UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SIMPSON STRONG-TIE COMPANY INC.
Petitioner

v.

COLUMBIA INSURANCE COMPANY
Patent Owner

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Case PGR2024-00050
Patent No. 11,920,339

# DECLARATION OF MATTHEW CHURCH

I, Matthew Church, hereby declare as follows:

1. I am a Senior Principal at Davis & Church, LLC. I make this declaration in connection with the above-referenced PGR proceedings on behalf of patent owner Columbia Insurance Company.

2. I am a licensed professional engineer with three decades of experience in the construction industry. My background includes four years as a structural engineer at SCA Consulting Engineers and 4.5 years as a senior structural engineer with The Preston Partnership. For the past 21 years, I have helped lead my own firm, Davis & Church LLC, as a Senior Principal.

3. Davis & Church is a structural engineering firm based in Alpharetta, Georgia that has particular expertise in the design-build industrial sector and the mixed-use/multifamily sector. We've successfully completed projects across more than 25 states, with a focus on the Southeast, but also reaching as far as New York, Arizona, and Washington.

4. Relevant to this matter, I have extensive experience in multifamily construction and have participated in the design of over 500 such developments over the course of my career.

5. Multifamily construction involves building structures that accommodate multiple residential units. These projects can range from apartment complexes and hotels to assisted living facilities, duplexes, townhomes, and mixed-use buildings.

6. In multifamily construction, the International Building Code specifies fire-rating requirements for structural walls, such as load-bearing and unit perimeter walls. For instance, in Type V and Type III wood-framed buildings, interior stairwell walls that exceed three stories must carry a 2-hour fire resistance rating. Similarly, Type III construction requires exterior load-bearing walls to have a minimum 2-hour fire resistance. These structural components are classified as fire barriers, and their fire protection must remain continuous from floor to floor.

7. Manufacturers like MiTek, Inc. ("MiTek") and Simpson Strong-Tie ("Simpson") provide specialized joist hangers - commonly referred to as "firewall hangers" - which support horizontal framing (e.g., floor or roof joists) on fire rated walls without compromising the fire-resistance integrity. These hangers can also be used to support the same horizontal framing on beams requiring a fire rated encapsulation.

8. Gypsum board is a common element in wood-framed fire barriers, valued for being non-combustible and easy to work with as a sheathing material. To achieve a 2-hour fire rating, typically two layers of 5/8" gypsum board are fastened to one or both faces of a wall.

Beams requiring encapsulation for fire protection usually demand one or two layers of gypsum board on all exposed surfaces.

9. Prior to MiTek's introduction of its FWH hanger, maintaining continuity of fire ratings where horizontal framing members intersect walls or beams was challenging—especially with 2-hour rated walls requiring a double-layer of gypsum board on one or both faces. We typically addressed this by running only the base gypsum layer through a 1-hour rated floor/ceiling assembly and using a top-flange hanger (like Simpson's discontinued LBV series) designed to span over one layer. To achieve the 2-hour rating, we would require a second gypsum layer installed between joists and sealed along its edges with fire rated caulk. Alternatively, we would eliminate the second layer of gypsum board in the floor cavity and argue the combination of a 1-hour rated floor ceiling assembly and a 1-hour rated wall equals 2 hours of protection. These workarounds were not always accepted by code officials.

10. These legacy methods were also more labor-intensive, required additional inspection, and frequently led to inconsistent outcomes due to weather exposure and variations in quality of construction. I was not previously aware of any method that allowed for mounting the hanger directly on the wood wall or beam, followed by the installation of gypsum board between the wall/beam and the hanger. In fact, most conventional methods required "pre-rocking"—the installation of gypsum board before horizontal framing—which exposed the gypsum board to weather prior to roof and window installation. Even with weather-resistant gypsum sheathing, prolonged exposure often led to mold or material degradation. Pre-rocking also meant that drywall contractors had to make two separate trips to the jobsite—first to handle the pre-rock installation, and later to complete the main drywall work.

11. For several years prior to the introduction of the MiTek FWH hanger beginning around 2008, I traveled the country as a guest speaker for Woodworks explaining the challenges associated with designing and constructing Type V and Type III wood-framed buildings. A common topic of discussion in those speaking engagements was a need to develop reliable methods for supporting horizontal members on walls or beams requiring fire resistant continuity through the floor cavity. In July 2014, MiTek introduced the FWH hanger, also known as the Firewall Hanger, along with a new installation approach called the FWH Method. This method allowed hangers to be installed before any gypsum board, while still spanning over up to two 5/8" thick gypsum layers. This advancement was a game changer in the rough framing phase of the construction process, offering a solution to the issue I and others had recognized in the years leading up to the introduction of the MiTek FWH hanger. It offered a more reliable structural connection, unaffected by weather conditions, and removed delays associated with pre-rocking sequencing—ultimately accelerating project timelines. Since its release, we've consistently specified the FWH hanger and FWH Method in multifamily projects instead of older traditional methods requiring pre-rock.

12. The FWH hanger and FWH Method also allow engineers to design wood fire barrier walls (e.g., stairwell walls) that can be integrated into the structural framework of the building. These walls are framed floor-to-floor, enabling floor sheathing from adjoining spaces to extend over and fasten directly to the top of the walls. This structural continuity eliminates the need to design areas such as stairwells as isolated lateral systems. Similarly, the FWH approach defers the need to wrap beams requiring gypsum encapsulation until the actual drywall phase, reducing exposure and improving efficiency.

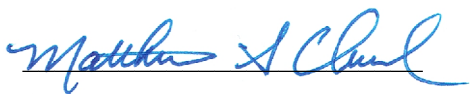
13. I have actively recommended the FWH hanger to contractors, architects, and developers due to its innovative design, installation method and significant potential to improve the quality of construction on multifamily projects. The major advantage lies in eliminating the pre-rock process.

14. I'm aware that Simpson released its DU hanger around the same time MiTek introduced the FWH hanger. At first, I was intrigued by the idea of Simpson offering a fire wall hanger. However, once I realized that it still required the pre-rock process, it became clear to me that it fell short of the solution the industry needed and there was little to no benefit to specifying it on our multi-family projects. To the best of my knowledge, in every project where I've specified the FWH hanger, it was installed prior to any gypsum board. If a contractor had intended to pre-rock, I almost certainly would have explained the benefits of using the FWH hanger before moving forward with an alternative approach.

15. Based on my experience, while the FWH hanger may carry a higher cost, the benefits in labor efficiency, schedule reliability, and the quality of the structural connection make it a worthwhile investment—especially for large-scale multifamily projects.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 22 day of May, 2025 by:



Matthew S. Church, P.E., S.E.