



STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

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STATE BUILDING CODE COUNCIL MEETING MINUTES

LOCATION: DES, Hearing Room 2 Capitol Campus Olympia, Washington

DRAFT

MEETING DATE: October 12, 2018

Members in Attendance: Diane Glenn; Robert Graper; Duane Jonlin, Eric VanderMey, Andrew Klein, Jim Tinner, Steve Simpson, Kevin Shutty; Traci Harvey

Members Absent: Doug Orth; Al French; Leanne Guier; Barry Long; Phil Lemley

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

Visitors Present: Austin Besse, Todd Beyreuther, Jeff Sloan, David Baylon, Dennis Richardson, Joe Mayo, Scott Peterson, Angela Evert, Hank Teron, Ken Brouillet, Jason Callahan, Lauren Burnes, Myer Harren, Kirsten Clemens, Ethan Martin, Joel Baxter, Gary Heikkinen, John Jennings, Neil Strege, Chuck Murray.

Table with 2 columns: Agenda Items and Council Actions/Discussion. Contains 5 rows of meeting details.

of support for it, not only amongst architects but the engineers who put together the code changes for it which is based on the two years of work done by the ICC Tall Wood Building AD Hoc Committee. They took that language and put it forth to Washington State. There is a large group of people, coalitions that worked on this code change proposal, and there's incredible amount of support for it. I just kind of wanted to set the stage for it, as I know we have a few other people that want to speak to it today as well.

Austin Besse with Weber Thompson – We are a 70 person architecture firm in Seattle. In this economic cycle we've designed millions of square feet of new mixed use multi-family and commercial use office projects. Often we work with clients at the feasibility stage to providing an in-depth yield analysis at potential development sites. We often find there is a disconnect between the building heights allowed by local zoning code and the building heights allowed by the current building code. Zoning at times allows buildings that are much taller than what can be achieved cost effectively, given Building Code limitations. To meet the urban growth targets in the State and Seattle's comprehensive plan, and to building density in urban centers where density belongs, we believe Tall Wood Buildings help resolve this disconnect. Type 3A, the most robust of the combustible construction types allows for stick frame wood construction up to 85 feet, we consistently find that concrete and steel construction tends to be a cost effective solution only at heights over 165 feet. As a result of that, our developer clients often stay within the confines of the stick frame Type 3 construction, because concrete and steel doesn't pencil. As a result, in this height between 85 feet and 165 feet, development potential is left on the table. The proposed code changes revising Type 4 Timber construction, would allow teams to effectively build in this critical 85 foot to 165 foot height range. A number of different heights between 85 and 160 occur in many neighborhoods in the city of Seattle. More neighborhoods will be effected with future up zoning. In our design cities, we've found that the structural spans of Mass Timber work especially well with the living unit dimensions of multi-family residential and hospitality buildings. We expect that the demand for Mass Timber will drive innovations of these building products and longer spans will be achievable and applicable to even more building types. The beauty of wood, and the benefits it brings to building occupants and its mitigating impacts on climate change are undeniable. We are here today not to talk about these attributes, but to illustrate that there is a very real need for Tall Wood Buildings, and there's a real place for Mass Timber in many of our projects. We hope that you will pass these Code changes today. Thanks.

Todd Byreuther with Kattera. We are here in support of these amendments and thank you for your efforts. Kattera is a Technology Company that employs about 4,000 globally, with our Seattle and Spokane bases representing the design hub for our company. Our Seattle base consists of approximately 250 architects, engineers and construction management along with other supporting roles are really the creative class focus of our effort on Mass Timber. To compliment that, as you may know, we are building a 2,050 square foot CLT factory in Spokane Valley, with about 150 direct jobs and 50 or so indirect jobs in downtown Spokane. So we're very proud of our comprehensive presence in Washington. I, as a citizen and as a long time participant in the statewide coalition, and in my former role as a state employee of Washington State University, am proud that our state has attracted this investment and is really at the forefront of leading this. The market pool that's represented by the presence of architects and engineers from Seattle is critical in leading in the Code development. We look forward in helping to advance other manufacturers in the State in the complete value chain, We really have strengths from our resources to the finished products. Again, thank you.

Dennis Richardson with the American Wood Council I've spoken to you before so I am going to be very short winded this morning. I wanted to thank you for having this on the agenda, and we appreciate the opportunity. If there are questions that come up from a technical nature, or things that you may have heard about Mass Timber that don't sound right, we would appreciate the opportunity to provide technical input on those areas. As an organization, we published the design and specifications for wood and special design provisions for wind and seismic. We have ANSI accredited committees and do a lot of testing and a lot of engineering. We followed the technical developments of these documents that you're receiving input on. We've heard a lot of arguments from mostly other competing industries, that don't always ring true in the facts. We appreciate the opportunity to provide the facts if some of those issues do come up. Thank you and we appreciate your time today.

James Tinner- Do you know what happened with the Framework building?

Ethan Martin with Woodworks- We provide one on one assistance on Framework. Basically the project failure had nothing to do with Mass Timber. It came down to financing the project. They were using new market tax credits and that whole program fell apart. So the whole problem was purely a financing issue and had nothing to do with the wood and the project.

Neil Strege Washington Roundtable Vice President. We are a large nonprofit group comprised of senior executives from Washington's largest companies. We span the business community in Washington State from Aerospace companies to forest products, finance and the broader business community across the state. In 2017 we did a study partnered with a Boston group, which is a global management consulting firm to study economic development in Washington. What you've heard anecdotally, we found in the numbers. There is a growing and stark urban economical divide in Washington State. We found that between 2011 and 2015. 71% of new jobs were added in the North I-5 corridor. We've become real concerned about rural economic issues. We've identified Mass Timber as one of the ways that we can begin growing a rural economy. We see Mass Timber to be a win win situation for a number of different people and industries and areas. First it's a market for our wood products industry, provides a market for rural manufacturing and development, as well as more efficient and sustainable buildings in an urban environment. I am here in support of the rule you're considering today on Mass Timber and hope that you move it forward and pass it. Thank you.

- Section 1613.5
Amendments to
ASCE 7
- IFC: Section 907.10 –
Fire Alarm Certification
alternative
- IBC/IFC Section
3101/3801 – Passenger
Rail Systems
- WSEC
 - Section C402.1.5 –
UA Calculation
corrections

No public comments

No public comments

No public comments

No public comments

<ul style="list-style-type: none"> ○ Section C404.6 – Pipe Insulation exception for short runs ● IRC: Section R403.1.1 -- Footings 	<p>No public comments</p> <p><u>Rob Graper representing Structural Engineers</u> – I do have a couple of comments regarding this proposal. There seems to be a concern for larger structures, specifically [Inaudible] width. I don't know if it's the intent of the Code to cover every available building size, I think that the current tables cover the common home dimensions. The tables that he proposed are kind of interesting and cool, but I'm not sure they cover every possible scenario I'm not sure we want to go here with this, if you've got some unusual circumstances probably better to hire a design professional to look at it as opposed to codifying this. I'll end my comments there.</p>
<p>6. Unfinished TAG Business</p> <ul style="list-style-type: none"> ● IBC 420.2 	<p><u>Richard Brown</u>- This was brought forward by the TAG because when the proponent rewrote to address the concerns regarding the Group R2 occupancy, the TAG was in the process of disbanding. There wasn't a BFP committee meeting yesterday where this normally would be heard, this was brought forward to the Council.</p> <p><u>Steve Simpson</u> Mr. Chair, at the last BFP committee meeting, staff had the wrong proposal, so we pushed it forward to this meeting.</p> <p><u>Richard Brown</u>- Correct, this is under unfinished TAG business, because the other TAG business has already been brought forward to the Council.</p> <p><u>James Tinner</u>- Can you explain just what the proposal is?</p> <p><u>Richard Brown</u>- There has been recent changes in the distance between the fire partitions in dwellings and sleeping units. While enforcement of the Code language appears to be consistent across the State, there are two conditions that have been accepted and in at least some jurisdictions that bear discussion. The changes to this section are in 420. It clarifies that the building that contains a centralized kitchen should not be classified as a single dwelling unit. For example a five story hotel or a dormitory. Exception 1 It is common and accepted design to allow several bedrooms connected by a common living room, and toilet area to be considered a single unit. Based on the definition of the Unit in the IBC as an interpretation that has been proposed that would eliminate all fire partitions in Group I1, R1, R2, R3 and R4. The proponent believes this interpretation is not the intent and goes a step too far. The term Suite, specifically Care Suite within the IBC describes a condition where corridors and separation walls are eliminated. This condition essentially allows a certain set of occupants to be exposed to the same atmosphere without smoke or fire partitions. This concept comes with a host of activities and staffing requirements and is only permitted in Group I-2 occupancies without this change.</p> <p><u>James Tinner</u>-Is there anyone who would like to speak to this item? Hearing none, What exactly is the proposal on this Richard?</p> <p><u>Richard Brown</u>-The Council is asked to accept this amendment, to reject this amendment, and add what the Council says to our amendment log that is up for public comment.</p> <p><u>Eric VanderMey</u>- So if we accept this, it would move it into the proposed rule for</p>

<p style="text-align: center;"><i>Motion:</i></p>	<p>the Building Code and then would go through the process?</p> <p><u>Richard Brown</u> –It moves it into the public comment realm of Proposals. Yes, if the Council elects to approve this, then it goes to the Rule Process as a Council action, however it is still subject to public comment.</p> <p>The motion to move this forward as a statewide amendment was approved with one abstention</p>
<p>7. Public Comment on Proposed 2018 Amendment and Adoption*</p> <ul style="list-style-type: none"> • IBC/IEBC (see attachment) • IFC (see attachment) • WSEC (see attachment) 	<p>There was no testimony</p> <p>There was no testimony</p> <p><u>Eric Vander Mey</u>- Noted that at last Friday’s Tag meeting items, EM051, EM062, EOM 085, EO 127, EO128, EO130, E0134, EP 141, EC148, E151, E155, E171, Table C406.1, were all recommended for approval with some modifications and clarifications. The Electric Fuel Source was recommended to be submitted for Public Comment.</p> <p><u>Chuck Murray with Department of Commerce</u>- I am an energy policy specialist. I would just like to provide some additional information on the carbon emissions work. I sent to the Council yesterday, a one page summary of what I think the range of the discussion is and I hope that’s informative and I think it helps you make a decision with respect to this carbon emissions number. That document now has a range of numbers in it, and I also consulted with my colleagues, energy policy specialists, who know the range of conversation around these numbers. They acknowledge that when we use more electricity here in the Northwest that we are probably using more of our hydro resources, and as a result someone down in Arizona or some places are probably going into run a gas plant a bit more and those are the marginal emissions that might occur. We also acknowledge that we are trying to reduce the carbon emissions in our buildings. So we’ve also in our research, in this document that Ive provided you, chose a marginal emissions number that is acknowledging the social cost of carbon. It’s in the middle range here of what you see here on the board, its 0.70 is our recommendation. Now I simply ask that you read the document that I’ve provided and see how that works with your decision making process. I do want to add a comment, this is a minor element in a good set of code changes, and while there is some controversy around this, there are two good code changes here and I hope you read the benefit statements provided by the proponent, and I really hope you understand what the changes are before we over emphasis what I think is a very small part of the picture. In closing, I am going to recommend that the Council move forward in the rulemaking following the TAGs recommendations. As I expressed in the last meeting, I’d also like to see the two alternate lighting proposals in the package so that the Council can have some further discussions about those numbers</p> <p><u>James Tinner</u> I assume that the TAG looked at these proposed numbers and they are achievable with current technology?</p> <p><u>Chuck Murray</u>- Yes, sure. There was a table prepared by the folks at Pacific</p>

Northwest National Labs building teams, and they show a range of systems that will or won't qualify the range of numbers that are proposed. The things that fall out of compliance are things that don't comply with Code now, so I think that's worth review as well.

Jeff Sloan Retired Engineer in Washington State- I am familiar with the design of Data Centers. I am a proponent of the change proposal that would adopt the ASHRAE 90.4 Standard in Washington State. I am also a member of that ASHRAE standard committee. The Washington State Energy Code has for over a decade now, emphasized the rejection of heat in the wintertime by imposing an air economizer requirement. This proposal does two things, first of all, if you would consider the computer rooms that are being built today this proposal is to separate the highest power of those computer rooms into a new category called Data Centers. Leaving alone computer rooms smaller than 10KW or less than 150 watts per square foot. Those large Data Centers are by and large the ones we communicate with daily as we ask questions of the internet and get our email and all. They seem to me to be kind of independent of location. This proposal would have the effect of incentivizing Data Center efficiency and recovery of heat from Data Centers. In other words, this proposal asks the questions why don't we put these Data Centers where we need the heat and in so doing, save the energy. Primarily when this is done, we are saving fossil fuels. This proposal would lead to directly accountable carbon reductions in the case of Data Centers that were placed in order to transfer heat to their neighboring buildings, as a project recently demonstrated in downtown Seattle. I'm the fellow that came up with heating the new Amazon building from the neighboring Westin Data Center. That old data center that was in the Westin Building that had been serving customers for many many years, is connected to transfer so much heat to the Amazon buildings that they are avoiding over a million dollars in operating costs for their boiler system. That's a direct reduction of natural gas use. It gives us the opportunity as a society to consider electrifying more. If we can electrify processes that use to require natural gas or fossil fuels to operate, then we are reducing our carbon output. I think in light of the recent ICC report, it might be good for us to start thinking about what a Data Center could do for your building in the future instead of a natural gas boiler. This proposal has the effect of incentivizing Data Centers to do so. The existing Energy Code has the effect of incentivizing customers to use recovered heat in combination, the Energy Code would be offering a double incentive is one way to look at it and I hope no one has a problem with that from the recovery of heat and fossil use.

Dave Baylon- I am a member of the TAG and a former employee of Ecotope in Seattle. I want to speak briefly to the C407 Carbon table. Partly because I want to be clear about what it is we are doing and not doing, and partly because I have certain specifics about what I'd like to see happen. The purpose of the C407 is to allow tradeoffs among systems in buildings. That's the general idea, it's not used extensively in the past, although in this format it's meant to be used more extensively, especially for larger or more complex buildings. The carbon table or any table in that place, the structure of C407, that table basically gives you the values associated with the individual energy use predicted in the modeling. In our current system we just say "Oh you use 12 kWh's of electricity and 15 of gas and the total is now 27. In this table, every place it exists in the table besides Washington, the site energy is not used, but some other factor is used, cost, source, etc. This is an effort to make a system that would actually be something more responsive to the goals of the State of Washington namely to limit the carbon emissions at least to our new buildings in accordance with Governor Inslee's and former governor's policies. There's two different things going on here, one is, what

are the carbon impacts of all the things we know carbon are in, such as gas, oil, etc., and those are not the issue. The physical carbon is being used in the table. The problem is electricity. We've got coal, we've got gas, we've got hydro, we've got solar, etc. These all come in at different times, different weights throughout the year and more or less hourly. There's a lot of different ways to do this analysis. The way that it was done by the TAG, it took the average emissions electricity projected into the 2026 time frame for the State of Washington. It more or less increases what we think are the carbon impact of electricity in Washington right now as described by the Department of Commerce, it increases it by 20 or 25%. That's what the point 55 is that you see kicking around here. That said, there are several other different analyses that could be done. One is, let's take the worst hour or the average of the worst hours that might have happened thru out the Western grid and figure out what the amount of carbon net was required in that hour. That's what the .97 is. In between those two numbers is the social cost of carbon numbers, which the Department of Commerce is talking about now. And those reflect the same analysis that went into the hourly model. They place the value of carbon, with the social cost of carbon which is based in the Federal Registry around 50.00 a ton. Roughly 3 times what the 1631 tax would be. It places a value on that as a social benefit or cost. That number also had a range on it, the top of that range was 0.7. I'm pretty convinced that the average carbon emissions is the correct number. However, I am also convinced that the [inaudible] in terms of making the goal and what type of systems efficiencies we actually advocate for inside of our Code and performance values that those can be met with a higher number than 0.55. In all of these numbers it severely disadvantages our resistant heating in every application. The question of when we electrify using waste heat as the Data Center proposal uses or using high efficiency heat pumps or what not. When we get to the point of having enough efficient systems there, then it should be able to compete favorably with alternative combustion sources and at 0.55 that always happens. At 0.70 it happens often enough that it's probably acceptable at least from my perspective. As Chuck pointed out, I am very concerned about our lighting tables as we passed them out at TAG. Having the three lighting tables to go forward into the review process is crucial to the overall savings in the Commercial Energy Codes in this cycle.

Gary Heikkinen with Northwest Natural I am also a member of the TAG, I attended the meeting last Friday. I was the one who proposed the higher numbers, the 0.91 to 0.97. First of all, the two proposals, the performance path and the total system performance ratio are both good. I support certainly proposal 141, which is the performance path using the ASHRAE 90.1 I think that's a good method, the total system performance ratio. I am on record with some concerns on that, and those are available. However I do think the method itself is a good method, my concerns were the complexities that it adds to the prescriptive path. What I really want to talk to is the carbon emissions factor and I appreciate your patience in listening to me again on this. I do have a one page handout that I have available, and Krista, I did email you something this morning, a graph to help explain this issue of marginal versus average emissions because it's not a subject matter that a lot of us are familiar with and can really wrap our arms around. I tried to figure out a way to explain it more simply if I could. I tried to get it on one page here, and it's on the left, an example daily load shape of electricity from midnight to midnight. the red line on the top, is the changing demand on the electrical system and the different resources that are serving that demand. Along the bottom in gray, these are base loaded resources and here in the Northwest there's a lot of hydro in there, there's some nuclear, and probably some coal and they baseload some of those resources. On top of that, it's supposed to be in blue but it looks kind of grey, are examples of the wind resources. The yellow there in the middle, the solar, the rest

of it are really the flexible resources that have to be turned on and off at particular demand. What I did was take a little slice out of that demand, and I moved it over to the right and explain what kind of happens. When we add a building or a system to the load it adds to that demand or to the red line on the top that needs to be met by some resource. It adds at the top or at the margin. Certainly when that building comes onto the grid, it will be served by all of the resources there the base load resources, the solar resources, the wind resources and all of those marginal resources. What that new load has done, it has effected only the marginal resources, it hasn't affected the baseload resources, the solar or the wind. We use as much of those resources as we can, when we can. So it really only effects what's providing the energy at the top of that curve, the margin. What I've also shown there is that we've got a new load that increases the demand at the margin and if we're doing our job with energy Codes and energy efficient programs, if we build that building better than the building we built five years ago, it will perform better, it will save energy, and I've shown a little sliver at the top there, that's the energy and emissions we are saving and avoiding. As a result of the improved energy efficiency programs. That, according to organizations like the EPA, ASHRAE, and the Northwest Power Council, it's the marginal emissions at the top there, and that's the measurement that should be used when evaluating energy codes and energy efficiency programs. Down below I put the Northwest Power Council report that was from 2018. When they ran these they ran simulations for the year 2016, 2021 2026 and 2031. They did it for every single hour of the year, and they considered 80 different hydro conditions in this massive analysis that they did. Then they did two different scenarios, present policy and then a social cost of carbon scenario. There present policy as you see on the bottom there, came up with factors of 0.91 to 0.97 between the years 2021 and 2031, and baked into that analysis is the cost of carbon. That was based on the California market that varied from \$11.00 to \$23.00 per ton. If measure 1631 passes here in Washington, you will have a carbon tax of about \$15.00 a ton starting in 2020, so it's right in that range. The social cost of carbon baked into it is between \$45.00 and \$66.00 per ton. That's where the numbers range from 0.55 to 0.70. I would say that's a very speculative scenario to adopt. I think it's very valid to use the social cost of carbon that Washington does in cost benefit analysis. But to assume the actual cost of carbon is going to be in that range, I think is very speculative. I think it's much more likely that the cost of carbon if it does show up, will be in the \$11.00 to \$23.00 range. To make your jobs a little bit harder, I'm proposing that the numbers need to be somewhere between 0.91 and 0.97. That truly is the marginal emissions that we will avoid in the State of Washington by approved energy codes.

Jim Sloan- I was just noticing when you [Gary], were talking about the hydro, and we talked about the solar, you mentioned we were using as much of that as we can. Is that true of solar?

Gary Heikkinen- I would say yes. Whatever solar is on the grid today, I believe we are using that as much as we can, whenever we can. I don't think there's anybody out there turning their solar panels on and off, and so I would say yes, we use as much of the renewables as we can, when we can. That's the purpose for having them in there. There's zero emissions resources, and we want more of those on the grid. As we get more of that on the grid, the grid is going to continue to get cleaner and those emission factors are going to improve.

Eric VanderMey- My question is, and I don't know if the TAG has talked about, should we have one factor for the state, or should the factor be determined by the utility that serves the building?

	<p><u>Gary Heikkinen</u>- That's a great question. I don't know how you would incorporate that into the code. You would have to have each utility provide what their marginal resource might be. What the Northwest Power Council did though, because we don't have grids that just stand alone, it's an interactive grid on the western part of the United States. It goes all the way down from California to British Columbia, and frankly what happens in Washington affects what happens in California and sometimes the Southwest. If we are using more of the hydro resources that we have up here in the Northwest, that we would like to send down to California, if we don't have those to send to California, they are going to try to find power from somewhere else. It might likely come from a coal plant in the Southwest. I understand about individual utilities, but it is one grid. What's done here has effects in other places, in other states, and it is one global CO2 atmosphere, that we're trying to reduce. I really think a regional number is a good number to use.</p>
8. Staff Report	<p><u>Richard Brown</u>-</p> <ul style="list-style-type: none"> • Per the Council's request, staff approached the State Auditor's Office (SAO) regarding jurisdiction compliance with SBCC fees. SAO noted that they do not do this. • A 2018 fiscal year budget summary was presented (attached) • Staff is waiting to update the SBCC web page until assured that the actual revenue increase from increased fees matched that anticipated. • Staff is working with the SBCC Executive Committee in preparing the ESHB 1622 required report to the Legislature regarding Code Adoption Software analysis. • Staff intends to start the Council Process Modifications to the Review Process of Proposed Statewide Amendments and Review of Proposed or Enacted Local Amendments required by ESHB 1622 at the next Council meeting. • Staff is working with stakeholders and the DES contract team to develop a Request for Qualifications and Quotes (RFQQ) to develop the energy code baseline economic analysis required by ESHB 1622 • Staff is developing a draft Construction Energy Consumption Reduction Report to the Legislature that is due December 31, 2018 (RCW 13.27a.160)
12. Other Business	None
13. Adjourn	The meeting was adjourned at 11:40a.m.

Note: This is not a formal public hearing due to the timing of the proposed rule filing, but we take public comment and forward those comments to the hearing process. The comment period is open through October 26, 2018

Attachments:

1. 2018 Budget Summary
2. Group 1 Code Change Proposals:
 - IBC/IEBC Proposals
 - IFC Proposals
 - WSEC Proposals