



STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

1500 Jefferson Street SE • P.O. Box 41449 • Olympia, Washington 98504
(360) 407-9277 • e-mail sbcc@des.wa.gov • www.sbcc.wa.gov

**STATE BUILDING CODE COUNCIL
MEETING MINUTES**

LOCATION: DES Building - Training Room
R3620
1500 Jefferson St. SE
Olympia, Washington

DRAFT

MEETING DATE: Friday, November 30, 2018

Members in Attendance: Doug Orth, Chair; Jim Tinner, Vice Chair; Al French; Diane Glenn; Leanne Guier; Robert Graper; Traci Harvey; Kjell Anderson; Phil Lemley; Steve Simpson; Kevin Shutty; Eric Vander Mey; Rod Mutch

Members Absent: Andrew Klein; Barry Long;

Staff In Attendance: Richard Brown, Managing Director; Brian Fowler, Assistant Attorney General; Krista Braaksma; Ray Shipman; Lori Yantzer

Visitors Present: Duane Jonlin; David Baylon; Ken Brouillette; Gary Heikkinen; Amy Wheelless; GF Scheuermann; Al Audette; Bruce Chastain; Tien Peng; Chris Van Daalen; Shane M Cleary; John Siu; Chuck Murray; Micah Chappell; Michael Abrams; Chris Seaman; Susan Jones; Brian Thompson; Travis Ripley; Ron Perkerewocz; Shannon Woodman; Terry Beals; Bill J Lines

Agenda Items	Council Actions/Discussion
1. Welcome and Introductions	Meeting called to order at 10:00 a.m. by Chair, Doug Orth. Everyone was welcomed and introductions were made.
2. Review & Approve Agenda	The agenda was approved as written.
3. Public Comment on Items not on the Agenda	There were no public comments on the agenda.
4. Review & Approve Minutes of October 12, 2018	The minutes were approved as written.

5. Public
Comments/Proposed
Off-Cycle Rules

- IBC
 - Table 1604.5 – Add Group I-4 to Risk Factor III
 - Section 602.4 et al, -- Mass Timber

No Public Comments

John Siu – Principal Engineer & Building Official City of Seattle: and member of the ICC Tall Wood Building (TWB) Ad hoc committee not speaking for the committee but as an individual. (TWB) believes the proposal is robust, and that the package adequately addresses the fire and life safety issues of Mass Timber Buildings. We've addressed issues raised at the committee action hearings in April and in the fall answering to the submitted public comments and those documents can be found on the ICC TWB webpage. I do want the council to know, the TWB is working on ironing out a few issues regarding ICC group B cycle for next year. The biggest is fire protection for the connection. Right now while you can interpret the code to get to the right place that provides the right level of protection, it's not an extremely clear code path, and the language is not very clear. We have worked out language with the TWB structural workgroup to deal with this issue but the whole committee hasn't seen this yet, nor has it gone through the national process. So, we have a timing problem that we feel the code council needs to do something about this before it actually goes into effect next July. However, I believe there is a course the council can take, and there is precedence for that course. As I said, the code can be interpreted to require fire protection for the connections through a reference to the AWC National Design Standard which is essentially the bible for designing wood structures and it has language on how to require the protection. However, neither the code nor the NDS give the designer or code official technical guidance on how to determine how much protection to provide. The draft language being forwarded to the TWB committee gives clear and necessary guidance. I believe the pathway for the State of Washington is for the SBCC to adopt the TWB language on the proposal you have before you, and then take the language we are working on, when it's ready, as an interpretation since it can be viewed as a clarification of the current code provisions. Presumably the final IBC language which will be determined by fall next year and can be adopted in 2018 State Code and then the interpretation can go away. The precedent for this is how the Council dealt with deck loading for the 2015 IRC. The SBCC adopted text that requires decks be designed for 60 PSF live load but again because of timing issues, the corresponding prescriptive tables in the code were not updated. The council passed an emergency rule to suspend adoption of the increased live load, but adopted a new prescriptive interpretation for live loads and let the emergency rule expire. I believe the same

path can be taken by the Council since there is time between now and effective date for the TWB to complete its work on the issue. A closely related issue is to the level of inspection, it's going to be hard to verify the fire protection has been installed correctly. Is this something the building inspector can handle, or does it require special inspectors. The TWB met this morning, and decided that the jurisdictional inspectors can handle it. The TWB will be discussing this as well. They will be submitting a code change for Group B and deal with it one way or another. Aside for those issues the TWB is not proposing any other changes, structurally nothing needs to be changed, and the seismic design factors have already been researched and vetted and probably won't be ready for a number of years. The TWB has no intention of getting out in front of that, in fact just the opposite. However, that doesn't mean you can't design buildings. There are provisions in there, they are just very conservative. Thank you for your attention, that's all I wanted to raise.

Doug Orth - What's the timing of the committee having their proposed recommendations done?

John Siu - We have to have the final proposal in to the ICC by January 7, we have a December 12 meeting to vote on the final language.

Doug Orth - So your proposal is we adopt those as interpretation to serve in the interim? Until the final version of the code is fully matured?

John Siu - Yes.

Doug Orth- I know you said all the concerns were addressed at the ICC level, would you comment to what the concrete association's letter in the record regarding failure of product at the PV building in Portland.

John Siu - In Oregon State? My understanding was that a manufacturing error. What happened was, and we did discuss it at the TWB, that it was a cold night and the line supervisor decided to crank up the heat to help things move along faster but, unfortunately, it cured the adhesive faster than it was intended to and the adhesives never really bonded properly.

Doug Orth - You don't see that as an endemic or long-term issue at all?

John Siu - No to me, that's a manufacturing QA/QC issue.

Doug Orth - That's how I read it, but I wanted your take on it.

Susan Jones Architect & ICC Ad-Hoc Committee - The structure of the committee work that John laid out, really speaks to the depth and breadth of the work and study that the entire committee has labored consistently under for the last 2 ½ years to arrive at the series of 14 code proposals that passed successfully on the floor vote at least back in Richmond Virginia just a month ago. I

appreciate John's coming forth with his comment and also would like to stand behind his recommendation to this code process to adopt his idea to the pathway to the interpretation in the interim. I also want to note that the committee also did concern themselves with item 13, and I am going to read their official TWB response to this group for consideration. The concern being that the fire resistance protection connections is not fully addressed. TWB's response "Please note that existing code requirements already require that fire resistance rating encasement must include the entire primary structural member be protected including the connections, IBC section 704. The wood design standard section 13 16.3 of the national design specifications also require that the connections be protected to the same degree as the structural members. This is the requirement for current construction types, and would also apply to the new type 4 construction types proposed. While not a specific new proposal from the committee, the TWB committee determined that the existing code provides clear guidance regarding protection of connections. It is expected that during design and review the details for each type of connection will be in conformance with the code requirements as is currently done for existing construction types". I think that the statement is in the same spirit that John is bringing this forth, that the AHJ's will appropriately review this issue as it comes forth on a case by case basis during the design in this interim period. Between the actions here on the floor, hopefully positive today, and for the interpretation pathway that John lays out for the Washington state Building Code. In conclusion, I want to reassure that this was not an issue that was not overlooked and it was one that was taken very seriously. Thank you for your time.

Doug Orth- Any other public comments?

Tien Peng- City of Shoreline, representing National Concrete Association - I want to address some of the concerns we have with the interim adoption of some of these tall wood proposals. I totally respect all of the work that the TWB, John and the others have done on this, I attended and testified at the Richmond hearings as well. There were a number of concerns and ultimately the vote was for G108 which defines tall wood buildings was 68 to 32, so there were certainly some concerns. All of the concerns being addressed, I'll just go over some of the issues that were there. Some of them were reliability and predictability issues in regards to a standard that is actually new, the PRG 320 document is a new document, so they've had to revise it based on some of the failures that happen onsite that you've seen regarding the heat. Certainly enough delamination issues from previous tests, that a significant amount of wind would change the fire performance. Fire on the exterior, the consideration was that non-combustible claddings will be put on the exterior. This will be the first time that we will see that the structure itself is actually combustible when you go up on a high rise. So there are concerns. The last concern I think for me, is that the tests

are only done with CLT. CLT is a great product and certainly merits having more buildings be built for cross laminated timber, but CLT is only one mass timber product. There's a number of mass timber products that will have significantly different fire performance. A nail laminated timber, the tallest building before this Portland building, a seven story building in Minneapolis, (inaudible), that's a nail laminated timber product. It doesn't have the same direction of the members of the surface material. There's dowel laminated timber, they use dowels friction fit that's a totally different material, totally different product that will perform significantly differently at 18 stories, 270 feet in the air. Those are areas I think that need to be addressed and have not been considered in light of some of the great work the TWB has done.

Doug Orth - I would ask you, what your specific proposed action on this decision in front of us, or as mass timber as a whole. What would you suggest happen?

Tien Peng - I would love to see more buildings built. Buildings like Type 4, that we see currently that have their limits at 85 feet, and something that the fire service stand behind. Both the International Association of Fire Chiefs and National Association of State Fire Marshalls came out in opposition to the tall wood proposals and I would just like to see more buildings for us in Washington state. I would like to see the progression of the proposals go thru the whole cycle, A is not actually complete, and it just tallied the online vote's right? It's not happening until the end of December to be released. Maybe look at B, and some other adjustments needed to happen whether its connections or something else be considered for Group B, and then have it be proposed in the 2021 code and then as a state as we normally do, we can adopt it from the model codes that we would normally do. I think we have some certain climatic conditions that are unique here that will warrant us to consider what happens when a building is built, we see it all the time. I've built many wood buildings here, for those who know me, and a lot of it sits out in the rain. What happens to those connections, what happens to the seams? Granted it seems like the perfect project in the ones that we've seen built. There are not that many built in the world. We have a duty to consider them after the model codes fully.

John Siu - I am just going to respond to the wind testing, that is something that is contained in the TWB documents responding to public comments. We did look at that, but no other material is required to have that either, that testing. What we've seen in other presentations, and the TWB did see a presentation on this, is that the effects of wind are a little bit unpredictable. Originally, when they designed the corner test for sidings and things like that, NFPA 285, they did run the tests outside. We have videos of the wind blowing the flame back and forth, that it doesn't always blow the flame against the building because of convection or air currents, and sometimes pull the flame away from the building. The effects should

you require wind testing would be extremely unpredictable which is one of the reasons the TWB did not recommend adopting any kind of wind testing in the proposal.

- 1613.5 Amendments to ASCE 7

No Public Comments

Motion

A motion to move forward with the rulemaking process for the IBC Off-Cycle rules was approved

- IFC: Section 907.10 – Fire Alarm Certification alternative

Shane M. Cleary - Bay Alarm Company and Washington ESA - We are asking this to be seen as an equivalent, I did give testimony on this on the east side a couple of months ago, and additional testimony in a public hearing here in Olympia last month. The issue is, NICET is a very good program, and I myself hold numerous NICET certifications. I am in the process right now for work that my company does right now in the state of Arizona of getting my NICET certification in inspection testing and maintenance in water based fire protection systems. At the time of the meeting in Spokane, I had just completed my three required exams for the NICET 2 level in that certification and I am still waiting for the actual certification to be received, they move very slowly. Again with the NTS program, you do go through a course of instruction, then take a proctored exam at the end of the course and within about a week, if you did pass, you receive your certification. I am also licensed in four different states on various items primarily on electrical but in most states, including this one, both my administrators tag, and my journeyman tag, you take the exam at PSI, and when you leave the testing center, you already know whether you passed or not, and through L&I you generally have your license in hand about a week later, as long as you have met the other qualifications. I urge that when you go to vote, you vote affirmative on this action.

Bill J Lines -Stanley Black n Decker- I've done public testimony on this issue as well before. We greatly support it, it's a good program, and it's used throughout the country. It really increases the life safety issues for consumers all over, so it's a great program, we support it fully and hope that you take that into consideration.

No other public testimony on this item.

Motion

A motion to move forward with the rulemaking clarification process for the IFC Rule was approved

- IBC/IFC Section 3101/3801 – Passenger Rail Systems

No Public Comments

Motion

A motion to move forward with the rulemaking process for the IBC/IFC Off-Cycle rules was approved

<ul style="list-style-type: none"> • WSEC <ul style="list-style-type: none"> ○ Section C402.1.5 – UA Calculation corrections ○ Section C404.6 – Pipe Insulation exception for short runs 	<p>No public comments</p> <p>No public comments</p>
<p style="text-align: right;">Motion</p>	<p>A motion to move forward with the rulemaking clarification process for the WSEC rules was approved</p>
<ul style="list-style-type: none"> • IRC: Section R403.1.1 -- Footings 	<p>No public comments</p>
<p style="text-align: right;">Motion</p>	<p>A motion to move forward with the rulemaking clarification process for the IRC rules was approved</p>
<p>6. Public Comment on Proposed 2018 Amendment and Adoption*</p>	
<ul style="list-style-type: none"> • IBC/IEBC 	<p><u>Micah Chappell</u>, Technical & Code Development Chair Seattle Department of Construction and Inspections- There was a significant amount of work that went into these proposals, whether it was reviewing our previous amendments and removing those or going through all these new proposals and amending them. I urge that you move forward with approving all of these. There are some significant ones in there whether it deals with Tall Wood Buildings Group 1 for the 2018 codes, there are some proposals in here on gender neutral restroom facilities which we believe is an important proposal for the State to move forward with. I urge the council approve all these as a package and move forward.</p> <p><u>Brian Thompson</u>-(inaudible) - I was a member of the 2015 Building Code TAG. We considered the amendment to allow an extra story on wood framed buildings. There is currently an amendment proposed B14-2018 which the TAG has apparently recommended approving that, the council seems prepared to approve it, and I oppose it and urge the council to reconsider. I would urge that the building code TAG members, and the fire representative of the building code TAG, Mr. Seaman with the City of Tacoma be asked to weigh in on the implications of that and perhaps the TAG reconsider in light of the written testimony that was provided by myself yesterday.</p> <p><u>Doug Orth</u> – I’m making sure I understand, you’re talking about B14-2018 the stair enclosure pressurization increase? Is that the one?</p>

Brian Thompson -Yes sir. The proposal goes far beyond the stair pressurization increase. The proposal reduces the level of safety that is currently afforded by the model code at the national level. The proponent asserts that there is a cost savings by passing this amendment and that's incorrect. The change that occurred in 2015 with 909.6.3 identifies it as a zero cost change with a clarification that stair pressurization is just an (inaudible) smoke control system, this amendment undoes and thereby jeopardizes the level of safety and reduces the reliability and operation of the (inaudible) equipment.

Traci Harvey - I know there's been a lot of discussion, and part of the confusion on this, is there's been a proposal and some interpretations that have muddied the waters. I know the original intent behind this code proposal was to remove the requirement for a full smoke controlled system analysis and the calculations that you would normally see for a much larger more complicated system for pressurization. That's the final intent. It was presented during the testimony that was what this rewrite was accomplishing. I've been reading some of the statements that have come in on the B14, there were a couple of emails. So I guess at this point I am finding myself a little confused at (pause) since previously stair pressurization was a fairly basic concept, my understanding was to try to get it back to that basic concept. Do they feel like it shouldn't be that basic, or is there another component that I am just kind of (pause) Like I said there were a couple of opposing interpretations that.....

Doug Orth - Thank you Traci, we have someone in the room that can provide some clarity.

Michael Abrams Fire Protection Engineering Consultant for Judson Hughes - I've been in this industry for a little over thirty years and for the past twenty I have been specializing in smoke control. The proposed amendment only requires the stair pressurization system to comply with section 909.11 and 909.20. 909.11 is emergency generator and 909.20 is stair pressurization. These particular sections of the code are not intended to be stand alone. If you remove the requirements for the entire 909 section it significantly impacts the functionality of the stair pressurization system. The justification for it was the complexity of a model. In the justifications it mentions design fire and egress, which is not applicable for stair pressurization. (It's only applicable for exhaust or large atriums) If there is an intent to remove the model that should be clearly defined. What I have found in a 5 over 2, the contractors and designers who frequently design these systems typically don't get involved large hi rise buildings so they don't have the familiarity of the smoke control. I've seen a number of instances where they have undersized the fans, or oversized the fans, which could also be detrimental to the functionality of the system. What a model does is it provides definitive information on the amount of air that needs to be introduced to a stair enclosure. The justification of this was the cost. If they don't size the fan appropriately, they have to replace the fan which is substantially more expensive than designing a simple

model. The cost for designing these models are relatively inexpensive, \$2,500 to \$4,000 for a model. Included with that, there is a code report that justifies or explains the overall design intent. Maybe that can be abridged; I don't have an issue with that.

Doug Orth - I thought I knew more clearly when I came into the room what this is about, than I do at the moment. I thought this still required stair pressurization with a fan tied into the fire alarm system without running a complete smoke evac model for the building. Is that not correct?

Eric Vander Mey - The intent is to not refer to all 909 and to refer to specific sections in 909. The discussion that happened in Spokane with the proponent was that this was not being enforced uniformly across the state. Certain jurisdictions are asking for a full rationale analyses on this, and other jurisdictions are asking for the designers to design a system and test it to pass.

Michael Abrams - What it also does also, is eliminate all the special inspection requirements which is critical to the operation of the system. So what you're relying on is potentially, an experienced designer putting the fan in that's undersized, and no one is verifying the functionality. A special inspector not only tests it, there is record documentation for ongoing testing maintenance. In addition to that, there are requirements for the control equipment to be listed for smoke control. There are certain requirements for that, there is nonvolatile memory, very important self-test features and those go away. There is a requirement for a graphic control panel so that the fire department can override and control the functionality of these systems, and that goes away.

Doug Orth - What I am seeing as a builder, I'm seeing larger jurisdictions, Bellevue, Seattle, Tacoma, applying the higher standards or requirements, and the smaller jurisdictions generally not. This is a general statement.

Traci Harvey - I have a quick question. One of the things that was brought forward from the proponent was that at one point, the code only required the item, in essence, that the code proposal is trying to get it back too. At one point it was noted the code was simpler on these ones, and it was an unintended consequence based on another code change that made pressurization fall under the whole chapter. He was trying to just get it back to the way it was...so to speak.

Jim Tinner - A little history might be appropriate. So a local planner says "Seattle is doing 5 stories of wood, why can't we in our jurisdiction?" We said because it's not in the code. The political pressure came on the local building officials. Several cities, mainly in South King County met several times and proposed a code change to allow 5 story wood provided the stair towers were pressurized. The original intent was not smoke control, it was pressurization. It was just to give a little more egress time to get off of that fifth level and that was it. Overtime, the IBC has morphed, and I think it fell under the radar for most of us. Now suddenly the IBC is requiring full blown smoke control and it was never the original intent.

Michael Abrams - The stair pressurization utilizes the pressurization method of smoke control as defined in the IBC. Stair pressurization has always been in the code, dating back to the seventies as a vertical shaft enclosure and the requirements for stair pressurization applied. Now again, we are talking a high rise building. The premise is the same, whether we are talking a five story building or a fifty story building, it's always been in the code.

Chris Seaman, Fire Engineer for City of Tacoma - I would disagree with Jim's assessment. Stair pressurization has always been a form of smoke control. I think the problem is many building officials and fire code officials don't really understand how a smoke control system operates or is designed. The basics of it seem very simple to anyone with a basic understanding of you pump air into the shaft and it works. But when you look at the details of how it works on a five story building, and the wind effect, stack effect, it's really easy to mess this thing up even if it is so simple. But the rationale is so important to make sure that the fan is sized appropriately and that special inspection is so important to make sure you can actually open the doors on a windy day. We just completed a building that just got its special inspection last night, and prior to having that special inspection you would not be able to open the doors. I couldn't even open the doors because it was such a windy day. I think it is paramount that it gets treated like a smoke controlled system which it is. You can't point to one to two sections, we'd be saying it's like having a steering wheel or a gas tank, but we are not telling you how to build the rest of the car. I think that's the issue with that, with just picking a couple of sections.

Steve Simpson - I may have a solution here, it sounds like we are getting a lot of testimony here in this one, and it sounds like we need to really get a lot of testimony on to make an informed decision. Is there a possible method of us agreeing with the report, but also running another idea through as well?

Doug Orth - I think what we are suggesting is that we haven't concluded public testimony yet on the entire report, but once it's time for a motion, I would assume that we would approve what's on the list with certain exceptions. Does that sound reasonable?

Eric Vander Mey - This could move forward with multiple options, this is just a draft rule going out with public comment.

Brian Thompson - I wanted to add two things. If you will notice the document on the screen and go to page seven, that will show the ICC code change that occurred to 909.6.3 with the rationale and the un-amended committee action and the absence of any change or dissent by the assembly. With the proposed code change B14-2018, it not only changes the rules for 5 over 1, as we might call it, but it also changes the rules for high rise buildings. So if the goal is to only change the buildings that might be affected by the state amendment for the wood (inaudible) construction then it must be disapproved because it impacts high rise buildings as well.

Travis Ripley Bellevue Fire Department – I am also providing comment on B14-2018 – Much has been testified thus far, and I feel very similar, I am opposed to this. To Brian’s comment and the conversation how this affects a certain type of building, but as this proposal is written it affects more than just the type that has been talked about and the five over type buildings. This would affect underground buildings, high rise buildings, and all the above that have pressurization requirements. I think that the proposal itself identifies impacts to a couple of particular items that seem to be overbearing and at great cost. Without looking at all the items in 909 that actually provide a positive to not only the building owner who is getting this product and the public who might be occupying the building. I kind of listed out different sections of 909 and the impacts. I don’t know if Council wants to hear it.

Doug Orth - I think we need to table it for today, and require more examination.

Eric Vander Mey - The council has the option to refer this back to the TAG as well.

Jim Tinner - I want to make it clear that it was never the intent to remove smoke control from high rise or underground buildings it was only the five over one and five over two buildings.

Motion

A motion to move the IBC/IEBC Amendment list forward to the CR102 process, with the understanding that B14-2018 will receive further scrutiny, was approved

• IFC

Traci Harvey - I think we’ve already covered the list and the ones that were interesting, the list speaks for itself, the TAG worked really hard, there was a lot of good discussion.

Ken Brouillette, Seattle Fire Department – We’ve been working with the industry on some of the items I was a proponent for, and we have three of them that we would like to withdraw. The reason that we are withdrawing them are that two of them references an UL standard that just got published this month and what we heard from industry is that they would like the extra time frame to be able to comply with that listing so that they can submit their materials for the DAS’s or (inaudible) . What we did was take the 2021 code provisions and tried to bring them into the 2018. The DADS and (inaudible) is just a fast moving subject material. Up in King County area we met with several fire marshals up there, and then we got our feedback from the industry. So there’s three items that I would like to look at removing. So they are F05-2018, F08-2018 and F26-2018 and I am the proponent of all three of those and basically the industry would just like more time to comply with them.

Leanne Guier- Which ones are those?

Ken Brouillette- Amendment to 510.4 just added the sentence: Equipment required provided emergency response radio coverage shall be listed in accordance to UL 25 24 so that’s the standard that just got published. One of the other ones was just the chapter 80

reference UL25 24, and then the F08 Oscillation and we are pretty sure that that one can be covered in F04-2018 but again Industry would like to have extra time to make sure that their equipment can handle it. We will wait for it to come to the 2021 Code.

Motion

A motion to have staff to proceed with preparing a CR102 reflecting the approved amendments and removing those requested by Ken Brouillette was approved

- WSEC

Amy Wheeless NW Energy Coalition - I would just urge you to move forward with the 2018 proposed energy code. We spent countless hours on the many issues of the energy code that might come up. It was good work and it should come up with public comment. We've made some good structural changes that I think are important as we move forward with our energy code and I look forward to talking about it some more.

David Baylon, Ecotope - The current table as passed by the TAG uses the 0.55 carbon emissions for electricity. This is about 20% increase over what we currently have in the Washington State electric system, although it doesn't take into account what's going to happen next. What's going to happen next is a lot of coal plants are going to close, and a bunch of gas plants are going to be built and a bunch of renewables are going to get commissioned, and where that's going to end up is anyone's guess. What is clear is it's not going to be all gas, and 1.0 is all gas. It is at least my considered opinion we can move the 0.55 to a compromised position which is 0.7 in conjunction with analysis by the Department of Commerce and my own analysis suggested this is certainly a possible scenario what will happen in the State after the next decade. It's a major change in our code.

Kjell Anderson, LMN Architects - Looking at the numbers that were put forward and you look at the lifespan of a building, 50 or 100 years and when we look forward to what the grid might be like in 2026 which is a very near term, and 2031 is near, so 30 years maybe the midpoint where the core systems might be re-thought, It would be really good to know what the projections are for then. We live in a progressive state. All of the other ballot measures, even the red states that are for higher renewable portions for their utility portfolios are passing, so in our state, I am suggesting that we will probably have a higher and higher proportion of renewable energy. No one can know the future, but if we are 0.38 now and there's some talk about marginal energy, what it would look like in the future and how would we decrement that.

Dave Baylon - We are actually 0.46 now. 0.38 is after you close about three coal plants after the first decade that gets you to 0.38. You can debate how people make electricity then and so on. We do have renewable portfolio that requires 25% of the new generation be it renewable so in principal at least that much is certain. The 0.55 number and to some extent the 0.7 number but certainly the 0.55 number assumes that 66% of the new generation would come from

either energy efficiency conservation numbers from the utilities, or from renewable sources sponsored by whomever. The remaining 30% would come from gas. That's certainly a plausible near term scenario but not a plausible long term scenario. We will see much more pressure against carbon in the future, because of flooding, fires, hurricanes etc. Somebody eventually is going to get the message. This isn't to say we're not getting the message, at least loud and clear but we are certainly taking a step.

Gary Heikkinen, Northwest Natural – First of all I want to state that there is no disagreement from me that we need to reduce carbon. I'm here to provide comment on two specific proposals. I won't go into detail there, maybe jump right into this issue of carbon issues and what the right number is. Even though it sounds like a small portion of these proposals, having the right number is key to making this work and getting carbon reductions. Part of the debate has been around whether you use average emissions. Average emissions in the state of Washington is 0.46 which is a very clean grid here. We need to remember though that the Washington grid does not stand alone, it is part of a larger western grid that covers basically all of the western portion of the United States and even includes some of the Southwest. Things that are done in Washington actually effect elsewhere. There are effects of where marginal energy comes in. The issue has been marginal energy which are those not base loaded energy, not renewable energy but those variable resources that have to come on as the load goes up and down. Those are typically coal or natural gas. The EPA, ASHRAE and the Northwest Power Council all agree to properly evaluate energy efficiency, energy code and renewable energy that you use marginal energy and what's happening at the margin. That's what is happening to base load, that's what is happening to the renewables and what's happening at the margin. I can just say that the EPA's numbers, who all agree that marginal energy and marginal emissions are the proper metric if you're going to use that in the energy code. The EPA's numbers for the northwest power pool between 2007 and 2017, have been pretty steady. They bounce up and down a little bit year to year but they are pretty steady bouncing around 0.16 pounds per kilowatt hour. That's what the numbers were in 2017, haven't seen the numbers yet for 2018 but I suspect they'll be very much along the same lines. I have proposed using a number from the Northwest Power Councils report that would project a number between 0.91 and 0.97 pounds per kilowatt hour. What this represents is a 43% reduction in carbon emissions between 2017 and 2021. What that report is saying, even with a number of 0.97 is that the carbon emissions of the marginal energy will be reduced by 43% in the next three years. I could probably make a pretty strong argument that I'm not sure that's going to happen because that is a pretty aggressive and steep reduction. Even understanding coal plants being shut down by 2021. Boardman's is going to shut down, half of Centralia is going to shut down and those would certainly clean up the grid so you would expect to see some reduction. I think that a number of 0.9 or 0.97 would be

aggressively low given what those numbers have been historically. Even in California, those numbers run over 1.0 to 1.1 pounds per kilowatt hour. Per the last report I saw, they have basically 4% coal in their grid. Even with their clean grid, they are still above 1.0 pounds per kilowatt hour for their marginal energy. Understand that this is not a real simple thing to understand, it certainly is to a certain extent controversial. I'm not here saying we ought not to pay attention to carbon, because we need to be paying attention to carbon. My concern is, if you really want to reduce carbon, you need to have the right number. Just like you would get different results using energy costs with using a nickel a kilowatt hour or a dime per kilowatt hour, you know you want to get that number right to get the right analysis, you need to get this number right. I think that number is closer to one pound per kilowatt hour as you project out to the 2020 to 2030 time frame.

Doug Orth - The question would be, regarding this energy calculation factor, what's its net result in how we design and build buildings? The difference between 1 and 0.55?

Gary Heikkinen - What it could be, if you use 0.55 for example as an emissions factor for electricity in the analysis, it would drive decisions towards electric technologies and heat pump technologies with the assumption that the emissions factor is only 0.55. If the emissions factor is actually 1, you may be making the wrong decision and actually driving emissions up. Let's put it this way, choosing systems that are not the lowest emitting systems, if you are using an artificially low or high number would also drive wrong decisions. Having the number right is key to making that whole system work. Otherwise, wrong number, wrong decisions could be made.

Kjell Anderson - You said there was a Northwest Power Council number of 0.91 or 0.97? What is that number supposed to be used for?

Gary Heikkinen - They put out a report, and I don't know what prompted the report, to study what they projected the avoided emissions would be going out into the future. I'm not sure what they wanted it to be used for, but I think they wanted it to say that's what they believe the numbers will be. I would say those would be pretty good numbers to use in the energy code if we are going to use carbon emissions. It's a current study, March 2018, it's regional and done by a group that's got a lot of street cred, so to speak, and that's one of the reports I have been relying on in my recommendation on the emissions factor to use if emissions are going to be used in the code.

Kjell Anderson - I ask the question because we are not necessarily talking about avoiding emissions with new buildings, we are talking about adding to the load of the grid not simply avoiding emissions. Efficiency would still obviously have an impact in reducing emissions to some extent, it adds capacity to base loads as well as to the peak loads.

Gary Heikkinen- When you add a new building you are really only impacting what needs to be provided at the margin. You are not impacting what happens at the base load because all that energy is basically subscribed already. You are taking as much of the renewables as much as you can when you can. When you add a new building and you push that load up, it's the marginal resources that need to provide that additional load. When you're saving energy, you're not adding as much load, so rather than adding this much load at the top, you might be adding this much and that incremental piece up there is what you're avoiding. That's what we are trying to measure, how much energy are we avoiding when we do energy efficiency programs and when we improve energy codes. That's the way EPA, ASHRAE and the Northwest Power Council looks at it— what you avoiding when you're saving energy or installing renewable energy.

Kjell Anderson - It seems to me when you add building stock, your adding energy so that might not be the right math to use in that instance. If you're avoiding emissions that does one thing, if you're adding power that needs to be added to the grid in order to supply this...Are you assuming then that all the power that you are adding to the grid is coming elsewhere in the grid that has this higher emissions rate? Or, are you assuming that it's going to be added to renewables?

Gary Heikkinen- I am not sure how to answer that other than to state what I've already stated.

Doug Orth - I think what I heard, your saying that that increased marginal capacity is going to be done by some renewable and by some other conventional methods whether it be gas, coal or whatever. The base energy supply is what the base is.

Gary Heikkinen - The base is what the base is in the Northwest. It's hydro, there's a little bit of nuclear in there, there's probably some coal base loaded, then there's renewables and then there's all the marginal stuff. All of the gas plants, and the remaining coal plants. What I am saying is that today, the vast majority of that marginal energy is being provided by coal and gas, not renewables, hydro or nuclear which are all base loaded. Those marginal resources are primarily gas or coal. As the coal plants get retired, they most likely will be replaced with gas plants, variable or at least flexible load and that will be added to the margin.

Chuck Murray, Department of Commerce- I support the TAG recommendations but I would like to see some of the public comment with respect to lighting power allowance move forward. Duane Jonlin proposed a whole building table that is more in line with the capabilities of lighting technology today and he also submitted a space by space table that has many columns on it. One of the columns on it is noted db. That's a column that's developed so that the space-by-space method reflects the outcomes of the whole building table. We don't have two tables that are doing different things so they are generally the same and I think that's a wise choice. I have

submitted my comments on the carbon emissions if folks have any questions for me on that I am glad to follow up.

Doug Orth - My recollection is that you recommended an efficiency factor of 0.7 is that correct?

Chuck Murray - That's correct. I've also just for the benefit of the council, lines all of the other numbers that people have talked about in one page and hopefully that will help you narrow it down.

Duane Jonlin City of Seattle - As the TAG chair I was a little surprised that the TAG decided to go with the 0.55 pounds per kilowatt hour. I had kind of been expecting something more moderate. In this ensuing time, I've been convinced that there are a lot of conditions that actually, as was mentioned earlier, could potentially end up running us in the wrong direction if we went with something that low. I am also influenced by Mr. Anderson's comment from 20 minutes ago that these buildings under this code cycle will go online in the mid and late 20's, and then will run for 30 or 50 or 80 years or something like that. I think it's not reasonable to assume that the emissions will be static over time, that they will in fact continue to decline precipitously as the economics for the renewables get better and better and that technology changes. We are looking at the long run and our direction from the legislature is to damp down on energy to reduce carbon emissions and so we should be looking at the big long picture for these buildings. I am thinking that at least when we are going out for public comment, Chucks 0.7 figure is more to the mark than our TAG recommendation of 0.55.

Doug Orth - On that point Duane, please speak to the point that was made earlier that a 0.55 could possibly take us in the wrong direction.

Duane Jonlin - This took me awhile to wrap my head all the way around it, but you could by increasing the electric load, given that we are part of this interconnected grid as was mentioned, you could be turning on a coal plant in Colorado to feed Los Angeles because we had less electricity available here. I think something more aggressive in the 0.5 to 0.4 range might be appropriate in future code cycles when we have a clearer idea of what's happening out there. For right now, I like that middle range that the 0.7 looks good. I think the 0.91 or 0.1 is more backward looking number. Chuck just mentioned something about lighting, which is an entirely different topic, but do you want to deal with that later? Ok, we put forward three different versions for consideration of the lighting allowance table and the one that the TAG chose was from CJ Brockway represented about a 4.5% improvement on our current power lighting standard. The one that I had submitted that we did not choose was more like a 9% improvement and Dave Baylon's was like 11% and I am concerned that we are losing a tremendous opportunity by going with this lower savings analysis. I wish CJ were here to testify for herself. Keep in mind that the way this process works its easy once the proposed rule is out there to hack away at things, but it's really not possible to add scope or increase things in the public comment thing. Going with the

TAG recommendation for the smaller incremental improvement in lighting power would restrict our choices as going with my proposal or Dave's that would allow us thru public comment leeway, to shrink it if necessary. I'd like to mention that Seattle already has in place a lighting standard that is 10% more stringent than the current state code and nobody has problems meeting that standard. Every year LED technology is improving on the sort of 5% ish range, meaning that by the time this code is in effect, we will already be making it easier and easier to comply. Going with a 9.5% improvement is, I think, advisable because we are not going to meet...you know that chart we keep putting up that shows how much incremental progress we are supposed to make on the energy code, I don't think we are even going to come close to doing what we are supposed to be doing, this code cycle. So there's an extra percent we could pick up by available technology already in use and already easy to comply with. The method I used was to look through the new ASHRAE 90.1 proposal and insert those lower values wherever the ASHRAE was lower than ours. Then I went back through using the ASHRAE California Title 24, both of which were supported by real expensive research projects. Anytime that one of our spaces had a lower power allowance than either California or ASHRAE 1, I increased it and that ended up being twenty one different space types mostly small ones, but that was an artifact of the fact that previously for a couple of code cycles we simply sort of hand fisted cut things by a percentage across the board. There's been complaints about medical exam rooms and little spaces like that that were really tight. So for 21 space types I increased what our current one is, but overall the mix gets you closer to a 10% reduction. I would recommend that you would all choose my version.

Amy Wheelless - We are a clean energy advocacy organization, we are often down in the weeds with electrical utilities and resource planning mostly in Washington, Oregon, Idaho and Montana, though often down with the rest of the western interconnect. The Northwest Power council that Gary referenced also did an analysis of what the marginal carbon emission rate would be if the social cost of carbon were applied across the WAC and came out with a lower number that's closer to the 0.55 and acknowledge we don't have carbon pricing in much of our Western United States. The systems are getting cleaner and the price of renewables are dropping faster than anyone expected, even faster than five years ago. I wanted to mention there would likely be proposals in the upcoming legislative sessions that will push our utilities to be about net zero by 2030 and then truly zero by 2045. California passed similar legislation in the last legislative session, and Nevada has preliminarily passed a renewable portfolio that brings them to 50% in a similar time frame and I think that is the future you are beginning to see in the Western United States closer to that 0.55 number that Northwest Power and Conservation Council projected in that separate analyses.

Al Audette, Building Industry Association of Washington – First thing is, the numbers are being bounced around here already, and you do have a choice to kick it back to the TAG before it goes forward. Second of all, I am interested to hear the fourteen points that are coming up but I believe there still could be an argument made that the carbon one gives preference over one energy source or another which in your states objectives and purposes is not something that should be done here. WAC 19.27.40 says something like if you're objectives, purposes and whatever else and among other things you're not allowed to give preference over one method or product or that kind of thing and I think there could be a argument made that this one does.

Doug Orth - It seems like your written testimony referenced a piece of software that's proprietary.

Al Audette - That was the thing, we didn't know if it was proprietary because we don't know about the software and that was in our written comments as well.

Eric Vander Mey - The HVAC TSPR software, there is a software being built for that and the current proposal outlines the rules of any software that could be programmed to use that rule that's set in the appendix could be used for compliance.

Doug Orth - Is there software that exists in the system now that can do that TSPR calculation?

Eric Vander Mey - There is another conference call on Monday if there is a beta version that's live that people are testing, then yes.

Chris Van Daalen Exec Director of the Northwest EcoBuild Guild and a Member of the Shift Zero Alliance-The Shift Zero Alliance is a coalition of 29 green building organizations, businesses and other organizations that are strongly supporting a zero net carbon built environment as fast as we can rapidly build it up in a way that's equitable for all the members of our community. I want to start just by saying, and this is not going to be news to anyone since it's in the news every day, but I want it to be on the record that if the building codes and energy codes are to protect life, health and safety, the impact of building carbon emissions on our global climate, are actually causing many people to die, and be injured, and to have their property destroyed. We've seen the fires, the intensified storms. Climate change is real and it's going to intensify in the next couple of decades as this building code goes into effect. The numbers of the Power Planning Council 0.91, 0.97 those are looking backwards at the locked in emissions of the current building stock and I would imagine it projects forward to some extent as well. But what we are talking about with this building code is locking in whatever new buildings are built within this building code and will lock in the emissions for the following decades. The new buildings that are going to be part of that larger number need to be smaller if we are going to pull that number down. I think whether is the 0.7 compromise or the

0.55, those both seem like rational steps toward trying to deal with the very real problem that is threatening the life, health and safety of millions of people around the world, including those citizens of our state. I also want to say that the performance standard that is being considered here will allow the building industry to pursue these targets with much more flexibility and give an ability to set that target but to reach it in multiple different ways depending on the life of the building and its use. The opportunity here to go to a performance based code will help the Code Council and the state of Washington address the problem as we try to meet the mandates of the 2030 70% below the 2006 baseline. You all have done a lot of work on the low hanging fruit of prescriptive solutions and its going to be increasingly difficult to make progress as the years go forward. The ability of the industry to innovate with a more performance based standard allows many different ways to reach that target and to get closer to the mandate of the RCW. Given the fact that we are moving toward a performance standard that we have locked in to the historic building emissions which are much higher than the 0.55. Putting the 0.55 into place now, given the fact that our grid is cleaning up faster than we've expected and there is a lot of new opportunities to accelerate that coming online through the legislature and through utilities its seems like that 0.55 is quite reasonable and I would heartily support that. I also wanted to specifically express my support for the lighting proposal by Mr. Jonlin as he was just discussing and specifically support the performance based standard that is being proposed.

Doug Orth - During the intermission, Brian and I had a conversation about possibly building in future flexibility to that efficiency factor and possibly establishing a blue ribbon of Council members to adjust that factor as necessary over the next coming years. It may be suitable to fall on code cycle years or it might be a five or ten year period but it would be undefined. We are all kind of guessing and speculating what energy generating systems are going to be built over the next several years and that will affect those efficiency calculations.

Eric Vander Mey - The factor is in the code so I am assuming we are going to get code proposals every code cycle as to what this factor is going to be. One idea also is day one of the code in 2020 could be a factor in there, even a separate factor to introduce for 2022.

So I have on the screen my changes I am recommending and I will give you a high low introduction as we go through them. The first one I am proposing is adding the definition of DX dedicated outdoor air system units from ASHRAE 120.16, this is the federal energy code and to be in compliance with the federal energy code we need to have these tables. There was no code proposal, they are not part of the IECC so I am proposing adding those efficiency tables for equipment as well as the definitions that go along with those tables.

Motion

A motion to include DX DOAS definitions and federally mandated efficiency tables from ASHRAE 90.1-2016 for DX DOAS was approved.

Motion	A motion for correlating Section C402.4.1.1.3 with the modified table for fenestration for glazing was approved.
Motion	A motion to delete the last sentence of Section C403.3.5 and move it to new Section C403.3.5.3 was approved with one opposing vote.
Motion	A motion to move current Option 2, Duane Jonlin's proposal for lighting power allowance, in Table C405.4.2(2) as the only option for the rulemaking document was not approved, with a vote of 7 to 3.
Motion	Motion to move forward with three options for maximum lighting power allowance in Tables C405.4.2(1) and (2) per the committee recommendation was approved with one opposing vote.
Motion	A motion to add a reference to Appendix E in Section C502.3 was not approved.
Motion	A motion to refer the above amendment of C502.3 to the TAG was approved with one opposing vote.
Motion	A motion to add a referenced standard for DX DOAS, HRI 920-2015, to Chapter 6 was approved.
Motion	A motion to use a carbon emissions factor of 0.7 for electricity (in lieu of 0.55) and associated changed to all the other sections in the code to correspond with that factor was approved.
Motion	A motion to move forward the 2018 Washington State Energy Code from the recommendations of the TAG and the committee, along with the editorial changes approved above was approved.
7. Council Travel Reimbursement Presentation	A Power Point presentation was given by Jamie Langford regarding the new rules for Council Members and Staff travel options. There was no longer a quorum.
8. Revised process for the review of proposed statewide and local amendments	Richard Brown noted E2SHB 1622 requires that the Council modify how we process statewide and local amendments. Lacking a quorum, staff can work with the Chair on the steps to move forward.
9. Discussion regarding what work the SBCC fees applies to	How does Council wants the State Building Code Fee of \$6.50, the \$25.00 and the \$2.00 fees to be applied and the surcharge to be applied. Doug Orth – Directed staff to work with him and report back to the Council.
10. Staff Report	None

11. Other Business	<p>Doug Orth expressed appreciation for Duane Jonlin’s service and welcomed Kjell Anderson as the new Architect representative and appointed him as the acting Energy Code TAG chair.</p> <p>The Chair directed staff to work with the Attorney General’s office to determine if the off cycle rules become effective at the end of the regular legislative session or July 1, 2018</p> <p>The next Council meeting is January 11.</p>
12. Adjourn	The meeting was adjourned at 1:30 p.m.

Attachments: Overview of Council Process (below)

Group 1 Code Change Proposals:

- [IBC/IEBC Proposals](#)
- [IFC Proposals](#)
- [WSEC Proposals](#)

Review Process for Statewide and Local Amendments
11/26/2018

How does Council want to work with staff?

1. Full Council
2. Executive Committee
3. Chair
4. Other

Options for soliciting public comment:

1. Stakeholder Outreach
2. Stakeholder notification of Council meeting where this will be discussed
3. Other

Options already presented for consideration:

- Adopt every other code (six year rather than three-year adoption cycle)
- Adopt only the energy code on a six year cycle
- Require local Authorities Having Jurisdiction to notify the SBCC of all local amendments