

**Board of Appeals
December 16, 2021**

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

Members absent: Mike Wild and Justin Schoenberg

Others present: Nathan Boerboom, Ryan Erickson, Shawn Ouradnik, Melissa Gaulrapp, Kristi Stoffel

Chairperson Dietrich called the meeting to order at 9:30am. Mr. Dietrich called to look over the November 4, 2021 meeting minutes and approve them.

Mr. Wild made a motion to approve the minutes from November 4, 2021 and it was seconded by Mr. Bartram with no one in opposition, the motion was declared carried.

There was no unfinished business.

Chairperson Dietrich stated the next would be a presentation regarding the history of flood proofing.

**History of the Flood Proofing Code
Presented by Nathan Boerboom**

History of Flood Proofing Code started back in the 1970's when Fargo joined the National Flood Insurance Program (NFIP) in 1971. NFIP rules do not allow for the lowest floor of a building to be below the basement and the Base Flood Elevation (BFE) or water surface elevation of a 100-year flood. This would have eliminated Fargo from having any basements.

The local communities' preference was to continue constructing basements for many reasons but primarily 3 reasons listed on the screen:

- Provides safe location during tornado/severe thunderstorm
- Reduces cost of fill to be imported to the lot
- Homeowner able to add additional square footage to structure at lower cost

As a result of this restriction the Flood Proofing Code was originally developed in 1975 which was then approved by FEMA and allowed for the city to have a basement exception which then allowed us to then able to continue to construct basements.

Engineering also wanted to point out that Fargo is one of fifty-four (54) NFIP communities that has a basement exception from FEMA. It is important for us to point out because, we know FEMA really isn't too much of a fan of these basement exceptions and they would really prefer they would go away. He recalled former Inspections Director, Ron Strand, mentioned to him in the past that when he was first hired one of the primary responsibilities he was told, was not to lose the basement exception. It was very important for the city that Fargo be able to continue to construct basements.

We go from 1975 fast forward 40 years to 2015 when FEMA was in the process of re-mapping the special flood hazard area. Like we mentioned it is not too surprising that the priority was put in place during this re-mapping process was to make sure that we maintained our basement exception. So, that was a requirement by FEMA going through the re-mapping process, that we had to prove to FEMA that our code was still meeting all their requirements. So, in order to complete the certification, we hired a consultant complete a thorough review of the entire code including the structural components including flood proof basements. As far as I am aware an analysis of this type had not occurred since 1975 so it wasn't too surprising we found some portions of the code that had to be updated.

When we did a thorough review of the code we looked through not all those items are listed on here (meaning the slide ... new FEMA BFE, provisions detailed within U.S. Army Corps of Engineers Flood Proofing Regulations, EP 1165-2-314, provisions for connections at the top of the wall and temperature and shrinkage reinforcement, (see page analysis), lateral Earth Pressures, and damp proofing) but there was a very thorough view but have to account for in the flood proof basement design. So that was the primary aspect of the code that we found out was we have to account for in the flood proof basements.

So, knowing we would have to complete a re-design of the flood proof basements, we worked closely with home builders and their members to design flood proof basement but tried to minimize any constructability issues as well as reduce to any costs that occur in regards to the change of the design as much as possible. Mr. Dietrich you can probably recall we had numerous meetings with the homebuilders going through all those changes. We got a lot of good feedback from the HBA members and tried to incorporate as much as that feed back as we could and develop as standard of a design. Unfortunately, due to the design we couldn't incorporate as much as the feedback as we received but I think that in the end we had a pretty good end product that accounted for as much as we can while still making sure we met all the requirements. To make sure we maintained that basement exception from FEMA.

Finally, Mr. Boerboom just wanted to point out that the whole point of our doing the structural design report was developing a standard design for a flood proof basement that any builder could come and utilize at their discretion. Nothing within the code or our ordinances requires the home builders to use that design. Any homebuilder can hire their own structural engineer to submit that design as part of the building permit approval process.

That was just a quick history of the flood proof basement and asked the board if they had some questions.

Mr. Wild said thank you to Mr. Boerboom. That is the first time he had ever heard of the origin of the flood proof basement ordinance. He doesn't do a tremendous amount of single family residential and multi-family mixed use. It was really interesting hearing where it originated from and he stated they weren't a part of the deliberations that happened in 2015 when it was re-written. He also said he is assuming a lot of the folks representing the HBA brought a lot of experience to the table. A lot of specific project experience as well as best practices. It seems

like it was a pretty thorough process. One question he has during the on-going evolution is, what does the impact of our flood protection (that will be certified years from now) mean for the exemption going forward?

Mr. Boerboom said, that was a great question.

The project you are referring to is the Fargo-Moorhead Diversion of course. That is going to significantly change the 100-year flood plain throughout the city. It will reduce it, so it will be re-mapped and essentially changed to 37' feet. Where today is right around 39.5. So, we anticipate that will allow for building requirements that we have today to be able to be changed to reduce the areas of where the flood proof basements are required, to be more just that the residual or that remaining 100-year flood plain once we get to that point.

Unfortunately, we still live in that window where we are still regulated by FEMA under our current flood plain. So, we can't quite change it yet, but a few months ago we had a brown bag with the City Commission. Some of those topics included detailing future discussions that we need to have with them. Whether flood plain management rules and ordinances will be needed post diversion.

Chairman Dietrich asked if there has been any review of the design on things as we have gotten some experience with it? A determination of what it is still appropriate as far as pressures on foundation walls, ties together, all of that? He also asked if there is something that Engineering Department or code Departments have kind of circled back at to look after 6 years of constructing under that code? He was wanting to see whether there are adjustments or other things that need to happen with it? Mr. Boerboom stated that they have not. The perimeters that are listed out really have not changed, nor have core of Engineers' flood proof regulations from what he is aware.

The soil characteristic's that were analyzed during this design also have not really changed. Four years was a long time between the original design to the current design so he thinks that just the updates and buildings practices were a lot of those were accounted for in the design element. He didn't anticipate really any changes occurring now, but any builder could review and do any changes off of our designs and submit it for approval to inspections department as well.

Mr. Dietrich said he thinks that if there was anything in the big process the HBA and the City would all have to work together on it as the time comes for review or diversion gets done. He imagines the new developments will be allowed to be placed lower? Mr. Boerboom said yes, that is all part of the future conversations. He was also asking what is the appropriate building elevations moving forward once the diversion is completed? Chairman Dietrich stated he knows that a lot of the structural side of those foundations are costs. As in, garage foundations are now at a minimum of 6 feet and some even at 8 feet to get the diversion soil and things like that. It will be a cost increase on building, not so much the bar, more so the extra depth on foundations and the fill and that kind of stuff.

Chairman Dietrich asked if there were any more questions for engineering. There were none. He thanked Mr. Boerboom and stated next up will be Melissa Gaulrapp with Chapters 11.

**2021 International Energy Conservation Code are Chapters 4&5 are essentially Chapter 11 of the International Residential Code
Presented by Melissa Gaulrapp**

General: The IECC (*Added a Separate Section*) Chapter 1&2

Chapters 1 & 2 are administration and scope provisions as well as the definitions that are covered elsewhere in the IRC so mostly what we will be talking about is starting with will be Chapter 3 which is just the climate zones.

General: The IECC Chapter 3- Climate Zones (*Changed*)

Note: They have been **completely rearranged all the Energy Code Revisions** because they changed how the paths are listed in there. So, the same compliance paths still exist but they rearranged the code to make it easier the to determine which path you want to follow and to find specific requirements determine for that particular path. So, 95% of the time we see residential contractors follow the Prescriptive Compliance path that is in the code, but there are other options they can choose. As a result of this rearrangement, there are changes throughout the residential requirements that are just for organizational purposes rather than changing the impact of the code. Like, they went through the code and change the words “prescriptive” and “mandatory” have been removed from section titles which means there is a bar in there showing a change but there was no change to that particular code.

Our intent is to **adopt** the 2021 codes with **AMENDMENTS** to match the Minnesota State Energy Code so we are creating an even playing field on both sides of the border. So, then we are still moving forward with a little bit higher values without making a big leap to the numbers that are in 2021 code entirely.

(Pg. 11-5 to 11-39)

Section 1101.7 [IECC Section R301, pages R3-1 through R3-36]:

The climate zone **definitions and maps have been revamped**. About 10% of the counties in the country were reclassified, including ours, which was moved from Zone 7 to Zone 6A. So, a large chunk of that section just shows maps and who went to what section.

(Pg. 11-40)

Section 1101.13.5 [IECC Section R401.2.5, page R4-1]: (*Added to the section*)

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. There is a section in the code that lists out what those choices are.

(Pg. 11-41)

Section 1102.1 [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. It isn't a change in effect it is just a clarification.

(Pg. 11-42)

Table 1102.1.2 [IECC Table R402.1.2 or page R4-2]:

*The U-Factor requirement table has been switched with the R-Value Table so they are in a different order, so the Table numbers have changed so we need to **update our AMENDMENTS**. Staff recommends **continuing** the existing **local AMENDMENT** and **changing** the U-factors for Zone 6, for the Frame Wall column to .57 and .59 for the Basement Wall column. Additionally, we recommend **changing** our **AMENDMENT** a little bit to **add** to altering Ceiling column in Zone 6 from .24 to .26. That will match the requirements in the Minnesota energy code.*

(Pg. 11-43)

Table 1102.1.3 [IECC Table R402.1.3 or page R4-3]:

Staff recommends **altering** the existing **local AMENDMENT** for our new climate zone, Zone 6, .32 for the fenestration U factor column 49 for the Ceiling R value column. 21 or 13 + 5 c.i. for the Wood Frame Wall column and 15 for the Basement Wall column and Crawl Space and Wall Columns. This will match the current Minnesota Energy Code requirements.

(Pg. 11-45)

Section 1102.2.12 [IECC Section R402.2.12, or page R4-6]: (Added to the section)

Heated garages have been **added** to the existing section for sunrooms, allowing thermally isolated conditioned spaces 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. This applies attached or de-attached garages.

(Pg. 11-46)

Section 1102.4 [IECC Section R402.4, or page R4-6]:

Staff recommend **discontinuing** the existing **local AMENDMENT** for R-2 occupancies as section R401.5 already makes this distinction. The amendment was added when we adopted 2009 addition to the code but when that section was revamped later we never deleted them so at this point it is unnecessary at this point.

(Pg. 11-47)

Table 1102.4.1.1 [IECC Section R402.4.1.1, or R4-7]:

Staff recommends a **local AMENDMENT adding** a paragraph to the insulation installation criteria column, in the basement, crawl space, and slab foundation row to read exterior foundation installation should be covered with flash to protect it from exposure to light and weather to a minimum of 6 inches below grade and be covered by a minimum of 6 mil polyethylene slip sheet over the entire surface. In addition, staff recommends **adding** a **Footnote C** to this table in the IRC specifying that the section numbers listed in this table are from the IECC. So, if you look the table in the IRC uses the IECC section numbers which is a little confusing because we just want to clarify it is in a totally different book if you are trying to find the section number it is referring to. The requirement we are looking to add for the protection exterior foundation insulation and slip sheet will match the Minnesota Energy Code requirements.

Discussion

Chairman Dietrich asked Mrs. Gaulrapp when Minnesota went they went to exterior full on foundation worked through with them he knows they worked through it with Minnesota they were ok using spray foam on the interior on that foundation as an exception and he was wondering if that would follow through here? Melissa said yes, that amendment would only apply if we chose to do the exterior foundation insulation. We are not requiring it.

Dave Obermiller interjected and asked if the 6 mil polyethylene slip sheet is one way to protect it a little bit and are there were other options or is that the only option in regards to that? Or can someone continue to let's say the steel siding? Mrs. Gaulrapp stated that the slip sheet goes all the way down to the footing or the entire length of the foundation insulation. Mr. Obermiller stated then six inches below grade and Melissa said yes, and next portion is the poly that goes the entire length of the insulation.

(Pg. 11-46)

Section 1102.4.1.2 [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 and a *2nd New Exception* for the testing conditions and units and in an area smaller than 1500 sq.ft. So, it gives a little relief from the blower door test requirements applying to everything. It excepts out garages row houses, and units that are smaller than total 1500 sq.ft. Those are allowed to have a visual inspection instead of the required blower door test. They can just choose to do the blower door test if they like. Staff recommends **ADDING a local AMENDMENT deleting** the sentence “Where required by the code official, an approved third party independent from the installer shall inspect both air barrier and installation criteria.”

(Pg. 11-47)

Section 1102.4.1.3 [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 that visual inspection option for heated garages. Which is essentially the end result we are looking. The current allows for a visual inspection which is the end result we are looking for. The current amendment allows for visual inspection on everything in the house and eliminates the requirement for blower door tests. So, essentially, we want to eliminate that amendment and require the blower door test for structures.

Discussion

Chairman Dietrich said he knows that on that particular item they had conversations going back and forth. If you are doing a particular prescriptive insulation that is being inspected by the inspections department and it has proven to be adequate to reach the blower door test then the blower door test is a redundant cost that the consumers have to pay.

A discussion continued on between board members regarding them wanting to talk about affordability of the blower door test and going past what the blower door requires. It was

confirmed that the blower door test cost approximately two hundred dollars. Mrs. Gaulrapp stated they could engage in further discussions later regarding the blower door since there would be other meetings.

(Pg 11-48)

Section 1102.4.6 [IECC Section 402.4.6, or page R4-9]:

New section This section outlines air sealing for outlet boxes which match those for the recessed lighting. These have already been in the code and being enforced. The air barrier either must be installed behind the boxes or marked air-sealed boxes must be used.

(Pg. 11-50)

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

Staff recommends **ADDING a local AMENDMENT** *deleting item 3* and *adding and 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."

(Pg. 11-50)

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

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

(Pg. 11-51)

Section 1103.6.1 [IECC Section R403.6.1, page R4-12]:

Staff recommends *discontinuing* this **AMENDMENT** as the requirement no longer applies with our new climate zone.

(Pg. 11-51)

Section 1103.6.3 [IECC Section 403.6.3, page R4-12]:

Staff recommends **ADDING a local AMENDMENT** and *deleting* this section requiring flow rate testing.

(Pg. 11-52)

Sections 1104.2 and 1104.3 [IECC Sections 404.2 and 404.3, page R4-13]:

Staff recommends **ADDING a local AMENDMENT** and *deleting* these sections in their entirety requiring occupant sensors, daylight sensors, or dimmers for interior lights and daylight sensors for exterior lights.

(Pg. 11-53 and 11-61)

Sections 1105 and 1106 [IECC Sections 405-406, pages R4-13 through R4-20]:

These sections were extensively revised for clarity. *No significant changes.*

(Pg. 11)

Table 1105.4.2(1) [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.

(Pg. 11-59)

Table 1106.5 [IECC Table 406.4, page R4-19]:

The Energy Rating *index scores* required for this compliance path *have changed*. Staff recommends **ADDING a local AMENDMENT** changing the required value to previous score of 58 from the new 54 rating.

Mr. Dave Obermiller asked Mrs. Gaulrapp what the reason was behind changing our energy rating index score from 58 to 54? Melissa stated it was because we are matching the requirements to those in Minnesota. Mr. Obermiller was confused thinking we were asking to raise our index rating to 58 to match Minnesota. Melissa clarified no, it is the other way around. We are lowering ours to 54 to match Minnesota and what we have already adopted.

(Pg. 11-62)

New Section 1108 [IECC Section 408, page R4-21]:

This is referring to in Section 1101.13.2. Regarding following the paths. One of the options that is available in this list is houses essentially having all the duct work in an envelope. This is a pretty straight forward way of complying to this section, without doing anything additional. Houses using the total performance path can either add one option or demonstrate that their design scores 95% or less on the compliance report.

(Pg. 11-62 through 11-64)

Sections 1109-1113, [IECC, pages R5-1 through R 5-3]:

This covers the 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.

Discussion

Clayed asked if anyone in the public that was attending the meeting had any questions or comments.

Larry Mayer with Solutions Design wanted to make a comment about blower door testing. He stated they have found that if the blower door test is done after the framers have done the windows and doors it is very easy and convenient for the builder to fix the leaks. It is also an educational moment for the framer and the project manager to see what was done right and what was done wrong. He expressed his concern was that if we wait until the blower door test is done. After the whole house is completed nobody has learned anything. The difficulty of fixing the holes and leaks is to the point of where most people will shrug their shoulders and walk away. He recommended an alternate practice. If the builder can meet the code standard at that point in time when the windows and doors are in as well as the sheetrock and insulation. That should be acceptable. He sees disconnect. The framers don't understand what

they did right or wrong as well as some of the other trades. By the time the blower test is done, at the end of the project the problems just aren't getting fixed.

Chairman Dietrich asked Larry if he was talking about after the sheetrock but before it is taped? Larry stated it can be done that way. He stated in Europe they require 3 blower door tests. One after the windows and doors are in and the house wrap is on. A second one after the sheetrock is up but not taped and a third one at the completion of the project. He went on to state in Canada they require 2 blower door tests. One before the tape is up and one at the end. He sees it as such a huge teachable moment for the framer and project manager to be able to see the problems in the early stages of construction and be able to easily fix them versus when the blower door test is done and then it is difficult to fix.

Mr. Obermiller asked Larry to give him an example of problem that he has seen. One that hasn't been fixed at that point in time during construction.

Larry said he sees a lot of leakage as the baseplate. He also sees a lot of leaking where the floor trusses are sitting up on top of the foundation wall. Leakage at the windows when they are flashed and taped on the outside. These are common areas where he gets asked to come in and do a thermal imaging audit of that house. Larry said he sees these problems over and over again and they would be easy to fix at those early stages of construction. Mr. Mayer also wanted to talk about slip sheets. A slip sheet is used to protect the exterior foundation of the home. If it is left in place on top of the wall when your setting your floor trusses. You stop the wicking action of moisture from coming up the foundation and into the wall cavity and then into the attic. He has been into dozens and dozens of attics where the insulation is all wet because of the wicking action. Where if that slip sheet, if it is left in place, at least at the critical point on top of the foundation wall. Then, we can stop a lot of that moisture movement. He stated he would like to talk about that a little bit more in depth but these are key elements.

Mr. Dietrich asked Mr. Mayer if foam would do the same as the plastic sheet? Mr. Mayer responded saying the foam acts as a water barrier and a thermal barrier. The foundation pad is still sitting naked on a virgin ground that is 100% moisture down there. Even though the exterior foam and damp proofing is on, that naked pad is still where the majority of the house has moisture is coming up. It is coming from that naked pad. The pad is the lowest point in the building. Larry stated he would show in pictures in the presentation to follow. The psi of the concrete is 5000 with water wicking up into it. Mr. Mayer said he has talked to concrete experts that do legal remediation and 5000 is a much less permeability than 3000 psi concrete, but it is not a water stop or a capillary break. It is an improvement, but it is not a 100% solution. The river valley in Fargo Moorhead is at the lowest point in the valley, because there is a pretty high-water table here. What is that water table in? It is in clay. The University of Minnesota researched and found we are in up to 1800 vertical sq. ft. in the water table. It doesn't have to wick more than one to two feet in the Fargo Moorhead area because again we are at the lowest point in the valley. Which is where the water is.

Chairman Dietrich asked if there was anyone else in the public who wished to comment. Bill Krassas with Draft Busters insulation came up to the microphone. Bill stated he has been doing blower door tests for 10 years. He makes about two hundred dollars in 15 minutes. He stated he has been doing it along time in Minnesota and he thinks it is a waste of time because they are sealed up and down to a 1 or 2 at the most. By doing the blower door earlier he thinks you can find some leaks or you can do them later and you can find some more leaks. Mr. Krassas said if you are scoring a 3 it doesn't matter, if it is going to pass the test. The blower door doesn't have anything to do with how well the house is insulated. All the blower door is doing is letting the vapor barrier in your house. What matters is how well you poly the house. If you poly a house and throw a blower door on it, it would pass and have no insulation in the house. The blower door is actually designed for your moisture and poly inside the house. He absolutely doesn't recommend doing blower doors. If we did, we would have to do several of them to get where we want to be with the project.

He said what he has found is when you have duct work that runs up into the attic. The duct work leaks, the seals around the duct work leak coming in and out of the house. Mr. Krassas said any duct work that is in an attic should be buried inside the fiber glass insulation. He sees duct work that comes out and goes up into the air and back down. When he asked about it, he was told it was a cold air return. When your furnace isn't running, that duct work that is above the insulation is going to be the same temperature as it is outside. He didn't feel that was a good way to be doing duct work inside. Then Mr. Krassas asked the board if there were any questions?

Mr. Obermiller said he wasn't sure if he was advocating for blower door testing or not. He clarified he would say no. He said if we did do a lot of blower door tests he would make a lot of money, but he doesn't think it is necessary cost to a house. He thinks the visual inspections that are being done far outweigh anything a blower door test can do. He knows he is shooting himself in the foot because he could make money on the deal, but he doesn't think we need to have them.

Mr. Obermiller said that is commendable. He would have thought Bill would have served his own best interests. Mr. Krassas then stated that he would rather they take the time and insulate the house right instead of wasting his time having to come in and do the test.

Dave then asked Larry Mayer if he also does blower door testing? Larry said he does. A lot of the time he tries to pass it off to other people because a lot of the time he feels it can be a conflict of interest for him. Especially if he is designing and supervising the building to do a blower door test on my own the building just didn't seem right. He said he does do blower door tests for people outside the area as well as sometimes.

Then Mr. Obermiller asked both of them how often does the blower door test fail? Mr. Mayer said in multifamily it is right on the border, but in Fargo-Moorhead right now the builders do a very good job compared to other parts of the country. In the southern states, they have a hard

time making 4 air changes per hour. HBA builders are typically around 2.2 to 2.3 air changes per hour which is well below the 3.0 in the code.

Dave then turned to Bill Krassas, and asked what is your answer for that?

Bill said the houses that he has had the blower door tests fail on are houses that have a lot of can lights in them. To fix them they have to go back up into the attic and put boxes over the can lights to seal them up. Then the houses will pass. If you get a more than 20 can lights are supposed to be air tight. It says on the box they are air tight, but they are not. They are a very, very leaky.

Mr. Obermiller then asked Melissa, if the can light is one of the things that was in the energy code and Melissa confirmed it was. The can lights and outlet boxes. Dave then clarified with Mr. Krassas that even though the can lights say they are air tight, they are not and he said they were not tight at all? Then he asked him by the method we are using now which is visual, we are usually passing? The houses are typically passing? Bill said yes, because when they come in for an insulation inspection we have already ran poly across the ceiling. Then when the sheetrock comes in, they usually cut around the can light, but the poly is over the can light which is after the sheetrock is in. Then it is good.

Dave then asked Mrs. Gaulrapp, what is the reason we decided to go with the blower door test where we usually had an exception? Are you finding that there are some contractors who don't know what they are doing then or are not doing it right?

Melissa said there is a two-pronged reason for it. The first is, that it is required in the Minnesota energy code and if we are going to match their code then that is one of the pieces. The other reason is, that we know that there are some hiring builders that are doing an excellent job and there are also some insulation contractors that are very good at their job; however, it is not consistent across the board. In addition, a visual inspection doesn't catch things like leaky can lights or badly installed air barriers in areas in places that are difficult to see once the house is pretty much put together and insulated. We also don't know on some of the other contractors and some of less stringently built buildings. We don't know if they are built well enough to pass because no one tests them. We don't have any evidence saying that they are built to a standard that is going to pass. We want it to be across the board essentially everyone having the same rules they have to play by. So, the folks that are already doing these things it will cost them two hundred dollars and the 15 minutes to get passed. The people who are not doing it, will have to be the ones that will have to be brought up to standards. So, when we can't catch things visually it will be getting pointed out by the blower door tests. So, we can educate them and point out where some of these problems are occurring and get everyone on the same page. Mr. Obermiller said that his concern is (based on what he has heard about the blower door testing) that if 90%-95% of them are being done correctly we charging 95% of them times two hundred dollars to catch the 5% of them that are not doing it right. Mrs. Gaulrapp said we are looking at it from the other way. We are only testing a small percentage of the homes because the vast majority of the houses that are built are not being built by the custom home high end builders. Those are not tested. Those are the majority of the homes in

Fargo. So, we don't know what the rate of passage would be or for those other builders or those big production builders because they are not being tested.

Dave said it just reminded him of when they started doing duct testing. They never did duct testing in the past. They also didn't realize what a significant issue it was until they started to do duct sealing and duct pressure testing to verify if the sealing was done right. Eventually we got to the point where all the contractors basically sealed up all their duct work up far better than they used to. They just used to use the metal to metal sealing (priming process). He wonders if we will get to a point where this isn't necessary or that we are doing something that always, always, always passes. Then the contractors just blow it off (this also happened on duck work). They didn't do there testing and if they did they did it in the driveway or parking lot in their truck. That is his only concern, that we will only be doing it because everyone is doing this way.

Dave said he had bigger concerns like the air exchanger. Where we are bringing in air directly from outside to the inside because our houses are sealed so tight that if we don't do it we end up with moisture build up. Then we potentially have moisture and those kinds of things. He has been in new houses where they are sealed up so tight and you can see the moisture all along the window sills because again there isn't enough air in the house. So, we seal them up too tight and we will need to bring in an air exchanger. Mrs. Gaulrapp said so, part of that question is designing a mechanical system which is required in the residential code. It is not part of the energy code requirements, but it is another piece of the puzzle. She also said it would be ideal if we find we start doing great with the testing and everyone is passing. Then we don't need it anymore and we can take it back out in the next code cycle. That would be ideal, but we don't have anyway of predicting what the results are going to be until we actually have them tested. That is why we are recommending we just stick with what the code requires and verify where we are at. If some movement forward needs to happen then we know what needs to happen. As well as where the problem areas are laying and we can tailor things.

Clay was wondering if the issue wasn't that we need to train our insulators and those people on what we need to do to seal the gaps by what we have found through testing. He thinks we have enough people in the room that know what needs to be told to the insulators and the inspectors. What process needs to happen in order to fix the issues that have been identified already. He didn't think we needed to go through a 3-year blower door testing. Again, Chairman Dietrich said he thinks we already knows what the issues are, but welcomed a discussion. Sometimes you try to catch things on the backside when actually you just need to go to the front side. Carpenters are make miters you can throw a cat through, but that doesn't mean it is a code issue, it just needs to be tighter.

Mr. Bill Krassas interjected and said he agrees with what Clay said. That he thinks there needs to be some kind of certification that the insulation company needs to have down the road and you can easily put the blame back onto them. Regarding air exchangers, Bill said he thinks the houses absolutely need to have air exchangers in these houses because it is a health issue. If you think of the house as a hot air balloon, you are sealing that thing up perfectly tight and

when you heat it up, the hot air rises and the air can't get out anywhere you got a really nice house. Well, now you just created a plastic bag so a family of 4,5, or 6 goes into this house and lives in it for 4 or 5 days and there is no air going inside this house so it is actually a health hazard not to have air coming in and out of this house. Furthermore, some of these houses have large kitchens, a couple of dryers, lots of bathroom fans and if you turn a couple of them. You have already maxed out what the house can handle, so now if you go turn on your dryer. Your dryer is not going to run or it is going to run backwards because range can actually out power the dryer. The dryer is flowing into the house instead of out of the house. So, there is a lot of issues with us sealing up the houses as tight as we are because a lot of people don't understand the mechanicals of the house and how they run. Dave said he just sees it as we are putting something into place so we have houses that are super sealed and then we are spending more money. We spend \$200.00 to make sure the house is super sealed and then when spend an extra \$1,000 to have an air exchanger so we can bring air in because the house is sealed too tight. He said it seems like we are not going in the right direction there for whatever reason. Like we need to have looser houses or something. He isn't sure. That all depends upon wind, right? If you have no wind, or some wind, or 20 mile/per hour wind which is so common where we live here in North Dakota he just doesn't know how we get to the point where training is an issue. About how do you build a good tight house. Two hundred dollars is not a lot of money but its money and again if it is \$100 or thousand he doesn't know how many houses we build a year and in today's economic climate that is the least of things that have increased or that have increased the price of the house. Dave again stated he thinks it is so silly to him to spend \$200.00 to make sure these houses are super well sealed while at the same time putting in an air exchanger to make sure we are bringing in air continuously throughout the year and paying for the energy that is associated with it. Six of one half dozen of the other concerning energy use. The idea with the blower test is so that the house doesn't leak air because if we leak air we have to heat that air and cool that air in the summer time and that is an energy issue. This is the ICC this is what it is all about energy conservation. Seems to him like we are forcing ourselves to do one thing that costs even more money. It is not \$200.00 it is the \$200.00 plus whatever the air exchanger costs.

The discussion continued to ensue further.

Kevin Bartram asked for a motion to have the Inspections Department to look into further into gathering data regarding blower door tests and testing and results. Mike Wild second the motion.

Mike Wild made a motion to table the energy code and Kevin Bartram second the motion.

Chairman Dietrich and the Mr. Ouradnik determined James Showalter would present IECC Commercial review at the start of the next meeting.

Chairman Dietrich also asked if there were any staffs to report to present and there was nothing to report. Mr. Dietrich put the motion up to adjourn the meeting. Dave Obermiller so ruled it and Kevin Bartram seconded the motion and meeting was adjourned.

Respectfully submitted



Shawn Ouradnik
Board Secretary