



STATE OF WASHINGTON

## STATE BUILDING CODE COUNCIL

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### STATE BUILDING CODE COUNCIL PUBLIC HEARING RECORD

**Hearing Date and Time:** Friday, March 11, 2022, 10:00 a.m.

**Council Members in Attendance:** Andrew Klein, Chair; Tony Doan, Vice-Chair; Jay Arnold; Al French; Jim Millbauer; Kjell Anderson; Bob Hamlin; Caroline Traube; Micah Chappell; Todd Beyreuther; Lorin Lathrop

**Staff in Attendance:** Stoyan Bumbalov, Managing Director; Krista Braaksma; Ray Shipman; John McEntyre; Annette Haworth

**Others in Attendance:** Adam Hutchinson, Alexis Markstrum, Ali Lee, Allison Skidd, Alona Steinke, Alyn Spector, Amy Wheelless, Andi Burnham, Andrea Smith, Ann Fletcher, Annemarie Dooley, Annie Phillips, Arvia Morris, Avaly Scarpelli, Barry Jostol, Bob Gunn, Brian Emanuels, Brian Healow, Bridgette Dodge, Bruce Swiecicki, Bryan Ahee, Caren Johnson, Carolyn Logue, Carolynn Moody, Catherine Adler, Cathryn Chudy, Chris Boroughs, Chris Hawes, Chris Russell, Claire Richards, Coleen Anderson, Cory Fong, Dan Dettmers, Dave Kokot, Dave Nehren, Dave Stecher, David Morton, Deepa Sivarajan, Den Mark Wichar, Diana Perez, Doug Tucker, Dylan Plummer, Elizabeth Burton, Elly Claus-McGahan, Eric Vander Mey, Gavin VanClifford, Gerald & Patricia Brown, Gregg Small, Gretchan Blum, Helen Walter-Terrinoni, Holly Bender, Holly Townes, Ian Casey, Isaac Myhrum, James Abraham, Jason Pritchard, Jason Thomas, Jay Bremner, Jeanette McKague, Jeff Kleiss, Jeffry Berner, Jerry Butler, Jesse Piedfort, Jim Hedemark, Jim Kupsh, Jim Kupsh, Joëlle Robinson, John Frankel, John Rothlin, Jonny Kocher, Kathleen Petrie, Ken Brouillette, Ken Zirinsky, Kevin Duell, Kevin Rose, Kevin Teakell, Kimberly Larson, Kinley Deller, Kirsten Smith, Kurt Swanson, Kyle Bergeron, Larry Andrews, Laura Petrillo-Groh, Lena Anderson, Licett Garbe, Liz Reichart, Luke Howard, Madeleine Stephens, Mark Gjurasic, Mark Hanson, Mark Lessans, Mark McGinley, Mark Murray, Martin Gibbins, Mary Hull-Drury, Matt Solak, Matthew Romanow, Matthew Thornblad, Mazvita Maraire, Michael Lilliquist, Michael Rosenberg, Mike Fowler, Mike O'Brien, Millie Magner, Mike Kennedy, Nathan Ellis-Brown, Neal Anderson, Nick Engelfried, Pamela Colley, Quinn Thomas, Rachel Koller, Robert Glass, Robert Novak, Roberta Rominger, Rosemary Sweeney, Rupal Choksi, Ryan Carroll, Ryan Smith, Scott Novak, Sean Denniston, Seth Vidana, Simon Bakke, Stephanie Noren, Stephanie Barnard, Steve Borman, Tena Risley, Terry Beals, Tess Studley, Todd Allred, Tom Young, Tonia Sorrell-Neal, Zoë Whidden

<b>WAC 51-50, Adoption and amendment of the 2021</b>	<b>WSR 22-02-040; The proposed rule adopts the 2021 edition of the International Building Code, published by the International Code Council, with state amendments to incorporate proposed changes as adopted by the Washington State Building Code Council. The rules will</b>
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<b>International Building Code</b>	<b>provide increased clarity and life safety measures for building construction in Washington State.</b>
<b>From:</b>	<b>Testimony</b>
Gerald Brown – Labor & Industries Elevator Program	<p>I am the Chief Elevator Inspector for the State of Washington. I am here to speak against the proposed changes that diminish fire and life safety as it pertains to the elevator riding public. There is a long-standing requirement found in the NFPA 13 - “Standard for the Installation of Sprinkler Systems” Section 9.3.6.3 that is there to provide a level of safety, being overlooked recently with an Emergency Ruling CR-103E to eliminate crucial fire sprinklers located in elevator pits and machine rooms. Along with the requirement for Shunt Trip breakers which remove power from the elevator system after elevator arrives at the lobby and the passengers have exited. The rationale listed in the justification for this change doesn’t consider the changing elevator technology of products now being installed which allows machine-room-less hydraulic elevators, which have the oil tanks in the hoist way and pit. The elevator industry is depending on the provisions of NFPA 13 to be in place and NOT amended. Perhaps the fact we don’t hear about pit fires is because these NFPA life safety code requirements work. The sponsors of this unjustified Emergency Rule are apparently still upset because my department went to bat and made them put in the required sprinklers in a new elementary school elevator pit and machine room. Actually, they were installed, and they told them to remove them. Now they have come to this body and are trying to put this unsafe practice into place for the entire state. They say it’s about money. I’m quite sure we’d save a whole lot of money if we removed the entire sprinkler system from the entire building instead of one sprinkler head in the pit and one sprinkler head in the machine room. I am asking that the revisions proposed in WAC 51-54A-8000 be revised to reinstate this NFPA 13-2019 requirement noted as (except 9.3.6.3(5)). This Emergency Ruling CR-103E to eliminate crucial fire sprinklers should also be repealed. I repeat, as the Chief Elevator Inspector for Washington State, I speak against the proposed changes that diminish fire and life safety as it pertains to the elevator riding public. My department wasn’t invited to participate in any of the discussions that promulgated this Emergency Ruling based on no known emergency. The emergency they cite seems to be based on the cost of adding 2, just 2, essential lifesaving safety sprinklers as outlined in NFPA 13 for years. I’m pretty sure the code requires a sprinkler the janitor’s closet. I don’t think it’s too far of a stretch to think the potentially burning elevator hoist way pit, where human beings are trapped in a box of the same size as the janitor’s closet, deserve any less of a consideration for safety.</p>
Micah Chappell – Seattle Department of Construction & Inspection	<p>I am the Technical Code Development Manager. The first public comment that I put in is a change to 1110 of the IBC. The first change is a strikethrough of the last sentence in one of the sections of Chapter 29, in striking a Washington Amendment. We are seeking to revise the original code proposal based on disapproval of a similar code change at the 2024 IBC Group A Committee Action Hearings. The original proposal was seen as an unnecessary as an increase in the required number of accessible restrooms. Accessibility advocates at the committee action hearings noted that this provision was about availability of accessible restrooms,</p>

	<p>not about counting restrooms. For clusters of multiple single user toilet rooms, this proposal was an unnecessary increase in stringency. Where you have clusters of single user restrooms, those single user restrooms per IBC Section 2902.1.2 are designated as all-gender use. This change modifies the percentage from 50% to 5%, although this does sound significant, we can show you in a table that the numbers still remain the same. As an example, if you provided 10 single user restrooms in a cluster five of those would be required to be accessible, which is excessively restrictive and doesn't meet the intent of this code section. Where, if you have 5% of those to be accessible then only one toilet room would be required to be accessible. This does meet the intent of this section and was indicated by the accessibility advocates as meeting this requirement. Most of the time you're going to see the single user clusters in small restaurants, where there's two or three single user restrooms and when you get into that number, you can obviously see that the 5% would still provide the one accessible toilet room that the code intends. Our next code change proposal or public comment is on Chapter 29 as well, and it has to deal with the urinal requirements, this is for an alignment of the Code. WAC 51.50 covers Chapter 29 of the IBC, and it does not have a requirement to provide any urinals as past and current State Amendments remove those portions of Table 29.0.2.1. This public comment proposes the same technical change for urinals and men's facilities and for urinals and all gender facilities. Our state amends Chapter 29 with our own language for urinal substitution. We allow a one-to-one substitution of urinal for water closet. Urinal substitution is permitted for up to 75% of required water closets in all gender facilities. The last sentence, which is where the inconsistency lies, makes urinals a requirement for substitution when you have 26 or more occupants. We're just looking for this public comment to align with Chapter 29, urinal requirements, with what is already currently adopted and amended at the State.</p>
Dave Kokot	<p>The item I would like to bring up today is dealing with the elevator sprinkler pit requirements for the NFPA 13. We have heard some testimony or heard some comments from the State Elevator Inspector regarding the proposal that went through the Fire Code TAG to remove the requirements for sprinklers for hydraulic pits. We did a considerable amount of research for this, the Fire TAG spent a number of hours, we had testimony during those hearings we've had prior hearings, we also involved the State Fire Marshal's office. In addition, the particular issue that was brought up was it was an issue between the City of Spokane and the State Elevator Inspector, where there was an agreement, previous to the current Chief Elevator Inspector, to allow us to not require sprinklers elevator pits. So, if we had no history of fires in the pits, we had no problems with a buildup of debris, any leakage, or anything like that and elevator pits are clean and have never had an issue like this. The current Chief Inspector has determined that meets requirements of NFPA 13, in meetings with him. The agreement was that if you were able to remove requirement for sprinklers in the pits, he would support that. Apparently, that is not the case at this time. The Fire Service, not just the City of Spokane is fully behind removing the sprinklers in pits in elevator shafts. It's currently an Emergency Rule and we encourage the State Building Code Council maintain that and get it into the current Code.</p>

<p><b>WAC 51-11R-40310 Prohibition on gas fireplaces with continuously burning pilot lights within the 2018 Washington State Energy Code, Residential provisions</b></p>	<p><b>WSR 22-04-089; The Council is considering changing the date that gas fireplaces will need to comply with the prohibition of standing pilot lights. The rule requiring the removal of standing pilots went into effect February 1, 2021. Due to the current shortage of microchips, the Council has adopted an emergency rule exempting this industry from compliance with this adopted code requirement. The industry has requested that the exemption be extended.</b></p>
<p><b>From:</b></p>	<p><b>Testimony</b></p>
<p>Carolyn Logue – NW Hearth, Patio &amp; Barbeque Association</p>	<p>We've talked a couple of times, to the group, as we look at the emergency orders on this. Our retailers, our manufacturers are still reporting to us there have significant problems and getting the chips and the items needed in order to move away, completely, from continuous pilot light ignition as per the Energy Code. So, as we stated, we asked for kind of a one-year delay, I think this goes until September, one year from the time we originally asked. And we are hoping that you will continue forward with this permanent so that we can continue to try to see if we can't build back some supply in the chip market, in order to meet the demand for the products that are happening in our retailers. It's creating a real disruption in our marketplace, right now. I'm going to be very brief and let some others, who are more experts than I, speak.</p>
<p>Ryan Carroll – NW Hearth, Patio &amp; Barbeque Association</p>	<p>I'm the Vice President of Government Affairs. Largely echoing what Carolyn Logue had to share with you guys. I do have a couple of members on board with me, but I did want to thank the Council for the early consideration last year. Being one of the first North American jurisdictions to contemplate relief here as we dealt with raw material, computer chip issues, and supply chain shortages. I think, certainly, the hope was that this wouldn't be a yearlong issue, but I think everything today is borne out that it's at least as much of an issue as it was six months ago, when we considered the emergency relief Carolyn mentioned. The permanent relief, meaning a one-year period of relief, I think it's still very warranted and necessary from industries perspective. If there ever were an opportunity to discuss a further extension beyond that, that might be something we would be interested in, but not something we're coming to you with formally today. Industry does support the continuation of this relief to the one-year mark as contemplated by the Council, several months ago. With that, I would add, maybe one of my members could speak, the more acute issues they're facing.</p>
<p>Matthew Romanow – Innovative Hearth Products</p>	<p>I'm Director of Engineering for a Washington State manufacturer of hearth products. We use these renewable systems and the intermittent systems extensively, I can tell you, as a manufacturer, there isn't a day that hasn't gone by, in the last year and a half even, where we have to contemplate shortages in all of our purchase parts. Any relief or extension of relief that can be granted in any area is something we support very much. I'm just here to tell you that we very much appreciate any relief for however long it can go on.</p>

<p>Jim Kupsh – NW Hearth, Patio &amp; Barbeque Association</p>	<p>I work for a manufacturer of the control components that supply fireplace manufacturers, such as MAC. So, my comment is that the issue with the electronic systems continues specific to component delivery. We had hoped to see relief, as Ryan mentioned, by this point in time. We're still experiencing up and downs, so the ability to produce standard millivolt, continuous pilot product has been a savior for numerous of our customers. Just as a point in fact, that category, we had over a 50% increase in volume usage in 2021 over 2020, and so it has been a great savior for people being able to, fireplace manufacturers being able to continue to keep production lines moving and people employed. So continued relief, as Ryan asked for, is a very good thing for the industry.</p>
<p><b>WAC 51-11C, Adoption and amendment of the 2021 Washington State Energy Code, Commercial</b></p>	<p><b>WSR 22-02-076; Update from the 2018 edition of the Washington State Energy Code to the 2021 edition, incorporating changes from the 2021 International Energy Conservation Code and those code changes submitted to increase energy savings and provide better clarity. There are a few instances where two or more submitted proposals that were approved conflict, and options are provided. Testimony on the preferred option is requested</b></p>
<p><b>From:</b></p>	<p><b>Testimony</b></p>
<p>Amy Wheelless</p>	<p>I am a policy analyst with the NW Energy Coalition, a public interest nonprofit working on energy policy in the Northwest. I am here today to express our strong support for the proposed package of changes before you for the commercial energy code. I was the public interest representative on the Technical Advisory Group and participated in meetings to determine which proposals to advance for this update. In that role, I saw most members of the TAG and attendees worked in good faith to review and refine proposals that were submitted. I want to thank Kjell Anderson for his work to manage and facilitate this process, which I thought he did in a very fair and productive way. And thanks to the SBCC staff for managing this very complex process. The package before you is very strong and a well-supported code, and I urge you to pass it in full, including the stronger proposals for heat pump water heaters and concrete masonry walls. Most of my job is focused on utilities and energy efficiency programs and policy. Energy efficiency is important to utilities and to their customers because keeping our energy reliable, affordable, and on a transition to being cleaner means using our resources most efficiently and responsibly. We know that strong energy codes are a key piece to that puzzle, which is part of the reason the legislature has directed our code to become increasingly more efficient over time. There are a number of changes in the code before you that will help buildings run more efficiently. This includes a number of envelope improvements, but also the use of heat pumps and heat pump water heaters, which deliver benefits in the form of lower emissions and better efficiency. While we are in support of the whole package, the heat pump and heat pump water heater proposals have obviously received the bulk of the attention, so a few points of note from the perspective of someone working on energy policy in the Northwest. The proposed changes affect newly constructed buildings and some limited cases of alteration. These represent about 2% of the new building stock, and would start affecting buildings being permitted in 2023, but not being fully constructed until</p>

	<p>2025 and later. One thing I know about utilities is that they love to plan, and in fact develop resource plans every two years to assess the situation for new load. Utilities are already planning for increased uses of electricity for transportation and buildings that are being driven by market demand and policy changes. The changes before you do not fundamentally change our energy system, nor are they requiring changes to most existing buildings. What these changes will do is have new buildings use the best technology we have now, with reasonable exceptions. I and my organization take an “all of the above” approach to decarbonizing our gas system, and these changes do not preclude utilities from starting to use RNG and hydrogen in their system in the coming years. However, all indications are that these products will take time to come online, and they are best used in places where it’s going to be more challenging to use electricity - new commercial buildings are not where we should prioritize these fuels, nor should we wait around to find out if it makes sense. These changes are also in line with other state law that direct emissions to reduce. Our state’s climate commitment act will provide a declining allocation of allowances to gas utilities, requiring them to figure out a plan to decarbonize their system quickly - free emission allowances are expected to decline 7% per year between 2023 and 2030. Continuing to build out the gas system will make it more challenging to comply with the law and puts more risk on existing customers. Finally, one topic that was likely not at the forefront at the public hearing but is increasingly salient - energy security. Continuing to build with fossil fuels has always put us at some risk of energy insecurity due to its supply chain issues, but I think we are all more cognizant of these issues.</p>
<p>Alyn Spector – Cascade Natural Gas Corporation</p>	<p>I'm External Affairs Manager and my comments are regarding our opposition to commercial provisions, 21GP1-136 and 21GP1-103. Cascade serves about 222,000 customers in 68 communities across Washington. We're committed to pursuing innovations to help decarbonize the fuels our system delivers and the buildings and businesses that operate with those fuels. Our energy efficiency programs have resulted in reductions of about 4,000 to 5,000 metric tons of CO2 each year. That's the equivalent of about 600 home's annual energy usage. We do oppose the proposed bands on natural gas space and water heating equipment and new commercial construction, because those proposals if they are passed, would challenge resiliency and grid reliability, they would stifle innovation and result in narrowed options for greenhouse gas emissions reductions and commercial buildings as gas technologies continue to evolve. We're dedicated to reducing our greenhouse gas impacts, as part of a decarbonize future. I think, as the last comment or a reference policy does exist today that's going to continue to shift natural gas utilities toward decarbonization. In the same way that policy exists for the electric sector, we have the Washington Climate Commitment Act that takes effect January 2023. And that sets limits on greenhouse gas emissions allowed by regulated entities, including natural gas utilities and increases those limits over time. The Department of Ecology is currently engaged and rulemaking on the details of the CCA and the Utility and Transportation Commission is studying natural gas as part of decarbonize future and that's expected to be finished next year. So, we believe these deliberations to be allowed to</p>

	<p>continue before ban of gas equipment is considered. Cascade truly looks forward to continuing to provide safe, reliable, affordable, and increasingly decarbonized gas fuel solutions to our Washington customers.</p>
<p>Mike O'Brien</p>	<p>I am a volunteer with the Sierra Club. I'm also a former Seattle City Council member. I'm here to testify in support of adjustments to the Energy Code to further restrict fossil fuel use in buildings. I'm speaking to this because the climate crisis is real, as I think everyone is aware of, by now, and the fastest growing source of admissions in the State of Washington is from the building sector. The great news is that we already have the clean technology to make homes comfortable, in fact more comfortable, than we can with existing technology by switching to heat pumps and that will immediately reduce our carbon emissions. I understand folks that want to delay that transition, but I just want to urge folks that the urgency around this is critical, and I firmly believe that, within a short number of years, we're going to be requiring folks to retrofit buildings to remove fossil fuels from those buildings. We're doing those building owners, whether their developers or people that purchase it soon, a disservice by allowing folks to put in a technology that uses fossil fuels when that's going to be required to be retrofitted later. And the reality is it is already cost effective to be doing that, today, in the buildings. I hope you guys will move forward. You'll hear from others, today.</p>
<p>Mike Kennedy</p>	<p>I'm representing NEEA, this morning. We will be submitting written testimony, documenting a lot of editorial issues that came up in our reading of the Code. These range from typos to a little more substantive English issues. None of these are supercritical, but they are areas of the Code, that if the Council could find time to remedy them, it might improve the process of code implementation when we get around to actually training people on how to use the Code. It might save a Code meeting or two, in terms of interpretations as well. I also wanted to comment on the CMU proposals, or options. CMU is returning, I think, for good reason, it's a common wall type, it's poorly insulated. The CMU wall, you know with chlorophyll installation is about like a metal frame window, which we limit to 30% of the building, for good reason. To allow all the walls to be CMU of this type is a pretty big hole in the code. We're really have aggressive Code goals, we're really putting pretty tight restrictions on pretty much all systems that we're building except CMU walls, where we've actually gone backwards. Since 2009 Code actually required continuous installation in Zone 2, and that's no longer the case. I really think it's time to address CMU walls. Option 1, I think is, well let's compromise by forcing, by saying you only have to insulate if you're finishing a surface means that the installation is even more cost effective because that finishes a big part of the cost of insulating the wall. They're also giving up one of the durable surfaces, which is one of the drawbacks of insulation. So, if they're finishing it, they're kind of doing that anyway. I think that Option 1 is a very easy compromise. I actually feel like Option 2 should be seriously considered. A lot of other areas of the country have required, do require installation on the CMU walls, just like any other mass wall and somehow there's still CMU walls built in those areas, and they can still comply or have some of their walls, based on component performance or C407 and if they're actually only semi heated, they don't need while installation at all. So, I think that's a good. And I'll throw out one third option, which would</p>

	<p>be to just simply remove school gymnasiums and the storage and retail warehouse categories from the current list of accepted spaces. That would be a majority of floor area and it's the spaces, that when they're heated, they're really heated. Please give the CMU wall options, a serious consideration.</p>
<p>Claire Richards</p>	<p>I'm a neuroscientist and a mother of a six-year-old, who will inherit the infrastructure that we build today. We live in Spokane, Washington, an area that is severely impacted by poor air quality due to wildfire smoke. And I am 1 of 140 healthcare professionals who signed the letter supporting the requirement for efficient, electric heat pumps for space and water heating in new commercial and large multifamily buildings. There are many details in that letter about the health considerations for heat pumps electrification. Others have already shared the health impacts of indoor air pollution from gas on human health, and I think you're already aware of the wide ranging and worsening health impacts of climate change due to ongoing burning of fossil fuels, especially methane. I want to share a little bit about how I've been personally impacted by methane. When we moved to Spokane in 2020, we could not find a home that was all electric, so we ended up buying home that has a gas furnace and a fireplace. It's like basic building types that are here for homes. And there was a dangerous gas leak that the HVAC inspectors could not find. We called them and they inspected and said everything's fine, but we kept smelling the smell of gas. We ended up living with this gas leak for about two months before we finally said, let's get the utility people out here and they found it and fixed it. But we could have died or the people who were living in this home before us, with the gas leak for who knows how long, may have died as well, if we hadn't figured this out. The second thing that happened was that the exhaust from the gas was being let out under the back stairs of our house and whenever we walked outside, we would get hit with all of the noxious chemicals from the burning of the methane and then it would come up into our house, when we left the back door open, and I could smell it even just working on other side of the yard. We eventually rerouted the exhaust so that went out the side of our house, but now our neighbors are exposed to pollution from our gas furnace, and we are also exposed to the pollution from the gas furnaces of our other neighbors. Another problem with the building design here is that we have a lot of wildfire smoke, so when there is an AQI of 500, in 2020, and seven days of hazardous air quality. We had a lot of the smoke coming in through our fireplace, into our home. We could not prevent that. That is a level of air pollution that is extremely hazardous. And I have a young child who is going to be, who has for most of his life has been exposed to poor quality. So, a systemic change toward more efficient buildings with electric heat pumps is needed, for the health and wellbeing of all but especially children, who are going to inherit this infrastructure and the decisions that we make. This first step is very much needed, and I support it.</p>
<p>Den Mark Wichar</p>	<p>I am in Vancouver. Well, it's been said that we learn from history that we do not learn from history and surely at this point in our timeline as a species, history is being written really quickly. One of the lessons to be learned, if we're paying attention, is that fossil fuels make us dependent, make us vulnerable, and even make us complicit in the sufferings that go</p>

	<p>on everywhere in the world, not just currently in Ukraine, but everywhere. So, I hope the lesson is being learned and that we should move as quickly as possible while away from fossil fuels toward electrification. So that we are more independent. So that we are less vulnerable, so that we are not complicit in the suffering of people around the world. So, what, as far as this particular meeting is concerned, what to do, require heat pumps.</p>
<p>Roberta Rominger</p>	<p>I am the pastor of the Congregational Church on Mercer Island. My church colleagues and my sustainability partners on Mercer Island are with me and asking you to support the code changes under consideration in this part of our hearing. Like many other speakers, like the previous speaker, I believe that continued dependence on fossil fuels is a dead end for us economically, environmentally and I'd like to add spiritually with so much precious life on our planet now at serious risk of extinction. How can we, with good conscience, initiate new fracking for natural gas, given what we know today, especially if it's to happen on tribal lands. Washington State has been a leader in addressing the climate crisis, I've been proud of that. There's a lot of leading left to do. But my support is coming from a personal place, two places; one is that we lost one of our church members to heart failure during the Heat Dome last June, it made the climate crisis really close to home. But even more immediately, our gas furnace here in the church broke down this winter one month out of its warranty. We looked at replacing it with the heat pump system \$150,000 for a building our size. Needless to say, we're patching up the old furnace, \$1,000 dollars here \$2,00 there. That technician is here right now. I think we've spent \$5,000 this winter. We're just watching our resources hemorrhage away on a system that we know is harming the planet. We've got solar panels on our roof, we've been out marching and campaigning and collecting signatures at the farmers market, inviting the Community to come in and watch documentaries, hosting recycling events, but for keeping warm in our own building, we're stuck. We're a public building rather than a commercial one but changing this code will save managers of big buildings in the future from this particular anguish between their environmental conscience and what's feasible, they won't have to decide. More than that, here in Washington, we can help kick start the economies of scale that will make new technologies, clean technologies more affordable for all of us. Hopefully, even for those of us who one day will retrofit. As heat pumps become commonplace innovation will grow. I disagree with some previous, from the previous week's session, who said that the codes are going to stifle innovation. Surely, they will push our creative efforts in the right direction. And when better solutions are available, better than this, we can change the codes again. Please adopt the new codes.</p>
<p>Millie Magner</p>	<p>I am a resident of Seattle and a volunteer of the Sierra Club. I speak in favor of the new building electrification and especially the heat pump proposals. Sierra Club and our allies have collected about 5,000 signatures in favor of the heat pump proposal. Personally, when I was growing up whenever we had a good idea or we're doing a good job, we were rewarded with the accolade, now you're cooking with gas. We thought cooking with gas was the best thing ever, that it was safe, that it was clean. We were cajoled into thinking that it was good for us, safe for each of us, for our environment and for our children, but now we know</p>

	<p>better. Each time we turn on our gas ranges, the gas combusts in our kitchens, with the resulting pollution affecting all of us. I am an asthmatic, my mother died as a result of COPD, and according to the CDC, chronic lower respiratory disease, primarily COPD, was the fourth leading cause of death in the United States in 2018. Regarding asthma, a coalition of research and advocacy groups released a new literature review of two decades worth of peer review studies, found children in homes with gas stoves have a 42% increased risk of experiencing asthma symptoms. My father would not let his own brother smoke inside of our house when I was a child, no way would he have allowed a gas range had he known the dangers that posed to his children. We, that is, you the State Building Code Council, have the opportunity to protect thousands of children by enacting building codes that require electrification of all new construction in our State. Please, if not for me, not for our fragile environment, please do it for the children.</p>
<p>Chris Boroughs – Puget Sound Energy</p>	<p>I'm a TAG member and a Senior Business Account Manager. I have over 25 years' experience in the electrical construction and utility industry. PSE spent the last year, working with utilities across the state to help the SBCC and Energy TAG develop new codes and meet our shared energy goals, while maintaining an affordable, robust electric system. It's critical that we understand the consequences of code changes so that we can mitigate and still meet our energy goals. Today, I'd like to talk about the effects of proposals, like the electrification ones contained in the CR102s, and the effect that that will have on our electrical systems peak capacity. If the electrification proposals like these are adopted, the electric systems peak will go up. It's simply impossible to shift an equal amount of BTUs from gas heating appliances to electric ones, without both kWh and kW going up, and it's this increase that we need to acknowledge and understand the consequences of. To provide a bit more background, I'll dig into what peak is and why we should care. First, the electronic systems peak capacity, what is it, it's simply the moment in time when people combined are using the most electricity all year, for us in the northwest, that happens in the winter during the coldest days of the year when everyone is heating their businesses and homes. That said, our summer peak is growing quite fast as well. Why is it important for us to understand the consequences of peak, in short, the electrical system must be designed and built to handle these peaks. If we shift more of our community's energy needs to the electrical system, we will increase the peak level, and we will want to design and build a larger transmission and distribution systems to deliver those peak loads. The proposal for the Council would virtually eliminate natural gas as a source of heating and or water heating in new and remodeled commercial building. These electrification proposals would move heating and water heating load currently taking up by natural gas system and shift it to our electric grid. PSE has looked at these numbers and partnered with E3, a respected energy efficiency consultant, to conduct a rigorous analysis on multiple decarbonization pathways. If we continue down a hard electrification pathway, our study shows that by 2040, with electrification, we can expect electricity peaks to be 59% greater than what would be over natural gas. To deliver this electricity, at peak, we will need to expand our system and those costs range from \$5 to \$8 billion. To give you an idea of what</p>

	<p>infrastructure needs we're talking about, we need 100 new substation transformers, we need roughly 375 miles of new transmission lines. Building infrastructures have larger impacts, you need to site sub stations and communities, you need to build power lines and dig up roads, need to cut down trees and you need permit all this stuff. I am not saying all of this can't be done, I want to be very clear, but we should be aware of the cost, and then we should take into account of these costs and not ignore them. One of my, INAUDIBLE, last summer, was that I was not able to get traction on our compromised proposal at the TAG level. We submitted a plan that would reduce energy, reduce carbon, increase the efficiency of equipment being installed. The proposal submitted was consistent with a focus on reducing greenhouse gases, instead of eliminating fuel choice. This proposal allowing transfer as much heating as possible while still maintaining natural gas as a backup system on those freezing peak days. Our overall carbon out strategy meets our carbon mission goals while not putting our most vulnerable resident's service. As PSE stated before the CR102s were released, we continue to strongly advise the SBCC to slow down and work with the utilities, develop a plan that meet our goals, while maintaining affordability and resiliency in our electric grid.</p>
<p>Jay Bremner – Glacier Supply Group</p>	<p>I'm a Technical Service Advisor for Glacier Supply Group. We're based out of Spokane, Washington and we operate in California, Washington, Idaho, and Montana. We are an HVAC distributor. I've been in HVAC industry for 26 years, first as a contractor, then, for the last four years on, the distribution and technical training side. I'm opposed to the proposed code changes to 21GP1-136, banning the use of natural gas for commercial water heating purposes for the following reasons: heat pump water heaters are extremely expensive and this costs will pass down to the business owners. According to a DOE study, from 2016, the average cost of a heat pump water heater installed is \$2,100 with a 10-year lifespan. Gas water heater costs \$700 and has a 13-year lifespan. Another issue is slow recovery rates, only the larger 80-gallon tanks at an installation costs of \$3,300 performed decently and also most heat pump water heaters switch to resistance heating during periods high recovery. Heat pump water heaters have also been shown to add a 3,000 BTU heating load while decreasing cooling loads by 1500 BTUs, but we are a heat dominant market. Are these additional loads going to be accounted for Manual J heat load calculations? I'm also opposed to the changes to 21GP1-103, requiring electric heat pumps on new construction retrofits and ban the use of natural gas for commercial space eating purposes. Previously, the IBEW gave some testimony, at the last meeting, that all the electrical infrastructure would fall on them, and they do not have the manpower to meet the demand if the electricians' unions against electrification that should say something to the State. The electrical grid is also not prepared for the demand these changes have put on the grid causing outages and rolling brownouts. Eastern Washington has much more severe winters than Western Washington. Building owners need a backup source of energy, such as natural gas, when temperatures dropped to extreme lows. And for those customers who have never had a heat pump system, that heat content and heat pump system is much less than that of a gas forced air system. I've had many complaints from customers are switching gets heating to heat pump heating, saying it's not</p>

	<p>as warm as our gas system was. I also think it's hypocritical to ban the use of natural gas for space heating in a commercial building and yet allow natural gas to use commercially to create electricity. According to Energy Information Administration, Washington net electricity generation by source from November of 2021, natural gas fired plants create 1300 thousand megawatt hours per month second only to hydroelectric generation. Natural gas emissions also account for less than 10% of all emissions and natural gas are renewable fossil fuel. In conclusion, commercial business owners should have the ability to make their own decisions without the State of Washington interfering, both for comfort and redundancy reasons.</p>
<p>Larry Andrews</p>	<p>I sent in at least 12 different opposing documents of why not to move forward with CR-102, with over 7 days of my time involved in doing research on them and I still have not begun to cover the full CR-102 that you have been asked to move forward. I hope that you take your time and read all 12 opposing documents that I sent in. Now, in general terms, a year ago our country was self-sufficient for energy. Now, in just over a year, we have bought dirtier oil from Russia and Saudi Arabia. We've even asked Saudi Arabia (a country that treats women badly and worse) to double down and pump more oil. We shut down the Keystone XL pipeline. Oil prices have gone up more than 50% at the pump. Our allies are now dependent on having to buy this oil from these thugs. Our own State pushing to electrification has helped drive this problem, too. By legislation toward the electrification and other policies when we don't even have the electrical power to do so. This is the cart before the horse. The first thing that should have been found out is the ways to build new power plants to provide such power before we spend what we don't have to spend. Then build the wiring infrastructure to move the power to the areas. We hear from the chicken littles, out here, the sky is falling. I tell you, in Washington State, this is not so, with 375 PPM, CO2 levels in Spokane on one of the coldest days of the year. What we need to do is to come up with a plan that will not break everybody, to bring on more electrification and use the clean burner natural gas to get us there. I wrote about the 12 Company, a company that uses the CO2 in the air to make jet fuel, sunglass, auto parts for Mercedes Benz and almost anything made from oil. So, the 12 Company has come up with a way to make clean burning jet fuel and when made, uses large amounts of CO2 from the atmosphere thus reducing the CO2 in the atmosphere. This can be used now in airplanes. It could most likely be used in diesel engines. Right now, my company needs a new medium size truck, the cost for a truck is about \$90,000, plus tax. I have to wait one year to get this diesel truck with 100-gallon tank and has about 700-mile range. So, I asked the freightliner dealer, what would the cost be on an all-electric truck? The freightliner dealer said \$270,000 minimum. I asked what would the range be and he said the best they can do is 200 miles, in warm weather. The dealer said they were hoping to get them in three years. My company drives, at times, more than 200 miles on a cold winter day. Why bring this up? Because companies like 12 Company and other companies are on the way to solve the global warming problems. If you only have one way to do these things, these</p>

	<p>companies won't be around. My own company has patent on a machine that will take heat from the atmosphere and make electrical power. I did not want to release it yet, because it would not solve the CO2 problem but with 12 Company, I will be releasing is some time soon. The bigger problem is, all electricity used, electricity releases heat just like fossil fuels. Electricity is just a short-term problem solver. Before long, it too, will be the problem due to the heat that is released from the electricity and batteries. So, I ask you not to put us all into a one-way street. Please don't move the CR-102 forward. Give us time to come up with many new answers. The CR-102 is kind of like Putin – only one way.</p>
<p>Ann Fletcher – Issaquah Chapter of People of Climate Action</p>	<p>I am a grandmother, concerned about the future for my children and grandchildren. The City of Issaquah has already submitted a letter in support of these improved building codes and heat pump proposals, and I am here to similarly support them, from a community group. We support implementation of Issaquah's newly adopted Climate Action Plan. Issaquah's greenhouse gas inventory shows nearly two thirds of our emissions come from buildings. Our plan seeks the swift transition from natural gas to clean electrical energy. It will be challenging and take time to retrofit existing buildings, all the more reason to make future oriented code for new buildings now to stem the tide of greenhouse gas emissions. Issaquah has and will continue to experience extreme growth pressure. In 2021, we had already reached the 2030 housing development goal. We are expected to accommodate another 60,000 residents in the next few decades, and we are trying to hold our urban boundaries, to protect the hills and open space around us. This means we will have to grow upward on the valley floor, with larger multifamily structures and commercial buildings to support them. So, building codes that decarbonize these larger structures are essential. Heat pumps are an important part of this solution, at this time, they will contribute a great deal to the transition from natural gas emissions to clean energy and they will provide cooling as temperatures rise in the summer. Municipalities like Issaquah look to the State Building Code as they update their own codes. Currently, Issaquah is updating its Title 18 Code in next year will update its Title 16 Regulations. Please support the heat pump proposals now, so we can futurize and ensure the wellbeing of all, in our cities.</p>
<p>Annie Phillips – Burien People for Climate Action</p>	<p>I live in Burien. I'm a volunteer climate activist. I co-chair Burien People for Climate Action and the Environmental caucus of the 33rd and 34th Legislative District Democrats. I'm 83, and the grandmother of 7 beautiful, bright, sweet grandchildren. I've driven an all-electric car since 2012, I have solar on my roof and a heat pump for space heating and another for water heating. But that's not enough. I have to do all I can every day, to be able to look my grandchildren in the eye and let them know I'm trying to help reverse climate change. I want them to enjoy the same wonderful, beautiful world I've enjoyed, and I'm panicking about their future. Will it be livable? Will it be comfortable? So, I'm here today to urge you to please adopt the proposed new energy code updates for commercial and large multi-family buildings. They are good ideas, should be effective and make a big difference in our greenhouse gas emissions. I especially like the part about pre-wiring and prepping for large electric appliances, even if gas ones will be installed initially. My son recently re-did his kitchen. He</p>

	<p>had a gas range which he wanted to replace. I had him talked into induction like mine, but then he had the electrician out to give him a bid. It would have been a day and a half, new panel, wiring, sheetrock repair and painting. The cost was prohibitive and so he bought a new gas range. If the proposed code update were in effect, it would have been so easy to switch the gas range out for electric.</p>
<p>Jerry Butler</p>	<p>I am a licensed mental health counselor here in Bremerton, where I live. I am testifying in support of code amendments you are considering that would require electric heat pumps and electric heat pump water heaters in all new commercial construction in Washington State. Climate change is an ongoing major source of stress and worry for me as it is for many others. Our community, as did the Northwest overall, experienced a major heatwave this last summer, with temperatures well over 100 degrees in many areas. In my faith community, the Kitsap Unitarian Universalist Fellowship, we went into crisis mode, working with each other to reach out to vulnerable, elderly, or isolated members of our church to see if they needed help. While as it turned out everyone in our church found a way to stay cool, such as those without air conditioning staying with family who did have air conditioning, this was a very scary experience and in fact there were hundreds of deaths in the Northwest attributed to this heat wave. It is scary also that in all likelihood there will be other heat waves. As another clear indication of climate change, over the last few years, I have noticed an increased incidence, during summer months, of there being haze or smoke masking our view of mountains and sky.... clearly related to an increased incidence of fires in our area and throughout the Northwest. These newly constructed buildings that, if the amendments pass, would be required to have electric heat pumps and electric heat pump water heaters, would in all likelihood will be around for decades, so these amendments would very significantly reduce greenhouse gasses that are the cause of the dangerous heat waves, fires, and other adverse climate related events.</p>
<p>Bob Gunn – Seinergy LLC</p>	<p>I think I have the only comments on horticulture lighting or the plant efficacy lighting. I'm calling in from Whidbey Island, thank you for having me. My comments regarding Section 405.3 are generally supportive of proposing a horticultural lighting minimum efficacy for lights used to grow plants such as indoor vegetables or cannabis. However, with one proposed amendment, I think, is a semantics oversight, I believe the new buildings institute proposal wanted these this amendment to align with California's Title 24 and to align with ASHRAE 90.1, both of which have included the language we're proposing, which it says 1.9 umol/J but the language like adage is to specify measured at the lamp level where there are serviceable lamps. The first draft of ASHRAE's proposal omitted that language, we suggested it and they said that's correct, that was our intent. So, we think that's the intent of the law we just like to add that the minor clarification, the danger if it didn't have that it would require LED only, which while we definitely promote LEDs in our consulting business would be a hard pill to swallow for most growers. It would eliminate utility incentives which had been great across the state for most of the leading utility so that's all our comments we commend you for addressing this issue and hope that the adjustment is considered a minor change.</p>

<p>Rosemary Sweeney</p>	<p>I'm testifying as an individual and I'm very concerned about climate change. I consider it to be a moral crisis. We bear responsibility for what we do and do not do, now, and we bear responsibility for its effects on the lives of generations to come, which a number of people have expressed and the other thing that other people have not really expressed as clearly as I would like, is that we have a time window in which to act, and the more we delay eliminating greenhouse gas emissions, the less effective our actions will be. So, it's really important to act now, with the technology we have now. I know some of the gas people say, well, we're working on it, we're trying to. But I mean we can't afford to wait. If they can get their technology working later on and it's better, than we can move to that, then, but what we do need to act now. I would like to really express my gratefulness and support of all the code changes that are being proposed for new, large buildings and commercial buildings to put in the energy efficient he pumps for space heating and water heating that will make a huge impact on our greenhouse gas emissions, now and we really need that. I just wanted to express my support for them.</p>
<p>Chris Hawes – Affordable Energy Coalition</p>	<p>Affordable Energy Coalition is a grassroots nonprofit organization that is trying to build public awareness and the costs associated with moving forward with a restriction on the use of natural gas as an energy choice. The recent Oxford economic study has indicated that everyone's fair share of this of electrification will be nearly \$6,000 per individual. There's been local representatives and said that that's a low estimate, could be up to \$17,000 per individual. We've already heard people testify about the increased costs associated with converting from natural gas to heat pumps. In larger multifamily structures, some of our older buildings that we have in Seattle and other municipalities, the cost associated with these retrofits will exceed the cost of the building, especially some of our older buildings, built in early 19th century that have limited electrical services. I don't believe this code takes all of that into account and some of these systems will be greatly impacted and we're going to lose a lot of our affordable housing in the in the area, in the greater Puget Sound area. I'm speaking out against the code changes just on the fact of energy choice and costs and that we could easily price people of their homes there in the multifamily market and also force them to make a drastic energy choice in the middle of winter during peak demand. If they can't afford to heat their home, they might have to look at other options which actually could add more damage to the electrical grid.</p>
<p>Simon Bakke</p>	<p>I live in Bellingham, and I have been a Cascade Natural Gas rate payer for several years. I'm speaking today because I was troubled by an email that was sent to residential customers by CNG claiming that these proposals are quote limiting energy choice among other impacts I think it's worth noting that many renters like myself are already excluded from energy choice, and in fact my unit still uses this old radiator you can see in the background here. I would personally prefer to live in a fully electrified, efficient place but it's not always feasible to find that in the tight rental market. And I understand that these policies are about commercial buildings and I only mentioned this, because gas companies are using these kind of focused and narrow, commercial, large multifamily codes to try and divide us and make the conversation much more dire for everyday people than it really needs to be. And like the previous speaker, Amy</p>

Wheless, said, these codes are a relatively small drop in the bucket there. We already have the technology and solutions at our disposal to cut Washington's fastest growing carbon emission source, which as I mentioned, is buildings. And all we really need are the policies and incentives to help get it done. This is a modest but vital step in that direction. These proposals will lower utility bills by simply using less electricity with heat pumps and increasing access to solar power and improved building envelopes that I think a lot of folks are not talking about that those are also part of this. And these proposals are also not happening in a vacuum. If we carefully plan out this absolutely necessary transition to clean an electric powered buildings, it can be relatively painless. Gas companies have already fought against voluntary policies in the state legislature, this year, not binding, ones that would help cities and public utilities transition to electric options. And this transition is going to happen, let's not stall and make it even harder down the road. But it's also worth mentioning, those who seek to continue building out new gas infrastructure, often talk about the costs, but there are huge costs to inaction. A 2021 study estimated there are about \$110 million and health impacts, annually, just in Washington State attributable to burning fossil fuels in commercial buildings, and that's just health, not even touching any of the other aspects of cost that could be saved by transitioning. The draft the State Building Code Council is considering, paired with the other necessary electrification rules and incentives, will make a difference in air quality and many people's lives. Gas is only going to get more expensive as fossil fuel geopolitics get more complicated and we're always at the whim of supply chains. Let's power our buildings, using the increasingly clean electricity that we're already creating right here at home, with technology that's far more efficient than gas and other conventional electric counterparts. Continuing to build new fossil fuel infrastructure is a much bigger risk and using the proven tools that we have, that are building envelopes, efficient lighting systems, heat pumps, and solar power. So, I ask you to please approve these codes.

Dr. Annemarie Dooley

I'm a doctor and a member of WA physicians for social responsibility. I would like to state that I have no conflicts of interest. Unlike some participants in the testimony, I do not take money from the gas industry or any company. I am speaking today because Building Codes matter. To my patients, my community, and communities all across Washington State. You have already heard from many health professionals who have testified about the dangers of indoor gas including nitrogen dioxide, carbon monoxide and small particulate matter. I supported a successful resolution last year calling for gas to be removed from buildings because of these very real health hazard. I have heard the arguments that banning gas will somehow increase costs. But costs to whom? I never once hear a discussion on the indirect but real costs of poor health and premature death for those exposed to the dangers of methane gas where they live and work. Especially those who live in very small apartments or so-called affordable housing where indoor air quality can be very poor. There are also equity issues with making future owners and renters dependent on a fragile energy source where prices can jump with any crisis or pipeline accident. I have a patient who cannot afford to put gas in his car to get to dialysis. Next winter he may not be able to afford to heat his home. What

	<p>I have to say to you is simple. Fossil fuels are a luxury we can no longer afford. 60 years ago, we called tobacco a health hazard. We are now calling indoor and outdoor gas a health hazard. We need to electrify our buildings by updating the codes and eliminating gas in new commercial buildings.</p>
<p>Jesse Piedfort – Sierra Club</p>	<p>I'm the director of Sierra Club's Washington State's Chapter and testifying on behalf of Sierra Club, today, in strong support of the proposed updates commercial energy code, specifically the proposals regarding heat pumps and heat pump water heaters. You know, as has been said, in previous testimony, buildings are the fastest growing source of private pollution in Washington. Just to provide some context for that, burning fossil fuels in the building sector and Washington produce about 18 million metric tons of carbon dioxide, that's equivalent to the annual emissions from five coal plants, so this is a huge climate issue. I want to reiterate a point that I heard Rosemary Sweeney make, a few speakers ago, and that is, the issue of climate pollution is not just a long-term problem, but also an urgent one. There's growing consensus from scientists, experts, state national, international leadership that we have to make significant reductions in emissions this decade, to have a chance at avoiding the worst impacts of climate change and that's why your decision to act now, is so important. According to a recent RMI analysis, passing these updates, this year, as opposed to waiting another decade would be hugely impactful and the report states that quote a 2022 commercial electrification code in Washington, will reduce 8.1 million tons of CO2 by 2050. By 2050 goes code proposals will reduce the total direct emissions from commercial sector by 14.5%. Because of the cumulative nature of new construction, waiting until 2031 to implement the code proposals will result in significantly more pollution, reducing the 2050 emission savings by half. It's a big deal to act and to act now. Buildings are also a major contributor to pollution related public health issues by creating both indoor and outdoor air pollution, Dr Dooley, just before me, spoke well on this point. Many studies have also shown that low-income people in communities of color are disproportionately impacted by air pollution and the resulting health effects, and that means that continuing to allow buildings to burn fossil fuels is not just a climate issue but it's also a public health, racial justice, and economic justice issue. You know these proposed code updates ensure that as we continue to construct larger buildings, we are doing so in a way that's equitable sustainable, in line with our state's climate commitments. These updates have been thoroughly reviewed and vetted, over the last year. And to the broad support of Washingtonians, I urge your approval today.</p>
<p>Michael Lilliquist – City of Bellingham</p>	<p>I am a four-term city council member for the City of Bellingham, representing over 90,000 Washingtonians. I come to you today to advocate for state-wide building code changes that will move our communities away from polluting fossil fuels, and towards a healthier, cleaner energy economy. In particular, I speak in favor of phasing out fossil fuels for heating, and in favor of solar-readiness provisions in the code. Responding to climate change will require actions across all parts of our economy, and at all levels of government. As a city leader, my efforts are directed at not simply adapting to and mitigating the harmful effects of pollution, extreme weather, droughts, wildfires, and sea level</p>

changes. My best efforts are directed towards solutions, such as ways to cut fossil fuel use and fossil fuel pollution. I believe our goal should not be to “make the best of a bad situation,” but to improve the situation, directly and specifically. We know that building heating and water heating, taken together, are one of the single largest contributors to greenhouse gas emissions. The City of Bellingham realized that we had to start there. Over two years ago, our Climate Action Task Force identified electrification of new construction as one of the most direct and effective measures to take. All-electric alternatives are proven and cost-competitive and will return years of beneficial return on our investment. After months of careful work, looking at efforts being conducted at the state level and in individual cities across Washington state and elsewhere, I and the other members of the Bellingham City Council unanimously adopted deep changes in our building energy code – with new rules for building efficiency, solar readiness, and all-electric building heating. I urge you and other state leaders to do the same, and to do so right away. This is important work, and it needs to be done well. In Bellingham, we are mindful that our new codes apply only to new construction, and only to commercial and large residential projects. That additional work remains to be done, and it will also require action at the state level. Please don’t ignore worries that we don’t have enough electricity, we already know what is coming, we have time to ramp up supply to bolster infrastructure to adopt new technologies and this work is already gaining momentum, we’ve got this, people. Revising the energy code was a relatively “heavy lift” for a city the size of Bellingham, the ordinance was over 200 pages long, and we are proud to have done it. More cities will follow. Code changes are already occurring. But it only makes sense for all municipalities across the state to avoid duplicating the effort, and to be aligned and working from the same playbook. It makes sense for construction professionals to have a common code to follow in every city and county. I know that may sound odd, given that Bellingham just adopted new rules that apply only in Bellingham city limits. But that is why I am here: I urge you to create a revised and strengthened energy code, following, or improving upon our example, that will apply throughout Washington.

Mazvita Maraire – Affordable Energy Coalition

We must be a stand to curb emissions, we must be a stand for affordability, both of them can be done. What we need to take to do right now is to take a deep breath and look at the impact on humanity, that is, I am against the natural gas ban. Natural gas is more than a resource, it is the cornerstone for our community, creating and sustaining jobs, businesses, and families. Banning it would hurt working families, small businesses, and the future generations by killing jobs and opportunities. We're looking, here in Seattle, Seattle families deserve access and choice to affordability. We're looking at what's happening in Seattle, low-income Seattle residents, including minorities, are more likely to rely on electrical resistance heating, which means they would need to retrofit their residents with heat pumps, adding the expensive, upfront cost of \$5,991 for just the equipment. One Washington State mayor estimates that those that costs to be closer to \$17,000. The developer’s not going to eat that cost they're going to pass that to the residents, to the renters. We must take a stand for our residents, we must take a stand for emissions, we can do both, we must take a deep breath and take a look at the impact of all that we're

	<p>trying to do in the name of energy curbing emissions. We all want that, there's no doubt we all want that, but I think it is time we take a deep breath and take a look at the impact.</p>
<p>John Frankel – NW Natural</p>	<p>I am making my appeal to the voting members of the Council to reject the unnecessary restrictions on the use of natural gas in commercial space and water heat as outlined in the CR102 draft code. When the draft code was developed through the TAG process there was no Climate Commitment Act in place. As speakers from the energy utilities presented testimony on the decarbonization strategy of the natural gas industry, opponents dismissed the comments by stating that on the power side there was a legislative mandate (CETA) and there were only some well intentions by the gas utilities but no mandate. The CCA is now the law, and it requires decarbonization of the gas system. The regulated utilities in this region will abide by the law. Already, NW Natural has about 3% of its throughput converted to renewable natural gas. They are already decarbonizing and have executable contracts in place to provide levels of RNG that will exceed initial forecasts. Simply put, the context for proposing bans on gas space and water heat have changed substantially since the TAG offered these draft proposals. I would also like to address the choice of Ecotope to perform the important cost benefit analysis of the heat pump proposals. Ecotope is an electrification advocate. They have collaborated with other electrification advocates; their leadership has testified in support of electrification through heat pumps, and they lack the objectivity to apply a careful lens to this crucial step in evaluation of the proposals. There was no competitive bidding as the Director selected Ecotope under his direct buy discretion. There was no formal RFP process to select them as a contractor. No presentation of selection criteria. No consideration for diversity, equity, or inclusion. And most importantly, no deliverable report was made available for open review prior at the end of the public comment period. We still don't have that report. I'd like to conclude by noting that the TAG chair made comments (without supporting data) that the only means of achieving the 70% energy reduction mandate was to electrify. During the TAG process, information from an analysis report by Northwest Energy Efficiency Alliance, an unbiased, third party, showed that you could, in fact, achieve the mandate goal with gas commercial equipment scenarios. This conclusion was not refuted – understandably because NEEA is a highly respected third-party authority in energy efficiency. Please reject the electric heat pump requirements for space and water heat as an unsupported, unnecessary, and too costly means to achieve a one-percent reduction in greenhouse gas emissions in the state of Washington. That percentage not a gas industry data point. It's from the WA Department of Ecology.</p>
<p>Dave Stecher</p>	<p>I work at Ecotope, though I wasn't involved in the analysis this, but I do work in the design of commercial buildings, and I recently joined, about seven months ago. Prior to my work at Ecotope, I worked with another consultant engineering firm and in that experience, I've worked on many projects where we installed heat pumps, as part of the building design process. This code fall on my desk two days ago, so I took a quick look at it and I have a couple comments specific to the requirements of the code, specifically, I noticed that for air to water heat pumps there's an exception for to allow gas backup in Climate Zone 5, which I think is a very</p>

	<p>reasonable exception to have, as it allows better use of air source heat pumps for the majority of the heating period but allows for backup in Climate Zone 5, which is more extreme climate where sizing electric boiler, for example, to accomplish that can be a large burden on the building electrical infrastructure. It also helps with backup generators size and so that it can have it back full backup for the whole building you don't need to backup electric resistance heat as well, but everyone knows that you need good, so I think with respect to that, as heat pump technology improves, I'd encourage this group to develop guidelines for extreme temperature sizing for air source heat pump outdoor equipment to allow it to operate without backup heat. It's a different set of temperatures that you need to look at in order to ensure that the equipment operates properly during the expected conditions of the building. The other thing that I like, is the requirement to provide heat pumps it is cooling is added to the building. The equipment's going to go in anyways and a piece of equipment use for cooling, with reversing valve which is a very small change that that equipment allows it to operate as a heat pump as well. I've worked on projects previously where we added a coil cool and condenser downstream of gas furnace to provide heating as well without adding product cost of the project, since the manufacturer provided controls are capable of supporting it using market available equipment. And then the last item is that for replacement equipment, it sounds like there's no requirement to use heat pumps, as for systems that already have cooling, as long as additional cooling is not added so like for an existing gas pack equipment with a gas furnace and DX cooling unit, you could replace that without adding a heat pump. If I'm misreading that then then correct me but that seems like a missed opportunity because you could take that equipment, throw in a heat pump, and you would add that heating onto the system without any net electrical loss because you're already providing electricity for the heat pump for the cooling only system, making it a heat pump would, it seems like an easy opportunity there.</p>
Neal Anderson	<p>We've heard a lot about the benefits of heat pumps and electrification, but I want to talk about the alternative to that. We know we have to get to zero emissions, and in buildings there are really only two ways to do that - you can either use all electric appliances with electricity sourced from renewables, or you can keep the same appliances and decarbonize the gas supply instead. Converting to an emissions-free gas supply is difficult, but not impossible, and the gas utilities have a plan for how to do that, using a combination of renewable natural gas (or RNG) and green hydrogen. They've already started to talk about new RNG pilot projects, but it's important to realize that supplies of this are extremely limited. The Department of Commerce studied this and found that we could replace, at most, 5% of our current gas consumption if we used every commercially available source of RNG. So really this is just a sideshow. To get to zero-emissions gas, the majority of it will have to be green hydrogen. And that would work - it could be generated and consumed with no carbon emissions. But this is an incredibly wasteful process. To make green hydrogen, you start with renewable electricity which could've just been used to power heat pumps directly, and you use a full 2/3rd of that energy just to convert it into a form that can be sent through pipelines. Then when it's burned for heat, it's less than half as efficient as a heat pump, so</p>

	<p>you've wasted even more power. Essentially, you're throwing away 80% of the energy you started with just to make it possible to keep using the legacy pipeline system. The original power source is the same in either case - renewable electricity from either wind or solar. But by going through this very inefficient process of converting it to hydrogen and then back to electricity, you have to use five times as many solar panels or wind turbines as you would if you just sent the electricity directly a heat pump instead. We know we need to build up renewables at an unprecedented scale - let's not make our job five times harder by trying to hold onto outdated infrastructure. Oh, and it turns out that the claimed benefit of being able to keep using the same appliances turns out not to be true. Gas burners that are designed for methane don't work with hydrogen once you mix in more than about 20%, so everyone's appliances will need to be retrofitted to replace them. That means that in order to increase the mixture above that, every single burner served by that gas distribution line has to be upgraded simultaneously, which is a much harder problem to solve than electrification, where gas appliances can simply be replaced by electric versions one at a time as they wear out. When you look objectively at what it will take to decarbonize buildings, it's obvious that trying to hold onto our legacy gas system will be much harder and more expensive than using electricity. That's why the gas representatives at hearings like this will make general statements about cleaning up gas but don't say much about how. They don't want to talk about it because they know the plan falls apart when you look at what it would really require. I understand why the gas industry wants us to keep burning gas for as long as possible. They want as much return on their investment as they can get, even if it slows down our progress in meeting our climate goals. But that can't be how we make our decisions. Whether we can get to zero emissions in time depends on what we do right now. We know the clean energy future will be electric. Please pass these proposals so we can start moving away from the energy systems of the past.</p>
David Morton	<p>Please vote to adopt the two proposals that would require all-electric heat pumps in new commercial buildings. The proposals have been rigorously vetted by the SBCC's Technical Advisory Group. Here are some benefits of the proposals: Efficiency and Decarbonization - Heat pumps are 2-3 times more efficient than electric resistance or gas combustion equipment. They can play a significant role in keeping the SBCC on track to meet 70% energy use reduction requirements. Also, the 2021 Washington State Energy Strategy states that building electrification is "the least-cost strategy" to decarbonize the building sector. The Washington State Energy Strategy also recommends "policies and actions required to implement an electrification strategy in Washington buildings." Waiting until 2030 to implement these changes would emit an additional 4.3 million tons of CO<sub>2e</sub> from burning natural gas by 2050; The Northeast Energy Efficiency Partnerships (NEEP) Cold Climate Air Source Heat Pump database currently contains thousands of tested and rated cold-climate commercial and residential air source heat pump products from dozens of manufacturers, available within the US. These products are tested and rated to provide heating safely and efficiently down to 5 degrees Fahrenheit and below, with minimal impacts to capacity or efficiency that used to occur with older heat pump models. 5 degrees Fahrenheit is the</p>

	<p>design outdoor air temperature for Climate Zone 5B (where Spokane, WA is), applicable to the Eastern half of Washington state; cold climate heat pumps will work throughout this state; Economic - Research suggests that when the cost of the gas infrastructure installed in buildings is included, the total system cost of dual-fueled buildings is often more expensive than all-electric buildings; and Health - An estimated \$110 million dollars in health impacts annually can be attributed to burning fossil fuels in commercial buildings in Washington. The proposed code changes move us away from burning fossil fuels in buildings that contribute to hazardous air quality impacts, and toward cleaner, more efficient sources, to heat our buildings.</p>
<p>Diana Perez – City of Vancouver, City Council member</p>	<p>Vancouver is one of over 1000 U.S. cities that have signed the U.S. Mayor's Climate Protection Agreement and pledged to reduce greenhouse gas emissions and support state and federal action on climate change. Our climate action plan is slated to be completed in June 2022. One of the three key areas is building and energy, it is a focus area that includes key strategies of reducing building energy demand for commercial and residential buildings and switching to lowest carbon power source available for building heating and cooling and cooking. The proposed energy code for heat pump space and water heating complements the key strategy in our climate action plan. The City of Vancouver just recently approved to submit a letter of support for the proposed energy code, and it reads like this: The Vancouver City Council supports the proposed changes to the State Building Energy Code for commercial and large multifamily buildings. In Washington State, buildings the count for over one fourth of all greenhouse gas emissions and are the fastest growing sector of emissions. While in the City of Vancouver, our last greenhouse gas inventory showed buildings accounting for roughly one third of the communities' total emissions. These proposed code changes align with and support the city council's preliminary climate goals of an 80% reduction in community greenhouse gas emissions by 2030 and zero emissions by 2040. We ask the State Building Code Council to approve these code changes.</p>
<p>Todd Allred - Plumbing-Heating- Cooling Contractors of Washington</p>	<p>I'm the Director of Industry for the Plumbing, Heating, Cooling Contractors of Washington. We come here and ask you to not pass these restrictive codes. I'm going to take a little bit different approach to this from all the testimony we've heard. Europe just said a few weeks ago that natural gas is clean energy, we agree with that. Another thing that has probably been overlooked or I've not heard discussed here is that there is high, efficiency, natural gas burning equipment that can burn in the 95 to 97% efficient range. Maybe it would be a better choice to push towards that sort of technology, rather than just removing an energy source, from our grid. I believe that two years ago, two sessions ago in the legislature, House Bill 1084, one of the reasons that it died in committee was there was an agreement to have a Utilities and Transportation Committee study completed to understand if the grid could even handle the additional electrical load of all of this additional equipment that would result from the banning of a natural gas as an energy source. Additionally, I would like to go a step further and say that will raise costs in the construction process and legislature in this last session during testimony and both the House and the Senate on House Bill 1770, there was testimony submitted, that it</p>

	<p>would raise the cost of building a say I know you're talking about commercial here, but it would raise the cost of the building significantly, to make sure that we're meeting these energy codes and I don't know that there's really that much, we're talking less than 1% of the carbon emissions, so this seems unbalanced, and maybe take a step back. Additionally, I would take this kind of another direction, a little bit and say you know we have a situation in our world, right now, where there's a lot of unrest, we don't sure what's going to happen with energy in our world and removing an energy source, from the grid for the sake of science that we're not everybody agrees on doesn't seem to make a lot of sense, because at the end of the day, the guy with the least amount of resources is going to lose. That will make our state week and if we're the only state in the nation that's doing this, then, and one nation in the world that's doing it, how much effect, are we really going to have to our own demise. So, I would ask you to reconsider. Maybe some different amendments or different changes to allow high efficiency gas burning appliances, rather than just an outright ban on natural gas.</p>
Nick Engelfried	<p>I'm speaking for myself; I support the draft code before the Council. I believe my views are shared by the many thousands of Washington residents who want to see our state transition rapidly off of fossil fuel and bring clean energy. That will both create jobs here in Washington and help combat climate change. Over the last year we've experienced so many instances of extreme weather, in many cases worsened by climate change, in our region but it's hard to even keep track. The climate crisis is no longer theoretical, it's having real world impact on people in every corner of our state who are affected by flood and heat waves and buildings are one of our largest and fastest growing sources of emission. I support the draft code because it will encourage efficient buildings, readiness for solar, and use of heat pumps, in place of using natural gas, among others. I'm resident of Bellingham, which, as you heard, is already taken steps to make large buildings here, more climate friendly. But, frankly, at every turn these commonsense efforts have been opposed by lobbying and misinformation from our local gas company, I'm not going to name them, but I think you know who I mean, and they have an obvious incentive to keep us dependent on fossil fuel. Corporations with a vested interest in preventing the energy transition should not be allowed to prevent forward progress on our state's climate and clean energy goals. I urge the Council to move forward with implementing the draft code.</p>
Seth Vidana – City of Bellingham	<p>I am the Climate and Energy Manager. As you may know, on February 7, of this year, Bellingham's City Council adopted an ordinance to mandate all electric construction for commercial and large multifamily buildings. Council made this decision for all of the reasons that you're already familiar with relative to the negative impact of climate change on people and the planet. The final ordinance that was passed came after years of effort on this topic, including making electrification of new buildings, a desired initiative in our climate planning documents, months of research into a potential code, a thorough analysis by our staff on the challenges and benefits of the proposed code changes, a ton of public outreach and consideration by our City Council was a large effort amongst all of the other priorities that the city is taking on currently. Along the way in our process, we were greatly assisted by similar ordinances past previously in</p>

	<p>Seattle and in Shoreline and knew that we would not be the last city in Washington to make an all-electric requirement. Given the scale of the challenge before us, the hope has been that the commitments of individual cities to require all electric construction would someday result in a conversation at the state level on the same topic, and today we are having that conversation. The City of Bellingham has felt that all cities should be engaging in climate work. And it is possible to allow cities, one by one, to go through the same lengthy process that we went through here in Bellingham. Many of the cities who are currently considering all electric codes and those that will be in the future, may be less prepared than we were to make this big lift and pass a local ordinance. Given the necessary investment of time and energy to create a local ordinance the pace of the city-by-city approach does not match the scale of the problem that we're facing. Nor does it help us achieve the rate of reductions necessary to meet our state carbon goals, we have a lot to do and not much time. We encourage the Code Council to require electric space and water heating in commercial and large multifamily buildings and allow the good work from Washington cities, who are leading on this topic, to help Washington State as a whole, make progress on its climate commitments.</p>
<p>Brian Healow – Mutual Materials</p>	<p>I am the Director of Sales and Marketing, a board member of the Northwest Concrete Masonry Association, and a Kirkland resident. Mutual Materials is building-based manufacturer of mainstream products, we are fifth generation small business operating in Washington State for over 120 years. We employ 500 people and operate from 13 locations across the state. Changing the current concrete mainstream code would be harmful to our company and would have a very negative economic impact, too many small businesses in our industry, therefore, I oppose proposed changes 207 and 208 and ask the Council to disagree. If code change proposal 208 was approved, the code would require height insulation levels and additional finished materials be added the concrete masonry wall interiors. Many of the benefits of this wall system would be sacrificed. Furthermore, this greatly increased cost of masonry wall construction would not result in significant energy savings for commercial building owners in Washington State. This fact has been verified and passed by building energy modeling. It is simply not cost effective to require high installation levels on concrete masonry walls for certain building types, in our climate. Changing the energy code should require sufficient data and accurate information to justify the change. With the proposed changes 207 and 208, that standard of proof has not been had. First, and all the cost benefit study from 2014 was submitted to support the proposals than a failed attempt was made to update construction costs using general, inflation rate versus actual construction material costs. The derive costs are less than half of what actual bids reflect today for construction projects. It also appears that there are no maintenance costs included in the life cycle analysis. This is erroneous as know gypsum board finish can last 50 years without maintenance and replacement costs in the permitted building types. Additionally, the installation finished system selected by the proponent is not the functional system commonly used for tall walls in commercial buildings. Masonry construction is selected for many different types of buildings in the Northwest, it offers building owners numerous benefits, including durability, fire resistance,</p>

	<p>aesthetics, and resilience. Many buildings use resilient masonry as they have areas where forklifts or equipment may damage list durable surfaces. The current masonry mass wall code requirements should be maintained. These provisions have been supported by past Councils and insufficient information has been provided to support the code change, now. Please disapprove code changes 207 and 208.</p>
<p>Stephanie Barnard – Tri-City Regional Chamber of Commerce</p>	<p>I am the Government and Regional Affairs Director. We've heard from several of our members that rely on natural gas to provide an efficient and reliable source of energy and they're saying that this proposal will directly raise the cost associated for running their business. Another concern that they had had was that the power reliability issue. Businesses can count on natural gas during serious weather conditions, when the electrical grid may be disrupted and it's really windy in the Tri-Cities and we get a lot of power lines going down and it would just allow businesses to continue working. Also, a heat pump is really expensive and insufficient as an alternative for their needs, which the code does recognize by allowing backup resistance heater in certain areas of the state, but this does require businesses to pay for two separate heating solutions and the Council did say that these proposals will improve energy efficiency. The one thing that was brought up, and I need to look into this more, there was no cost benefit proposal so that that is a concern. So, they're not quite sure what the cost will be and what's required. Added utility bills, higher rent, on top of 40-year inflation highs, are crippling the code recovery effort, as it is, and the case hasn't been made that these policies will advance energy efficiency. We need to see that cost benefit analysis, which would have explored the cost more thoroughly for our local businesses. I urge a vote of no on 136 and 103. They will be detrimental and have a detrimental impact on our local business.</p>
<p>Steve Borman – Keystone Masonry</p>	<p>I am the owner of Keystone Masonry, Inc. in Yelm, WA. If approved, proposals 207 and 208 would be detrimental to my business. I have been in this industry for over 35 years. We build the mass walls that are impacted by these changes in both Oregon and Washington. As you will hear from Tom Young, in 2021, Oregon not only reaffirmed these same exceptions, but did so by a unanimous vote of the Council. These proposed Washington amendments will do the opposite of what Oregon just agreed was the right thing to do. If adopted, these changes will have an immediate. negative impact to my workers and my company because of the loss of projects we are able to choose to build with mass wall. It is important to note the proposed mass wall changes will restrict or fully prohibit the common use of integrally insulated single-width concrete masonry block walls for all nonresidential building types. Such walls are built with insulation placed inside the wall in the open cores. Most likely metal stud-wall framing, insulation, gyp board and paint would be added to the wall interior for compliance, having a negative impact to the environment in other ways. This will eliminate many of the best properties of the block wall, including durability, fire safety, VOC reduction, and mold/mildew resistance. There are many other companies just like mine that will be impacted. The SBCC, before you and the Oregon Council, all recognized the importance of these building types not only to this industry but to the built environment. You will not be able to get to your goal with these changes, and quite honestly, there are other industries that are</p>

	<p>making changes that would have a bigger effect without destroying the economic basis of their industry. The masonry industry in Washington State provides many residents with good-paying, quality jobs. Our industry should not be harmed for very minimal, if any, energy savings in typical mass-wall commercial buildings. Please reject these mass wall code change proposals. I would like to add, mass wall construction has been observed and used by every civilization for thousands of years, because it is the most efficient way to both retain warmer or colder temperature with the use of less energy to do so.</p>
<p>Bridgette Dodge - speaking on behalf of Matt Eleazer, President of Bricklayers &amp; Allied Craftworkers Local 1, Oregon, Idaho, Montana, and Washington</p>	<p>Thank you for the time to speak with you about the proposed amendments 207 and 208, and their impact to my bricklayers and contractors. We oppose the adoption of these proposed amendments. I represent over 900 bricklayers and 14 mason contractors in the eastern and southern Washington counties which represents more than 2,500 families in Washington State. Our representation of the industry accounted for over \$75 million in business volume in 2021. My employers are as small as 6 employees and as large as 200 employees. We oppose the adoption of amendments 207 and 208. Washington and Oregon have done a great job recognizing that one size does not fit all; and there are many building designs that benefit our community. Unfortunately, adopting these two amendments doesn't account for some needed construction options. Options that our members have relied upon for more than 100 years in Washington State. As my counterpart, from our Seattle local, pointed out at last month's public hearing, this Council has previously already made adjustments to the mass walls in order to benefit the Governor's energy goals. The mass wall exception allows for construction of limited building types, such as schools and Costco, where the open doors and unheated spaces work with the mechanical systems not against them. These building types, account for many man hours on the jobsites of the projects we build. The loss of the mass wall in Washington State will be felt directly by my membership; and will impact our employment opportunities in our most vulnerable communities of eastern and southern Washington. We don't believe that the author of these amendments is intentionally trying to take jobs away from our industry and increase our unemployment; but that will be the unintentional consequence.</p>
<p>Mark McGinley</p>	<p>I'm speaking in opposition to your proposed changes 207 and 208. I am a professor, I've done a lot of energy related research over the last number of years, primarily focused on mass masonry buildings, as well as mass concrete buildings and we have done a series of studies that looked at how do these buildings that are typically built out of these exterior mass wall systems and how do they actually perform and simulated them over a variety of different climates. To speak to that first proposed change, which is to restrict it to uncovered masonry walls. That particular change doesn't appear to have any technical justification or have any intent or any net result in a reduction in energy and so I'm not sure what that's going to do. Any covering that you will put on those walls will actually reduce the amount of energy that goes through them so restricting them to uncovered applications will not have any significant impact on the energy used in the buildings. Looking at the second change which looks at reducing the exemption or eliminating the exemption of masonry walls within integral insulation, again, doesn't have a significant impact on the energy used in</p>

	<p>the in the walls. We've done a whole bunch of studies, looking at a variety of different wall configurations and after a certain point, a certain thermal resistance of that wall will give you about the same performance, no matter what you do. We ran typically a little bit above the U-values that you are currently allowing in the exemption in the code and that gave you pretty close to comparable behavior on those walls in the buildings that they're incorporated into. You're not getting any significant change in the walls, with a quite a significant change and large payback periods for those walls for that small amount of energy difference. You're way better off changing many, many other things, the efficiency of the systems, control systems, reducing the wall, glass area, there's a lot of things that you can do and focus on other than the opaque mass masonry wall systems that are within the building. I don't think these changes are going to do what you want them to do, and I think you need to reconsider adopting these particular changes, as proposed in these code revisions.</p>
<p>Tom Young – NW Concrete Masonry Association</p>	<p>We're a construction material manufacturers and builders of mass wall systems for commercial buildings. Our industry employs many small businesses and Washingtonians in manufacturing and distribution contracting all working together with Union Labor. We oppose the two propose code changes impacting masonry wall design and our industry members. We have not seen sufficient documentation to support the proposed changes and that provide a reasons for our position, including major concerns regarding the validity of the proponent's analysis. Concrete masonry exterior walls are the best choice for building owners for variety of building types. In a northwest building study cited by the performance and majority of concrete masonry wall area, up to 52%, is used to construct retail buildings, given this number, leaves one to question how the retail building sectors performing in the overall building energy reduction effort. Interestingly enough, data from 2018 SBCC report shows the retail building sector is actually leading the way. Therefore, the majority of the concrete masonry walls constructed in Washington are using the commercial building type performing the best, in terms of energy reduction. Apparently, concrete masonry walls have better real-world performance than some might expect. This conclusion is consistent with building energy modeling studies we and others, including Dr McGinley, who you heard from, have conducted. My written testimony includes other reasons for disapproval of 207 and 208, including lack of cost effectiveness, which is required for energy codes, the one size fits all code approach taken. The fact that this issue has been previously debated by past Councils, with a mass exception upheld and the comments Steve Borman made that the proponent falsely claim that the exception is unique to Washington and that Oregon has recently overwhelmingly approved it again. I want to close by going back to the code change proponent's documentation. As you have heard from myself and others, there are some major problems with the information provided, however, for the sake of discussion let's assume it's accurate. Even with this assumption, it should be noted that the final output of the required LCCA analysis actually supports our position that the baseline integral insulated concrete wall is, in fact, the best choice. Furthermore, Cost Benefit Analysis states, while the TAG recommended that both proposals move forward for public comment, based on the Life Cycle Cost Analysis,</p>

	<p>it would appear that proposal 208 does not show either net present savings or social life cycle cost savings over current code requirements, therefore, I suggest the proponent I should have withdrawn this proposal. I encourage all Council members to read the written testimony supplied by the masonry industry on this important issue. For all the reasons provided, we request the Council disapprove code change proposals 207 and 208.</p>
<p>Tonia Sorrell-Neal – Masonry Institute of Washington</p>	<p>We represent bricklayers, laborers, manufacturers, contractors as well as suppliers to the industry. We have submitted a substantial amount of evidence supporting our position of not changing the code. As recently as the last code cycle, we have hired consultants to conduct energy modeling studies of several relevant building types and completed life-cycle cost analysis as requested. Through both simple payback and life-cycle analysis it is demonstrated that the current mass wall code is the most cost-effective option. As you have heard today, a separate University of Louisville study on this subject produced similar results. We have shown that these building types are as much as 40% of our workforce projects representing less than 11% of all vertical building construction in the state of Washington. The mass wall exception only applies to certain building types, and although important to the industry, will not have a significant impact on commercial building energy use or savings in Washington State. The Washington code contains other similar provisions such as an option for 40% glazing. This is done to provide designers with multiple compliance options which the mass wall exception does as well. Changing the code will be harmful to the masonry industry by greatly increasing the cost of typical walls by at least 35% while achieving energy savings of 0-2% in the building types analyzed. The past 3 code councils have acknowledged by voting to reject this same amendment, that the mass wall exceptions are a benefit to the built environment in Washington. In 2012, we supported the Option 2 approach to changing the Energy Code regarding mass walls. We understand the Governor’s goals; and our industry has done our part to meet those goals. Oregon has, as recently as last year, unanimously voted to maintain this same mass wall exception. Only 2 people have either mentioned or testified to support the mass wall exception. Including the fact that the author of the amendment did not publicly testify to support the amendment. 13 people representing more than 7,500 Washingtonians testified have shared the negative impacts of amendments 207 and 208 will cripple our industry in different ways. In conclusion, the mass wall will withstand the durability challenges of the building types that have been, with intention, made an exception, such as school gymnasiums or Costco. To replace the system is not logical from neither a dollar and cents perspective, nor building use perspective; and it will directly impact the jobs and people who have been a part of Washington’s built environment for more than 40 years. We, respectfully, ask that the Council vote no on both amendments 207 and 208.</p>
<p>Nathan Ellis-Brown – Low Income Housing Institute (LIHI)</p>	<p>I’m a program manager with the Low Income Housing Institute and I’m reading testimony on behalf of our Executive Director, Sharon Lee. I’m speaking to you today to express support for changes in the state building codes concerning electric heat pumps and greater energy efficiency. This is a commonsense proposal that will greatly reduce</p>

	<p>emissions and mitigate the long-term effects of climate change. On December 23, Sharon authored an op ED in the Seattle times and supportive majors such as this, entitled addressing the housing and climate crisis together. It is important to act now to address climate change and doing so does not harm our industry's goals of building more affordable housing. The Low Income Housing Institute is a leader on the development of affordable housing in the Puget Sound region, owning over 70 properties totaling more than 3000 units of housing throughout Washington State. Since 2002, we've made a commitment to develop all new properties in accordance with green building principles such as our June Letter place, in Renton, which uses no fossil fuels and is all electric. We are supporting these changes to building codes, because we have shown that it is possible to make affordable housing and green. Affordable multifamily housing is crucial to helping low-income residents adapt to the climate crisis and those residents deserve buildings that will protect their health and safety from air and climate pollution. Low-income residents and other underserved communities are disproportionately impacted by the negative health impacts of gas. Black, Latinx, Asian and other low-income communities have higher risks of debt from particular pollution. Many low-income households cannot afford air conditioning, which is essential to keeping vulnerable people safe during extreme heat and deadly heat waves. Heat pumps provide both heating and cooling. Strengthening energy codes is a key way to minimize energy waste. Constructing efficient and quality buildings means lower energy bills for our residents. If we don't help create opportunities for low-income customers to move off fossil fuels now, they'll be left holding the bill for any stranded infrastructure down the line, after wealthier residents have chosen to move off the gas system. Low-income customers will benefit from robust bill payment assistance programs required by the 2019 Clean Energy Transformation Act. For all these reasons, and more, we strongly encourage you adopt the proposed change on electric heat pumps and residential buildings, this is the right move, both for our industry and also for our community our residents and our planet.</p>
<p>Dr. Elly Claus-McGahan</p>	<p>I live in Tacoma. Thank you for this opportunity to testify in support of heat pump technology code for new commercial and multifamily buildings. I serve on the Sustainable Tacoma Commission, and we helped pass Tacoma's Decarbonization Resolution and supported building electrification actions in Tacoma's Climate Action Plan. I also am a cofounder of Climate Pierce County, and we supported the passage of the Pierce County Sustainability Plan 2030. In the Tacoma Action Plan the data shows that Residential and Commercial Building emissions account for 19 % of total emissions in Tacoma as of 2019. In the Pierce County Sustainability Plan, the data shows that Residential and Commercial Building emissions, in Pierce County, account for 33% of total emissions as of 2019. With the increased construction going on in Pierce County this will increase, as it is doing at the state level as well. Both climate plans have actions related to moving towards efficient full electrification of new buildings. Heat pumps in commercial and residential buildings helps accomplish both goals. Having heat pumps encoded will support what Pierce County and the City of Tacoma already want to do. Meeting Greenhouse gas reduction goals for Tacoma, Pierce County, and the</p>

	<p>state, we absolutely need to address emissions from buildings. Air quality is also high on the priority list particularly as an equity concern. Heat pumps address both priorities by decarbonizing buildings, reducing pollution inside and outside of the buildings. They are very efficient, reducing energy costs for building owners, and renters of multifamily homes. Having new buildings only be fueled by electricity saves in construction costs since no pipelining has to be done for gas or other energy sources. I volunteer with Habitat for Humanity Tacoma, Pierce County. They have been using heat pumps in their new home construction for at least 6 years. Reducing costs for homeowners is a Habitat goal. Owners appreciate it and appreciate the quiet heat pumps provide. Finally, I echo what several people have already said, we need to move off of fossil fuels as quickly as possible as the Intl Panel on Climate Change report makes extremely clear. Every major change leads to adaptation, new jobs, and a new path forward. That was the case when we moved from horses to cars, from wired phones to cell phones, and from candlelight to electric light. The need to change is now. It's our health and our lives at stake and to make sure we can have a future, healthy planet.</p>
Arvia Morris	<p>I am a retired biotechnology scientist and a resident of Seattle. In 2020, my husband and I invested in an all-electric heating and cooling heat pump system for our home, because our gas furnace died after 14 years. We are pleased with the new system. Compared to our gas furnace, we now have better temperature control in the winter and summer. We were relieved to have air conditioning during the heat dome. It was nice to have neighbors over who were suffering from the extreme heat so they could get relief. We also have a supply of different types of filters for the system in case there are poor air quality days due to increased forest fires. On bad-air days, we can install an appropriate filter and have clean air indoors. Our overall utility bills for the year have gone down, so we are pleased with the decrease in running cost of our home. The decrease in our utility bills is an indication of the increased energy efficiency of the new system. Our gas furnace did require electricity to run, so I am confused by the concern about how do we heat or cool our home if the electric grid goes out. Battery storage, when it becomes available would solve this issue. Given the recent reports on the rapid deterioration of the climate due to climate change, it is essential that we mitigate climate change by using less energy and using fossil free energy to heat and cool our homes and workplaces. It is also essential that we adapt to the rapidly changing conditions and have more robust ways to control our indoor environment, in summer and winter. The heat pump system checks both these boxes, mitigation, and adaptation with one system. We need building codes that require these systems in all construction. Commercial and multi-family dwellings is a good start. To achieve Washington State 2030 climate goals, we must implement the clean fossil fuel free heating and cooling technology in the proposed building codes. If we do not meet our 2030 greenhouse gas emission goals, we will not meet our 2050 goals which will be tragic for us and future generations. Approving the proposed building codes is a prudent step in ensuring we have a healthy, safe, and viable future.</p>

<p>Jeffry Berner</p>	<p>I'm a retired aeronautical engineer, speaking in support of adoption of standards for electrification for space and water heaters. I would like to draw attention to the results from the deep decarbonization analysis documented by the Washington State Department of Commerce; Washington 2021 State Energy Strategy. This study identifies that policy decisions which retain natural gas use in buildings, place the state at risk from 2040 through 2050, meeting its greenhouse gas emission goals and at risk for increasing costs to Washington State residents. Essentially, the policy choice creates too much demand for a limited supply of low carbon renewable clean gas. The deep carbonization model can identify how policy choices in one area, like building standards, can affect outcomes in other areas, like industrial processes and electricity generation when sectors use the same fuel source to reduce carbon pollution. In other words, continued use of gas, even a renewable or clean gas has implications for other sectors and how the decarbonize and the price of decarbonization to Washington State residents. In the two scenarios evaluated, the electrification scenario and the gas in building scenario, both cases reduce pipe on gas by 2050, 67% by the electrification case, but only by 15% for the gas in buildings case. The supply risk becomes evident in 2045 when CETA requires 100% renewable, no emitting electricity generation. In 2050, the electricity grid still requires 11 gigawatts of clean gas electricity generating capacity for the purpose of balancing the hydro system and electrolysis for fuels. With both buildings and electricity sectors, creating demand for clean gas, the gas in buildings case is the only scenario studied in the strategy where costs actually increase after 2040, as the increased demand for clean gas from biogas production is four times that of the alternative electrification case. In fact, the only way the gas in buildings case actually meets the greenhouse gas goals is through an assumption that the industry is able to rapidly build out all the necessary biogas production facilities in just five, short years, beginning in 2045, which would then comprise a fully 40% of the entire states clean fuels use in 2050. The gas in building scenario further, also relies more heavily on risky, unproven carbon capture and sequestration to offset the CO2 produced during the production of clean fuels. This makes sense as the final steps to decarbonize are always the most expensive. To conclude, it has not been shown that there is an affordable supply of clean, low carbon gas to be available to meet the State's greenhouse gas emission goals should we keep the status quo building codes for natural gas for space water heating. The best approach is to prioritize low carbon, clean gas for more critical electricity generation and industrial processes, where there are fewer alternatives.</p>
<p>Sean Denniston – New Buildings Institute (NBI)</p>	<p>I'm a Senior Product Manager, with New Buildings Institute and also a resident of Washington State. I'm speaking to urge you to approve the full package of proposals that are before you that have been recommended by the TAG. I want to really emphasize that this package went through a very robust process, at the TAG. As a participant in that process, I can attest. Proponents and opponents all had ample opportunity to present their arguments, to present their evidence, and this was to a body that was specifically qualified to assess the validity of those arguments and that evidence. We really haven't heard anything that we didn't hear at the TAG. I want to remind you that the approval of this of this package is</p>

	<p>essential if Washington is going to stay on track with its mandatory mandated goals for the energy code. I'd like to make a couple of specific comments about proposals 103 and 136, our heat pump proposals. We've heard a few things about existing buildings, and I feel like some of the comments that we've heard kind of misrepresent what the code language actually does. If you look at Chapter 5 language in those proposals, it includes exceptions for like for like replacements, if you just have a failed piece of equipment, you install something new, that's what most equipment replacements are, which means that most existing buildings won't actually fall under these requirements. We've heard all of these arguments about the cost of electrification retrofits, but the code isn't going to be driving those. In existing buildings these are only really going to apply to projects that are already very large. This also means that what we've heard about massive impacts, to the grid, really isn't going to apply either we're talking about requirements primarily for new construction and major renovations. And, in terms of electrification, we've heard some really compelling arguments about all the benefits of electrification. I hope the Council takes these arguments seriously they're not actually necessary for the approval of this package of proposals. Heat pumps are, when you look at just code compliant equipment that meet the federal minimums, four or more times more efficient than their gas and electric resistance counterparts. Those efficiency gains alone justify the inclusion of heat pumps in the code, especially since those efficiency gains are necessary for this package to keep the Washington State energy code on track to meet its 2031 goals. I urge you to approve the full package.</p>
Kenneth Zirinsky	<p>I reside in the city of Tacoma, and I am a retired physician. I would like to express my strong support for total building electrification. A transition to total building electrification and the elimination of the use of natural gas for space heating and for water heating in buildings would substantially improve the health of the citizens of Washington. Outdoor air pollution from combustion of fuel for heating in buildings has been shown to cause severe health problems, such as cardiovascular disease, respiratory disease, stroke, asthma, autism, and premature mortality. A transition to total building electrification would also reduce the annual cost of space heating and water heating since heat pump space heating and heat pump water heating are at least two to four times more efficient than natural gas space and water heating. A switch from natural gas heating to electric heat pump space and water heating would also substantially reduce Washington's production of greenhouse gas emissions, since the state's electric grid is already 80 percent decarbonized due to Washington's wealth of carbon-free hydropower. A recent analysis of over 5,000 existing commercial buildings, throughout the United States, by the American Council for an Energy-Efficient Economy (ACEEE) gave additional support for building electrification. It concluded that retrofitting with electrification and installation of heat pump space heating in these commercial buildings could reduce energy use by about 37% and reduce greenhouse gas emissions by about 44%. In conclusion, building electrification along with efficient heat pump space and water heating will improve the health of the citizens of Washington State, reduce Washington's production of greenhouse gases, and reduce both the annual cost of space and water heating and the annual net energy</p>

	<p>consumption when compared to natural gas. I hope the members of the State Building Code Council will strengthen the updated energy code to require high-efficiency electric heat pump space and water heating in both new commercial buildings and large multifamily residential buildings.</p>
<p>Helen Walter-Terrinoni – Air Conditioning, Heating, Refrigeration Institute (AHRI)</p>	<p>We represent more than 300 manufacturers of air conditioning, heating, and commercial refrigeration, and water heating equipment, which is more than 90% of the products, providing Americans with lifesaving air and water heating. Our members have been deeply committed to reducing greenhouse gas emissions from the products that they manufacturer. Including and reducing the impact of refrigerants and working with the legislature and also with the Washington State Department of Ecology. And an increasing energy efficiency as evidence for decades of work with the Department of Energy. Well, first of all I would like to recognize and thank many people who worked extensively with the TAG and throughout the councils through the many proposals before the Council today and I respectfully offer the following comments on 103 and 136. Although many proponents resolved issue codes brought to their attention by HRI, there are several concerns that are largely on addressed in these two proposals which were identified in our written comments last fall. One example is that space heat pumps that would serve the many medium sized buildings in Washington states are. In many cases, not available commercially at this time to support such a transition. In addition to technical issues, we are concerned that the public has not yet had an opportunity to evaluate the economic analysis to provide feedback on assumptions, scope, and conclusions, as well as the overall impact on the residents of the state. We're also concerned about the timing of these proposals, given the general stated lack of preparedness by suppliers and others in the value chain and the overall extensive delays in the supply chain that we've all seen through the pandemic. In fact, there are agencies within the states that have recognized these gaps and are further delaying transition timing for affected equipment due to those supply chain issues. However, most important, Washington State is taking a leap in this technology change, and since we're all novices in this uncharted territory, I'd like to make some overarching recommendations to ensure that consumers and businesses continue to have access to affordable lifesaving heating and water of a sufficient temperature to sanitize dishes, laundry, etc. It's very important to ensure that the regulatory process allows for and encourages innovation that can provide better solutions, without closing doors to new technologies. It's also important to include an off ramp so the course corrections can be made, as we collectively learned the best way forward in this new terrain. Unfortunately, there seems to be some limitations to address technical issues, as well as some of these weighty issues, including emergencies in this process. Overall, I ask the state to create an open dialogue among all stakeholders to have the difficult conversation, to ensure that all of the State's goals can be met, especially as new information becomes available. Perhaps, allowing for some additional time or venue for discussion might be appropriate. We will reiterate the technical and timing issues again and I've written comments and I just want to thank you for your efforts, and I hope you will consider our recommendations to allow for a better outcome.</p>

Kirsten Smith	<p>I am the Manager of Policy at the American Institute of Architects Washington Council and a co-chair of Shift Zero, Washington’s zero carbon building alliance. I am speaking today on behalf of Shift Zero in support of the full package of 2021 commercial energy code proposals. Shift Zero is an alliance of over 45 green building, energy efficiency, and climate action businesses and organizations, working together to promote the equitable adoption of zero carbon buildings at scale and drive policy that makes buildings part of Washington’s climate solution. As you know, Washington has adopted a target of zero carbon buildings by 2031. Because there are only four code cycles between now and the 2031 code, each revision must maximize building efficiency and accelerate our transition away from fossil fuels. We strongly support the changes this code update makes. Shift Zero’s AEC members work every day to design and construct buildings that are highly efficient and free of fossil fuels. While every commercial project varies, the bottom line is that highly efficient all-electric buildings typically cost less to operate once built, while also helping to avert public health and climate costs. The 2021 Washington State Energy Strategy identifies building electrification as the most cost-effective way to decarbonize the building sector. The cost of inaction, however, is high. As you’ve heard, buildings built with gas-powered furnaces and water heaters will need to have energy retrofits in future years at much higher cost than if we had built them right, from the start. And costs related to impacts to human health and climate change-related natural disasters will be significant. It is time to signal to the market that we need to move to all-electric buildings. Prolonging the use of gas in new buildings is hard to justify when there are better, cleaner options available now, including those suitable for very cold climates, which take advantage of Washington’s increasingly clean electrical grid, and which have the added benefit of also providing air conditioning. The technology to build high-performance all-electric buildings already exists in the market today and innovation is driving more advanced products. A robust energy code will help spur innovation even further and ensure that manufacturers are meeting the challenges the market demands. As we look to 2031, demand for buildings that promote climate sustainability and human health is accelerating; we urge you to support these outcomes for all Washingtonians.</p>
Ian Casey	<p>I am a consulting engineer for NW Natural. I am also speaking to you today as a life-long resident in Clark County and as someone who has 10 years’ experience working on design-build commercial HVAC projects all across Washington State. This experience has given me a front-row seat to how small businesses have been impacted by the aggressive energy codes in our state. Now with this draft of the CR-102 there are even more aggressive measures that will result in higher HVAC and water heating costs for business owners. These measures significantly eliminate affordable system options for customers. You may have heard of the term “Cold Climate Heat Pump”, a heat pump that can operate without electric resistance heat in very low ambient conditions. This technology is also more commonly known as VRF. It is a very efficient technology but it’s not a great fit for every commercial application. Largely in regard to installation cost. To install a VRF HVAC system in place of a typical gas heating roof top unit can easily cost double or more to install. Similarly, on</p>

	<p>the water heating side. No viable economic analysis has been provided to adequately compare the installation and operation costs of a heat pump water heating system to a traditional gas fired water heating system. Heat pump water systems undoubtedly cost more to install. And in highwater use occupancies like hospitals and multi-family housing the gap in installation costs widen significantly. Overall, adding these increased construction costs in our current economic environment will have a significant impact on businesses being able to grow and expand. Another piece of a false information you heard today is that these code changes only affect new construction and that is not the case. The replacement and alteration section in this CR-102 has been modified as well. This would require replacements for natural gas equipment to be replaced with a heat pump, with very few exceptions. Small businesses will be the hardest hit by this. The TAG was presented with options such as using Hybrid Heating also known as “Dual-Fuel” which would allow heat pump equipment to utilize gas heat in-place of electric resistance back-up heat. This solution would have dramatically reduced CO2 emissions and relieved grid “peak” capacity concerns, and this was rejected by the TAG. The TAG was also presented with a proposal that would allow Gas-Fired Heat Pump equipment to be used for water heating. This currently available equipment provides a significant increase in efficiency over current baseline code equipment. This equipment also met the 19% efficiency increase target as requested by the TAG chair, but this proposal was also rejected by the TAG. In closing I would like to say that both the electrical and gas utilities have legislation in place to decarbonize and gas utilities in Washington have a pathway to meet this decarbonizing goal by utilizing increased renewable natural gas on the grid and introducing more gas-fired heat pump technology into the marketplace. We strongly encourage the Code Council to reference the minority amendments presented. We also recommend that SB-179, a proposal that would require electrical outlets at all gas fired appliances be removed from the CR-102. It only adds needless construction costs to the consumer without saving them any energy.</p>
Eric Vander Mey	<p>I just want to highlight one of the sections we haven't talked about, I think, yet today, which is Section C403.5 and Exception 1. There was a proposal that was adopted to limit Exception 1 to other than Group R occupancy is so essentially Group R2 occupancy would require airside economizer or a high efficiency cooling system and not be allowed to use the DOAS option path for avoiding an airside economizer. During the TAG discussion, there was there was a lot of debate about this and the thought was that residential systems could use Exception 5 and there was a lot of discussion about inverter driven heat pump units, such as the epoch units and others that we're coming into the market, since the TAG process, those units have now been going through the HRA product testing, as required by our code and most of them are not turning up to be more than 15% efficient in cooling operation. So, that exception would not be available to small PTHP inverter driven units, thus making this proposal, less cost effective as it was proposed. I will be submitting a written public comment to provide recommendations to either remove this and allow the Group R2 occupancies to utilize the DOAS exception because we are predominantly a heating driven climate for multifamily</p>

	<p>residential, just to limit the cost impact on multifamily residential with a limited energy benefit. I will also include an alternate that would allow a slightly higher efficiency, energy recovery ventilator that will, instead of being 60% sensible effective, would be 68% sensible effective, to match what the other than Group R our units, that offices and others are allowed to do for the code. I just don't think we should treat the multifamily residential different than other office spaces.</p>
<p>Gavin VanClifford</p>	<p>INAUDIBLE...continuing to tackle the climate crisis that we face all throughout the world, as well as Washington State. I know we've already heard testimony in regards for and against for the electrification of buildings, but I want to speak briefly towards the point of externalize versus internalized costs. I know, the previous speaker spoke about reducing the ultimate cost for multifamily dwellings, as well as reducing the overall cost to individual participants, and that is a very important point. However, I would also like to speak towards the costs that aren't speaking quite as loud. As the climate continues to shift and as we continue to experience the changes in our climate, we will continue to see additional costs that aren't internalized into our system, rising sea levels, enhanced heat island effects, in large cities, as well as increase in food costs. All of these additional costs are not really included and easily seen on an individual-by-individual basis. While it may not seem to make sense to electrify, house by house or building by building, because the price point doesn't seem to work out right away. I just wanted to speak towards the importance of realizing that this is a much greater issue and the costs associated with all of these different things won't be seen for many years to come. Any amount of money spent now help to us avoid some of the consequences to our actions will ultimately help us save money in the future and save a lot of heartache as we move down the road.</p>
<p>Adjourn</p>	<p>The Hearing was adjourned at 12:49 p.m.</p>