing fixture table that is found in the 2012 International Building Code.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

422.2 Separate Facilities. Separate toilet facilities shall be provided for each sex.

Exceptions:

1. Residential installations.
2. In occupancies with a total occupant load of ~~40~~ 15 or less, including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be permitted for use by both sexes.
3. In business and mercantile occupancies with a total occupant load of 50 or less including customers and employees, one toilet facility, designed for use by no more than one person at a time, shall be permitted for use by both sexes.

Reasons:

Past versions of the UPC as well as the current 2012 IPC have used 15 occupants as the threshold value for a unisex restroom for many years. This practice should be continued to provide consistency. This also provides consistency with 2012 IPC section 403.2.

Cost Impact: Cost savings for small buildings of all occupancies.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

603.4.3 Access and Clearance. Access and clearance shall be provided for the required testing, maintenance, and repair. Access and clearance shall be in accordance with manufacturer's instructions, and not less than 12 inches between the lowest portion of the assembly and grade, floor, or platform. ~~Installations elevated~~ Elevated installations that exceed 5 feet above the floor or grade shall be provided with a platform capable of supporting a tester or maintenance person. Secondary backflow assemblies shall be installed above ground, as close as practicable to the point of service delivery. A minimum 3-foot (914 mm) clear space shall be maintained for testing, maintenance and repair.

Reasons:

- Clears up original grammatically incorrect code language regarding elevated installations.
- Clarifies that secondary backflow prevention assemblies shall be installed above ground.
- Clarifies the minimum required clearance dimensions for secondary backflow prevention assemblies.
- Coordinates with Phoenix Fire Code Section 901.10 requirements for access to fire protection equipment.

Cost Impact: None

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

603.4.9 Prohibited Locations. Backflow prevention devices ~~with atmospheric vents or ports~~ shall not be installed in pits, underground vaults, or submerged locations.

Reasons:

- Phoenix City Code Chapter 37-144 (d) regarding backflow assembly accessibility and testing presents design constraints for adequate clearance and drainage in a proposed vault installation. Proposed vault dimensions typically restrict full accessibility to all parts of an assembly.
- Eliminates the possibility of installing a backflow prevention assembly in a pit or vault.
- Adds the word vault to better define underground locations.
- Reflects installation drawings shown in City of Phoenix Standard Details P1351 through P1355.
- Corresponds to manufacturer's installation instructions which restrict underground installations to AHJ approval.
- Above ground installation assures that Fire Department personnel have visual access to fire line backflow prevention assembly shut off valves and verifies that the assembly OS&Y (outside stem & yoke) shut-off valves are open by presence of a rising stem.

Cost Impact: None.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

603.4.10 Secondary Backflow Protection. The following activities or facilities shall have reduced pressure principle backflow prevention assemblies installed as close as practicable to the point of service delivery: Hospitals, surgical clinics, laboratories, morgues, mortuaries, veterinary hospitals, industrial occupancies, packing plants, slaughter houses, chemical plants, municipal waste treatment facilities, and construction water services.

Note: Multiple water services which are interconnected onsite shall be provided with not less than a Double Check Valve Assembly at each service connection.

Reasons:

ADEQ, Maricopa County and city of Phoenix Water Department all require secondary protection for the services cited.

Cost Impact: None – This amendment carries over from previous code cycles.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

718.1 Grade, Support, and Protection of Building Sewers.

718.1 Slope. Building sewers shall be run in practical alignment and at a uniform slope of not less than ¼ inch per foot (20.8 mm/m) toward the point of disposal.

Exceptions:

1. Where approved by the Authority Having Jurisdiction and where it is impractical, due to depth of the street sewer or to the structural features or to the arrangement of a building or structure, to obtain a slope of ¼ inch per foot (20.8 mm/m), such pipe or piping 4 inches (100 mm) through 6 inches (150 mm) shall be permitted to have a slope of not less than 1/8 inch per foot (10.4 mm/m) and such piping 8 inches (200 mm) and larger shall be permitted to have a slope of not less than 1/16 inch per foot (5.2 mm/m).
2. The Authority Having Jurisdiction may approve a lessor slope in lieu of a sewage ejector or pumping station when a registered engineer or architect certifies the sewer design and its installation, and when the building owner agrees in writing under notary to accept the lessor slope. Certification of the building sewer shall meet the special inspection requirements of the Phoenix Building Construction Code.

Reasons:

This amendment adds the option of using a lessor slope for building sewers based on engineering calculations. The owner will be required to sign under notary that they have accepted the lessor slope. The registrant shall certify the design and final installation through special inspection.

Cost Impact: This amendment will reduce the costs associated with the current approval process for low slope sewer installations.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

912.0 Air Admittance Valves

912.1 General. Vent systems shall be allowed to be served by approved air admittance valves. Stack-type air admittance valves shall be in conformance with ASSE 1050 and individual and branch-type air admittance valves shall be in conformance with ASSE 1051.

912.2 Installation. The valves shall be installed in accordance with the requirements of this section and the manufacturer's installation instructions. Air admittance valves shall be installed after the drain, waste and vent testing required by Sections 712.2 or 712.3 has been approved by the administrative authority.

912.3 Where permitted. Individual and branch vents shall be permitted to terminate with a connection to an individual or branch-type air admittance valve in accordance with Section 912.3.1. *Stack vents* and vent *stacks* shall be permitted to terminate to stack-type air admittance valves in accordance with Section 912.3.2.

912.3.1 Horizontal branches. Individual and branch-type air admittance valves shall vent only fixtures that are on the same floor level and connect to a horizontal branch drain. Where the horizontal *branch* is located more than four branch intervals from the top of the stack, the horizontal *branch* shall be provided with a relief vent that shall connect to a vent stack or stack vent, or extend outdoors to the open air. The relief vent shall connect to the horizontal *branch* drain between the stack and the most downstream fixture drain connected to the horizontal *branch* drain. The relief vent shall be sized in accordance with Section 904.1 and installed in accordance with Section 905. The relief vent shall be permitted to serve as the vent for other fixtures.

912.3.2 Stack. Stack-type air admittance valves shall be prohibited from serving as the vent terminal for vent stacks or stack vents that serve drainage *stacks* having more than six *branch intervals*.

912.4 Location. Individual and branch-type air admittance valves shall be located a minimum of 4 inches (102 mm) above the *horizontal branch drain* or *fixture drain* being vented. Stack-type air admittance valves shall be located not less than 6 inches (152 mm) above the *flood level rim* of the highest fixture being vented. The air admittance valve shall be located within the maximum *developed length* permitted for the vent. The air admittance valve shall be installed not less than 6 inches (152 mm) above insulation materials.

912.5 Access and ventilation. Access shall be provided to all air admittance valves for the purpose of maintenance or replacement. The valve shall be located within a ventilated space that allows air to enter the valve.

912.6 Size. The air admittance valve shall be rated in accordance with the standard for the size of the vent to which the valve is connected.

912.7 Vent required. Within each plumbing system, not less than one *stack vent* or vent *stack* shall extend outdoors to the open air.

912.8 Prohibited installations. Air admittance valves shall not be installed in non-neutralized special waste systems as described in Chapter 8 except where such valves are in compliance with ASSE 1049, are constructed of materials approved in accordance with Section 811.2 and are tested for chemical resistance in accordance with ASTM F 1412. Air admittance valves shall not be located in spaces utilized as supply or return air plenums. Air admittance valves without an engineered design shall not be utilized to vent sumps or tanks of any type.

Reasons: Air admittance valves are currently allowed in the 2012 International Plumbing Code Section 918.0 and were previously allowed in the Arizona State Plumbing Code, Arizona Administrative Code, Title 4, Chapter 48. This amendment is designed to align the acceptance of air admittance valves with the other adopted plumbing code.

Cost Impact: Cost savings from reducing the number of plumbing vent pipes serving a building.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

1007.0 Trap Seal Protection.

1007.1 General. Floor drain or similar traps directly connected to the drainage system and subject to infrequent usage shall be protected with a trap seal primer, except where not deemed necessary for safety of sanitation by the Authority Having Jurisdiction. Trap seal primers shall be accessible for maintenance.

Exception: Trap seal primer valves are not required when an alternative device is provided to prevent evaporation of the liquid seal. Barrier type floor drain devices used to prevent evaporation shall conform to ASSE 1072, be accessible for maintenance and installed in accordance with manufacturer's instructions. A source of water for filling of traps shall be located in the vicinity of the plumbing fixture.

Reasons:

A barrier-type device has been developed for installation in a floor drain that prevents evaporation of the required liquid seal. This type of device opens when liquid enters the drain and then closes to prevent the migration of sewer gases back into the building. The devices are installed in the body of the floor drain and are typically made of an elastomeric material. Many of these devices are tested to several national standards such as ASSE 1072 and are listed by both the ICC-ES (IPC) and IAPMO (UPC) major Code agencies. The current Code requires that a trap seal primer valve be installed where trap seals are subject to evaporation. Trap seal primer valves have been proven to be adversely affected by the hard water in Phoenix and very often fail, thus leaving no trap seal protection. Once the liquid in the trap evaporates, sewer gas will migrate into the building. This exception will allow use of the listed devices in place of the trap seal primer valves required by the Code section.

Cost Impact: Cost savings from replacement of trap seal primer valves with lower cost barrier-type devices and reduced maintenance.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

1014.1 Where Required. Where it is determined by the Authority Having Jurisdiction that waste pretreatment is required, an approved type of grease interceptor(s) in accordance with the provisions of this section shall be correctly sized and properly installed in grease waste line(s) leading from sinks and drains, such as floor drains, floor sinks, and other fixtures or equipment in serving establishments such as restaurants, cafes, lunch counters, cafeterias, bars and clubs, hotels, hospitals, sanitariums, factory or school kitchens, or other establishments where grease is introduced into the drainage or sewage system in quantities that can effect line stoppage or hinder sewage treatment or private sewage disposal. Where approved by the Authority Having Jurisdiction a combination of hydromechanical, gravity grease interceptors, and engineered systems shall be allowed in order to meet this code and other applicable requirements ~~of the Authority Having Jurisdiction~~ where space or existing physical constraints of existing buildings necessitate such installations. A grease interceptor shall not be required for individual dwelling units or for private living quarters. Water closets, urinals, and other plumbing fixtures conveying human waste shall not drain into or through the grease interceptor.

Reasons:

Combination pretreatment systems are generally not allowed by the Environmental Services Division but will be considered on a case by case basis.

Cost Impact: No cost impact.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

1014.1.3 Food Waste Disposal Units and Dishwashers. ~~Unless specifically required or permitted by the Authority Having Jurisdiction, no~~ All food waste disposal units or and dishwashers shall be connected to or discharge into a grease interceptor. Commercial food waste disposers shall be permitted to discharge directly into the building's drainage system. ~~No commercial food waste disposal units and/or dishwashers shall discharge into a hydromechanical grease interceptor.~~

Reasons:

This code change is necessary to positively identify where disposals and dishwashers shall be discharged. Connecting a commercial disposal unit and/or dishwasher to a hydromechanical interceptor will have a negative effect on the operation, separation and grease retention efficiency of the device.

Cost Impact: No cost impact. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

1014.2.1 Capacity. The total capacity in gallons (gal) (L) of fixtures discharging into a hydromechanical grease interceptor shall not exceed two and one-half times the certified gallon per minute (gpm) (L/s) flow rate of the interceptor in accordance with Table 1014.2.1 and 1014.2.1A. No hydromechanical interceptor shall be installed which has an approved rate of flow greater than fifty-five (55) gallons per minute or (3.5 L/s), nor less than twenty (20) gallons per minute (1.3 L/s) except where approved by the Authority Having Jurisdiction.

For the purpose of this section, the term "fixture" shall mean and include each plumbing fixture, appliance, apparatus, or other equipment required to be connected to or discharged into a grease interceptor by a provision of this section.

Reasons:

The purpose of this code change is to provide the public with prescriptive sizing guidelines for hydromechanical grease interceptors.

Cost Impact: No cost impact. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

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Add Table 1014.2.1A.

TABLE 1014.2.1A
HYDROMECHANICAL GREASE INTERCEPTOR SIZING BASED ON FIXTURE COUNT

Total Number of Grease Retention Fixtures Connected	TOTAL FLOW-THROUGH RATING (gpm)	GREASE RETENTION CAPACITY (pounds)
1	20	40
2	25	50
3	35	70
4	50	100

For SI Units: 1 gallon per minute = 0.06 L/s, 1 pound = 0.454 kg.

Reasons:

The purpose of adding this table to the code is to provide the public with prescriptive sizing guidelines for hydromechanical grease interceptors.

Cost Impact: No cost impact. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

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1014.2.3 Maintenance. A two way cleanout shall be installed on the discharge side of all hydromechanical grease interceptors.

Reasons:

The purpose of this code section is to provide an entry point to clean the line downstream of the device and back to the device.

Cost Impact: The cost impact is minimal to install additional piping for cleanouts. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

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1014.3.5 Construction Requirements. Gravity grease interceptors shall be designed to remove grease from effluent and shall be sized in accordance with this section. Gravity grease interceptors shall also be designed to retain grease until accumulations can be removed by pumping the interceptor. ~~It is recommended that a sample box be located at the outlet end of gravity grease interceptors so that the Authority Having Jurisdiction can periodically sample effluent quality.~~ The minimum gravity grease interceptor capacity shall be 500 gallons and the maximum capacity shall be 5000 gallons unless otherwise approved by the Authority Having Jurisdiction. A 500 gallon interceptor shall have a minimum of two compartments and two man-ways. Interceptors 750 gallons and above shall have a minimum of three compartments and three man-ways. All man-ways shall have a minimum 20" inside diameter. All interceptors shall have a vented two-way cleanout on the discharge side of the interceptor. All interceptors shall have a separate set of approved plans on file with the Environmental Services Division. The plans shall be sealed by a registered professional engineer and be approved by the Authority Having Jurisdiction. These plans shall be on file with the city before installation can be completed. The grade rings (risers) and the inlet/outlet of gravity grease interceptors shall be grouted with shrink and water proof grout. The interceptor lids shall be just above grade so as to prevent rain water infiltration. All interceptors shall have gas tight and/or traffic rated lids where required.

Reasons: The Environmental Services Division does not sample effluent discharges from grease interceptors therefore providing a sample box is an unnecessary expense for a facility. The additional requirements establish construction parameters for interceptors.

Cost Impact: There is a cost savings for omitting sample boxes from all grease interceptor installations. The additional requirements are amendments carried forward from the 2006 Uniform Plumbing Code.

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**EXAMPLE 1014.3.6
GRAVITY GREASE INTERCEPTOR SIZING EXAMPLE**

Given: A restaurant with the following fixtures and equipment.

One food preparation sink; three floor drains – one in the food prep area, one in the grill area, and one receiving the indirect waste from the ice machine and mop sink.

Kitchen Drain Line DFU Count (from Table 702.1):

3 floor drains at 2 DFUs each	=	6 DFUs
Mop sink at 3 DFUs each	=	3 DFUs
Food prep sink at 3 DFUs each	=	3 DFUs
Total	=	12 DFUs

~~Using Table 1014.3.6, the grease interceptor will be sized at 750 gallons (2389 L).~~ Using UPC 1014.3.6:
12 DFUs x 3 GPM x 12 minute detention time = 432 gallons. The interceptor will be sized at 500 gallons (1893 L).

Reasons:

The purpose of this code change is to provide a design example that clearly illustrates how to size an interceptor.

Cost Impact: No cost impact.

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Delete Table 1014.3.6

Reasons:

The purpose of this code change is to delete a redundant section. Gravity grease interceptor sizing is defined in UPC 1014.3.6.

Cost Impact: No cost impact. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

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to the 2012 Uniform Plumbing Code**

1014.3.6 Sizing Criteria. The volume of the interceptor shall be determined by calculating drainage fixture units (DFUs) using Table 404.3.6 702.1. Where drainage fixture units (DFUs) are not known, the interceptor shall be sized based on the maximum DFUs allowed for the pipe size connected to the inlet of the interceptor. Refer to Table 703.2, Drainage Piping, Horizontal.

Example: Take the total DFUs going to grease waste, multiply by three (3) gallons per minute (GPM), multiply by a 12 minute detention time and this will give the interceptor size in gallons. If there is a disposal, use a 17 minute detention time.

Reasons:

The purpose of this code change is to define how an interceptor will be sized. The sizing criteria was developed from three public forums held in 1997 to standardize gravity grease interceptor sizing.

Cost Impact: No cost impact. This requirement is an amendment carried forward from the 2006 Uniform Plumbing Code.

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1017.1 Interceptors Required. Repair garages and gasoline stations with grease racks or grease pits, and factories that have oily, flammable, or both types of wastes as a result of manufacturing, storage, maintenance, repair, or testing processes, and in hydraulic elevator pits shall be provided with an oil or flammable liquid interceptor that shall be connected to necessary floor drains.

(Remainder of section to remain unchanged)

Exception: An oil interceptor is not required in hydraulic elevator pits where an approved alarm system is installed.

Reasons:

Protect drainage system. Harmonize UPC with 2012 IPC section 1003.4 to be consistent in elevator installations.

Cost Impact: Cost savings from installation of alarm system instead of oil interceptor.

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to the 2012 Uniform Plumbing Code**

1101.11 Roof Drainage.

1101.11.1 Primary Roof Drainage. Roof areas of a building shall be drained by roof drains, scuppers or gutters. The location and sizing of drains and gutters shall be coordinated with the structural design and pitch of the roof. Scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by this section. Scupper openings shall be not less than 4 inches (102 mm) in height and have an opening width equal to the circumference of the roof drain required for the area served, sized in accordance with Table 1101.11. Unless otherwise required by the Authority Having Jurisdiction, roof drains, scuppers, gutters, vertical conductors or leaders, and horizontal storm drains for primary drainage shall be sized based on a rainfall rate of three (3) inches per hour ~~storm of 60 minutes duration and 100 year return period. Refer to Table D-1.1 (in Appendix D) for 100 year, 60 minute storms at various locations.~~

Reasons:

Current language in the 2012 UPC implies that scuppers are only approved for secondary roof drainage. It has been a long standing practice in Phoenix to allow the use of scuppers as primary roof drains. This proposal adds the acceptance of scuppers as primary roof drains and matches the sizing criteria found for the secondary scuppers in section 1101.11.2.1. The annual rainfall rate is given in the Appendix D of this code as 2.2 inches per hour. It is proposed to round this number up to 3 inches for ease of use of the sizing tables.

** DAB Technical asked for further structural input on changing the rainfall rate to 3 inches per hour.

Cost Impact: Cost savings from allowing scuppers for primary roof drainage and from reducing the design rainfall rate from the current six (6) inches per hour (2006 UPC) down to three (3) inches per hour.

**City of Phoenix Amendments
to the 2012 Uniform Plumbing Code**

1101.11.2 Secondary drainage. Secondary (emergency) roof drainage shall be provided by one of the methods specified in Section 1101.11.2.1 or 1101.11.2.2.

1101.11.2.1 Roof Scuppers or Open Side. Secondary roof drainage shall be provided by an open-sided roof or scuppers where the roof perimeter construction extends above the roof in such a manner that water will be entrapped. An open-sided roof or scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.11.1. Scupper openings shall be a minimum of 4' inches (102 mm) high and have a width equal to the circumference of the roof drain required for the area served, sized in accordance with Table 1101.11.

1101.11.2.2 Secondary Roof Drain. Secondary roof drains shall be provided. The secondary roof drains shall be located a minimum of 2 inches (51 mm) above the roof surface. The maximum height of the roof drains shall be a height to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1101.11.1. The secondary roof drains shall connect to a piping system conforming to Section 1101.11.2.2(A) or 1101.11.2.2(B).

1101.11.2.2(A) Separate Piping System. The secondary roof drainage system shall be a separate system of piping, independent of the primary roof drainage system. The discharge shall be above grade, in a location observable by the building occupants or maintenance personnel. Secondary roof drain systems shall be sized in accordance with Section 1101.11.1 based on the rainfall rate for which the primary system is sized.

~~**1101.11.2.2(B) Combined System.** The secondary roof drains shall connect to the vertical piping of the primary storm drainage conductor downstream of any horizontal offset below the roof. The primary storm drainage system shall connect to the building storm water that connects to an underground public storm sewer. The combined secondary and primary roof drain systems shall be sized in accordance with Section 1106.0 based on double the rainfall rate for the local area.~~

Reasons:

The city of Phoenix does not allow for combined primary and secondary rainwater removal systems. A combined system does not have any way to indicate there is a blockage in the primary drain.

Cost Impact: No cost impact.

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1104.3 Combining Storm with Sanitary Drainage. ~~The sanitary and storm drainage system of a building shall be entirely separate, except where a combined sewer is used, in which case the building storm drain shall be connected in the same horizontal plane through single wye fittings to the combined building sewer not less than 10 feet (3048 mm) downstream from a soil stack.~~

Reasons:

The city of Phoenix does not allow for combined sanitary and storm drainage systems. This type of combined system is under the jurisdiction of the city of Phoenix Water Services Department.

Cost Impact: No cost impact.

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to the 2012 Uniform Plumbing Code**

**CHAPTER 12
FUEL GAS PIPING
Reserved**

Delete entire content of Chapter 12.

Reasons:

All the code sections are represented in the 2012 International Fuel Gas Code. Duplication of the material may be confusing. While both the IFGC and the UPC use NFPA 54 as the basis of their code language, the different code bodies diverge in specific areas. This could lead to conflicts.

Cost Impact: No cost impact.

**City of Phoenix Amendments
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Adopt Appendices: A, B, D, I

Reasons:

Appendix A provides an alternative engineered method of water pipe sizing. Appendix B provides additional information on combination waste and vent systems. Appendix D provides tables of maximum rates of rainfall for cities in the US and is used to size rainwater roof drains, leaders and scuppers. Previous amended section 1101.11.1.1 establishes the rainfall rate as 3 inches per hour so Appendix D is not needed. Appendix I contains installation standards for various piping systems.

Cost Impact: No cost impact.

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