

## 2006 Codes are Headed for Phoenix

Most of the ICC Codes and one IAPMO Code [2006 UPC] are currently being reviewed, amended, and readied for adoption by the Phoenix City Council. If all goes per plan the Codes will be submitted to the Council on April 1, 2007 for their consideration and approval. The implementation date will follow three (3) months subsequent to the adoption date [approximately July 1, 2007], after which new plans are to be submitted based upon the newly adopted Code language.

Work that is already in progress may be continued using the Code under which the drawings were prepared and/or the original approval was based. Work submitted for plan review and permit *after* the effective date of the new Codes shall comply with the provisions of the most recently adopted Codes.

The 2006 UPC is similar to the 1994 edition, but it does have several significant changes and additions. A number of these have been amended out of the Code as presented for adoption by the Council. The City of Phoenix Code review discovered that Table 11-1 [Roof Drainage] was inadvertently replaced some years ago with a Table of unknown origin. It is assumed that the error occurred during a 1996 amalgamation process, and that it first appeared in the UPC in the 1997 edition. This error is in the process of being corrected by IAPMO, and the correct Table will appear in the Phoenix Plumbing Code with corrections in place.

Other major differences between the 1994 UPC and the 2006 UPC include:

- 1) Implementation of the International Fuel Gas Code [IFGC] in place of the language in Chapters 12 and 5 of the 1994 UPC. The ANSI Code development process disallows any conflict with other ANSI Codes, and NFPA 54 and 58 were already ANSI Codes as well as the basis for the IFGC Code [International Fuel Gas Code]. This forced IAPMO to abandon its gas code provisions and find a way to incorporate the Fuel Gas Code into the Plumbing Code.
- 2) Language in the 1994 Appendix F (Health Care Facilities and Medical Gas and Vacuum Systems) has been moved to Chapter 13 in the 2006 UPC. The Phoenix Plumbing Code Committee then deleted the language in Chapter 13 and replaced it with reference to NFPA 99C. Doing so aligns the Plumbing Code with the Certification requirements of JCAHO [Joint Commission on Accreditation of Healthcare Organizations].
- 3) Storm Drainage has been moved from Appendix D (1994) to Chapter 11 in the 2006 UPC. The language in Appendix D ranged from being useless to being in conflict with area practice and was therefore eliminated from the Code.

- 4) Chapter 15 in the 2006 UPC is devoted to Firestop Protection. The Committee deleted this Chapter to avoid conflict with language in the International Building Code (IBC) on the same subject.
- 5) Appendix C has been deleted from the 2006 UPC and its Tables and footnotes [plumbing fixture requirements] are now located in Chapter 4 of the 2006 UPC. Table (4-1) in the 2006 UPC was deleted in favor of the fixture Table [2902.1] in the IBC for consistency between the Codes regarding methods of establishing exiting requirements and fixture requirements. Table A [Occupant Load Factor] was deleted from the 2006 UPC as well.
- 6) Appendix F became “Firefighter Breathing Air Replenishment Systems” in the 2006 UPC. This Appendix was also deleted from the 2006 UPC by Phoenix because the City of Phoenix Fire Code has been amended to address these systems, and both plan review and inspections will be deferred to the Fire Protection Engineers and the Fire Department Inspectors.
- 7) Appendix L was added to the 2006 UPC by IAPMO to address “Alternate Plumbing Systems”. Appendix L was added to the UPC in an effort to attract jurisdictions east of the Mississippi who had utilized many of these “unique” practices for many years and were fond of them. It was not intended that any jurisdiction would adopt *both* the standard UPC language *and* Appendix L. Most of the provisions in Appendix L are in direct conflict with text in the body of the Code.
- 8) Chapter One [Administration] of the 2006 UPC was *partially* retained with a defining paragraph on the cover sheet to explain the blend of Chapter One and the “Phoenix Building Construction Code Administrative Provisions”. The Phoenix Administrative Code will prevail when any subject is addressed by both Codes. Much of the plumbing information that is contained in Chapter One of the 2006 UPC is not found in any other location.

Every Chapter in the 2006 UPC warranted some level of amendment. Due to time constraints the Code Committee was limited in its ability to perform a detailed and comprehensive review. Consequently there are likely portions of the 2006 UPC that may be found unacceptable when we put the Code into service, but the Code Committee believes that the most onerous of the material has been either amended or deleted to make the 2006 UPC somewhat comparable to the 1994 UPC [and to earlier editions of the UPC] that have been the only Plumbing Codes used in Phoenix since the first Plumbing Codes were adopted.

In spite of the many changes and shortcomings of language in the 2006 UPC it is still considerably better than the alternative Code. The Phoenix Plumbing Code Committee was initially asked to review the International Plumbing Code [IPC] for adoption as part of the “family” of codes. After thoughtful review and discussion by members of the Committee it was noted that the IPC represents such a radical departure from plumbing concepts as we know them that it would have been very disruptive to the local plumbing industry in Phoenix had we adopted this recently developed Code. An article in the August 2006 P-M Engineer magazine quoted

Julius Ballanco as saying, "If the UPC is introduced into these areas [East Coast, Southeast, and Midwest] there will be immediate culture shock. The UPC is completely foreign to them and what they are used to enforcing today. There will be a tremendous learning curve." A similar outcome would be true if the *IPC* were to be adopted in the Phoenix area. The *IPC* is loaded with concepts that are viewed as "different" to say the least, concepts that raise questions regarding the engineering rationale that presumably supports many of these *IPC* provisions. Unless the laws of physics, hydraulics, and pneumatics are greatly more flexible in the "East" than they are in the "West" there is reason to question the efficacy of many of the notions put forth in the *IPC*.

The objective of a Code is to establish rules that will provide service and safety for the anticipated life of that which is being regulated. Plumbing systems can range from primitive to first class, and from being functional in a laboratory as compared with remaining functional during a long period of service. The reason new aircraft designs are "test flown" is to determine how they *actually* perform relative to how the engineers *anticipated* they would perform. Likewise, practical performance has to be reflected in any Code book developed for use in a practical world. Every plumbing system goes through three phases, 1) being new; 2) having a mid-life; and 3) reaching its design age limit, which for a commercial structure is anticipated to be 75 years. A design which is trimmed to minimums *may* function when it is new, but experience has shown that it will be marginal by mid-life, and will never make it to the 75 year design standard. The *UPC* has been based upon recognition of a gradual decline in plumbing system performance over the passage of time, and for that reason the *UPC* has been perceived by some as resulting in an "overbuilt" plumbing system. To use the aircraft analogy once again, we would all be uncomfortable knowing we were riding in an airplane that had no margins beyond its design stress loading. Turbulence would represent a terrifying occurrence for both passengers *and* pilots if airplanes were built with no safety margins. Plumbing systems need similar performance margins or they will fail to perform adequately in their old age.

The 2006 *UPC* will require some level of adjustment by all of us. However, it is hoped that the amendments recommended by the Committee will preserve much of the continuity to which we've all become accustomed.