House
Legislative
Analysis
Section

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ARCHITECTS, PROFESSIONAL ENGINEERS AND SURVEYORS; REVISE ARTICLE 20 EXEMPTION

House Bill 5819 as passed by the House
Second Analysis (5-1-02)

Sponsor: Rep. Wayne Kuipers
Committee: Employment Relations, Training and Safety

THE APPARENT PROBLEM:

As a building gets bigger it grows more structurally complex, and its designer needs more knowledge about mathematics and physical science in order to ensure that it is solidly constructed, and safe to inhabit. When knowledge about foundations, and floor span, and joist size, and truss designs for roofs, and load points is crucial, it requires mathematical ability to calculate the stress points throughout the design system, as well as to ascertain the adequacy of the materials that will be used to implement the design. Those who have this expertise are licensed under state occupational codes.

For example, the Michigan Occupational Code licenses architects, and professional engineers (in chapter 20), and residential builders (in chapter 24), among many other kinds of work. The code defines the scope of practice for each profession or occupation, and sets the minimum requirements for technical education, and years of experience that are needed to be licensed.

Generally, architects and engineers have more technical education and training than residential builders, because they are required to pass national exams to get their licenses. Those examinations test the novice architects' and engineers' knowledge about mathematics, the physical sciences, and structural design, which they learn from university coursework when they are completing their baccalaureate or masters degrees. In addition, before qualifying for the exams, the candidates must have at least eight years of professional experience in architectural or engineering work (and up to six years of that experience can be earned in degree programs). Residential builders also must pass a licensure examination at the state level; however, the requirements to practice as a residential builder do not specify that a builder earn a baccalaureate degree, or have knowledge about structural design.

Some builders, but not all, learn about design from the American Institute of Building Design, which offers a variety of services in the planning, designing, and building of residential, commercial, and industrial structures. The AIBD is a private organization that formed in 1950, and it maintains a registry of certified professional building designers, identified as either "professional builders," or "building designers." In order to hold a "professional builder" membership in the AIBD, a building designer must have at least six years of professional experience, of which at least half must be work in building design. Up to three of the six years may be in "related schooling." A "building designer" membership requires at least four years of professional experience, and up to two of those four years can be in related schooling.

Under Michigan law, residential builders must have the house plans they intend to construct for their clients reviewed by architects for adequacy and safety, if those plans are for a structure that has more than 3,500 square feet of "calculated floor area." The definition for "calculated floor area" used in Chapter 20 of the Occupational Code is different from the more commonly used definition of "habitable space" that is used in the state and national residential and building codes. According to committee testimony, the difference in the two definitions has caused confusion for developers, as building inspectors who enforce the building codes at the local level of government use different interpretations, and hold developers to standards that are not uniform.

Some have argued that residential home building does not require the special skills of an architect or other licensed design professional when the house has less than 5,000 square feet. They argue, too, that a uniform definition of "habitable space" should be used by building inspectors when they determine which residential plans would require an architect's

seal. To accomplish these ends, legislation has been introduced.

THE CONTENT OF THE BILL:

Under Article 20 of the Occupational Code, entitled "Architects, Professional Engineers and Land Surveyors", certain documents regarding construction and surveying must bear one or more seals of a person licensed under the article. An exemption has been created for a person not licensed under the article who is planning, designing, or directing the construction of certain buildings. Specifically, an exemption exists for a public work costing less than $15,000, and for a *residence* building that contains 3,500 square feet or less of calculated floor area. House Bill 5819 would amend these provisions to refer instead to a *residential* building that contains 5,000 square feet or less of calculated floor area.

Further, the bill would delete the current definition of "calculated floor area" and instead define the term to mean "that portion of the total gross area measured to the outside surfaces of exterior walls intended to be habitable space." Currently under the code, "calculated floor area" refers to habitable areas of a building and includes a heater or utility room but does not include a garage, open porch, balcony, or an unfinished and nonhabitable portion of a basement or attic.

Finally, the bill would define "habitable space" to mean space in a building used for living, sleeping, eating, or cooking. The term would not include a heater or utility room, a crawl space, a basement, an attic, a garage, an open porch, a balcony, a terrace, a court, a deck, a bathroom, a toilet room, a closet, a hallway, a storage space, and other similar spaces not used for living, sleeping, eating, or cooking.

MCL 339.2012 and 339.2014

FISCAL IMPLICATIONS:

The House Fiscal Agency notes that while the bill would reduce private, residential construction costs in some circumstances, it would have no fiscal impact on the state or on local units of government. (3-27-02)

ARGUMENTS:

For:

Since this legislation would remove the need for an architect or a professional engineer to approve the construction plans for most residential homes, it would save home-buyers money on their new home construction. According to committee testimony, review by an architect can add, on average, $1,500 to the construction cost of a new home, although the fees get higher as homes get pricier. The bill also would save money and time for the builders of those homes, since it would reduce (although not eliminate) some review requirements for local building inspectors who oversee the work of homebuilders who build large-scale homes, ensuring that homebuilders meet all provisions of the state and local building and safety codes.

For:

According to committee testimony, Michigan is one of eight states that requires an architect's seal on a set of residential construction plans. In contrast, most states exempt single family home construction, regardless of size, from the need for an architect's seal. The specialized training of an architect or engineer is not needed in home construction, because builders who design homes build to meet the specifications found in the building code, using those explicit specifications to ensure safe foundations, adequate floor joist size, and sturdy floor spans. Further, the builders generally order roof trusses from a truss company, and those trusses are designed by the company's structural engineer who advises the homebuilder about the need for additional support, or bearing points. These precautions are customary, because when homebuilders design the home, they take full responsibility for the safety of the dwelling, and they alone bear the legal liability for the home's solid construction.

Response:

When structures fail, or collapse, they generally do so because of "failures in connections," and not because components are poorly designed. For example, a set of individually well-constructed trusses can fail, if the design that supports the entire roof-span is inadequate to bear the set. It is this system-wide design skill that architects and engineers are trained to provide. A truss company's structural engineer need not, and often does not, provide that kind of oversight for a builder.

For:

This legislation would eliminate the confusion that currently exists when local building inspectors apply different definitions of "calculated floor area" to decide which residential building plans require the seal of an architect before construction can begin. According to committee testimony, that confusion stems in large part from many definitions of

"habitable space." To clarify the matter, the bill would place a definition of "habitable space" into the Occupational Code that conforms with the definition for "habitable space" found in the Michigan Residential Code, the Michigan Building Code, national model building codes, and the new International Code Council codes.

Response:

Building inspectors for the City of Lansing point out that the definition in House Bill 5819 for "habitable space" is slightly different from that in the Residential Code, because there is a difference in the list of what would not be included in the definition. More specifically, the *2000 Michigan Residential Code* specifies that "habitable space" is a space in a building for living, sleeping, eating, or cooking. *Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces*. In contrast, House Bill 5819 would define "habitable space" to mean a space in a building used for living, sleeping, eating, or cooking. *Habitable space does not include a heater or utility room, a crawl space, a basement, an attic, a garage, an open porch, a balcony, a terrace, a court, a deck, a bathroom, a toilet room, a closet, a hallway, a storage space, and other similar spaces not used for living, sleeping, eating, or cooking.*

Against:

Eliminating the need for an architect's oversight on large homes will increase the chances that buildings will collapse. A residential home having 5,000 square feet of "habitable space" is a far larger structure than the 5,000-square-foot designation would imply, since many parts of the house are not included in the calculation. The parts *not* included in the calculation would include "the heater and utility rooms, a crawl space, a basement, an attic, a garage, an open porch, a balcony, a terrace, a court, a deck, a bathroom, a toilet room, a closet, a hallway, a storage space, and other similar spaced not use for living, sleeping, eating or cooking." These components of residential structures that would not be included in the definition can constitute between 30 percent to 40 percent of a house. Consequently, very large structures--some estimate structures that are upwards of 7,000 square feet in size--could be built without the oversight of an architect, if this bill were to become law. When structures of size are erected, their roof and floor spans require careful engineering, to ensure that adequate load points are available to support the weight of the building materials, whether wood or concrete. The oversight of a person whose training includes the ability to make these mathematical calculations helps to ensure the building's structural integrity, and the safety of its occupants.

Response:

According to one homebuilder who has designed many homes using computer-assisted design (CAD) software, the parts of a home *not* included in the "habitable space" definition would generally constitute between 10 percent and 12 percent of the total, and would never amount to between 30 percent to 40 percent of the square footage in a home--the proportion asserted by a spokesperson for the American Architects Association-Michigan Chapter.

Against:

To protect the health and safety of homeowners, all architects, building inspectors, and builders need one easy-to-administer definition of "calculated floor area" that does not exempt a large percentage of the area within a residential building. During earlier negotiations with the Michigan Homebuilders Association, representatives from the American Institute of Architects-Michigan Chapter had approved an exemption from the architects seal for residential buildings if those buildings were 6,000 square feet or smaller, measured from outside wall to outside wall--and all rooms were included. This standard would be clear and easy to calculate. It would ensure that large buildings were safe--giving architects the responsibility to review the broad reach of floor and roof spans to ensure they had adequate load points and design support. The standard also would allow local building inspectors to make uniform decisions about when the architect's review was necessary. Unfortunately, in their campaign zeal to "repeal the [architects'] seal," some homebuilders will not consider this simple and meaningful standard.

Against:

The Bureau of Commercial Services in the Department of Consumer and Industry Services responds to complaints about the professions the state agency licenses under the Occupational Code. According to a spokesperson for the American Institute of Architects-Michigan Chapter, the state agency receives far more complaints about licensed homebuilders than about licensed architects. The 2000-2001 Annual Report from the bureau indicates there are 76,046 licensed homebuilders, and 3,354 complaints were opened during fiscal year 2001. Further, there are 5,293 licensed architects, and 17 complaints were opened during that same year. There was, then, one complaint filed for every 22 licensed homebuilders, a ratio of 1:22; while in contrast, there was one complaint filed for every 311

licensed architects, a ratio of 1:311. This high proportion of customer dissatisfaction with many residential homebuilders should caution policymakers who would move to eliminate the oversight of architects in the construction of large residential structures.

Against:

This legislation would change the single word *residence* to *residential*, and in doing so it would make a big change in the law. According to the Department of Planning and Neighborhood Development, Building Safety Office, in the City of Lansing, the word "residence" signifies a single dwelling unit, occupied by one family. In contrast, the word "residential" extends the meaning to multi-family structures. This would mean that an unlicensed designer could legally design and submit plans for a building with several small apartments.

POSITIONS:

The Michigan Association of Homebuilders supports the bill. (3-27-02)

Rajala Homes, Inc. supports the bill. (3-27-02)

The American Institute of Building Design (AIBD) of Michigan supports the bill. (4-17-02)

The Department of Consumer and Industry Services does not oppose the bill. (3-27-02)

The American Institute of Architects - Michigan Chapter opposes the bill. (3-27-02)

The American Consulting Engineers Council of Michigan opposes the bill. (4-8-02)

The Michigan Society of Professional Engineers opposes the bill. (4-8-02)

Analyst: J. Hunault

■This analysis was prepared by nonpartisan House staff for use by House members in their deliberations, and does not constitute an official statement of legislative intent.