



## When is a Registered (Licensed) Architect or Engineer Required for a Building Project?

**The Town of Thatcher does not set the rules** for when a Registered Design Professional (“RDP”), like an Architect or Engineer, is required to design, stamp and sign construction plans and related documents.

**The rules** regarding the requirement for building construction plans to be prepared, signed and stamped by an Architect or Engineer (RDP) for new buildings, commercial remodels, additions, or tenant improvements, **are set forth in the Arizona Revised Statutes**, which contains the laws established by the legislature for the State of Arizona.

The purpose of this document is to explain the factors, found in Arizona State law, that are used to determine when an RDP is required. Additionally, we have put together some example cases applying the factors to certain scenarios.

**The quick answers to the question**, of when a Registered Design Professional is required to produce and seal plans, are as follows:

- **New Construction**
  - Any structure exceeding 3000 square feet or over 2 stories in height (except single-family homes)
  - Any structure that will have more than 20 occupants (based on the occupant load factors found in the International Building Code)
  - Any structure that contains structural components that span over 20 feet.
- **Additions**
  - Same limitations as new construction, with one additional exception allowing for 1500 square feet of storage to be built without an RDP stamp.
- **Remodels or Tenant Improvements**
  - If occurring in building more than 2 stories in height, or
  - occurring in a building that exceeds 3000 square feet, or
  - occurring in buildings that have more than 20 occupants.
  - It should be noted that a small tenant space in a larger building would still require an RDP to design stamp and sign the plans, if the larger building exceeds 3000 square feet or 20 occupants.

## What State Law Says

The requirement for an RDP to produce plans for new buildings, additions to buildings, and for alterations (remodeling of) buildings can be found in Chapter 1, Article 1, Title 32 of the Arizona Revised Statute (ARS). ARS § 32-144 specifically explains what can be designed by a **non-registrant** (a non-registrant is anyone, not licensed as an RDP by the State of Arizona.) The highlighted areas below are the sections most applicable to commercial occupancies.

### *§ 32-144. Exemptions and limitations; definition*

*A. Professions and occupations regulated by the board may be practiced without compliance with the requirements of this chapter by:*

- 1. An officer or employee of the United States, practicing as such.*
- 2. An employee of a registrant or of a person exempt from registration, if such employment does not involve direct responsibility for design, inspection or supervision.*
- 3. A non-registrant who designs, alters or adds to either of the following:
  - a) A detached single-family dwelling.*
  - b) An individual unit in a multifamily dwelling if the walls that are designed, altered or added in the unit are not bearing walls, shear walls or firewalls, which shall be determined by a registrant following an evaluation of the walls to be designed, altered or added.**
- 4. A non-registrant who designs a one or two story building or structure in which the square footage of the floor area measured to the outside surface of the exterior walls does not exceed three thousand square feet, that is not intended for occupancy by more than twenty persons on a continuous basis and in which the maximum span of any structural member does not exceed twenty feet unless a greater span is achieved by the use of wood or steel roof or floor trusses or lintels approved by an engineer registered by the board.*
- 5. A non-registrant who designs additions or alterations to a one or two-story building or structure subject to the limitations set forth in paragraph 4 of this subsection. A non-registrant may exceed the maximum three thousand square foot limitation set forth in paragraph 4 of this subsection for a one-time single addition not exceeding one thousand five hundred square feet as measured to the outside surface of the exterior walls and designed for the purpose of storage of chattels.*

Item 4 above, list the three factors that are used to determine if a **non-registrant** can draw up the plans for construction or remodel of a commercial or industrial space-

1. the **size of the building**, (3000 sq. ft. or less)
2. the **occupant load** (less than 21 occupants), and
3. the **span of structural members** (20 ft. or less).

To understand how the building department applies these requirements one needs to understand

- the building code definition of a building or structure;
- how the area of a building is determined, and
- how the occupant load is determined.

## **Definition of a Building Area**

Per the Building Code, building area is defined as, “*The area included within surrounding exterior walls, or exterior walls and fire walls...*” Typically, a building is all of the area under one roof and within the walls, or supports, supporting the roof. However, a structure can be divided into two or more buildings by the installation of one or more “fire wall(s).” A fire wall must meet very specific requirements, which are identified in the Building Code. (A standard framed wall, using wood or metal studs with drywall attached on both sides does **not** meet the requirements for a fire wall.)

## **Determining the Area of a Building**

As noted above the “building area”, which establishes the square footage of the building, is the area included within surrounding exterior walls, or exterior walls and fire walls. In a typical scenario, the exterior dimensions of a building are used to calculate the square footage. A 50-foot by 60-foot building is 3000 square feet.

In Thatcher, most strip malls or multi-tenancy buildings are a single building area divided by non-fire wall partitions. Therefore, if the building is 40-feet by 100-feet the building area is 4000 square feet, regardless of the number of tenant spaces. This is important to remember because a tenant space may be less than 3000 square feet and appear to fit within the “3000 square foot” parameter identified in the law, when in fact it is, by definition, part of the larger building area that exceeds 3000 square feet.

This is one point of contention we deal with regularly. State law states the building or structure must be 3000 square feet or smaller to be designed by a non-registrant. This would explain why a small tenant space being remodeled might still require an architect or engineer- because the larger building it occupies exceeds the square footage or occupant load threshold.

Building area is one of three factors used to determine when a non-registrant can design a building the next is occupant load.

## **Determining Occupant Load**

To determine the number of people that can occupy a specific space, the building code contains a table that correlates a specific use or activity with an expected maximum number of persons to be in that space.

Factors that affect occupant load are:

- furnishings,
- equipment, and
- activity.

For example, an area used for exercise would hold less people than the same area with chairs for a meeting. People need space to exercise but need less if they are sitting in organized rows listening to a speaker. In an office, there are usually furnishings, like desks, tables and work areas that displace space for people and thus lower the number of potential occupants.

The Table that provides designers and code officials with the method for determining the number of occupants that can occupy a building or a space, based on particular activities, is “*Table 1004.5 Maximum Floor Area Allowances Per Occupant.*” This table contains the “occupant load factors” (“OLF”) for a given function in a space.

Table 1004.5, also, specifies if the OLF is applied based on the “gross” square footage or the “net” square footage of the space. The Building Code views some spaces as only serving the main occupant load while in other cases occupants will be in multiple areas at any given time. For example, the occupant load of a building with a worship space will typically only be figured on the main seating area and will not include spaces for corridors, restrooms, etc. Nobody is expected to be “worshipping” in the corridors or restrooms. In this case, the occupant load is figured on the net area of the seating room.

In buildings where the activities are more fluid, and less focused, the whole space may have occupants at various times, so the whole or “gross” building or space is used to determine the occupant load.

For example, if the intended use of the space is “M” Mercantile (retail), the OLF from the Table is 1 person occupying 60 square feet gross. This accounts for racks and shelving taking up some of the retail space. So, if a retail space has 1,920 sq. ft. it would be calculated to hold 32 occupants ( $1920/60=32$ ).

For a “F” Factory (industrial) space, the Table has an OLF of 1 person per 100 gross. Therefore, the same 1920 sq. ft. building used for manufacturing would have an occupant load of 20. (The occupant load usually rounded up to the next whole person).

The function of a space can differ from the “Use/Occupancy Group” a building or space is defined to be. Using a restaurant as an example, a restaurant is usually defined as an “A” Assembly Occupancy and more specifically an “A-2, Assembly Occupancy”. The “A-2” differentiates restaurants, nightclubs, etc. where food and alcohol are served from “A-3’s” like churches and funeral parlors where food and alcohol are not typically served. An “A-2” restaurant will have several functions – the seating area, possibly a standing/waiting area, a kitchen, storage areas, an office and restrooms. Each of these can have a different OLF. Standing areas have the lowest square feet per person OLF allowance, at 5 square feet per individual. Therefore, a 10 ft. by 10 ft. standing area would calculate to an occupant load of 20 persons. For a seating area that contains tables and chairs, the OLF is 1 person per 15 square feet. Therefore, a 100 sq. ft. seating area would calculate to 7 occupants (6.67 rounded up). The kitchen area of a restaurant is calculated at 1 person per 200 sq. ft. The higher amount of space per occupant, accounts for kitchen equipment and workspace.

## **Structural Spans**

The third factor is based on structural spans. This is usually not an issue because the law allows for just the structural components to be designed and stamped by an RDP if the other factors are met for a non-registrant to design the building.

## **Practical Examples of the Law**

Here are some practical scenarios based on the factors above:

1. A non-registrant can design a new 1 or 2-story building, or the remodel of a 1 or 2 story building, used as a Business (B) Occupancy (doctor's office, urgent care, insurance sales office) that has a total of a **2000 square foot**. The *controlling factor* for the size of **2000 sq. ft** is the 20 is the 20 occupants, which for business use is based on 1 person occupying 100 sq. ft. gross.
2. A non-registrant can design a new 1 or 2-story building, or remodel of a 1 or 2-story building, used as a factory building, Factory (F) Occupancy or S-1 occupancy, motor vehicle repair garage that does not exceed a total of **2000 sq. ft**. Again, the *controlling factor* is the 20-person occupant load, which is based on 1 person per 100 sq. ft. gross, for an industrial function of the space.
3. A non-registrant can design a new 1 or 2-story building or remodel of a 1 or 2-story building used for retail space, which is a Mercantile (M) Occupancy, such as a convenience store, jewelry store or a boutique, which has a maximum of **1200 sq. ft.** retail space. The *controlling factor* is the 20-person occupant load, which for mercantile (retail) is 1 person per 60 sq. ft. gross. (Stockrooms could change the overall size since a stockroom is figured at 1 person per 300 sq. ft.)
4. A non-registrant can design a new 1 or 2-story building, or remodel of a 1 or 2 story, for apartments (multi-family) which is a Residential (R) Occupancy that contains a maximum of **3000 sq. ft.** In this case, the *controlling factor* is square footage because the occupant load factor is 1 person per 200 square feet gross, and 3000 sq. ft. would only calculate to 15 occupants.
5. A non-registrant can design a new 1 or 2-story building or remodel of a 1 or 2 story building used as a restaurant or bar (Assembly A-2 Occupancy) that has a total of 597 sq. ft. This is based on the following:
  - a. 285 sq. ft. seating area which allows for 19 persons at 15 sq. ft. net,
  - b. a 200 sq. ft. kitchen area that allows for 1 person per 200 sq. ft. gross and
  - c. two ADA restrooms totaling 112 sq. ft., which do not have to be figured in the occupant load since Assembly is based on net sq. ft.

(For Assembly Occupancies there is an exception that allows those with a total of 49 occupants or less, to be classified as Business (B) Occupancy, however, the occupant load factor is still based on the assembly function, which is 1 person per 15 sq. ft. net with tables and chairs. Also, please note that the occupant load of a bar/counter- with or without stools, is figured at 1 person per 18 inches. So, an 8-foot-long bar (96 inches) would be calculated to have 5 occupants, a 12 ft. bar would have 8 occupants).

## **Summary**

State law sets the rules for when a design professional, architect or engineer, is not required to design, or review and approve the construction plans. Applying the rules requires an understanding of the building code concepts like building area, fire walls, occupancy/use group and occupant load factors. Most small business owners will not have the knowledge to self-determine if they need an Architect or an Engineer to stamp their plans.

It is best for those contemplating work on any type of commercial structure (anything not one- or two-family) to consult with an Architect or Engineer or the Town Building Department to determine if the proposed project square footage, or the occupant load, exceeds the respective thresholds (3000 sq. ft. or 20 occupants) and thus, requires a Registered Design Professional (RDP). If an RDP is required, they will prepare, or supervise the preparation of, the plans and apply his or her stamp to the plans.

Please note that it is illegal per Arizona State law for an RDP to stamp a set of plans prepared by someone who is not a supervised staff person. This law is widely disregarded, but the Board of Technical Registration has cited and fined registered design professionals for violating the law.

*Credit to the City of Apache Junction for compiling the majority of the information found in this document.*