

## **Board of Appeals**

**April 7, 2022**

Members present: Clay Dietrich, Dave Obermiller, Brian Berg, Mike Wild, and Kevin Bartram

Members Absent: Justin Schoenberg

Others Present: Shawn Ouradnik, Chris Rose, Kristi Stoffel

Chairperson Dietrich called the meeting to order at 9:30.

Brian Berg made a motion to approve the minutes from February 3 , 2021 and it was seconded by Kevin, no one was in opposition and the motion was declared carried.

There was no unfinished business. A review of the International Residential code chapter 11. Presented by Shawn Ouradnik.

Shawn Ouradnik did a brief introduction of himself and stated that the IRC chapter 11 and IECC have been completed rearranged in order to determine which path to follow. He stated that 95% of the time residential contractors follow the Prescriptive Compliance path, but there are other options. As a result of this rearrangement, the changes are organizational rather than substantial. The words “prescriptive” and “mandatory” have been removed from section titles throughout. Our intent is to adopt this code with amendments that bring the required R-values and U-factors in line with the current Minnesota state code. The inspections Department has worked with the local HBA as requested by this Board on some controversial topics. The specific topics are blower door testing, air exchanger requirements, the manuals J, D, and S, and energy certificates. We would like to enforcement the requirement currently in the code from the manuals for J and S we don’t feel the need to enforce the D at this point. To be submitted when the HBAC permit is applied for and the required energy certificates to be in placed with the other required information to obtain the co. We will be implementing the blower door testing on a random basis. This is as code allows and the air exchangers are not required as current subsystems are allowed by code. When either option is installed it must meet the code.

Shawn explained with the random blower door tests, we are trying to do it as fair as possible by so we can get a clear picture of what is actually going on. We have talked to some various people who conduct blower door tests in Moorhead and after to speaking to some of them stated that when it was first implemented some of them were failing the 1<sup>st</sup> time. So, they went back to the contractor and made sure they got things done and then they started passing the blower door test. We want make sure to let them know during construction that they can’t biased it. By just plug certain holes and other things and then pass. We will also be on site during construction to witness them so we are aware of what deficiencies are causing it not to pass. So, that is the plan. We are not 100 percent sure how we are going to do the random tests yet to make it fair. It has been brought up to just pick a random month and doing them all that month. Anything that is going be at the point where we need it to be to do a blower door test then or take like a percentage like 5 or 10 percent and just randomly choose them throughout the year. We are not 100 percent sure how we are going to do that yet. We have to work that out with the staff. We are going to try to make it fair so we are not picking on one person.

Clay asked Shawn to explain what the intent of the randomness is or what inspections is trying to accomplish from it or learn from it. Shawn said what we are trying to accomplish is getting a clear picture from the lowest value house to the highest value house. To see what we have out there because in higher value homes we don't have a lot of worry there about a blower door test and what is going to happen there because we know the money is being spent there to make sure the house is tight. That same tightness, that same aspect needs to be carried down to the lower value houses too as well because it is an indoor quality thing. We need to make sure we are enforcing code across the board and that everyone is enjoying the same benefits from that code. So, we don't want to pick on a bunch of lower value houses or pick a bunch of them because we know they won't pass. We want to make sure it is done right. We want to get a clear picture of everything we have out there from low end to high end. We want to make sure that things are being done right and just trying to be fair about it and not pick on one person.

Clay asked Shawn if this was something we wanted to do for like a year or so to get the information that we need and to know where you are at? It is not something that is necessarily written in the code as a long-term process or how are you looking at that? Shawn said the idea is to leave it in the code maybe even into the future so that we do have that option. If we see a home and somebody new comes in and we tell them we need to make sure things are being done right; so, we will need a blower door test. So, in the future it may be misconstrued as picking on people type of thing, but when we have builders who know what they are doing and they build in the area a lot it will be something we can knock it back and not do as much of it. We will know what we are looking at and they know what they need to do. Keeping the randomness and keeping the fairness in there as well as the point in construction where we will be doing it and we can witness it and we are not telling every house you have to do it. So, that in the beginning they will be like we are going to make this house nice and tight so we don't have to do it on the next one. We want to get a clear picture of what they are actually doing. We want to keep it close to our chest for a little while and while we know that might be a burden in the short term it will help us get a clearer picture and in the long term we know we might not do a lot of it after the first couple of years. The reason being we will know where we are at and the builders know where we need to be and we can look at things and say yep, we know this one will be the same as the last one and we can count on the visual inspections more rather than us doing more blower door tests and causing more financial burdens.

Dave asked Shawn in the time he has spent with the HBA what is your impression of potential costs for solutions. Shawn asked if he meant if the blower door test doesn't pass? Shawn explained that was why we stated we want to inspect the building at the time when it is being built and sealing up what needs to be fixed can still be done. As opposed to ripping out sheetrock and it will have be tapped textured and etc. It will be much easier and less effort they don't want to place any undue pressure.

Then Clay asked Shawn if he was going to define if it was pre-tape, texture, and paint? Shawn said yes that is the idea it is before tape, texture and finished. We don't want it when it is finished and at the certificate of occupancy point and then try to do the blower door test because it won't do anyone

any good. That is why we want to do it at a point in construction where it is tight enough and if they have to adjust a couple of things it wouldn't be that difficult.

Dave asked Shawn if we would be witnessing the blower door test and Shawn said yes. All of the inspectors have stated they would like to be present for all blower door tests. Shawn shared that we did have one blower door test where they didn't call in an energy test and they blower door test came in very low but they forgot to fill in a lot of information and some of the information submitted was no correct so we did have our inspector present for the second blower door test did pass but substantially increased with the inspector on site. Shawn stated that was our fear if we are not on site the contractors will do what they want and just say they passed giving us only what they want not all information. Which is what we don't want. We want a clear picture so when we are enforcing things we are getting it right.

Dave also asked if there was any certification or signature required at the end of the form. He wanted to know if it was certifying what work they did? Shawn said he was not sure. He didn't get that 2<sup>nd</sup> page. He is unclear if the form was making them certify what work they did, but he knows that there are companies in Moorhead that do that testing. Inspections is looking for a third party to come in and do the test. That will ensure everyone will have a clear picture of what needs to be done. As far as the form goes, we know it will be from a reputable person how works in the area and have been doing it properly. It is unclear if they are licensed in the state of North Dakota as well as Minnesota. we anticipate using the same good contractors as Minnesota. The conversation ensued.

Notables:

Blower door test 1.7 is average air exchanges in Moorhead.

The City of Fargo's 1<sup>st</sup> blower door test was 5 air exchanges.

The City of Fargo's 2<sup>nd</sup> blower door test moved down to 3 air exchanges.

Blower door test will be done after the Energy inspection.

Costs of blower door test can be anywhere from \$300 to \$400.

Clay then stated that while Inspections is working with the homebuilders and subcontractors he assumes this will be used as a learning experience. He also told Shawn he would like to hear more about how the tightening up of the smaller homes and remedies for moisture which get caused by the tightness today. Especially how the smaller homes with more people will be able to deal with the moisture. The more people the bigger the problems and since they are the less expensive homes with less expensive windows and etc. he just wants to make sure we addressed it. Shawn stated he would address it, the passive system that goes directly into the duct work of the houses. That instance has been addressed in the code. If they are not doing the air exchanger there is a passive system they have to put in that will bring the outside air in and help regulate the moisture within that house and mitigate as much of that as possible. Shawn also stated that if someone has 20 people living in a four-bedroom house we wouldn't know that and it would have a significant impact, but all we can do is go with the

house as it is designed. All we can do is look at it after it has been tested and say if it is used as designed then this is the result. There are always going to be instances where we may not know of with excessive people living in them outside of the scope. That is just the reality of it. All we can do is try to evaluate it based on what the design calls for. Larry Mayer with Solution Design interjected and said he just wanted to comment on the moisture issue. He stated that an air to air exchanger can help with that issue but the source of the issue was down below the slab by the footing. Saying the passive radon system gives you a solution right at the source of the moisture versus an air to air exchanger can help but because it is not at the source it can't really help to drop the moisture. He really wanted to strongly suggest the passive radon system because it does go the source of the problem helping drop the levels of moisture. The air to air exchanger is only effective about 20% of the time and again he wanted to strongly suggest radon be in every house because it can get to the moisture source and cut it down. Shawn stated that was something he wanted to bring up was that the HBA strongly suggests the passive radon system as Minnesota has recorded good results. Clay stated he would be in favor of passing the radon system. Clay stated he would be in favor of passing the active radon system especially with the way we are sealing the homes. A discussion ensued about what the passive radon system looks like and that the HBA builders think it is worth incorporating it into how they build the homes in Fargo.

Shawn stated if there were no other discussion on that we will continue on with the changes in the code.

**Section 1101.7, pages 11-5 through 11-39 [IECC Section R301, pages R3-1 through R3-36]**

**Deals with Climate Zones.** Approximately 10% of the counties in the country were reclassified, including ours, which was moved from Zone 7 to Zone 6A.

**New Section 1101.13.5, page 11—40 [IECC Section R401.2.5, page R4-1]**

This section **adds** a set of conditions to the compliance paths. One of these options must be selected in addition to the compliance path sections.

**Section 1102.1, page 11-41 [IECC Section R402.1, page R4-2]**

This section has been **reorganized and expanded** to clarify how R-values shall be calculated where layered insulation is used.

**Table 1102.1.2, page 11-42 [IECC Table R402.1.2]**

The U-Factor requirement table has been switched with the R-Value minimum table. Staff recommends continuing the existing local amendment altering the required U-factors for our new climate zone, Zone 6, to .57 for the Frame Wall column and .59 for the Basement Wall column. Staff additionally recommends **adding** a change to the Ceiling column in Zone 6 from .24 to .26. The amended table will continue to match the requirements in Minnesota.

**Table 1102.1.3, page 11-43 [IECC Table R402.1.3]**

Staff recommend **altering** the existing **LOCAL AMENDMENT** for our new climate zone, Zone 6, to .32 for the Fenestration U –Factor column, 49 for the Ceiling R-Value column, 21 or 13 + 5 for the Wood

Frame Wall column, and 15 for the Basement Wall and Crawl Space Wall columns. This will match the currently adopted Minnesota energy code requirements.

Dave asked to clarify what the change was for .32 and Shawn told him that the .32 U-Factor column code has been in the local amendment and that the biggest change we would be looking at would be the R 15 change in the basement instead of what it has been which was R13 and that was just to match the Minnesota code. Dave then asked how hard it was to achieve the R15. Clay stated that it just depends on how they go about it. He wasn't sure if we were wanting to require exterior foam. He stated that in his opinion the exterior code is just a warranty issue waiting to be brought up to the builder because doing it does not do well with the winter weather. He stated they decided to foam in the interior to get the R 15 value. Where they use 15 on the inside and R15 on the rest which gives them approximately a R20 wall but seals up the concrete. It fills up the space between the floor and the concrete and helps with radon also and continues up within the room joist. A conversation between Clay, Dave and Shawn continued on about how to achieve an R15 value. Shawn stated that the cost of the what contractors and homeowners can buy to work on 2x4 is minimal and no other discussion continued.

**Section 1102.2.12, page 11-45 [IECC Section R402.2.12, page R4-6]**

Heated garages have been **added** to the section for sunrooms, allowing thermally isolated conditioned space to enjoy lower R-values than the main dwelling unit. The minimum ceiling insulation is R-24 and the minimum wall insulation is R-13.

**Section 1102.4, page 11-46 [IECC Section R402.4, page R4-6]**

Staff recommends **discontinuing** the existing local amendment for R-2 occupancies as Section R401.5 already makes this distinction. It was added to the 2009 edition of the code and never removed.

Clay asked Shawn if we were going to require an R value on the garages? Shawn said yes for heated garages. We will have to be looking at some type of insulation. It may not be the R13 it might be different for the garage door, but the walls and ceilings will have a lower R value which should help offset some of the cost to basement going to R15 value. Clay stated that we will need to set a value for a garage door. Shawn said we are just trying to decrease any loss of heat and upping the R value in the garage so if they put in a R7 garage he didn't anticipate our inspectors to give them any issue with that.

**Section 1102.4.1.2, page 11-46 [IECC Section R402.4.1.2, page R4-6]**

This section includes a **New exception** for heated garages, whether attached or detached, that allows for visual inspection to confirm compliance. A second new exception was added for testing conditions in attached dwelling units and units smaller than 1,500 square feet.

**Section 1102.4.1.3, page 11-47 [IECC Section R402.4.1.3, page R4-9]**

Staff recommends **discontinuing the existing LOCAL AMENDMENT** removing the requirement for air leakage testing. The new amendment to Section 1102.4.1.2 still allows the visual inspection option for heated garages.

**New Section 1102.4.6, page 11-48 [IECC Section 402.4.6, page R4-9]**

This section outlines air sealing for outlet boxes to match those for recessed lighting already in the code. Either the air barrier must be installed behind the boxes or marked air-sealed boxes must be used.

**Section 1103.3.6, page 11-50 [IECC Section R403.3.6, page R4-11]**

Staff recommends **adding** a **LOCAL ADMENDMENT** **striking** item 3 and **adding** an exception to read, "A total leakage test shall not be required for ducts or air handlers that comply with Sections 1103.3.2, Item 1."

**Section 1103.3.7, page 11-50 [IECC Section R403.3.7, page R4-11]**

Staff recommends **continuing the existing local amendment** allowing building cavities to be used as plenums.

**Section 1103.6.3, page 11-51 [IECC Section 403.6.3, page R4-12]**

Staff recommends **adding** a **NEW LOCAL AMENDMENT** **deleting** this section requiring flow rate testing.

**Sections 1104.2 and 1104.3, Page 11-52 [IECC Sections 404.2 and 404.3, page R4-13]**

Require occupant sensors, daylight sensors, or dimmers for interior lights and daylight sensors for exterior lights. Staff recommends **adding** a **NEW LOCAL AMENDMENT** **deleting** these sections in their entirety.

**Sections 1105 and 1106, pages 11-53 through 11-61 [IECC Sections 405-406, pages R4-13 through R4-20]:** These sections were extensively revised for clarity.

**Table 1105.4.2(1), page 11- [IECC Table 405.4.2(1), page R4-16]:** Staff recommends **discontinuing** the existing local amendment to bring our requirements in line with those in Minnesota.

**Table 1106.5, Page 11-59 [IECC Table 406.4, page R4-19]:** The Energy Rating Index scores required for this compliance path have changed. Staff recommends **adding** a **LOCAL ADMENDMENT** changing the required value to previous score of 58 from the new 54 rating.

Dave asked Shawn what was the reason for bringing the score from 58 to 54. Shawn said to keep it consistent with Minnesota and possibly in the future we could bring it back. Dave asked if Shawn has had any discussions about it and if they are having a hard time getting it? Shawn stated he has not had any discussions and he has not heard any feedback stating otherwise and that everyone seems to be achieving 58.

**Sections 1109-1113, Pages 11-62 through 11-64] are Chapter 5 in the IECC, pages R5-1 through R 5-3.** These cover existing buildings, alterations, additions, and historic buildings. There were no significant changes outside of renumbering the sections and rewording them to match the new organization of the code.

Shawn said that was the last change he has for residential. Clay asked if anyone had any questions for Shawn and there were none.

Clay then stated that we would be moving onto the IECC presented by James Showalter. James introduced himself stating he would be presenting the Commercial Chapters of 2021 IECC.

**Chapter Page C1-1.** Staff recommends a **NEW AMENDMENT** identifying The City of Fargo as name of the jurisdiction of this code. Simply replacing the name of the jurisdiction.

**Chapter 2 Page C2-1. Definitions.** The definitions of Biogas and Biomass have been **added**.

**Chapter 2 Page C2-3.** The definition of fan efficiencies has been added including the new term Fan Energy Index which replaces Fan Energy Grade metric which aligns the IECC with ASHRAE 90.1.

**Chapter 3 Page C3-35. Climate Zone Definitions.** There is a new climate zone “0” that includes about 10% of the country. Cass county is now in climate zone 6A formerly 7.

**Chapter 4 Page C4-1. Application.** Compliance path options for commercial buildings have been outlined and the sections that each path must follow have been listed. (Prescriptive, Total Building Performance or ASHRAE 90.1)

**Chapter 4 Page C4-1. Thermal Envelope.** A Thermal Envelope Certificate is now required.

**Chapter 4 Page C4-3. Table C402.1.3.** The R-values in this table have increased to be closer to ASHRAE as well as increase the efficiency of the building.

**Chapter 4 Page C4-4. Table C402.1.4.** The U-factors in this table have decreased to be closer to ASHRAE as well as increase the efficiency of the building.

**Chapter 4 Page C4-9. Table C402.4.** U-factor and SHGC have been decreased to increase energy efficiency and align closer with ASHRAE 90.1. Also, the orientation has been removed from the table.

**Chapter 4 Page C4-10. C402.5. Air Leakage- Thermal Envelope.** There are **new requirements** for dwelling units in R and I occupancies, revised requirements for other than R and I occupancies and new performance verification requirements.

**Chapter 4 Page C4-13. C402.5.11. Operable openings Interlocking.** With exceptions, openings larger than 40 sf now must be tied into the HVAC system to limit heating to 55 degrees and cooling to 90 degrees. This change can occur within 10 minutes of opening the operable opening.

**Chapter 4 Page C4-37. C4.2.3. Automatic start and stop.** Automatic stop controls are now required on systems with direct digital controls serving an individual zone.

**Chapter 4 Page C4-48. C403.8.3. Fan Efficiency.** The Fan efficiency matrix has been replaced with the Fan Efficiency Index and this section has been rewritten to reflect that.

**New Section Chapter 4 Page C4-48. C403.8.5. Low-Capacity ventilation fans.** This is a **new section** that covers efficacy requirements for ventilation fans with less than a 1/12<sup>th</sup> hp motor. This has been added to allow these smaller fans in mid-rise multi-family buildings and small commercial buildings.

**Chapter 4 Page C4-60. C405.2.1.2 Occupant sensor controls in warehouse storage.** This section was **rewritten** to clarify how occupancy sensors are to be configured for warehouses where previously there was confusion.

**Chapter 4 Page C4-66. C405.2.8. Parking Garage Lighting Control.** This is a **new provision** that states that parking garages must have either occupant sensors or time-switch controls in accordance with the provisions of this section.

**Chapter 4 Page C4-70. C405.4. Lighting for Plant Growth.** Now 95% of Plant Lighting luminaries must have a specific minimum efficiency.

**New Section Chapter 4 Page C4-72. C405.11. Automatic receptacle control.** This is a **new section** that now requires 50% of receptacles covered under this section and 25% of branch circuit feeders to have automatic receptacle control.

Dave asked James if this was on all outlets. James read the section of energy code and discussion ensued. James stated that we look into the changes because Dave said he thought it was an excessive.

**New Section Chapter 4 Page C4-75. C405.12. Energy Monitoring.** This is a **new section** requiring energy monitoring systems be installed in new building over 25,000 sf with an **exception** for individual units under 5,000 sf in an R-2.

Dave asked James if throwing a monitor on a 25,000sf building seemed too much and to push that that number up to 50,000sf James read the section of energy code and discussion ensued and James stated we would take a look at it along with the Automatic receptacle control because no company in a 25,000sf building would have automation systems and benefit from it. James said we would look into a higher sf regarding the energy monitoring and we will re-look into the automatic receptacle control.

**Chapter 4 Page C4-76. C406.1. Additional Efficiency Requirements.** When using the prescriptive compliance method designers now have the option to gain credit or points from a series of new tables that assign points based on use group and climate zone. There is a list of 11 building elements that can be awarded these credits or points.

**Chapter 4 Page C4-84. C407.2. Performance based compliance.** The terms mandatory and prescriptive have been removed from the section titles to avoid confusion. A **new table** has been **added** to reflect the requirements when using the total building performance method.

Dave asked how us changing the sf in the code would affect anything. Shawn stated all it would do is we would input that recommendation to purposed changes we send to the attorney and it will get presented to the City Commissioners and they can either accept it or they can make recommendations as well. Then we would have to go back and redo it. So, if this board wants to make can make recommendations on what changes you want to delete sections, change sections, that is why we bring it to you so you can make those decisions and directing staff on what we should be pushing up the ladder.



Brian Berg stated he wanted to request that we call a couple of builders and ask them how much it would cost to add those energy monitoring changes on a 25,000 sf building and see how much it would cost. It requires them to report hourly, daily, monthly over the previous 36 months. Most small developers are just not going to have interest and be able to carry that burden. If it is an institutional building a school district or a university it would be a totally different thing, but in most cases on a small commercial building it seems like it is a reach. Dave agreed that he just doesn't see that the small commercial buildings would need that type of sophistication. The conversation ensued further between Dave and Brian. Shawn stated in reading into the chapter further it seems to be more geared to 25,000 sf high energy consuming facility and they are going to be consuming a lot of energy they should be able to monitor it and things like that. He also thinks that this section is pretty unclear. He is not sure what they are trying to achieve. Shawn stated his recommendation is to delete it completely and maybe re-visit this later. A discussion ensued.

Shawn wanted a motion on C405.11 and C405.12. Dave Obermiller made a motion to **eliminate** both (Chapter 4 Page C4-72.) C405.11. *Automatic receptacle control* and (Chapter 4 Page C4-75.) C405.12. *Energy Monitoring*. The motion was seconded by Brian Berg, with no one in opposition, it was approved.

Clay also asked Shawn if we needed guidance on the passive radon system. Shaw said yes, he wanted to adopt the same system as Minnesota. Clay stated that he would be in favor of that because the contractors are aware of how to already do the radon work in Minnesota and it would keep it simple for the contractors. Mike Wild asked since some of the Board members are not certain what is the Minnesota code they asked if we wanted to table that until later. Shawn said he didn't want to do that because it would put back the adoption of our code. He explained as far as what he knows there is a 10 footlong of perforated slab underneath and then they run a 3 or a 4-inch pipe up over the roof. That is all they do. Mike Wild asked if they are running interior drain tile as well as exterior drain tile and tying it all together in some way? He thought the drain tile connects to the pipe up above and that connects to the passive system. A discussion ensued between the board members and Shawn about how Minnesota's system currently works.

Mr. Wild made a motion to adopt Minnesota's appendix regarding passive radon control methods adding a passive radon ventilation system. The motion was seconded by Mr. Bartram with everyone in favor the board approved and carried. That wrapped up the adoption and Chairman Dietrich asked if there was any new staff reports to review at this time and there was nothing so Mr. Dietrich adjourned the meeting.

Respectfully submitted



Shawn Ouradnik  
Board Secretary