INSPECTIONS

As work progresses on a project that has been issued a building permit, the building department conducts inspections to confirm compliance with the plans and the IBC. The code requires the following specific inspections be done to ensure the building complies with the applicable provisions of the code. **[Ref. 110.3]**

Footing and foundation inspection

The footings and foundation comprise the supporting structure bearing on the ground. The footing inspection is done after the forms and reinforcing steel are in place. The inspector checks the forms to confirm that they are the correct size as shown on the plans and also confirms that the reinforcing steel is the correct size and placed in the proper location. Foundation walls can be constructed with many different types of materials. A concrete foundation is inspected after the forms have been constructed and the reinforcement steel is installed (Figure 2-7). The inspector once again confirms that the installation complies with the code and plans. Masonry foundations are checked for the correct masonry, mortar, and grout, as well as the reinforcing steel. **[Ref. 110.3.1]**

FIGURE 2-7 Concrete foundation

Concrete slab and under-floor inspection

Many concrete slabs contain reinforcement steel, conduits, piping, and other equipment installed under and within the concrete. After the concrete is placed, it is impossible to confirm that the materials were installed properly. Therefore, the inspector must check to see that they are installed properly. This inspection is typically done after the plumbing inspector checks the plumbing installation and the electrical inspector checks the underground electrical equipment (Figure 2-8). **[Ref. 110.3.2]**

FIGURE 2-8 Underground plumbing must be inspected prior to replacing concrete

Lowest floor elevation

In areas where flooding is possible, it is important that the building be elevated above the 100-year flood level. This required inspection confirms that the lowest floor that will be occupied will be elevated at or above flood elevation. **[Ref. 110.3.3]**

Frame inspection

It is important for the structure of the building to be checked against the plans and the code. Therefore, the code requires that the structure or frame of the building be inspected. An inspector confirms that the size and installation of the structural members in the building are correct. A frame inspection is done after all of the plumbing, mechanical, and electrical systems are installed, inspected, and approved (Figure 2-9). **[Ref. 110.3.4]**

Lath and gypsum board inspection

Many buildings use gypsum board (drywall) to provide fire protection of the building. The proper installation of these materials must comply with specific installation standards and methods. Therefore, the IBC requires that the inspector confirm that the material be installed in such a manner that will provided the type of protection needed in the building. **[Ref. 110.3.5]**

Fire-resistant penetrations

Penetrations of fire-rated walls, floors, and ceilings are holes in the fire-resistive membrane (Figure 2-10). The IBC requires that these holes be protected with a material that fills them when the pipe or wire melts out in a fire. The materials used to provide this protection must be installed in a very specific way. The code requires that these systems be inspected to show that they are installed in accordance with the manufacturer's installation instructions. **[Ref. 110.3.6]**

FIGURE 2-9 Cold-formed steel light-frame construction framing

FIGURE 2-10 Through-penetration fire-stop system

Energy efficiency inspections

Energy efficiency in buildings has become more important in the codes over the past several years. Therefore, the IBC requires that the materials installed in buildings for energy efficiency be inspected to ensure that they are installed correctly (Figure 2-11). The inspector checks for the proper insulation values, the proper sealing of the building, and proper equipment installation. **[Ref. 110.3.7]**

FIGURE 2-11 Roof insulation must be inspected prior to covering

Final inspection

The final inspection is done when the building is ready for occupancy. The inspector confirms that all of the work covered by the building permit has been completed according to the plans and applicable code. When the final inspection is approved, the owner receives a Certificate of Occupancy, which allows him or her to use the building. **[Ref. 110.3.10]**

Third-party inspections

Many parts of a building are complex in nature and design. The typical building department may not have the necessary resources or knowledge to inspect these complex issues. Therefore, the IBC requires that certain portions of a building be inspected by a third-party inspection company that has the expertise in these types of materials and designs. The code prescribes the type and frequency of the inspections based on the type of material being installed and the method used to construct the building. The third-party inspector is hired by the building owner and is responsible for reporting his or her findings to the building department.

Third-party inspections are required on materials like structural concrete, steel, and masonry. For example, it is important to confirm that the concrete in a foundation provides the required strength to support a building. Samples of the concrete are taken during the placement of the concrete and test cylinders are created and broken to determine the strength of the concrete. Other tests are done on the concrete to determine its consistency and compliance with the project specifications. **[Ref. 1704]**