

Capitol Pacific Reporting

Court Reporters Since 1978

2401 Bristol Court SW, Suite C-103, Olympia, WA 98502 • Ph: 800.407.0148

L&I - Electrical Board Meeting

MEETING

October 26, 2023



Production:
production@capitolpacificreporting.com

Scheduling:
scheduling@capitolpacificreporting.com

Website:
www.capitolpacificreporting.com

- Full-sized and condensed PDF transcripts
- Hyperlinked word index
- Hyperlinked exhibits
- Bookmarked examinations and exhibits
- Other common file types including:
txt, lef, sbf, mdb, xmef, and PTX e-Transcript
- Exhibits and other files found under the
paperclip icon within Adobe Acrobat (Reader)
- Copy-and-paste while maintaining formatting
- Files accessible via online repository

L&I - Electrical Board
Meeting - October 26, 2023

DEPARTMENT OF LABOR AND INDUSTRIES

STATE OF WASHINGTON

ELECTRICAL BOARD MEETING
TRANSCRIPT OF PROCEEDINGS

OCTOBER 26TH, 2023

9:00 A.M. PST

PAGES 1 THROUGH 167

Red Lion Pasco, Silver Room
2525 North 20th Avenue
Pasco, Washington 99301

**CERTIFIED
TRANSCRIPT**

REPORTED BY:
TAMARA NASSAR,
CCR NO. 22006692, CVR NO. 8036
Capitol Pacific Reporting
PH: 800.407.0148
www.capitolpacificreporting.com
admin@capitolpacificreporting.com



A G E N D A

ITEM NO.	PAGE
1. Safety Message	4
2. Approval of transcript/meeting minutes from July 27, 2023 Electrical Board Meeting	7
3. Appeals	7
4. Department/Legislative/Rulemaking update (A)	8
(B) CR 101	140
5. Building Integrated Photovoltaic Systems	141
6. Certification/CEU quarterly report	144
7. Secretary's Report	147
8. Electrical Board Meeting 2024 locations	157
9. Public comments	157



1 BE IT REMEMBERED that an Electrical Board Meeting was
2 held at 9:00 a.m., PST, Thursday, October 26, 2023, at the
3 Red Lion Inn, 2525 No. 20th Avenue, Pasco, Washington.

4
5 Board Members present:

6
7 Jason Jenkins, Chairperson/Electrician

8 Wayne Molesworth, Secretary, Chief Electrical Inspector

9 Jack Knottingham, Electrician

10 Edward Stimmel, Telecom Provider

11 Erick Lee, Electrician

12 Ivan Isaacson, Manufacturer

13 Ben Blohowiak, Board AAG

14 Mike Nord, Telecom Worker

15 Dylan Cummingham, Engineer/RCCD

16 Don Baker, Electrical Contractor

17 James Tumelson, Building Official

18 Bobby Gray, Electrical Contractor

19 Kerry Cox, Telecom Contractor

20 Dominic Burke, Electrical Contractor Associate
21
22
23
24
25



1 WHEREUPON, the following proceedings were held,
2 to wit:

3
4 --ooOoo--

5
6 CHAIRPERSON JENKINS: Well, good morning. It is
7 October 26th here in Pasco, Washington. We'll call the
8 meeting to order at 9 o'clock.

9 Thanks, everyone, for attending. I know some of
10 you had to travel quite a bit to get here, and I
11 appreciate you all being here. I think this is the full
12 board as far as for the record and we do have a quorum.

13 And the first item on our list here is Safety
14 Message, so I've asked our Secretary, Wayne Molesworth, to
15 please give us some safety for the day.

16 SECRETARY MOLESWORTH: Thank you, Mr. Chair.

17 You know, as you guys may be watching the news
18 over the last day or so, we've wound up with more
19 shootings. And I think this is a great time to, you know,
20 keep in our minds that we need to make sure and protect
21 our families and our neighbors and keep an eye out. If
22 you see something, say something.

23 Always keep your head on a swivel. Be looking
24 for things. Understand where your exit points are at
25 whenever you enter buildings of multiple. You know, where

Page 4



1 we can put a lot of people into it, high-capacity
2 buildings because those are targets, you know, and so just
3 do that.

4 The other thing is that many times we don't
5 understand from a personal safety aspect on construction
6 sites. And we've all been involved in construction sites
7 at one time or another. We have staff that do that
8 sometimes so we don't recognize confined space for
9 example, came up in conversation this morning.

10 And confined spaces are permitted and
11 non-permitted confined space. And one of them has hazards
12 involved in it, and the other one has limited egress to
13 it.

14 And so, for example, the electrical inspectors
15 are limited to their access to attics and crawl spaces,
16 because they are considered confined space. So I know
17 that many of you have heard that they are limited to being
18 in those places. And I just wanted to tell you that they
19 are. And that you should also work with your staff and
20 your families and understand what that -- the confined
21 space can look different to everybody.

22 You know, we've all worked in the industry for a
23 long time and we might not think of an attic as a crawl
24 space. But if you were to break an arm up in the attic,
25 maybe you got twisted up in the rafters or something,



1 maybe there was some electrical wires up there where you
2 were shocked and were injured, how do you get that
3 individual out of that hole and get them immediate help,
4 right. And so those are all concerns with construction
5 sites and with different things like that.

6 Also, in your homes and understanding what
7 happens "if." And keep those things in mind. So that's
8 my safety topic for the day, just your personal safety.

9 CHAIRPERSON JENKINS: Thank you very much.
10 Appreciate that.

11 So moving on to our approval of the transcripts
12 from July 27th, 2023. As the chairman, we need a motion.

13 BOARD MEMBER NORD: Motion.

14 BOARD MEMBER BURKE: Second.

15 DON BAKER: This is Board Member Baker. I have
16 a correction for on page 49, line 3 and 5 state Board
17 Member Burke, it should say Board Member Baker.

18 CHAIRPERSON JENKINS: Thank you.

19 Also a slight correction on page 82, line 19.
20 There is a part here where it says "the motion on the
21 floor right now is to affirm the ALJ's decision and to
22 reapply the Department's decision." It's supposed to be
23 to "appeal the ALJ's decision and to reapply the
24 Department's decision."

25 It's based on our, the case with the ground



1 being cut. When we went back to the original order, so we
2 have to appeal the ALJ decision.

3 So any other corrections or changes? So other
4 than those changes, all in favor say, "Aye."

5 (Collectively.) Aye.

6 CHAIRPERSON JENKINS: Any opposed? Hearing
7 none, the motion passes.

8 So moving onto appeals. We have somebody here
9 from General Construction Company, and someone here for
10 the Department.

11 JOHN BARNES: My name is John Barnes. I'm an
12 assistant attorney general and I represent the Department
13 of Labor & Industries. There is no one from General
14 Construction Company here. We ended up settling this
15 matter yesterday.

16 As you recall, this was the one, General
17 Construction Company, was heard at the July meeting and it
18 was kicked over to this meeting in the hopes that we could
19 come to some sort of an agreement. I'm happy to report
20 that we did and that the paperwork should be coming
21 shortly.

22 CHAIRPERSON JENKINS: Perfect. Thank you very
23 much. Well, given that, I thank you and I appreciate your
24 time. I guess we'll be done with the appeals for the day.

25 Moving onto Item No. 4:



1 Department/Legislation/Rulemaking update, Mr. Larry Vance.

2 LARRY VANCE: It will take me just a second to
3 get some power. I may run out. I have to get an
4 extension cord. And I'm paperless, but there's a price.

5 CHAIRPERSON JENKINS: Does everyone have a copy
6 of the proposed rules and changes? I'm assuming that's
7 yes, okay.

8 LARRY VANCE: Okay. Sorry about all that. It's
9 a state computer and it takes a few minutes to get it up
10 and running sometimes.

11 So just a little background here. We've been at
12 this for some months. Now, with this rulemaking we've
13 advertised for a technical advisory committee, advertised
14 for proposals. The technical advisory committee met on
15 July 11th, went through all of the outside proposals, and
16 the parliament's proposals, and provided the Department
17 with advice.

18 The Department took that advice forward, and
19 there was some work to be done on some of the proposals.
20 And with the advice that we received, we moved forward.
21 And what you were all sent to review is the product of
22 that advice. There was three board members, I believe,
23 involved in the technical advisory committee. Let's see,
24 one two, looking for a third -- yes, they're all here.

25 And it was -- I've been in this position for



1 about 17 years now, and every time there is a technical
2 advisory committee convened, it's always just wonderful
3 the amount of knowledge that's in the room, with that
4 cross-section, it's a cross-section of all of the
5 electrical specialties and contractors, mixed in with some
6 engineers and board members and city inspectors and state
7 inspectors. And it's just always really just a great
8 thing to get all of that perspective. And we're
9 always -- afterward, we always comment to each other about
10 "wow, that was -- that was something."

11 But these people, the other thing that they do
12 is they do it all. You know, we don't provide anybody,
13 you know we don't pay anybody to come. You know, it's a
14 voluntary thing because people care about the industry.
15 So that's always really pleasing to see.

16 Did everybody have time to go through the rules
17 and read the rules? And is there anything in the rules
18 that is concerning or that you would like to learn more
19 about? I don't really, at this time, I don't want to go
20 through each rule change, because there is an awful lot
21 of, you know, changes and comments -- and, I mean, we can
22 do that, but it might be a quite laborious, so just how
23 would you like to proceed?

24 CHAIRPERSON JENKINS: I think we all have a copy
25 of these and if we start to roll down and take items. I



1 know I have a couple of comments that I want to make on
2 one or two items. But that way we kind of hit, so we
3 don't miss anything.

4 I guess you could say historically when we've
5 done this, we have a big old projector show this thing on
6 the board as we go through. We don't have that here.

7 LARRY VANCE: Yeah.

8 CHAIRPERSON JENKINS: But I'm assuming everyone
9 has a copy in front of them and can actually scroll down
10 through this. That may be the best way to go through
11 this, that way we're not missing anything.

12 LARRY VANCE: Right.

13 CHAIRPERSON JENKINS: And considering we have a
14 very, very light agenda today, we can just spend more time
15 on it.

16 LARRY VANCE: We can go into the rules. We
17 certainly can do that. Let's see ...

18 CHAIRPERSON JENKINS: I have one more thing,
19 just a number change. I don't think that's going to be
20 much importance.

21 BOARD MEMBER GRAY: I just wanted to point out,
22 and I have been one of those that has argued that when we
23 reference a standard, that it needs to have a specific
24 date for that standard in our rules. And my argument is
25 that if you don't do that, you're anticipating in the



1 future what that standard might say. And I don't like
2 that approach.

3 However, that said, the most recent edition of
4 the National Electrical Code, as well as other NFPA
5 electrical standards have taken that approach, that they
6 now have an informational note that states that if a
7 standard is referenced without a date, then it's assumed
8 to be the latest edition of the standard.

9 So I just wanted to put that out there. It
10 might be something for the future. I know we didn't do
11 that in this particular change, but in the future, it
12 might be something that we may want to consider.

13 LARRY VANCE: Right. There is a date on the
14 National Electric on, NFPA 70, and there's also a notation
15 in there that many of these other conflicts are in -- like
16 when there is a conflict between any other standard and
17 the National Electrical Code, the National Electrical Code
18 prevails. So we do have one date locked in there. Yeah,
19 I understand what you're saying.

20 All right. I finally figured it out. There we
21 go. I've got a left-hand mouse. I've been sitting here
22 trying to run my computer with my right hand, so it's all
23 going to be faster from here.

24 So I think Board Member Gray hit on the very
25 first part here. I'm just getting it to where I can see



1 it, there we go. So in WAC 296-46B-010 general there.
2 This is what Board Member Gray was talking about. That we
3 are -- instead of the 2020 National Electrical Code, we're
4 adopting the 2023 National Electrical Code. And we
5 discussed the approach with the technical advisory
6 committee about updating all of the standards, the dates
7 of all of the standards and what the technical advisory
8 committee advised us to do was to go with the latest,
9 published version. And we went ahead and took that
10 approach.

11 And here, within that section is the language
12 that says the National Electrical Code will be followed
13 when there is any conflict between the National Electric
14 Code and the ANSI/TIA standards or the NESC. So I'm
15 paraphrasing there a little bit, but so it does make the
16 National Electric Code paramount, those are the standards.

17 As we roll down there, there is just a little
18 clarification there about we added the words "of
19 standards" in relation to what standards apply in relation
20 to permits, when we go over an adoption, a period of
21 adoption. Because tentatively on April 1st, 2023, the
22 2023 National Electrical Code will be effective. This
23 particular section in WAC 296-46B-010 speaks to how things
24 work over those transitions. We just added a little bit
25 more clarity there just by adding a couple of words.



1 Throughout this document, you'll find that the
2 Code Revisor made their Style Manual changes. And it's
3 just strictly correction on whether or not a number a
4 number is spelled out or a number is, in fact, the actual
5 digits. I believe it's everything nine and below is
6 spelled out alphanumeric of how it is spelled and anything
7 greater than a single digit is an actual numeral.

8 On page 11 of the document just some
9 housekeeping to align with NEC 518.4(B). Also, we've
10 eliminated a section on page, still on page 11 of the
11 document, regarding tamper-resistant receptacles. The
12 code now addresses that.

13 I've got page thumbnails open on the left-hand
14 side of the document, and I'm just following it down,
15 scrolling down on the page thumbnails until I get to a
16 change, and then I'm addressing the change. So if there
17 is a little gap, I'm scrolling.

18 I'm on page 21 of the document right now. There
19 is a new definition added. This definition is the result
20 of passed legislation in 2018 Senate Bill 6126, which
21 implemented apprenticeship requirements for those learning
22 to become an 01 journey level electricians. The
23 definition reads "An equivalent apprenticeship program"
24 for the purposes of RCW 19.28.161 (2) (a) (i), means that
25 one is a party to a reciprocal agreement recognized by the



1 Washington State apprenticeship and training council;
2 that's the WSATC, under WAC 296-05-011(3) .

3 This definition is needed just so that in the
4 electrical law it says that someone must have completed a
5 4904 apprenticeship, which is a Washington State
6 apprenticeship, or an equivalent apprenticeship. So we
7 needed a definition of what an equivalent apprenticeship
8 was. So, because it exists in the electrical law, we put
9 a definition in the electrical world. So we're kind of
10 married in a little bit with the apprenticeship now. It's
11 an interesting relationship but we're figuring it out.

12 We're still in the definitions. We're on
13 page 30 of the document. And we're talking about -- we're
14 talking about copies of the RCW. We'll also be talking
15 about copies of the WAC a little further down in the
16 definitions. And we've essentially come to the
17 realization that, as we look around us with others and the
18 way things are all done today, is that we find ourselves
19 too often in the position of selling last year's Sports
20 Illustrated, for instance.

21 There are some things, some new things that
22 happened last year in sports, but when we're actually
23 selling somebody a copy of the laws and rules, the only
24 accurate copy of the laws and rules is the one that's held
25 by the Code Reviser.



1 So the Code Reviser, for instance the Washington
2 Administrative Code, they won't even sell you a paper copy
3 of that from the Code Reviser's office any longer. So
4 what we're doing is, is that we're changing -- we're
5 clarifying the definition, that if you were going to make
6 a copy available to you, but it's going to be an
7 electronic one. We've also explored how people can -- how
8 do they access a copy? We'll there's a copy on the Code
9 Reviser website.

10 What we will do is periodically we will take
11 that copy off of the Code Reviser website and we'll simply
12 condense it, because there is a lot of information,
13 references, that sort of thing that come after particular
14 sections that can be eliminated just for clarity of
15 reading. That information is of no real value. It's not
16 a requirement; it's not a law; it's just reference. So
17 we're going to reduce that.

18 So there will be a shorter version available
19 electronically that is verbatim. We may just do a little
20 bit of formatting for white space, clean it up just a
21 little bit, and it will have a date on it, so that when
22 somebody downloads it, they know what they're downloading.
23 But it is going to also have a disclaimer on it, "if you
24 want the real laws and rules, go here."

25 So right now what we have is on our website, we



1 have a nightmare of insert pages, and just it is a mess.
2 Unfortunately, I hate to report that, but it's not
3 something that we're able to maintain. There's been too
4 many law changes, there's been too many rule changes. And
5 every time we do that, we've got boxes of printed paper
6 that are virtually worthless.

7 So, the other thing we don't do is that we don't
8 really sell that many anymore. I mean, if anybody wants a
9 law or a rule, they don't go to the paper copy. They just
10 simply type it into their, you know, into their computer.
11 The nice thing about the advances that have been made by
12 the Code Reviser's office is that both the WAC and the RCW
13 are available in PDF. So you're there, and it's in HTML,
14 you're looking at it; you're reading it. Everything looks
15 good, but you can't find what you want, you simply go up
16 to load the PDF version, now you can word-search it.

17 So if you're looking for something like a phrase
18 like "utility type" work, you type in utility-type work
19 and you can see where it pops up. And it takes you right
20 there. So I'll race anybody that's got a paper copy in
21 their hand any day with an electronic copy. So that's my
22 spiel about that particular change.

23 On page 35 of the document, it's the same
24 clarification that was made for the RCW. It speaks to
25 electronic copies and substantiates why.



1 Housekeeping on page 36 and WAC 296-46B-110,
2 strictly aligning -- just aligning the title of this
3 section with the title of NEC 110.3.

4 If you're following along, then looking to
5 page 38. Page 38 is the whole rendition of statutory
6 authority and all kinds of reference. Those are the kinds
7 of references that we will trim out in our electronic
8 copy.

9 Page 39, more housekeeping related to the title
10 of WAC 296-46B-210. Again, just aligning the title with
11 the Article 210 title. That was a stakeholder proposal.
12 It was something that we also, that we also kind of keyed
13 on as well. But what we had found was that we had
14 originally labeled all of the titles to all of the
15 sections, using the National Electric Code references,
16 using the National Electric Code numbers system.
17 Everything was good. The thing was that we just hadn't
18 looked at it in probably 20 years, things change.

19 Page 42, this is a change in WAC-296-46B-210,
20 and 210.52. There's been a lot of, it's always been a
21 difficult thing for inspectors and installers, receptacles
22 and peninsular areas and islands. You have islands that
23 just have legs, they don't have any cabinets. You have
24 islands that are full of appliances and there's no way to
25 the top.



1 People but receptacles on the face of islands
2 and cabinets. The Consumer Product Safety Commission has
3 found that receptacles that are on the face of cabinets
4 are really a hazard for small children, pets, and the
5 like. There's a cord hanging down. Well, there is a kid
6 that might pull on that Crock-Pot cord and be scalded, the
7 same thing with a pet.

8 So what the National Electric Code did was they
9 departed from their previous requirement of having
10 receptacles in those locations. They didn't go all the
11 way though, they just said "they're not required." But
12 then they came back and said, if you don't install them,
13 you don't have to make future provisions to install them.

14 And that's pretty much what it says verbatim.
15 That's not verbatim; that would be paraphrased. But we
16 looked at this and said how are we going to enforce this.
17 What's the future provision, is it cable, is it conduit,
18 do you have to "as-built" it, do you have to spray lines
19 on the floor? How would anybody know how to go back and
20 find that future provision?

21 You start getting into -- you start getting in
22 buildings like your typical sub 5/2 type of construction.
23 What's under your floor is being looked at by the occupant
24 below. So in a building that was, that had concrete
25 floors in them, for instance, there would be -- what would



1 the future provision be; would it be a piece of conduit
2 that runs somewhere from the wall out to the island. How
3 would you ever do this? And how could we ever be
4 consistent to make any requirements?

5 So after running all of that through our heads,
6 we decided that, if something is not required, it's not
7 required. And that's the position that were moving
8 forward with. It's just, if it's not required, it's not
9 required. So that's we proposed.

10 Questions?

11 BOARD MEMBER GRAY: So are you going to send
12 out -- because I agree completely. This is really
13 confusing. It's really confusing to try to teach this, as
14 well. So are you going to send out some guidance for
15 everybody to tell them so that there is consistency in
16 installation as well as inspections and enforcement?

17 LARRY VANCE: Yes. Yeah, we'll definitely
18 publish information in the Electrical Currents Newsletter.
19 Our field supervisors, and I would hope that most of our
20 inspectors, most of our inspectors are already attuned to
21 this change. This was a change that was, I believe, an
22 analysis of changes. So we will make sure that everybody
23 knows about this. Because this is -- this is a very
24 costly thing for an installer and a contractor. You know,
25 where is your future provision at? What do you mean my



1 future provision?

2 BOARD MEMBER GRAY: So the other part of that
3 also is face-up receptacles and countertops. So that
4 probably needs some guidance as well. What constitutes an
5 approved receptacle in a work surface or ...

6 LARRY VANCE: There's a particular listing for
7 it, and it has to do with the rating for a wet location.
8 What we find as inspectors is we will find a furniture
9 plug installed and it's just nothing more than a just a
10 saw hole, drop your plug assembly. There's a retainer
11 ring generally. Those are made for furniture. They're
12 not made for countertops where there's spills.

13 So there's a particular -- I don't have it
14 memorized -- but there is a particular listing for
15 receptacles that are rated for use in, where they are
16 subject to spills.

17 BOARD MEMBER GRAY: So that's how you will
18 enforce that is by requiring that device, whatever it is,
19 to be listed for that application?

20 LARRY VANCE: If somebody chooses to install a
21 receptacle in an island or a peninsula or counter space,
22 then we will inspect it as to, you know, the code. So,
23 yes, we will. I don't expect -- there's a lot of custom
24 homes, there's a lot of places where people are going to
25 want. I mean, this is actually probably from a builder



1 standpoint, pretty costly to have receptacles in the
2 islands and in some other peninsula counters spaces. So
3 they'll probably put this change -- this will be a cost
4 savings to the building industry.

5 BOARD MEMBER GRAY: And then we're back to using
6 extension cords for your appliances on the counter top.

7 LARRY VANCE: I just don't, there's so many
8 receptacles on most countertops though. The idea of
9 running a cord out to a Crock-Pot on the island, I don't
10 know. Maybe that's where you ...

11 BOARD MEMBER ISAACSON: The countertop
12 requirements for UL are very strict. And there are very
13 few manufacturers that would meet that requirement. So I
14 would encourage you to let the inspectors know that there
15 is a specific UL requirement, a standard floor box, a
16 standard furniture receptacle will not meet those
17 standards.

18 LARRY VANCE: Yes, we actually have the benefit
19 of having Chris Jensen, who is a -- he is a representative
20 of UL at our last inspector training. And he had a slide
21 that went over the particulars of kind of spill-rated
22 receptacles for countertop use, and then furniture
23 receptacles. The telltale of a furniture receptacle is
24 that it comes with a cord; it comes with a plug, so it's
25 ready to go. The others don't. You have to wire to it.



1 So, yes, we will -- that will be a newsletter article.

2 And we're getting to the point where the next
3 step in this process is actually filing what's known as a
4 CR-102. 102 is "here's a copy of the rules that we are
5 moving forward with," and that also opens the official
6 public comment for written comments and we will also have
7 a public hearing.

8 Page 47, WAC-296-46B-220. Just more
9 housekeeping to align the title with the National Code.

10 On page 48 of the document, there is a National
11 Electrical Code reference that changed, more than some
12 simple edits to bring this up to date.

13 Page 49, WAC-296-46B-225, more housekeeping for
14 the title, more housekeeping for updating references.

15 Page 50 of the document to get a reference here.
16 We're still in WAC-296-46B-225(2)(b). This has to do with
17 the disconnecting means for a feeder as to the inside
18 location. We had some verbiage there that talked
19 about -- this section is massaged a little bit, and it's
20 just strictly massaged a little bit for taking into the
21 fact that you've got a generator, you don't have to have
22 two service ratings. There's just a lot of massaging here
23 and all we did was in (b) we just aligned with NEC
24 225.31(B). And when we did that, we had to go down here
25 on the lower end of the section and kind of add this

Page 22



1 language back up to where we didn't have a requirement for
2 two service rated disconnects, so that's the short version
3 of that change.

4 We're now on page 57 of the document. For the
5 longest time, we've had a prohibited service conductors
6 being in electrical metallic tubing. And we kind of got
7 into a discussion about why. And there is a lot of good
8 "whys." The fittings of useable EMT, and that's
9 electrical metallic tubing, they're not as robust as a
10 rigid conduit, but yet there are other methods that one
11 could accomplish a ground path and still use the wiring
12 method and not make it a hazard.

13 So all we've done here is just simply said that
14 electrical metallic tubing can be used as long as you
15 install a supply side bonding jumper. So essentially
16 you're not relying on the conduit; you're not relying on
17 the fittings; you're going to rely on that bonding jumper
18 for fault current.

19 Too many pictures of poorly -- well, we'll put
20 it this way -- charred lug nuts, arcing and fittings. We
21 feel that this approach, what it does is it allows
22 installers just another option for to use electrical
23 metallic tubing, and under certain circumstances with the
24 supply side bonding jumper.

25 CHAIRPERSON JENKINS: And a quick question for



1 you. Was the idea may if you had a fault inside the EMTs,
2 that faults the EMT, may or may not be able to handle that
3 fault, was that brought up at all? PVC obviously isn't
4 going to have any issues, rigid conduit is a very
5 obviously strength is huge. EMT, thinner walls is
6 considered to so you know any type of damage, actual
7 damage to what it actually penetrates against to that
8 conductors. If you're running a conduit through it or a
9 conductor through it, are you still maintaining the
10 requirement of the bonding lock nuts, and it is it going
11 to be able to withstand at that fault?

12 LARRY VANCE: It would have grounding lock nuts
13 or ground bushings, because you would have to. Otherwise,
14 you would have to choke it back. So you would have both
15 ends bonded just right straight down the line.

16 So the National Electrical Code currently allows
17 EMT to be used as a service race 1. The rule,
18 traditionally, has not allowed that. And the change we
19 are making is to ensure the integrity of the ground that
20 supplies that bonding jumper means.

21 To your point about, if there is a fault in the
22 conduit, I've seen holes blown and rigid. I mean, I
23 understand what you're saying, but I think that -- I think
24 that we've solved the concern, that we, as inspectors,
25 have seen as far as EMT being relied on as the primary



1 fault or path, or as a primary fault or path.

2 CHAIRPERSON JENKINS: I just was questioning
3 whether that was brought up at some point or another.

4 LARRY VANCE: Okay. Yeah. We're comfortable
5 that what we're doing is we're finding kind of a happy
6 medium between prohibiting it and allowing it such, so
7 we're about halfway, right in the middle.

8 CHAIRPERSON JENKINS: Fair enough. Thank you.

9 BOARD MEMBER GRAY: Chair, just to follow up on
10 that. Being a grounded system, the grounding conductor is
11 doing exactly the same thing already. So putting in a
12 supply side bonding jumper to me is irrelevant and doesn't
13 fix the problem that Jason brought up, that if you have a
14 fault in your raceway system, it's not going to be carried
15 by that anyway. It's going to be carried by the raceway.

16 So I'm not sure this did anything other than
17 cost the contractor a little more money to put in another
18 conductor that would just be redundant to what's already
19 in, that's just my opinion.

20 LARRY VANCE: Yeah, they would have to weigh the
21 difference between running a rigid conduit method and an
22 EMT method with a supply side bonding jumper.

23 CHAIRPERSON JENKINS: Comments from the Board,
24 concerns?

25 SECRETARY MOLESWORTH: So, Mr. Chairman, I just



1 want to say that we will take another look at this because
2 there are some other issues that we may be able to address
3 as well.

4 LARRY VANCE: We have about four or five days
5 before the CR-102 is filed, so that's where we're
6 currently at.

7 CHAIRPERSON JENKINS: Concerned, I guess, since
8 you opened that door, what kind of changes are you looking
9 at? Because that's kind of why we're here as to get a
10 "yea" or "nay" as to what we think about it.

11 SECRETARY MOLESWORTH: Exactly, what Mr. Gray
12 brought up was a very good point as just a parallel path.
13 They terminate at the same points on both ends. So you're
14 just adding a conductor and not really ensuring that. So
15 we'll take another look and see if that's actually
16 appropriate, and if we're adding anything that's
17 substantial to safety.

18 The other thing that popped in my head as we're
19 talking. I apologize, I had forgotten about was one of
20 the reasons that EMT was not allowed at one point, at
21 least in my recollection, was the seam on a piece of EMT
22 is a very weak point and that has a tendency to split.
23 And that they used to call that the availability for fire
24 spread. So it would split open and expose other flammable
25 materials to that fault, that plate.



1 So I want to research that a little bit more.
2 That's just from my memory, you know, what I was
3 understanding was one of reasons why that one -- why the
4 NEC allows it, I'm not sure. But we've always been a
5 little bit ahead of that game just for a little bit of
6 extra added safety. So I just want to check through it
7 one more time.

8 CHAIRPERSON JENKINS: Thank you. Any other
9 questions? Don Baker.

10 BOARD MEMBER BAKER: Along those lines, I wonder
11 if it came up in the conversation what type of fittings
12 you're using with that EMT, because I know the fact that
13 the engineering required pressure fittings.

14 SECRETARY MOLESWORTH: You would be looking at
15 cache versus steel, and there's a few things there that I
16 think are important, yeah.

17 BOARD MEMBER BAKER: Yeah, it's all part of the
18 equation, right?

19 BOARD MEMBER TUMELSON: One other consideration,
20 was it ever discussed about a bare conductor versus
21 another insulated conductor?

22 LARRY VANCE: We would just go with what the NEC
23 allows, so it would be a bare conductor would be in
24 insulated conductor.

25 BOARD MEMBER TUMELSON: Well, I guess if they're



1 both insulated, the ground and this, you know, supply side
2 bonding jumper in this instance, then it's just a parallel
3 conductor serving the same purpose, if it was a bare
4 conductor we can provide that.

5 LARRY VANCE: It may be easiest just to stay
6 with the current load. I mean if -- if we're going to get
7 into the -- it's very hard for installers to hit all of
8 the marks. I mean is it steel compression; is it steel
9 set screw; is it die-cast compression. Maybe it's just
10 easiest to be a rigid conduits.

11 BOARD MEMBER GRAY: Or PVC.

12 LARRY VANCE: I think I can assume that what I'm
13 just going to make an assumption that what I'm hearing is
14 that the Board is rather ambivalent about the cost savings
15 that could be achieved through this, that it could cause
16 more hazard. That all of the hazards may not be
17 identified, right, from all of our experience, splitting,
18 arcing. Yes. We've all taken apart whole installations
19 and seen what was there. Maybe it's good to stay.

20 CHAIRPERSON JENKINS: I guess doing that, keep
21 coming back to this. If we go this route, does anybody
22 agree that this is a good idea to leave it the way it
23 stands; anybody have any -- are we okay with that staying
24 the way it is because it sounds like everyone else has
25 some issues that may be --



1 BOARD MEMBER KNOTTINGHAM: Could you clarify the
2 way it is?

3 CHAIRPERSON JENKINS: So currently the changes
4 that they're asking for is anybody happy with the changes
5 that this section is talking about?

6 So I'm seeing that the majority of us disagree
7 with this change.

8 BOARD MEMBER BAKER: I don't necessarily
9 disagree with making the change. I'm wondering if anybody
10 looked at the Washington State rule allowing EMT over the
11 years and what other states did. Is there any historical
12 data you can look at and say, "Wow, all these other states
13 had all of these kinds of problem, or there's been no
14 problems." So in that case may be in make sense for us to
15 make change to align with what NEC; does that make sense?

16 SECRETARY MOLESWORTH: It does, but, however, it
17 would probably be hard since most installations are
18 installed fairly safely and correctly with EMT, that there
19 would probably be very little data that we could collect
20 on whether the EMT versus rigid versus PVC versus, right?
21 So it might be very hard to find data like that. We could
22 look, but chances of that documentation for that purpose
23 might be a little thin. But we can look.

24 BOARD MEMBER GRAY: If you're asking for an
25 opinion, my opinion would be to just follow the language



1 of the NEC that's being used by 49 other states. It seems
2 like it ought to be adequate for us. That would be my
3 choice.

4 CHAIRPERSON JENKINS: I'm just trying to keep it
5 so that we can just move forward. Is that the changes
6 made prior to; mixed feelings about this. I guess we move
7 forward. I don't have a good answer for that.

8 LARRY VANCE: Yeah, it would be quite a
9 departure to just, you know, the section wouldn't exist if
10 we just went with the NEC. What we call out here is, of
11 course, more suitable, a suitable wiring that is for
12 service conductors. We amend the NEC. We make it -- ours
13 more stringent than the NEC.

14 This is a step more in the middle to allow the
15 EMT as long as you have a supply side bonding jumper. So
16 I guess we'll -- unless the Board has strong feelings
17 about this and the Board would like to and advise us to
18 leave it as status quo? Would they like to advise us to
19 just follow the NEC and maybe eliminate this section.

20 BOARD MEMBER BAKER: I like keeping it simple.
21 I like aligning with the NEC unless there is a legitimate
22 reason we should not.

23 BOARD MEMBER KNOTTINGHAM: Yes, I agreed with
24 that, but I don't know if there's time to figure that out
25 yet, I'd rather keep what we have and look at it and maybe



1 modify it next time. I'm not opposed to modifying it, but
2 there is concerns, I think legitimate concerns. Until we
3 can research that and find out that those concerns are
4 really valid, I would rather keep what we have currently.

5 BOARD MEMBER CUNNINGHAM: So reading further
6 onto the next page, this is page 58, 070 service
7 equipment --

8 THE COURT REPORTER: Excuse me. I'm not hearing
9 you very well. Is there a microphone close to you? Thank
10 you.

11 BOARD MEMBER CUNNINGHAM: As far as Section 070
12 talks about outside Location, service disconnecting means
13 will be permitted on the building or structure or within
14 sight and within 15 feet of the building or structure
15 served. And talking about are we limiting the amount of
16 the service conductors inside the building already if
17 we're having the code? So we talking about a 0343 section
18 as a point of entry to the building.

19 So in my mind, keeping it the same, the way it
20 is now in the WAC rule, rigid or PVC. Apparently we're
21 only locating a short I don't see any value, in fact, an
22 extra distance just adds money. In fact I would recommend
23 just leaving it alone or just align with the NEC. It's
24 not something that --

25 SECRETARY MOLESWORTH: I think the way that it



1 was read was that when you look at that, EMT is allowed in
2 the exterior of the building. The reason for not allowing
3 it inside is the probability or the, you know, the ability
4 of that EMT to be weaker than other wiring methods that
5 would, with a fault, could create a fire inside the
6 structure and that would have a problem.

7 Now, that all depends on how it's installed
8 inside the structure, right, as to how, what the
9 probability is of creating a fire and that type of a
10 thing. Because if it's up in the floor joists and it's
11 covered with stuff, that's more probable than down free
12 air, you know, without it being exposed to combustibles.

13 But I think that we have to really think about
14 why did way, before, allow it outside, we didn't not allow
15 it inside, right? I'm still thinking about this extra
16 conductor, that's just to ensure a path. And I think that
17 path is ensured using the grounding conductor.

18 And so I think that it might take -- unless you
19 guys have some really specific direction you want us to
20 go, I think we have to think that through just a little
21 bit more so we're not causing somebody additional cost
22 with no particular reason, but yet we are maintaining the
23 safety and integrity of that installation at all times.

24 Keep in mind, there is other wiring methods the
25 NEC allows that I don't think anybody wants to allow in



1 this state. So aligning with the NEC, you know, in this
2 one instance, I think you might be, you know, we could go
3 down that road if we thought that was appropriate, but we
4 don't want to align the entire thing with the NEC. We
5 want to leave it intact with what we have therein just add
6 an EMT if that's the case.

7 BOARD MEMBER GRAY: I just don't think what this
8 is doing answers the question on why we are not allowing
9 EMT. That's my whole point. This doesn't, I mean, either
10 allow EMT or don't allow EMT, but this does not achieve
11 the safety purpose that is being advertised.

12 SECRETARY MOLESWORTH: That it was intended to,
13 exactly.

14 CHAIRPERSON JENKINS: So I guess, what's the
15 best route will be we take comment that on page 50 --

16 LARRY VANCE: 59. Excuse me, sir. 57, 56.

17 CHAIRPERSON JENKINS: I'm seeing page 57 as
18 where this thing starts. The thumbnail on page 57
19 document is actually behind by one page, the next page,
20 there. But regardless we think that there's we're not
21 100 percent for or against that. There is still some
22 controversy with that one. Is that what I'm hearing
23 across the Board? As we are discussing here, we do a
24 motion, we will have to do a motion for us to go through
25 this, which I think we would be here a long time.



1 BOARD MEMBER GRAY: Being the instigator that
2 brought it up the first time, I would suggest, it's just
3 another option that can be used. If an installer wants to
4 use this option, they can. And my choice would be just to
5 leave it as proposed. And then we can deal with it
6 through the next code revision cycle.

7 CHAIRPERSON JENKINS: Is that agreeable?
8 Yes, Secretary Molesworth?

9 SECRETARY MOLESWORTH: Yeah, so what I would
10 propose, Bobby, is that instead of changing it and coming
11 back I would agree with Mr. Knottingham maybe we should
12 leave it as it is, give it more thought. Change it next
13 cycle when it comes up, so that we're completely ...

14 And that way we're not going back and forth on
15 people when we're looking at that code. Would that be
16 acceptable.

17 BOARD MEMBER GRAY: We've got used to it.

18 SECRETARY MOLESWORTH: Exactly.

19 BOARD MEMBER GRAY: For, at least, the 50 years
20 that I've been in the industry, so ...

21 CHAIRPERSON JENKINS: So then saying that, how
22 does the Board feel about asking this to be appealed or
23 removed until the next code cycle? Is that more
24 appropriate?

25 LARRY VANCE: It's very simple.



1 CHAIRPERSON JENKINS: Okay.

2 LARRY VANCE: We have a crack team at Labor &
3 Industry to address this, put words in; take words out. I
4 mean, it would just make your head spin.

5 CHAIRPERSON JENKINS: Okay. For now, we'll
6 leave this on the list of items getting down to final
7 approval of this.

8 LARRY VANCE: At the Code Reviser's office they
9 turns things around. We'll have another version of this
10 without this in there in probably about, generally, four
11 days. We will probably still be able to make our filing
12 date with making a couple of massage changes here just
13 based on the Board's advice.

14 If we get into anything too deep or where we've
15 got to do research or anything like that, then it could
16 affect that April 1st, 2024 date, the perfected date. So
17 I've got this one locked in.

18 CHAIRPERSON JENKINS: No further discussion on
19 this one. Thank you.

20 LARRY VANCE: We're going to back off our baby
21 step on the EMT, so back there. Which is just fine.

22 So, let's see, page, were still in WAC
23 296-46B-230. I want to make sure that that's correct.

24 There's been some discussion about what really
25 brought up the length of raceway in buildings has been



1 driven off of the additional National Electric Code
2 requirement for an emergency disconnecting means. And
3 emergency disconnecting means on a single-family dwelling
4 is it essentially can be the service disconnecting means,
5 or it can just be a disconnect that disconnects the
6 service conductors, the service conductors into the
7 disconnect and the service conductors leaving the
8 disconnect.

9 The thing with that emergency disconnect is that
10 generally that emergency disconnect is an overcurrent
11 device, because in order to have the fault current rating,
12 it is an overcurrent device. So then you run into this
13 rule that we have that limits the length of service, the
14 service raceways.

15 Well, if you have an overcurrent device, why are
16 you limiting the length of the service raceways, right? I
17 mean, it's not a service disconnect, when you've got an
18 overcurrent device that the customer owns, the customer
19 controls, that is now making those service conductors
20 protected. In other words, they are no longer those, you
21 know, that unknown factor of it's gone with the service
22 conductors.

23 So this is a section here where we've just added
24 an exception, that says that if it's an owner supplied
25 overcurrent device, that the limitation doesn't apply



1 after that owner overcurrent device.

2 So this allows, for instance, I'll just give you
3 an example. Anybody that's ever wired a single-family
4 home, the serving utility will require, generally require
5 the meter to be in the front third of the house. Now
6 you're limited on the length of service conductors, so the
7 length of service raceway to 15 feet. So that means that
8 your service panel is going to be within 15 feet of that.

9 And as you're working in the home and people are
10 piling things in the garage, and you come to the day where
11 you're going to install your home runs and there's nothing
12 but a bunch of wood scraps, and who knows what on the
13 garage floor. But you've got to get all the way across
14 that garage and get into the house to all of your home
15 runs.

16 What this does is this says to installers, it
17 says it's okay, if you've got your emergency disconnecting
18 means that's not required by the code on the exterior, and
19 that protects those service conductors, you could now come
20 into the house with a wiring method like SER cable as
21 opposed to adding pipe. And it's also now you no longer
22 have a limited length, you're no longer limited to
23 15 feet.

24 So you could just run one cable across the
25 garage where all of that refuse is piled. And it's going



1 to save -- it's going to save a lot of copper because you
2 don't have individual wire circuits running across the
3 garage anymore. You may have just one cable. Granted
4 it's going to be a large cable, but this could
5 save -- this could be a cost savings, a little bit of
6 labor savings, but it gives them flexibility that the code
7 currently does.

8 In other words, the code doesn't limit. It
9 doesn't limit wiring. It doesn't limit lengths of
10 raceways for service conductors. We do in this state,
11 we're just making an allowance based on that overcurrent.

12 CHAIRPERSON JENKINS: So comment/question. I've
13 never done this before, but every time that I would
14 install services out there, I put a meter maid disconnect
15 outside. And anything beyond that, that's considered,
16 (unable to hear clearly) so that just wouldn't be.

17 LARRY VANCE: Emergency disconnects, though, are
18 allowed on the supply side.

19 CHAIRPERSON JENKINS: I've just never installed
20 those.

21 LARRY VANCE: Right. It's throwing installers,
22 inspectors, everybody for a little bit of a loop because
23 it really, they are allowed on the supply side. So you're
24 going to put a -- you're going to install a breaker
25 enclosure, and you're going to bond to cam. You're still



1 going to have 240-volt service; you're going to have three
2 conductors, two knots and a neutral.

3 It's going to go right through that overcurrent
4 device, the neutral is tied down to the enclosure just
5 like it is in the meter maids. On into the building it
6 goes. Yet, now it's got overcurrent protection. That's
7 the big difference. So now you're wiring methods aren't
8 limited because you have overcurrent protection.

9 CHAIRPERSON JENKINS: This is the first time,
10 I've never installed them.

11 LARRY VANCE: Yeah, it's really throwing people
12 for a loop.

13 BOARD MEMBER ISAACSON: So, Board Member
14 Isaacson, so for the installer this is a huge cost saver,
15 because you could now put your load center centrally
16 located in the house. And all of your home runs are going
17 to be much shorter; is that correct?

18 LARRY VANCE: That is what this does. It
19 changes the game that way for them, for those that want to
20 do that. You know, it reduces the cost of a single-family
21 home, makes things more affordable. 200 bucks financed
22 over 40 years is a lot of money. Every time we, every
23 time a new requirement comes along -- we look at this both
24 ways. You know, we look at the new requirements that are
25 coming along, and we look at any requirements that we have



1 that could "do we really need the requirement," right?

2 And this new requirement, the emergency
3 disconnect for one and two-family homes has really caused
4 us to do some thinking about, what are we accomplishing?
5 When the conductors have overcurrent protection, why are
6 we placing new limits on here. Why wouldn't we just allow
7 what the National Electric Code allows, so that's the
8 approach we're taking there.

9 CHAIRPERSON JENKINS: Board Member Gray.

10 BOARD MEMBER GRAY: I'm sorry, Mr. Chair, I'm a
11 little confused. So if I have a fuse disconnect that is
12 meeting the requirements of 250.4, and I bond the
13 grounding conductor at that point, which I am permitted to
14 do, now then my service is going to be in the middle of my
15 house someplace, and I'm going to bond the grounding
16 conductor there as well, and take my grounding electrode
17 conductor to that service panel.

18 Now, I've created a parallel path for fault
19 current or for load current flowing on the outside of my
20 equipment. Is that what this would?

21 LARRY VANCE: No, because the supply side, the
22 emergency disconnect on the supply side is doing nothing
23 more than interrupting the ungrounded conductors going
24 into the dwelling.

25 BOARD MEMBER GRAY: But the grounding conductor



1 could be bonded there?

2 LARRY VANCE: Just like in the meter maids, yes.
3 Yes, the bonding that's service enclosure so that --

4 BOARD MEMBER GRAY: I'm sorry. Go ahead.

5 LARRY VANCE: If you look at the labeling
6 requirements for the emergency disconnect, what it does is
7 it doesn't acknowledge that it's service equipment. It
8 does in some of the examples of the labeling requirements.
9 It will say "service disconnect," "emergency disconnect."
10 It's two labels. And then it will say "emergency
11 disconnect, not service equipment."

12 And that is when it is speaking, that's when
13 it's got to click in your head that it's not service
14 equipment, that's a supply side. That's a supply side
15 emergency disconnect. So there's no bonding in there
16 other than just the grounding conductor is doing
17 something.

18 BOARD MEMBER GRAY: It's not prohibited then?

19 LARRY VANCE: It's not prohibited. One could,
20 if they chose to, go ahead and do all that. But now you
21 would be four wires leaving that to go to your panel in
22 the interior. Because you would now have that as your
23 service disconnect means. Put a label on that if you did
24 all that. Connected all of your electrodes to the ground
25 conductor there, you would have, it would be your service



1 disconnect. It would be labeled service disconnect,
2 emergency disconnect.

3 So, like I said, this whole thing is a new
4 animal and it's made a lot of people scratch their heads.

5 BOARD MEMBER GRAY: So the enforcement will
6 ensure we don't have those injectable current flows on the
7 outside of the equipment?

8 LARRY VANCE: Right. If you're going to treat
9 it on there, if you're going to treat it on the supply
10 side, it's three wires in, three wires out. It's real
11 simple. But trying to get electricians that the minute
12 they look at the first overcurrent device in their heads
13 they're saying, this is the service disconnect. But yet
14 you can put a label on it that says emergency disconnect,
15 not service equipment. It's confusing.

16 It is confusing. And I think after, you know,
17 three years of enforcing this, I think that people are
18 getting it. And some of the installers are starting to do
19 some things as far as taking those, you know, Board Member
20 Isaacson said, if one is thinking about this and you move
21 your service panel to the interior of the building, where
22 your -- you could shorten up all of your home runs. You
23 can -- wires are expensive, I mean, you could have some
24 significant costs to there. Yeah.

25 CHAIRPERSON JENKINS: So my call on this is this



1 it's something different. And it keeps on calling it a
2 disconnect, and it's actually an overcurrent protection
3 device. Otherwise, it wouldn't divide, in order for allow
4 this to happen.

5 LARRY VANCE: Yeah.

6 CHAIRPERSON JENKINS: And second of all, I'd
7 approach it to say it's just saving one wire. You know,
8 if you put another wire in there, you can call the service
9 on the outside, you can have just a simple disconnect on
10 the outside and put your panel anywhere, like we've done
11 in the past.

12 So this, honestly, I think there allowance to
13 put an emergency disconnect, that's overcurrent protected.
14 It's, I don't know if it was really needed, but apparently
15 somebody somewhere wanted it and it got put in somewhere.
16 So our correction this way around is saying "well, if you
17 put an overcurrent protection devise in, well, protect the
18 wire. So it's different.

19 LARRY VANCE: It's a little different.

20 CHAIRPERSON JENKINS: But I just want to make
21 sure I said this is an overcurrent protection device on
22 the exterior of the building.

23 LARRY VANCE: And you've got to have
24 that -- yes, and according to National Code, it's 285 just
25 talking off the top of my head here, but the labeling it's



1 really --

2 CHAIRPERSON JENKINS: It's not just a
3 disconnect.

4 LARRY VANCE: And it could really be something,
5 but you're looking at, that label there that says
6 "nonservice equipment," that is so that you don't have to
7 bring the grounding electrode conductor to the grounding
8 conductor --

9 CHAIRPERSON JENKINS: As an installer, I see
10 that it says "nonservice equipment." As an installer, I
11 see that and I say "oh, I can't install it there."

12 LARRY VANCE: It's just, it's been fun. We'll
13 put it that way.

14 CHAIRPERSON JENKINS: Any other discussion?

15 BOARD MEMBER BAKER: I've got to ask Larry the
16 terms service raceway here. At some point did the code
17 changes, was it referred to as used and unused conductors
18 at one point during my thinking of a different section of
19 the code?

20 LARRY VANCE: I don't think so.

21 BOARD MEMBER BAKER: Because that's what's
22 driving all of this, right?

23 LARRY VANCE: That's what we're looking at. Are
24 we treating -- service conductors have always been
25 conductors that someone else controls any overcurrent



1 protection on, whether it be nonexistent or so high that
2 the wire is going to burn end to end.

3 BOARD MEMBER BAKER: I've got to tell you, when
4 I first read this before the discussion I first that was
5 why are we putting this in here. Electricians should know
6 the difference between service raceways and feeders. It
7 seemed like we're dumbing down to the level of our
8 installers ability.

9 LARRY VANCE: It's the argument over the --
10 there's still three wires. That's the whole thing, right,
11 when you have a piece of equipment that's labeled
12 nonservice equipment, there's still three wires.

13 BOARD MEMBER BAKER: But isn't it true that if
14 there's an overcurrent device --

15 LARRY VANCE: No.

16 BOARD MEMBER BAKER: It's not true?

17 LARRY VANCE: No, because you can put a label on
18 it that says it's not a disconnect and not service
19 equipment. And you are allowed to have it up a supply
20 side by code. They inserted this, when this new thing
21 came along and they inserted it, it created a lot of
22 (uncertain.) "There it is, make it whatever you want to
23 make it as long as you've got a piece of equipment."

24 Now there's equipment out here like a meter
25 maid, it's a panel board, meter combination. And it will



1 say suitable only for use of service equipment on it.
2 That's how it's listed. So you're not going to put a
3 label on it that says not service equipment, you're not
4 going to do that.

5 So if you have just a simple breaker enclosure
6 service rated service disconnect -- I just said it, didn't
7 I? It's not necessarily a service disconnect; it's an
8 emergency disconnect. This is for your first responders.
9 And if you put the label on there, emergency disconnect
10 and not service equipment, that's telling the person that
11 the service equipment is located somewhere else in the
12 building. So that's what it does.

13 SECRETARY MOLESWORTH: It really comes down to
14 where are you doing your grounding and your bonding. And
15 outside, does that disconnect have a permanently attached
16 grounding conductor attachment to the can. If it doesn't
17 and it's floated to where you could do it if you wanted to
18 or not, you know you can do it either way. And it also
19 depends on the listing of the enclosure.

20 BOARD MEMBER BAKER: Should we be addressing our
21 definitions for point of service and clarifying that
22 rather than making these changes here?

23 LARRY VANCE: There so many combinations of how
24 people approach something, a structure. Some do it
25 remotely; some do it from other buildings. There's just



1 so many combinations. All we're doing here is just trying
2 to say, if you've got overcurrent protection on service
3 conductors, we don't have any restrictions.

4 I know it would seem like we wouldn't have to,
5 but yet we're trying to achieve consistency. We don't
6 want, you know, we don't want things in the City of
7 Edgewood to be done any different than the City of Auburn.
8 So once a national builder locks into a particular method,
9 it's really interesting how dedicated they are to that
10 method statewide.

11 CHAIRPERSON JENKINS: So my last comment here,
12 this is the other portion, we're not dealing with; that's
13 not what we're asking for. This is simply given the
14 situation now, are we going to allow them to have another
15 device, and overprotection device. So that's kind of the
16 parameters that we're working in. So does anybody have
17 any? All right. Thank you, Larry.

18 LARRY VANCE: Okay. I'm on page 60 of the
19 document. And this is just simply the National Electric
20 Code moved wiring methods over, wiring methods exceeding
21 1000 volts to a new code, so there's a new code article
22 235, more editorial change.

23 Page 75 of the document, I'm on WAC 296-46B-300.
24 Again, more housekeeping. Just updating the title to
25 correspond with the title of NEC Article 300.



1 CHAIRMAN JENKINS: What page are you on?

2 LARRY VANCE: We're on page 75 of the document.

3 CHAIRPERSON JENKINS: Thank you.

4 LARRY VANCE: Housekeeping on page 76 of the
5 document has to do with, I believe, when the, I believe,
6 that this is a result of the -- yes, this is a result of
7 the deletion of WAC 296-46B-115. And I believe that that
8 was temporary -- I can't remember off the top of my head.

9 If anybody would like to, we can go back and
10 look at it. And this was actually just some renumbering
11 as we go down through the document here that's a result of
12 that, that has been double-checked.

13 Now on page 82 of the document. Just
14 housekeeping here in WAC 296-46B-314 to align with the
15 National Electric Code language, just updating.

16 Page 83. It's been several code cycles that
17 this requirement has been in there. The National Electric
18 Code it is not supposed to be a design manual, but the
19 National Electric Code a few cycles ago introduced a
20 requirement that anywhere in a ceiling that a ceiling fan
21 could be mounted, that it had to be a ceiling-rated box.

22 And so "where it that at?" Was kind of the big
23 question. I mean is that the same in the City of Auburn
24 as in the City of Ellensburg when somebody's -- when
25 you're a builder? Is it two feet from the wall? Where is

Page 48



1 it?

2 And we wrote a Currents article about this, and
3 what we're doing is taking the Currents article which is
4 kind of a policy and just putting it in the rule.
5 Essentially saying that, if it's within four feet of the
6 wall, it's not -- it's not a place where a ceiling fan
7 needs -- could be installed, or would be installed.

8 Because they kind of, they really leave it up to
9 the discretion of, you know, "well, you could, you know,
10 they make those little small ceiling fans." I mean how do
11 you -- as an installer and as an inspector, how do you
12 interpret this section? That's what this does is it just
13 says that within four feet of a wall or over an island or
14 a peninsula or counter space that you don't need -- that
15 those boxes do not need to be fan-rated boxes.

16 The shift in the industry is that we no longer
17 have recessed cans, we have puck lights. We no longer
18 have -- there's really a complete shift away from ceiling
19 fan boxes, from ceiling fans for illuminators. You know,
20 there's an occasional chandelier or something to that
21 effect, but I mean the idea that the ceiling is littered
22 with boxes anymore is just not there. So, yes, so this is
23 just in here for consistency.

24 CHAIRPERSON JENKINS: Any comments on that
25 section?



1 Should we take a break in here somewhere to
2 collect thoughts?

3 LARRY VANCE: I can take a break.

4 CHAIRPERSON JENKINS: Let's do that. Let's take
5 a short break. Also for those who need to, check out is
6 at 11 o'clock, so if you need to go check out, we'll take
7 a 15-minute break, those that need to do that, be back
8 here at 10:45. Sound good? Thanks.

9 (Break from 10:28 a.m. to 10:50 a.m.)

10 CHAIRPERSON JENKINS: Okay. It is 10:50 and we
11 will go back on the record. I guess I should have asked
12 if our speaker was ready.

13 Let me ask the group here, do you want to keep
14 moving in this pattern and keep going through this or do
15 we want to change the way we're doing this?

16 BOARD MEMBER KNOTTINGHAM: I think it's better
17 to go through it. Like you said, since we don't have the
18 other, just go page by page.

19 CHAIRPERSON JENKINS: Okay. Does anybody have
20 any issues with the changes done by the numbering, the
21 numbering changed?

22 BOARD MEMBER KNOTTINGHAM: No.

23 CHAIRPERSON JENKINS: So do we want to just have
24 him skip through all of the ...

25 BOARD MEMBER COX: Like the housekeeping.



1 CHAIRPERSON JENKINS: Okay. Let's do that.

2 THE COURT REPORTER: And maybe just pull those
3 mics closer to you, all of you board members.

4 BOARD MEMBER GRAY: He's coming back. What
5 happened is during the last cycle and more of an effort
6 this coming cycle and the one after that to pull of the
7 medium voltage stuff out of the existing language and put
8 it in its own little cubicle. So he won't have to go
9 search through the existing articles to find any voltage
10 stuff.

11 So that's what this is all about. They went
12 through all of those places like in Article 230 and
13 limited Article 230 just to voltage is less than the
14 thousand AC or 1500 DC, and then wrote a new Article in 35
15 that covers those systems that are needing voltage.

16 CHAIRPERSON JENKINS: So it's like separating it
17 out.

18 BOARD MEMBER GRAY: So that what's happening
19 here, and the next cycle is going to be even worse. And
20 then the following cycle, it's going to be a complete
21 Reform Act of the NEC.

22 CHAIRPERSON JENKINS: I'll be curious about that
23 one.

24 So one of the things that we discussed here,
25 technical specialist, Larry Vance, is anything that has to



1 do with housekeeping changes, the numbering, we can just
2 skip to everything else.

3 LARRY VANCE: Okay.

4 CHAIRPERSON JENKINS: Any other changes, we'll
5 discuss.

6 LARRY VANCE: Anything that's got some
7 substance, we'll stop and pause and discuss, yes.

8 CHAIRPERSON JENKINS: Perfect. Thank you.

9 LARRY VANCE: Because there are a lot of those
10 housekeeping changes.

11 CHAIRPERSON JENKINS: Yes, I noticed.

12 All right. The floor is yours.

13 LARRY VANCE: Thank you very much, Chair
14 Jenkins.

15 Page 84, is a change that just takes an
16 Electrical Currents Newsletter and makes a rule out of it.
17 There has to be some way to get from the interior to the
18 exterior of a dwelling unit where nonmetallic sheath cable
19 is commonly used. So how much is too much? Because we've
20 got a WAC rule that says the interior of the conduit
21 located outdoors is a wet location, which we all I think
22 there is a good consensus around that.

23 But yet when could you allow type NM cable
24 that's not suitable for wet locations. How do you allow,
25 how do you make that transition? And that's what this



1 does. It essentially says that it's conduit inside of
2 conduit under certain conditions. So it's not longer than
3 ten feet. It's not below grade. The conduit drains, in
4 other words it doesn't have a trap in it, it's not
5 U-shaped.

6 So, essentially, if you're, for instance, if
7 you're going to put a new split mini, a new mini-split
8 HVAC system in a home, which is something that's really
9 common today. And you've got a get to the attic space and
10 you've got a panel that's built into a wall. The way that
11 you come out of that panel, generally, is that you're
12 going to come out of the back of the panel on the exterior
13 of the building. You're going to go up; you're going to
14 get into the attic space and away you go.

15 Typically, you would do that with type NM cable,
16 nonmetallic sheath cable. Yeah, but now you've got a
17 raceway that's outdoors. It could be a wet location,
18 right? How do you do this? So what we had was, we had
19 rampant inconsistency across the state. Some offices
20 would allow three feet, some would allow, you know, some
21 random length of raceway.

22 So what this does is it says, you know what,
23 let's allow ten feet straight up and down. It's not a wet
24 location, just like being in the wall cabinet. So it just
25 makes sense. So that's a clear, consistent direction.



1 CHAIRPERSON JENKINS: Any questions from the
2 Board on this one? All right.

3 LARRY VANCE: Now we're on page 95. Amended
4 section here is WAC 296-46B-440. Air conditioning and
5 refrigeration equipment.

6 What we've done here is a few rulemakings ago
7 mini-splits were really starting to be prevalent. And if
8 you look at the National Electric Code, you've got a
9 motor, you're required to have a disconnect. And
10 mini-split systems commonly have remote heads. They've
11 got a motor in them. Where's your disconnect, right?
12 That's what all of the electricians that are inspectors
13 were asking. "Where is the disconnect?"

14 And the thing is is that these systems are, the
15 more we learned about these systems, the more we found
16 that these systems are actually in many instances one
17 machine. Article 440.8 talks about one machine. In other
18 words, there is an outdoor unit; there's the indoor heads,
19 could be one or more heads, an air handler, a ceiling
20 mount, there's a variety of configurations.

21 So they're one machine. The wiring that powers
22 that interior head comes from the outdoor unit, the
23 supplemental overcurrent protection in the outdoor unit is
24 one machine. And under 440, if you follow 440 in the code
25 articles that it refers you to, that one machine has one



1 disconnecting requirement and that's that the outdoor unit
2 where the power is sourced from.

3 So what we've done is looked at the rule that
4 we've made, and figured out that the fact that we didn't
5 really have a basis to make the rule other than we wanted
6 to make -- we wanted to make it easy for everybody. Well,
7 what we're actually doing was putting some cost on where
8 there didn't need to be cost. You don't need a
9 disconnect.

10 So if the code doesn't require a disconnect, and
11 we're requiring a disconnect, what do we do? So what
12 we've done is that we've said, we've removed the rule and
13 we're just going with the code. If you get into a
14 situation where it is not one machine, then a disconnect
15 would be required by the code.

16 This is a little bit -- this is a little bit
17 interesting. But think about a refrigeration system, it's
18 the same way. You've got a refrigeration controller, and
19 then you've got motors. This is all one system. The
20 thing about the one-system thing is that one machine is
21 that machines are meant to operate by how they are
22 controlled. You've got one machine, one major control
23 panel, one disconnect, and everything else is supposed to
24 be doing its thing as far as part of this machine. It
25 could be in different rooms, it could be (unclear).



1 If you go shut something off out there in the
2 field because there is a disconnect, you could actually
3 really effect the machinery. You know, it's not designed
4 to be run with part of it shut off.

5 So 440.8 is a really interesting article. It's
6 been around for a long time. And we actually got some
7 people reaching out for us from the HVAC industry on this
8 particular rule, because we go into, I'll give you an
9 example. This rule would require, there was a pump
10 station. Somebody set the outdoor condenser compressor
11 and went inside the pump station. This pump station is
12 eight feet square. And they mounted a remote head on the
13 wall. The inspector wrote the correction, "where is your
14 disconnect? You know you need a disconnect for the remote
15 head?"

16 Well, it's one machine, according to, it meets
17 all the one-machine requirements for 440.8. But, yet,
18 we've got a WAC rule that says you need a disconnect. So
19 the idea is is that all we're doing here is removing this
20 rule and aligning with the National Code.

21 So we got to the point where this rule that we
22 had written was maybe reached the end of its life because
23 of our understanding of the systems.

24 CHAIRPERSON JENKINS: One thing is when you have
25 a mini-split that has multiple heads going to it, what



1 happens when you have many heads coming off of it, the
2 ones by the building, you're going to have to shut off the
3 entire system in order to change out one single device.
4 You don't have the option to let the rest of it running to
5 who knows what without having a disconnect. So by one
6 machine, one machine can't encompass a whole entire split
7 system criteria? I guess --

8 LARRY VANCE: So what you're labeling then is
9 you're labeling the HVAC equipment so that there is some
10 semblance of order so. So the system, a mini-split system
11 is manufacturers, kind of, the information they've relayed
12 is that around 3,000 square feet, a little bit more than
13 3,000 square feet, is about what you can -- what a
14 mini-split system will do, conventional small commercial
15 residential system.

16 CHAIRPERSON JENKINS: Yeah, today.

17 LARRY VANCE: One compressor, condenser, and
18 equipment in the building. So whether it's a central unit
19 or remote heads or what it might be, that's kind of where
20 it's at. I do understand what you're saying about when
21 you have multiple -- you've got a disconnect requirement,
22 a disconnect, the labeling requirement out there on that
23 disconnect. In other words, that disconnect is going to
24 say that it shuts off system number one. Okay.

25 And let's say there's five systems in the



1 building. It shuts off system number one. I ought to be
2 able to walk into the building and see what system no. 1
3 is, right? So that the equipment is labeled system number
4 one. In other words, the remote heads.

5 CHAIRPERSON JENKINS: I'm more -- I'm starting
6 to get concerned a little bit because the mini-split
7 systems that were out initially, it was one base, one
8 head. And they said "well, we can run multiple heads off
9 this." And they keep expanding the size of the system
10 outside the building. And so now they're looking at, I'm
11 seeing as far as I think four heads on one base laying out
12 there.

13 And so, back to my original thing, which to me
14 is now we're looking at a full-blown HVAC system. Kind of
15 like having your heat pump outside, if you want to
16 disconnect to that heating inside, the actual tower of the
17 heat units, and everything else which is a different power
18 supply. And yes there's cable going between them, but
19 that's not one system.

20 LARRY VANCE: That's not one system according to
21 440.9, it's only one system when power originates in the
22 outdoor unit. In other words, think of this as a machine.
23 You have a power source to the machine and then you have
24 this part of the machine, that part of the machine, this
25 part of the machine. Everything is powered and controlled



1 from this one central unit, like in a refrigeration
2 system.

3 So that's what article 440.8 allows.

4 CHAIRPERSON JENKINS: I need to do more research
5 on that is my list of things to do. So my question then
6 would become if I ran a 100-amp circuit to an HVAC unit
7 and then I ran a cable from the HVAC out to the actual
8 heat pump outside, does that make that one system?

9 LARRY VANCE: If it were powering and
10 controlling that. It was the exclusive power source, the
11 exclusive control source. That's not the way those
12 systems are configured. A standard heat pump furnace, oil
13 set up. These mini-split systems that are highly
14 prevalent everywhere in the world except for here.

15 CHAIRPERSON JENKINS: And installed myself in
16 some case.

17 LARRY VANCE: So it doesn't make it one system.
18 As I was saying, you know, 440.8 has been around for many
19 years. And it's been a very, very interesting little
20 section to crack open. Because I find it more, in an
21 industrial refrigeration systems. You get into some
22 systems that your, kind of, scratching your head as to why
23 isn't there a disconnect out here at the evaporator in a
24 cold space for instance.

25 CHAIRPERSON JENKINS: (Unclear.)



1 LARRY VANCE: 440.8 and anything that it
2 touches. Yeah, it's an interval. It's caused us a lot of
3 conversation, I can say that. I've had some conversations
4 about, and education from the HVAC industry.

5 CHAIRPERSON JENKINS: So recap on this one here.
6 This one says that there will be a disconnect at the head
7 unit will no longer be required.

8 LARRY VANCE: We're just not requiring it for
9 commercial installations. Essentially, what we said is
10 the manufacture and residential installation, the
11 manufacturer requires it, the ones that are wired. It's
12 required on all commercial installations. And really what
13 it just falls back to you now is the manufacturer requires
14 a disconnect, there's going to be a disconnect itself.

15 And generally what the instructions say on this
16 type of equipment is show a disconnect on the diagram, and
17 it will say something to the effect of "disconnect as
18 required by local codes," which means what it means.

19 CHAIRPERSON JENKINS: Just want to make sure
20 we're on the same page. So if the manufacturer's not
21 requiring it; we're not requiring it?

22 LARRY VANCE: We're not requiring it. If the
23 manufacturer's not requiring it; we're not requiring it
24 because the code's not requiring it. So that's where
25 we're going. So we're going to have to all read the



1 manufacturer's instructions. And that was the, kind of,
2 the conversation about why the rule got created.

3 "You mean to tell me that we're going to have to
4 read all of the manufacturer instructions on every one of
5 these systems to figure this out?" But as we gain more
6 understanding of the systems and became more comfortable
7 with the systems, then it's like, yeah, we may be on the
8 one wrong path here. So that's why we made the change.

9 CHAIRPERSON JENKINS: Any questions?

10 BOARD MEMBER BAKER: We're still on page 95
11 right, Larry?

12 LARRY VANCE: We are on 100 right now.

13 BOARD MEMBER BAKER: Back to 95. No, you'd
14 moved on. Just a comment. The comment is, it feels like
15 we're putting clarifications in here to help people that
16 don't understand how to do the work that they're doing.
17 And I think I object to this change here in 052
18 overcurrent protection.

19 The WAC stands for Washington Administrative
20 Code, right? Not Washington Administrative
21 clarifications. And if we're putting clarifications, if
22 we're writing clarifications to help people that don't
23 understand how to do the installations that they're doing.

24 And this goes back maybe several code cycles
25 when we started allowing all of these specialty trades to



1 start doing different installations and lots of people
2 that were on different sides of the fence for that. And
3 here we are now writing clarifications to have those
4 individuals understand how to do the installations that
5 they're doing. And I kind of object to that.

6 LARRY VANCE: So it's, this kind of and
7 referring to WAC 296-46B-440 overcurrent protection, there
8 is not a specific -- it's taking you -- there is a
9 reference here to 052, and that's taking you to 440,
10 440.52. And what we're talking about here is the
11 nameplate. And there is a handshake that goes between the
12 electrician on the job and the installer of the HVAC
13 equipment on the job.

14 And what will happen here commonly is the
15 nameplate of HVAC equipment already has the math all done
16 for you and that sort of thing; you've just got to read it
17 in plain language. It says maximum overcurrent device,
18 minimum circuit impasse. Pretty simple terms.

19 But then you get residential electricians that
20 throw 125 percent on top of something when it says, you
21 know, maximum overcurrent device. Because they think,
22 "oh, you're got 125 percent." Well, then we write them a
23 correction. And we write this a lot.

24 What we're trying to do -- and we are doing what
25 Board Member Baker says here. We are clarifying



1 something. That's what that says is is that the equipment
2 have motor compressor, such as heat pumps,
3 air-conditioners, shall be protected by an overcurrent
4 device that does not exceed the maximum overcurrent
5 protected device rating indicated on the equipment
6 nameplate. In other words, install the rated device
7 that's on the nameplate. It's just that simple.

8 And we're doing this so that we have more time
9 to inspect other things. And so that we don't have to
10 come back on this particular correction. It is, it is a
11 clarification.

12 CHAIRPERSON JENKINS: Board Member Kerry Cox.

13 BOARD MEMBER COX: The question for Larry then
14 is what I'm hearing you saying is the correction that's
15 getting written is to the residential electrician and not
16 the 06 HVAC?

17 LARRY VANCE: Oh, absolutely, all day long.

18 BOARD MEMBER COX: So we're not necessarily
19 clarifying for an HVAC technician, a job that he needs to
20 understand how to do.

21 LARRY VANCE: We write this correction a lot,
22 this 102 correction.

23 BOARD MEMBER COX: Okay. All right.

24 LARRY VANCE: I mean, this is something where
25 the nameplate, and they don't understand the math that's



1 already been done for them on the nameplate. But this is
2 so simple, that all you have to do is install what it
3 saying on there.

4 BOARD MEMBER COX: I just wanted to clarify that
5 we're not talking about a group of specialty electricians
6 having to have specific clarification on how to do their
7 job.

8 LARRY VANCE: Right.

9 BOARD MEMBER COX: Okay.

10 LARRY VANCE: The other thing that often happens
11 as well is that, when the equipment arrives -- when the
12 equipment arrives, when it's new and in an all new
13 installation, a new house, new equipment, it's the
14 electrician that makes the initial connection to the
15 equipment. The reason is is so they can assure that
16 they've got the correct overcurrent device, overcurrent
17 protection device, and then everything on the nameplate
18 matches and everything like that.

19 In a replacement situation, what happens is is
20 that the 06A specialty which is the HVAC specialty, they
21 could disconnect and reconnect. And there are times when
22 there won't be alignment then, but generally if they're
23 taking out equipment and replacing it with the exact same
24 equipment, there is a line. It was done right the first
25 time. You know so, yeah, this is just a little rule



1 clarification here. It's not really a requirement above
2 that the code.

3 It's just, the whole section that talks about it
4 in the code book is about a page long. And really what
5 we, I think this came out of our supervisor's group. It
6 just boils it down to one sentence, just put the device in
7 that's required by the --

8 BOARD MEMBER COX: So I heard you say that you
9 write a lot of these corrections. Your inspectors write a
10 lot of these corrections.

11 LARRY VANCE: That's what we said.

12 BOARD MEMBER COX: And so this is a fix, so to
13 speak, for that?

14 LARRY VANCE: You can write a correction for
15 this. You can write this one sentence correction. And
16 when you come back, it's correct. And then they also read
17 the correction and they understand the requirement. You
18 can write other code references to that great big long
19 really confusing section of the code, and you won't end up
20 with the same result. So we've been doing that for years.
21 We've been doing you have 225 percent because this
22 is -- and it hasn't been working, so we're trying this.

23 BOARD MEMBER COX: Okay. That clarifies it.
24 Thank you.

25 SECRETARY MOLESWORTH: Yeah, so getting back to



1 Don's comment. So really, I think what you're saying,
2 Don, is because we have codes that say "must be installed
3 as per manufacturer's directions," that we really don't
4 need to tell them about pay attention to the nameplate.

5 Is that what you're saying?

6 BOARD MEMBER BAKER: I appreciate the
7 clarification on the specialties. What I find objectable
8 is that we have codes for this already. And we're writing
9 clarifications in our code because the individuals are
10 failing to recognize this. I just find that, it just
11 doesn't make sense to me that we're putting clarifications
12 in where we already have codes that address this.

13 And maybe it makes, maybe we're trying to solve
14 for some challenges that inspectors are having in the
15 field and nuisance corrections they're having to write all
16 the time. But I'm still wondering, you know, where we end
17 up ten years from now if we keep doing this, you know what
18 is our ...

19 SECRETARY MOLESWORTH: Yeah, and as I'm
20 listening to this discussion, I think about that. I go
21 the WAC is a document for clarification, but it's
22 clarification on how we will be enforcing the code, right?
23 And so I think we'll take another look at this as well and
24 see, because when I read this again and listen to you guys
25 I go will this turn into just another code that we write a



1 correction to, right? Because are they going to go in and
2 listen to it and read it and understand it, or is this
3 just another ...

4 So let me think about that this a little bit
5 more. I'll work with the tech specs.

6 BOARD MEMBER BURKE: I don't think anyone is
7 objecting to the content. It's more of are we going to
8 get in the habit of clarifying. And whether that's an
9 issue and that's an endless road of.

10 BOARD MEMBER BAKER: That's right.

11 BOARD MEMBER BURKE: I think the content is
12 already created.

13 CHAIRPERSON JENKINS: Thank you guys. Board
14 Member Don Baker. I think that's to say in line item in
15 history of looking at the WACS as an amendment to the
16 code. Outside our normal codes, it's special to
17 Washington. And this is just repeating something that's
18 already in our code book. I think that's what I'm getting
19 out of this information.

20 BOARD MEMBER GRAY: And, Mr. Chair, my thought
21 this is Don talking is what makes us think that a person
22 that's not going into the code and understanding how to
23 read the code is going to come in here and read this.
24 This looks like something that would better fit into like
25 a Currents Newsletter or guidance, maybe over and over



1 again, multiple times, but, you know, I agree with Don.

2 CHAIRPERSON JENKINS: So the consensus means we
3 have a little concern set across the board was taking this
4 one out as unnecessary.

5 BOARD MEMBER COX: So if I could ask clarifying
6 question from Chief Molesworth. So from an inspection
7 standpoint, if the inspector goes out and he finds that it
8 exceeds the maximum rating, do you write the correction
9 saying "this WAC is" -- or do you have to write the RCW.
10 When you write the correction, like, as Larry was saying
11 it allows us to have this one sentence rather than
12 referring back. Is that how the correction is written to
13 the installer, is this, in the future, it would be this
14 WAC section that you would write the correction on in the
15 field?

16 SECRETARY MOLESWORTH: It probably would.

17 BOARD MEMBER COX: Okay.

18 SECRETARY MOLESWORTH: There's probably a few
19 that you can write. This would be one of them.

20 LARRY VANCE: You end up having to write in
21 there, "you do not have to apply a 125 percent," or "it's
22 incorrect to apply 125 percent in this case" because the
23 gobbledygook that's in that section, there is no better
24 term for it. It's just a lot -- it's not really clear.
25 This was an ask out of our field inspection. That's its



1 origination, and that's why it's there.

2 CHAIRPERSON JENKINS: So any change pending from
3 the board?

4 LARRY VANCE: We write straps all day long.
5 You've got to have a strap within three feet of the box.
6 We shouldn't have to.

7 CHAIRPERSON JENKINS: So are we still saying,
8 let's not put that in or are we changing that to are we
9 okay with what's written? Any other input, anyone? Just
10 an opinion, then we'll maybe head nod on this one.

11 BOARD MEMBER BAKER: I think Dominic put it more
12 appropriately. It's just the concept of we're writing
13 clarifications versus code, kind of objecting.

14 CHAIRPERSON JENKINS: So is the idea then that
15 we not have them do this?

16 BOARD MEMBER BAKER: Yes.

17 BOARD MEMBER BURKE: I think Wayne said he was
18 going to revisit it for that.

19 CHAIRPERSON JENKINS: So we're rephrasing it, so
20 we would like the Department to revisit this option here
21 and see how this could be removed or?

22 LARRY VANCE: We can just remove it. Just like
23 the EMT allowance, it could just be removed.

24 CHAIRPERSON JENKINS: In the cycle ...

25 LARRY VANCE: We don't have any time to explore



1 things it will just remove it on my more correction.

2 BOARD MEMBER COX: Just a question for Larry.
3 You just made mention I heard you say you write
4 corrections for the straps.

5 Is there a clarification in the current WAC that
6 says.

7 LARRY VANCE: No, with the straps, it's pretty
8 simple. It says you know mini box strap. It's really
9 easy to read, it's like one sentence. What I'm saying is
10 the section that talks about nameplates and maximum
11 overcurrent protection ...

12 BOARD MEMBER COX: Which is why I heard you say
13 this came from the field inspectors. To make it easier to
14 write the correction.

15 LARRY VANCE: Right. To write corrections and
16 end up with a product that they can approve. That's what
17 inspection is all about. Is having a skilled workforce
18 out there that makes installations that we can approve.
19 And this is a step toward doing that.

20 BOARD MEMBER COX: So this improves, not only
21 the installation but the inspection process. It makes the
22 process more efficient?

23 LARRY VANCE: Well, if this is the only
24 correction on the job, on a final, for instance. Which it
25 often is a correction on a final. Because that's when



1 you're looking at all the entire installation. I don't
2 have any data, and it wouldn't be very difficult to figure
3 it out, but this is a correction that is too commonly
4 written for exceeding the maximum overprotection.

5 BOARD MEMBER GRAY: So the gobbledygook that
6 you're talking about refers to Article --

7 LARRY VANCE: The whole area about 52.

8 BOARD MEMBER GRAY: So have we considered
9 putting in some public inputs to clarify that section?
10 We're probably not the only state that takes issue with
11 the way it's worded?

12 LARRY VANCE: I would hope that we did not have
13 to tell the people, to just to install, you know, what it
14 says on the nameplate, but you get all these people that
15 think "oh 125 percent."

16 BOARD MEMBER COX: My final thought on this is
17 if it improves the field inspection process and makes it
18 more efficient -- I understand Board Member Baker's
19 position, I agree with that. We don't need a lot of
20 clarification -- but if this helps improve the field
21 inspection process, perhaps we do need to leave it in
22 there.

23 BOARD MEMBER KNOTTINGHAM: Perhaps more training
24 would be appropriate for the individual doing the
25 installation, follow the code, it's written, it's clear.



1 CHAIRPERSON JENKINS: And on that same note,
2 don't we have this thing called Currents, and we put
3 articles out there on that about this bigger option. And
4 if we have it if we're doing that and they're not reading
5 the code book, I'm sorry. I don't think it's going to
6 make a change.

7 I think we are still left to a document to
8 clarify something that's already written in the code. I
9 get it. Looking at it in a different light, agree with
10 that at some point we just have to say "we're not writing
11 this for the homeowner. We're writing this for the
12 electricians."

13 BOARD MEMBER NORD: And I agree this is a
14 training issue. Perhaps it should be addressed in the
15 apprenticeship programs.

16 CHAIRPERSON JENKINS: That is talked about at
17 trainings.

18 BOARD MEMBER NORD: Because if the inspectors
19 are bringing it forward that this helps their job to make
20 sure that there is a necessary and satisfactory inspection
21 result, if they are seeing it continually, then it is a
22 training issue and I agree with Jack. Which then comes
23 back to we have to train the technicians as apprentices
24 how to do the job properly.

25 We don't need to change the code necessarily for



1 their lack of education. We need to make sure the
2 inspectors could do their job efficiently. But it still
3 boils back to we need to train the technicians for the
4 apprenticeship program how to properly to their job, which
5 is journeyman training.

6 LARRY VANCE: The other thing with this is
7 there's been a shift in the UL standards for outdoor
8 compressors and condensers. There is a nameplate change
9 now. Fuses are no longer as manufacturer's are having
10 their equipment evaluated a new standard, a new standard
11 addresses refrigerant types and numerous things. But no
12 longer are fuses required.

13 So you're not going to see over local,
14 overcurrent devices anymore in HVAC equipment. You're
15 going to see, just a simple pullout disconnect switch.
16 Just a simple pull out disconnect switch. So there's no
17 ability to effect the maximum overcurrent device for that
18 equipment because it's going to be in the electrical panel
19 within the building so.

20 We can -- while we're taking the EMT one out, we
21 can have this one out of here and move forward if that's
22 the advice.

23 CHAIRPERSON JENKINS: Hearing no dissensions on
24 this, yes. Move forward.

25 LARRY VANCE: Page 115, very close to halfway.



1 It's all relative. The pages don't necessarily mean
2 changes.

3 So we're talking about enclosure types in
4 555.31. And all we're doing here is clarifying what would
5 an enclosure that protects against corrosive agents means.
6 So we're referring you to the table that explains which
7 enclosure types do so.

8 Because what it will say is that, when it says
9 it has to be a corrosion resistant enclosure, then we get
10 into the discussion about what is corrosion resistant?
11 Some installers will say, "oh, that's we've had these, you
12 know, it's a special paint on there." Oh, okay. That's
13 great. It's a corrosion resistant paint. Great.

14 But we look at corrosion resistant, we go to the
15 table, right, stainless, fiberglass. So all we're doing
16 here is a clarification stating exactly what is corrosion
17 resistant. It's the enclosure types that are referenced
18 in Table 110.28, so just for clarification.

19 CHAIRPERSON JENKINS: Comments from the Board?
20 All right. Moving on.

21 LARRY VANCE: Yes, I had these specially powder
22 coded and they're corrosion resistant. All of us around
23 the saltwater, we see corrosion resistant. There's only a
24 couple things that are corrosion resistant.

25 I'm on page 130. It's a new section WAC



1 296-46B-962 (692). All we've done here is essentially
2 just added fuel cells. And we added fuel cells and added
3 a design review requirement. Design review is a defined
4 term in the definitions.

5 We don't know they we're going to be looking at
6 a lot of fuel cells, but there is a hydrogen plant that's
7 being built in Washington. And there's going to be
8 hydrogen distribution facilities that are going to be on
9 I-5 and I-90, so in preparation for that, we just added
10 kind of a provision here to require that.

11 On page 131, in WAC 296-46B-964 (694) for wind
12 electric systems. We just clarified where the design
13 review is and it's defined in our the Washington
14 Administrative Code. And when it has to be available.
15 This was just written in a way that caused confusion about
16 when we need to see it. When does it have to be there.
17 So it just cleans that up.

18 Now, on page 134, in WAC 296-46B-701. This has
19 to do with selective coordination. So there's new
20 requirements in 2023 in NEC 701.32 (B) for selective
21 coordination when overcurrent devices are replaced.

22 So we have this allowance that dates back to
23 2006 that says anything that would be touching anything
24 that is prior to 2006, it wasn't required to be
25 selectively coordinated then, it doesn't need to be



1 selectively coordinated now. And all we're doing is
2 integrating this new allowance -- it's not an allowance,
3 it's a requirement. It's a new one that when overcurrent
4 devices are replaced, they need to be selectively
5 coordinated.

6 And so what we've done here is that we placed
7 this in here. We had to massage the 2006 allowance a
8 little bit by inserting the words there that no system
9 modifications, additions, deletions, or overcurrent
10 protective devices in that system were replaced on or
11 after April 1st of 2024.

12 Because April 1st of 2024, is the tentative
13 adoption date of this document. So if you're going to
14 replace an overcurrent device after that date, you're
15 going to have to selectively coordinate it, so there you
16 go. Just making sure that people don't -- that the
17 installers don't have to go back, you know, making sure.

18 Now on page 136, WAC 296-46B702, this is more
19 around the NEC, kind of, makes an assumption that there is
20 always going to be an emergency disconnect means on a one
21 and two-family dwelling. And all this does is it leaves
22 in place the requirement for when the emergency disconnect
23 is not present. So that's all this is doing.

24 So there's a requirement that a sign be placed
25 noting the fact that there is an optional standby system.



1 And what it says here, we clarified here, long-standing
2 clarification is that signs required by NEC 702 must be
3 placed at the meter base, and at the service connecting
4 means, and just editing here.

5 Essentially, what it's saying is that this new
6 code requirement, 702, 702.7(A) it assumes that there is
7 an emergency disconnect. So it's telling you to label the
8 emergency disconnect. If it's not here, what this is
9 saying is just label the meter and the panel both so there
10 we go.

11 On page 137, what we are running into, and this
12 is in WAC 296-46B-705 for interconnected power production
13 sources. What we're now encountering is it really needs
14 complex systems. You have an interconnected power system
15 that has photovoltaic; it's got lithium ion batteries
16 that, you've got a battery storage system. You may have,
17 you may also have a standby generator of some sort gas or
18 diesel.

19 And you run into these really complex systems.
20 And what this does here, subsection 3, all subsection 3,
21 if you're going to do this, we want to see a design review
22 of it at the time of inspection, and until the inspection
23 is complete.

24 In other words, drop what you're doing -- and
25 you're going to do this before you do it anyway. I mean,



1 somebody is going to do this. So give us the
2 documentation of a system design review when you start
3 putting all of these components together. So it helps us
4 understand what's there and the installer going through
5 the process of doing it, it's going to make it more likely
6 that the installer installs something we would approve.

7 This new section here on page 138 of the
8 document. A new section, WAC 296-46B-710, it's just
9 another -- 710 is a new code article, I believe, maybe,
10 it's not. No, it is not a new board article. But it
11 essentially parrots the same thing. The change to 705.
12 If you've got a 710 system, the 710 system is not
13 connected to the utility. I'm going off of my memory
14 right now, my memory is not sparking right now.

15 But essentially what it does is it would just
16 require in the same system design. You should take the
17 time to look and see how to put it together, and tell us
18 how you're putting it together.

19 Now we're moving right along. We're clear up to
20 the last chapter in the code book. We're in page 139. A
21 little change to WAC 296-46B-908. This change pertains to
22 the amount of time in a one or two-family dwelling that an
23 installer has to complete their work with the class B
24 permit. So simply refining, we arbitrarily said, you
25 know, they ought to be able to get it done in 90 days, but



1 this mostly pertains to new construction. And what we're
2 finding is that it takes longer than 90 days. They need
3 120. We'll see how 120 goes for awhile.

4 Home construction may speed back up again with
5 supply chain issues solved. But we just overall found
6 that 90 days wasn't adequate, so we increased it.
7 Shouldn't have to go buy another permit just because the
8 job --

9 CHAIRPERSON JENKINS: Well, sometimes we have to
10 say -- let's see if the same thing happens at 120, we'll
11 say no.

12 LARRY VANCE: Well, yeah, 120 is quite a while.
13 Yeah, if we change the title, you have to have the entire
14 article, so that's why so many pages here.

15 Just a quick change here, clarification on
16 page 157. So on the fee schedule, we were removing this
17 fee because it was antiquated, because we're not going to
18 charge you anymore for an electronic copy. Then we found
19 that that it could be in conflict. We have two
20 rulemakings that affected the same section in the
21 Washington Administrative Code. And that's something the
22 Code Reviser doesn't allow.

23 So if we wanted to visit fees, and we have this
24 little change in this world rulemaking, it would prevent
25 us from visiting fees until this rulemaking was completed.



1 So we're going to visit this, if we visit fees. At this
2 point, they're electronic. We're not going to charge you
3 for an electronic copy, but we're just trying to cleanup
4 the fee schedule.

5 On page 159, in WAC 296-46B-920 (2) (A), and this
6 is the residential scope of work. It was several years
7 ago that the scope of work for residential electricians
8 was clarified to allow them to work in buildings greater
9 than three floors and under certain conditions.

10 The National Electric Code used to limit the use
11 of nonmetallic sheath cable to three floors, and changed
12 the building construction types so just a little back
13 history there on why it's now six stories of multifamily
14 buildings. Multifamily dwellings that are above either
15 six stories or it could be more stories if they are above
16 types I or II construction. In other words, your typical
17 5/2.

18 You know, you have two floors of fireproof
19 construction, and then you have five floors of wood frame
20 construction above that. That's within the residency
21 scope of work. It's just things have changed. It made
22 sense.

23 Long story short, these changes here that are in
24 that subsection, WAC 296-46B-920 (2) (A) pertain to the
25 residential scope of work. And essentially what, the way



1 it was written was sometimes confusing. A residential
2 electrician was wiring a greenhouse at somebody's house.
3 Somebody put a little house in. Could they install
4 conduit for physical protection. What could they do in
5 the way that it was written?

6 Well, one could look at it either way. And all
7 of this does is it just cleans it up a little bit. It
8 makes it clearer.

9 The other thing that was being run into or
10 encountered by the residential electricians was -- I don't
11 want to get deeply into this, but there's been changes in
12 the energy code that are such that in order to get your
13 carbon credits, your, what you have to do is you may have
14 to make a provision or two.

15 One would be fewer windows, thicker insulation,
16 maybe a PV array. If you put a PV array on it and maybe a
17 ductless mini-split and so on and so forth, it's all in
18 the math equation, there's cables involved in this.

19 Long story short, the residential electrician
20 was faced with having to install a method other than
21 nonmetallic sheath, metallic wiring method. It's either
22 metallic conduit or metal pipe cable for the take out
23 returns.

24 By the way this was written, you could read it
25 and you'd think, well, yeah, you could do it. Well, no,



1 you can't do it. And it was just confusion. So, again,
2 the way it's written, this is just very clear. And it's
3 also, it allows them to kind of grow with the code a
4 little better.

5 It says -- so they still have to use nonmetallic
6 sheet the cable for the majority of wiring in a building
7 in a home. Because it's all of the outlets and all of the
8 lighting is nonmetallic sheath cable. So the departures
9 is kind of from there, so we're not -- I just lost my
10 spot, sorry.

11 So it's nonmetallic sheath cable, so the wiring
12 subject to physical damage could be another method. Wire
13 embedded in masonry or concrete could be another method.
14 The wiring barrier below grade or located in a wet
15 location, another method. Wiring to unfinished space
16 areas, adaptable to future dwelling unit living areas.
17 Right now, we a rule, for instance, that you are either
18 going to install conductors or you can install an empty
19 raceway.

20 Well, how can an O2 install an empty raceway?
21 That was kind of something that was not clear, here they
22 can. They can install any method. Or wiring where
23 nonmetallic sheath cable was not allowed by installation
24 standards under this chapter. For instance, (unclear).
25 The code came along and said "you can't use that in a



1 cable fit anymore, you've got a use and cable now. Well,
2 you install metal applied cable in accordance with Article
3 334, which is nonmetallic sheath cable. So it's not a big
4 stretch for them to be able to figure out how to strap
5 those. Is it going to allow them to install NEC cable for
6 lighting or for receptacles, outlets, no. It just kind of
7 clarifies the fringe, so to speak, of 02 specialty.

8 We also had within the specialty, a little bit
9 of a revision down lower in that section.

10 CHAIRPERSON JENKINS: I think we had a question
11 here first of all.

12 BOARD MEMBER GRAY: Thank you. And if I'm not
13 mistaken, and I know you're talking specifically
14 residential in this section, but I'm not mistaken, I think
15 UVC changed their definitions of the type of constructions
16 too that had an impact on where we could use NM cable,
17 Article 334.

18 BOARD MEMBER TUMELSON: So did the IBC currently
19 adopted and they did add some construction types, types
20 for wood, so that was a part of the catalyst for that
21 change.

22 LARRY VANCE: Right. Those are very interesting
23 buildings, the 20-story mass timber building that's all
24 wood. The way the 02 specialty is written, though, just
25 because it's wood doesn't mean they go. So wiring methods



1 in those buildings change as well. Very interesting, when
2 we looked at the changes to go to the six stories.

3 And you are credentialed building official as
4 well as an electrician, correct.

5 BOARD MEMBER TUMELSON: Yes.

6 LARRY VANCE: So the thing that we learned is
7 that firefighters have ladders that will reach 75 feet.
8 And this is what drives fire resistant construction. It's
9 a very interesting relationship with the first responders
10 about wiring methods and building lines and all of these
11 things.

12 Where this was encountered the kind of that
13 fringe of the 02 was difficult wherein highly
14 architectural homes where they would go ahead and type 5,
15 is it could be Type 1, 2, 3, 4, any of those is the five,
16 right? I mean 5 is the ...

17 So you can have an architectural, beautiful
18 architectural concrete wall in your home, but now the
19 electric -- the residential electrician can't do anything,
20 can't run a conduit in that wall, can't rough-in a
21 conduit, can't put receptacles on that wall. I mean,
22 we're not going to know, if it's a one, two, multifamily
23 dwelling and it's within the scope, so it just allows them
24 just a little bit of clarity there as to what they could
25 do.



1 CHAIRPERSON JENKINS: Any questions? Thank you.

2 LARRY VANCE: Also in that section, just a
3 little clarity around what is an ancillary building. And
4 there are inspectors that have encountered people that
5 will build a home. And then they will build a 200,000
6 square foot riding arena with stables. And they say,
7 "that's my home."

8 And we're clarifying here that facilities used
9 primarily for commercial purposes, except for those
10 directly associated with the functionality of multifamily
11 complex residential units are not within the scope of
12 work. So in other words, that 200,000 square foot riding
13 arena, that is clearly a commercial enterprise; that is
14 not within it.

15 If a multifamily structure has something like a
16 weight room just for the occupants, a pool, you know, a
17 laundry, a common laundry. Those are what is known as
18 something that is associated with the functionality of the
19 multifamily. So we couldn't say that -- we couldn't say
20 the first half of the sentence without saying the last
21 half of the sentence, because you would've, you would've
22 made a requirement that would not allow commercial.

23 If you're feeding coins into a washing machine,
24 it's a commercial enterprise, right. But we want to make
25 sure that we don't make that a commercial enterprise as



1 far as a multifamily, because it's very common.

2 On page 163, just a slight clarification about
3 the limited energy 06. I've been doing this for 17 years,
4 and in this position, and I don't know how many people
5 about the times of people have asked this question, but
6 you know, "Can a limited energy electrician replace
7 anything?" I mean, can you do that? It doesn't say so.
8 It says they can only install. That's what it says.

9 So all we did was just this is just a little so
10 somebody doesn't have to answer that question for the next
11 17 years. They can install repair, replace, and maintain.

12 So the most, probably, the most complex change
13 in this entire rulemaking is the changes that are in WAC
14 296-46B-922. These are the HVAC refrigeration
15 specialties.

16 BOARD MEMBER COX: Larry, can I back you up.

17 LARRY VANCE: Okay.

18 BOARD MEMBER COX: To page 163 again. Limited
19 energy.

20 LARRY VANCE: 163, limited energy.

21 BOARD MEMBER COX: Just previously addressed. I
22 was reading on down that for clarification, and the next
23 sentence, two sentences after that, this specialty
24 includes the installation of telecommunications, HVAC,
25 refrigeration, low-voltage wiring, et cetera. Again it



1 says installation, not installation repair, placement, and
2 maintenance.

3 Should that also be clarified or somehow?

4 LARRY VANCE: Let's see, I'm trying to find, so
5 we go from E to F.

6 BOARD MEMBER COX: So I'm still in E, limited
7 energy systems, 06. And where you had added, where you
8 say limited to the installation of signaling and power
9 limited circuits, you've added repair, replacement, and
10 maintenance.

11 But if you go two sentences down, it states this
12 specialty includes the installation of telecom, HVAC,
13 low-voltage, fire protection signaling, intrusion alarms,
14 it does not clarify repair, replacement, and maintenance
15 of telecommunications, HVAC, low-voltage, fire protection,
16 et cetera.

17 So even though sentence one states it, do we
18 need to add the clarification in the following sentence to
19 say that the specialty includes the installation repair or
20 replacement and maintenance of telecommunications HVAC,
21 low-voltage, fire, et cetera?

22 BOARD MEMBER NORD: Or could we just eliminate
23 the words "installation of." And it would read speciality
24 includes all.

25 BOARD MEMBER COX: Oh, good point.



1 LARRY VANCE: Either would be easy to do.
2 Eliminate the installation.

3 BOARD MEMBER COX: I agree with Board Member
4 Nord.

5 CHAIRPERSON JENKINS: So if we word this a
6 little bit...

7 BOARD MEMBER NORD: Do a little wordsmithing.

8 LARRY VANCE: We will strike the installation
9 of, and in that way, it's we're not getting into an
10 argument.

11 BOARD MEMBER COX: Right, the WAC contradicts
12 itself. You have the question for 17 years, now you'll
13 get the same, if that contradicts itself.

14 LARRY VANCE: Right. Yeah, if I'm working on
15 telecommunications so I can only install that or, yes, got
16 it.

17 BOARD MEMBER COX: Thank you.

18 LARRY VANCE: I'll refer to that as change
19 number three on the advice of the board, change number
20 three.

21 Okay. Now we're going to go down to WAC
22 296-46B-922 F. Page 164. As part of this package, I've
23 provided the Board with one of the big changes that is in
24 this section is we actually restructured this section.
25 The reason we restructured the section is that there is



1 essentially, this workscope is not built like the other
2 workscope. In other words, you don't have subsection F
3 as a specialty. Subsection F is two specialties. It's
4 the 06 and the 06A.

5 So the 06A existed until about 2004 when the 06B
6 came along. And what they did was they shoehorned that
7 in. And they left, there is kind of a general section
8 that starts in F, F 1 there is a general section that
9 applies to both of these specialties.

10 And what we've done with the restructuring is
11 that we've taken this that applies to both specialties,
12 and put it within those specialties, so that everything is
13 linear now when you're in that specialty. You don't have
14 to go up and back and out and back. This was actually the
15 suggestion of our -- one of our trainers, Darren Allred.

16 Darren said, "While you're at it, why don't you
17 reorganize this," because it's one of his most difficult
18 things to train inspectors on this back and forth. Having
19 said that, in this section there is an awful lot of
20 strikeouts and cross outs and everything else. But if you
21 look at it, as it's reconstructed is it provided a copy of
22 the Board, it's very simple what the changes -- what the
23 changes are is actually three allowances for the HVAC
24 scope of work to allow certain activities that are now
25 prevalent within their industry.



1 The first change is -- has to do with mini-split
2 HVAC systems, which are becoming the prevalent form of
3 installations. And there is no such thing as, you know,
4 possibly -- I'm not going to say there's no such thing as
5 replacing a piece of heating equipment, a gas fired piece
6 of equipment. I think you can still replace a piece of
7 gas fired equipment. I think the energy code will allow
8 it.

9 What it is is it's just getting HVAC as it was
10 is no longer as it is. Meaning that the shift away from
11 forced air systems is -- it's here today. In other words,
12 we don't have new ducted installations going on in one or
13 two-family homes. The reason we don't have the prevalence
14 of ducted systems are going away is because now, what you
15 have, is you have rooms, individual rooms, individual
16 temperature control, you know. And then the energy
17 savers. So the energy credits that you get from
18 installing these mini-split systems.

19 You're not going to see, with the energy credit
20 calculations, you're not going to see the other
21 installations going on, you're not going to see people
22 installing, you know, forced air electric furnaces just
23 because of the energy reduction.

24 And then the air-conditioning, that whole system
25 is not as efficient as the mini-split system. You're



1 going to see mini-split systems that are replacing ducted
2 systems. The only thing they replace is the air handler.
3 So you have a condenser compressor outside, you replace
4 the air handler, and you may or may not have axiliary heat
5 within that air handler.

6 They have mini-split systems that will deliver
7 hot air when the outside temperatures (unclear). The
8 capabilities of these systems are incredible. So there is
9 still a system that this whole section of rule that
10 applies to mini-splits is all written to address
11 residential and light commercial installations, light
12 commercial, three floors or less. Just very similar to
13 the other restriction on commercial activity for the 06A
14 specialty.

15 The way these systems work is that there's a
16 cable, there's a power cable and a communication cable.
17 That cable originates in the outdoor unit of the
18 mini-split. So that out there is the brains and the power
19 source and it is also, I get quite interested quickly.

20 So you have this cable that runs from Point A to
21 Point B. That's the only purpose. And they actually make
22 mini-split cable. And it's all sized, it's all colored,
23 it's all yep, yes.

24 CHAIRPERSON JENKINS: So mini-split cable that
25 you're talking about, what kind of listing does it have on



1 it?

2 LARRY VANCE: Oh, it's --

3 CHAIRMAN JENKINS: DC cable.

4 LARRY VANCE: Some of it's nonmetallic sheath,
5 some of it's metallic sheath, some of it's jacketed
6 metallic sheath.

7 CHAIRPERSON JENKINS: So if I take my jacket and
8 I take my M cable and they read label on it and call it a
9 listed cable for their equipment?

10 LARRY VANCE: Well, cable manufacturers are
11 responding to the need for this cable, so what they've got
12 cable that's exactly tailored for their needs. Because
13 these cables are, the typical system is not drawing more
14 than say 7, 8 amps on the cable. So that's 7 or 8 load
15 maybe. The limitation that it's in this workscope is
16 20 amps, 240 volts, so you're looking at some number 12 at
17 the most.

18 But what you're looking at with the cable that's
19 on the market right now is it's pretty much 14. Because
20 the mini-split systems are limited mechanically at a
21 certain distance. You can only move, you know, you're
22 only going to have so much distance between your outdoor
23 equipment and you're indoor, right. So there is a natural
24 limitation. So there is a natural cable limitation. So
25 it's not as if you're going to have to, you know, wherever



1 the line set goes, the cable goes, which is very, very
2 simple.

3 The terminations that are involved in this
4 wiring, again, very simple. Very limited. They've even
5 got the cable so that color and the wire numbers, the wire
6 is numbered for the mini-split industries. So it's gotten
7 to -- what's been on other shores is now on our shore.

8 This is just something that is changing the
9 world. I mean it's here. It's the technology; it's a
10 shift. We had legislation on this as far as this rule
11 change. We also had a letter that came from two
12 legislators, a representative Hoff. I can't remember if
13 they're senators or representatives, so two legislators,
14 Sells and Hoff were the two. There was a ranking member
15 and a chair, and I believe it was the House. I believe
16 they are State Representatives. I may be wrong.

17 Long story short, the Department's had a lot of
18 interaction with the HVAC industry on this, a lot of help,
19 a lot of guidance along the way to get to where this draft
20 rule is today. We've also a lot of help from the industry
21 to help to write a rule that has sidebars on it. That's
22 been the most difficult; how do you make something with
23 side rails on it.

24 You know, the next thing you know 06A
25 electricians are going to be wiring the entire building.



1 You know you let them do this and they're going to just go
2 crazy. So how do we do that.

3 And we think that we've accomplished that within
4 this section. That there is adequate -- adequate
5 allowances to allow 06A's to continue to practice their,
6 you know, the craft that's involved in their industry.

7 CHAIRPERSON JENKINS: Well, after going to this,
8 I'm just going to bring it up on this. This one here is
9 being talked about, this whole section.

10 They're trying to add the capability for an 06A
11 to install a branch circuit. So take a cable from the
12 outdoor unit, run into the building, the walls, ceiling,
13 floors and install a branch circuit to feed the head,
14 currently, now it's all run by the 01 and 02 electrician,
15 by law, by code, it's supposed to be done by the 01, 02
16 level electrician; is that correct?

17 LARRY VANCE: Yes --

18 CHAIRPERSON JENKINS: So it was never done --

19 LARRY VANCE: 06A's.

20 CHAIRMAN JENKINS: -- install a circuit at this
21 point. They're doing it, if you talk to an 04 and find
22 out why they are doing that.

23 So they've never installed, ran circuits as far
24 as their licensure, their certification goes. This
25 addition is now going to give them authority to install



1 branch circuits from a heavy unit out to the location of
2 the device, with no change in, no change in, no added
3 requirements. They just all of a sudden are allowed to
4 install branch circuit wiring.

5 This is, I think, this is the third time, that
6 we've seen it go through the tack and attempt to get this
7 branch circuit installation. And every time it gets
8 brought up, it gets returned back, and says "well, change
9 your required training, change your required something,"
10 and it's never changes, never been added to that. So now
11 we're looking at a third attempt to ask the same question
12 of us, that we want to do this wiring. Again, they
13 haven't changed anything beyond that point.

14 And I know that this industry has changed a
15 little bit, there's a little more of them. Well there's
16 already 01, 02s doing this work. So it's the business
17 model of the contractor decides says "hey, we want to
18 install this wire, but we don't want to hire an 01 or an
19 02," that's a business decision. That's a business model
20 issue.

21 We shouldn't be changing our industry to meet
22 someone's business model. And that's what this is doing,
23 in my opinion. And any other opinion of the room, I have
24 a lot more I want to say minimal at the last of the room
25 have the option.



1 BOARD MEMBER KNOTTINGHAM: I looked into this.
2 And I googled HVAC contractors, you know, installers,
3 people putting heating and cooling units. And then I
4 looked them up under L&I's website for contractors. And I
5 found 11 in 5 minutes that are either 01 that can do it or
6 02, 06, 06A.

7 So there are people out there that are doing
8 this, that are following the current laws. And that's the
9 way -- as Mr. Jenkins said, you know, that's the business
10 model, and that's what they're following and complying
11 with the rules the way they're written.

12 I don't see the need to expand this scope and to
13 allow them to do more when there is already a method in
14 there for them to comply.

15 CHAIRPERSON JENKINS: Yes.

16 BOARD MEMBER NORD: I agree with both Jason and
17 Jack. This work has been done by 01s and 02s since Day
18 One. And we should not change one scope of electricians
19 to another just for this, change the 01 and 02s, they
20 should employ the 01s and 02s so we can ensure the quality
21 of the installation and the proper training.

22 CHAIRPERSON JENKINS: Any other input from
23 anybody else? Positive, negative? Any thoughts?

24 BOARD MEMBER COX: Does this fall under NEC
25 Section 440 that Larry was talking about earlier under the



1 one machine?

2 LARRY VANCE: In some instances, it does. And
3 that's why it's easy to, this whole thing is, the scope of
4 work, there's also a drawing that was produced for the
5 board members. So the drawing shows, you know, the
6 entirety of the system. Meaning that it's Point A to
7 Point B. It's manufacturer's instructions.

8 We have looked at, in the past, as we've been
9 asked, Rod Mutch, who is no longer with us, but a
10 technical specialist.

11 WAYNE MOLESWORTH: He's still with us.

12 LARRY VANCE: He's no longer with the
13 Department. I can report he is doing well.

14 We did look at the test questions and what the
15 examinations is based on, conductor size and raceway
16 sizing, raceway supports, conductor supports, all of the
17 things that are examined on all of the things that it
18 would take to safely make, to safely make an installation
19 such as what's proposed.

20 So from the examination standpoint, when they
21 become a certified electrician, they've demonstrated that
22 they could find the requirements in an open book exam to
23 make the installation. So, from that perspective, we
24 don't have any concerns as a Department that their
25 examination or their training needs to change, because of



1 the fact that they've already proved competency and been
2 certified as an 06A electricians in that regard.

3 BOARD MEMBER KNOTTINGHAM: So we're talking
4 about 06A, 06B, can do this in residences; is that
5 correct?

6 LARRY VANCE: No, that's not correct. This is
7 limited only to 06A electricians. This is only 06A
8 electricians.

9 BOARD MEMBER KNOTTINGHAM: Currently.

10 SECRETARY MOLESWORTH: So, Wayne Molesworth.

11 I feel compelled to speak a little bit about the
12 pressures that we were under when looking at this. And
13 this has been something that our management, you know, has
14 received phone calls about from representatives like Larry
15 has mentioned before.

16 I definitely wanted you guys to have some input
17 on this, but, you know, not very often are we split in the
18 Department over things like this, but I worry about this.
19 Because No. 1, we are changing the scope of work that they
20 are more than capable of getting through examination and
21 license, right? They can become 02 and 01 contractors,
22 just like Chairman Jenkins said.

23 And this is going to sound a little broad, but I
24 don't mean it to be, because it's probably limited to a
25 small scope of contractors, but we have to remember when



1 we're making law and rule that when we pass something, it
2 will apply to everybody. And not everybody, like Larry
3 says, is competent because of an examination. And not
4 everybody is making sure that their staff are getting the
5 proper supervision and training during the installations
6 that we have.

7 We strongly enforce, or have to strongly enforce
8 with HVAC, because it's a very, very big industry, but we
9 find a lot of violations in those terms from the agency.
10 So for those reasons, I worry about that. And, again, for
11 the branch circuit thing, we wouldn't let them run any
12 other branch circuit by definition, that's what it is,
13 right.

14 So we all have our different opinions of what
15 this looks like and what it could be. But we are split in
16 the Department a little bit in that regard. So I just
17 wanted to make sure you guys were aware of that. Those
18 are my feelings and I just wanted them on the record.

19 BOARD MEMBER BURKE: I was just going to say,
20 this has been discussed since I've been on this Board,
21 which has been a long time. And it comes up in and falls
22 back to the same discussion every time, 01s and 02s are
23 available, and that's their work. And I mean I'm just
24 adding to your guys' points and positions.

25 It's definitely not the first time that this is,



1 we always end at the same place because of the branch
2 circuit discussion.

3 CHAIRMAN JENKINS: Comments?

4 Well, I just wanted to bring up that there's two
5 proposals that did come through, got the proposals from
6 people that submitted them. And going through this, they
7 wanted the change because sometimes the wiring coming
8 together and for aesthetic appearance that was the
9 effectively the comment that was made to one of them.

10 And they were complaining that it puts pressures
11 on the 01, 02s to do the work versus having the HVAC
12 people do the work. Creating efficiency challenges with
13 others works spaces. I think that's our common, across
14 the board, were always dealing with other trades working
15 in the areas.

16 And everything in here is not talking about
17 efficiency. All trying to make it more efficiency
18 installed. And there's no gain, in my opinion, it's
19 actually a loss of the safety, so they're taking
20 efficiency and trading it for a less safe installation.

21 And this morning Wayne also mentioned that the
22 inspectors because of the locations being whether a crawl
23 space or an attic space they are less likely to be
24 climbing attic spaces crawl spaces for inspections because
25 of some requirements for safety purposes.



1 So and although they're installing a branch
2 circuit that in some cases fished in and not inspected.
3 And so now we have something that's not being, as well
4 inspected as we would like to see it, and it's been done
5 by people that have never been able to install this.

6 So for the same reason we talked about the last
7 two times, they asked, still the same answer in the past.
8 The same ask, I disagree with that. I think we should not
9 be giving them the capability of installing branch
10 circuits without more extreme or something that could
11 change because nothings changed since the last two times
12 that we brought this up.

13 Any other comments before we take a lunch?

14 BOARD MEMBER COX: So, for Larry, you mentioned
15 being able to put side rails on this.

16 Can you point to what side rails have been put
17 on this?

18 LARRY VANCE: The drawing, it, kind of, explains
19 the side rails. Because the minute that somebody says
20 somebody is installing branch circuits we are thinking a
21 branch circuits throughout. These are circuits that have
22 a definite purpose and a definite origination and
23 destination.

24 This wiring wasn't being done a few years ago.
25 This wiring is something, it's coming in, and it's filling



1 a gap that's being created by other types of systems
2 being, becoming obsolete.

3 So you've got all whole obsolete heating and air
4 conditioning industry being replaced by this new -- and
5 it's not a new industry, it's new to the US shores. It's
6 very prevalent throughout the world.

7 CHAIRPERSON JENKINS: Can I speak here for a
8 second? I don't -- it's not, the mini-split that's the
9 been around for a long time. That wiring has been around
10 for a long time. That wire is being installed by 01 or 02
11 installers; it's not new.

12 LARRY VANCE: No, it's going from uncommon to
13 prevalent.

14 CHAIRPERSON JENKINS: Yes, there's more work.

15 LARRY VANCE: Yes, more prevalent. Yes.

16 Nothing in this rule, you know, side boards back
17 to your question, 06As would not be running conduit and
18 building this wiring. Not even on the outside of the
19 building. It's a site rail thing. The wiring has to be
20 installed in accordance with the manufacturer's
21 instruction. That's who is going to calculate the wire
22 size and the distance and so on and so forth with the
23 product. It's not something that an electrician needs to
24 calculate. The manufacturer's already done.

25 The characteristics of this wiring is this whole



1 signal and power. And the sequence of construction with
2 this equipment is such that we actually have laws passed
3 that affected 18.106, which is the plumbing law and
4 plumbing laws in 19.2A which is the electrical laws,
5 because there was a time when you needed both a plumber's
6 hand and an electrician's hand on a pipe wrench to take a
7 heating element out of a hot water tank, because neither
8 one of them could do it according to the laws.

9 So there was an allowance created that under
10 certain conditions electrical, electricians could do
11 plumbing work and vice versa. This is somewhat kind of an
12 example of that. When you've got a piece of equipment,
13 when you're mounting a piece of equipment there is a
14 sequence that happens. You've got the whole thing
15 completely torn apart. And you're going to connect to
16 mechanical piping, and there at the same time, it's all
17 torn apart, it's not just a little access panel you pull
18 up, you've got to take it all apart. And there is also,
19 you know, several wires terminations that are made there
20 at that point as well.

21 So it's a little different animal than somebody
22 that, when you set a furnace, for instance, the furnace
23 works, but nothing is connected to it. The majority of
24 the work is in the mechanical ductwork, ducting of that
25 system. That work essentially is going away. There is



1 going to be these little lines sets and wiring.

2 So shift in the industry, shift in the
3 Washington State building code that's driving this and
4 those are the forces that we're facing today.

5 BOARD MEMBER COX: The reason for my question on
6 the side rails is to try to address the issue which is on
7 the floor right now, which is, this is going to be a
8 runaway truck. We're installing this hybrid cable now
9 between the head-in unit where the overcurrent protection
10 is connected. We've got all of this hybrid cable going
11 through the unit.

12 LARRY VANCE: Yep.

13 BOARD MEMBER COX: This is somehow going to run
14 away and not get inspected. It's not going to be
15 installed properly. They're not going to have proper
16 education.

17 That's why I'm asking the question on what side
18 rails have been on to try to alleviate the issue that's on
19 the floor; which is, this is going to run away and this
20 industry is going to take over and start installing branch
21 circuits right and left.

22 LARRY VANCE: The permitting is something that's
23 not -- so, for instance, if it's not under the 06A, the
24 permitting would still falls in 01 and 02 contractors and
25 electricians. Here, what would be new for the 06A



1 industry is they will be obtaining permits and having
2 inspections done for these circuits. So we will be
3 looking at all of these circuits separately, a separate
4 permit from the dwelling unit or the building. So there
5 will be proper oversight on all of it.

6 The fish wiring, for instance, it doesn't matter
7 who installs it, you know, if they're pulling fish wiring
8 through insulation in an attic, there's really not any way
9 to see what happened other than the fact that maybe we've
10 got a pretty good idea that there trusses on two-foot
11 centers from Point A to Point B and it's probably sitting
12 on something.

13 Yeah, it's different for us; it's different for
14 the industry. And right now with the position of the
15 State Building Code Council and the Governor's initiatives
16 and all of these questions, there's a need for some change
17 here potentially, so that's kind of where we're at.

18 BOARD MEMBER COX: Thank you.

19 CHAIRPERSON JENKINS: So let's take a break
20 here. How much time do we need?

21 SECRETARY MOLESWORTH: It depends on if you want
22 lunch. I've got an issue I have to deal with on this
23 break.

24 CHAIRMAN JENKINS: Let's come back in an hour.

25 (Break from 12:30 p.m. to 1:37 p.m.)



1 CHAIRPERSON JENKINS: So, where are we at?
2 Anybody have any comments or questions concerning the
3 subject of the 06A branch circuit.

4 BOARD MEMBER BAKER: Thank you. I appreciate
5 everybody's comments before lunch. Jack, I appreciate you
6 looking up contractors and how, you know, 01s and 02s are
7 available, so the solution for these kind of
8 installations. Jason, your comments about the training
9 and safety.

10 I think this is really a safety issue, in my
11 opinion. And I don't know how, this isn't something new.
12 It's been put forward before. I just don't think I can
13 support the change right now until I saw some measures
14 that were taken to ensure these individuals are trained
15 for this type of work.

16 So that's how I feel about this. If you like me
17 to table this until it comes back around the next cycle
18 and we can talk about it again. But I'd like to see some
19 insurances that there is training and levels taken to
20 ensure that the safety around this type of installation is
21 resolved.

22 One comment that was shared that was disturbing
23 to me is the fact that the legislature, lobbyist, that
24 industry, especially our legislature put as much pressure
25 on the Department as they did to get this in front of us



1 today. And what kind of pisses me off is we work for
2 years to try and get a compensation package for our
3 electrical inspectors with virtually no support from that
4 group.

5 And for them to go, you know, all in on this and
6 having not supported our position on trying to support our
7 inspectors. We've finally got that resolved, but from my
8 perspective, yeah, that's a little frustrating.

9 CHAIRPERSON JENKINS: Any other board members
10 have any more? I have other stuff I want to cover here.
11 If I need to, I think I'm getting the gist from the Board
12 that we want to put this off to remove this allowance for
13 now. Does anybody have any -- are we on the same page for
14 this? Maintain where it's at? Larry, comments?

15 LARRY VANCE: Yeah, this is something that,
16 there is also two more provisions for 06As. There is the
17 under voltage, overvoltage service suppression allowance.
18 And there is also an allowance that for when a gas furnace
19 or oil fire furnace is replaced that they are allowed to
20 install a local overcurrent device within six feet of the
21 equipment.

22 This is to facilitate the fact that the maximum
23 overcurrent protection is now 15 on that equipment, as
24 it's manufactured, rather than 20.

25 So what is happening to people that are making



1 installations, retrofit installations is that they are
2 faced with a circuit that is not compatible with their
3 equipment making a like in kind replacement but their
4 circuit isn't compatible.

5 So this allowance, this was an outside proposal,
6 that the technical advisory committee discussed at length.
7 And with some side rails provided by the Department, which
8 we've done, they were in favor of allowing that provision
9 for 06As.

10 As far as the technical advisory committee, on
11 their advice on the overcurrent, the overvoltage/under
12 voltage surge suppression protection, that was more along
13 the lines that it was an outside proposal and it didn't
14 have a lot of information, and it didn't have a lot of
15 familiarity amongst the committee members.

16 We took a look at it after the fact and found
17 that these were just very simple devices, that you could
18 just add it inside, outside, or on the disconnect. And
19 it's strictly just pig-tailing on the load side of the
20 disconnect to add this feature.

21 The reason it's needed is is that when you take,
22 for instance, when you take the top off of a ductless
23 mini-split, when you take the top off of it, the entire
24 thing is a circuit board. I mean, it is you know, it's
25 like a computer, right? It is a computer, so to speak.



1 And it's not a new single-family home, for instance, it's
2 not going to have surge suppression installed at the time
3 it was built. A lot of homes built before there were
4 surge suppression requirements.

5 So what this allows those 06As to do is it
6 allows them the time to change the equipment out, go ahead
7 and protect the equipment so the homeowner doesn't have a
8 costly bill with any sort of power quality issue. So it's
9 just allowing them to in their equipment, on their
10 equipment or on the nearest disconnect to the equipment,
11 install that.

12 And, again, it looks more like, I equate it to
13 the most of them look like about the size of a photocell,
14 you know, a photocell cube. So it's not anything that's,
15 it's three wire nuts is what it is.

16 BOARD MEMBER NORD: Larry, is there any concern
17 within the Department on legislature being around this
18 Board that we end up with somebody the people they don't
19 have technical experience, work experience, or electrical
20 expertise like this Board does by passing a piece of
21 legislation around this issue?

22 LARRY VANCE: Kind of the history of what got us
23 here today talking about this issue is that there has been
24 past proposals that have gone through the cycle of, you
25 know, the Department advertises proposals, and then the



1 technical advisory committee provides advice on the
2 proposals to the Department. And the Department takes
3 that advice and moves forward with the proposed rules.

4 This is the first time that the Department has
5 moved forward with the proposed rules that include wiring
6 for mini-split systems.

7 The reason we went forward with it is, one, the
8 technical advisory committee was split on the issue, so
9 there was a few more in favor than, you know, a few more
10 supported it than opposed it. And, of course, just a
11 letter from a couple of legislators to the Director.
12 Meaning that, they had received a bill. I think that
13 representative Hoff was the one that sponsored the bill.

14 And it was explained to him in the committee
15 hearing that the bill wasn't necessary because the
16 Department had the rule-making authority. Could this be
17 done by the Department through the rulemaking authority.
18 And the answer to that is yes.

19 It was several years ago where the legislature
20 decided to get out of the rule-making business, and it was
21 telecom, it was a legislative workscope. Equipment
22 require was a legislative workscope. I don't think there
23 was another one. They made amendments that made it so
24 that those were no longer -- they were still legislating,
25 but they were saved or otherwise modified by the



1 Department.

2 In other words, they put the Department in, they
3 gave full authority to the Department to modify work
4 scope.

5 BOARD MEMBER NORD: So if the legislature goes
6 around this Board and implements some rules that are
7 deemed to be unsafe, do we have any mechanism of
8 correcting that?

9 LARRY VANCE: We can provide advice. We can
10 provide advice, but we would have to have some
11 substantiation that says, "for these reasons, this is not,
12 you know, for these safety reasons," this is why we do not
13 recommend this. Or we would also be asked to probably
14 give technical advice on what could be included as far as
15 training.

16 There was a time when the HVAC was becoming part
17 of the licensing and certification regulation that HVAC
18 was going to have its own board. That HVAC would have its
19 own, you know, it would be autonomous from the electrical
20 board. So there's been a lot of iterations of what
21 regulations would look like within the industry in the
22 past.

23 The one thing that's very evident today is the
24 pressures that are coming out of the State Building Code
25 Council, the Governor's initiatives as far as reduction,



1 carbon reduction, and just this overall shift. There's a
2 lot of -- we looked at it as you take and make reasonable
3 rules that we can -- that we can probably not have to go
4 through the process of draft, of draft legislation.

5 Because that's the next thing the Department
6 would be asking us to do. We just do that, because it's
7 part of it. We have to, kind of, set aside all of our own
8 feelings, personal feelings, and assist, and whether or
9 not we agree with something or not, it doesn't matter. We
10 assist and provide the best product for that statement.
11 It very well, this could appear again as a piece of
12 legislation for sure.

13 CHAIRMAN JENKINS: Board Member Baker.

14 BOARD MEMBER BAKER: So wrapped around a little
15 bit. So we're talking about a surge protector. In my
16 mind a disconnect on there's contractors 01s and 02s that
17 install that surge protector. Now, I understand that that
18 piece of equipment is a computer and it needs a surge
19 protector on it.

20 You tell the legislature, you tell the lobbyist
21 to go back to the manufacturers, like everybody else does,
22 and put a surge protector in the unit. It needs to be
23 protected.

24 Otherwise, we have 01s and 02s that can install
25 that surge protector, if that needs to be done and that's



1 how I feel about it. We're responding to pressures from
2 outside sources and I think it's unreasonable.

3 CHAIRPERSON JENKINS: Over here.

4 BOARD MEMBER KNOTTINGHAM: You mentioned two
5 changes, the other one was the addition of, a change,
6 you've got a circuit to an existing gas fire, or a fire
7 furnace. You replace it because of like in kind. Like in
8 kind is the same circuit characteristics. It would not
9 allow, currently wouldn't allow them to put a disconnect,
10 use a disconnect to drop the overcurrent protection down
11 to protect that equipment, it would have to be like in
12 kind, 20amp, 20amp, 15amp, 15amp.

13 I've got concerns about, and I understand why
14 they want to do it. And I think it's reasonable to ask,
15 but I have concerns about the training and everything else
16 that goes alongside with it. And there, again, once you
17 allow that, then they're doing a branch circuit. I think
18 you just kind of open the doors again.

19 So I'm concerned about that provisions.

20 CHAIRPERSON JENKINS: Board Member Bobby Gray.

21 BOARD MEMBER GRAY: Thank you, Mr. Chair. I
22 have a couple of questions on each one of those
23 provisions. The first one was the overcurrent protective
24 device.

25 Is this still limited just to dwelling units; is



1 this is just a residential application?

2 LARRY VANCE: It's a 120-volt 20-am circuit max.

3 BOARD MEMBER GRAY: Anywhere?

4 LARRY VANCE: It's within six feet of the
5 equipment, yes.

6 BOARD MEMBER GRAY: So there wouldn't be A
7 concern about interrupting ratings or anything like that?

8 LARRY VANCE: What they're typically, their
9 target device that they are looking at is the base that
10 screws into a little device. They just want to do it, you
11 know, just like with a disconnect. They want to use the
12 most reasonable approach.

13 BOARD MEMBER GRAY: 5000 amps.

14 LARRY VANCE: Yeah, it's the fact that the
15 manufacturers have shifted on that type of equipment to
16 this equipment now has various drives, a lot of
17 electronics in it.

18 BOARD MEMBER GRAY: Well, really, the basis for
19 my question is, did they know enough about that to look to
20 see what the interrupting rating is of the 20, if it's
21 like in kind?

22 LARRY VANCE: Oh, they're reading the nameplate.
23 Yep, they're reading the nameplate to make sure that the
24 nameplate information is compatible with the circuit that
25 they are reconnecting. And what they're finding is that



1 for gas furnaces, it's not for gas furnaces.

2 BOARD MEMBER GRAY: And then regarding the surge
3 protective devices, we don't, or at least I didn't see
4 where we specify what type of SPDs they're putting in
5 there. Because some SPDs, you're not permitted to put in
6 in the field. They have to be installed by the
7 manufacturer. And I don't know if that would apply to
8 this or not, but we don't specify in our rule that says
9 they're limited to just these.

10 LARRY VANCE: We're going to follow the
11 manufacturer's instructions on the SPDs. And if it's
12 allowed; it's allowed. It's not -- the SPD has to be
13 local to the equipment. They're in it, on it, or to the
14 nearest disconnect to the equipment space.

15 BOARD MEMBER GRAY: So this isn't a modification
16 after the fact?

17 LARRY VANCE: Not necessarily. In fact, one of
18 the HVAC suppliers out there showed us a disconnect where
19 the surge suppression is integral to the disconnect; in
20 other words, it's factory wired. It's ready to roll.
21 That will be something that, you know, an 01 or an 02
22 electrician could install from the outset or for
23 replacement.

24 But what it's allowing, what it is is that the
25 industry realizes that this is something that's needed to



1 protect due to poor quality issues. This is just, again,
2 this is, again, this is a consumer safety thing, consumer,
3 you know, it's a consumer protection.

4 It's really nice that you just had this new
5 15,000 system installed, but the tree limb major powerline
6 I know you were \$3,000 for a service call. So it's just
7 something that -- it needs to may be a really good cheap
8 insurance policy to protect your equipment.

9 CHAIRPERSON JENKINS: Larry?

10 LARRY VANCE: Yeah?

11 CHAIRPERSON JENKINS: The question today as
12 everything is written, before any changes happen, does
13 their licensure, surge certification allow them to put
14 that inside the unit anyway. That's inside their
15 equipment, right? Is the opening of the equipment and the
16 install inside their equipment, that's it allowed today,
17 right?

18 LARRY VANCE: They can replace equipment inside,
19 they can replace components inside the equipment, yes.

20 CHAIRPERSON JENKINS: So the manufacturers says
21 "this is a device that belongs with this thing, add these,
22 800 bucks, open the thing up; here's the installation
23 instructions, pop inside your equipment, have a good day.
24 And we can't -- that's a part of their current allowance
25 to date, correct?



1 LARRY VANCE: Yeah, and that is if the
2 manufacturer has room within the equipment to accomplish
3 that. Again, you'd have to pull the top off of a split
4 unit, you're looking out circuit breakers. There's not a
5 lot of spare room inside a split room.

6 CHAIRPERSON JENKINS: In some cases, but you're
7 also saying that this wire be okayed by the manufacturer
8 for them to select the device. So the manufacturer falls
9 back on the manufacturer say hey, we want this type of
10 device. This is where you put it. It goes inside the
11 unit. And they can do that today, right?

12 LARRY VANCE: Yeah, it's a manufacturer, yeah.
13 It is, but there's some equipment and some manufacturers
14 that will not have that because of just the design of
15 their equipment wasn't designed for that. That's why the
16 disconnect manufacturers are more than likely
17 manufacturing disconnects with surge suppression.

18 It's not a factor in new homes because new homes
19 the code requires surge suppression for new homes. So
20 it's more of a problem, it's more of an issue than is
21 present in the retrofit market, so.

22 CHAIRPERSON JENKINS: Yes.

23 BOARD MEMBER KNOTTINGHAM: Larry, I'd like to go
24 back to the disconnect. So if I have a gas furnace in my
25 house. And it's old and it needs to be replaced. I have



1 a toggle switch as a disconnect. So if that was going to
2 be replaced with some 20-amp circuit then that box would
3 have to be pulled off, the disconnect would have to be
4 installed with fuses dropping me down to 15 amps according
5 to what you've said about the new equipment; is that
6 correct?

7 LARRY VANCE: That would be more than likely so,
8 yeah. Some configuration there of either adding a device,
9 you know, adjacent to the box just as long as you put the
10 device, and I would imagine along with the device, on the
11 load side of the disconnect switch. So the device is easy
12 to service, but just very simple.

13 BOARD MEMBER KNOTTINGHAM: Yeah, I just think
14 that's too much. You know, if the disconnect goes bad,
15 they can replace the current one, correct?

16 LARRY VANCE: Well, that gets interesting,
17 because they can replace parts of the disconnect. And I
18 don't know how you replace parts of a single, but that's,
19 again, where the lines are drawn. That it gets, you know,
20 there is a line there is for specialties, and it may not
21 always be perfect.

22 CHAIRPERSON JENKINS: Any other comments
23 concerning the disconnect being offered, general
24 consensus? No, leave it the way it was?

25 BOARD MEMBER NORD: Leave as it sits currently.



1 CHAIRPERSON JENKINS: So leave it as it sits
2 currently amendment to the licensure.

3 LARRY VANCE: So for my understanding, the
4 Board, their advice is not to support any of the changes
5 for the 06A specialty. One of the changes being
6 installation of branch circuits for associated
7 mini-splits, installation of surge suppression under
8 voltage/overvoltage protection. And the third one being
9 installation of a local overcurrent device replacement for
10 gas furnaces.

11 Is the Board, does the Board have any issues
12 with the reorganization of the work, scopes of work, as
13 far as making them linear and understandable?

14 CHAIRPERSON JENKINS: Board Member Knottingham.

15 BOARD MEMBER KNOTTINGHAM: I don't have an issue
16 with reorganizing. I think it makes sense if it's easier
17 to read. But I would just comment make a difference. I
18 would just make to make sure that the scope the way it's
19 currently allowed would still be allowed and not modified
20 either by either extending or restrictive. You know so
21 that it would be I guess a parallel method just easier to
22 read I think that makes sense.

23 LARRY VANCE: Right. Okay.

24 CHAIRPERSON JENKINS: Does the Board support
25 that?



1 Before we go on, I wanted to say I really
2 appreciate all the work that you've done to get it to the
3 way that it is today and all of the reworking. So again,
4 I appreciate the work that's been going into making these
5 modifications. I need to make sure and say that you guys
6 have done a really good job trying to make everybody
7 happy, and I appreciate that. I really do. I think
8 everyone here feels the same way.

9 BOARD MEMBER BAKER: I do feel that way. And I
10 don't see any compelling reason to make a change right
11 now. So I know this is coming back before this Board at
12 some time. There's got to be a compelling reason for me.

13 LARRY VANCE: Well, I think that that's the
14 extent of conversations around changes to scopes of work.
15 This is about eight pages of red ink.

16 A lot of scrolling going on right now. This is
17 good, not much left. The good part of this is you don't
18 have to watch me scroll on the big screen. I'm going out
19 to Hanford quite many times, having to get recertified
20 many times. And sitting and scrolling and moving your
21 mouse around is one of the best forms of security if you
22 feel that someone is looking over your shoulder. It will
23 actually cause them to look away. Nothing like some good
24 scrolling, good mouse scrolling.

25 So I'm now on page 213 out of 248. WAC



1 296-46B-942. And this is rules about training
2 certificates. And this is just a housekeeping change on
3 page 214, remove the date. It no longer has relevance.
4 It had relevance in the past. I thought I had something
5 more here, but I'm scrolling to 15 now.

6 On page 218, we've made a clarification here
7 about affidavits and when affidavits have to be received
8 by the Department. There's a little bit of confusion
9 about what submit and what receive means, if they mean the
10 same thing. So we're just clarifying here on page 218 of
11 the document that affidavits must be received by the
12 Department within 180 days after the expiration date and
13 of electrical training certificate. So to remove any
14 confusion about the difference between "submit" and
15 "receipt."

16 Subsection 9 on page 219 is nothing more than,
17 it's just obsolete requirements that spoke of things,
18 requirements prior to July 1, 2023, just being removed.
19 More housekeeping.

20 So on page 220 of the document just a little
21 housekeeping as far as affidavits for registered
22 apprentices were required to be signed by the training
23 director. And there was a request by that community that
24 they also would be allowed would be able to use a
25 designated authorized signor. Then they didn't have to be



1 the training director's signature, it could be one of
2 their staff.

3 We currently allow that for electrical
4 contractors. In the apprenticeship standards, there's a
5 section in the standards that addresses who can sign
6 apprenticeship-related documents. This is something
7 that's reviewed by the Washington State apprenticeship and
8 training council.

9 So those persons are very readily available, are
10 readily identifiable as to whether or not there is
11 somebody that could be signing that. But if it's an
12 apprentice named Joe and it's signed by Joe, then we can
13 figure out that Joe's maybe not an authorized signer, so.

14 Let's see, on page 221, we're getting to the
15 end. We're so close to the end.

16 Oh, special accommodations for example.

17 CHAIRPERSON JENKINS: One second. Question.

18 BOARD MEMBER KNOTTINGHAM: Can I go back just a
19 second. So what you just talked about the designated
20 signer, the part below that 13. It seems like that kind
21 of contradicts what's above. Am I -- I don't know if I'm
22 reading that right.

23 So for an apprentice, it's the training director
24 or designated signer, and then it goes on to the
25 individual employer. So is that another option, the



1 employer or their designated signer?

2 LARRY VANCE: No, let me get back to that. What
3 page are you on?

4 BOARD MEMBER KNOTTINGHAM: 220. I think you
5 have 221 probably.

6 LARRY VANCE: 220 of the document or 220 of?

7 BOARD MEMBER KNOTTINGHAM: The page, I think I
8 understand. So Section 12 deals with an apprentice. 13
9 looks like it could be a trainee working for the employer.

10 LARRY VANCE: Individual employer, yeah.

11 BOARD MEMBER KNOTTINGHAM: That makes sense.
12 Sorry about that.

13 LARRY VANCE: Now we're into WAC 296-46B-960.
14 Page 226 of the document, under section called special
15 accommodations for the examination, (4) subsection 4. I
16 may have spoken to the Board about this previously as
17 well. But electrical examinations are, they're based on
18 copyrighted materials. Copyrighted materials are not
19 translatable materials. In other words, they are
20 copywritten. They exist in the form that they exist.

21 Then you also get into laws and rules. And I
22 don't -- I believe that the only version of the
23 Washington, for the revised code of Washington is the one
24 in English, because if you try to translate it, it still
25 have the same legal. I'm not a lawyer, but ...

Page 123



1 So we watched exam candidates struggle with,
2 when they have a language barrier. So we have exam, we
3 have exam candidates that come out of apprenticeships and
4 I think they come from other countries. Their only real
5 barrier is not always the material, it can be the
6 language.

7 And so, this is a very old section of the rule
8 that allows for readers and allows for different avenues
9 to -- for someone, for a candidate to approach an exam.
10 All we're doing is acknowledging that a language barrier
11 is something that would allow them an accommodation for
12 the exam, more time.

13 So we found that when, even exam anxiety is
14 something that is, you know, it's a fairly -- when someone
15 wants more time for the exam, the way the rules are
16 currently written, there's probably an avenue for them to
17 obtain more time for an exam. They just need to read the
18 rules and act appropriately to get the accommodation.

19 So we've added that in acknowledgment of the
20 fact that if we did translate an exam for them, would we
21 be doing them a service by translating the exam, and then
22 having them reference documents that are in -- not in
23 their preferred language, laws that are not in their
24 preferred language. What have we done by translating, we
25 haven't -- nobody's accomplished anything.



1 Most of the time, somebody needs is, they've
2 gotten this far, they've gotten their hours of experience.
3 They've had some training. And what they need is just the
4 time to get to the exam. So that's why these changes are
5 made.

6 Page 228 is the last of those changes in that
7 section. We're close. You've got a repealer, and the
8 repeater here at the very end, this is the last change in
9 the law changes. It just says that it's repealing WAC
10 296-46B-406R and that was the tamper-resistant receptacles
11 in certain occupancies.

12 The reason that it is "406R" is because 406 was
13 repealed at one time. When you repeal a WAC rule, that
14 number is gone. It's gone. It's been repealed. If there
15 is another thing that comes up in 406 that we want to
16 address, it's going to be 406K, or you can just pick a
17 letter, it's going to be something different. That was
18 something that we learned.

19 The only other things here are the -- as we get
20 to the end of this document is the explanatory information
21 that I've provided the Board, the diagram for mini-splits
22 and the redrafted 06A, 06B scopes of work.

23 BOARD MEMBER NORD: Question for you.

24 LARRY VANCE: Yes.

25 BOARD MEMBER NORD: Going back to the language



1 barrier. I'm a little bit confused.

2 If the language barrier is a problem with the
3 journeymen's test, how does the applicant get through the
4 apprenticeship program? And if the applicant has gone
5 through the apprenticeship program and is in the process
6 of getting a license, how do they work on the job with the
7 language barrier without the proper documents?

8 LARRY VANCE: Well, if they prove in the
9 certification examination is that with a little bit more
10 time, they're able to access the correct information.

11 BOARD MEMBER NORD: But when they gone through
12 the apprenticeship program for 01 required by law,
13 shouldn't they already have those skills? Don't have to
14 have to have those skills?

15 LARRY VANCE: Were not the medical professionals
16 or the language professionals that can make an assertion
17 as to how it affected somebody is by -- I mean there's
18 federal laws involved about what your language and
19 preference is.

20 For instance, we had a person that was inquiring
21 about getting their exam translated because, they were in
22 an apprenticeship, they had completed an apprenticeship,
23 and they wanted it in another language that was their
24 language of choice. There's other federal laws involved.

25 And so it's the same federal laws that drive



1 when you get your -- when you get a bill in the mail from
2 the power company and there's five or six pages of
3 everything in other languages, right? It's just, it's
4 where we are as far as how the federal government, the
5 state government approach language access.

6 BOARD MEMBER NORD: Do we actually have people
7 requesting this when they take an exam?

8 LARRY VANCE: We have. It's not often, but we
9 have had several. And, again, it goes back to when you
10 have the conversation, what do you hope to accomplish?
11 They hope to accomplish having all of the information for
12 the exam translated, the copyrights are going to stop them
13 on that. The inability to translate laws and rules is
14 going to likely stop them on that.

15 So the alternative is that you take the exam as
16 if, you know, in the prescribed amount of time.

17 BOARD MEMBER NORD: Okay. So, for example, (not
18 able to hear.)

19 LARRY VANCE: Correct.

20 BOARD MEMBER NORD: So can they go out, for
21 example, and get the NEC code in their language?

22 LARRY VANCE: I believe it's available in
23 Spanish. I believe it's available in Spanish and I'm not
24 sure of any other languages just in Spanish.

25 BOARD MEMBER NORD: So how do they work on the



1 job, if they can't understand how to do it in English?

2 LARRY VANCE: Well, there is hardly any
3 electrical products out there, products, that they all
4 come with a thick book. And English is E and it comes
5 after, you know, all of the other languages.

6 BOARD MEMBER NORD: I'm just thinking --

7 LARRY VANCE: I understand what you're saying.

8 BOARD MEMBER NORD: I run a big company. I've
9 got 50 people that speak English, I don't want them on the
10 job. After they've gone through an apprenticeship
11 program. I know we make these rules because of all these
12 other laws, but the practicality of it doesn't make sense
13 some times.

14 LARRY VANCE: Yeah. It reminds me, this is kind
15 of off topic, but it reminds me of a Hungarian gentleman
16 that I became acquainted with when I worked here in the
17 Tri-Cities. I lived here for eight years, and there's a
18 food plant up the road there, job a trailer on the job
19 site.

20 And this Hungarian gentleman was in there and
21 he's in the apprenticeship program. And somebody piped up
22 and said "hey, where are you from?" Just as flat as he
23 could say it, he says "Kennewick." As far as he was
24 concerned, he was just a guy from Kennewick.

25 And you know, he did speak with a very thick



1 accent. And he said that being an electrician in Hungary
2 was a terrible job. You chisel grooves in walls. And he
3 said you drink, most people are drunk, they drink a lot of
4 vodka. He say's, it's a terrible job, a chisel and
5 plaster, chisel and plaster is the term. He said "I like
6 this job. I like America." Nice guy.

7 The challenges of that, I can't answer really
8 speak to what motivates. We all came from somewhere.

9 CHAIRPERSON JENKINS: Board Member Baker, do you
10 have a question?

11 BOARD MEMBER BAKER: Just to answer Mike's
12 question. We do have some guys that have some language
13 barriers, and there is some challenges working with them.
14 But they're good workers, they do a great job.

15 I think the difference is the tester taking
16 time. And I can allow them some time or I can do some
17 workarounds, but when they sit down for an exam, they've
18 only got so much time. And the Department is saying, give
19 them a little bit more time. That seems reasonable. I
20 don't know how you verify that, but it seems reasonable to
21 somebody a little bit more time.

22 BOARD MEMBER NORD: It seems odd to me that if
23 you go through an apprenticeship program, and you spend
24 four years learning the trade, you're going to take the
25 exam. So I can take to get in English or another language



1 but knowing that the code in Spanish and English it just
2 doesn't seem.

3 BOARD MEMBER BAKER: Well, maybe they're going
4 to take it in English, but they're going to have more
5 time.

6 BOARD MEMBER NORD: Okay. That makes sense.

7 BOARD MEMBER BAKER: They get a little bit more
8 time because of the language barrier.

9 BOARD MEMBER KNOTTINGHAM: Just a quick
10 question, they don't have to go through the apprenticeship
11 to be an 01.

12 BOARD MEMBER NORD: Well, that's what I was
13 using for 01s, that what I was using for an example.

14 SECRETARY MOLESWORTH: We've spent a lot of time
15 with people in our division, equal rights and all that
16 stuff to look at this, and determine what was the
17 responsibility of the agency to actually interpret that or
18 give them extra time.

19 And we found out that through federal law, we
20 could be liable if we didn't actually interpret it when
21 we're requested to interpret those things on an individual
22 basis.

23 BOARD MEMBER NORD: So all you're doing is to
24 just complying with the Federal.

25 SECRETARY MOLESWORTH: Yes.



1 BOARD MEMBER NORD: I understand.

2 CHAIRPERSON JENKINS: All right.

3 LARRY VANCE: Yeah, the whole thing is when you
4 look at an interpreted document, if you're not an expert
5 in that language, you no longer are really able to
6 understand even what you can look at the English version
7 and look at the language in the other version and hope
8 that it can make the question and convey the answer
9 possibilities as it is intended. Things get potentially
10 lost in translation, so to speak.

11 BOARD MEMBER NORD: So how many languages are
12 journeyman tests available.

13 LARRY VANCE: I think we've just currently got
14 it in -- we've been able to work with the test, with the
15 exam candidates, we've been able to work with them so that
16 we all understand what can be done and what can't be done.
17 And I don't know that we've delivered a translated exam to
18 date.

19 BOARD MEMBER NORD: So this rule is a maybe.

20 LARRY VANCE: We may have delivered one?

21 SECRETARY MOLESWORTH: So we've delivered one,
22 but you have to remember that those exams, the questions
23 are picked randomly. We interpret it, if we're going to
24 -- not interpret it -- but if we're going to translate it,
25 it's going to be one at a time, right? And so we don't



1 keep a bank of exams in different languages. It would
2 have to be interpreted at that time. We just don't get
3 that many requests.

4 And so by adding additional time, we get away
5 from having to do that, if they are willing to take it if
6 they get additional time to take the exam.

7 BOARD MEMBER NORD: So they would get those
8 randomized tests just like everyone else?

9 LARRY VANCE: I mean, they've worked that hard
10 to get to that point. They're just that close. So it's
11 just a matter of, hey it's two and a half minute a
12 question. So when you're struggling a little bit with the
13 language, two and a half minutes a question is difficult
14 for a lot of candidates, because of stress and everything
15 else.

16 And we think that -- we think that the
17 Department's time would be better used not having to deal
18 so much on the language side, you know, with people if
19 they have more time. It's up to double the amount of time
20 of what's allowed. And they do you have to, the way it's
21 written, they do have to have someone attest to the fact
22 that they've got a language, that they've got a, you know,
23 that they're not proficient in the English language for
24 instance. If their language of original or language of
25 choice is something other than English.



1 CHAIRPERSON JENKINS: Thank you, Larry.

2 Is there anything else on this?

3 LARRY VANCE: I think I've got it. I think
4 we've got a couple of things to go back here before the
5 CR-102 and make some adjustments. And I think we've
6 learned a lot today, so thank you all for this exercise.

7 BOARD MEMBER BAKER: Taking you back to page 83.

8 THE COURT REPORTER: Sorry. A little bit
9 louder?

10 BOARD MEMBER BAKER: 83, ceiling boxes.

11 I think this is a very bizarre thing. Maybe I
12 don't fully understand it. But locations acceptable for
13 the installation of ceiling, ceiling suspended panels. We
14 have code already in place that says you have to use a
15 rated box for a paddle fan.

16 This, again, seemed like a clarification you are
17 putting in here. I don't think this belongs in our WAC
18 rules. I'd like to see this removed.

19 BOARD MEMBER GRAY: Thank you, Mr. Chair. 99.9
20 percent of the time I agree with Don, but in this case
21 it's that .1 percent. Personally, I think, it was a
22 mistake to put it in the code. If I had a choice, we
23 would amend it and not put it in here at all, would be my
24 choice. Because the way it's written in the NEC it leaves
25 it up to the inspector to make a judgment call on where



1 they think the ceiling fan might go in the future.

2 So I mean that's some sort of projection. And
3 the homeowner, the installer, or anybody else may not
4 agree with that at all. No, I have that box there for a
5 specific reason and it's not for a ceiling fan. So I just
6 think the code language is bad. And so in this case I
7 think we need to give guidance not only to the inspectors,
8 but also the installers on how this is going to be
9 enforced here in this state. Or get rid of it altogether
10 which would be my choice. So anyway I respectfully
11 disagree.

12 BOARD MEMBER BAKER: And I appreciate that. So
13 help me understand then, is an inspector going to walk
14 into a residence and every location other than what's
15 listed here, there is going to be a paddle fan rated box
16 on the ceiling? That's really bizarre to me.

17 I disagree with that, but if you guys all think
18 it should be there, I'll make a comment in the future.

19 SECRETARY MOLESWORTH: So I just say -- I think
20 I agree with Mr. Baker 90-something percent of the time,
21 however this was something that we came up with because of
22 exactly what you said, they wanted all of these boxes to
23 be fan-rated boxes, just in case, right. And we didn't --
24 we thought that was very strange, and didn't think that
25 the cost, we thought the cost was going to be a little bit



1 prohibitive.

2 And so we looked at this as a clarification of
3 the NEC to determine, at a minimum, here's what we're
4 going to say. If I walk into a house and I see a three
5 wire in that box when I'm inspecting, I may say "hold on a
6 minute, are you going to have a fan here with a light and
7 you're going to control them both you know from that
8 switch location?" And then adjust that.

9 But just to stay within the code somewhat, we
10 did that four foot because of cabinets, other things that
11 would prohibit you from having a fan in that area and
12 thought it was fair to the people doing the installations,
13 and the people that are buying those properties, that it
14 wasn't costing them an arm and a leg.

15 Truthfully, it would be nice just to eliminate
16 the whole thing. And then make look at it as, okay, I
17 need to know where the fans are going in and look at the
18 print that's on the site; sometimes there's not, and
19 determine, does this look like it's going to be paddle fan
20 and then have a conversation with the contractor.

21 But we decided that this would be the least
22 intrusive, and then if they were going to question it,
23 they could question it with the inspector at the time.

24 BOARD MEMBER BAKER: I appreciate both of you
25 agreeing with me 99.9 percent of the time. This is not a



1 hill I'm going to die on. And I look forward to
2 revisiting this the next code cycle and changing it.

3 CHAIRPERSON JENKINS: Any more questions or
4 comments?

5 BOARD MEMBER TUMELSON: Board Member Tumelson, I
6 just had a quick question about the concept of correlation
7 of codes. And I know that you mentioned energy code and
8 you know there's building code and electrical vehicle
9 stuff is taken off in a big way and the residential code
10 and in the building code. And I just wanted to, you know,
11 take the opportunity to see if the Department's been doing
12 any correlation of those other codes?

13 LARRY VANCE: Well, if it's in the State
14 Building Code, the authority to enforce that State
15 Building Code is given to cities, counties, and towns.
16 The State has no authority to enforce the energy code, or
17 the State Building Code. So that's an area that we, as
18 Labor & Industry, we've stayed within our authority as
19 provided by under RCW 19.28.

20 So the building code there is a real separation
21 there. And yes, there are requirements coming in, but we
22 don't require a fire alarm system, for instance. Nothing
23 in the National Electric Code requires a fire alarm
24 system, but it says that when one is present, here's the,
25 you know, here's the requirements.



1 So if one is there, we inspect it and enforce
2 the code requirement, the National code requirements.
3 Same thing in electric vehicle charging, same thing. Or
4 if there is some sort of energy monitoring system or
5 something to that of effect, HVAC monitoring, or that sort
6 of thing, that's required in the building code.

7 So we essentially stayed in our area of
8 authority and let the building officials enforce the
9 requirement for the presence of whatever it might be, and
10 then we go ahead and make sure that they installed at the
11 appropriate standards.

12 So as far as any correlation were aware of some
13 things. Lorin Lathrop, who had to take off, he
14 participates on the State Building Code Council as a
15 nonvoting member. So he's in tune with some of the things
16 that the State Building Code Council has looked at as far
17 as provisions for electric vehicle charging for instance.
18 If they are there, we'll inspect them. We've even given
19 the State Building Code Council some advice in some of
20 their drafting.

21 So what is, you know, what is required, is it
22 going to be, you know a 30-amp circuit, it is going to be
23 a 60-amp circuit; it is going to be an empty conduit? Is
24 it going to be, what is it going to be? And they're
25 working through those issues.



1 They are also working through any time, any time
2 a new requirement is made in the State Building Code
3 Council, the different interest groups line up and they're
4 going to voice their opinions about, you know, somebody
5 wants it, they can have installed later. Everybody
6 shouldn't have to pay for it. So a lot of pressures
7 around it.

8 BOARD MEMBER TUMELSON: And that's why I asked
9 the question. Because, you know, the future code, if
10 adopted in March, the 2021 code it's going to be requiring
11 a 40-amp circuit for every new single family. And then
12 the commercial provisions for the code, already have
13 pretty strict requirements.

14 And, you know, we're at 281 cities and 39
15 counties and, you know, 27 jurisdictions having their own
16 electrical program, to get continuity across all of that
17 is impossible, if not very challenging. And the other
18 provision, the RCW 19.28.281 does give some authority, I
19 believe, to the Department with respect to the commercial
20 provisions of an e terminal.

21 So I just was asking the question because, you
22 know, it's a challenging topic and it's come up and it
23 came up again.

24 LARRY VANCE: Right. No, we've stayed out of
25 it. That provision came into the RCW with the House Bill



1 11, I can't think of what was it. It was about 2007 or
2 '08. And it was sponsored by a group called Better Place.
3 They were an electric vehicle infrastructure company.
4 Their model was based around battery exchange. But they
5 came in and really started the ball rolling as far as
6 electric vehicle infrastructure legislation.

7 And while we haven't found any particular reason
8 to make any particular rules as far as implementing it,
9 because we look at it just like any other piece of
10 electrical equipment and apply the National Electric Code
11 accordingly. An electrical vehicle charger is no
12 different than a forklift charger or there's just not, not
13 much that's unique about that.

14 It's a requirement to have them, right, the
15 requirement to have them is going to be most likely
16 imposed by the Building Code Council, State Building
17 Codes, but I understand it's quite the issue right now.

18 CHAIRPERSON JENKINS: All right. So thank you,
19 Larry.

20 It looks like you just mentioned that Lorin
21 Lathrop is not currently here. Are you standing in for
22 his Part B of this area that remained CR-101?

23 LARRY VANCE: No, we're going to have my
24 counterpart, Randy Barnes is going to be filling in this
25 rulemaking. It's a tag team between Lauren Lathrop and



1 Randy Barnes.

2 CHAIRPERSON JENKINS: Well, thank you, very
3 much. I appreciate your information.

4 LARRY VANCE: Okay. I'm going to hang out
5 because you're going to call me right back up.

6 CHAIRPERSON JENKINS: Fair enough.

7 RANDY BARNES: Chairman Jenkins, Board Members,
8 Boss, greatly appreciate the opportunity to address the
9 Board. And I'll try to keep this as concise as possible,
10 especially since we already scared Lauren off knowing we
11 would be discussing another rule making.

12 The Department has filed a pre-proposal for an
13 electrical fee increase. That was on October 31st. This
14 was suggested in the previous board meeting or hinted at.
15 This rule would effect all fees and would delete or
16 eliminate any obsolete fees. We discussed that earlier as
17 well.

18 The proposed increase is 6.3 percent. This is
19 determined by OFM's physical growth something for 2025.
20 The current levels are just not adequate proposed for the
21 following years. The tentative effective date would be
22 July 1st. The second filing would be in December, I
23 believe, late December for the public hearing in late
24 January. So as promised, concise.

25 I don't want to steal any of Wayne's thunder.



1 Any questions about the budget will come straight from the
2 Secretary's report.

3 CHAIRPERSON JENKINS: All right. Well, I
4 remember the last time I did this rule change we had them
5 to a motion to having to go forward with what we decided
6 today. So would there be a motion to continue forward
7 with all of that stuff we talked about the changes asked
8 for and a motion to accept.

9 UNKNOWN MEMBER: Motion.

10 UNKNOWN MEMBER: Second.

11 CHAIRPERSON JENKINS: Discussion?

12 Hearing none, all if favor say "aye."

13 (Collective.) Aye.

14 CHAIRPERSON JENKINS: Any opposed? Hearing
15 none, the motion passes.

16 All right. So we are on to, thank you again,
17 Loren {sic} for your time. I'll give it back to our
18 Specialist, Larry Vance.

19 LARRY VANCE: And I believe that the agenda item
20 is the exam report. I wanted to provide the Board with
21 some information about building integrated photovoltaic
22 systems in response to public comment that the Board
23 received at their last meeting.

24 There was a person that addressed the Board that
25 may not have had all of the information that he needed to



1 understand what building integrated meant. That it's a
2 refined term in the Washington Administrative Code, that
3 we've published information about it.

4 Also there was one document in there that was, I
5 believe, prepared by Rod Mutch for the legislature for the
6 legislative committee. Just for an understanding of a
7 building integrated system is, building integrated is
8 something, such as a roofing material, glass, something
9 that is the platting of the building.

10 They now have siding that is capable of
11 producing power. So will these become prevalent? I don't
12 know. But we addressed it quite some time ago and I just
13 wanted the Board to have accurate information. It may not
14 have been presented by the person that addressed the Board
15 previously.

16 CHAIRPERSON JENKINS: Thank you. I think that
17 document that we got a PDF I think that was pretty black
18 and white that this is what it is. I appreciate that,
19 because I was getting a little confused we were going down
20 the wrong rabbit hole and started reading electrical
21 codes. And the supporting document. So thank you.

22 LARRY VANCE: Your welcome.

23 CHAIRPERSON JENKINS: Any questions concerning
24 this piece?

25 BOARD MEMBER BURKE: Just a comment on that, if



1 I'm remember it incorrectly, but I remember listening to
2 the gentleman at the board meeting. And I didn't take it
3 as much as building integrated. More along the lines of
4 what you're talking about across different inspection
5 areas.

6 He had found that certain entities were
7 requiring or telling him he needed to get an electrical
8 permit to install things like stanchions, not necessarily
9 building integrated PV, but even the supports.

10 I remember him specifically talking about the
11 supports on the roof and how some of the jurisdictions
12 were asking him to get a permit; some were not. And so I
13 took it as him asking us as the Board and as the
14 Department, to maybe take this to task a little bit on
15 maybe sending it out to the other jurisdictions and
16 letting them know that it would not be permit required
17 because some are doing it and some were not.

18 So I just wanted to add that to the discussion,
19 because I didn't think it was an integrated PV discussion
20 as much as, kind of, different jurisdictions having
21 different requirements for him, if you will. And he was
22 just trying to let us know that there is a lot of
23 confusion out there, and that if we could help in some
24 way, it sounded like he would appreciate it.

25 BOARD MEMBER TUMELSON: And I'll just echo, and



1 kind of piggyback on that. That's exactly what I recall
2 as well. And having done thousands of electrical reviews
3 and aware of, you know, the other 27 jurisdictions that do
4 electrical planing in their inspection and their land use
5 regulations, it's a difficult one to overcome and gain
6 consistency from local authorities. So it's real. This
7 challenge is out there and gets a lot of people.

8 BOARD MEMBER BURKE: And it may be educating the
9 jurisdictions more than educating the installers on this
10 issue. That's all, just a comment.

11 CHAIRPERSON JENKINS: Any other comments from
12 the Board concerning Item No. 5? Hearing none, it looks
13 like we are onto No. 6, which is the certification/CEO and
14 quarterly report.

15 LARRY VANCE: Thank you, Chairperson Jenkins.

16 Good news. The reports are functional. If you
17 noticed, you finally did get a report. PSI's reports have
18 been prepared and they're functional. So I can probably I
19 have one up in front of me, but I did go, I didn't verify
20 that the reports are consistent with previous reports. I
21 did that to make sure that that of course they had really
22 corrected the report. And it appears that they have. I
23 have great confidence in the report. And the past rate is
24 for 01 electricians, for instance, which is our most
25 attempted exam is consistent with past rates just hovering



1 just under 50 percent. So that's what I have to report as
2 far as the exam reports.

3 We did complete a transition also on exams from
4 using candidates Social Security numbers. We now use
5 something called an exam unique ID number. So if you have
6 anybody in your, that you know of that's attempting the
7 exam and you are a person that's recently attempted the
8 exam, if you tell them when they register with the PSI to
9 use their Social Security number, PSI will not recognize
10 that Social Security number. They're looking for a number
11 called an exam unique ID number.

12 And that's all done and we had a highly secured
13 transfer method. We have to shake hands with PSI with the
14 server data. And, in fact, we send them a list of
15 candidates and what exams they are approved for. And they
16 send us results.

17 We use the Social Security number as the
18 indexing method. There was a bill that was passed and we
19 had a deadline to meet and we met the deadline. But
20 essentially it said no use of Social Security numbers
21 outside of government agencies even though we had a highly
22 secured file transfer method and never had a problem with
23 it.

24 But it took some work, but it's wasn't just for
25 electricians, it was for plumbers, elevator mechanics,



1 asbestos workers, factory, anybody that dealt with the
2 exam.

3 So we still are required by state and federal
4 law to have a Social Security numbers for everyone.
5 That's a law that passed in the late '90s workforce
6 enforcement, for child support enforcement. So everybody
7 from the officer of the company down to the electricians,
8 any owners, any principles of the company, we retain
9 Social Security numbers for that reason. We don't use
10 them for anything else, just that reason.

11 CHAIRPERSON JENKINS: Thank you.

12 LARRY VANCE: Yep.

13 CHAIRPERSON JENKINS: Any questions concerning
14 this topic from the Board? Hearing none, I think, you're
15 off the hot seat.

16 LARRY VANCE: Okie doke.

17 CHAIRPERSON JENKINS: Thank you very much.
18 Appreciate your expertise on all of this stuff.

19 LARRY VANCE: Well, yeah. I learn how to -- I
20 was explaining to somebody else, I hadn't used this mouse
21 in three or four years. And as you all watched, it took
22 me about five minutes to figure out that I had my computer
23 and everything set up for a left-hand mouse. So I just
24 needed a little bit more time to get ready, when I'm out
25 of my normal box.



1 CHAIRPERSON JENKINS: Thank you, again.

2 LARRY VANCE: Yes, thank you very much.

3 CHAIRPERSON JENKINS: We are on Item No. 7. It
4 looks like we're at the Secretary's report. So Wayne
5 Molesworth.

6 SECRETARY MOLESWORTH: Thank you, Mr. Chairman.

7 Wayne Molesworth, chief electrical inspector. I
8 will read the Secretary's report into the record.

9 The budget, the electrical fund balance on
10 September 30th, 2023, was \$15,016,130, which is about five
11 times the average monthly operating expenditures. The
12 average monthly operating expenditures for the first
13 quarter of fiscal year FY24 were \$3,072,924 compared to
14 \$2,431,929 for the same period last year. This is an
15 increase of about 26 percent.

16 Average monthly revenue for the first quarter of
17 FY2024 was \$2,883,553 compared to 2,755,819 for the same
18 period last year, an increase of about five percent.

19 September, 2023 customer service, 46,402 permits
20 were sold last quarter. 98.2 percent or 45,561 were
21 processed online, which is a decrease of .1 percent from
22 last quarter. 99.6 percent of contractor permits are sold
23 online, which is a decrease of .1 percent from the
24 previous quarter.

25 Homeowners online sales from this quarter is



1 83.3 percent, which is a .5 percent increase from the
2 previous quarter. Online inspection requests are
3 75.7 percent, which is a .5 percent increase from last
4 quarter. During this quarter, customers made 92.1 percent
5 of all electrical license renewals were online, which is a
6 .8 percent increase from last quarter.

7 Key performance measures: Number one,
8 percentage of inspections performed within 24 hours of
9 request, keeping in mind the goal is 86 percent, last year
10 at this time we had 75 percent of inspections were done
11 within 24 hours. This year, 78 percent.

12 The percentage of inspections performed within
13 48 hours of request: 87 percent last year, 90 percent
14 this year. Total inspections performed 70,553 this time
15 last year. 69,146 this year.

16 Virtual electrical inspections performed, 10,711
17 last year. 8,702 this year. The number of focused
18 citations and warnings, contractor licensing work
19 certification, no permit, failing to supervise trainees
20 anticipated, total number is 4136. Citations, last year
21 the field did 265. ECOR and audit did 646 for a total of
22 911. This time -- or this year, it was the field was 895,
23 ECOR had 1683, a total of 2578, compliance is up.

24 Inspection stops per inspector per day. Last
25 year, we were averaging 12.1. This year 11.6. Serious



1 electrical corrections that would result in disconnection,
2 last year was 9,845. This year 10,354. Turnaround time
3 for average plan set review, the goal is less than
4 1.6 weeks. Last year at this time was three days, this
5 period was two days is our average for plan review
6 turnaround.

7 Plans pages reviewed all electronically, last
8 year was 1193, this year 1052. Percentage of warnings by
9 focused violation type, licensing was 1 percent,
10 certification was 32 percent, permits was 56 percent,
11 training/supervision, 11 percent, and all focused were
12 16 percent for the entire number of citations.

13 I want to add a little something to that. We
14 have had some conversations about focused citations.
15 Focused citations are the citations that are written to
16 prevent the underground economy and those that give others
17 an unfair advantage in the workplace. And so through
18 those discussions, we expect that we're going to be
19 focusing a lot more in that direction in the field as
20 well.

21 Electrical licensing citations, amusement rides,
22 and appeals. As I read through this, I want to let you
23 know that there are some numbers in here that I'm proud of
24 our staff for doing. We've been tasked with the new
25 apprenticeship law coming into play with a large number of



1 affidavits coming into our office.

2 I know this doesn't set well with some, but
3 we've had a staffing issue. We've had a pretty good
4 turnover, so we're having to train new staff at the same
5 time. And so these numbers reflect a good effort on their
6 part for coming through. I want to give them a little
7 shout out there.

8 As of 10/23/2023, there are a total of 574 items
9 to be processed by licensing team. The oldest item is
10 dated 9/12/23. 279 of these items are affidavits. We
11 continue to see an increase in the number of affidavits
12 being submitted most likely due to the 7/1/23 law change.
13 Electrical trainees are submitting hours worked in the 01
14 general category to ensure they are recorded prior to this
15 date.

16 The number of items to be processed by licensing
17 staff decreased significantly in the past month, between
18 September 28th and October 19th, the backlog decreased by
19 nearly 50 percent due to a focused effort including some
20 overtime hours to try to get caught up.

21 In addition to processing documents, licensing
22 staff are responsible for answering all incoming
23 electrical licensing phone calls. For the timeframe
24 between 7/1/23 to 9/1/23, they answered a total of 6235
25 calls. This is an average of 2078 calls per month, 479



1 per week, and 131 per day, and 13 per hour. This does not
2 include inbound calls coming into their direct lines or
3 outbound calls made to customers.

4 There is currently one vacant position within
5 the licensing team and the licensing supervisor position
6 is vacant. Those positions cannot be recruited for at
7 this time. The citations team is currently -- is current
8 on mailing out citation letters to violators.

9 So that particular statement, current on mailing
10 out citation letters, some of you may remember that we
11 were fairly far behind because we had a complete turnover
12 in our citations and appeal staff. And we have since
13 hired new, very good people that have learned very fast.
14 We're cross training all of those staff to do all of the
15 jobs included in citations so this doesn't happen again.
16 But they are 100 percent caught up. So pretty proud that
17 they made that transition. And there was some overtime
18 involved in that as well.

19 BOARD MEMBER BURKE: Just curious why the
20 position of licensing supervisor, why can't those be
21 recruited for at this time?

22 SECRETARY MOLESWORTH: So I'm going to talk
23 about that a little bit when I get down to fund and
24 budget. Can we wait with that?

25 BOARD MEMBER BURKE: Sure.



1 SECRETARY MOLESWORTH: Okay. Perfect. Testing
2 lab report, no new testing labs.

3 And so for some other program updates, we have
4 the licensing backlog, which I just talked about. And I
5 can't tell you how hard those staff are working. As a
6 matter of fact because of the stress, I think we just lost
7 another staff member today. So we're down one more,
8 hopefully we'll be able to recruit for that particular
9 position.

10 The reason we're not able to recruit at this
11 time is projections of our budget for the next biennium,
12 from now until 2025, show -- and, keep in mind, this is
13 from a two-month projection, because we've only been in
14 this biennium two or three months now -- they were
15 projecting that we would be overspent by \$2 million.

16 So our Director has stopped any spending at this
17 point until we get into December where we see if our
18 budget package has been accepted into the Governor's
19 budget in this short session. And then, at that time, we
20 may be able to hire some of our vacant positions that we
21 have.

22 We are fully staffed on electrical inspectors
23 and leads. We're allowed to hire 126, we have 126. The
24 pay increase that we got, the temporary pay increase we
25 got last year made a big difference in that. And my



1 opinion is, it's made a difference in what they're
2 forecasting, right? Because any time you add a big
3 expenditure like that, there is usually peripheral things
4 that are going to come about.

5 And so I'm not really too worried about that. I
6 think that there's room in there and we've identified a
7 few things that will make a difference. And I think by
8 the time we're at the end of -- well, by next July, we'll
9 see that the forecast is that we're not going to be
10 overspent, so that's my anticipation.

11 The budget, like we talked about before is right
12 up there. You know, it's sitting at about 15 million
13 right now. And if you watch our fund, it's decreasing
14 more rapidly than it has in the past because of the pay
15 increase that we got. And so that's coming straight out
16 of the fund.

17 What we got was an allotment to spend the money
18 that we have in the fund, right? I don't know if
19 everybody understood that. We don't get money when they
20 approve those things. We have to have money to fund that
21 spending. And so that's why it's started to come down a
22 little bit. You know, our expenses now are around 3
23 million, where before they were down around the mid
24 2,000,000, 2.5, right in that area.

25 And so our monthly allotment that the Board



1 wants us to keep current is probably between 9 and 10
2 million right now in a 3-month, 3-month cushion, right.
3 That's the reason for the 6.3 percent fee increase that
4 we're asking for in the rule coming up. That would go
5 into effect hopefully July 1. And the goal here is to do
6 that type of an increase so that we can see is the fund
7 going up rapidly; is it dropping; and then we can adjust
8 on the next session and do more increase if we need to.

9 But we're not going to go backwards at this
10 point because we've got some other things in line as far
11 as making that a permanent increase and some other issues
12 that may cost the Department a little bit of money.

13 So we'll see what the 6.3 does. The goal for me
14 is to see it rise a little bit about the average line down
15 a little bit it. It should never go one direction. So as
16 you go through a budget cycle, you should see a
17 fluctuation that jockeys up and down a little bit, and so
18 that's the goal for that.

19 And so I think that wraps up what I was going to
20 talk about. Does the Board have any questions for me?

21 BOARD MEMBER BURKE: Glad to hear that we have
22 our inspector positions filled.

23 SECRETARY MOLESWORTH: Oh, yeah. And I want to
24 elaborate on that just a little bit. Because, I think you
25 guys, if we haven't, you need to know, VEI was created by



1 what we call extra capacity positions. They had the money
2 in the fund to spend, but we didn't necessarily have the
3 allotment, but we're allowed to do that in certain cases.

4 What we did was we looked at that and went "wait
5 a minute," these are positions that are not permanently
6 funded, so we took some vacancies that we had and we
7 funded those extra capacity positions and made them whole,
8 right. So virtually, we're zeroed out right now. And
9 that's really where we want to be.

10 What has happened in the past a lot of times is
11 they have actually balanced the budget on vacancies, and
12 that's not a good way to go in my opinion. So we're at
13 zero capacity; were asking for 10.5 in this cycle. We'll
14 see what that does for us, but we're also looking hard and
15 the regional administrators, and myself, and our
16 leadership will be looking at positions differently now.
17 Is that if we have a vacancy, we will be seeing if that
18 vacancy needs to remain in that area or if there's other
19 areas that have a higher need, right. Instead of just
20 saying, you get 10, you get 12; do they need that, right?

21 And we have to look out a little ways too to see
22 what's the history been; where are they going; and then
23 adjust that way a little bit. So we're going to be
24 keeping a little bit closer track on that I guess.

25 BOARD MEMBER BAKER: Wayne, you mentioned not



1 permanently funded positions that are temporarily funded.
2 Are you a risk of a rollback in the next year or two
3 certain challenge coming up for temporary positions?

4 SECRETARY MOLESWORTH: Yeah, not now. Not now
5 that we've done what we've done, I think we're good.

6 The other thing we want to always try to avoid
7 when we do these things is avoid over hiring when the
8 future right now is a little uncertain, right. And so we
9 struggle a little bit, worked a little over time, but the
10 last thing I want to do is to have to layoff anybody. I
11 don't know if that's what you meant by that, but ...

12 BOARD MEMBER BAKER: No, I was really concerned
13 about a compensation package that exists today that you
14 have to take a five percent hit in two years.

15 SECRETARY MOLESWORTH: Actually, I don't see
16 that at all. We've got a class and comp package out right
17 now with some other things involved in it too that I can't
18 talk about because we have represented people in the room.
19 But I don't see it going -- I don't see it going
20 backwards. That would be -- that would not sit well and
21 it might our reputation and risk behind that would be
22 drastic.

23 Remember what happened in '08 and '09 when we
24 had to lay off? We're still trying to rebuild our
25 reputation from that. Because people think the government



1 is not a safe place to work after that.

2 CHAIRPERSON JENKINS: Any other questions for
3 our Secretary Molesworth? All right. Thank you very
4 much. I appreciate it.

5 SECRETARY MOLESWORTH: Thank you.

6 CHAIRPERSON JENKINS: Next item here is next
7 meeting location. So as of right now, we are scheduled
8 for Tumwater in January. So please the next when that we
9 need to verify is going to be, they suggest Spokane is the
10 one in April. Is everyone okay with that? All right.

11 So the next one we have here is the one in July
12 of next year and some suggestions were given out for Moses
13 Lake, Grand Coulee, Chelan, Bellevue or Everett or any
14 other thoughts for July of next year?

15 BOARD MEMBER BURKE: Moses Lake is probably a
16 good spot with all that's going on there right now.

17 CHAIRPERSON JENKINS: So tentatively, Moses
18 Lake. It could change, but we'll put that down for July
19 of next year. Okay. Given that, looks like we're ready
20 for public comments. So we have Joshua Bero.

21 JOSHUA BERO: Thank you for the opportunity to
22 bring public comment to you. I'm here because I believe
23 in the mission of L&I, I want to support it in whatever
24 way I can. I'm a an administrator and instructor at a
25 technical college. And I am also very, very nervous



1 talking to all of you, because you all know so much more
2 than I about this than I do.

3 So I wanted to address some questions that were
4 brought up during the discussion of this 06A branch
5 circuit issue and one of the questions that was asked, was
6 what was to keep 06As from working on all sorts of
7 branches circuits; won't this be sort of a runaway
8 permission if this were to move forward.

9 Well, in Section 9 of what was proposed, there
10 are limitations; it's got to be single phased; it can't
11 exceed 250 volts; it can't exceed 20-amps. It must be
12 called a mini-split. There's a six-foot raceway conduit
13 limitation, and it has to be installed with the
14 manufacturer's -- where the manufacturers are provided for
15 the system that includes specifications for type insides
16 wiring, so I believe that's at least a fair documented
17 answer to that concern and question.

18 The other question that was brought up is what
19 training doesn't an 06A have for branch circuits; PSI
20 which is the testing agency for our certification does
21 publish the requirements to get an 06A certification and
22 they do mention specifically that NEC Chapter dealing with
23 branch circuits, such as Article 220 and others, are part
24 of the requirements for an 06A license.

25 So that seems to answer it at least to some



1 extent. There are obviously CEUs that the candidate must
2 fulfill in their path towards going journey level and as
3 you all well know, those CEUs are not specifically to just
4 HVAC. They cover all sorts of areas of the NEC branch
5 circuits included. And obviously there are 4000 hours of
6 certified -- or of supervised work experience.

7 So I do believe that at least does address those
8 training issues. Even if the testing is faulty, the
9 testing is intended to reveal the appropriateness of the
10 training should a candidate pass those.

11 My question is, if safety is an issue, how and
12 why are these answers that I have given insufficient? And
13 maybe you can supply, L&I or whoever, with some specifics
14 about what kind of training? Should there be an
15 apprenticeship for 06As similar to 01s? That's just a
16 thought. Are there other specifics that maybe you can
17 give to candidates for people that are looking to have
18 this portion of the WAC revised that might help them to
19 fill and satisfy your concerns regarding safety?

20 And one last thing that was brought up, and this
21 may seem a little odd, but there was desire for a
22 compelling reason. Just two weeks ago, I was in a meeting
23 with representatives from Local 32 and Local 66, which are
24 large unions that have a lot of 06As that they train.
25 They believe that their candidates are trained in order to



1 do these sorts of branch circuits, this sort of branch
2 circuit work.

3 And I do have another concern, just sort of
4 anecdotally, I would be concerned, and I think it's a
5 compelling reason that there is a lot of black market
6 mini-split installations. And providing a path for
7 getting permits and inspections and so forth, I do believe
8 may not be a perfectly compelling reason, but there is
9 something compelling to it.

10 So those are my comments. Again, thank you for
11 your patience.

12 CHAIRPERSON JENKINS: Thank you very much.

13 Please spell your name for the reporter.

14 JOSHUA BERO: B, as in boy, e-r-o.

15 CHAIRPERSON JENKINS: Thank you very much.

16 Carolyn --

17 CAROLYN LOGUE: Don't even try. My name is
18 Carolyn Logue. I am a lobbyist. I work with big bad
19 lobbiest who works very closely with (unclear) lobbyists
20 as well. And my last name is spelled L-o-g-u-e and it's
21 pronounced Logue, like Vogue.

22 I'm here a behalf one of my clients, which is
23 the Washington Air Conditioning Contractors Association.
24 We did bring forward this proposal today that you've seen
25 in the past to try and allow 06As to do these connections.



1 We do believe, and I think you heard from Josh
2 before me, that these are very specifically written in
3 here so we can be very specific. They are attached to
4 installing the mini-split system.

5 We have not found any other state in the country
6 that does not allow HVAC techs to do this. And I just
7 want to remind you. The legislature created you, and the
8 reason is is so you can oversee the whole electrical
9 Department of Labor & Industries, that includes 06A
10 electricians, they are electricians.

11 And frankly, I'll be really frank right now.
12 I've heard a lot of comments today that sort of dis their
13 capabilities, which has really made me sad for them, but
14 they are a specialty contractor with the same requirements
15 in terms of experience and class hours as an 02
16 residential specialty electricians. And I think that just
17 needs to be stated.

18 These are people who take their job seriously.
19 They've gone through a lot of training. They do
20 continuing education. And they do care about their
21 customers and have been doing it for years. Because we
22 are seeing a need where we have HVAC contractors who are
23 doing their work, this is growing part of what is
24 considered HVAC installation.

25 They're doing their work, but the builders and



1 customers they work with are oftentimes having to wait for
2 the 01, the 01 and the 02 installs the actual outdoor
3 unit, which is great. But we're having to wait, with
4 walls open after the refrigeration lines are done, in
5 order for them to come back and do the work in the 01 and
6 02.

7 We appreciate that you found contractors who are
8 higher than 01 and 02s, and that will not stop. But at
9 the same time, this is an opportunity for a lot of people
10 who are becoming 06As to have this type of work that they
11 can do. The other thing is just to remind you that like
12 with specialists in healthcare, 06As are trained
13 specifically to do HVAC installations.

14 This is what they are going to be doing all of
15 the time. So you actually have a situation where you've
16 created that specialty contractor license to work
17 specifically on these types of equipment, which then gives
18 them more experience, which gives them the ability to have
19 an upper hand when it comes to doing it safely, which is
20 what is the most important thing.

21 I mean, right, to make sure that those systems
22 are installed, that they are done as safely as possible.

23 So we argue that yes, the 06As do have that
24 capability. And I appreciate all of your comments today,
25 but we hope you understand that we did not bring this



1 forward to take work away from anyone. There is plenty of
2 work out there. What the Building Code's Council is
3 doing, as was stated before this morning, is the
4 installation of these types of systems is growing and as
5 we move to electrify older homes and doing the changeouts
6 now from the old oil heating systems and nonelectric
7 systems that are out there, this is growing work.

8 There is plenty of work for everybody. And we
9 need to make sure that people who are out there, who are
10 trained on it, which 06As are actually receiving training
11 on the rest of the installation. The manufacture doesn't
12 come into Washington State and say "Okay. We're just
13 going to train you just on the refrigeration line." They
14 train on the whole thing.

15 So it's just really important. The fine print
16 in there, we think provides several sidebars -- I'm not
17 even going to say sidebars, sidelines and guidelines to
18 make sure that it's very clear what the 06As can do.
19 Thank you.

20 CHAIRPERSON JENKINS: Thank you very much. And
21 lastly, Mr. Larson?

22 AARON LARSON: Yes, sir.

23 CHAIRPERSON JENKINS: If you could spell your
24 name please and the floor is yours.

25 AARON LARSON: My name is Aaron Larson,



1 A-a-r-o-n, L-a-r-s-o-n.

2 So I come to you to talk about the 06A licensing
3 as well. I am a journeyman electrician from Idaho. I
4 moved to Washington a few years ago. That is essentially
5 the 01A license here. I have 8,000 hours of on-the-job
6 training; four years of schooling, as well as passing
7 journeyman electrical exam.

8 This is very specific around the ductless
9 product. This is, as Carolyn has mentioned, a growing
10 industry. And it continues to grow. I work currently for
11 a wholesaler that sells the Mitsubishi product. Our sales
12 have tripled in the last four years in ductless product.
13 We are Mitsubishi's largest customer because of Washington
14 and the electrification that Washington is moving towards.

15 This is not an item that is going to go away.
16 Some of the challenges that we face in the field, Carolyn
17 touched on it, in which our 01As and 02As, they don't have
18 the training or the experience to work within this
19 product. And it is very much so that we disassemble a
20 product for installation and now this product is sitting
21 disassembled waiting for essentially a worker who is not
22 trained on this product to come make those connections.
23 And then essentially the 06A comes in behind him and fixes
24 those connections because he makes mistakes. Because he
25 is not trained on it.



1 I am a certified trainer for Mitsubishi. I've
2 gone through multiple training. I have been certified by
3 training in front of their trainers to be able to present
4 classes for Mitsubishi.

5 We very specifically take into heart the
6 electrical wiring. It is very important part because it's
7 not just power, it's also communication. And this is
8 something that our 01 and 02 electricians do not
9 understand. It's not just a wire. It is truly
10 communication as well. It does power. It also does
11 communication. So it is a very integral part of the
12 system as it relates to 440.8. It is the overall system
13 as it relates to the function of the equipment.

14 It's also fused and protected in the outdoor
15 unit and so there isn't any opportunity for someone to
16 have to design a branch circuit. Everything is specified
17 in the installation manual. The size of the electrical
18 wire; how far it can run; all of this is very specifically
19 laid out in the manual because of that communication
20 circuit.

21 And we have 01s who say "well, I don't like
22 14-gauge because I believe 12 is better." Well, when
23 you're carrying the amperage, there is a case to be made
24 for that. But when we're talking communications, 12 is
25 actually worse. And it causes problems within our systems



1 and now we have to go back out and open up walls and cut
2 sheet rock to replace a wire that somebody else decided
3 would be better. And they stepped outside of the UL
4 listed and tested guidelines for that system.

5 So these are the challenges that we face in our
6 industry. And I would implore you as a group to think
7 about how our industry is changing and how things are
8 changing. And Carolyn put it very well, 06As are
9 electricians. They go through the testing; they go
10 through the training to be able to run branch circuits.
11 They also go through more training with manufacturers to
12 make sure that they can run and connect, make those
13 connections appropriately.

14 So I would implore you to remember that our
15 entire world is changing with car charges, with ductless,
16 and to understand that we will have to change as an
17 industry as well. Thank you for your time.

18 CHAIRPERSON JENKINS: Thank you very much.

19 All right. Any comments from the Board?

20 BOARD MEMBER BAKER: I was going to mention this
21 before they got up to share, so it's not in response to
22 their comments. But somebody shared when we were talking
23 about the 06A, the requirement that we talked about
24 training.

25 So I'm looking at Larry's report on the



1 examinations for last quarter. And the 06As on the first
2 attempts had an 82 percent failure, second attempt a
3 76 percent failure, and it goes all the way up to the
4 eighth attempt.

5 So I'm wondering if before we expand their
6 scope, we need to look at are they receiving the right
7 training; are they getting, are they getting what they
8 need compared to serve in that market and that industry
9 before we start expanding. I think the exam is one matrix
10 we can look at and determine, you know, why that
11 specialty. It's not all failing, but if there is
12 something in there how many attempts.

13 CHAIRPERSON JENKINS: Any other comments from
14 the Board before we adjourn? All right motion to adjourn.

15 BOARD MEMBER NORD: Is there a sign-in sheet?

16 CHAIRPERSON JENKINS: Make sure, before you walk
17 out that door, please sign-in sheet.

18 BOARD MEMBER NORD: Motion.

19 BOARD MEMBER BURKE: Second.

20 CHAIRPERSON JENKINS: Any discussion? All in
21 favor to adjourn the meeting?

22 (Collective.) Aye.

23 CHAIRPERSON JENKINS: Opposed?

24 Hearing none, the meeting is adjourned.

25 (DEPOSITION CONCLUDED AT 3:25 P.M.)



C E R T I F I C A T E

STATE OF WASHINGTON)
)
COUNTY OF SPOKANE)

This is to certify that I, Tamara Nassar,
Certified Court Reporter in and for the State of
Washington, residing in Spokane Valley, reported the within
and foregoing proceeding; said proceeding being taken
before me on the date herein set forth; that pursuant to
RCW 5.28.010 the witness was first by me duly sworn; that
said examination was taken by me in shorthand and
thereafter under my supervision transcribed, and that same
is a full, true, and correct record of the testimony of
said witness, including all questions, answers, and
objections, if any, of counsel.

I further certify that I am not a relative or
employee or attorney or counsel of any of the parties, nor
am I financially interested in the outcome of the cause.

IN WITNESS WHEREOF I have set my hand this 19th
day of November, 2023.

Tamara Nassar

TAMARA NASSAR
CCR NO. 22006692, CVR NO. 8036



<hr/>	052 61:17 62:9	11th 8:15
\$	06 63:16 86:3 87:7 89:4 96:6	12 92:16 123:8 155:20 165:22,24
<hr/>	06A 64:20 89:4,5 91:13 93:24 94:10 96:6 98:2,4,7 104:23,25 106:3 119:5 125:22 158:4,19,21,24 161:9 164:2, 23 166:23	12.1 148:25
\$15,016,130 147:10	06a's 94:5,19	120 79:3,10,12
\$2 152:15	06as 102:17 107:16 108:9 109:5 158:6 159:15,24 160:25 162:10,12, 23 163:10,18 166:8 167:1	120-volt 114:2
\$2,431,929 147:14	06B 89:5 98:4 125:22	125 62:20,22 68:21,22 71:15
\$2,883,553 147:17	070 31:6,11	126 152:23
\$3,000 116:6	08 139:2 156:23	12:30 105:25
\$3,072,924 147:13	09 156:23	13 122:20 123:8 151:1
<hr/>	<hr/>	130 74:25
(1	131 75:11 151:1
<hr/>	1 24:17 58:2 84:15 89:8 98:19 121:18 133:21 147:21,23 149:9 154:5	134 75:18
(2)(A) 80:5	1.6 149:4	136 76:18
(2)(a)(i) 13:24	10 154:1 155:20	137 77:11
(2)(a)pertain 80:24	10,354 149:2	138 78:7
(4) 123:15	10,711 148:16	139 78:20
(692) 75:1	10.5 155:13	14 92:19
(694) 75:11	10/23/2023 150:8	14-gauge 165:22
(b) 22:23 75:20	100 33:21 61:12 151:16	15 31:14 37:7,8,23 107:23 118:4 121:5 153:12
<hr/>	100-amp 59:6	15,000 116:5
-	1000 47:21	15-minute 50:7
<hr/>	102 22:4 63:22	1500 51:14
--ooooo-- 4:4	1052 149:8	157 79:16
<hr/>	10:28 50:9	159 80:5
0	10:45 50:8	15amp 113:12
<hr/>	10:50 50:9,10	16 149:12
01 13:22 94:14,15 95:16,18 96:5,19 98:21 100:11 102:10 104:24 115:21 126:12 130:11 144:24 150:13 162:2, 5,8 165:8	11 13:8,10 50:6 96:5 139:1 149:11	163 86:2,18,20
01A 164:5	11.6 148:25	164 88:22
01as 164:17	110.28 74:18	1683 148:23
01s 96:17,20 99:22 106:6 112:16,24 130:13 159:15 165:21	110.3 17:3	17 9:1 86:3,11 88:12
02 82:20 83:7,24 84:13 94:14,15 95:19 96:6 98:21 102:10 104:24 115:21 161:15 162:2,6 165:8	115 73:25	18.106 103:3
02as 164:17	1193 149:8	180 121:12
02s 95:16 96:17,19,20 99:22 100:11 106:6 112:16,24 162:8		19 6:19
0343 31:17		19.28 136:19
04 94:21		19.28.161 13:24



19.28.281 138:18

19.2A 103:4

19th 150:18

1:37 105:25

1st 12:21 35:16 76:11,12 140:22

2

2 84:15

2,000,000 153:24

2,755,819 147:17

2.5 153:24

20 17:18 92:16 107:24 114:20

20-am 114:2

20-amp 118:2

20-amps 158:11

20-story 83:23

200 39:21

200,000 85:5,12

2004 89:5

2006 75:23,24 76:7

2007 139:1

2018 13:20

2020 12:3

2021 138:10

2023 6:12 12:4,21,22 75:20 121:18
147:10,19

2024 35:16 76:11,12

2025 140:19 152:12

2078 150:25

20amp 113:12

21 13:18

210 17:11

210.52 17:20

213 120:25

214 121:3

218 121:6,10

219 121:16

220 121:20 123:4,6 158:23

221 122:14 123:5

225 65:21

225.31(B) 22:24

226 123:14

228 125:6

230 51:12,13

235 47:22

24 148:8,11

240 92:16

240-volt 39:1

248 120:25

250 158:11

250.4 40:12

2578 148:23

26 147:15

265 148:21

26th 4:7

27 138:15 144:3

279 150:10

27th 6:12

281 138:14

285 43:24

28th 150:18

296-05-011(3) 14:2

296-46B-010 12:1,23

296-46B-110 17:1

296-46B-115 48:7

296-46B-210 17:10

296-46B-230 35:23

296-46B-300 47:23

296-46B-314 48:14

296-46B-406R 125:10

296-46B-440 54:4 62:7

296-46B-701 75:18

296-46B-705 77:12

296-46B-710 78:8

296-46B-908 78:21

296-46B-920 80:5,24

296-46B-922 86:14 88:22

296-46B-942 121:1

296-46B-960 123:13

296-46B-962 75:1

296-46B-964 75:11

296-46B702 76:18

3

3 6:16 77:20 84:15 153:22

3,000 57:12,13

3-month 154:2

30 14:13

30-amp 137:22

300 47:25

30th 147:10

31st 140:13

32 149:10 159:23

334 83:3,17

35 16:23 51:14

36 17:1

38 17:5

39 17:9 138:14

3:25 167:25

4

4 7:25 84:15 123:15

40 39:22

40-amp 138:11

4000 159:5

406 125:12,15

406K 125:16

406R 125:12



4136 148:20
42 17:19
440 54:24 62:9 96:25
440.52 62:10
440.8 54:17 56:5,17 59:3,18 60:1
165:12
440.9 58:21
45,561 147:20
46,402 147:19
47 22:8
479 150:25
48 22:10 148:13
49 6:16 22:13 30:1
4904 14:5

5

5 6:16 84:14,16 96:5 144:12 148:1,3
5/2 18:22 80:17
50 22:15 33:15 34:19 128:9 145:1
150:19
5000 114:13
518.4(B) 13:9
52 71:7
555.31 74:4
56 33:16 149:10
57 23:4 33:16,17,18
574 150:8
58 31:6
59 33:16

6

6 144:13
6.3 140:18 154:3,13
60 47:18
60-amp 137:23
6126 13:20

6235 150:24
646 148:21
66 159:23
69,146 148:15

7

7 92:14 147:3
7/1/23 150:12,24
70 11:14
70,553 148:14
701.32 75:20
702 77:2,6
702.7(A) 77:6
705 78:11
710 78:9,12
75 47:23 48:2 84:7 148:10
75.7 148:3
76 48:4 167:3
78 148:11

8

8 92:14 148:6
8,000 164:5
8,702 148:17
800 116:22
82 6:19 48:13 167:2
83 48:16 133:7,10
83.3 148:1
84 52:15
86 148:9
87 148:13
895 148:22

9

9 4:8 121:16 154:1 158:9

9,845 149:2
9/1/23 150:24
9/12/23 150:10
90 78:25 79:2,6 148:13
90-something 134:20
90s 146:5
911 148:22
92.1 148:4
95 54:3 61:10,13
98.2 147:20
99.6 147:22
99.9 133:19 135:25

A

A-A-R-O-N 164:1
a.m. 50:9
Aaron 163:22,25
ability 32:3 45:8 73:17 162:18
absolutely 63:17
AC 51:14
accent 129:1
accept 141:8
acceptable 34:16 133:12
accepted 152:18
access 5:15 15:8 103:17 126:10
127:5
accommodation 124:11,18
accommodations 122:16 123:15
accomplish 23:11 117:2 127:10,11
accomplished 94:3 124:25
accomplishing 40:4
accordance 83:2 102:20
accurate 14:24 142:13
achieve 33:10 47:5
achieved 28:15
acknowledge 41:7



acknowledging 124:10	advances 16:11	aligned 22:23
acknowledgment 124:19	advantage 149:17	aligning 17:2,10 30:21 33:1 56:20
acquainted 128:16	advertised 8:13 33:11	alignment 64:22
act 51:21 124:18	advertises 109:25	ALJ 7:2
activities 89:24	advice 8:17,18,20,22 35:13 73:22 88:19 108:11 110:1,3 111:9,10,14 119:4 137:19	ALJ's 6:21,23
activity 91:13	advise 30:17,18	alleviate 104:18
actual 13:4,7 24:6 58:16 59:7 162:2	advised 12:8	allotment 153:17,25 155:3
adaptable 82:16	advisory 8:13,14,23 9:2 12:5,7 108:6,10 110:1,8	allowance 38:11 43:12 69:23 75:22 76:2,7 103:9 107:12,17,18 108:5 116:24
add 22:25 33:5 83:19 87:18 94:10 108:18,20 116:21 143:18 149:13 153:2	aesthetic 100:8	allowances 89:23 94:5
added 12:18,24 13:19 27:6 36:23 75:2,9 87:7,9 95:2,10 124:19	affect 35:16	allowed 24:18 26:20 32:1 38:18,23 45:19 82:23 95:3 107:19 115:12 116:16 119:19 121:24 132:20 152:23 155:3
adding 12:25 26:14,16 37:21 99:24 118:8 132:4	affected 79:20 103:3 126:17	allowing 25:6 29:10 32:2 33:8 61:25 108:8 109:9 115:24
addition 94:25 113:5 150:21	affidavits 121:7,11,21 150:1,10,11	Allred 89:15
additional 32:21 36:1 132:4,6	affirm 6:21	alongside 113:16
additions 76:9	affordable 39:21	alphanumeric 13:6
address 26:2 35:3 66:12 91:10 104:6 125:16 140:8 158:3 159:7	afterward 9:9	alternative 127:15
addressed 72:14 86:21 141:24 142:12,14	agencies 145:21	altogether 134:9
addresses 13:12 73:11 122:5	agency 99:9 130:17 158:20	ambivalent 28:14
addressing 13:16 46:20	agenda 10:14 141:19	amend 30:12 133:23
adds 31:22	agents 74:5	Amended 54:3
adequate 30:2 79:6 94:4 140:20	agree 19:12 28:22 34:11 68:1 71:19 72:9,13,22 88:3 96:16 112:9 133:20 134:4,20	amendment 67:15 119:2
adjacent 118:9	agreeable 34:7	amendments 110:23
adjourn 167:14,21	agreed 30:23	America 129:6
adjourned 167:24	agreeing 135:25	amount 9:3 31:15 78:22 127:16 132:19
adjust 135:8 154:7 155:23	agreement 7:19 13:25	amperage 165:23
adjustments 133:5	ahead 12:9 27:5 41:4,20 84:14 109:6 137:10	amps 92:14,16 114:13 118:4
Administrative 15:2 61:19,20 75:14 79:21 142:2	air 32:12 54:4,19 90:11,22 91:2,4,5,7 102:3 160:23	amusement 149:21
administrator 157:24	air-conditioners 63:3	analysis 19:22
administrators 155:15	air-conditioning 90:24	ancillary 85:3
adopted 83:19 138:10	alarm 136:22,23	anecdotally 160:4
adopting 12:4	alarms 87:13	animal 42:4 103:21
adoption 12:20,21 76:13	align 13:9 22:9 29:15 31:23 33:4 48:14	ANSI/TIA 12:14



answering 150:22
answers 33:8 159:12
anticipated 148:20
anticipating 10:25
anticipation 153:10
antiquated 79:17
anxiety 124:13
anymore 16:8 38:3 49:22 73:14 79:18 83:1
apologize 26:19
apparently 31:20 43:14
appeal 6:23 7:2 151:12
appealed 34:22
appeals 7:8,24 149:22
appearance 100:8
appears 144:22
appliances 17:24 21:6
applicant 126:3,4
application 20:19 114:1
applied 83:2
applies 89:9,11 91:10
apply 12:19 36:25 68:21,22 99:2 115:7 139:10
apprentice 122:12,23 123:8
apprentices 72:23 121:22
apprenticeship 13:21,23 14:1,5,6, 7,10 72:15 73:4 122:4,7 126:4,5,12, 22 128:10,21 129:23 130:10 149:25 159:15
apprenticeship-related 122:6
apprenticeships 124:3
approach 11:2,5 12:5,10 23:21 40:8 43:7 46:24 114:12 124:9 127:5
appropriately 69:12 124:18 166:13
appropriateness 159:9
approval 6:11 35:7
approve 70:16,18 78:6 153:20
approved 20:5 145:15

April 12:21 35:16 76:11,12 157:10
arbitrarily 78:24
architectural 84:14,17,18
arcing 23:20 28:18
area 71:7 135:11 136:17 137:7 139:22 153:24 155:18
areas 17:22 82:16 100:15 143:5 155:19 159:4
arena 85:6,13
argue 162:23
argued 10:22
argument 10:24 45:9 88:10
arm 5:24 135:14
array 81:16
arrives 64:11,12
article 17:11 22:1 47:21,25 49:2,3 51:12,13,14 54:17 56:5 59:3 71:6 78:9,10 79:14 83:2,17 158:23
articles 51:9 54:25 72:3
as-built 18:18
asbestos 146:1
aspect 5:5
assembly 20:10
assertation 126:16
assist 112:8,10
assistant 7:12
Association 160:23
assume 28:12
assumed 11:7
assumes 77:6
assuming 8:6 10:8
assumption 28:13 76:19
assure 64:15
attached 46:15 161:3
attachment 46:16
attempt 95:6,11 167:2,4
attempted 144:25 145:7

attempting 145:6
attempts 167:2,12
attending 4:9
attention 66:4
attest 132:21
attic 5:23,24 53:9,14 100:23,24 105:8
attics 5:15
attorney 7:12
attuned 19:20
Auburn 47:7 48:23
audit 148:21
authorities 144:6
authority 17:6 94:25 110:16,17 111:3 136:14,16,18 137:8 138:18
authorized 121:25 122:13
autonomous 111:19
availability 26:23
avenue 124:16
avenues 124:8
average 147:11,12,16 149:3,5 150:25 154:14
averaging 148:25
avoid 156:6,7
aware 99:17 137:12 144:3
awful 9:20 89:19
awhile 79:3
axiliary 91:4
aye 7:4,5 141:12,13 167:22

B

baby 35:20
back 7:1 18:12,19 21:5 23:1 24:14 28:21 34:11,14 35:20,21 48:9 50:7, 11 51:4 53:12 58:13 60:13 61:13,24 63:10 65:16,25 68:12 72:23 73:3 75:22 76:17 79:4 80:12 86:16 89:14, 18 95:8 99:22 102:16 105:24 106:17 112:21 117:9,24 120:11 122:18



123:2 125:25 127:9 133:4,7 140:5
141:17 162:5 166:1

background 8:11

backlog 150:18 152:4

backwards 154:9 156:20

bad 118:14 134:6 160:18

Baker 6:15,17 27:9,10,17 29:8 30:20
44:15,21 45:3,13,16 46:20 61:10,13
62:25 66:6 67:10,14 69:11,16 106:4
112:13,14 120:9 129:9,11 130:3,7
133:7,10 134:12,20 135:24 155:25
156:12 166:20

Baker's 71:18

balance 147:9

balanced 155:11

ball 139:5

bank 132:1

bare 27:20,23 28:3

Barnes 7:11 139:24 140:1,7

barrier 82:14 124:2,5,10 126:1,2,7
130:8

barriers 129:13

base 58:7,11 77:3 114:9

based 6:25 35:13 38:11 97:15
123:17 139:4

basis 55:5 114:18 130:22

batteries 77:15

battery 77:16 139:4

beautiful 84:17

behalf 160:22

Bellevue 157:13

belongs 116:21 133:17

benefit 21:18

Bero 157:20,21 160:14

biennium 152:11,14

big 10:5 39:7 48:22 65:18 83:3 88:23
99:8 120:18 128:8 136:9 152:25
153:2 160:18

bigger 72:3

bill 13:20 109:8 110:12,13,15 127:1
138:25 145:18

bit 4:10 12:15,24 14:10 15:20,21
22:19,20 27:1,5 32:21 38:5,22 55:16
57:12 58:6 67:4 76:8 81:7 83:8
84:24 88:6 95:15 98:11 99:16
112:15 121:8 126:1,9 129:19,21
130:7 132:12 133:8 134:25 143:14
146:24 151:23 153:22 154:12,14,15,
17,24 155:23,24 156:9

bizarre 133:11 134:16

black 142:17 160:5

blown 24:22

board 4:12 6:13,14,15,16,17 8:22
9:6 10:6,21 11:24 12:2 19:11 20:2,
17 21:5,11 25:9,23 27:10,17,19,25
28:11,14 29:1,8,24 30:16,17,20,23
31:5,11 33:7,23 34:1,17,19,22 39:13
40:9,10,25 41:4,18 42:5,19 44:15,21
45:3,13,16,25 46:20 50:16,22,25
51:3,4,18 54:2 61:10,13 62:25
63:12,13,18,23 64:4,9 65:8,12,23
66:6 67:6,10,11,13,20 68:3,5,17
69:3,11,16,17 70:2,12,20 71:5,8,16,
18,23 72:13,18 74:19 78:10 83:12,
18 84:5 86:16,18,21 87:6,22,25
88:3,7,11,17,19,23 89:22 96:1,16,24
97:5 98:3,9 99:19,20 100:14 101:14
104:5,13 105:18 106:4 107:9,11
108:24 109:16,18,20 111:5,6,18,20
112:13,14 113:4,20,21 114:3,6,13,
18 115:2,15 117:23 118:13,25
119:4,11,14,15,24 120:9,11 122:18
123:4,7,11,16 125:21,23,25 126:11
127:6,17,20,25 128:6,8 129:9,11,22
130:3,6,7,9,12,23 131:1,11,19 132:7
133:7,10,19 134:12 135:24 136:5
138:8 140:7,9,14 141:20,22,24
142:13,14,25 143:2,13,25 144:8,12
146:14 151:19,25 153:25 154:20,21
155:25 156:12 157:15 166:19,20
167:14,15,18,19

Board's 35:13

boards 102:16

Bobby 34:10 113:20

boils 65:6 73:3

bond 38:25 40:12,15

bonded 24:15 41:1

bonding 23:15,17,24 24:10,20
25:12,22 28:2 30:15 41:3,15 46:14

book 65:4 67:18 72:5 78:20 97:22
128:4

Boss 140:8

box 21:15 48:21 69:5 70:8 118:2,9
133:15 134:4,15 135:5 146:25

boxes 16:5 49:15,19,22 133:10
134:22,23

boy 160:14

brains 91:18

branch 94:11,13 95:1,4,7 99:11,12
100:1 101:1,9,20,21 104:20 106:3
113:17 119:6 158:4,19,23 159:4
160:1 165:16 166:10

branches 158:7

break 5:24 50:1,3,5,7,9 105:19,23,
25

breaker 38:24 46:5

breakers 117:4

bring 22:12 44:7 94:8 100:4 157:22
160:24 162:25

bringing 72:19

broad 98:23

brought 24:3 25:3,13 26:12 34:2
35:25 95:8 101:12 158:4,18 159:20

bucks 39:21 116:22

budget 141:1 147:9 151:24 152:11,
18,19 153:11 154:16 155:11

build 85:5

builder 20:25 47:8 48:25

builders 161:25

building 18:24 21:4 31:13,14,16,18
32:2 39:5 42:21 43:22 46:12 53:13
57:2,18 58:1,2,10 73:19 80:12 82:6
83:23 84:3,10 85:3 93:25 94:12
102:18,19 104:3 105:4,15 111:24
136:8,10,14,15,17,20 137:6,8,14,16,
19 138:2 139:16 141:21 142:1,7,9
143:3,9 163:2

buildings 4:25 5:2 18:22 35:25
46:25 80:8,14 83:23 84:1



built 53:10 75:7 89:1 109:3

bunch 37:12

Burke 6:14,17 67:6,11 69:17 99:19
142:25 144:8 151:19,25 154:21
157:15 167:19

burn 45:2

bushings 24:13

business 95:16,19,22 96:9 110:20

buy 79:7

buying 135:13

C

cabinet 53:24

cabinets 17:23 18:2,3 135:10

cable 18:17 37:20,24 38:3,4 52:18,
23 53:15,16 58:18 59:7 80:11 81:22
82:6,8,11,23 83:1,2,3,5,16 91:16,17,
20,22,24 92:3,8,9,10,11,12,14,18,24
93:1,5 94:11 104:8,10

cables 81:18 92:13

cache 27:15

calculate 102:21,24

calculations 90:20

call 4:7 26:23 30:10 42:25 43:8 92:8
116:6 133:25 140:5 155:1

called 72:2 123:14 139:2 145:5,11
158:12

calling 43:1

calls 98:14 150:23,25 151:2,3

cam 38:25

candidate 124:9 159:1,10

candidates 124:1,3 131:15 132:14
145:4,15 159:17,25

cans 49:17

capabilities 91:8 161:13

capability 94:10 101:9 162:24

capable 98:20 142:10

capacity 155:1,7,13

car 166:15

carbon 81:13 112:1

care 9:14 161:20

Carolyn 160:16,17,18 164:9,16
166:8

carried 25:14,15

carrying 165:23

case 6:25 29:14 33:6 59:16 68:22
133:20 134:6,23 165:23

cases 101:2 117:6 155:3

catalyst 83:20

category 150:14

caught 150:20 151:16

caused 40:3 60:2 75:15

causing 32:21

ceiling 48:20 49:6,10,18,19,21
54:19 94:12 133:10,13 134:1,5,16

ceiling-rated 48:21

cells 75:2,6

center 39:15

centers 105:11

central 57:18 59:1

centrally 39:15

certificate 121:13

certificates 121:2

certification 94:24 111:17 116:13
126:9 148:19 149:10 158:20,21

certification/ceo 144:13

certified 97:21 98:2 159:6 165:1,2

cetera 86:25 87:16,21

CEUS 159:1,3

chain 79:5

chair 4:16 25:9 40:10 52:13 67:20
93:15 113:21 133:19

chairman 6:12 25:25 48:1 92:3
94:20 98:22 100:3 105:24 112:13
140:7 147:6

Chairperson 4:6 6:9,18 7:6,22 8:5
9:24 10:8,13,18 23:25 25:2,8,23
26:7 27:8 28:20 29:3 30:4 33:14,17
34:7,21 35:1,5,18 38:12,19 39:9

40:9 42:25 43:6,20 44:2,9,14 47:11
48:3 49:24 50:4,10,19,23 51:1,16,22
52:4,8,11 54:1 56:24 57:16 58:5
59:4,15,25 60:5,19 61:9 63:12 67:13
68:2 69:2,7,14,19,24 72:1,16 73:23
74:19 79:9 83:10 85:1 88:5 91:24
92:7 94:7,18 96:15,22 102:7,14
105:19 106:1 107:9 113:3,20 116:9,
11,20 117:6,22 118:22 119:1,14,24
122:17 129:9 131:2 133:1 136:3
139:18 140:2,6 141:3,11,14 142:16,
23 144:11,15 146:11,13,17 147:1,3
157:2,6,17 160:12,15 163:20,23
166:18 167:13,16,20,23

challenge 144:7 156:3

challenges 66:14 100:12 129:7,13
164:16 166:5

challenging 138:17,22

chances 29:22

chandelier 49:20

change 9:20 10:19 11:11 13:16
16:22 17:18,19 19:21 21:3 23:3
24:18 29:7,9,15 34:12 47:22 50:15
52:15 57:3 61:8,17 69:2 72:6,25
73:8 78:11,21 79:13,15,24 83:21
84:1 86:12 88:18,19 90:1 93:11
95:2,8,9 96:18,19 97:25 100:7
101:11 105:16 106:13 109:6 113:5
120:10 121:2 125:8 141:4 150:12
157:18 166:16

changed 22:11 50:21 80:11,21
83:15 95:13,14 101:11

changeouts 163:5

changing 15:4 34:10 69:8 93:8
95:21 98:19 136:2 166:7,8,15

chapter 78:20 82:24 158:22

characteristics 102:25 113:8

charge 79:18 80:2

charger 139:11,12

charges 166:15

charging 137:3,17

charred 23:20

cheap 116:7

check 27:6 50:5,6



Chelan 157:13	cleans 75:17 81:7	comfortable 25:4 61:6
chief 68:6 147:7	cleanup 80:3	comment 9:9 22:6 33:15 47:11 61:14 66:1 100:9 106:22 119:17 134:18 141:22 142:25 144:10 157:22
child 146:6	clear 53:25 68:24 71:25 78:19 82:2, 21 163:18	comment/question 38:12
children 18:4	clearer 81:8	comments 9:21 10:1 22:6 25:23 49:24 74:19 100:3 101:13 106:2,5,8 107:14 118:22 136:4 144:11 157:20 160:10 161:12 162:24 166:19,22 167:13
chisel 129:2,4,5	click 41:13	commercial 57:14 60:9,12 85:9,13, 22,24,25 91:11,12,13 138:12,19
choice 30:3 34:4 126:24 132:25 133:22,24 134:10	clients 160:22	Commission 18:2
choke 24:14	climbing 100:24	committee 8:13,14,23 9:2 12:6,8 108:6,10,15 110:1,8,14 142:6
chooses 20:20	close 31:9 73:25 122:15 125:7 132:10	common 53:9 85:17 86:1 100:13
chose 41:20	closely 160:19	commonly 52:19 54:10 62:14 71:3
Chris 21:19	closer 51:3 155:24	communication 91:16 165:7,10, 11,19
circuit 59:6 62:18 94:11,13,20 95:4, 7 99:11,12 100:2 101:2 106:3 108:2, 4,24 113:6,8,17 114:2,24 117:4 118:2 137:22,23 138:11 158:5 160:2 165:16,20	code 11:4,17 12:3,4,12,14,16,22 13:2,12 14:25 15:1,2,3,8,11 16:12 17:15,16 18:8 20:22 22:9,11 24:16 31:17 34:6,15,23 35:8 36:1 37:18 38:6,8 40:7 43:24 44:16,19 45:20 47:20,21 48:15,16,18,19 54:8,24 55:10,13,15 56:20 61:20,24 65:2,4, 18,19 66:9,22,25 67:16,18,22,23 69:13 71:25 72:5,8,25 75:14 77:6 78:9,20 79:21,22 80:10 81:12 82:3, 25 90:7 94:15 104:3 105:15 111:24 117:19 123:23 127:21 130:1 133:14, 22 134:6 135:9 136:2,7,8,9,10,14, 15,16,17,20,23 137:2,6,14,16,19 138:2,9,10,12 139:10,16 142:2	communications 165:24
circuits 38:2 87:9 94:23 95:1 101:10,20,21 104:21 105:2,3 119:6 158:7,19,23 159:5 160:1 166:10	code's 60:24 163:2	community 121:23
circumstances 23:23	coded 74:22	comp 156:16
citation 151:8,10	codes 60:18 66:2,8,12 67:16 136:7, 12 139:17 142:21	company 7:9,14,17 127:2 128:8 139:3 146:7,8
citations 148:18,20 149:12,14,15, 21 151:7,12,15	coins 85:23	compared 147:13,17 167:8
cities 136:15 138:14	cold 59:24	compatible 108:2,4 114:24
city 9:6 47:6,7 48:23,24	collect 29:19 50:2	compelled 98:11
clarification 12:18 16:24 63:11 64:6 65:1 66:7,21,22 70:5 71:20 74:16,18 77:2 79:15 86:2,22 87:18 121:6 133:16 135:2	Collective 141:13 167:22	compelling 120:10,12 159:22 160:5,8,9
clarifications 61:15,21,22 62:3 66:9,11 69:13	Collectively 7:5	compensation 107:2 156:13
clarified 75:12 77:1 80:8 87:3	college 157:25	competency 98:1
clarifies 65:23 83:7	color 93:5	competent 99:3
clarify 29:1 64:4 71:9 72:8 87:14	colored 91:22	complaining 100:10
clarifying 15:5 46:21 62:25 63:19 67:8 68:5 74:4 85:8 121:10	combination 45:25	complete 49:18 51:20 77:23 78:23 145:3 151:11
clarity 12:25 15:14 84:24 85:3	combinations 46:23 47:1	completed 14:4 79:25 126:22
class 78:23 156:16 161:15	combustibles 32:12	completely 19:12 34:13 103:15
classes 165:4		complex 77:14,19 85:11 86:12
clean 15:20		compliance 148:23



comply 96:14	conflicts 11:15	controlled 55:22 58:25
complying 96:10 130:24	confused 40:11 126:1 142:19	controller 55:18
components 78:3 116:19	confusing 19:13 42:15,16 65:19 81:1	controlling 59:10
compression 28:8,9	confusion 75:15 82:1 121:8,14 143:23	controls 36:19 44:25
compressor 56:10 57:17 63:2 91:3	connect 103:15 166:12	controversy 33:22
compressors 73:8	connected 41:24 78:13 103:23 104:10	convened 9:2
computer 8:9 11:22 16:10 108:25 112:18 146:22	connecting 77:3	conventional 57:14
concept 69:12 136:6	connection 64:14	conversation 5:9 27:11 60:3 61:2 127:10 135:20
concern 24:24 68:3 109:16 114:7 158:17 160:3	connections 160:25 164:22,24 166:13	conversations 60:3 120:14 149:14
concerned 26:7 58:6 113:19 128:24 156:12 160:4	consensus 52:22 68:2 118:24	convey 131:8
concerns 6:4 25:24 31:2,3 97:24 113:13,15 159:19	consideration 27:19	cooling 96:3
concise 140:9,24	considered 5:16 24:6 38:15 71:8 161:24	coordinate 76:15
CONCLUDED 167:25	consistency 19:15 47:5 49:23 144:6	coordinated 75:25 76:1,5
concrete 18:24 82:13 84:18	consistent 19:4 53:25 144:20,25	coordination 75:19,21
condense 15:12	constitutes 20:4	copies 14:14,15 16:25
condenser 56:10 57:17 91:3	construction 5:5,6 6:4 7:9,14,17 18:22 79:1,4 80:12,16,19,20 83:19 84:8 103:1	copper 38:1
condensers 73:8	constructions 83:15	copy 8:5 9:24 10:9 14:23,24 15:2,6, 8,11 16:9,20,21 17:8 22:4 79:18 80:3 89:21
conditioning 54:4 102:4 160:23	consumer 18:2 116:2,3	copyrighted 123:18
conditions 53:2 80:9 103:10	content 67:7,11	copyrights 127:12
conductor 24:9 25:10,18 26:14 27:20,21,23,24 28:3,4 32:16,17 40:13,16,17,25 41:16,25 44:7,8 46:16 97:15,16	continually 72:21	copywritten 123:20
conductors 23:5 24:8 30:12 31:16 36:6,7,19,22 37:6,19 38:10 39:2 40:5,23 44:17,24,25 47:3 82:18	continue 94:5 141:6 150:11	cord 8:4 18:5,6 21:9,24
conduit 18:17 19:1 23:10,16 24:4,8, 22 25:21 52:20 53:1,2,3 81:4,22 84:20,21 102:17 137:23 158:12	continues 164:10	cords 21:6
conduits 28:10	continuing 161:20	correct 35:23 39:17 64:16 65:16 84:4 94:16 98:5,6 116:25 118:6,15 126:10 127:19
confidence 144:23	continuity 138:16	corrected 144:22
configuration 118:8	contractor 19:24 25:17 95:17 135:20 147:22 148:18 161:14 162:16	correcting 111:8
configurations 54:20	contractors 9:5 96:2,4 98:21,25 104:24 106:6 112:16 122:4 160:23 161:22 162:7	correction 6:16,19 13:3 43:16 56:13 62:23 63:10,14,21,22 65:14, 15,17 67:1 68:8,10,12,14 70:1,14, 24,25 71:3
configured 59:12	contradicts 88:11,13 122:21	corrections 7:3 65:9,10 66:15 70:4, 15 149:1
confined 5:8,10,11,16,20	control 55:22 59:11 90:16 135:7	correctly 29:18
conflict 11:16 12:13 79:19		correlation 136:6,12 137:12
		correspond 47:25



corrosion 74:9,10,13,14,16,22,23, 24
corrosive 74:5
cost 21:3 25:17 28:14 32:21 38:5 39:14,20 55:7,8 134:25 154:12
costing 135:14
costly 19:24 21:1 109:8
costs 42:24
Coulee 157:13
council 14:1 105:15 111:25 122:8 137:14,16,19 138:3 139:16 163:2
counter 20:21 21:6 49:14
counterpart 139:24
counters 21:2
countertop 21:11,22
countertops 20:3,12 21:8
counties 136:15 138:15
countries 124:4
country 161:5
couple 10:1 12:25 35:12 74:24 110:11 113:22 133:4
COURT 31:8 51:2 133:8
cover 107:10 159:4
covered 32:11
covers 51:15
Cox 50:25 63:12,13,18,23 64:4,9 65:8,12,23 68:5,17 70:2,12,20 71:16 86:16,18,21 87:6,25 88:3,11,17 96:24 101:14 104:5,13 105:18
CR-101 139:22
CR-102 22:4 26:5 133:5
crack 35:2 59:20
craft 94:6
crawl 5:15,23 100:22,24
crazy 94:2
create 32:5
created 40:18 45:21 61:2 67:12 102:1 103:9 154:25 161:7 162:16
creating 32:9 100:12

credentialed 84:3
credit 90:19
credits 81:13 90:17
criteria 57:7
Crock-pot 18:6 21:9
cross 89:20 151:14
cross-section 9:4
cube 109:14
cubicle 51:8
CUNNINGHAM 31:5,11
curious 51:22 151:19
current 23:18 28:6 36:11 40:19 42:6 70:5 96:8 116:24 118:15 140:20 151:7,9 154:1
Currents 19:18 49:2,3 52:16 67:25 72:2
cushion 154:2
custom 20:23
customer 36:18 147:19 164:13
customers 148:4 151:3 161:21 162:1
cut 7:1 166:1
cycle 34:6,13,23 51:5,6,19,20 69:24 106:17 109:24 136:2 154:16 155:13
cycles 48:16,19 61:24

D

damage 24:6,7 82:12
Darren 89:15,16
data 29:12,19,21 71:2 145:14
date 10:24 11:7,13,18 15:21 22:12 35:12,16 76:13,14 116:25 121:3,12 131:18 140:21 150:15
dated 150:10
dates 12:6 75:22
day 4:15,18 6:8 7:24 16:21 37:10 63:17 69:4 96:17 116:23 148:24 151:1
days 26:4 35:11 78:25 79:2,6 121:12

149:4,5
DC 51:14 92:3
deadline 145:19
deal 34:5 105:22 132:17
dealing 47:12 100:14 158:22
deals 123:8
dealt 146:1
December 140:22,23 152:17
decided 19:6 110:20 135:21 141:5 166:2
decides 95:17
decision 6:21,22,23,24 7:2 95:19
decrease 147:21,23
decreased 150:17,18
decreasing 153:13
dedicated 47:9
deemed 111:7
deep 35:14
deeply 81:11
defined 75:3,13
definite 101:22
definition 13:19,23 14:3,7,9 15:5 99:12
definitions 14:12,16 46:21 75:4 83:15
delete 140:15
deletion 48:7
deletions 76:9
deliver 91:6
delivered 131:17,20,21
demonstrated 97:21
departed 18:9
Department 7:10,12 8:16,18 69:20 97:13,24 98:18 99:16 106:25 108:7 109:17,25 110:2,4,16,17 111:1,2,3 112:5 121:8,12 129:18 138:19 140:12 143:14 154:12 161:9
Department's 6:22,24 93:17 132:17 136:11



Department/legislation/ rulemaking 8:1
departure 30:9
departures 82:8
depends 32:7 46:19 105:21
DEPOSITION 167:25
design 48:18 75:3,12 77:21 78:2,16 117:14 165:16
designated 121:25 122:19,24 123:1
designed 56:3 117:15
desire 159:21
destination 101:23
determine 130:16 135:3,19 167:10
determined 140:19
device 20:18 36:11,12,15,18,25 37:1 39:4 42:12 43:3,21 45:14 47:15 57:3 62:17,21 63:4,5,6 64:16,17 65:6 73:17 76:14 95:2 107:20 113:24 114:9,10 116:21 117:8,10 118:8,10,11 119:9
devices 73:14 75:21 76:4,10 108:17 115:3
devise 43:17
diagram 60:16 125:21
die 136:1
die-cast 28:9
diesel 77:18
difference 25:21 39:7 45:6 119:17 121:14 129:15 152:25 153:1,7
differently 155:16
difficult 17:21 71:2 84:13 89:17 93:22 132:13 144:5
digit 13:7
digits 13:5
direct 151:2
direction 32:19 53:25 149:19 154:15
directions 66:3
directly 85:10
director 110:11 121:23 122:23

152:16
director's 122:1
dis 161:12
disagree 29:6,9 101:8 134:11,17
disassemble 164:19
disassembled 164:21
disclaimer 15:23
disconnect 36:5,7,8,9,10,17 38:14 40:3,11,22 41:6,9,11,15,23 42:1,2,13,14 43:2,9,13 44:3 45:18 46:6,7,8,9,15 54:9,11,13 55:9,10,11,14,23 56:2,14,18 57:5,21,22,23 58:16 59:23 60:6,14,16,17 64:21 73:15,16 76:20,22 77:7,8 108:18,20 109:10 112:16 113:9,10 114:11 115:14,18,19 117:16,24 118:1,3,11,14,17,23
disconnecting 22:17 31:12 36:2,3,4 37:17 55:1
disconnection 149:1
disconnects 23:2 36:5 38:17 117:17
discretion 49:9
discuss 52:5,7
discussed 12:5 27:20 51:24 99:20 108:6 140:16
discussing 33:23 140:11
discussion 23:7 35:18,24 44:14 45:4 66:20 74:10 99:22 100:2 141:11 143:18,19 158:4 167:20
discussions 149:18
dissensions 73:23
distance 31:22 92:21,22 102:22
distribution 75:8
disturbing 106:22
divide 43:3
division 130:15
document 13:1,8,11,14,18 14:13 16:23 22:10,15 23:4 33:19 47:19,23 48:2,5,11,13 66:21 72:7 76:13 78:8 121:11,20 123:6,14 125:20 131:4 142:4,17,21
documentation 29:22 78:2

documented 158:16
documents 122:6 124:22 126:7 150:21
doke 146:16
Dominic 69:11
Don 6:15 27:9 66:2 67:14,21 68:1 133:20
Don's 66:1
door 26:8 167:17
doors 113:18
double 132:19
double-checked 48:12
downloading 15:22
downloads 15:22
draft 93:19 112:4
drafting 137:20
drains 53:3
drastic 156:22
drawing 92:13 97:4,5 101:18
drawn 118:19
drink 129:3
drive 126:25
driven 36:1
drives 84:8 114:16
driving 44:22 104:3
drop 20:10 77:24 113:10
dropping 118:4 154:7
drunk 129:3
ducted 90:12,14 91:1
ducting 103:24
ductless 81:17 108:22 164:8,12 166:15
ductwork 103:24
due 116:1 150:12,19
dumbing 45:7
dwelling 36:3 40:24 52:18 76:21 78:22 82:16 84:23 105:4 113:25



dwellings 80:14

E

e-r-o 160:14

earlier 96:25 140:16

easier 70:13 119:16,21

easiest 28:5,10

easy 55:6 70:9 88:1 97:3 118:11

echo 143:25

economy 149:16

ECOR 148:21,23

Edgewood 47:7

editing 77:4

edition 11:3,8

editorial 47:22

edits 22:12

educating 144:8,9

education 60:4 73:1 104:16 161:20

effect 49:21 56:3 60:17 73:17 137:5
140:15 154:5

effective 12:22 140:21

effectively 100:9

efficiency 100:12,17,20

efficient 70:22 71:18 90:25

efficiently 73:2

effort 51:5 150:5,19

egress 5:12

eighth 167:4

elaborate 154:24

electric 11:14 12:13,16 17:15,16
18:8 36:1 40:7 47:19 48:15,17,19
54:8 75:12 80:10 84:19 90:22
136:23 137:3,17 139:3,6,10

electrical 5:14 6:1 9:5 11:4,5,17
12:3,4,12,22 14:4,8,9 19:18 22:11
23:6,9,14,22 24:16 52:16 73:18
103:4,10 107:3 109:19 111:19
121:13 122:3 123:17 128:3 136:8
138:16 139:10,11 140:13 142:20

143:7 144:2,4 147:7,9 148:5,16
149:1,21 150:13,23 152:22 161:8
164:7 165:6,17

electrician 62:12 63:15 64:14 81:2,
19 84:4,19 86:6 94:14,16 97:21
102:23 115:22 129:1 164:3

electrician's 103:6

electricians 13:22 42:11 45:5 54:12
62:19 64:5 72:12 80:7 81:10 93:25
96:18 98:2,7,8 103:10 104:25
144:24 145:25 146:7 161:10,16
165:8 166:9

electrification 164:14

electrify 163:5

electrode 40:16 44:7

electrodes 41:24

electronic 15:7 16:21,25 17:7 79:18
80:2,3

electronically 15:19 149:7

electronics 114:17

element 103:7

elevator 145:25

eliminate 30:19 87:22 88:2 135:15
140:16

eliminated 13:10 15:14

Ellensburg 48:24

embedded 82:13

emergency 36:2,3,9,10 37:17 38:17
40:2,22 41:6,9,10,15 42:2,14 43:13
46:8,9 76:20,22 77:7,8

employ 96:20

employer 122:25 123:1,9,10

empty 82:18,20 137:23

EMT 23:8 24:2,5,17,25 25:22 26:20,
21 27:12 29:10,18,20 30:15 32:1,4
33:6,9,10 35:21 69:23 73:20

EMTS 24:1

enclosure 38:25 39:4 41:3 46:5,19
74:3,5,7,9,17

encompass 57:6

encountered 81:10 84:12 85:4

encountering 77:13

encourage 21:14

end 22:25 45:2 56:22 65:19 66:16
68:20 70:16 100:1 109:18 122:15
125:8,20 153:8

ended 7:14

endless 67:9

ends 24:15 26:13

energy 81:12 86:3,6,19,20 87:7
90:7,16,17,19,23 136:7,16 137:4

enforce 18:16 20:18 99:7 136:14,16
137:1,8

enforced 134:9

enforcement 19:16 42:5 146:6

enforcing 42:17 66:22

engineering 27:13

engineers 9:6

English 123:24 128:1,4,9 129:25
130:1,4 131:6 132:23,25

ensure 24:19 32:16 42:6 96:20
106:14,20 150:14

ensured 32:17

ensuring 26:14

enter 4:25

enterprise 85:13,24,25

entire 33:4 57:3,6 71:1 79:13 86:13
93:25 108:23 149:12 166:15

entirety 97:6

entities 143:6

entry 31:18

equal 130:15

equate 109:12

equation 27:18 81:18

equipment 31:7 40:20 41:7,11,14
42:7,15 44:6,10 45:11,12,19,23,24
46:1,3,10,11 54:5 57:9,18 58:3
60:16 62:13,15 63:1,5 64:11,12,13,
15,23,24 73:10,14,18 90:5,6,7 92:9,
23 103:2,12,13 107:21,23 108:3
109:6,7,9,10 110:21 112:18 113:11
114:5,15,16 115:13,14 116:8,15,16,



18,19,23 117:2,13,15 118:5 139:10
162:17 165:13

equivalent 13:23 14:6,7

essentially 14:16 23:15 36:4 49:5
53:1,6 60:9 75:1 77:5 78:11,15
80:25 89:1 103:25 137:7 145:20
164:4,21,23

evaluated 73:10

evaporator 59:23

Everett 157:13

everybody's 106:5

evident 111:23

exact 64:23

exam 97:22 124:1,2,3,9,12,13,15,17,
20,21 125:4 126:21 127:7,12,15
129:17,25 131:15,17 132:6 141:20
144:25 145:2,5,7,8,11 146:2 164:7
167:9

examination 97:20,25 98:20 99:3
123:15 126:9

examinations 97:15 123:17 167:1

examined 97:17

examples 41:8

exams 131:22 132:1 145:3,15

exceed 63:4 158:11

exceeding 47:20 71:4

exceeds 68:8

exception 36:24

exchange 139:4

exclusive 59:10,11

Excuse 31:8 33:16

exercise 133:6

exist 30:9 123:20

existed 89:5

existing 51:7,9 113:6

exists 14:8 156:13

exit 4:24

expand 96:12 167:5

expanding 58:9 167:9

expect 20:23 149:18

expenditure 153:3

expenditures 147:11,12

expenses 153:22

expensive 42:23

experience 28:17 109:19 125:2
159:6 161:15 162:18 164:18

expert 131:4

expertise 109:20 146:18

expiration 121:12

explained 110:14

explaining 146:20

explains 74:6 101:18

explanatory 125:20

explore 69:25

explored 15:7

expose 26:24

exposed 32:12

extending 119:20

extension 8:4 21:6

extent 120:14 159:1

exterior 32:2 37:18 43:22 52:18
53:12

extra 27:6 31:22 32:15 130:18
155:1,7

extreme 101:10

eye 4:21

F

face 18:1,3 164:16 166:5

face-up 20:3

faced 81:20 108:2

facilitate 107:22

facilities 75:8 85:8

facing 104:4

fact 13:4 22:21 27:12 31:21,22 55:4
76:25 98:1 105:9 106:23 107:22
108:16 114:14 115:16,17 124:20

132:21 145:14 152:6

factor 36:21 117:18

factory 115:20 146:1

failing 66:10 148:19 167:11

failure 167:2,3

fair 25:8 135:12 140:6 158:16

fairly 29:18 124:14 151:11

fall 96:24

falls 60:13 99:21 104:24 117:8

familiarity 108:15

families 4:21 5:20

family 138:11

fan 48:20 49:6,19 133:15 134:1,5,15
135:6,11,19

fan-rated 49:15 134:23

fans 49:10,19 135:17

fast 151:13

faster 11:23

fault 23:18 24:1,3,11,21 25:1,14
26:25 32:5 36:11 40:18

faults 24:2

faulty 159:8

favor 7:4 108:8 110:9 141:12 167:21

feature 108:20

federal 126:18,24,25 127:4 130:19,
24 146:3

fee 79:16,17 80:4 140:13 154:3

feed 94:13

feeder 22:17

feeders 45:6

feeding 85:23

feel 23:21 34:22 98:11 106:16 113:1
120:9,22

feelings 30:6,16 99:18 112:8

feels 61:14 120:8

fees 79:23,25 80:1 140:15,16

feet 31:14 37:7,8,23 48:25 49:5,13
53:3,20,23 56:12 57:12,13 69:5 84:7



107:20 114:4	flammable 26:24	frustrating 107:8
fence 62:2	flat 128:22	fuel 75:2,6
fewer 81:15	flexibility 38:6	fulfill 159:2
fiberglass 74:15	floated 46:17	full 4:11 17:24 111:3
field 19:19 56:2 66:15 68:15,25 70:13 71:17,20 115:6 148:21,22 149:19 164:16	floor 6:21 18:19,23 21:15 32:10 37:13 52:12 104:7,19 163:24	full-blown 58:14
figure 30:24 61:5 71:2 83:4 122:13 146:22	floors 18:25 80:9,11,18,19 91:12 94:13	fully 133:12 152:22
figured 11:20 55:4	flowing 40:19	fun 44:12
figuring 14:11	flows 42:6	function 165:13
file 145:22	fluctuation 154:17	functional 144:16,18
filed 26:5 140:12	focused 148:17 149:9,11,14,15 150:19	functionality 85:10,18
filing 22:3 35:11 140:22	focusing 149:19	fund 147:9 151:23 153:13,16,18,20 154:6 155:2
fill 159:19	follow 25:9 29:25 30:19 54:24 71:25 115:10	funded 155:6,7 156:1
filled 154:22	food 128:18	furnace 59:12 103:22 107:18,19 113:7 117:24
filling 101:25 139:24	foot 85:6,12 135:10	furnaces 90:22 115:1 119:10
final 35:6 70:24,25 71:16	forced 90:11,22	furniture 20:8,11 21:16,22,23
finally 11:20 107:7 144:17	forces 104:4	fuse 40:11
financed 39:21	forecast 153:9	fused 165:14
find 13:1 14:18 16:15 18:20 20:8 29:21 31:3 51:9 59:20 66:7,10 87:4 94:21 97:22 99:9	forecasting 153:2	fuses 73:9,12 118:4
finding 25:5 79:2 114:25	forgotten 26:19	future 11:1,10,11 18:13,17,20 19:1, 25 20:1 68:13 82:16 134:1,18 138:9 156:8
finds 68:7	forklift 139:12	FY2024 147:17
fine 35:21 163:15	form 90:2 123:20	FY24 147:13
fire 26:23 32:5,9 84:8 87:13,15,21 107:19 113:6 136:22,23	formatting 15:20	
fired 90:5,7	forms 120:21	G
firefighters 84:7	forward 8:18,20 19:8 22:5 30:5,7 72:19 73:21,24 106:12 110:3,5,7 136:1 141:5,6 158:8 160:24 163:1	gain 61:5 100:18 144:5
fireproof 80:18	found 17:13 18:3 54:15 79:5,18 96:5 108:16 124:13 130:19 139:7 143:6 161:5 162:7	game 27:5 39:19
fiscal 147:13	frame 80:19	gap 13:17 102:1
fish 105:6,7	frank 161:11	garage 37:10,13,14,25 38:3
fished 101:2	frankly 161:11	gas 77:17 90:5,7 107:18 113:6 115:1 117:24 119:10
fit 67:24 83:1	free 32:11	gave 111:3
fittings 23:8,17,20 27:11,13	fringe 83:7 84:13	general 7:9,12,13,16 12:1 89:7,8 118:23 150:14
fix 25:13 65:12	front 10:9 37:5 106:25 144:19 165:3	generally 20:11 35:10 36:10 37:4 53:11 60:15 64:22
fixes 164:23		



generator 22:21 77:17
gentleman 128:15,20 143:2
get all 9:8 37:13 71:14
gist 107:11
give 4:15 34:12 37:2 56:8 78:1 94:25
 111:14 129:18 130:18 134:7 138:18
 141:17 149:16 150:6 159:17
giving 101:9
Glad 154:21
glass 142:8
goal 148:9 149:3 154:5,13,18
gobbledygook 68:23 71:5
good 4:6 16:15 17:17 23:7 26:12
 28:19,22 30:7 50:8 52:22 87:25
 105:10 116:7,23 120:6,17,23,24
 129:14 144:16 150:3,5 151:13
 155:12 156:5 157:16
googled 96:2
government 127:4,5 145:21 156:25
Governor's 105:15 111:25 152:18
grade 53:3 82:14
Grand 157:13
Granted 38:3
Gray 10:21 11:24 12:2 19:11 20:2,17
 21:5 25:9 26:11 28:11 29:24 33:7
 34:1,17,19 40:9,10,25 41:4,18 42:5
 51:4,18 67:20 71:5,8 83:12 113:20,
 21 114:3,6,13,18 115:2,15 133:19
great 4:19 9:7 65:18 74:13 129:14
 144:23 162:3
greater 13:7 80:8
greatly 140:8
greenhouse 81:2
grooves 129:2
ground 6:25 23:11 24:13,19 28:1
 41:24
grounded 25:10
grounding 24:12 25:10 32:17
 40:13,15,16,25 41:16 44:7 46:14,16
group 50:13 64:5 65:5 107:4 139:2
 166:6

groups 138:3
grow 82:3 164:10
growing 161:23 163:4,7 164:9
growth 140:19
guess 7:24 10:4 26:7 27:25 28:20
 30:6,16 33:14 50:11 57:7 119:21
 155:24
guidance 19:14 20:4 67:25 93:19
 134:7
guidelines 163:17 166:4
guy 128:24 129:6
guys 4:17 32:19 66:24 67:13 98:16
 99:17 120:5 129:12 134:17 154:25
guys' 99:24

H

habit 67:8
half 85:20,21 132:11,13
halfway 25:7 73:25
hand 11:22 16:21 103:6 162:19
handle 24:2
handler 54:19 91:2,4,5
hands 145:13
handshake 62:11
Hanford 120:19
hang 140:4
hanging 18:5
happen 43:4 62:14 116:12 151:15
happened 14:22 51:5 105:9 155:10
 156:23
happening 51:18 107:25
happy 7:19 25:5 29:4 120:7
hard 28:7 29:17,21 132:9 152:5
 155:14
hate 16:2
hazard 18:4 23:12 28:16
hazards 5:11 28:16
head 4:23 26:18 35:4 41:13 43:25

48:8 54:22 56:12,15 58:8 59:22 60:6
 69:10 94:13
head-in 104:9
heads 19:5 42:4,12 54:10,18,19
 56:25 57:1,19 58:4,8,11
healthcare 162:12
hear 38:16 127:18 154:21
heard 5:17 7:17 65:8 70:3,12 161:1,
 12
hearing 7:6 22:7 28:13 31:8 33:22
 63:14 73:23 110:15 140:23 141:12,
 14 144:12 146:14 167:24
heart 165:5
heat 58:15,17 59:8,12 63:2 91:4
heating 58:16 90:5 96:3 102:3 103:7
 163:6
heavy 95:1
held 4:1 14:24
helps 71:20 72:19 78:3
hey 95:17 117:9 128:22 132:11
high 45:1
high-capacity 5:1
higher 155:19 162:8
highly 59:13 84:13 145:12,21
hill 136:1
hinted 140:14
hire 95:18 152:20,23
hired 151:13
hiring 156:7
historical 29:11
historically 10:4
history 67:15 80:13 109:22 155:22
hit 10:2 11:24 28:7 156:14
Hoff 93:12,14 110:13
hold 135:5
hole 6:3 20:10 142:20
holes 24:22
home 37:4,9,11,14 39:16,21 42:22
 53:8 79:4 82:7 84:18 85:5,7 109:1



homeowner 72:11 109:7 134:3

Homeowners 147:25

homes 6:6 20:24 40:3 84:14 90:13
109:3 117:18,19 163:5

honestly 43:12

hope 19:19 71:12 127:10,11 131:7
162:25

hopes 7:18

hot 91:7 103:7 146:15

hour 105:24 151:1

hours 125:2 148:8,11,13 150:13,20
159:5 161:15 164:5

house 37:5,14,20 39:16 40:15 64:13
81:2,3 93:15 117:25 135:4 138:25

housekeeping 13:9 17:1,9 22:9,13,
14 47:24 48:4,14 50:25 52:1,10
121:2,19,21

hovering 144:25

HTML 16:13

huge 24:5 39:14

Hungarian 128:15,20

Hungary 129:1

HVAC 53:8 56:7 57:9 58:14 59:6,7
60:4 62:12,15 63:16,19 64:20 73:14
86:14,24 87:12,15,20 89:23 90:2,9
93:18 96:2 99:8 100:11 111:16,17,
18 115:18 137:5 159:4 161:6,22,24
162:13

hybrid 104:8,10

hydrogen 75:6,8

I

I-5 75:9

I-90 75:9

IBC 83:18

ID 145:5,11

Idaho 164:3

idea 21:8 24:1 28:22 49:21 56:19
69:14 105:10

identifiable 122:10

identified 28:17 153:6

II 80:16

illuminators 49:19

Illustrated 14:20

imagine 118:10

impact 83:16

impasse 62:18

implemented 13:21

implementing 139:8

implements 111:6

implore 166:6,14

importance 10:20

important 27:16 162:20 163:15
165:6

imposed 139:16

impossible 138:17

improve 71:20

improves 70:20 71:17

inability 127:13

inbound 151:2

include 110:5 151:2

included 111:14 151:15 159:5

includes 86:24 87:12,19,24 158:15
161:9

including 150:19

incoming 150:22

inconsistency 53:19

incorrect 68:22

incorrectly 143:1

increase 140:13,18 147:15,18
148:1,3,6 150:11 152:24 153:15
154:3,6,8,11

increased 79:6

incredible 91:8

indexing 145:18

individual 6:3 38:2 71:24 90:15
122:25 123:10 130:21

individuals 62:4 66:9 106:14

indoor 54:18 92:23

industrial 59:21

industries 7:13 93:6 161:9

industry 5:22 9:14 21:4 34:20 35:3
49:16 56:7 60:4 89:25 93:18,20 94:6
95:14,21 99:8 102:4,5 104:2,20
105:1,14 106:24 111:21 115:25
136:18 164:10 166:6,7,17 167:8

information 15:12,15 19:18 57:11
67:19 108:14 114:24 125:20 126:10
127:11 140:3 141:21,25 142:3,13

informational 11:6

infrastructure 139:3,6

initial 64:14

initially 58:7

initiatives 105:15 111:25

injectable 42:6

injured 6:2

ink 120:15

input 69:9 96:22 98:16

inputs 71:9

inquiring 126:20

insert 16:1

inserted 45:20,21

inserting 76:8

inside 22:17 24:1 31:16 32:3,5,8,15
53:1 56:11 58:16 108:18 116:14,16,
18,19,23 117:5,10

insides 158:15

inspect 20:22 63:9 137:1,18

inspected 101:2,4 104:14

inspecting 135:5

inspection 68:6,25 70:17,21 71:17,
21 72:20 77:22 143:4 144:4 148:2,
24

inspections 19:16 100:24 105:2
148:8,10,12,14,16 160:7

inspector 21:20 49:11 56:13 68:7
133:25 134:13 135:23 147:7 148:24
154:22



inspectors 5:14 9:6,7 17:21 19:20
20:8 21:14 24:24 38:22 54:12 65:9
66:14 70:13 72:18 73:2 85:4 89:18
100:22 107:3,7 134:7 152:22

install 18:12,13 20:20 23:15 37:11
38:14,24 44:11 63:6 64:2 71:13
81:3,20 82:18,20,22 83:2,5 86:8,11
88:15 94:11,13,20,25 95:4,18 101:5
107:20 109:11 112:17,24 115:22
116:16 143:8

installation 19:16 32:23 60:10
64:13 70:21 71:1,25 82:23 86:24
87:1,8,12,19,23 88:2,8 95:7 96:21
97:18,23 100:20 106:20 116:22
119:6,7,9 133:13 161:24 163:4,11
164:20 165:17

installations 28:18 29:17 60:9,12
61:23 62:1,4 70:18 90:3,12,21 91:11
99:5 106:8 108:1 135:12 160:6
162:13

installed 20:9 29:18 32:7 38:19
39:10 49:7 59:15 66:2 94:23 100:18
102:10,20 104:15 109:2 115:6 116:5
118:4 137:10 138:5 158:13 162:22

installer 19:24 34:3 39:14 44:9,10
49:11 62:12 68:13 78:4,6,23 134:3

installers 17:21 23:22 28:7 37:16
38:21 42:18 45:8 74:11 76:17 96:2
102:11 134:8 144:9

installing 90:18,22 101:1,9,20
104:8,20 161:4

installs 78:6 105:7 162:2

instance 14:20 15:1 18:25 28:2 33:2
37:2 53:6 59:24 70:24 82:17,24
103:22 104:23 105:6 108:22 109:1
126:20 132:24 136:22 137:17
144:24

instances 54:16 97:2

instigator 34:1

instruction 102:21

instructions 60:15 61:1,4 97:7
115:11 116:23

instructor 157:24

insufficient 159:12

insulated 27:21,24 28:1

insulation 81:15 105:8

insurance 116:8

insurances 106:19

intact 33:5

integral 115:19 165:11

integrated 141:21 142:1,7 143:3,9,
19

integrating 76:2

integrity 24:19 32:23

intended 33:12 131:9 159:9

interaction 93:18

interconnected 77:12,14

interest 138:3

interested 91:19

interesting 14:11 47:9 55:17 56:5
59:19 83:22 84:1,9 118:16

interior 41:22 42:21 52:17,20 54:22

interpret 49:12 130:17,20,21
131:23,24

interpreted 131:4 132:2

interrupting 40:23 114:7,20

interval 60:2

introduced 48:19

intrusion 87:13

intrusive 135:22

involved 5:6,12 8:23 81:18 93:3
94:6 126:18,24 151:18 156:17

ion 77:15

irrelevant 25:12

Isaacson 21:11 39:13,14 42:20

island 19:2 20:21 21:9 49:13

islands 17:22,24 18:1 21:2

issue 67:9 71:10 72:14,22 95:20
104:6,18 105:22 106:10 109:8,21,23
110:8 117:20 119:15 139:17 144:10
150:3 158:5 159:11

issues 24:4 26:2 28:25 50:20 79:5
116:1 119:11 137:25 154:11 159:8

item 4:13 7:25 67:14 141:19 144:12

147:3 150:9 157:6 164:15

items 9:25 10:2 35:6 150:8,10,16

iterations 111:20

J

Jack 72:22 96:17 106:5

jacket 92:7

jacketed 92:5

January 140:24 157:8

Jason 25:13 96:16 106:8

Jenkins 4:6 6:9,18 7:6,22 8:5 9:24
10:8,13,18 23:25 25:2,8,23 26:7
27:8 28:20 29:3 30:4 33:14,17 34:7,
21 35:1,5,18 38:12,19 39:9 40:9
42:25 43:6,20 44:2,9,14 47:11 48:1,
3 49:24 50:4,10,19,23 51:1,16,22
52:4,8,11,14 54:1 56:24 57:16 58:5
59:4,15,25 60:5,19 61:9 63:12 67:13
68:2 69:2,7,14,19,24 72:1,16 73:23
74:19 79:9 83:10 85:1 88:5 91:24
92:3,7 94:7,18,20 96:9,15,22 98:22
100:3 102:7,14 105:19,24 106:1
107:9 112:13 113:3,20 116:9,11,20
117:6,22 118:22 119:1,14,24 122:17
129:9 131:2 133:1 136:3 139:18
140:2,6,7 141:3,11,14 142:16,23
144:11,15 146:11,13,17 147:1,3
157:2,6,17 160:12,15 163:20,23
166:18 167:13,16,20,23

Jensen 21:19

job 62:12,13 63:19 64:7 70:24 72:19,
24 73:2,4 79:8 120:6 126:6 128:1,
10,18 129:2,4,6,14 161:18

jobs 151:15

jockeys 154:17

Joe 122:12

Joe's 122:13

John 7:11

joists 32:10

Josh 161:1

Joshua 157:20,21 160:14

journey 13:22 159:2

journeyman 73:5 131:12 164:3,7



journeymen's 126:3

judgment 133:25

July 6:12 7:17 8:15 121:18 140:22
153:8 154:5 157:11,14,18

jumper 23:15,17,24 24:20 25:12,22
28:2 30:15

jurisdictions 138:15 143:11,15,20
144:3,9

K

keeping 30:20 31:19 148:9 155:24

Kennewick 128:23,24

Kerry 63:12

Key 148:7

keyed 17:12

kicked 7:18

kid 18:5

kind 10:2 14:9 17:12 21:21 22:25
23:6 25:5 26:8,9 47:15 48:22 49:4,8
57:11,19 58:14 59:22 61:1 62:5,6
69:13 75:10 76:19 82:3,9,21 83:6
84:12 89:7 91:25 101:18 103:11
105:17 106:7 107:1 108:3 109:22
112:7 113:7,8,12,18 114:21 122:20
128:14 143:20 144:1 159:14

kinds 17:6 29:13

knots 39:2

Knottingham 29:1 30:23 34:11
50:16,22 71:23 96:1 98:3,9 113:4
117:23 118:13 119:14,15 122:18
123:4,7,11 130:9

knowing 130:1 140:10

knowledge 9:3

L

L&i 157:23 159:13

L&i's 96:4

L-A-R-S-O-N 164:1

L-O-G-U-E 160:20

lab 152:2

label 41:23 42:14 44:5 45:17 46:3,9
77:7,9 92:8

labeled 17:14 42:1 45:11 58:3

labeling 41:5,8 43:25 57:8,9,22

labels 41:10

labor 7:13 35:2 38:6 136:18 161:9

laborious 9:22

labs 152:2

lack 73:1

ladders 84:7

laid 165:19

Lake 157:13,15,18

land 144:4

language 12:11 23:1 29:25 48:15
51:7 62:17 124:2,6,10,23,24 125:25
126:2,7,16,18,23,24 127:5,21
129:12,25 130:8 131:5,7 132:13,18,
22,23,24 134:6

languages 127:3,24 128:5 131:11
132:1

large 38:4 149:25 159:24

largest 164:13

Larry 8:1,2,8 10:7,12,16 11:13 19:17
20:6,20 21:7,18 24:12 25:4,20 26:4
27:22 28:5,12 30:8 33:16 34:25
35:2,8,20 38:17,21 39:11,18 40:21
41:2,5,19 42:8 43:5,19,23 44:4,12,
15,20,23 45:9,15,17 46:23 47:17,18
48:2,4 50:3 51:25 52:3,6,9,13 54:3
57:8,17 58:20 59:9,17 60:1,8,22
61:11,12 62:6 63:13,17,21,24 64:8,
10 65:11,14 68:10,20 69:4,22,25
70:2,7,15,23 71:7,12 73:6,25 74:21
79:12 83:22 84:6 85:2 86:16,17,20
87:4 88:1,8,14,18 92:2,4,10 94:17,
19 96:25 97:2,12 98:6,14 99:2
101:14,18 102:12,15 104:12,22
107:14,15 109:16,22 111:9 114:2,4,
8,14,22 115:10,17 116:9,10,18
117:1,12,23 118:7,16 119:3,23
120:13 123:2,6,10,13 125:24 126:8,
15 127:8,19,22 128:2,7,14 131:3,13,
20 132:9 133:1,3 136:13 138:24
139:19,23 140:4 141:18,19 142:22
144:15 146:12,16,19 147:2

Larry's 166:25

Larson 163:21,22,25

lastly 163:21

late 140:23 146:5

latest 11:8 12:8

Lathrop 137:13 139:21,25

laundry 85:17

Lauren 139:25 140:10

law 14:4,8 15:16 16:4,9 94:15 99:1
103:3 125:9 126:12 130:19 146:4,5
149:25 150:12

laws 14:23,24 15:24 96:8 103:2,4,8
123:21 124:23 126:18,24,25 127:13
128:12

lawyer 123:25

lay 156:24

laying 58:11

layoff 156:10

leadership 155:16

leads 152:23

learn 9:18 146:19

learned 54:15 84:6 125:18 133:6
151:13

learning 13:21 129:24

leave 28:22 30:18 33:5 34:5,12 35:6
49:8 71:21 118:24,25 119:1

leaves 76:21 133:24

leaving 31:23 36:7 41:21

left 72:7 89:7 104:21 120:17

left-hand 11:21 13:13 146:23

leg 135:14

legal 123:25

legislating 110:24

legislation 13:20 93:10 109:21
112:4,12 139:6

legislative 110:21,22 142:6

legislators 93:12,13 110:11

legislature 106:23,24 109:17
110:19 111:5 112:20 142:5 161:7



legitimate 30:21 31:2
legs 17:23
length 35:25 36:13,16 37:6,7,22
 53:21 108:6
lengths 38:9
letter 93:11 110:11 125:17
letters 151:8,10
letting 143:16
level 13:22 45:7 94:16 159:2
levels 106:19 140:20
liable 130:20
license 98:21 126:6 148:5 158:24
 162:16 164:5
licensing 111:17 148:18 149:9,21
 150:9,16,21,23 151:5,20 152:4
 164:2
licensure 94:24 116:13 119:2
life 56:22
light 10:14 72:9 91:11 135:6
lighting 82:8 83:6
lights 49:17
limb 116:5
limit 38:8,9 80:10
limitation 36:25 92:15,24 158:13
limitations 158:10
limited 5:12,15,17 37:6,22 39:8
 51:13 86:3,6,18,20 87:6,8,9 92:20
 93:4 98:7,24 113:25 115:9
limiting 31:15 36:16
limits 36:13 40:6
linear 89:13 119:13
lines 18:18 27:10 84:10 104:1
 108:13 118:19 143:3 151:2 162:4
list 4:13 35:6 59:5 145:14
listed 20:19 46:2 92:9 134:15 166:4
listen 66:24 67:2
listening 66:20 143:1
listing 20:6,14 46:19 91:25

lithium 77:15
littered 49:21
lived 128:17
living 82:16
load 16:16 28:6 39:15 40:19 92:14
 108:19 118:11
lobbiest 160:19
lobbyist 106:23 112:20 160:18
lobbyists 160:19
local 60:18 73:13 107:20 115:13
 119:9 144:6 159:23
located 39:16 46:11 52:21 82:14
locating 31:21
location 20:7 22:18 31:12 52:21
 53:17,24 82:15 95:1 134:14 135:8
 157:7
locations 18:10 52:24 100:22
 133:12
lock 24:10,12
locked 11:18 35:17
locks 47:8
Logue 160:17,18,21
long 5:23 23:14 30:15 33:25 45:23
 56:6 63:17 65:4,18 69:4 80:23 81:19
 93:17 99:21 102:9,10 118:9
long-standing 77:1
longer 15:3 36:20 37:21,22 49:16,17
 53:2 60:7 73:9,12 79:2 90:10 97:9,
 12 110:24 121:3 131:5
longest 23:5
looked 17:18 18:16,23 29:10 55:3
 84:2 96:1,4 97:8 112:2 135:2 137:16
 155:4
loop 38:22 39:12
Loren 141:17
Lorin 137:13 139:20
loss 100:19
lost 82:9 131:10 152:6
lot 5:1 9:20 15:12 17:20 20:23,24
 22:22 23:7 38:1 39:22 42:4 45:21
 52:9 60:2 62:23 63:21 65:9,10 68:24

71:19 75:6 89:19 93:17,18,19,20
 95:24 99:9 108:14 109:3 111:20
 112:2 114:16 117:5 120:16 129:3
 130:14 132:14 133:6 138:6 143:22
 144:7 149:19 155:10 159:24 160:5
 161:12,19 162:9

lots 62:1
louder 133:9
low-voltage 86:25 87:13,15,21
lower 22:25 83:9
lug 23:20
lunch 101:13 105:22 106:5

M

machine 54:17,21,24,25 55:14,20,
 22,24 56:16 57:6 58:22,23,24,25
 85:23 97:1
machinery 56:3
machines 55:21
made 13:2 16:11,24 20:11,12 30:6
 42:4 55:4 61:8 70:3 80:21 85:22
 100:9 103:19 110:23 121:6 125:5
 138:2 148:4 151:3,17 152:25 153:1
 155:7 161:13 165:23
maid 38:14 45:25
maids 39:5 41:2
mail 127:1
mailing 151:8,9
maintain 16:3 86:11 107:14
maintaining 24:9 32:22
maintenance 87:2,10,14,20
major 55:22 116:5
majority 29:6 82:6 103:23
make 4:20 10:1 12:15 15:5 18:13
 19:4,22 23:12 28:13 29:14,15 30:12
 35:4,11,23 43:20 45:22,23 49:10
 52:25 55:5,6 59:8,17 60:19 66:11
 70:13 72:6,19 73:1 78:5 81:14
 85:24,25 91:21 93:22 97:18,23
 99:17 100:17 112:2 114:23 119:17,
 18 120:5,6,10 126:16 128:11,12
 131:8 133:5,25 134:18 135:16
 137:10 139:8 144:21 153:7 162:21



163:9,18 164:22 166:12 167:16
makes 39:21 52:16 53:25 64:14
66:13 67:21 70:18,21 71:17 76:19
81:8 119:16,22 123:11 130:6 164:24
making 24:19 29:9 35:12 36:19
38:11 46:22 76:16,17 99:1,4 107:25
108:3 119:13 120:4 140:11 154:11
management 98:13
manual 13:2 48:18 165:17,19
manufacture 60:10 163:11
manufactured 107:24
manufacturer 60:11,13 61:4 115:7
117:2,7,8,9,12
manufacturer's 60:20,23 61:1 66:3
73:9 97:7 102:20,24 115:11 158:14
manufacturers 21:13 57:11 92:10
112:21 114:15 116:20 117:13,16
158:14 166:11
manufacturing 117:17
March 138:10
market 92:19 117:21 160:5 167:8
marks 28:8
married 14:10
masonry 82:13
mass 83:23
massage 35:12 76:7
massaged 22:19,20
massaging 22:22
matches 64:18
material 124:5 142:8
materials 26:25 123:18,19
math 62:15 63:25 81:18
matrix 167:9
matter 7:15 105:6 112:9 132:11
152:6
max 114:2
maximum 62:17,21 63:4 68:8 70:10
71:4 73:17 107:22
Meaning 90:10 97:6 110:12

means 13:24 22:17 24:20 31:12
36:2,3,4 37:7,18 41:23 60:18 68:2
74:5 76:20 77:4 121:9
meant 55:21 142:1 156:11
measures 106:13 148:7
mechanical 103:16,24
mechanically 92:20
mechanics 145:25
mechanism 111:7
medical 126:15
medium 25:6 51:7
meet 21:13,16 95:21 145:19
meeting 4:8 7:17,18 40:12 140:14
141:23 143:2 157:7 159:22 167:21,
24
meets 56:16
member 6:13,14,15,17 10:21 11:24
12:2 19:11 20:2,17 21:5,11 25:9
27:10,17,19,25 28:11 29:1,8,24
30:20,23 31:5,11 33:7 34:1,17,19
39:13 40:9,10,25 41:4,18 42:5,19
44:15,21 45:3,13,16 46:20 50:16,22,
25 51:4,18 61:10,13 62:25 63:12,13,
18,23 64:4,9 65:8,12,23 66:6 67:6,
10,11,14,20 68:5,17 69:11,16,17
70:2,12,20 71:5,8,16,18,23 72:13,18
83:12,18 84:5 86:16,18,21 87:6,22,
25 88:3,7,11,17 93:14 96:1,16,24
98:3,9 99:19 101:14 104:5,13
105:18 106:4 109:16 111:5 112:13,
14 113:4,20,21 114:3,6,13,18 115:2,
15 117:23 118:13,25 119:14,15
120:9 122:18 123:4,7,11 125:23,25
126:11 127:6,17,20,25 128:6,8
129:9,11,22 130:3,6,7,9,12,23
131:1,11,19 132:7 133:7,10,19
134:12 135:24 136:5 137:15 138:8
141:9,10 142:25 143:25 144:8
151:19,25 152:7 154:21 155:25
156:12 157:15 166:20 167:15,18,19
members 8:22 9:6 51:3 97:5 107:9
108:15 140:7
memorized 20:14
memory 27:2 78:13,14
mention 70:3 158:22 166:20

mentioned 98:15 100:21 101:14
113:4 136:7 139:20 155:25 164:9
mess 16:1
Message 4:14
met 8:14 145:19
metal 81:22 83:2
metallic 23:6,9,14,23 81:21,22 92:5,
6
meter 37:5 38:14 39:5 41:2 45:24,25
77:3,9
method 23:12 25:21,22 37:20 47:8,
10 81:20,21 82:12,13,15,22 96:13
119:21 145:13,18,22
methods 23:10 32:4,24 39:7 47:20
83:25 84:10
microphone 31:9
mics 51:3
mid 153:23
middle 25:7 30:14 40:14
Mike's 129:11
million 152:15 153:12,23 154:2
mind 6:7 31:19 32:24 112:16 148:9
152:12
minds 4:20
mini 53:7 70:8
mini-split 53:7 54:10 56:25 57:10,
14 58:6 59:13 81:17 90:1,18,25
91:1,6,18,22,24 92:20 93:6 102:8
108:23 110:6 158:12 160:6 161:4
mini-splits 54:7 91:10 119:7 125:21
minimal 95:24
minimum 62:18 135:3
minute 42:11 101:19 132:11 135:6
155:5
minutes 8:9 96:5 132:13 146:22
missing 10:11
mission 157:23
mistake 133:22
mistaken 83:13,14
mistakes 164:24



Mitsubishi 164:11 165:1,4
Mitsubishi's 164:13
mixed 9:5 30:6
model 95:17,19,22 96:10 139:4
modification 115:15
modifications 76:9 120:5
modified 110:25 119:19
modify 31:1 111:3
modifying 31:1
Molesworth 4:14,16 25:25 26:11
27:14 29:16 31:25 33:12 34:8,9,18
46:13 65:25 66:19 68:6,16,18 97:11
98:10 105:21 130:14,25 131:21
134:19 147:5,6,7 151:22 152:1
154:23 156:4,15 157:3,5
money 25:17 31:22 39:22 153:17,
19,20 154:12 155:1
monitoring 137:4,5
month 150:17,25
monthly 147:11,12,16 153:25
months 8:12 152:14
morning 4:6 5:9 100:21 163:3
Moses 157:12,15,17
motion 6:12,13,20 7:7 33:24 141:5,
6,8,9,15 167:14,18
motivates 129:8
motor 54:9,11 63:2
motors 55:19
mount 54:20
mounted 48:21 56:12
mounting 103:13
mouse 11:21 120:21,24 146:20,23
move 30:5,6 42:20 73:21,24 92:21
158:8 163:5
moved 8:20 47:20 61:14 110:5
164:4
moves 110:3
moving 6:11 7:8,25 19:7 22:5 50:14
74:20 78:19 120:20 164:14

multifamily 80:13,14 84:22 85:10,
15,19 86:1
multiple 4:25 56:25 57:21 58:8 68:1
165:2
Mutch 97:9 142:5

N

named 122:12
nameplate 62:11,15 63:6,7,25 64:1,
17 66:4 71:14 73:8 114:22,23,24
nameplates 70:10
national 11:4,14,17 12:3,4,12,13,
16,22 17:15,16 18:8 22:9,10 24:16
36:1 40:7 43:24 47:8,19 48:15,17,19
54:8 56:20 80:10 136:23 137:2
139:10
natural 92:23,24
nay 26:10
nearest 109:10 115:14
NEC 13:9 17:3 22:23 27:4,22 29:15
30:1,10,12,13,19,21 31:23 32:25
33:1,4 47:25 51:21 75:20 76:19 77:2
83:5 96:24 127:21 133:24 135:3
158:22 159:4
necessarily 29:8 46:7 63:18 72:25
74:1 115:17 143:8 155:2
needed 14:3,7 43:14 103:5 108:21
115:25 141:25 143:7 146:24
needing 51:15
negative 96:23
neighbors 4:21
nervous 157:25
NESC 12:14
neutral 39:2,4
news 4:17 144:16
newsletter 19:18 22:1 52:16 67:25
NFPA 11:4,14
nice 16:11 116:4 129:6 135:15
nightmare 16:1
NM 52:23 53:15 83:16

nobody's 124:25
nod 69:10
non-permitted 5:11
nonelectric 163:6
nonexistent 45:1
nonmetallic 52:18 53:16 80:11
81:21 82:5,8,11,23 83:3 92:4
nonservice 44:6,10 45:12
nonvoting 137:15
Nord 6:13 72:13,18 87:22 88:4,7
96:16 109:16 111:5 118:25 125:23,
25 126:11 127:6,17,20,25 128:6,8
129:22 130:6,12,23 131:1,11,19
132:7 167:15,18
normal 67:16 146:25
notation 11:14
note 11:6 72:1
nothings 101:11
noticed 52:11 144:17
noting 76:25
nuisance 66:15
number 10:19 13:3,4 57:24 58:1,3
88:19 92:16 125:14 145:5,9,10,11,
17 148:7,17,20 149:12,25 150:11,16
numbered 93:6
numbering 50:20,21 52:1
numbers 17:16 93:5 145:4,20
146:4,9 149:23 150:5
numeral 13:7
numerous 73:11
nuts 23:20 24:10,12 109:15

O

object 61:17 62:5
objectable 66:7
objecting 67:7 69:13
obsolete 102:2,3 121:17 140:16
obtain 124:17



obtaining 105:1	141:14 167:23	156:13,16
occasional 49:20	option 23:22 34:3,4 57:4 69:20 72:3 95:25 122:25	paddle 133:15 134:15 135:19
occupancies 125:11	optional 76:25	pages 16:1 74:1 79:14 120:15 127:2 149:7
occupant 18:23	order 4:8 7:1 36:11 43:3 57:3,10 81:12 159:25 162:5	paint 74:12,13
occupants 85:16	original 7:1 58:13 132:24	panel 37:8 40:17 41:21 42:21 43:10 45:25 53:10,11,12 55:23 73:18 77:9 103:17
October 4:7 140:13 150:18	originally 17:14	panels 133:13
odd 129:22 159:21	originates 58:21 91:17	paper 15:2 16:5,9,20
offered 118:23	origination 69:1 101:22	paperless 8:4
office 15:3 16:12 35:8 150:1	outbound 151:3	paperwork 7:20
officer 146:7	outdoor 54:18,22,23 55:1 56:10 58:22 73:7 91:17 92:22 94:12 162:2 165:14	parallel 26:12 28:2 40:18 119:21
offices 53:19	outdoors 52:21 53:17	parameters 47:16
official 22:5 84:3	outlets 82:7 83:6	paramount 12:16
officials 137:8	outs 89:20	paraphrased 18:15
OFM's 140:19	outset 115:22	paraphrasing 12:15
oftentimes 162:1	overcome 144:5	parliament's 8:16
oil 59:12 107:19 163:6	overcurrent 36:10,12,15,18,25 37:1 38:11 39:3,6,8 40:5 42:12 43:2,13, 17,21 44:25 45:14 47:2 54:23 61:18 62:7,17,21 63:3,4 64:16 70:11 73:14,17 75:21 76:3,9,14 104:9 107:20,23 108:11 113:10,23 119:9	parrots 78:11
okayed 117:7	overprotection 47:15 71:4	part 6:20 11:25 20:2 27:17 55:24 56:4 58:24,25 83:20 88:22 111:16 112:7 116:24 120:17 122:20 139:22 150:6 158:23 161:23 165:6,11
Okie 146:16	oversee 161:8	participates 137:14
older 163:5	oversight 105:5	particulars 21:21
oldest 150:9	overspent 152:15 153:10	parts 118:17,18
on-the-job 164:5	overtime 150:20 151:17	party 13:25
one-machine 56:17	overvoltage 107:17	Pasco 4:7
one-system 55:20	overvoltage/under 108:11	pass 99:1 159:10
online 147:21,23,25 148:2,5	owner 36:24 37:1	passed 13:20 103:2 145:18 146:5
open 13:13 26:24 59:20 97:22 113:18 116:22 162:4 166:1	owners 146:8	passes 7:7 141:15
opened 26:8	owns 36:18	passing 109:20 164:6
opening 116:15		past 43:11 97:8 101:7 109:24 111:22 121:4 144:23,25 150:17 153:14 155:10 160:25
opens 22:5		path 23:11 25:1 26:12 32:16,17 40:18 61:8 159:2 160:6
operate 55:21		patience 160:11
operating 147:11,12		pattern 50:14
opinion 25:19 29:25 69:10 95:23 100:18 106:11 153:1 155:12		
opinions 99:14 138:4		
opportunity 136:11 140:8 157:21 162:9 165:15		
opposed 7:6 31:1 37:21 110:10		

P



pause 52:7	personal 5:5 6:8 112:8	plaster 129:5
pay 9:13 66:4 138:6 152:24 153:14	Personally 133:21	plate 26:25
PDF 16:13,16 142:17	persons 122:9	platting 142:9
pending 69:2	perspective 9:8 97:23 107:8	play 149:25
penetrates 24:7	pertains 78:21 79:1	pleasing 9:15
peninsula 20:21 21:2 49:14	pet 18:7	plenty 163:1,8
peninsular 17:22	pets 18:4	plug 20:9,10 21:24
people 5:1 9:11,14 15:7 18:1 20:24 34:15 37:9 39:11 42:4,17 46:24 56:7 61:15,22 62:1 71:13,14 76:16 85:4 86:4,5 90:21 96:3,7 100:6,12 101:5 107:25 109:18 127:6 128:9 129:3 130:15 132:18 135:12,13 144:7 151:13 156:18,25 159:17 161:18 162:9 163:9	phased 158:10	plumber's 103:5
percent 33:21 62:20,22 65:21 68:21,22 71:15 133:20,21 134:20 135:25 140:18 145:1 147:15,18,20, 21,22,23 148:1,3,4,6,9,10,11,13 149:9,10,11,12 150:19 151:16 154:3 156:14 167:2,3	phone 98:14 150:23	plumbers 145:25
percentage 148:8,12 149:8	photocell 109:13,14	plumbing 103:3,4,11
perfect 7:22 52:8 118:21 152:1	photovoltaic 77:15 141:21	point 10:21 22:2 24:21 25:3 26:12, 20,22 31:18 33:9 40:13 44:16,18 46:21 56:21 72:10 80:2 87:25 91:20, 21 94:21 95:13 97:6,7 101:16 103:20 105:11 132:10 152:17 154:10
perfected 35:16	phrase 16:17	points 4:24 26:13 99:24
perfectly 160:8	physical 81:4 82:12 140:19	policy 49:4 116:8
performance 148:7	pick 125:16	pool 85:16
performed 148:8,12,14,16	picked 131:23	poor 116:1
period 12:20 147:14,18 149:5	pictures 23:19	poorly 23:19
periodically 15:10	piece 19:1 26:21 45:11,23 90:5,6 103:12,13 109:20 112:11,18 139:9 142:24	pop 116:23
peripheral 153:3	pig-tailing 108:19	popped 26:18
permanent 154:11	piggyback 144:1	pops 16:19
permanently 46:15 155:5 156:1	piled 37:25	portion 47:12 159:18
permission 158:8	piling 37:10	position 8:25 14:19 19:7 71:19 86:4 105:14 107:6 151:4,5,20 152:9
permit 78:24 79:7 105:4 143:8,12,16 148:19	pipe 37:21 81:22 103:6	positions 99:24 151:6 152:20 154:22 155:1,5,7,16 156:1,3
permits 12:20 105:1 147:19,22 149:10 160:7	piped 128:21	Positive 96:23
permitted 5:10 31:13 40:13 115:5	pipng 103:16	possibilities 131:9
permitting 104:22,24	pisses 107:1	possibly 90:4
person 46:10 67:21 126:20 141:24 142:14 145:7	place 49:6 76:22 100:1 133:14 139:2 157:1	potentially 105:17 131:9
	placement 87:1	powder 74:21
	places 5:18 20:24 51:12	power 8:3 55:2 58:17,21,23 59:10 77:12,14 87:8 91:16,18 103:1 109:8 127:2 142:11 165:7,10
	placing 40:6	powered 58:25
	plain 62:17	powering 59:9
	plan 149:3,5	
	planing 144:4	
	Plans 149:7	
	plant 75:6 128:18	



powerline 116:5	proceed 9:23	protected 36:20 43:13 63:3,5 112:23 165:14
powers 54:21	proceedings 4:1	protection 39:6,8 40:5 43:2,17,21 45:1 47:2 54:23 61:18 62:7 64:17 70:11 81:4 87:13,15 104:9 107:23 108:12 113:10 116:3 119:8
practicality 128:12	process 22:3 70:21,22 71:17,21 78:5 112:4 126:5	protective 76:10 113:23 115:3
practice 94:5	processed 147:21 150:9,16	protector 112:15,17,19,22,25
pre-proposal 140:12	processing 150:21	protects 37:19 74:5
preference 126:19	produced 97:4	proud 149:23 151:16
preferred 124:23,24	producing 142:11	prove 126:8
preparation 75:9	product 8:21 18:2 70:16 102:23 112:10 164:9,11,12,19,20,22	proved 98:1
prepared 142:5 144:18	production 77:12	provide 9:12 28:4 111:9,10 112:10 141:20
prescribed 127:16	products 128:3	provided 8:16 88:23 89:21 108:7 125:21 136:19 158:14
presence 137:9	professionals 126:15,16	providing 160:6
present 76:23 117:21 136:24 165:3	proficient 132:23	provision 18:17,20 19:1,25 20:1 75:10 81:14 108:8 138:18,25
presented 142:14	program 13:23 73:4 126:4,5,12 128:11,21 129:23 138:16 152:3	provisions 18:13 107:16 113:19,23 137:17 138:12,20
pressure 27:13 106:24	programs 72:15	PSI 145:8,9,13 158:19
pressures 98:12 100:10 111:24 113:1 138:6	prohibit 135:11	PSI's 144:17
pretty 18:14 21:1 62:18 70:7 92:19 105:10 138:13 142:17 150:3 151:16	prohibited 23:5 41:18,19	public 22:6,7 71:9 140:23 141:22 157:20,22
prevails 11:18	prohibiting 25:6	publish 19:18 158:21
prevalence 90:13	prohibitive 135:1	published 12:9 142:3
prevalent 54:7 59:14 89:25 90:2 102:6,13,15 142:11	projecting 152:15	puck 49:17
prevent 79:24 149:16	projection 134:2 152:13	pull 18:6 51:2,6 73:16 103:17 117:3
previous 18:9 140:14 144:20 147:24 148:2	projections 152:11	pulled 118:3
previously 86:21 123:16 142:15	projector 10:5	pulling 105:7
price 8:4	promised 140:24	pullout 73:15
primarily 85:9	pronounced 160:21	pump 56:9,11 58:15 59:8,12
primary 24:25 25:1	proper 96:21 99:5 104:15 105:5 126:7	pumps 63:2
principles 146:8	properly 72:24 73:4 104:15	purpose 28:3 29:22 33:11 91:21 101:22
print 135:18 163:15	properties 135:13	purposes 13:24 85:9 100:25
printed 16:5	proposal 17:11 108:5,13 160:24	put 5:1 11:9 14:8 21:3 23:19 25:17 35:3 38:14,24 39:15 41:23 42:14 43:8,10,13,15,17 44:13 45:17 46:2,9 51:7 53:7 65:6 69:8,11 72:2 78:17
prior 30:6 75:24 121:18 150:14	proposals 8:14,15,16,19 100:5 109:24,25 110:2	
probability 32:3,9	propose 34:10	
probable 32:11	proposed 8:6 19:9 34:5 97:19 110:3,5 140:18,20 158:9	
problem 25:13 29:13 32:6 117:20 126:2 145:22	protect 4:20 43:17 109:7 113:11 116:1,8	
problems 29:14 165:25		



81:3,16 84:21 89:12 101:15,16
106:12,24 107:12 111:2 112:22
113:9 115:5 116:13 117:10 118:9
133:22,23 157:18 166:8

puts 100:10

putting 25:11 45:5 49:4 55:7 61:15,
21 66:11 71:9 78:3,18 96:3 115:4
133:17

PV 81:16 143:9,19

PVC 24:3 28:11 29:20 31:20

Q

quality 96:20 109:8 116:1

quarter 147:13,16,20,22,24,25
148:2,4,6 167:1

quarterly 144:14

question 23:25 33:8 48:23 59:5
63:13 68:6 70:2 83:10 86:5,10 88:12
95:11 102:17 104:5,17 114:19
116:11 122:17 125:23 129:10,12
130:10 131:8 132:12,13 135:22,23
136:6 138:9,21 158:17,18 159:11

questioning 25:2

questions 19:10 27:9 54:1 61:9
85:1 97:14 105:16 106:2 113:22
131:22 136:3 141:1 142:23 146:13
154:20 157:2 158:3,5

quick 23:25 79:15 130:9 136:6

quickly 91:19

quo 30:18

quorum 4:12

R

rabbit 142:20

race 16:20

raceway 25:14,15 35:25 37:7 44:16
53:17,21 82:19,20 97:15,16 158:12

raceways 36:14,16 38:10 45:6

rafters 5:25

rail 102:19

rails 93:23 101:15,16,19 104:6,18

108:7

rampant 53:19

ran 59:6,7 94:23

random 53:21

randomized 132:8

randomly 131:23

Randy 139:24 140:1,7

ranking 93:14

rapidly 153:14 154:7

rate 24:17 144:23

rated 20:15 23:2 46:6 63:6 133:15
134:15

rates 144:25

rating 20:7 36:11 63:5 68:8 114:20

ratings 22:22 114:7

RCW 13:24 14:14 16:12,24 68:9
136:19 138:18,25

reach 84:7

reached 56:22

reaching 56:7

read 9:17 32:1 45:4 60:25 61:4
62:16 65:16 66:24 67:2,23 70:9
81:24 87:23 92:8 119:17,22 124:17
147:8 149:22

readers 124:8

readily 122:9,10

reading 15:15 16:14 31:5 72:4
86:22 114:22,23 122:22 142:20

reads 13:23

ready 21:25 50:12 115:20 146:24
157:19

real 15:15,24 42:10 124:4 136:20
144:6

realization 14:17

realizes 115:25

reapply 6:22,23

reason 30:22 32:2,22 64:15 88:25
90:13 101:6 104:5 108:21 110:7
120:10,12 125:12 134:5 139:7
146:9,10 152:10 154:3 159:22

160:5,8 161:8

reasonable 112:2 113:14 114:12
129:19,20

reasons 26:20 27:3 99:10 111:11,
12

rebuild 156:24

recall 7:16 144:1

recap 60:5

receipt 121:15

receive 121:9

received 8:20 98:14 110:12 121:7,
11 141:23

receiving 163:10 167:6

recent 11:3

recently 145:7

receptacle 20:5,21 21:16,23

receptacles 13:11 17:21 18:1,3,10
20:3,15 21:1,8,22,23 83:6 84:21
125:10

recertified 120:19

recessed 49:17

reciprocal 13:25

recognize 5:8 66:10 145:9

recognized 13:25

recollection 26:21

recommend 31:22 111:13

reconnect 64:21

reconnecting 114:25

reconstructed 89:21

record 4:12 50:11 99:18 147:8

recorded 150:14

recruit 152:8,10

recruited 151:6,21

red 120:15

redrafted 125:22

reduce 15:17

reduces 39:20

reduction 90:23 111:25 112:1



redundant 25:18	141:4 143:1,10 151:10 156:23 166:14	represented 156:18
refer 88:18		reputation 156:21,25
reference 10:23 15:16 17:6 22:11, 15 62:9 124:22	remind 161:7 162:11	request 121:23 148:9,13
referenced 11:7 74:17	reminds 128:14,15	requested 130:21
references 15:13 17:7,15 22:14 65:18	remote 54:10 56:12,14 57:19 58:4	requesting 127:7
referred 44:17	remotely 46:25	requests 132:3 148:2
referring 62:7 68:12 74:6	remove 69:22 70:1 107:12 121:3,13	require 37:4 55:10 56:9 75:10 78:16 110:22 136:22
refers 54:25 71:6	removed 34:23 55:12 69:21,23 121:18 133:18	required 18:11 19:6,7,8,9 27:13 37:18 54:9 55:15 60:7,12,18 65:7 73:12 75:24 77:2 95:9 121:22 126:12 137:6,21 143:16 146:3
refined 142:2	removing 56:19 79:16	requirement 15:16 18:9 21:13,15 23:1 24:10 36:2 39:23 40:1,2 48:17, 20 55:1 57:21,22 65:1,17 75:3 76:3, 22,24 77:6 85:22 137:2,9 138:2 139:14,15 166:23
refining 78:24	rendition 17:5	requirements 13:21 19:4 21:12 39:24,25 40:12 41:6,8 56:17 75:20 95:3 97:22 100:25 109:4 121:17,18 136:21,25 137:2 138:13 143:21 158:21,24 161:14
reflect 150:5	renewals 148:5	requires 60:11,13 117:19 136:23
Reform 51:21	renumbering 48:10	requiring 20:18 55:11 60:8,21,22, 23,24 138:10 143:7
refrigerant 73:11	reorganization 119:12	research 27:1 31:3 35:15 59:4
refrigeration 54:5 55:17,18 59:1,21 86:14,25 162:4 163:13	reorganize 89:17	residence 134:14
refuse 37:25	reorganizing 119:16	residences 98:4
regard 98:2 99:16	repair 86:11 87:1,9,14,19	residency 80:20
regional 155:15	repeal 125:13	residential 57:15 60:10 62:19 63:15 80:6,7,25 81:1,10,19 83:14 84:19 85:11 91:11 114:1 136:9 161:16
register 145:8	repealed 125:13,14	resistant 74:9,10,13,14,17,22,23,24 84:8
registered 121:21	repealer 125:7,8	resolved 106:21 107:7
regulation 111:17	repealing 125:9	respect 138:19
regulations 111:21 144:5	repeating 67:17	respectfully 134:10
related 17:9	rephrasing 69:19	responders 46:8 84:9
relates 165:12,13	replace 76:14 86:6,11 90:6 91:2,3 113:7 116:18,19 118:15,17,18 166:2	responding 92:11 113:1
relation 12:19	replaced 75:21 76:4,10 102:4 107:19 117:25 118:2	response 141:22 166:21
relationship 14:11 84:9	replacement 64:19 87:9,14,20 108:3 115:23 119:9	responsibility 130:17
relative 74:1	replacing 64:23 90:5 91:1	
relayed 57:11	report 7:19 16:2 97:13 141:2,20 144:14,17,22,23 145:1 147:4,8 152:2 166:25	
relevance 121:3,4	reporter 31:8 51:2 133:8 160:13	
relied 24:25	reports 144:16,17,20 145:2	
rely 23:17	represent 7:12	
relying 23:16	representative 21:19 93:12 110:13	
remain 155:18	representatives 93:13,16 98:14 159:23	
remained 139:22		
remember 48:8 93:12 98:25 131:22		



responsible 150:22
rest 57:4 163:11
restriction 91:13
restrictions 47:3
restrictive 119:20
restructured 88:24,25
restructuring 89:10
result 13:19 48:6,11 65:20 72:21 149:1
results 145:16
retain 146:8
retainer 20:10
retrofit 108:1 117:21
returned 95:8
returns 81:23
reveal 159:9
revenue 147:16
review 8:21 75:3,13 77:21 78:2 149:3,5
reviewed 122:7 149:7
reviews 144:2
revised 123:23 159:18
Reviser 14:25 15:1,9,11 79:22
Reviser's 15:3 16:12 35:8
revision 34:6 83:9
revisit 69:18,20
revisiting 136:2
Revisor 13:2
reworking 120:3
rid 134:9
rides 149:21
riding 85:6,12
rights 130:15
rigid 23:10 24:4,22 25:21 28:10 29:20 31:20
ring 20:11
rise 154:14

risk 156:2,21
road 33:3 67:9 128:18
robust 23:9
rock 166:2
Rod 97:9 142:5
roll 9:25 12:17 115:20
rollback 156:2
rolling 139:5
roof 143:11
roofing 142:8
room 9:3 85:16 95:23,24 117:2,5 153:6 156:18
rooms 55:25 90:15
rough-in 84:20
route 28:21 33:15
rule 9:20 16:4,9 24:17 29:10 31:20 36:13 49:4 52:16,20 55:3,5,12 56:8, 9,18,20,21 61:2 64:25 82:17 91:9 93:10,20,21 99:1 102:16 115:8 124:7 125:13 131:19 140:11,15 141:4 154:4
rule-making 110:16,20
rulemaking 8:12 79:24,25 86:13 110:17 139:25
rulemakings 54:6 79:20
rules 8:6 9:16,17 10:16,24 14:23,24 15:24 22:4 96:11 110:3,5 111:6 112:3 121:1 123:21 124:15,18 127:13 128:11 133:18 139:8
run 8:3 11:22 36:12 37:24 56:4 58:8 77:19 81:9 84:20 94:12,14 99:11 104:13,19 128:8 165:18 166:10,12
runaway 104:8 158:7
running 8:10 19:5 21:9 24:8 25:21 38:2 57:4 77:11 102:17
runs 19:2 37:11,15 39:16 42:22 91:20

S

sad 161:13

safe 100:20 157:1
safely 29:18 97:18 162:19,22
safety 4:13,15 5:5 6:8 18:2 26:17 27:6 32:23 33:11 100:19,25 106:9, 10,20 111:12 116:2 159:11,19
sales 147:25 164:11
saltwater 74:23
satisfactory 72:20
satisfy 159:19
save 38:1,5
saved 110:25
saver 39:14
savers 90:17
saving 43:7
savings 21:4 28:14 38:5,6
say's 129:4
scalded 18:6
scared 140:10
schedule 79:16 80:4
scheduled 157:7
schooling 164:6
scope 80:6,7,21,25 84:23 85:11 89:24 96:12,18 97:3 98:19,25 111:4 119:18 167:6
scopes 119:12 120:14 125:22
scraps 37:12
scratch 42:4
scratching 59:22
screen 120:18
screw 28:9
screws 114:10
scroll 10:9 120:18
scrolling 13:15,17 120:16,20,24 121:5
seam 26:21
search 51:9
seat 146:15
Secretary 4:14,16 25:25 26:11



27:14 29:16 31:25 33:12 34:8,9,18
46:13 65:25 66:19 68:16,18 98:10
105:21 130:14,25 131:21 134:19
147:6 151:22 152:1 154:23 156:4,15
157:3,5

Secretary's 141:2 147:4,8

section 12:11,23 13:10 17:3 22:19,
25 29:5 30:9,19 31:11,17 36:23
44:18 49:12,25 54:4 59:20 65:3,19
68:14,23 70:10 71:9 74:25 78:7,8
79:20 83:9,14 85:2 88:24,25 89:7,8,
19 91:9 94:4,9 96:25 122:5 123:8,14
124:7 125:7 158:9

sections 15:14 17:15

secured 145:12,22

security 120:21 145:4,9,10,17,20
146:4,9

select 117:8

selective 75:19,20

selectively 75:25 76:1,4,15

sell 15:2 16:8

selling 14:19,23

sells 93:14 164:11

semblance 57:10

Senate 13:20

senators 93:13

send 19:11,14 145:14,16

sending 143:15

sense 29:14,15 53:25 66:11 80:22
119:16,22 123:11 128:12 130:6

sentence 65:6,15 68:11 70:9 85:20,
21 86:23 87:17,18

sentences 86:23 87:11

separate 105:3

separately 105:3

separating 51:16

separation 136:20

September 147:10,19 150:18

sequence 103:1,14

SER 37:20

serve 167:8

served 31:15

server 145:14

service 22:22 23:2,5 24:17 30:12
31:6,12,16 36:4,6,7,13,14,16,17,19,
21 37:6,7,8,19 38:10 39:1 40:14,17
41:3,7,9,11,13,23,25 42:1,13,15,21
43:8 44:16,24 45:6,18 46:1,3,6,7,10,
11,21 47:2 77:3 107:17 116:6
118:12 124:21 147:19

services 38:14

serving 28:3 37:4

session 152:19 154:8

set 28:9 56:10 59:13 68:3 93:1
103:22 112:7 146:23 149:3 150:2

sets 104:1

settling 7:14

shake 145:13

share 166:21

shared 106:22 166:22

sheath 52:18 53:16 80:11 81:21
82:8,11,23 83:3 92:4,5,6

sheet 82:6 166:2 167:15,17

shift 49:16,18 73:7 90:10 93:10
104:2 112:1

shifted 114:15

shocked 6:2

shoehorned 89:6

shootings 4:19

shore 93:7

shores 93:7 102:5

short 23:2 31:21 50:5 80:23 81:19
93:17 152:19

shorten 42:22

shorter 15:18 39:17

shortly 7:21

shoulder 120:22

shout 150:7

show 10:5 60:16 152:12

showed 115:18

shows 97:5

shut 56:1,4 57:2

shuts 57:24 58:1

sic 141:17

side 13:14 23:15,24 25:12,22 28:1
30:15 38:18,23 40:21,22 41:14
42:10 45:20 93:23 101:15,16,19
102:16 104:6,17 108:7,19 118:11
132:18

sidebars 93:21 163:16,17

sidelines 163:17

sides 62:2

siding 142:10

sight 31:14

sign 76:24 122:5

sign-in 167:15,17

signal 103:1

signaling 87:8,13

signature 122:1

signed 121:22 122:12

signer 122:13,20,24 123:1

significant 42:24

significantly 150:17

signing 122:11

signor 121:25

signs 77:2

similar 91:12 159:15

simple 22:12 30:20 34:25 42:11
43:9 46:5 62:18 63:7 64:2 70:8
73:15,16 89:22 93:2,4 108:17
118:12

simply 15:11 16:10,15 23:13 47:13,
19 78:24

single 13:7 57:3 118:18 138:11
158:10

single-family 36:3 37:3 39:20
109:1

sir 33:16 163:22



sit 129:17 156:20	spaces 5:10,15 21:2 100:13,24	split 26:22,24 53:7 57:6 98:17 99:15 110:8 117:3,5
site 102:19 128:19 135:18	Spanish 127:23,24 130:1	splitting 28:17
sites 5:6 6:5	spare 117:5	Spokane 157:9
sits 118:25 119:1	sparkling 78:14	spoke 121:17
sitting 11:21 105:11 120:20 153:12 164:20	SPD 115:12	spoken 123:16
situation 47:14 55:14 64:19 162:15	SPDS 115:4,5,11	sponsored 110:13 139:2
six-foot 158:12	speak 65:13 83:7 98:11 102:7 108:25 128:9,25 129:8 131:10	sports 14:19,22
size 58:9 97:15 102:22 109:13 165:17	speaker 50:12	spot 82:10 157:16
sized 91:22	speaking 41:12	spray 18:18
sizing 97:16	speaks 12:23 16:24	spread 26:24
skilled 70:17	special 67:16 74:12 122:16 123:14	square 56:12 57:12,13 85:6,12
skills 126:13,14	specialist 51:25 97:10 141:18	stables 85:6
skip 50:24 52:2	specialists 162:12	staff 5:7,19 99:4 122:2 149:24 150:4,17,22 151:12,14 152:5,7
slide 21:20	speciality 87:23	staffed 152:22
slight 6:19 86:2	specially 74:21	staffing 150:3
small 18:4 49:10 57:14 98:25	specialties 9:5 66:7 86:15 89:3,9, 11,12 118:20	stainless 74:15
Social 145:4,9,10,17,20 146:4,9	specialty 61:25 64:5,20 83:7,8,24 86:23 87:12,19 89:3,13 91:14 119:5 161:14,16 162:16 167:11	stakeholder 17:11
sold 147:20,22	specific 10:23 21:15 32:19 62:8 64:6 134:5 161:3 164:8	stanchions 143:8
solution 106:7	specifically 83:13 143:10 158:22 159:3 161:2 162:13,17 165:5,18	standard 10:23,24 11:1,7,8,16 21:15,16 59:12 73:10
solve 66:13	specifications 158:15	standards 11:5 12:6,7,14,16,19 21:17 73:7 82:24 122:4,5 137:11
solved 24:24 79:5	specifics 159:13,16	standby 76:25 77:17
somebody's 48:24 81:2	specs 67:5	standing 139:21
someone's 95:22	speed 79:4	standpoint 21:1 68:7 97:20
someplace 40:15	spell 160:13 163:23	stands 28:23 61:19
sort 7:19 15:13 62:16 77:17 109:8 134:2 137:4,5 158:7 160:1,3 161:12	spelled 13:4,6 160:20	start 9:25 18:21 62:1 78:2 104:20 167:9
sorts 158:6 159:4 160:1	spend 10:14 129:23 153:17 155:2	started 61:25 139:5 142:20 153:21
sound 50:8 98:23	spending 152:16 153:21	starting 42:18 54:7 58:5
sounded 143:24	spent 130:14	starts 33:18 89:8
sounds 28:24	spiel 16:22	state 6:16 8:9 9:6 14:1,5 29:10 33:1 38:10 53:19 71:10 93:16 104:3 105:15 111:24 122:7 127:5 134:9 136:13,14,16,17 137:14,16,19 138:2 139:16 146:3 161:5 163:12
source 58:23 59:10,11 91:19	spill-rated 21:21	stated 161:17 163:3
sourced 55:2	spills 20:12,16	
sources 77:13 113:2	spin 35:4	
space 5:8,11,16,21,24 15:20 20:21 49:14 53:9,14 59:24 82:15 100:23 115:14		



statement 112:10 151:9
states 11:6 29:11,12 30:1 87:11,17
statewide 47:10
stating 74:16
station 56:10,11
status 30:18
statutory 17:5
stay 28:5,19 135:9
stayed 136:18 137:7 138:24
staying 28:23
steal 140:25
steel 27:15 28:8
step 22:3 30:14 35:21 70:19
stepped 166:3
stop 52:7 127:12,14 162:8
stopped 152:16
stops 148:24
storage 77:16
stories 80:13,15 84:2
story 80:23 81:19 93:17
straight 24:15 53:23 141:1 153:15
strange 134:24
strap 69:5 70:8 83:4
straps 69:4 70:4,7
strength 24:5
stress 132:14 152:6
stretch 83:4
strict 21:12 138:13
strictly 13:3 17:2 22:20 108:19
strike 88:8
strikeouts 89:20
stringent 30:13
strong 30:16
strongly 99:7
structure 31:13,14 32:6,8 46:24 85:15

struggle 124:1 156:9
struggling 132:12
stuff 32:11 51:7,10 107:10 130:16 136:9 141:7 146:18
Style 13:2
subject 20:16 82:12 106:3
submit 121:9,14
submitted 100:6 150:12
submitting 150:13
subsection 77:20 80:24 89:2,3 121:16 123:15
substance 52:7
substantial 26:17
substantiates 16:25
substantiation 111:11
sudden 95:3
suggest 34:2 157:9
suggested 140:14
suggestion 89:15
suggestions 157:12
suitable 30:11 46:1 52:24
supervise 148:19
supervised 159:6
supervision 99:5
supervisor 151:5,20
supervisor's 65:5
supervisors 19:19
supplemental 54:23
supplied 36:24
suppliers 115:18
supplies 24:20
supply 23:15,24 25:12,22 28:1 30:15 38:18,23 40:21,22 41:14 42:9 45:19 58:18 79:5 159:13
support 106:13 107:3,6 119:4,24 146:6 157:23
supported 107:6 110:10
supporting 142:21

supports 97:16 143:9,11
supposed 6:22 48:18 55:23 94:15
suppression 107:17 108:12 109:2, 4 115:19 117:17,19 119:7
surface 20:5
surge 108:12 109:2,4 112:15,17,18, 22,25 115:2,19 116:13 117:17,19 119:7
suspended 133:13
switch 73:15,16 118:1,11 135:8
swivel 4:23
system 17:16 25:10,14 53:8 55:17, 19 57:3,7,10,14,15,24 58:1,2,3,9,14, 19,20,21 59:2,8,17 76:8,10,25 77:14,16 78:2,12,16 90:24,25 91:9 92:13 97:6 103:25 116:5 136:22,24 137:4 142:7 158:15 161:4 165:12 166:4
systems 51:15 54:10,14,15,16 56:23 57:25 58:7 59:12,13,21,22 61:5,6,7 75:12 77:14,19 87:7 90:2, 11,14,18 91:1,2,6,8,15 92:20 102:1 110:6 141:22 162:21 163:4,6,7 165:25

T

table 74:6,15,18 106:17
tack 95:6
tag 139:25
tailored 92:12
takes 8:9 16:19 52:15 71:10 79:2 110:2
taking 22:20 40:8 42:19 49:3 62:8,9 64:23 68:3 73:20 100:19 129:15 133:7
talk 94:21 106:18 151:22 154:20 156:18 164:2
talked 22:18 72:16 94:9 101:6 122:19 141:7 152:4 153:11 166:23
talking 12:2 14:13,14 26:19 29:5 31:15,17 43:25 62:10 64:5 67:21 71:6 74:3 83:13 91:25 96:25 98:3 100:16 109:23 112:15 143:4,10 158:1 165:24 166:22



talks 31:12 54:17 65:3 70:10
tamper-resistant 13:11 125:10
tank 103:7
target 114:9
targets 5:2
task 143:14
tasked 149:24
teach 19:13
team 35:2 139:25 150:9 151:5,7
tech 67:5
technical 8:13,14,23 9:1 12:5,7
51:25 97:10 108:6,10 109:19 110:1,
8 111:14 157:25
technician 63:19
technicians 72:23 73:3
technology 93:9
techs 161:6
telecom 87:12 110:21
telecommunications 86:24 87:15,
20 88:15
telling 46:10 77:7 143:7
telltale 21:23
temperature 90:16
temperatures 91:7
temporarily 156:1
temporary 48:8 152:24 156:3
ten 53:3,23 66:17
tendency 26:22
tentative 76:12 140:21
tentatively 12:21 157:17
term 68:24 75:4 129:5 142:2
terminal 138:20
terminate 26:13
terminations 93:3 103:19
terms 44:16 62:18 99:9 161:15
terrible 129:2,4
test 97:14 126:3 131:14
tested 166:4
tester 129:15
testing 152:1,2 158:20 159:8,9
166:9
tests 131:12 132:8
thick 128:4,25
thicker 81:15
thin 29:23
thing 5:4 9:8,11,14 10:5,18 15:13
16:7,11 17:17,21 18:7 19:24 25:11
26:18 32:10 33:4,18 36:9 42:3
45:10,20 54:14 55:20,24 56:24
58:13 62:16 64:10 72:2 73:6 78:11
79:10 81:9 84:6 90:3,4 91:2 93:24
97:3 99:11 102:19 103:14 108:24
111:23 112:5 116:2,21,22 121:10
125:15 131:3 133:11 135:16 137:3,6
156:6,10 159:20 162:11,20 163:14
things 4:24 6:5,7 12:23 14:18,21
17:18 27:15 35:9 37:10 39:21 42:19
47:6 51:24 59:5 63:9 70:1 73:11
74:24 80:21 84:11 89:18 97:17
98:18 121:17 125:19 130:21 131:9
133:4 135:10 137:13,15 143:8
153:3,7,20 154:10 156:7,17 166:7
thinking 32:15 40:4 42:20 44:18
101:20 128:6
thinner 24:5
thought 33:3 34:12 67:20 71:16
121:4 134:24,25 135:12 159:16
thoughts 50:2 96:23 157:14
thousand 51:14
thousands 144:2
throw 62:20
throwing 38:21 39:11
thumbnail 33:18
thumbnails 13:13,15
thunder 140:25
tied 39:4
timber 83:23
time 4:19 5:7,23 7:24 9:1,16,19
10:14 16:5 23:5 27:7 30:24 31:1
33:25 34:2 38:13 39:9,22,23 56:6
63:8 64:25 66:16 69:25 77:22 78:17,
22 95:5,7 99:21,22,25 102:9,10
103:5,16 105:20 109:2,6 110:4
111:16 120:12 124:12,15,17 125:1,
4,13 126:10 127:16 129:16,18,19,21
130:5,8,14,18 131:25 132:2,4,6,17,
19 133:20 134:20 135:23,25 138:1
141:4,17 142:12 146:24 148:10,14,
22 149:2,4 150:5 151:7,21 152:11,
19 153:2,8 156:9 162:9,15 166:17
timeframe 150:23
times 5:4 32:23 64:21 68:1 86:5
101:7,11 120:19,20 128:13 147:11
155:10
title 17:2,3,9,10,11 22:9,14 47:24,25
79:13
titles 17:14
today 10:14 14:18 53:9 57:16 90:11
93:20 104:4 107:1 109:23 111:23
116:11,16 117:11 120:3 133:6 141:6
152:7 156:13 160:24 161:12 162:24
toggle 118:1
top 17:25 21:6 43:25 48:8 62:20
108:22,23 117:3
topic 6:8 128:15 138:22 146:14
torn 103:15,17
total 148:14,20,21,23 150:8,24
touched 164:17
touches 60:2
touching 75:23
tower 58:16
towns 136:15
track 155:24
trade 129:24
trades 61:25 100:14
trading 100:20
traditionally 24:18
trailer 128:18
train 72:23 73:3 89:18 150:4 159:24
163:13,14
trained 106:14 159:25 162:12
163:10 164:22,25



trainee 123:9
trainees 148:19 150:13
trainer 165:1
trainers 89:15 165:3
training 14:1 21:20 71:23 72:14,22
 73:5 95:9 96:21 97:25 99:5 106:8,19
 111:15 113:15 121:1,13,22 122:1,8,
 23 125:3 151:14 158:19 159:8,10,14
 161:19 163:10 164:6,18 165:2,3
 166:10,11,24 167:7
training/supervision 149:11
trainings 72:17
transcripts 6:11
transfer 145:13,22
transition 52:25 145:3 151:17
transitions 12:24
translatable 123:19
translate 123:24 124:20 127:13
 131:24
translated 126:21 127:12 131:17
translating 124:21,24
translation 131:10
trap 53:4
travel 4:10
treat 42:8,9
treating 44:24
tree 116:5
Tri-cities 128:17
trim 17:7
tripled 164:12
truck 104:8
true 45:13,16
trusses 105:10
Truthfully 135:15
tubing 23:6,9,14,23
Tumelson 27:19,25 83:18 84:5
 136:5 138:8 143:25
Tumwater 157:8

tune 137:15
turn 66:25
turnaround 149:2,6
turnover 150:4 151:11
turns 35:9
twisted 5:25
two-family 40:3 76:21 78:22 90:13
two-foot 105:10
two-month 152:13
type 16:10,18 18:22 24:6 27:11 32:9
 52:23 53:15 60:16 83:15 84:14,15
 106:15,20 114:15 115:4 117:9 149:9
 154:6 158:15 162:10
types 73:11 74:3,7,17 80:12,16
 83:19 102:1 162:17 163:4
typical 18:22 80:16 92:13
typically 53:15 114:8

U

U-SHAPED 53:5
UL 21:12,15,20 73:7 166:3
unable 38:16
uncertain 45:22 156:8
unclear 55:25 59:25 82:24 91:7
 160:19
uncommon 102:12
underground 149:16
understand 4:24 5:5,20 11:19
 24:23 57:20 61:16,23 62:4 63:20,25
 65:17 67:2 71:18 78:4 112:17
 113:13 123:8 128:1,7 131:1,6,16
 133:12 134:13 139:17 142:1 162:25
 165:9 166:16
understandable 119:13
understanding 6:6 27:3 56:23 61:6
 67:22 119:3 142:6
understood 153:19
unfair 149:17
unfinished 82:15

ungrounded 40:23
unions 159:24
unique 139:13 145:5,11
unit 52:18 54:18,22,23 55:1 57:18
 58:22 59:1,6 60:7 82:16 91:17 94:12
 95:1 104:9,11 105:4 112:22 116:14
 117:4,11 162:3 165:15
units 58:17 85:11 96:3 113:25
unknown 36:21 141:9,10
unnecessary 68:4
unreasonable 113:2
unsafe 111:7
unused 44:17
update 8:1
updates 152:3
updating 12:6 22:14 47:24 48:15
upper 162:19
useable 23:8
utility 16:18 37:4 78:13
utility-type 16:18
UVC 83:15

V

vacancies 155:6,11
vacancy 155:17,18
vacant 151:4,6 152:20
valid 31:4
Vance 8:1,2,8 10:7,12,16 11:13
 19:17 20:6,20 21:7,18 24:12 25:4,20
 26:4 27:22 28:5,12 30:8 33:16 34:25
 35:2,8,20 38:17,21 39:11,18 40:21
 41:2,5,19 42:8 43:5,19,23 44:4,12,
 20,23 45:9,15,17 46:23 47:18 48:2,4
 50:3 51:25 52:3,6,9,13 54:3 57:8,17
 58:20 59:9,17 60:1,8,22 61:12 62:6
 63:17,21,24 64:8,10 65:11,14 68:20
 69:4,22,25 70:7,15,23 71:7,12 73:6,
 25 74:21 79:12 83:22 84:6 85:2
 86:17,20 87:4 88:1,8,14,18 92:2,4,
 10 94:17,19 97:2,12 98:6 101:18
 102:12,15 104:12,22 107:15 109:22
 111:9 114:2,4,8,14,22 115:10,17



116:10,18 117:1,12 118:7,16 119:3,
23 120:13 123:2,6,10,13 125:24
126:8,15 127:8,19,22 128:2,7,14
131:3,13,20 132:9 133:3 136:13
138:24 139:23 140:4 141:18,19
142:22 144:15 146:12,16,19 147:2

variety 54:20

vehicle 136:8 137:3,17 139:3,6,11

VEI 154:25

verbatim 15:19 18:14,15

verbiage 22:18

verify 129:20 144:19 157:9

versa 103:11

version 12:9 15:18 16:16 23:2 35:9
123:22 131:6,7

versus 27:15,20 29:20 69:13 100:11

vice 103:11

violation 149:9

violations 99:9

violators 151:8

Virtual 148:16

virtually 16:6 107:3 155:8

visit 79:23 80:1

visiting 79:25

vodka 129:4

Vogue 160:21

voice 138:4

voltage 51:7,9,13,15 107:17 108:12

voltage/overvoltage 119:8

volts 47:21 92:16 158:11

voluntary 9:14

W

WAC 12:1,23 14:2,15 16:12 17:1,10
31:20 35:22 47:23 48:7,14 52:20
54:4 56:18 61:19 62:7 66:21 68:9,14
70:5 74:25 75:11,18 76:18 77:12
78:8,21 80:5,24 86:13 88:11,21
120:25 123:13 125:9,13 133:17
159:18

WAC-296-46B-210 17:19

WAC-296-46B-220 22:8

WAC-296-46B-225 22:13

WAC-296-46B-225(2)(B) 22:16

WACS 67:15

wait 151:24 155:4 162:1,3

waiting 164:21

walk 58:2 134:13 135:4 167:16

wall 19:2 48:25 49:6,13 53:10,24
56:13 84:18,20,21

walls 24:5 94:12 129:2 162:4 166:1

wanted 5:18 10:21 11:9 43:15 46:17
55:5,6 64:4 79:23 98:16 99:17,18
100:4,7 120:1 126:23 134:22 136:10
141:20 142:13 143:18 158:3

warnings 148:18 149:8

washing 85:23

Washington 4:7 14:1,5 15:1 29:10
61:19,20 67:17 75:7,13 79:21 104:3
122:7 123:23 142:2 160:23 163:12
164:4,13,14

watch 120:18 153:13

watched 124:1 146:21

watching 4:17

water 103:7

Wayne 4:14 69:17 97:11 98:10
100:21 147:4,7 155:25

Wayne's 140:25

ways 39:24 155:21

weak 26:22

weaker 32:4

website 15:9,11,25 96:4

week 151:1

weeks 149:4 159:22

weigh 25:20

weight 85:16

wet 20:7 52:21,24 53:17,23 82:14

white 15:20 142:18

wholesaler 164:11

whys 23:8

wind 75:11

windows 81:15

wire 21:25 38:2 43:7,8,18 45:2 82:12
93:5 95:18 102:10,21 109:15 117:7
135:5 165:9,18 166:2

wired 37:3 60:11 115:20

wires 6:1 41:21 42:10,23 45:10,12
103:19

wiring 23:11 30:11 32:4,24 37:20
38:9 39:7 47:20 54:21 81:2,21 82:6,
11,14,15,22 83:25 84:10 86:25 93:4,
25 95:4,12 100:7 101:24,25 102:9,
18,19,25 104:1 105:6,7 110:5
158:16 165:6

wit 4:2

withstand 24:11

wonderful 9:2

wondering 29:9 66:16 167:5

wood 37:12 80:19 83:20,24,25

word 88:5

word-search 16:16

worded 71:11

words 12:18,25 35:3 36:20 38:8
53:4 54:18 57:23 58:4,22 63:6 76:8
77:24 80:16 85:12 87:23 89:2 90:11
111:2 115:20 123:19

wordsmithing 88:7

work 5:19 8:19 12:24 16:18 20:5
61:16 67:5 78:23 80:6,7,8,21,25
85:12 89:24 91:15 95:16 96:17 97:4
98:19 99:23 100:11,12 102:14
103:11,24,25 106:15 107:1 109:19
111:3 119:12 120:2,4,14 125:22
126:6 127:25 131:14,15 145:24
148:18 157:1 159:6 160:2,18
161:23,25 162:1,5,10,16 163:1,2,7,8
164:10,18

workarounds 129:17

worked 5:22 128:16 132:9 150:13
156:9

worker 164:21

workers 129:14 146:1



workforce 70:17 146:5
working 37:9 47:16 65:22 88:14
100:14 123:9 129:13 137:25 138:1
152:5 158:6

workplace 149:17

works 100:13 103:23 160:19

workscape 89:1 92:15 110:21,22

workscopes 89:2

world 14:9 59:14 79:24 93:9 102:6
166:15

worried 153:5

worry 98:18 99:10

worse 51:19 165:25

worthless 16:6

would've 85:21

wound 4:18

wow 9:10 29:12

wrapped 112:14

wraps 154:19

wrench 103:6

write 62:22,23 63:21 65:9,14,15,18
66:15,25 68:8,9,10,14,19,20 69:4
70:3,14,15 93:21

writing 61:22 62:3 66:8 69:12 72:10,
11

written 22:6 56:22 63:15 68:12 69:9
71:4,25 72:8 75:15 81:1,5,24 82:2
83:24 91:10 96:11 116:12 124:16
132:21 133:24 149:15 161:2

wrong 61:8 93:16 142:20

wrote 49:2 51:14 56:13

WSATC 14:2

Y

yea 26:10

year 14:22 147:13,14,18 148:9,11,
13,14,15,17,20,22,25 149:2,4,8
152:25 156:2 157:12,14,19

year's 14:19

years 9:1 17:18 29:11 34:19 39:22
42:17 59:19 65:20 66:17 80:6 86:3,
11 88:12 101:24 107:2 110:19
128:17 129:24 140:21 146:21
156:14 161:21 164:4,6,12

yesterday 7:15

Z

zeroed 155:8

