CITY OF NEWARK
DELAWARE

PLANNING COMMISSION
GREEN BUILDING CODE WORK GROUP
MEETING MINUTES

September 24, 2019

3:30 p.m.

Present at the 3:30 p.m. meeting:

Chairman:	Will Hurd
Members Present:	Jeremy Firestone Tim Poole Reid Rowlands
Members Absent:	George Irvine Rob Jadick Stacy McNatt Ben Prettyman Vacancy (Conservation Advisory Commission)
Staff Present:	None

1. **INTRODUCTIONS**

Mr. Will Hurd: Alright, for the record, we'll go around the table again just for Michelle. Will Hurd, Planning Commission.

Mr. Reid Rowlands: Reid Rowlands.

Mr. Jeremy Firestone: Jeremy Firestone, resident.

Mr. Tim Poole: Tim Poole, City of Newark.

Mr. Hurd: City of Newark, alright.

Mr. Rowlands: No introduction needed.

Mr. Hurd: Not at all.

2. **CHAIR'S REMARKS**

Mr. Hurd: So, my hope today, my goal today is to essentially get approval on the language of the criteria and, if we need to, with edits. But to try to come to consensus on the language. And then get that done with not taking very long. And then spend the bulk of the meeting discussing the points and just sort of being like sure that we're in agreement about are we giving the right number of points to these credits? Are we in balance between the various categories? Is our minimum an appropriate minimum? That kind of, just sort of trying to nail down that. Because I think I do feel that all the things we talk about today for the commercial projects we can fairly easily sort of move over to the residential checklist for next month. A lot of this text, a lot of these criteria are very similar so I can take, you know, we can say this is sort of the approved language and move that into the residential one and get that . . .

Mr. Poole: And if there are a couple of little tweaks that need to happen . . .

Mr. Hurd: Right, right, but basically, we say we're in agreement with these three edits and we can kind of go, okay, let's put that to bed. Because I think we still are not all in agreement about points and how we're using points and what's the value . . .

Mr. Poole: I think we're pretty close though.

Mr. Hurd: We are close, I agree. But I don't think we're all like, yes, we're all there.

3. **MINUTES OF THE JULY 23, 2019 AND AUGUST 27, 2019 GREEN BUILDING CODE WORK GROUP MEETINGS**

Mr. Hurd: So, with that said, minutes which were emailed. I'm going to cop to the fact that I haven't actually read them yet. Has anyone read them?

Mr. Firestone: I'll move.

Mr. Hurd: You move?

Mr. Firestone: I'll move to approve the minutes.

Mr. Hurd; Okay, we can do that. Are we all good? Alright.

THE MINUTES OF THE JULY 23, 2019 AND AUGUST 27, 2019 GREEN BUILDING CODE WORK GROUP MEETINGS ARE APPROVED.

Mr. Hurd: I will be reading the minutes a lot when it comes time to make edits and changes because that's where I get all the information that we talked about.

4. **REVIEW OF CRITERIA FOR COMMERCIAL PROJECTS**

Mr. Hurd: Alright, review of criteria. So, there are some edits but unfortunately, I didn't mark the edits between last month and this month. The only thing that I marked here in the yellow were the things that I changed from what was mailed out last week in the packet and yesterday. So . . .

Mr. Rowlands: In the beginning of the . . . we're just going to review commercial today . . .

Mr. Hurd: Yes.

Mr. Rowlands: But if I take a look at residential, you've got kind of that first gray is the buy-out, do one of these and you've got your 50 points, but I don't see anything like that for the commercial.

Mr. Hurd: Correct.

Mr. Rowlands: We don't want one? Should we? If they certify a commercial building Passive House, they should be done and/or maybe one of these other.

Mr. Hurd: We did have sort of a brief, briefly we said, and maybe that was something residential, but to say if you had a Passive House, how many of these credits would you get to get there. Now, we have gone and written it in for residential, but I think for commercial, you could probably do that same thing . . .

Mr. Rowlands: Yeah . . .

Mr. Hurd: To say . . .

Mr. Rowlands: It's the same metrics.

Mr. Hurd: If I did that, do I hit my 50 points?

Mr. Rowlands: That's a good question. You know, maybe you won't because we don't deal with undisturbed land or things like that that are in here that you get points for. But for me to get 2 points for an energy reduction, I should be getting 20 points or whatever because we're way down. So, it will be an interesting exercise to see if being certified Passive House, which is just pure energy and envelope, gets you any of this. I mean, it gets you a lot . . .

Mr. Hurd: Yeah, but . . .

Mr. Rowlands: But I don't know if it gets you enough.

Mr. Poole: I would bet it would get you this one.

Mr. Hurd: Yeah, I was going to say, it should get you the . . .

Mr. Rowlands: Oh, yeah . . .

Mr. Poole: I would expect that you would be at least 20% better than Code . . .

Mr. Rowlands: Oh, absolutely.

Mr. Poole: Energy-wise. There's just no way you could do all that and not get there.

Mr. Rowlands: Right, but do I get my 50 points. You know, somewhere in here are my windows . . .

Mr. Poole: See, that's the problem with Passive House is it's all energy-based . . .

Mr. Rowlands: Right.

Mr. Poole: And we have other criteria.

Mr. Rowlands: Right, right.

Mr. Hurd: Right.

Mr. Poole: So, do we want to say Passive House gets you an energy exemption or do we want to say no because you're going to go so much further in energy, and it's certified by another agency . . .

Mr. Rowlands: Do we want to let you off the hook for disturbing land and reusing and everything else?

Mr. Hurd: That's because resources . . .

Mr. Poole: And indoor environmental quality and . . .

Mr. Rowlands: Well, you'll get that also.

Mr. Hurd: Some of it, yeah.

Mr. Poole: But you're not going to get some of the, you'll get some of the resource conservation and efficiency.

Mr. Rowlands: I think if you went certified, you'd probably get your points. I'll look deeper into that. I'll do homework.

Mr. Poole: You'd probably get at least close to the 50 and there would be some stuff that would impact indoor environmental quality. There would be some stuff that would impact resource conservation and energy efficiency. You just would.

Mr. Hurd: But whether, yeah, but I think . . .

Mr. Poole: Whether it would get you . . .

Mr. Rowlands: And I should still have to be able to meet, per category, those points.

Mr. Poole: Well again . . .

Mr. Rowlands: And I might not on resources and things like that.

Mr. Poole: If we're having an opt-out, it's an opt-out.

Mr. Rowlands: Yeah, right.

Mr. Hurd: Right.

Mr. Poole: I mean, if we're going to say, look, you go to this other agency, meet these criteria and they certify you as good, that's their opt-out.

Mr. Hurd: Right. Yeah . . .

Mr. Rowlands: In the big scheme of things, I still, you know, I'm Passive.

Mr. Hurd: Yeah, yeah.

Mr. Rowlands: If they did opt-out and they went that path, the notoriety, somebody else could see you could do it, the benefit to all things considered could be far outweigh that I disturb more land than I didn't get that point.

Mr. Poole: Right.

Mr. Hurd: Well, things like land disturbance, you already know that the Passive House is going to be essentially the smallest footprint that you can effectively do . . .

Mr. Rowlands: Not necessarily.

Mr. Hurd: Because your energy . . . no?

Mr. Rowlands: Well, your wall to square foot ratio we try to keep minimum but . . .

Mr. Hurd: So, it's not going to be a big sprawling building, likely. It's . . .

Mr. Rowlands: Not sprawling with wings out here but we got 30 stories up Passive right now.

Mr. Poole: But you know . . .

Mr. Hurd: My . . . sorry.

Mr. Poole: There should be a couple of different ones. Whether it's LEED, whether it's Passive House, whether it's . . . does Green Globes even have something?

Mr. Rowlands: For commercial, I don't know.

Mr. Hurd: I don't know about commercial.

Mr. Poole: But some of those, and if we're going to offer that, then we should offer more than one.

Mr. Hurd: Which we do in the residential. My recollection, at least when we first started talking about this, was that we didn't feel that there were any existing criteria, at least in the commercial realm, that dealt with enough of the areas that we felt were important. It seemed to focus more heavily on particular areas. But, you know, I'm looking at the residential going, well we're going IECC Green Construction Code compliant, I mean I have to look more closely to see if the Green Code really has a, if that's more residentially focused or commercially focused. Because if we're accepting for that, we could accept it for this.

Mr. Poole: Right.

Mr. Rowlands: As would I. I don't know those codes as much.

Mr. Hurd: So, the other ones, it's like, well, you mean the ASHRAE standard. Well ASHRAE deals a lot with energy . . .

Mr. Poole: I'm not a big fan of ASHRAE 90.1 just because there are parts where it's not compliant with the Energy Conservation Code.

Mr. Hurd: Right. And it's a very energy focused kind of thing, so that doesn't get into resources and indoor air quality and some other things we want to deal with. And, you know, LEED has its own issues so . . .

Mr. Rowlands: I'll tell you what, let me go through that homework, maybe I should have already done that, but I'll go through the homework and see if I do a Passive certified, how many points do I get everywhere else. And if it looks like we're there, then I would push harder to include it.

Mr. Hurd: Okay.

Mr. Rowlands: If it looks like I'm going to get my 30 points in a couple of others and everything else is being wasted away, maybe we shouldn't add it.

Mr. Poole: Like I said, maybe we'll do that, instead of the 20%, we say certify Passive. Either or.

Mr. Hurd: Well, we're basically just needing a demonstrated reduction of 20%, so the Passive House is going to be a demonstrated energy savings.

Mr. Poole: Is it going to be demonstrated or is it going to be theoretical?

Mr. Rowlands: It's modeled.

Mr. Firestone: It's modeled.

Mr. Poole: And so is this.

Mr. Hurd: Well and in more detail than like COMcheck or such.

Mr. Rowlands: Oh, extremely. And it's verified third-party. You build it the way it was modeled.

Mr. Hurd: Right, so you could say if you did Passive House, as long as you actually had a HERS rater or something at the end of it to certify it . . .

Mr. Rowlands: Oh, you have to.

Mr. Poole: Right.

Mr. Hurd: And you hit 20%, there you are.

Mr. Poole: I think we should work on our criteria for the reduced building energy use because it says demonstrate, which is . . .

Mr. Hurd: Not what you want?

Mr. Poole: No.

Mr. Rowlands: Yeah, right.

Mr. Poole: Because provide calculations . . .

Mr. Rowlands: Provide an energy model.

Mr. Poole: Yeah, or an energy model . . .

Mr. Hurd: Document?

Mr. Firestone: Well, demonstrate just means that you have the burden. You just say provide stuff and they've met the requirement, so . . .

Mr. Poole: Right, but my question is, when I'm reviewing this plan for compliance with this and they're saying, oh yeah, we're going to demonstrate this at the end . . .

Mr. Hurd: Well . . .

Mr. Rowlands: But if you say provide a [inaudible] model or this model, there it is.

Mr. Firestone: It's got to be more than them providing a model. I mean they have to provide a model that's convincing that they're going to meet the . . .

Mr. Poole: Yeah, provide a model and then provide, through calculation, and then document by third-party.

Mr. Rowlands: Verified by a third-party.

Mr. Hurd: Well, if you read all the way to the end of this, it does say through compliance with an accredited program with third-party verification.

Mr. Poole: Right, but the concern I have with the verbiage is that it's difficult for them to, it doesn't clearly say what they need to provide at application time to meet that burden.

Mr. Rowlands: Well, do you want to list two or three, or you tell me how many, energy models?

Mr. Poole: Modeling is good.

Mr. Rowlands: But you can list [inaudible] modeling or COMcheck or whatever you want.

Mr. Poole: Yeah, I would say engineered calculations . . .

Mr. Hurd: So, provide calculations . . .

Mr. Poole: Calculations and/or modeling to demonstrate a reduction of . . .

Mr. Hurd: To demonstrate . . .

Mr. Rowlands: What does that mean to provide calculations?

Mr. Poole: Meaning that . . .

Mr. Rowlands: Here's my wall . . .

Mr. Poole: This is my wall, this is what I'm expecting based on the way that this wall is proposed to be constructed through COMcheck or whatever. This is how much energy this building is going to use, and this is how much the typical, what a Code-compliant building would do.

Mr. Rowlands: But I don't think you want to have some geeky engineer hand you eight pages of calculations that you have to interpret. You want to see the end of an energy model that says pass, fail, 20%, 50% . . .

Mr. Hurd: Right.

Mr. Rowlands: So, I wouldn't put calculations. I'd say energy models of some . . . and maybe you just want to list a couple that are out there. Are there bad energy models out there that . . .?

Mr. Poole: Again, I want to be as flexible as possible for them, you know, to model it or calculate it as best they can and demonstrate . . .

Mr. Rowlands: How about an accepted energy model?

Mr. Poole: Yeah.

Mr. Rowlands: And then you can say I never heard of this company. They're nobody. It's unlikely you're going to get those.

Mr. Poole: It's all about what information are they putting in and what information are they putting out.

Mr. Rowlands: You can put garbage in and get garbage out.

Mr. Hurd: Yeah.

Mr. Poole: Right, but if the information that they're putting in and the criteria that they're entering into their model doesn't match the building plans, that's where I'm going to flag it. You know, if they say we're going to get this wall and this fenestration, and then they don't provide me the documents behind that, I will question it. Or if what they're saying is just like, really, how much are you spending on those windows?

Mr. Hurd: Alright, so working through this, we're using ASHRAE 90.1. Do we want to be using the IECC? Should we use that as the baseline?

Mr. Poole: By Code, they can use either.

Mr. Hurd: Okay.

Mr. Poole: So, either is a good word.

Mr. Hurd: Either ASHRAE 90.1 or IECC. Okay, and we can say period there. Do we want to say then, or demonstrate compliance with an accredited program or third-party verification, which

allows them to do like a HERS or some demonstrated . . . well, HERS is going to use an energy model and then it's going to . . .?

Mr. Poole: And then they're going to do testing.

Mr. Hurd: Right.

Mr. Poole: And verification, and then provide verification in final report. Or provide a final report with third-party verification.

Mr. Hurd: So, you want both?

Mr. Poole: Right. Yes, they need to propose what they're going to do and then at the end, they have to verify that that's what they did.

Mr. Rowlands: So, if they propose a 1.5 air change per hour and then they get their permit because they got their points and then they get a 2.0 . . .

Mr. Poole: They need to fix it.

Mr. Rowlands: Okay. Fair enough.

Mr. Hurd: Right, because if the model is based on certain criteria . . .

Mr. Poole: Certain criteria, they need to meet those criteria. Or they need to provide a revised model to meet the criteria.

Mr. Rowlands: So, they could revise the checklist and say we actually didn't disturb as much soil, so I got a point there and I lost it here, and I still get . . .

Mr. Hurd: Right, we're not going to make it for air changes, so we take that credit out and we're going to . . .

Mr. Poole: Right, if they run into some problems, they can address it this way.

Mr. Rowlands: Fair enough.

Mr. Hurd: Except they wouldn't be using this. If they were coming this way, they wouldn't be trying to get individual points. They'd be, they'd have to meet a 20% reduction in baseline performance.

Mr. Rowlands: Oh, this, yes.

Mr. Hurd: Period. Yeah.

Mr. Poole: But, again, however they're gong to, that's something that I've had happen before. Where it's like, well, this one didn't work out for us, so we did this and . . .

Mr. Hurd: Okay, so let me just be clear because I want to be sure. We want to change this so that first they have to provide calculations or a modeling report or output demonstrating that the design is compliant with the 20%, is 20% less than a baseline.

Mr. Poole: The design is expected to provide, or something.

Mr. Hurd: Right. And then, at the end of construction, they provide a report from a certification organization or third-party verification that the building achieves the design goals.

Mr. Poole: Right.

Mr. Hurd: Okay, so they can't just do, here's what we're planning to design, which makes sense because if we're going to let them opt out of the whole thing, they've got to actually deliver.

Mr. Poole: Right. And we need to make it clear how we expect them to document the design and document the performance.

Mr. Hurd: Right. And those accepted energy models, I think that's something that can go into the supplemental guide, basically, for you. We don't necessarily want to put that into the ordinance, but you want to be able to say, yeah, we'll accept HERS, we'll accept COMcheck with this much level of detail or something, we'll accept whatever Passive House uses.

Mr. Poole: Yeah, and we don't necessarily do that because the big thing that this is an area of the Code that is a bit of a niche market that there are a lot of new codes and new certifications, and new ones are coming up. So, we don't want to necessarily marry to a certain thing, which is why we're going this instead of saying, hey, let's get 25 LEED points.

Mr. Firestone: It might now be bad to have an approved list of models and an approved list of verifiers that people could come, applicants could come to you if they want to depart from that . . .

Mr. Hurd: Yes.

Mr. Firestone: And be approved on an individual basis so that we're just not getting a scattershot of verifiers or people who are doing verification who aren't really certified and . . .

Mr. Hurd: Right. And the same for the models. We could say if you come to us with output from one of these three or four models, we're good. If you want to use something different . . .

Mr. Firestone: On a case-by-base basis, talk to Tim.

Mr. Hurd: Yeah. You have a really great plug-in, just sketch up those things, and have a conversation with Tim and get it approved.

Mr. Poole: Or whoever the inspector is.

Mr. Firestone: No, just you, Tim.

Mr. Hurd: Just Tim.

Mr. Firestone: In the code it's going to say Tim.

Mr. Poole: And I step in front of a bus the day after the it would be passed.

Mr. Hurd: I had a CAD manager who, because he was crucial to the operation of our firm, really hate the whole hit by a bus kind of method of why you have to things prepared. He's like, what about winning the lottery or marrying a supermodel? Why couldn't that be the reason I didn't come in to work one day?

Mr. Firestone: Yeah.

Mr. Hurd: Why does it have to be a bus?

Mr. Poole: It just demonstrates the suddenness.

Mr. Rowlands: There you go.

Mr. Hurd: It's just the vagaries of life.

Mr. Rowlands: It takes a while to woo a supermodel.

Mr. Hurd: Well yeah. Anyway, good comments. Okay, envelope. COMcheck report or suitable alternative, so that's kind of a sample, or that kind of language that we're looking . . .

Mr. Poole: Or similar verbiage.

Mr. Hurd: Yeah, were approved. Show an area-weighted average U-value for fenestration is 15% better than maximum U-values in IECC tables.

Mr. Poole: I would definitely replace suitable with approved.

Mr. Hurd: Got it. Okay, any other?

Mr. Rowlands: No, looks good.

Mr. Hurd: Provide permanent projections to shade at least 90% of the openings on the south, east, and west faces of the building, area-weighted average projected factor of not less than 0.5. So, I don't remember if I tweaked this before or after but one of the things I did was to just say basically the projections are also area-weighted, so that you could have a few that are shallower and a few that are deeper, but the overall average projection needs to be 0.5. So, that gives them a little bit of leeway so that every single one doesn't have to meet, you know, small windows could have a little shallower, you could have a few windows that let a little more light in. For most of these things, you can see I'm using provide or calculated as a way to just kind of say they have to give you something that shows that it does that. You're not going to calculate . . .

Mr. Poole: No. I'll verify their calculations.

Mr. Hurd: Yes. Oh, the automatic shades, I talked about breaking it into interior and exterior, and then I realized that really like if I have an exterior shade, I'm not going to have an interior shade likely. If I have an interior, I'm not likely to have an exterior. So, I just squished it to say 90% of the windows have to have an automatic shading device, which could be interior or exterior, because they all have the same relatively, they all have to be automatic, they all have to have an override, they all have to be . . .

Mr. Rowlands: But exterior is more important. Can you have 1-point interior and 2-point exterior?

Mr. Poole: Yeah, that's what I thought we had discussed last time.

Mr. Hurd: That's true, we did. Okay.

Mr. Poole: So, we'll split that into two categories.

Mr. Hurd: Yes.

Mr. Poole: The interior gets 1 and the exterior gets 2.

Mr. Hurd: Okay.

Mr. Poole: Because the exterior is more likely to be much more permanent.

Mr. Rowlands: And more expensive.

Mr. Firestone: Can you get both or can you only get one?

Mr. Poole: That's an or because . . .

Mr. Firestone: That's what I thought. So, it just needs to be clear.

Mr. Hurd: Now, can we find a way that they could do some exterior and some interior and give them a, as long as it covers 90% . . . what? One-and-a-half?

Mr. Poole: Yeah, that's not going to work.

Mr. Hurd: Okay.

Mr. Rowlands: From a practical, I think they're all going to be . . .

Mr. Hurd: One or the other?

Mr. Rowlands: Yeah, for the most part.

Mr. Hurd: Okay, I'll break that apart then.

Mr. Rowlands: I might argue 3 points for exterior.

Mr. Poole: We'll talk about points later.

Mr. Hurd: That's next. But, yes. Okay, insulation. Calculated U-value for total wall assembly is 10% better than maximum allowed or 20% better than maximum for the two phases. Higher insulation walls, this is the conversation we had about continuous exterior insulation. And this is my first stab at the language, so feel free to mess around with it.

Mr. Poole: If we could back up a second . . .

Mr. Hurd: Sure.

Mr. Poole: Maybe on the automatic shades, the way we address that and the way we address some other stuff that's further down where there's different levels is to have them be a subcategory.

Mr. Hurd: Oh, okay.

Mr. Poole: Have it be automatic shades and then interior 1 point and exterior 2 points. So, it's a subcategory.

Mr. Hurd: Yeah, okay.

Mr. Poole: I think that's going to work out better for some of the other stuff down the line, as well.

Mr. Rowlands: Well, to keep it similar, the next line down is in yellow. There's your 1 or 2 points.

Mr. Poole: Right.

Mr. Hurd: Right.

Mr. Rowlands: So, do the same thing for interior and exterior.

Mr. Hurd: Yeah, I'll just do the same thing. Because that first chunk of language is, you know, automatic shading devices, 90% of the windows, you know, cover 90% of the window itself in the closed position and have a manual override. That's the base criteria. And then you say interior shades, 1 point. Or, exterior shades, 2 points.

Mr. Rowlands: Yeah.

Mr. Poole: Right.

Mr. Hurd: I like that. Thank you. Let me know if I'm moving from things too fast because, of course, I've been staring at this a lot.

Mr. Poole: We've all stared at this for a long time.

Mr. Hurd: We've all stared at it, that's true. Alright, so higher insulation in walls. We have the base credit, which is the 10% improvement in the total wall assembly or providing the continuous insulation per Code. Now, you guys had talked about minimum, but I realized in looking at the commercial code, there's different minimums whether it's a metal building, metal stud building, wood stud building, so I didn't want to lock into one particular minimum R-value. I wanted to just say the baseline to get a credit is you actually provide continuous insulation per Code, whatever number that is, and 5% better for the cavity insulation. But I don't really like how I, I mean I don't like this sentence particularly. I don't think it's quite as clear as it needs to be, but I wasn't sure how to . . . and I was feeling like I needed to get this done and out to people. It says 5% better than minimum cavity insulation. I don't know if that should be R-value.

Mr. Poole: And you have maximum where you should say minimum.

Mr. Hurd: Well, so U-values are maximums . . .

Mr. Poole: Oh, yeah, you're right.

Mr. Hurd: So . . .

Mr. Rowlands: How do you get 5% better in a cavity short of . . . ?

Mr. Hurd: You can't really because if it's like an R-13, it's 13 . . .

Mr. Poole: Well, R-13 versus R-15. I mean both fit in a 2x4 wall.

Mr. Hurd: Yeah.

Mr. Rowlands: We're not building 2x4 walls, though.

Mr. Hurd: Well, some people are. If you do the continuous insulation, you can do a 2x4 wall.

Mr. Rowlands: Does anybody build that?

Mr. Poole: I've got somebody building 2x4 walls and then they're spray foaming them.

Mr. Rowlands: I would like to push people subliminally away from spray foam, which is why I was questioning that 5% more. Take out cellulose which is good as a spray foam and you'll get your 5-20% more but . . .

Mr. Poole: But you can also go with mineral fiber which is typically a much better performance than fiberglass, as well, in the same cavity. So, there are alternative types of insulation that you can beat the R-value in the same cavity.

Mr. Hurd: Right, the basic intent here, and this is why we care about the words, was to say either you do 10% better for the whole wall assembly or continuous insulation and a little bit better on the cavity. Not the bare code minimum of 13 and 15, but like a 15 and 5. Something better. Or, and that's to get the 1 point. To get the 2 points, you're doing 5% better on the continuous exterior insulation and 10% on the cavity or 20% on the wall in total. Just trying to

at least start with some percentages that seem to make sense for incremental improvements that aren't onerous.

Mr. Rowlands: However, this gets worded, now I'm concerned about the 10% just getting them into spray foam to get that 10%. It's too easy to call the spray guy to do it and . . .

Mr. Hurd: Well, if I'm doing continuous exterior, I may not get into spray foam. I might do like mineral fiber and call it a day. Or blown in cellulose or something. Because I think if I've already put [inaudible] on the outside, I don't know that I'm also going to spray foam the inside.

Mr. Poole: No.

Mr. Hurd: Because that's, I've already . . .

Mr. Poole: No, its an either or, in my experience.

Mr. Rowlands: Well, like Ben, he likes spray foam for his air sealing.

Mr. Poole: Right.

Mr. Hurd: But if I did exterior insulation, I'm getting my air sealing there, theoretically.

Mr. Rowlands: No, not with mineral wool.

Mr. Hurd: No, no, no. But if I do, well if I did like the zip . . .

Mr. Rowlands: The R zip?

Mr. Hurd: And I tape the seams, I'm getting a much better air barrier than everything else.

Mr. Poole: And again, just because we don't particularly like an alternative, doesn't mean that it's not an effective alternative.

Mr. Rowlands: It's effective for insulation but not for climate change.

Mr. Hurd: Yeah, I know. Language-wise, though, how do we, are we . . . I realize I've got some problem here because I'm switching between U-value and R- value.

Mr. Rowlands: Yeah, we'll test these people.

Mr. Poole: Again, all we can do is put an end and try and make it clear that they have to meet either one criteria of the other.

Mr. Hurd: Right. That's partly why if I can break this into a Word document, I could make it clearer that this is one chunk or this is a chunk.

Mr. Poole: Right.

Mr. Hurd: It gets a little harder here. But we're doing okay? Okay, beautiful. Higher insulation floors and slabs, same thing, 10% improvement in the U-value or 20%. Okay, minimized thermal bridges. I can't remember if this is one that we, I know we talked about a lot of things last time, so I think I re-edited this. What I've tried to do, basically, is to simplify it to say essentially that if you do a COMcheck report, you did a COMcheck report that included basically the structural elements that provide a direct uninsulated path in the calculations instead of ignoring them because they were less than 1% or whatever. Because I think the original text that I had picked up was a little too wordy and it took a long time to get to the fact that this had to be part of the model.

Mr. Poole: Yeah. I think this looks good to me.

Mr. Rowlands: What does it mean exception? Structural elements which are insulated with at least R-5 continuous.

Mr. Hurd: So, if I have a steel beam sticking through but I wrapped it . . .

Mr. Rowlands: The whole thing? Everything?

Mr. Hurd: The whole thing.

Mr. Poole: Right.

Mr. Hurd: As long as . . .

Mr. Rowlands: That's inside the thermal envelope then.

Mr. Hurd: But it's not fully because it's only R-5. It's not like it's within an R-20 wall but it is insulated more than if I just stuck it . . .

Mr. Rowlands: Can you even do that?

Mr. Hurd: I don't know.

Mr. Rowlands: If you've got a structural whatever out there and you're hanging a balcony, okay that's not going to be broken there. I mean . . .

Mr. Poole: Again, they have to meet it. Is it possible? Yes, it's possible to provide a thermal bridge that way. It doesn't mean that it's easy. It just means that it's possible and that's a choice they can make to meet that.

Mr. Hurd: And I'll just say that I took this straight out of . . .

Mr. Rowlands: Somebody else's?

Mr. Hurd: Someone else's. So . . .

Mr. Rowlands: I just don't quite understand a structural element that can be completely engulfed in R-5. Somewhere it's hanging something. Whether it's a balcony . . . a sign is one thing, not a big deal.

Mr. Hurd: I can see if I can dig into that a little more.

Mr. Rowlands: I mean I'd hate to have it worded this way and they start trying to figure out how to do it when all they have to do is just put a thermal break on that column going out, or whatever. It's a way lot cheaper than what you're describing there, to wrap the whole thing.

Mr. Hurd: Yeah, so that's, I guess if you provide a thermal break then it's not a direct uninsulated path so . . .

Mr. Rowlands: Correct, so you're good to go.

Mr. Hurd: Okay. And I will note that where it says provide a COMcheck report, I will add the thing or approved alternative everywhere that I've done that.

Mr. Rowlands: Okay. I mean it's okay in one sense because I don't think anybody can wrap an R-5 around a structural element and hang or do what it's supposed to be doing but maybe they can. But you're talking about those representing less than 1% of the area of a given envelope.

Mr. Hurd: Right.

Mr. Poole: They would have to find something that would provide R-5 and also provide whatever structural, and not undermine the structural support being provided.

Mr. Hurd: Right. So, the exception is if you wrap the element with R-5 or if it's less than 1% of the area, 1% of the given envelope area . . .

Mr. Poole: I'm not a big fan of the 1%.

Mr. Hurd: You're not?

Mr. Poole: I have to admit, I'm not a big fan of the 1%.

Mr. Hurd: We don't have to keep it.

Mr. Poole: Just because, again, if you think about it, the balcony that's projecting is 4 inches thick in concrete, how much of that wall area is it? I'll bet it's less than 1% . . .

Mr. Rowlands: It might be.

Mr. Poole: By the time you calculate 17 balconies on that wall that are 4 inches thick by 6 feet long.

Mr. Hurd: Okay.

Mr. Rowlands: And it's not cumulative. It's set balconies . . . that's less than 1, that's less than 1.

Mr. Hurd: Okay, well . . .

Mr. Rowlands: If the structural element is penetrating and it's less than 1%, so we don't count it.

Mr. Poole: Right, I say we get rid of that one.

Mr. Hurd: Okay. Well if we stick with direct uninsulated path, if they insulate the element, then it is no long an uninsulated path.

Mr. Poole: Right.

Mr. Hurd: So, really, that exception maybe doesn't need to be there as language confusing people.

Mr. Poole: I'm good with that. Just lose the exception.

Mr. Hurd: Okay.

Mr. Poole: It makes that an inch shorter.

Mr. Hurd: And then the little chunk on the end is really just a sub-note that we, it's a sub to the criteria to go, just so we're clear, studs don't count but balconies do.

Mr. Rowlands: So, there's no percentages. If you have any penetration here, you don't get your 3 points?

Mr. Hurd: Yeah.

Mr. Poole: Yeah, thermal bridging.

Mr. Hurd: Well, no, no . . .

Mr. Rowlands: So, if I had a sprinkler pipe penetrating, which I will . . .

Mr. Hurd: No, what it's saying is you can have penetrations, you still have to meet the Code performance. So, if I've got a balcony sticking out and I run COMcheck and include that heat loss, I have to balance that heat loss with some other method so that the overall building still performs to Code. So, it's not saying you can't have it. It's just you have to include it in your model . . .

Mr. Rowlands: Right.

Mr. Hurd: So, you say, well, I'm losing all that through there but I'm also, I bumped up my wall insulation to cut down on that, so the overall performance still meets. And that's why I think we give them 3 points because we're saying . . .

Mr. Poole: That's going to be hard to get.

Mr. Hurd: We want a more detailed model . . .

Mr. Rowlands: What you don't want is somebody walking in and saying well you didn't count every screw that I put through to hold my cladding on. That's a thermal bridge.

Mr. Hurd: I know but that's the 1%.

Mr. Rowlands: That's where the 1% came in and maybe it should be 0.01 or . . .

Mr. Poole: Right. I'm uncomfortable with the 1% just because we're talking wall area.

Mr. Rowlands: There's term we call point thermal bridges and we actually calculate all those screws but point thermal bridge could be an exclusion.

Mr. Poole: Or you say something less than one square inch or something, you know, that minimizes that.

Mr. Rowlands: I wouldn't say one square inch but a quarter-inch or . . .

Mr. Hurd: Because a square inch could be a sign post.

Mr. Rowlands: Oh yeah.

Mr. Poole: But I mean . . .

Mr. Hurd: Partly we're helped here because I think that some of the models, most of the models we're going to deal with aren't going to have the building to model, those point thermal bridges, so they're not even going to be considered in a standard model.

Mr. Rowlands: [inaudible] will do it. It's a pain in the ass.

Mr. Hurd: Go for it.

Mr. Rowlands: It ain't free to do it.

Mr. Poole: If you want to do something like that, then put in such a small size that's exempted that it really doesn't matter. That nail doesn't matter significantly like that, you know, four-inch concrete slab does.

Mr. Hurd: Right.

Mr. Rowlands: Aluminum [inaudible] matter though.

Mr. Poole: Yeah.

Mr. Hurd: Yeah.

Mr. Rowlands: So, we're not eliminating those.

Mr. Poole: Right.

Mr. Hurd: And again, this is, we're trying to move the bar forward or up, whatever the metaphor is and then next time around we can, you know, maybe the models start getting better and we can . . .

Mr. Poole: Well, certainly, one thing that has happened since we adopted this first ordinance was things have gotten a lot better in this area. And the Code requirements have really bumped up which is probably our biggest reason that we need to do this.

Mr. Hurd: Right. Alright, provide a report demonstrating that the measure air leakage of the building at 75 pascals is no more than 0.40 cfm per square foot of the building's exterior thermal envelopment area.

Mr. Rowlands: This is an as-built third-party report?

Mr. Poole: Yes.

Mr. Hurd: Yes, do you need to say third-party report?

Mr. Poole: No, it'll need to be worded similar to third-party verification.

Mr. Rowlands: Yeah, keep it consistent, third-party verification.

Mr. Poole: Yeah, third-party verification. And maybe we need to word it something like third-party verification shall be provided with final report.

Mr. Hurd: Or report from a third-party accredited . . .

Mr. Rowlands: That exterior doesn't look right.

Mr. Hurd: It doesn't. It's got an A in there.

Mr. Rowlands: Yes.

Mr. Hurd: So, an accredited third-party . . .

Mr. Poole: Yeah, an approved third-party . . .

Mr. Rowlands: Well, let's get the wording because you've got third-party verification. If we keep consistent with whatever we're using . . .

Mr. Hurd: Yeah, I'll throw something in there. I'll either say approved or, well, accredited would imply like a HERS or something like they've gone through a program.

Mr. Rowlands: If you say approved third-party verification, it's on you. If you like it or not . . .

Mr. Poole: Right.

Mr. Hurd: That's true.

Mr. Poole: And right now, in the IECC the only thing that's approved is HERS and what's the other one?

Mr. Hurd: Well, that's the methodology.

Mr. Rowlands: RESNET.

Mr. Poole: RESNET, yeah.

Mr. Hurd: Isn't RESNET . . . no, RESNET is not HERS.

Mr. Poole: No.

Mr. Hurd: Alright. Have to pick up the pace.

Mr. Poole: Those are the tougher ones.

Mr. Hurd: This is true. Mechanical systems, commissioning, again, third-party verification.

Mr. Rowlands: Approved third-party verification.

Mr. Hurd: Certified by the commissioning agency. Document that all HVAC equipment meets the minimum efficiency requirements of the IgCC equipment efficiency tables. Do you like demonstrate or do you want document for high-efficiency cooling towers? Actually, I have demonstrate in a number of places and . . .

Mr. Poole: Provide documentation.

Mr. Hurd: I'll say document.

Mr. Rowlands: So, find demonstrate throughout the whole thing and replace it. Maybe.

Mr. Hurd: In my mind, demonstrate would be the . . .

Mr. Rowlands: Approve each one as you go through it.

Mr. Hurd: You can sit down with Tim and go there, there, there . . .

Mr. Firestone: It's good to pick one word and not have it seem like we're seeking two different things.

Mr. Poole: And strong language is important.

Mr. Hurd: Okay, so all demonstrates are documents. So, that's for cooling towers. Boilers, having efficiency greater than 94.5%. Is that ever something that we want to tie to a standard as a percentage better than? Or do we want to stick with a flat number?

Mr. Poole: I think a flat number for now because right now we're at 80%.

Mr. Hurd: Oh, well then, we can go up from there.

Mr. Poole: The Code is 80%, so you get to 94.5, I think we'll be good.

Mr. Hurd: Fans at watts per cfm. We have no continuous fan operation. ERV or HRV to meet the recommended air flow rates. Document that occupancy sensors and zoning controls are provided that allow the temperature set point to be reduced in unused area. And special hotel

one that each guest room shall have networked controls to allow the temperature set point to be reset during the period when the guest room is unoccupied or unrented. So far, so good?

Mr. Rowlands: Aren't all hotels and that type going to these you put your key in and everything works?

Mr. Hurd: I was in a hotel this summer that I think had a wall thermostat and I have a feeling that whatever we set for that morning, it was still that when we came back.

Mr. Rowlands: No, I'm talking about brand new built today, you get your key card, it's a credit card looking thing and you slide it inside the door and now the power works and everything is on. When you leave, you take your key with you and everything shuts off.

Mr. Hurd: Maybe. But if they are doing that . . .

Mr. Poole: Not Springhill Suites.

Mr. Rowlands: Well, forgive me, I just came back from Germany and that's where it is.

Mr. Hurd: It could be frustrating if you left stuff plugged in to be charged or something.

Mr. Rowlands: There's an override for your charging.

Mr. Poole: But no, not at the Springhill Suites, which is the . . .

Mr. Rowlands: They're not doing it at all?

Mr. Poole: No, it's p-tag units. Fairly efficient p-tag units, but they're still p-tag units and until they're tied into the BAS, it's not going to work out.

Mr. Hurd: Right, so you could set it to 68 in the morning, walk out, and it will be running until . . .

Mr. Poole: Unless they tie it into the BAS, it's pointless.

Mr. Hurd: Alright, high-efficiency water heaters, moving to service water heating. Gas-fired storage, gas-fired instantaneous, boilers, electric storage system, small and large, and electric instantaneous. Are there any water heating systems that we're missing?

Mr. Poole: I mean there's steam-to-gas. I mean steam-to-water.

Mr. Hurd: Would that be a boiler? Because we have boilers.

Mr. Poole: Yeah, but it's like the University has steam that they send all over the campus. So, you know, but they're the only ones.

Mr. Hurd: Yeah, not everyone puts in a steam plant anymore.

Mr. Poole: Right, so, I think we're fine.

Mr. Hurd: Okay.

Mr. Rowlands: Should there be heat pumps?

Mr. Hurd: Heat pumps could fall under, I think, electric storage system.

Mr. Rowlands: Yeah?

Mr. Hurd: And you'd have pretty good efficiency being a heat pump.

Mr. Rowlands: Okay.

Mr. Hurd: I didn't see that that needed to be pulled out separately.

Mr. Rowlands: No, that's fine.

Mr. Hurd: Document that the maximum individual fixture piping lengths to the nearest source of heated water for all fixtures is 25% shorter than the maximum permitted distance in the IECC. That's going to be a fun document. Provide either point-of-use water heating or a recirculation pump and piping which is activated by occupancy sensors or light activation. Document that 40% of the domestic hot water load is met by a waste heat recovery system. Okay on water?

Mr. Rowlands: Yeah.

Mr. Hurd: Alright, lighting and lighting controls. Document that the installed lighting power density for interior lighting fixtures is 10% lower than the maximum allowed lighting power density in the IECC. Demonstrate that a minimum of 35% of the building's conditioned floor area is within a daylight zone as defined by the IECC. Provide controls to adjust the lighting output within the daylight area to maintain the desired illumination levels. We want document there, right?

Mr. Poole: Yeah.

Mr. Hurd: Document that the installed lighting power density for exterior fixtures is, take out the be, 30% lower than maximum allowed lighting power density in IECC.

Mr. Rowlands: Is that reasonably do-able? We're all going LEDs, and can you do 30% better than that.

Mr. Poole: Yeah, but it's not required to be LEDs. They still do allow for . . .

Mr. Hurd: I haven't actually looked to see what the lighting power density for exterior fixtures is.

Mr. Poole: It wouldn't be easy though.

Mr. Rowlands: To get 30%? No, I don't think it would be.

Mr. Poole: But we're not here to make it easy. They have other choices.

Mr. Hurd: Provide daylight sensors and controls for exterior lighting in parking lots and outdoor sales areas. And that's lighting.

Electric systems. Occupancy controls for outlets. Document that 50% of all 125-volt and 15- and 20-amp receptacles in all private offices, conference rooms, print and copy rooms, break rooms, classrooms, and individual workstations are controlled by time clock or occupancy sensor. Controlled receptacles must be clearly labeled. At least one controlled receptacle must be installed within 10 feet of an uncontrolled receptacle.

Mr. Rowlands: I have 6.

Mr. Firestone: I have 6.

Mr. Hurd: Oh, 6 feet, sorry. Did I say 10?

Mr. Firestone: Yeah.

Mr. Hurd: My bad. You're right, it's 6. Provide Energy Star certified commercial fryers, dishwashers, steam cookers, compartment steamers, hot food holding cabinets. I feel like that sentence is missing something, like it needs an and.

Mr. Rowlands: Why does it have where applicable?

Mr. Hurd: I'm not sure.

Mr. Rowlands: You either do it or you don't.

Mr. Hurd: Okay. Renewable energy.

Mr. Poole: Should renewable energy be moved down into resource conservation, efficiency and features?

Mr. Hurd: I think we had that conversation but I'm not sure.

Mr. Poole: Because I don't know that it's necessarily in energy.

Mr. Hurd: It's energy in the sense that you're balancing your consumption with some generation.

Mr. Poole: Right.

Mr. Hurd: And resources, at the moment, is mostly dealing with, well, it deals with water, but it mostly deals with materials.

Mr. Poole: Right.

Mr. Hurd: Whereas the energy stuff here is dealing a lot with energy usage, including mechanical, lighting . . .

Mr. Poole: Right, but my discussion point is that that's, the energy stuff that we have everywhere else is all about efficiency, and this is about provide alternative energy as opposed to, or providing green energy, which is more in resource conservation than necessarily our energy efficiency.

Mr. Firestone: Well, I mean it's neither conservation nor efficiency. So, it's really in a separate category.

Mr. Poole: Right, but the question is, which one does it fit in better?

Mr. Firestone: Well, it clearly not conservation or efficiency. I mean, it doesn't necessarily fit in that one either. I mean conservation is using less and efficiency is being more efficient in your use, and this is saying how you're going to choose what you should use.

Mr. Hurd: We titled this whole group – energy reduction, efficiency, and renewable energy generation – so maybe we just need to pull renewable energy up a level so that it's clear that we're talking about . . .

Mr. Rowlands: They're all in the same group.

Mr. Poole: Right.

Mr. Hurd: That's true. I think it could go almost anywhere.

Mr. Firestone: Maybe we ought to just call it energy because it is a little confusing because we have the word efficiency there and efficiency in the next one.

Mr. Poole: Right.

Mr. Hurd: Okay, so you want me to call this overall, this top level . . .

Mr. Firestone: Just call it energy.

Mr. Hurd: Energy. Okay, 24 points in energy and that includes renewable energy. Okay.

Mr. Rowlands: There is energy that's coal-fired and there's renewable.

Mr. Poole: Why don't you use reduction?

Mr. Rowlands: High performance, you're reducing energy.

Mr. Poole: What?

Mr. Rowlands: If you use high performance equipment, you're reducing energy.

Mr. Poole: Energy use reduction. If that's again, what we name the categories . . .

Mr. Firestone: Why don't you call it fossil fuel reduction.

Mr. Rowlands: I like renewable energy. It fits, it's well-know . . .

Mr. Poole: No, I was talking about the overall . . .

Mr. Rowlands: Where it should go.

Mr. Hurd: Yeah, where does it live. I understand. Alright, the first one, future capability. Provide conduits from attic to electric panel for future connection and demonstrate, document, that roof structure is sufficient to support the potential additional load of panels. Cannot be combined with the Provide PV Panels credit. Provide PV panels, two points for every 15kW of installed capacity, up to 6 points. Or, sign up for the Green Power Plan through the City for a minimum of five years. I think that's where we kind of came down on it last month.

Mr. Poole: Yeah, because last time it was two years and we weren't really happy with that.

Mr. Hurd: No, but I think it was also kind of clear that it's like you're going to do, if you're doing panels, you don't need [inaudible]. And if you're not going to do panels, then you have to be doing something . . .

Mr. Rowlands: So, when you have this or here, it's pertaining to the line above it?

Mr. Hurd: Yes.

Mr. Rowlands: Which is not all that clear.

Mr. Hurd: Yeah, I understand.

Mr. Rowlands: But 2 points for every kW. Can't you do both?

Mr. Poole: It doesn't give me any heartburn.

Mr. Firestone: To do what?

Mr. Poole: To provide the PV panels and sign up for the Green Energy. Because the likelihood that they're going to be a net zero . . .

Mr. Firestone: Yeah, yeah. I mean 45kW is median for . . . so we might expect that some large building, you know, they might . . .

Mr. Hurd: Okay so I'll scratch the or . . .

Mr. Firestone: I think they should be able to . . .

Mr. Rowlands: Just scratch the or and you can get 6 and you can get 2.

Mr. Hurd: I'll scratch the or.

Mr. Poole: And if we wind up, you know, somebody that's net zero gets an extra 2 points, woo hoo, they're net zero.

Mr. Hurd: Alright. Resource conservation, efficiency, and features. I think this has not changed much. Provide documentation that 50% of the construction waste, by weight, has been diverted from landfills, or 75% of the construction waste, by weight, has been diverted. I did expand this. When we said or, I repeated some of the text just so we were clear about saying or 75%. The checklist that we give you may be that shorthand. It's just like 75% and this. But I wanted this to be clear for someone who is reading it for the first time. Provide documentation of donations to an approved charitable organization. I might take out that parenthetical part because that's going to be more of an internal comment to you. Does that make sense, Tim?

Mr. Poole: Yes.

Mr. Hurd: One point for the first $1,000 and 1 point for each additional $5,000 in donated value, maximum of 5 points. Recycled content. A product qualifies as being meeting the recycled content criteria if it contains a minimum of 25% post-consumer recycled content or 50% pre-consumer recycled content. Provide . . .

Mr. Firestone: You get no points?

Mr. Hurd: This is just saying what counts as recycled content material.

Mr. Firestone: Oh, got it.

Mr. Hurd: This is the header. And then say provide documentation on installed products that demonstrates that the criteria has been met. And then we go, okay, minimum of 75% of all installed carpeting and flooring has recycled content, that a point. Minimum of 90% of all installed decking, all installed sheathing, minimum of 90% of all installed siding, minimum of 90% of all installed roofing, all acoustic ceiling tiles and a minimum of 50% of all installed ceilings has recycled content, minimum of 90% of all framing, all concrete used except pavers, pervious concrete and countertops contains 30% fly ash or slag and 50% recycled content or reclaimed aggregate or . . .

Mr. Rowlands: What is 90% of all framing has recycled content?

Mr. Hurd: So, if you're using metal studs.

Mr. Rowlands: So, you're just giving them a point because that's what they build with?

Mr. Hurd: Sure.

Mr. Rowlands: They're not going to make a decision to go . . .

Mr. Hurd: No, but if they're using, metal studs have a benefit because, you know, they're recycled, they can be recycled, they can . . .

Mr. Rowlands: They can be a thermal bridge.

Mr. Hurd: They can. We address that in the other areas.

Mr. Firestone: We don't need to say has recycled content in each of these.

Mr. Hurd: That's true.

Mr. Firestone: Because they all fall under the recycled content . . .

Mr. Hurd: That's true. Okay. I will strike that. I think I was leaning towards making sure everyone understood what we meant.

Mr. Poole: Well, if they're going to be able to do this, they're going to have to be able to read and write.

Mr. Hurd: So, we are setting a baseline. Okay.

Mr. Rowlands: I would argue, not argue, but do we need framing in there? I mean these guys design with steel studs or wood studs. It's what you're going to get.

Mr. Poole: I'm fine with taking it out. It's 1 point.

Mr. Hurd: It is 1 point. I mean I think, I think you had come up with a longer list at one point. I think it had come from a couple of different places what the recycled content things were.

Mr. Poole: Yeah, this is like the third version of this.

Mr. Hurd: Yeah.

Mr. Poole: And, you know, if we lose that one category that basically they're going to meet if they provide metal framing . . .

Mr. Rowlands: It's just not influencing anybody. To me, it's just I build with metal studs, that's what I do . . .

Mr. Hurd: And I think that is part of what we're trying to do is to make sure that this is a credit that influences a design decision. I'm okay striking.

Mr. Rowlands: Then I would strike it because I'd rather see them build with wood.

Mr. Hurd: Okay.

Mr. Poole: And I would not. I'd rather see them build with metal because it's non-combustible.

Mr. Rowlands: There's going to be a fire-rated wall anyway. And wood chars. Build with mass timber.

Mr. Hurd: There you go.

Mr. Rowlands: There's a really cool picture of a demonstration of a fire-rated big-ass steel beam.

Mr. Poole: I'm still waiting for my first tight wood building.

Mr. Rowlands: They're coming.

Mr. Hurd: Yeah. Regional materials. Provide documentation showing that 10% of materials, calculated as a percentage of total cost of materials, were extracted, processed, or manufactured within 500 miles of the project site if transported by truck or 1,500 miles if 80% of the travel distance was by water or rail. That is a change, I think, from last time because we had 150 or something, like stupid short. This is, I can't remember if this is LEED or if this is Green, but that I liked because it sort of says, okay, if you're driving by truck and it's a short distance, but rail or ship, much more efficient, so we're give you more mileage on the more efficient method.

Mr. Firestone: Why is the first one 10% and then 80% by water or rail?

Mr. Hurd: Because . . .

Mr. Poole: It's the travel distance.

Mr. Hurd: The travel distance.

Mr. Poole: It's 10% of the materials versus 80% of the distance.

Mr. Firestone: Oh, okay.

Mr. Hurd: Yeah, that's not material. So, you get the credit, if it's 1,500 miles away, you get the credit if 80% of that distance, of 1,500 miles, was transported by boat or rail.

Mr. Firestone: Okay.

Mr. Hurd: It's going to have to come on truck at some point.

Mr. Poole: Yeah, I'm not a big fan of the boat or rail but . . .

Mr. Hurd: They are more efficient methods of transportation.

Mr. Poole: They certainly are more efficient methods of transportation, but it's the documentation and it's the difficult one. And especially when you're talking about 10% of materials and how many different products are we looking at and amount of documentation to get that . . .

Mr. Hurd: Yeah, if they buy their plywood from China, it's coming on a boat, we know that, but then it's like how did it get from California to here?

Mr. Poole: Right.

Mr. Hurd: I didn't want to, I added it partly because I didn't want to sort of say 500 miles, period. Because there are things that are going to come from further, but this way you can get your European windows . . .

Mr. Poole: Right, but still, if it's a 10%, you can still do that.

Mr. Firestone: Not at 1,500 miles, you can't. I don't know how far across the ocean, but it's certainly more than 1,500 miles.

Mr. Hurd: Oh, okay.

Mr. Poole: Yeah, you can make it to Canada probably.

Mr. Firestone: Yeah.

Mr. Rowlands: Canada I can get there in 500 miles.

Mr. Poole: Right.

Mr. Rowlands: There's a CLT maker that's like 510 and they're trying to find a shortcut.

Mr. Firestone: Maybe we get it from Texas.

Mr. Hurd: Texas. Alright, do we want to edit it or do we want to leave it for the moment?

Mr. Poole: I prefer it be out but I'll, you know, defer to everybody else. It's all about the level of documentation that's going to be needed, for me.

Mr. Hurd: I mean we could just leave it to 500 miles and then . . .

Mr. Poole: That's what I would propose but I don't feel that strongly about it.

Mr. Firestone: So, all these provide documentations should just be document. We have some places where it says provide and then other places it should just say document.

Mr. Poole: I think generally, it's whether I wrote it or Will wrote it.

Mr. Hurd: Okay, we'll let's just leave it at the 500 distance. We'll leave out the rail or water.

Mr. Poole: And I'm not trying to undervalue the value of rail or boat travel, but . . .

Mr. Hurd: Right because we're also trying to balance how much effort they have to do and you have to do.

Mr. Rowlands: Do you think anybody is going to apply for that point?

Mr. Hurd: If this was a LEED credit, then yeah but . . .

Mr. Poole: If it's only 10%, oh yeah. To get the 10%, you know, if all your framing is coming from 300 miles away, all your sheathing is coming from 300 miles away, it's easy to get the 10%.

Mr. Rowlands: 300 miles because I bought it at the local store?

Mr. Poole: No, 300 miles because the trees were cut down in western Pennsylvania.

Mr. Rowlands: Okay.

Mr. Hurd: Extracted process for manufacture. So, that's the key. It's that it's produced within the 500-mile radius, not just appeared at the 84 Lumber.

Mr. Poole: In that case, I bought everything at Shone's.

Mr. Hurd: We could just put 15 miles and be done with it. Yeah, and explain to people that, no, we don't mean where you picked it up from. Rapidly renewable and bio-based materials. Document that a minimum of 2.5% of materials, calculated as a percentage of total cost of materials, comply with ASTM Test Method D6866 and were legally harvested. Certified wood, provide documentation showing that a minimum of, sorry, document that a minimum of 50% of the wood products provided, calculated as a total percentage of cost of wood products, are FSC certified. Provide a framing, here I have to say provide a framing plan that complies with Advanced Framing Principles. Or do you want to say, is that a document? How do you . . .

Mr. Poole: Either one.

Mr. Hurd: This will work? Okay. Document that 90% of the wall assemblies use precut or preassembled components or panelized assemblies. Document that 90% of the floor assemblies use precut or preassembled components such as trusses or panelized assemblies. Document that 90% of the roof assemblies use precut or preassembled components such as trusses or panelized assemblies. Document that all joints, beams, girders, headers, and rafters which are greater than 8 inches nominal in height are engineered lumber. Document that either, one, no irrigation is required or installed, or, two, a minimum of 60% of the landscaping is native and drought-tolerant plants with a subsequent reduction in required and installed irrigation. I've always had an issue with this one because it's like saying no irrigation is one level or a reduced amount of irrigation because you did native plants. I feel like the no irrigation is a preferred path.

Mr. Poole: It is but it gives them an option for some ornamental stuff that needs it.

Mr. Hurd: Okay, but certainly I don't want to reward installing . . .

Mr. Poole: And if you want to bump that percentage up to 80 or 90, I'm fine with that.

Mr. Hurd: Anyone have a thought on that?

Mr. Rowlands: No, I'm not . . .

Mr. Hurd: Okay, we'll hold at 60.

Mr. Rowlands: Yeah, that's fine.

Mr. Hurd: Okay, irrigation design. Provide a design that shows that, or document . . .

Mr. Firestone: After sub 2 and sub 3, you don't need the word that.

Mr. Hurd: Okay. Document that the irrigation system is zoned to provide the appropriate amounts of water to the different landscape materials, sprinklers are not located where they will spray water onto the building, and the system is controlled by a smart controller that will shut off the system based on soil moisture.

Mr. Poole: After the second one where it says building, can we add or paved areas?

Mr. Hurd: Absolutely.

Mr. Firestone: Yes.

Mr. Poole: No sense in watering the driveway or sidewalk.

Mr. Hurd: Seriously.

Mr. Firestone: Or water my neighbor's too.

Mr. Poole: That's why I brought it up. It should be designed so that it falls short.

Mr. Firestone: Yeah.

Mr. Hurd: And so, I'll make sure that that header is clear that all three of these things have to be met.

Mr. Poole: And.

Mr. Hurd: And. Document the graywater reuse system design. Document that chillers and cooling towers are not using once-through cooling with potable water.

Mr. Poole: I still haven't seen one of those.

Mr. Hurd: That actually use once-through . . .

Mr. Poole: Yeah, once-through water. Never seen one.

Mr. Hurd: That's good. Does that mean we can lose this?

Mr. Poole: Well, no, because then we allow them.

Mr. Hurd: True. Okay. Provide fixtures with a maximum flow rate 20% less than maximum flow rate listed in the IPC for lavatories, shower heads, toilets, and sinks. This one, I remember, did get edited to sort of tighten it up. Is that still clear?

Mr. Poole: I think it's good.

Mr. Hurd: Okay. Site selection and facilities. We are, oh, not yet in the home stretch. Okay, so, I'm pretty sure I edited this one so let's see how this one reads now. For a site that contains floodplains, document on the site plan that there will be no site disturbance or development of previously undeveloped land within five feet (elevation) of the 100-year flood elevation. What I was trying to say, because it had been, is to say basically, this is my flood elevation. Within five feet of elevation, I can't do any land disturbance . . .

Mr. Poole: Right.

Mr. Hurd: As opposed to a distance from the edge or, because it was weirdly worded with like five feet above flood, I don't know . . .

Mr. Firestone: Elevation makes more sense.

Mr. Hurd: Okay. I'm glad because that's what I was trying to get to, to try to be clear that you have to be . . .

Mr. Poole: Five feet up.

Mr. Hurd: Five feet up.

Mr. Firestone: I mean they should just not be able to build in that area.

Mr. Poole: Well, they're not allowed to build in a floodplain, but to get this credit, they have to be five feet above the floodplain.

Mr. Hurd: Because right now, you can build right at the edge. But, as we know, floodplain edges are not rigid. And even six inches or 18 inches above that floodplain elevation is kind of close.

Mr. Firestone: And we know 100-year flood elevations are . . .

Mr. Rowlands: Changing.

Mr. Hurd: Changing, right.

Mr. Firestone: Changing and, you know, we're not necessarily accurate to begin with.

Mr. Poole: With our extreme weather? What?

Mr. Hurd: Right, all those maps are historic, essentially, and are always lagging what is kind of happening so that's why we have to build in that buffer.

Mr. Poole: Five feet is plenty of buffer.

Mr. Hurd: Plenty of buffer.

Mr. Poole: If the creek is rising five feet, we've got problems.

Mr. Rowlands: We do have problems.

Mr. Hurd: Document on the site plan that a minimum of 20% of the onsite native plants will be retained. Document on the as-built site plan that a minimum of 5% of the site is dedicated as a certified wildlife habitat. Document on the site plan that more trees than required are being planted. One point for each two trees planted beyond required per acre of site, maximum of 5 points. Does that still read right, or do I need a beyond that required?

Mr. Firestone: I would say you could put a that in there.

Mr. Poole: Or a comma after required would probably serve.

Mr. Hurd: I'll see how that looks. Maximize open space. This was a comment from Stacy that basically just to clarify that when we say not grass, we mean not mown grass, so document on the site plan that the total open space is 10% greater than the minimum required by Code. A minimum of 25% of that area must be vegetated, not mown grass. Trying to cut down on . . .

Mr. Poole: Is it mown or is it mowed?

Mr. Hurd: Well, maintained grass? What would you call it? The idea being it's not a lawn.

Mr. Poole: Than put lawn. Lawn grass or . . .

Mr. Hurd: Vegetated and now lawn grass. Because I guess you have grasses and meadow grasses and things.

Mr. Poole: Right.

Mr. Hurd: I'm trying to get away from just saying that big mown lawn that I spray fertilizer on, and I run gas-powered things over. Less of that. Access to quality transit. Demonstrate, sorry, document that each functional entry of the project is within ¼ mile walking distance of an existing or planned bus stop or ride share stop or within ½ mile walking distance of an existing commuter rail station. Transit routes must have paired service, outbound and inbound. Transit service at all stops in aggregate must provide a minimum of 72 weekday trips and 40 weekend trips.

Mr. Firestone: I actually don't support this.

Mr. Hurd: Okay, we've been around and around on this one, I know.

Mr. Firestone: Given where development is going, it's just a free 2 points.

Mr. Poole: Not really.

Mr. Hurd: Which has been Tim's general response on this question.

Mr. Poole: Well, it's like I've got the requirement for senior living facility that's provided that's being built on Barksdale Road. It doesn't meet the criteria and that's a half-mile from the bus stop right out here.

Mr. Rowlands: But this isn't going to influence them doing that project or not.

Mr. Poole: Is it only about what we influence them to do the project or not?

Mr. Rowlands: This is trying to make them build . . .

Mr. Poole: Or is it about what adds value . . .

Mr. Rowlands: This is trying to make them do better . . .

Mr. Poole: Yeah.

Mr. Rowlands: Whether it's more efficient or that.

Mr. Poole: So, providing that facility where people can take public transit to visit their relatives has no value . . .

Mr. Rowlands: It does.

Mr. Poole: As opposed to having a facility built where everybody that ever goes there drives their car there.

Mr. Rowlands: It absolutely does. And what I think we're saying is . . .

Mr. Poole: And you're saying that this doesn't . . .

Mr. Firestone: I'm saying I don't think . . .

Mr. Rowlands: This doesn't influence it.

Mr. Firestone: It's not going to change anything.

Mr. Rowlands: Right.

Mr. Firestone: It's not going to change where development happens. It's just going to give 2 points to people who build near the . . .

Mr. Rowlands: Near the bus. And the guys that don't, they don't get those points.

Mr. Poole: And I make the same argument for the piece of conduit that runs up to the solar panels that will never, ever be installed. But . . .

Mr. Hurd: I don't know whether we should give this, well, we probably shouldn't give it more points because that's . . .

Mr. Poole: No, we've reduced the points and I support that. Because, like you said, it's not going to be an influencing decision.

Mr. Rowlands: No, it's just sitting there, and they get their points.

Mr. Poole: But I believe there is value to it. And it may be, you know, maybe they're not necessarily making the decision that they're going to change the way this project is constructed because of whether or not it's within one-quarter mile of a bus route, but it could be part of their decision making.

Mr. Firestone: How many people take public transit in this town?

Mr. Poole: Not enough.

Mr. Hurd: Well, we just said bus stop, so that can include, could possibly include University buses.

Mr. Poole: Yes.

Mr. Hurd: The way it's written.

Mr. Poole: The way that it's currently written, it does. It includes campus busing in the LEED stuff.

Mr. Firestone: Yeah, I'm just saying . . .

Mr. Hurd: And that's, I mean we want . . . I hear you on that. Part of also what we're trying to do here is raise some consciousness about things like transit as opposed to cars, biking as opposed to cars. I hear you. If there was something that they actually had to provide as well as, you know, if they had to provide a bus stop shelter or something . . .

Mr. Poole: They're considering, over there, they're considering providing a regular bus to and from the train station.

Mr. Firestone: Who is?

Mr. Poole: Newark Senior Living, 924 Barksdale Road.

Mr. Rowlands: So, that would get a point for that?

Mr. Poole: Right. Well, in this case currently, they would get 6 points for that.

Mr. Rowlands: And or they could also petition these bus . . .

Mr. Poole: They've reached out to DART.

Mr. Rowlands: Right.

Mr. Hurd: They're probably trying to get employees there, and family.

Mr. Firestone: I mean if we want to encourage people to live around a train station, then it should only be dealing with a train station.

Mr. Poole: But if this facility . . .

Mr. Firestone: But then you have to give enough points, too. I mean just like when you build a metro station, I mean if you're really trying to encourage people to build around this new thing, you know, a new train station and hopefully we're going to get much better access to Philly and DC and Baltimore.

Mr. Hurd: Right.

Mr. Firestone: And if that's your objective, then it's like my parents moved from out of state and I got them, they live in Wilmington on the riverfront and they get to take the trains . . .

Mr. Poole: So, let's bump it back up to 6 points then.

Mr. Firestone: But I would only agree to it if it's just limited to near the train station.

Mr. Hurd: Which means that a big chunk of the STAR Campus will then automatically get . . .

Mr. Firestone: Yeah, if they . . .

Mr. Hurd: But maybe that's . . .

Mr. Firestone: If people build residences on the STAR Campus.

Mr. Hurd: Well, this is still commercial. I mean commercial could be multi-family, but it also can be office or retail.

Mr. Poole: And another consideration is like those folks are going through the effort to try and get DART to change their route to include that and is that a benefit to the City?

Mr. Rowlands: Yes, but is this point system going to influence them to do that? No, they're going to do it because they want to rent units and this is a good thing.

Mr. Poole: No, they're doing it for the 6 points. That's why they're doing it. Because they want the 6 points that we currently offer. And there's value to it. And, you know, whether you consider it value or not, I believe there's value there. And you guys can vote me down.

Mr. Rowlands: Let's leave it in but raise it from 32 to 33 points.

Mr. Hurd: I would feel better if we were all in some sort of agreement about everything but that's my native way of doing things. I'm not a big fan of voting because . . .

Mr. Rowlands: I can go either way just because it influences them, they see it, they're reading about it . . . when I try to get Passive in here, half the reason is so people will say what's that and they'll start to understand it.

Mr. Hurd: Right, so in that sense also just to briefly look at the points, 2 points is right in the middle. It's enough that you could make an effort to get those points so you can get the benefit. It's not so much that we're giving it away for free for those that are . . .

Mr. Poole: Right. Yeah, for some folks it will be a quick and easy 2 points.

Mr. Hurd: Right. Alright, well, we'll hold it for the moment and maybe the Planning Commission will have input . . .

Mr. Rowlands: Maybe.

Mr. Poole: Maybe.

Mr. Hurd: They might read it.

Mr. Rowlands: I meant the whole document.

Mr. Hurd: Bicycle storage and shower rooms, commercial and institutional. Provide short-term storage for 2.5% of all peak visitors but no fewer than 4 storage spaces. Provide long-term storage for at least 5% of regular building occupants but no fewer than 4 storage spaces. Long-term storage is in addition to the short-term storage. Provide at least one onsite shower with changing facility for the first 100 building occupants and one additional shower for every 150 regular building occupants. Okay?

Mr. Poole: That's a lot to get 2 points.

Mr. Hurd: It's a shower room and some, not bike racks but a bike room, kind of. Residential, provide short-term storage for 2.5% of all peak visitors but no fewer than 4 storage spaces. Provide long-term storage for at least 30% of all regular building occupants but no fewer than one storage space per unit. And then for retail, provide at least 2 short-term storage units for every 5,000 square feet but no fewer than 2. Okay, provide long-term storage for at least 5%, I need to edit this up a little, of regular building occupants, but no fewer than 2. Storage space is

in addition to the short-term storage. Provide at least one onsite shower with changing facilities for the first 100 building occupants and one additional shower for every 150 regular building occupants. Okay. Bicycle racks. Provide two times the Code-required minimum number of bike racks. Easy peasy. Provide electrical vehicle charging equipment at 2% of all parking spaces but no fewer than 2. Reserve these spaces for the sole use of plug-in electric vehicles.

Mr. Rowlands: There's no Code required on that all, no matter what size?

Mr. Poole: What?

Mr. Rowlands: For electric charging.

Mr. Poole: No, nothing. It's only there as market demand. Right, Jeremy?

Mr. Hurd: Or if we push it a little bit in the Code . . .

Mr. Firestone: Push it and . . .

Mr. Hurd: So that people go like, you know I could get a . . .

Mr. Firestone: They'll say I just recently got an EV, I'll put that in.

Mr. Hurd: Well, you know, you push it out to say now this place has plug-ins, and now maybe I can think about getting an EV because when I drive it to this place I go all the time, I can plug it in.

Mr. Poole: Right.

Mr. Hurd: It's always a little of both.

Mr. Rowlands: I also think, too, certain retailers would like to have a charging station because they'll have clients come in to charge and they'll shop or eat or do something. Like a restaurant. I've got 20 minutes to charge, let's grab a bite.

Mr. Hurd: Right. These also were edits from Stacy about site infiltration and site filtration on stormwater.

Mr. Poole: Storm is misspelled in the first sentence.

Mr. Hurd: Strom? Stromwater. You know what stromwater is, right?

Mr. Poole: Yeah, it's confused stormwater.

Mr. Hurd: Dyslexic stormwater.

Mr. Firestone: Five points?

Mr. Hurd: Well, her argument partly was that if we're going to do this, you know, so 5 points mean you either have 100% infiltration, which means nothing is leaving the site. So, for that level, 5 points might be a reasonable place to go. That is that there is no stormwater entering the receiving system.

Mr. Firestone: Compared to say 6 points to put your, you know, having onsite PV? I don't know. I mean this is . . .

Mr. Hurd: At least from her perspective . . .

Mr. Rowlands: It's a hard thing to accomplish.

Mr. Hurd: The public works, one, it's hard . . .

Mr. Poole: It's very difficult.

Mr. Hurd: Two, in a lot of the areas that are getting redeveloped, the stormwater system is overloaded. And so . . .

Mr. Poole: Yeah, particularly our downtown, 100% paved areas.

Mr. Hurd: Right, so being able to say there is nothing added to the downstream conveyance as opposed to what is currently added to the downstream conveyance has continued to be added to the downstream conveyance . . .

Mr. Poole: Right.

Mr. Hurd: Or even 10% less is not . . .

Mr. Poole: Taking a current site that sends 100% of it's stormwater into our system versus making it 0%, that's worth 5 points because many of these are redeveloped sites.

Mr. Hurd: And that's partly, this is one of those items that is in here partly because sort of the site plan approval process currently doesn't deal well with redevelopment and especially doesn't address stormwater, which we feel it needs to do from a redevelopment sort of standpoint. So, that's partly why I pushed a little bit, and I think she's pushing a little bit, into this. To say, you want 5 points, you deal with your stormwater.

Mr. Poole: There's value there and it's not cheap to accomplish.

Mr. Hurd: Right.

Mr. Firestone: But you also have the or, where you can have . . .

Mr. Hurd: So, or 50% of the roof surfaces are vegetated, so we're not doing all that runoff, or filtering it, and demonstrating that the downstream conveyance system can adequately handle the anticipated stormwater from the site. Perform any necessary repairs on receiving system to handle the anticipated stormwater, in consultation with the City. So, that's the big piece of it. That is, you may have to do stuff, repairs to the system off your site, to accommodate your current stormwater to the satisfaction of the City.

Mr. Rowlands: And they don't have to do that now?

Mr. Hurd: No.

Mr. Poole: No.

Mr. Firestone: You can just dump whatever you . . .

Mr. Poole: You can maintain the current level of . . .

Mr. Hurd: I think the state code is like reducing it a little bit. It's like 10% less or a percentage less than what is currently leaving the site, but it's not a huge percentage.

Mr. Poole: And in most cases, that's 100% or close to 100%. Because you look at downtown. How much of that is area of infiltration? Very, very little.

Mr. Hurd: The most that people ware doing is that they are buffering the release of the water and that's probably in consultation with Public Works to say we can't take it all at once.

Mr. Poole: Yeah, that's meeting the regulations. You have to provide storage capacity that slowly drains out into the system at a level that it can handle.

Mr. Hurd: But it still all enters a chamber, goes into the stormwater system, and goes away.

Mr. Rowlands: So, it is truly expensive and difficult to do this.

Mr. Poole: Oh yeah.

Mr. Hurd: Right, because we've got clay soil, so infiltration is difficult around here.

Mr. Rowlands: That's doesn't help.

Mr. Poole: Right. There's a lot of value in this and it will not be easy or cheap.

Mr. Hurd: Right, but if someone does it, there's a huge benefit to it.

Mr. Rowlands: And are the two, this or 50%, roughly equal in cost and benefits?

Mr. Poole: Fifty percent and making sure that the system can, doing maybe some infrastructure work for the City to ensure that the system can handle it? Yeah. Again, putting on a vegetated green roof on half of your building is, again, not inexpensive.

Mr. Firestone: Vegetated is spelled incorrectly.

Mr. Poole: That's another good reason to move this all into a Word doc.

Mr. Hurd: I ran spellcheck, too, but, you know . . .

Mr. Firestone: So, then it says perform any necessary repairs. Who is determining . . . ?

Mr. Hurd: The City.

Mr. Firestone: So, we just need to be clear, as determined by the City.

Mr. Hurd: I also said in consultation, we could say . . .

Mr. Firestone: Well, I think it should say perform any repairs as directed by the City.

Mr. Hurd: Okay.

Mr. Firestone: I mean I don't want to get into an argument over what's necessary . . .

Mr. Hurd: That's true.

Mr. Firestone: And what's the value for giving 5 points.

Mr. Hurd: Okay. No, that's true.

Mr. Poole: As directed by the City, by the Public Works and Water Resources Department. PWWR. Because they're the ones who do it. And if they feel they're being unreasonable, okay, keep it all onsite. Have a nice day.

Mr. Hurd: Or, don't get the points.

Mr. Poole: Right.

Mr. Hurd: And then site filtration is just improving the quality, so provide water quality treatment via filtration practices for the design storm event.

Mr. Rowlands: Is that now DNREC's code? Do they have to do that anyway?

Mr. Poole: No.

Mr. Hurd: I'm honestly not sure so I'll dig and get an answer on that.

Mr. Poole: A lot of it just runs right in and you try and get filtration, but it's not required.

Mr. Rowlands: Is it worth 3 points or 2?

Mr. Hurd: Well, the points is a separate . . .

Mr. Poole: We're going to get to that, maybe. Maybe today.

Mr. Hurd: We're running out of time. I keep forgetting that we do get into this. Alright, heat island reduction non-roof. Document that the minimum solar reflexive index for exterior paving is 29 or 35 for concrete, or document that 90% of exterior paving, excluding drive aisles, is permeable paving. Heat island reduction roof. Document that 75% of the roof surfaces have a minimum SRI of 64 for flat roofs or 25 for sloped roofs, or document that 75% of the roof surface is a vegetated roof.

Mr. Rowlands: I know what SRI is but does everybody?

Mr. Hurd: No, I know. We can spell it out.

Mr. Rowlands: But in your booklet, should there be an index of . . .

Mr. Firestone: Acronyms.

Mr. Poole: That's a standard term and anybody that's doing this should know. But . . .

Mr. Hurd: I mean I can expand it for at least the first time.

Mr. Poole: Well, certainly in the ordinance we may need to provide some definitions . . .

Mr. Rowlands: Yeah, right.

Mr. Poole: In which case, we'll do that.

Mr. Hurd: Yeah, I think almost every ordinance, most ordinances that comes to us will often include amendments to the definitions category as well.

Mr. Poole: Yeah.

Mr. Hurd: Alright, indoor environmental quality. Provide demand control ventilation spaces with an occupant load greater than 25 people per 100 square feet, designed in compliance with ASHRAE 62.1. Document that mechanically ventilated spaces are getting the minimum outdoor air intake flow rate based on the ventilation rate procedure from ASHRAE 62.1. Provide spot exhaust at sources of air contamination. Do we need to expand that, or do we just leave that?

Mr. Poole: I think . . .

Mr. Hurd: Because typically we're talking about kitchens, bathrooms . . .

Mr. Poole: Copier rooms is another big one.

Mr. Hurd: Copies rooms, true. Toilets, copies, anyplace they do microwave popcorn or fish. So, we can just say for example . . .

Mr. Poole: Yeah.

Mr. Hurd: What are you talking about air contamination? We're talking about steam, smoke, fumes. Air quality management plan. During construction, submit an indoor air quality management plan that addresses the following: meets or exceeds recommended control measures for the SMACNA IAQ guidelines; protect absorptive materials stored onsite; don't operate permanently installed air-handler equipment during construction unless filtration media is in place; prohibit the use of tobacco products inside the building. This is kind of, I see reading it now, is kind of varying in tense and . . .

Mr. Firestone: Yeah, and we should change submit to provide. But yeah, you need some agreement in those.

Mr. Hurd: So, I'll say like protection of absorptive materials onsite. I don't even know what the recommended control measures are in the SMACNA IAQ guidelines. Okay. If anyone has thoughts about how to rewrite that . . .

Mr. Firestone: Meets or exceeds, protects . . . I think protects and prohibits so that those are, they just need an S.

Mr. Hurd: Okay.

Mr. Firestone: I think you would say provide an indoor management plan that and get rid of addresses the following.

Mr. Hurd: Oh, okay.

Mr. Firestone: Then say meets, protects, prohibits, and that doesn't allow the, prevents, prevents the operation of permanently installed air-handler . . .

Mr. Hurd: Okay.

Mr. Poole: Prohibits operation of.

Mr. Hurd: Operation of. Okay, and then before occupancy. I'm thinking it would be and or here. Demonstrate that the, document, I guess, that the building has either been flushed out with . . .

Mr. Firestone: I'm not sure what the either is doing there.

Mr. Hurd: There was an alternate, I think, in there at one point.

Mr. Firestone: It's seems like there's only one choice.

Mr. Hurd: I think there were two options. This is why it's good to read it all. Has been flushed out with 14,000 cubic feet per square foot . . .

Mr. Poole: Yeah, after you're on the sixth page of this, your eyes may have glazed over a little.

Mr. Rowlands: Where does 14,000 cubic feet per square foot . . .

Mr. Hurd: That was either LEED or the New Building Institute.

Mr. Poole: It was LEED.

Mr. Hurd: LEED?

Mr. Poole: Yeah. Because that's one of the frequently used ones currently.

Mr. Hurd: Okay.

Mr. Poole: Nobody ever does the during construction one.

Mr. Hurd: It's hard.

Mr. Poole: You've got all these knuckleheads running around the building . . .

Mr. Hurd: Yeah, you want me to wrap all my drywall, all my carpet . . . ? Yes, we do. Low-emitting materials. So, document that 100% of products used by volume within the waterproofing envelope comply with IGCC 801.4.2.1. So, this is basically all of these things complying with the IGCC's various sections on low-emitting materials.

Mr. Poole: Do we want to just put that, you know, low-emitting materials, document that and then have each one of these as a subcategory rather than stating the document that 100% of products used by volume is in the waterproofing envelope?

Mr. Firestone: Yeah.

Mr. Poole: Do we want to say all products comply with IGCC section 801?

Mr. Hurd: Are we just talking about the first three here?

Mr. Poole: Five.

Mr. Rowlands: Four.

Mr. Poole: Yeah, all of them.

Mr. Firestone: Well, yeah, I mean 100% by volume. If it's 100%, it doesn't matter what measure you use. I think he's just saying instead of saying document them, just say all products used within the waterproofing envelope comply with . . .

Mr. Hurd: Used . . .

Mr. Poole: Comply with IGCC Section 801.

Mr. Rowlands: So, you're getting 1 point for five instead of 5 points possible.

Mr. Hurd: Right. Well, again, they'll get up to 6 points.

Mr. Rowlands: Not is you're just combining them though.

Mr. Poole: No, we're not combining them all. I'm just saying you put that at the top rather than have each one of these be more wordy.

Mr. Rowlands: But 100% of products used by volume within the waterproofing envelope, that is all those five.

Mr. Hurd: Yeah.

Mr. Hurd: So, then we're sort of saying we still have adhesives and sealants, paints and coatings . . .

Mr. Poole: Flooring systems, composite wood, ceilings, walls, thermal and acoustic insulation, and then furniture.

Mr. Rowlands: But you're saying one category there. One statement. You could explain that it includes all those things.

Mr. Hurd: This is like the recycled content. We sort of say . . .

Mr. Firestone: You get 1 point for each.

Mr. Poole: Yeah, one for each.

Mr. Hurd: The recycled, when we say low-emitting, we mean low-emitting meaning being in compliance with the IGCC because that's a common code.

Mr. Rowlands: So, document 100% of products adhesives and sealants comply?

Mr. Firestone: Right.

Mr. Poole: Right.

Mr. Rowlands: 100% of all painting and coatings.

Mr. Firestone: Right.

Mr. Hurd: Yes.

Mr. Poole: And they may choose to do adhesives, sealants, painting and coatings, but meanwhile their carpets not so much.

Mr. Hurd: Right.

Mr. Firestone: Well, we could call this category like, before occupancy, just say low-emitting materials.

Mr. Poole: Right.

Mr. Hurd: Yeah.

Mr. Firestone: And then the first one would just say all adhesives and sealants used within the waterproofing envelope comply with . . .

Mr. Poole: Right.

Mr. Hurd: Yeah, so this would say all the products have to comply with this and that's adhesives and sealants, it's pains and coatings, it's composite wood, flooring systems, ceilings, walls and acoustic insulation. So, that's four . . . one, two, three, four, five. So, those five points.

Mr. Rowlands: And where's the waterproofing envelope category? Coming out of the IGCC?

Mr. Hurd: Well . . .

Mr. Poole: It's basically everything that was in the thermal envelope of the building.

Mr. Hurd: Because the waterproofing envelope assumes that is where, so that's the air barrier, essentially.

Mr. Rowlands: Not necessarily.

Mr. Hurd: Well, not necessarily but close enough.

Mr. Rowlands: Air barrier, to me, is where it should be, but that gets . . .

Mr. Poole: Right, but if in the, yeah, because . . .

Mr. Hurd: I think the idea is that everything with that, the air can't move. That's the air that's trapped inside the building.

Mr. Poole: Right.

Mr. Hurd: So, that's the air that has to, you have to have the low-emitting materials within that space.

Mr. Poole: And your vestibule might not be within your thermal envelope, but it will be within that air envelope.

Mr. Rowlands: So, this would include my uninsulated attic.

Mr. Hurd: Yes.

Mr. Poole: Yes.

Mr. Hurd: But it wouldn't include anything like your siding or your exterior caulk or things like that.

Mr. Rowlands: But my uninsulated attic could be outside my air barrier.

Mr. Poole: Right.

Mr. Hurd: Or outside your thermal barrier.

Mr. Rowlands: Could be. I don't care what's up there as far as low-emitting. It's not inside my breathable air. That's what we're worried about here, right?

Mr. Hurd: Well, that's if you [inaudible] your ceiling. Again, I think I stole this from someone else.

Mr. Rowlands: I know we're getting technical.

Mr. Poole: Yeah, let's not get carried away. We're almost done.

Mr. Hurd: Okay. Well, I know, but we don't want to just rush through the last eight of these. Low-emitting furniture . . .

Mr. Rowlands: Can I back up one second?

Mr. Hurd: Sure.

Mr. Rowlands: Tim, do you see people coming in, here is my documented air barrier?

Mr. Poole: No, they just provide me with a list of all the products that they're using and the documentation that they're low-emitting.

Mr. Rowlands: No, I was just saying do you see anybody coming in saying here is my air barrier plan?

Mr. Hurd: Do we need to remove that waterproofing envelope and just say all products should be?

Mr. Poole: All products used on the interior? I mean, it's as good a way to define it as any.

Mr. Hurd: Okay. I mean, I want to give them some wiggle room if they want to do something on the outside because some waterproofing materials and membranes are going to require something that's not, you can't make it a low-emitting material, but that's on the outside of the building. So, we're less, so you want to give them a little leeway. Furniture, we're giving them 90% of the products by cost so that there's a little bit of wiggle room there. Controllability of lighting systems. For individual occupant spaces, provide lighting controls that provide a minimum of at least three lighting levels. Controls must be installed in at least 90% of the individual occupant spaces. For multi-occupant spaces, provide lighting controls that provide a minimum of at least three lighting levels. Lighting for any presentation or projection wall must be separately controlled and controls must have a direct line of sight to the controlled fixtures. Okay?

Mr. Hurd: Yeah.

Mr. Firestone: In the first line, provide lighting controls that provide should be provide lighting controls with.

Mr. Hurd: Okay, with a minimum of three. Don't need to say at least.

Mr. Poole: And the second is the same thing.

Mr. Hurd: Same thing, yeah. Okay. For schools, retail, and hospitality projects, provide individual thermal comfort controls for at least 50% of individual occupant spaces. Provide group thermal comfort controls for all shared multi-occupant spaces.

Mr. Rowlands: What's that mean? Give them a little fan?

Mr. Hurd: It means more thermostats, more zones.

Mr. Rowlands: For individual thermal comfort. That's control [inaudible], which they actually have.

Mr. Hurd: Well, individual occupant spaces, so that's offices . . .

Mr. Poole: My office has a separate thermostat.

Mr. Hurd: Sweet.

Mr. Poole: No, I'm not saying my office. I'm saying that someone's office. My office does not.

Mr. Hurd: Oh, I thought you were speaking to your personal space.

Mr. Poole: No, definitely not.

Mr. Hurd: Because that's when you know you've arrived, when you have the thermostat.

Mr. Poole: No, that is not the case here in the City.

Mr. Rowlands: No, this building is in dire need of a gut job.

Mr. Poole: They need to take the HVAC system that runs this building, put it in a dumpster, and put something in that works. That perhaps run off of a thermostat would be a good thing.

Mr. Rowlands: You know what would be cool to do to this building is slap about six inches of rock wall on the outside and replace every window with triple pane and then . . .

Mr. Poole: The best thing for this building would be a 550.

Mr. Rowlands: No, this thing, there's too much here.

Mr. Poole: Too much of what? Too much thermal mass?

Mr. Rowlands: Yeah, you got a lot of that. You could clad the whole outside of this building with rock wall, put a branch new skin on the outside, turn it ultra-modern or whatever you want.

Mr. Hurd: The advantage is that a new building would give you an advantage of new . . .

Mr. Poole: They're not providing paint for the siding.

Mr. Rowlands: We're going right over that. We're going to create a whole envelope.

Mr. Poole: I'm just saying, you know, reality needs to check in at some point.

Mr. Rowlands: It needs that.

Mr. Hurd: I'm going to strike comfort out of there and just say provide individual thermal controls for at least 50% of individual occupant spaces.

Mr. Poole: Perfect.

Mr. Hurd: Because comfort is a loaded word.

Mr. Poole: Yeah.

Mr. Hurd: Thermal comfort design. Design heating, ventilating, and air-conditioning systems and the building envelope to meet the requirements of ASHRAE 55-2010, thermal comfort conditions for human occupancy. I've never read it but I'm sure it's fascinating reading.

Mr. Poole: Why are we only doing this for schools, retail, and hospitality projects?

Mr. Rowlands: Yeah, really.

Mr. Poole: I would say for non-residential.

Mr. Hurd: We could do that.

Mr. Poole: Because if it's residential, you have one for your own apartment or dwelling unit and if it's . . .

Mr. Hurd: Okay, that's fine. Because offices are going to have the whole issue of individual comfort anyway.

Mr. Poole: Right.

Mr. Hurd: I'm not sure where that came from so that's a fine thing to change. Demonstrate through computer modeling, that's document, document with a model or document that illuminance levels will be between 300 lux and 3,000 lux at 9 a.m. and 3 p.m. both on a clear-

sky day at the equinox for 75% of the regularly occupied floor area, or for 90% of the regularly occupied floor area.

Mr. Rowlands: I'm not sure I know what that means but it sounds good.

Mr. Poole: Basically, everybody has to be able to see a window.

Mr. Hurd: Well, it means . . .

Mr. Poole: Natural light has to make it to their space.

Mr. Hurd: So, this is basically that you're getting daylight levels on clear days to 75% of the floor area.

Mr. Poole: You're getting natural light versus . . .

Mr. Rowlands: A 300 lux, can't you get that out of a lightbulb?

Mr. Poole: Yes, but this is daylight. This is natural light that they're providing to 90%, or 75% of the building occupants.

Mr. Rowlands: That's not what I read.

Mr. Hurd: Yeah, I'm going to throw in natural light providing . . .

Mr. Rowlands: Natural lumens?

Mr. Poole: Daylight.

Mr. Hurd: Yeah, so that needs to be rewritten, certainly, to say that it's modeling that you're going to get daylight between 300 and 3,000 lux . . .

Mr. Rowlands: From natural light.

Mr. Hurd: From natural light, not from artificial.

Mr. Poole: After that, put daylight between that and illumination.

Mr. Hurd: Daylight illumination?

Mr. Poole: Yeah. Or illuminance.

Mr. Rowlands: Or natural.

Mr. Hurd: Daylight illuminance levels will be, okay. I'll see which is the better term. And then provide direct line of sight to the outdoors for 75% of all regularly occupied floor area.

Mr. Poole: Everybody can look out a window.

Mr. Hurd: Do you want me to give that one an or 90% like we did with the daylighting?

Mr. Rowlands: Well, if you get the one above, do you get the one below?

Mr. Hurd: Not necessarily.

Mr. Poole: I think the views should go to 2 points.

Mr. Rowlands: Yeah, line of sight, you can reflect light down . . .

Mr. Hurd: Yeah, because that could be clerestories, that could be roof monitors. What I was saying is for this view, do we want to say, like we did for daylight, hitting 90% of the floor area. If I get 90% of my floor area with daylight views, is that worth more?

Mr. Poole: Yeah, I think so.

Mr. Hurd: So, I'll add 90%.

Mr. Poole: But if we want to look at points, I would think both of those should go up to 2 and 3, rather than 1 and 2.

Mr. Hurd: For views?

Mr. Poole: Yeah, I think there's value to having somebody be able to see out a window.

Mr. Hurd: I do agree with you.

Mr. Rowlands: [inaudible] out there.

Mr. Poole: Not always. They can see whether it's raining or not.

Mr. Hurd: There's a Dilbert and he like meets a new boss or something and he's like what are you doing? He said, so I'm texting someone who has a window to find out if it's raining before I go out to lunch. And if it's raining, I'm going to wear this garbage bag as a raincoat. Alright, well, so we're pretty happy, comfortable, set on the language. We did not get to the points at all.

Mr. Rowlands: Touchdown.

Mr. Firestone: You should be able to clean up the language on the residential . . .

Mr. Hurd: Yeah.

Mr. Poole: Yeah.

Mr. Firestone: And I think anything else would be to deal with the points at our last meeting.

5. **REVIEW OF POINTS IN CHECKLIST FOR COMMERCIAL PROJECTS**

[Secretary's Note: There was no discussion of the points for commercial projects at the September 24, 2019 meeting.]

6. **REVIEW OF CHECKLIST FOR RESIDENTIAL PROJECTS**

[Secretary's Note: There was no discussion of the checklist for residential projects at the September 24, 2019 meeting.]

7. **GENERAL PUBLIC COMMENT**

[Secretary's Note: There was no general public comment at the September 24, 2019 Green Building Code Work Group meeting.]

8. **ITEMS FOR NEXT MEETING**

Mr. Hurd: Alright, so next month we're just going to bang through the points.

Mr. Firestone: We're doing points.

Mr. Hurd: I have to say, I don't think we could be doing this any faster, so while this is taking longer, I'm appreciating that we are . . .

Mr. Poole: We made the conscious choice that we're going to create our own . . .

Mr. Hurd: We did.

Mr. Poole: And with that came this extra work.

Mr. Rowlands: Yeah, more work.

Mr. Hurd: I did not internally calculate that in my head. I'm like, yeah, we'll just roll and then, oh yeah . . .

Mr. Poole: And that was basically just because there wasn't anything out there that was going to work for us in the way that we intended.

Mr. Hurd: Exactly.

Mr. Rowlands: Are you going to touch no residential, I mean tweak it between now and next . . . ?

Mr. Hurd: What I'm going to do is the language that we do in commercial, I will reflect those in the residential for the credits that it makes sense to . . .

Mr. Rowlands: That's fine.

Mr. Hurd: I want to make sure that it says things like document that, or provide . . .

Mr. Rowlands: I just have like three or four points really. You have 1 point for every 5kW installed up to 5 points, 1 to 4. Shouldn't that be 1 to 5?

Mr. Hurd: Probably.

Mr. Rowlands: Yeah, there's a few things if you wanted to . . .

Mr. Hurd: I think I had notes about the residential kW capacity, too, from Jeremy.

Mr. Rowlands: Oh, so this just was not updated? Okay.

Mr. Hurd: Yeah.

Mr. Poole: Yeah, we've been focusing on the commercial. Because once we get all the language and concepts all in order, then we should breeze through pretty well . . .

Mr. Rowlands: Okay.

Mr. Poole: Because we've already battled . . .

Mr. Rowlands: Yeah, we've already fought all the fights.

There being no further business, the Green Building Code Work Group meeting adjourned at 5:23 p.m.

Attachments
Exhibit A: Green Building Code Concepts List for Commercial Projects
Exhibit B: Green Building Code Concepts List for Residential Projects