



Review of Changes to the 2012 IPC

Chapter 3 Standard Plumbing Code General Regulations

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Amendments to the 2012 IPC

Chapter 3 of the International Plumbing Code

The following slides detail the significant changes between the 2006 and 2012 International Plumbing Code. These slides show changes made by the International Code Council and amendments that were adopted by the State of Georgia. As per state law, amendments must be used in direct relation with the plumbing code as part of Georgia's State Minimum Standard Plumbing Code. Amendments are written by a task force appointed by the Georgia Department of community affairs and included in the code to reflect changes necessary in the code to make it consistent with Georgia law and to make the code more user-friendly in the field.

Amendments to the 2012 IPC

Chapter 3 of the International Plumbing Code

In some of the new revisions Chapters 3, 4 and 6 of the 2012 Plumbing Code were amended because of a bill passed by the state legislature in 2010. This bill dealt with water conservation and revised the plumbing schedules and requirements for fixtures to include the requirements of the "Water Sense" program which was developed by the EPA. The following requirements were taken from Chapter 1 of the plumbing code and inserted in Chapter 3 to make these requirements a permanent part of the code. They cover the Scope and definition of plumbing and include requirements on maintenance of systems. [Next Page](#)

Amendments to the 2012 IPC

300 GENERAL APPLICABILITY STANDARDS

*Add new Section 300 'GENERAL APPLICABILITY STANDARDS' as follows:

SECTION 300

GENERAL APPLICABILITY STANDARDS

300.1 Scope. The provisions of this code shall apply to the erection, installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of plumbing systems within this jurisdiction. This code shall also regulate nonflammable medical gas, inhalation anesthetic, vacuum piping, nonmedical oxygen systems and sanitary and condensate vacuum collection systems. The installation of fuel gas distribution piping and equipment, fuel-gas-fired water heaters and water heater venting systems shall be regulated by the *International Fuel Gas Code*.

Amendments to the 2006 IPC

300 GENERAL APPLICABILITY STANDARDS

On the following slide **Section 300.2** was added to clarify that appendices found in the plumbing code are not enforceable unless they are specifically included in the wording of the code or they are adopted by local jurisdictions for enforcement by local ordinance. Some appendices were added by Georgia amendment such as the requirements covering the installation of Safeway systems and rainwater harvesting. These can be found in Georgia amendments. _____

Amendments to the 2006 IPC

300 GENERAL APPLICABILITY STANDARDS

*Add new Section 300 'GENERAL APPLICABILITY STANDARDS' as follows:

300.2 Appendices. Appendices are not enforceable unless they are specifically referenced in the body of the code or adopted by the Department of Community Affairs or the authority having jurisdiction.

300.3 Intent. The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems.

300.4 Severability. If any section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

Chapter 3

General Regulations

You will notice in these amendments by the state they clearly lay out what is covered by the plumbing code and includes language that makes the owner of the property responsible for the maintenance of the plumbing systems. It also included a provision that if the local jurisdiction suspects that the system is not being properly maintained then they could call for reinspection of the entire system even after it has been in service for several years. _____

Amendments to the 2006 IPC

300 GENERAL APPLICABILITY STANDARDS

*Add new Section 300 'GENERAL APPLICABILITY STANDARDS' as follows:

300.5 General. The provisions of this code shall apply to all matters affecting or relating to structures, as set forth in Section 101. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

300.6 Maintenance. All plumbing systems, materials and appurtenances, both existing and new, and all parts thereof, shall be maintained in proper operating condition in accordance with the original design in a safe and sanitary condition. All devices or safeguards required by this code shall be maintained in compliance with the code edition under which they were installed. The owner or the owner's designated agent shall be responsible for maintenance of plumbing systems. To determine compliance with this provision, the code official shall have the authority to require any plumbing system to be reinspected

Amendments to the 2006 IPC

300 GENERAL APPLICABILITY STANDARDS

Quiz Question

Who is responsible for the maintenance of a plumbing system?

- A. Local Government.
- B. Plumber
- C. Building Owner.
- D. Maintenance not required.

Answer: B

Revisions to Chapter 3

General Regulations

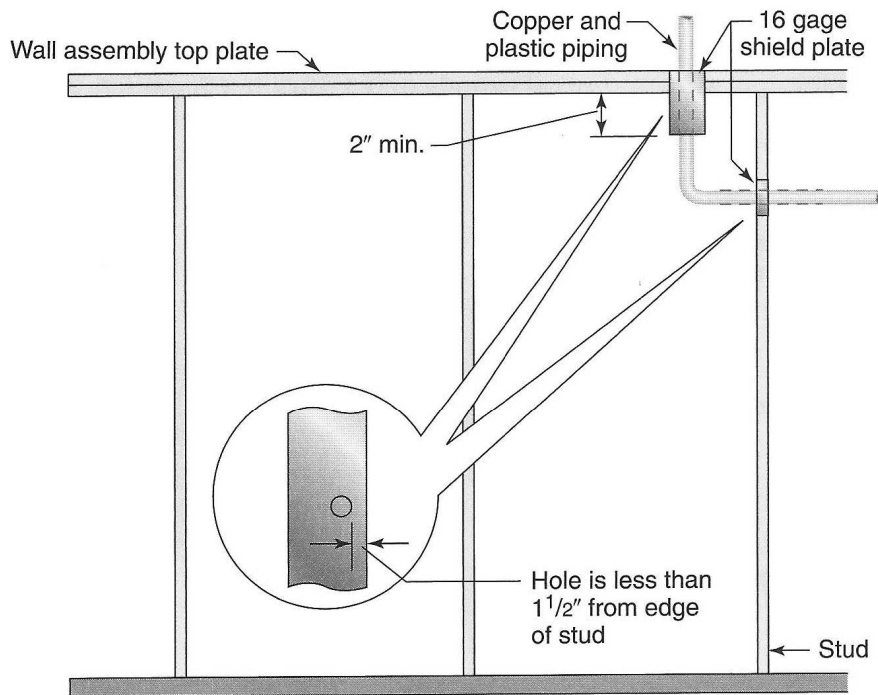
The following slides cover changes and revisions to Chapter 3 of the 2012 Plumbing Code. This code will become effective on January 1, 2014. As Georgia only adopts a new edition of the International codes every six years there are many changes in requirements and many new products that have to be addressed. The new 2012 code includes 140 revisions or changes. Many of the changes are simply a revision to old standards and the addition of new standards that cover new materials. As this deals mainly with manufacturers they will not directly affect plumbers. For instance in the following slide you can see that the revision is only to change the thickness of the metal for shield plates and water heater safety pans that complies with the new AWA standard.

2012 Plumbing Code Changes

2009 CODE: 305.8 Protection Against Physical Damage. In concealed locations where piping, other than cast-iron or galvanized steel, is installed through holes or notches in studs, joists, rafters or similar members less than 1.5 inches (38 mm) from the nearest edge of the member, the pipe shall be protected by steel shield plates. ~~Protective~~ Such shield plates shall ~~be a minimum of .062 inch thick (1.6mm) steel.~~ have a thickness of not less than 0.0575 inches (1.463 mm) (No. 16 Gage). Such plates shall cover the area of the pipe where the member is notched or bored, and shall extend a minimum of 2 inches (51 mm) above sole plates and below top plates.

504.7 Required Pan. Where water heaters or hot water storage tanks are installed in locations where leakage of the tanks or connections will cause damage, the tank or water heater shall be installed in a galvanized steel pan having a ~~minimum~~ material thickness of not less than 0.0236 inches (0.6010 mm) (No. 24 gage), or other pans approved for such use.

2012 Plumbing Code Changes



For SI: 1 inch = 25.4 mm.

The code identifies the minimum acceptable thickness of shield plates and water heater drain pans in order to ensure protection of the structure and its piping materials.

2012 Plumbing Code Changes

One of the new requirements added deals with testing of shower liners. In years past lead was the primary metal used for shower safe pans. Later lead was replaced with vinyl which is still used today. Many new products have come on the market such as a fiber mesh and mastics which are all recognized by the code. Due to the use of these new materials, the code now requires testing of the shower liners. The following slides show the new requirement for testing liners found in chapter 4 and a method of testing which is found in chapter 3.

2012 Plumbing Code Changes

417.5.2 Shower Lining. Floors under shower compartments, except where prefabricated receptors have been provided, shall be lined and made water-tight utilizing material complying with Sections 417.5.2.1 through 417.5.2.5. Such liners shall turn up on all sides at least 2 inches (51 mm) above the finished threshold level. Liners shall be recessed and fastened to an approved backing so as not to occupy the space required for wall covering, and shall not be nailed or perforated at any point less than 1 inch (25 mm) above the finished threshold. Liners shall be pitched one-fourth unit vertical in 12 units horizontal (2 percent slope) and shall be sloped toward the fixture drains and be securely fastened to the waste outlet at the seepage entrance, making a water-tight joint between the liner and the outlet. The completed liner shall be tested in accordance with Section 312.9.

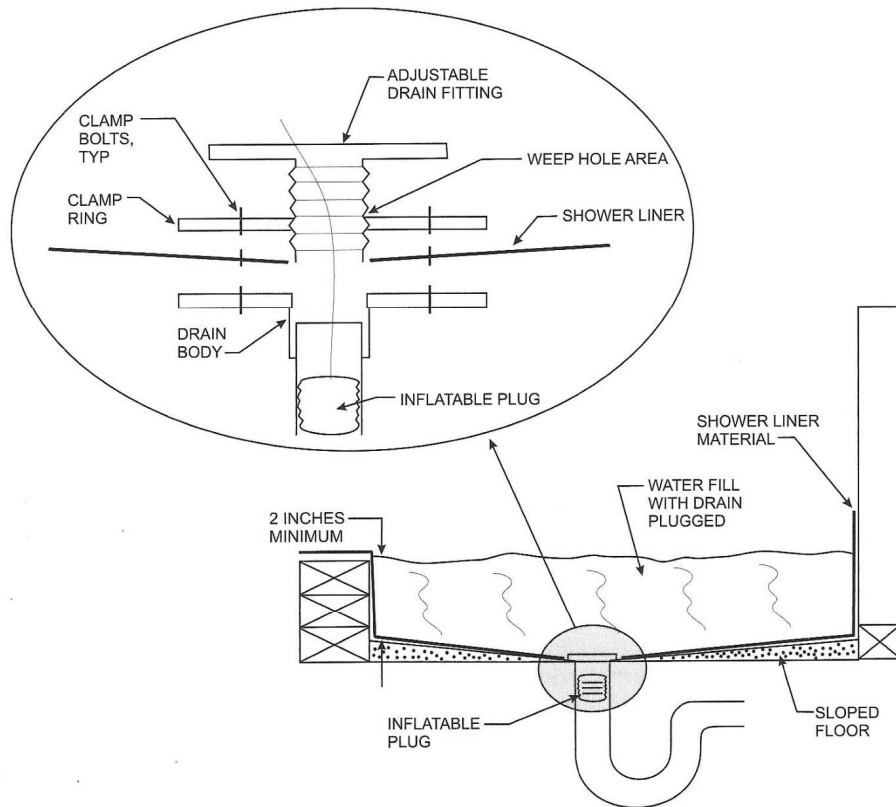
Exceptions:

1. Floor surfaces under shower heads provided for rinsing laid directly on the ground are not required to comply with this section.

2012 Plumbing Code Changes

2009 CODE: 312.9 Shower Liner Test. Where shower floors and receptors are made water-tight by the application of materials required by Section 417.5.2, the completed liner installation shall be tested. The pipe from the shower drain shall be plugged water-tight for the test. The floor and receptor area shall be filled with potable water to a depth of not less than 2 inches measured at the threshold. Where a threshold of at least 2 inches high does not exist, a temporary threshold shall be constructed to retain the test water in the lined floor or receptor area to a level not less than 2 inches deep measured at the threshold. The water shall be retained for a test period of not less than 15 minutes and there shall not be evidence of leakage.

2012 Plumbing Code Changes



For SI: 1 inch = 25.4 mm.

Figure 312.9
TESTING OF FIELD-FABRICATED SHOWER LINER

Changes to the 2012 IPC

Quiz Question

The 2012 IPC requires shower pan liners to be tested with a minimum of ____ inches of water?

- A. 2.
- B. 4
- C. 6.
- D. Test not required.

Answer: A

2012 Plumbing Code Changes to Chapter 3

The next changes found in chapter 3 deal with sealing of spaces around pipes. Two sections were revised to make the plumbing code more consistent with the Energy code. Section 304.4 dealt with rodent proofing and included the requirements for a escutcheons or metal collars to be installed on pipes which penetrated walls or floors. The metal collars are no longer required although it is assumed they will be used for decorative purposes. The revisions to these two sections allow for caulking or gasketing materials to be used. The next slide shows the old requirement found in the 2006 Plumbing Code followed by the slide showing the new requirements of the 2012 IPC. The third slide gives a detailed information on the reason for the change.

Chapter 3

Rodent Proofing

304.4 Openings for pipes. In or on structures where openings have been made in walls, floors or ceilings for the passage of pipes, such openings shall be closed and protected by the installation of metal collars or other approved methods.*

GA Amendment

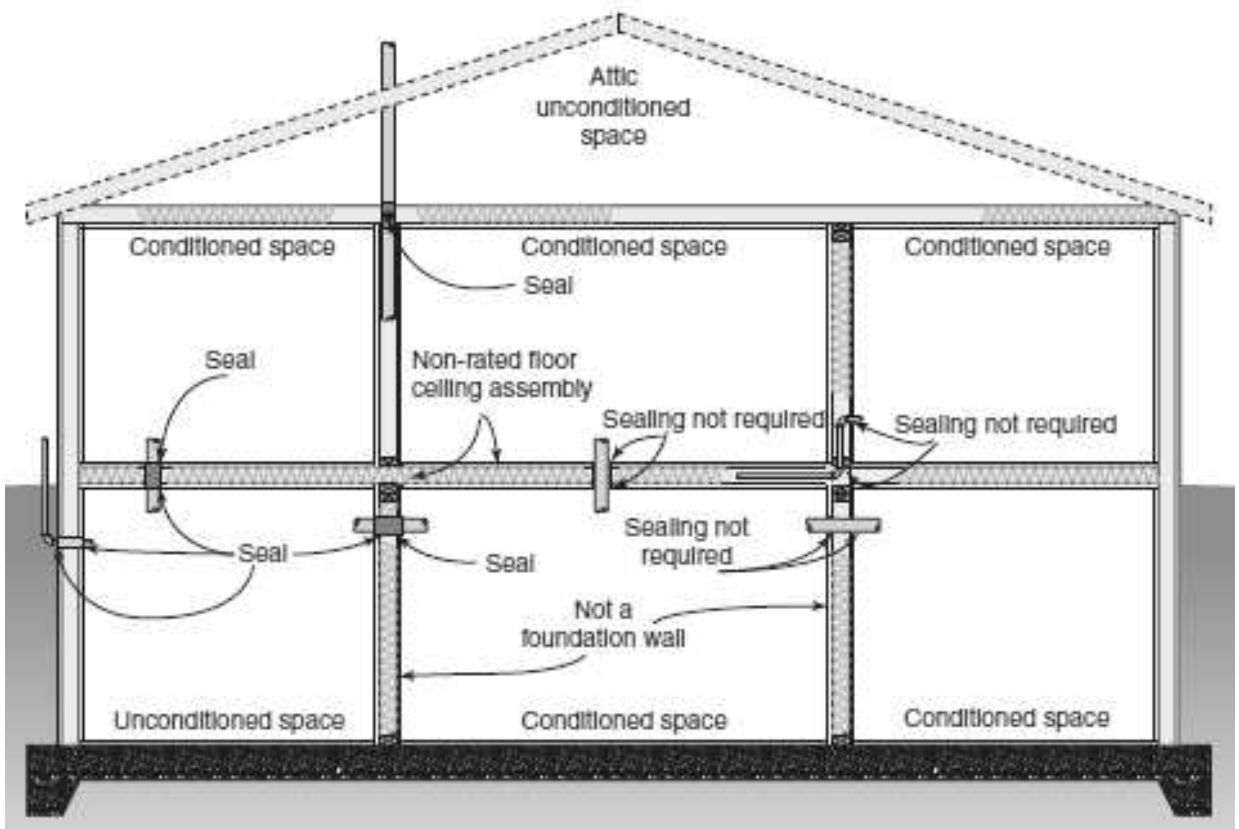
2006 Plumbing Code

2012 Plumbing Code Changes to Chapter 3

2012 IPC Section: 304.4, 315.1 Sleeves Sealing of Annular Spaces.

The annular spaces between the outside of a pipe and the inside of a pipe sleeves, and pipes or between the outside of a pipe and an opening in a building envelope wall, floor, or ceiling assembly penetrated by a pipe shall be filled or tightly caulked sealed in an approved manner with caulking material or closed with a gasketing system. The caulking material, foam sealant, or gasketing system shall be designed for the conditions at the penetration location and shall be compatible with the pipe, sleeve and building materials in contact with the sealing materials. Annular spaces between created by pipes penetrating sleeves and pipes in fire resistance-rated assemblies or membranes of such assemblies shall be filled or tightly caulked sealed or closed in accordance with Section 714 of the *International Building Code*.

2012 Plumbing Code Changes to Chapter 3 Sealing Penetrations of Walls, Floors or Ceiling



Chapter 3

PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS

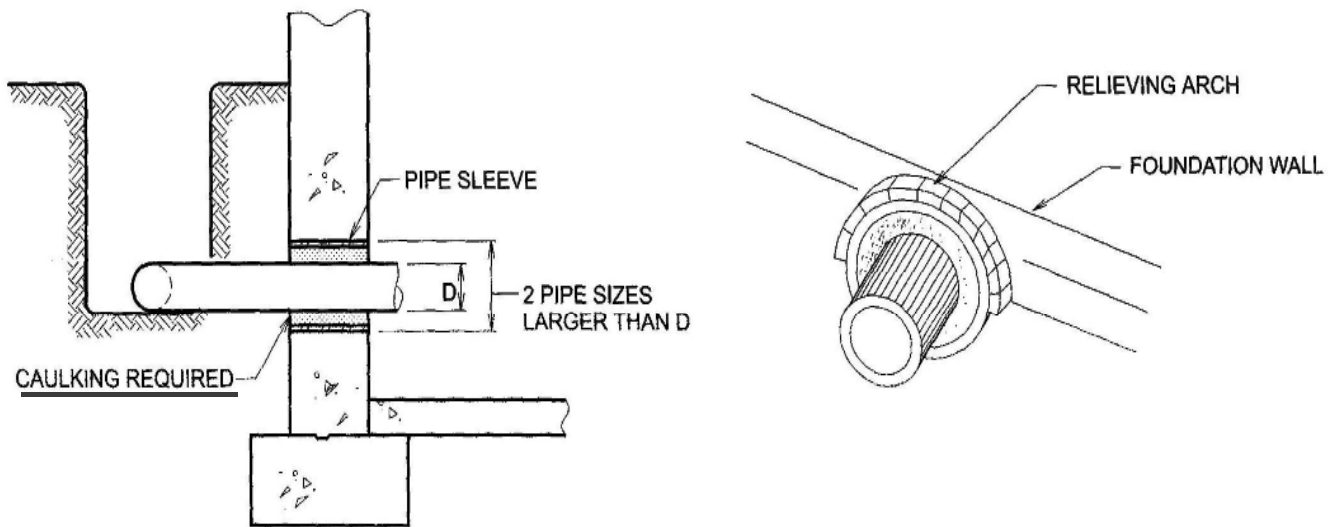


Figure 305.5
PIPE PROTECTION

2012 Plumbing Code Changes to Chapter 3

CHANGE SIGNIFICANCE: It is important that penetrations of the building envelope and other building elements be appropriately sealed. The modified text clarifies that only the ends of the annular spaces need to be sealed or closed. Filling of the entire annular space cavity is unnecessary for preventing uncontrolled air movement. The term "tightly caulked" was removed, as it was considered outdated language from the era of "packing and pouring" lead joints. It is anticipated that there will be only a few situations that would warrant having a pipe so rigidly fixed in a through-penetration. The term "pipe" was added in the reference to sleeves in order to clarify which sleeves are to be considered.

Clarification has been given to what was sometimes interpreted to require sealing between pipe and flexible plastic sleeving that is used for corrosion protection. It was also considered important to add the requirements that sealing materials be compatible with all items that they might come in contact with and that the materials be suitable for the weather and temperature conditions of the application. There are several solvent-based caulking materials that affect plastic piping, and there are instances where a caulking material is inappropriate for outdoor conditions, resulting in rainwater damage to the building.

An additional change made was to clarify and emphasize the importance of ensuring that where fire-resistance-rated assemblies are being penetrated by pipes, specific materials and methods in accordance with the *International Building Code (IBC)* must be used. Proper firestopping methods are critical for fire safety.

Code Changes to Chapter 3

PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS

The next slide shows the Georgia amendment dealing with the minimum depth sewer line must be installed.

The code leave this requirement blank as the minimum depth of a sewer varies from state to state. Some states must install sewers as deep as 2 to 3 feet to avoid the frost line. Georgia's frost line varies from about 6 inches in North Georgia to as little as 2 inches near the Florida line.

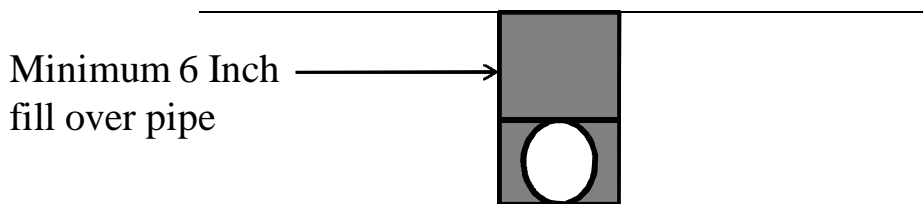
Although Georgia's 6 inch minimum depth seems shallow, this depth was used to allow the building drain to stub out from under a foundation as shallow as possible to make sure there would be adequate fall between the stub out and the sewer tap at the street. With many of the new small lot subdivisions there is a problem getting adequate fall between the house and the sewer tap.

Chapter 3

PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS

305.4.1 Sewer depth. Building sewers that connect to private sewage disposal systems shall be a minimum of ~~[NUMBER]~~ 6 inches (mm) below finished grade at the point of septic tank connection. Building sewers shall be installed not less than ~~[NUMBER]~~ 6 inches (mm) below grade.

GA Amendment specifies 6 Inches minimum depth



Chapter 3

TRENCHING, EXCAVATION AND BACKFILL

The following slides show a Georgia amendment to the code section for the amount of soil required to be installed over a pipe installed in a trench. As written the code requires a minimum of 12 inches of fill to be installed on top of a pipe when backfilling the trench. As Georgia only requires a sewer line to be installed 6 inches below grade this requirement had to be changed to reflect the amount of fill required over the top of the sewer line.

GA Amendments to the 2006 IPC

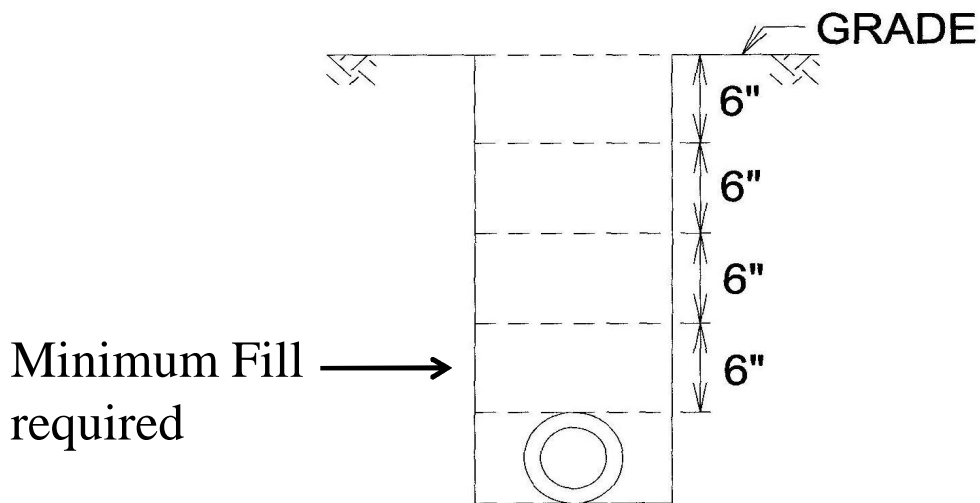
306.3 BACKFILLING

*Revise Section 306.3 'Backfilling' as follows:

306.3 Backfilling. Backfill shall be free from discarded construction material and debris. Loose earth free from rocks, broken concrete and, frozen chunks and other rubble, shall be placed in the trench in 6-inch (152 153 mm) layers and tamped in place until the crown of the pipe is covered by ~~12 inches (305 mm)~~ a minimum of 6 inches (153 mm) of tamped earth. The backfill under and beside the pipe shall be compacted for pipe support. Backfill shall be brought up evenly on both sides of the pipe so that the pipe remains aligned. In instances where the manufacturer's installation instructions for materials are more restrictive than those prescribed by the code, the material shall be installed in accordance with the more restrictive requirement.

Chapter 3

TRENCHING, EXCAVATION AND BACKFILL



or SI: 1 inch = 25.4 mm.

Figure 306.3
BACKFILLING 6-INCH TAMPED LAYER

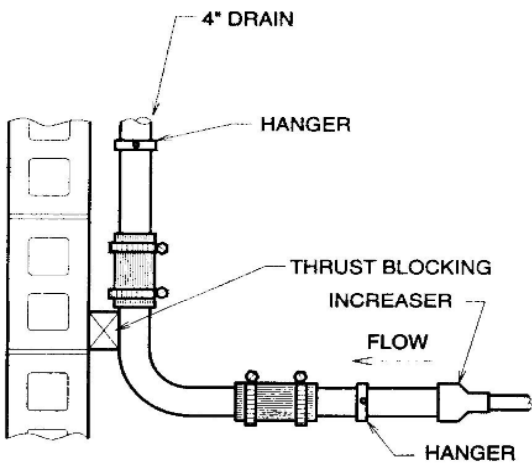
Chapter 3

Structural Safety *GA Amendment*

The next slides show a Georgia amendments concerning the requirements for sway bracing and Anchorage of pipes 4 inches and larger in plumbing systems. This bracing is required by the code to restrict the movement of piping that is caused by excessive water or air pressure. In larger pipes the movement of water or sewage can create a shift of the piping. Normally this would only occur in multi-story buildings or large plumbing systems. As these systems are designed by an architect or engineer Georgia removed these requirements and left this matter up to the design professional.

Chapter 3

Structural Safety



PLAN VIEW

For SI: 1 inch = 25.4 mm.

Figure 308.7.1
ANCHORAGE LOCATION

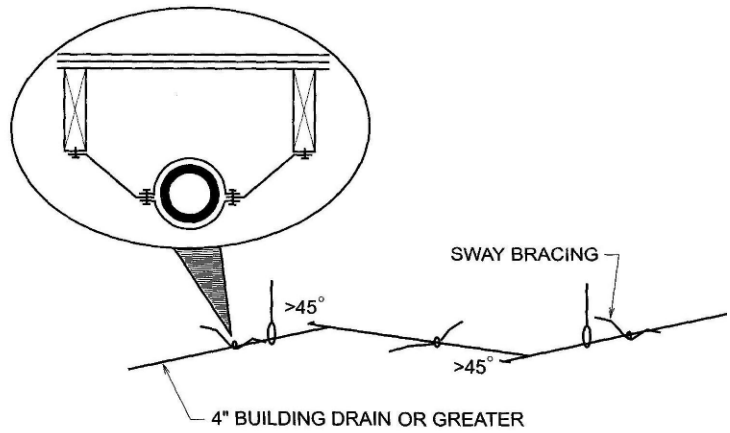


Figure 308.6
SWAY BRACING

Chapter 3

Structural Safety *GA Amendment*

308.6 Sway bracing. Rigid support sway bracing shall be provided at changes in direction greater than 45 degrees (0.79 rad) for pipe sizes 4 inches (102 mm) and larger.

SECTION DELETED

308.7 Anchorage. Anchorage shall be provided to restrain drainage piping from axial movement.

SECTION DELETED

Chapter 3

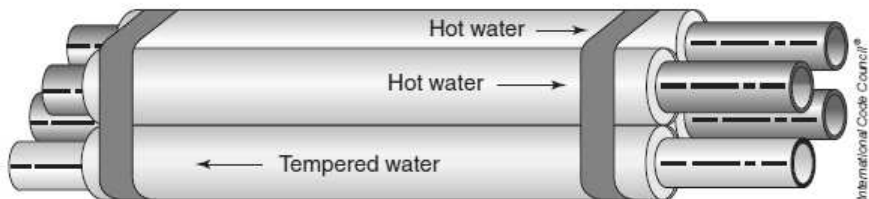
Structural Safety

The next codes change made by the International Code Council deals with water distribution piping run from a manifold. As is common with a manifold system water piping is often bundled together as there are a number of pipes running from the manifold to the fixtures. The 2006 code stated that hot and cold water piping could not be run in the same bundle. This was to make sure that the hot and cold water piping did not have a negative effect on the temperature of the water in the piping. In installation such as this if those pipes were in contact with each other it would be normal for the hot water to become cooler in the cold water to become hotter. As you will see the 2012 code does allow them to be bundled together but requires all hot water piping to be insulated

Chapter 3

Structural Safety

2012 CODE: 308.9 Parallel Water Distribution Systems. Piping bundles for manifold systems shall be supported in accordance with Table 308.5. Support at changes in direction shall be in accordance with the manufacturer's ~~installation~~ instructions. Where ~~H~~hot and cold water piping shall not be grouped in the same is bundled with cold or hot water piping, each hot water pipe shall be insulated.



Example of insulated bundle piping

Chapter 3

Section 312 .1 Tests and Inspections

The next slides cover the testing of plumbing systems. Section 312.1 sets forth the required tests for both DWV piping and water distribution piping. The code allows the system to be tested using either water or air pressure. It does limit the use of air depending on the type of piping material. Plastic piping cannot be tested with the pressure above 5 PSI. This is due to manufacturer's regulation. **In the past Georgia amended Section 312.5 to allow an air pressure of 50 psi to be used when testing all types of water piping. Because of an objection from the manufacturers, the 2012 plumbing code will no longer allow this on plastic piping.**

Chapter 3

Tests and Inspections

312.1 Required tests. The permit holder shall make the applicable tests prescribed in Sections 312.2 through 312.9 to determine compliance with the provisions of this code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power and labor necessary for the inspection and test shall be furnished by the permit holder and the permit holder shall be responsible for determining that the work will with-stand the test pressure prescribed in the following tests. All plumbing system piping shall be tested with either water or, for piping systems other than plastic, by air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code official shall require the removal of any cleanouts if necessary to ascertain whether the pressure has reached all parts of the system.

Changes to the 2012 IPC

Quiz Question

Air pressure above 5 psi may not be used for testing of piping when the pipe is made of what type of material?

- A. Plastic.
- B. Copper
- C. Cast Iron.
- D. No restriction on test with air pressure.

Answer: A