

STATE OF MINNESOTA

STATE BUILDING CODE BOARD OF APPEALS

In the Matter of the Appeal of  
Timothy Smedberg,

Appeal No. 22-04

**FINAL DECISION**  
**Dated: Oct. 24, 2022**

This matter came on for hearing before the State Building Code Board of Appeals (“Board”) on October 4, 2022. The record closed at the conclusion of the hearing.

Rob Shainess, Capstone Law, LLC, appeared for applicant and appellant Timothy Smedberg (“Appellant”). Andrew Thielen, ESI, additionally provided testimony on behalf of Appellant. Mark R. Becker and Lucas T. Clayton, Fabyanske, Westra, Hart & Thomson, appeared on behalf of Respondent Todd Geske (“Building Official”) for the City of Otsego. Scott Millard, Elander Mechanical; James Weaver, Lennar Corporation; and Gregory Cobb, DPIS Builder Services Company, additionally provided testimony on behalf of Respondent.

Minnesota Rule 1322.0010 provides that Chapters 2(RE) to 5(RE) of the Residential Provisions of the 2012 edition of the International Energy Conservation Code is incorporated by reference and made part of the Minnesota State Building Code (“State Building Code”), except as amended or qualified by applicable provisions of the Minnesota Rules. Similarly, Minnesota Rule 1346.0050 (2015) provided that Chapters 2 through 15 of the 2012 edition of the International Mechanical Code were incorporated by reference and made part of the State Building Code, except as amended or qualified by applicable provisions of the Minnesota Rules.

The issue in this appeal is whether the Building Official correctly interpreted the 2015 State Building Code to the project located at 17658 51st Street NE, Otsego, Minnesota (“Residence”). Specifically, the Building Official determined that the heating, ventilation, and air conditioning (“HVAC”) system installed at the Residence complied with the requirements in the State Building Code and closed the project’s permit. Appellant contends that the Building Official incorrectly interpreted the true intent of the State Building Code because the air flow rates of the Residence’s HVAC system did not have air flow rates within +/- 10 percent of the design capacities, which Appellant argues is required by section 309.2.1 of the 2015 Minnesota Mechanical and Fuel Gas Code (“2015 Mechanical Code”). Section 309.2.1 contains an exception that speed adjustment is not required for fan motors rated at one horsepower or less.

Mr. Smedberg testified that several of the upstairs bedrooms in the Residence were not able to maintain temperatures and that space heaters were required, even when temperatures were above zero. Mr. Smedberg testified that there were inaccuracies in the temperature readings taken by Elander Mechanical in the Residence due to the readings occurring higher than three feet off the ground.

Mr. Thielen, ESI, conducted airflow measurements of the Residence. Mr. Thielen argues that the only exception for section 309.2.1 relates to fan speed and that the exception only applies to motors rated at one horsepower or less. Mr. Thielen stated that the exception does not apply to section 309.2.1's requirement for airflow rates of mechanical ventilation systems and that the airflows indicated as allowable by the Air Conditioning Contractors of America ("ACCA") Standard 5 do not apply because they are not directly referenced by this code section and are less restrictive than the specific section cited. Appellant stated that, even if the ACCA 5 Standard of +/- 20 percent is applied, the airflow measurements in several rooms of the Residence did not comply with ACCA 5 Standard. Appellant further argues that the upper-level rooms of the Residence are not maintained at 68 degrees Fahrenheit or above, in violation of section 309.1 of the 2015 Mechanical Code.<sup>1</sup>

Respondent stated that Mr. Millard took one set of temperature readings at the Residence, and the temperature readings were consistent throughout the house, with a few exceptions, like closets. Respondent contends that the thermostat was higher than the temperature reading by approximately two degrees and that if the thermostat was calibrated, or if the thermostat setting was increased, the Residence would be able to maintain a minimum indoor temperature of 68 degrees Fahrenheit. Respondent stated that section 309.2.1 only applies to mechanical ventilation systems, which are designed to provide fresh air throughout a building. Respondent stated the furnace at the Residence was less than one horsepower and so the exception to section 309.2.1 applies. Respondent additionally argues that section 309.2.1 applies to ventilation, and not air distribution, meaning it is not necessary to balance each room to +/- 10 percent and the intent of the State Building Code is to ensure there is adequate fresh air throughout the building. Respondent argues that the intake and exhaust airflows of the mechanical ventilation system were balanced and recorded on the device. Because Respondent does not believe the 2015 Mechanical Code requires room-by-room air flow measurements, Mr. Cobb testified that DPIS utilized ACCA 5 Standard, which states that the balancing should be done at +/- 20 percent of the room-level target airflow or 25 cubic feet per minute ("CFM"), whichever is greater. Respondent additionally disputes ESI's measurements due to the fact that the balancing dampers were set for cooling season during ESI's airflow readings.

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<sup>1</sup> Appellant additionally argues that the ACCA Manual D external static calculations exceed the allowed maximum external static pressures, in violation of section 304.1 of the 2015 Mechanical Code; that the HVAC system does not provide the required distribution of air in violation of section 603.1 of the 2015 Mechanical Code; the installed ducts were not properly sized in accordance with ACCA Manual D or other approved methods, in violation of section 603.2 of the 2015 Mechanical Code; the duct transition fittings did not comply with section 603.4.3 of the 2015 Mechanical Code; the furnace blower was not sized in accordance with ACCA Manual S, in violation of section R403.6 of the 2015 Minnesota Residential Energy Code; and that a building certificate was not properly completed or posted on or in the electrical distribution panel, in violation of section R401.3 of the 2015 Minnesota Residential Energy Code. Respondent testified that the furnace is certified at 0.5 inches of water column in heating mode, but that the State Building Code allows operation above that level of static pressure, as long as the furnace is operating within the blower table data. Respondent additionally testified that the total heating load of the home met the requirements under section R403.5.17 of the 2015 Minnesota Residential Energy Code, the referenced ACCA Manual S criteria was properly oversized in accordance with 403.5.17, , and that the ducts were sized using Wrightsoft software in accordance with ACCA Manual D.

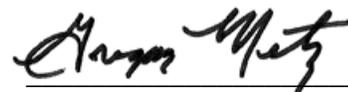
Appellant argues that the State Building Code contains other references to ACCA standards and that the rule drafters could have explicitly referenced ACCA Standard 5 if they intended ACCA Standard 5 to apply to mechanical ventilation systems. Appellant argues that a mechanical ventilation system is not only designed to bring air into a building, but also to distribute air in an equal manner.

The Board questioned whether ACCA Standard 5 takes into account different geographical regions. Respondent replied that ACCA is a national standard. Respondent explained that ACCA is considered best practices for the industry and that only the air flow balancing section of ACCA 5 was considered as an alternative method. The Board discussed that “mechanical ventilation” is defined in Minnesota Rules chapter 1322. The Board discussed that section 309 of the 2015 Mechanical Code is specifically focused on temperature control and includes balancing requirements for flow rates within +/- 10 percent of design capacities for both mechanical ventilation systems and hydronic systems. The Board stated that section 309 was meant to address the distribution of heat throughout the building, rather than bringing outdoor air into the building because the following subsection—subsection 309.2.2—is about balancing hydronic water flow rates within +/- 10 percent for hydronic (boilers and radiators) systems. Hydronic systems only move heat. The Board discussed that the Department of Labor and Industry completed its study on durability in 2003 and proposed Minnesota Rules chapter 1322. The Board discussed that the criteria for mechanical ventilation systems come from the ACCA Manuals, including Manuals D, S, and J, but not ACCA Standard 5. The Board acknowledged that chapter 1322 also addresses ventilation air but discussed that this appeal does not relate to ventilation air and that the term mechanical ventilation system in chapter 1322 encompasses all areas of that system. The Board stated that, in this case, the ventilation air was provided to the furnace, meaning the furnace became a part of the ventilation system referred to in section 309.2.1.

Pursuant to the Board’s authority under Minn. R. 1300.0230, and based upon the entire record including all documents, testimony, and arguments, the Board moved to determine that, in reference to section 309 Temperature Control of the 2015 Mechanical Code, the permit for the Residence was inappropriately closed and should be reopened to address section 309.2.1 mechanical ventilation system balancing. Balancing means airflow through the system and registers within +/- 10 percent of the design values stated for each space based on ACCA Manuals D, J, and S, or as designed by an engineer licensed in the state of Minnesota. The vote was unanimous in favor of the motion and the motion carried.

### **RIGHTS OF APPEAL**

This is the final decision of the State Building Code Appeals Board in this matter. A person aggrieved by this decision may, within 180 days of its date, appeal to the Commissioner of Labor and Industry as set forth in Minn. Stat. § 326B.139.



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GREGORY METZ, Chair  
State Building Code Appeals Board