Webinar

The Business Case for Mass Timber and Wildfire Resilience: Creating Value & Reducing Fuels

Date: December 02, 2022

00:00:04 --> 00:00:07: Welcome everyone. Thank you for joining us for this UI
00:00:07 --> 00:00:11: webinar, the business case for mass timber and wildfire resilience,
00:00:11 --> 00:00:13: creating value and producing fuels.
00:00:14 --> 00:00:18: In recent years, we've witnessed increasingly devastating wildfires, both in
00:00:18 --> 00:00:19: the US and abroad.
00:00:20 --> 00:00:24: Climate change is impacting the health of our overly dense
00:00:24 --> 00:00:25: forests in North America.
00:00:28 --> 00:00:31: And mega fires are predicted to increase both in severity
00:00:31 --> 00:00:35: and frequency. And today, today's session expert panelists will give
00:00:35 --> 00:00:39: an overview of the science behind wildfires and the impacts
00:00:39 --> 00:00:40: on real estate.
00:00:41 --> 00:00:46: Stressing the urgency for immediate action to maintain livability of
00:00:46 --> 00:00:48: the western United States.
00:00:49 --> 00:00:52: We'll focus focus on the United States, but many lessons
00:00:52 --> 00:00:55: learned today can be applied to other countries. I do
00:00:55 --> 00:00:58: want to stress, however, that forestry practices vary from country
00:00:59 --> 00:01:01: to country and even within regions of countries.
00:01:02 --> 00:01:05: We'll conclude today with a deep dive on the business
00:01:05 --> 00:01:09: case for mass timber, the building scale solution that offers
00:01:09 --> 00:01:13: the ability to increase demand for our forest products, creating
00:01:13 --> 00:01:16: an economic rationale for helping to thin our overly dense
00:01:16 --> 00:01:16: forest.
00:01:17 --> 00:01:20: Today we hope to answer a few questions for you

00:01:20 --> 00:01:24: all, including why should you care about wildfire resilience?
00:01:25 --> 00:01:27: This might be obvious to some of you in high
00:01:27 --> 00:01:31: risk fire areas, and perhaps less so to those farther
00:01:31 --> 00:01:34: away in urban areas further from direct fire zones.
00:01:35 --> 00:01:38: How did the choices we make every day in real
00:01:38 --> 00:01:40: estate impact forest health and climate change?
00:01:41 --> 00:01:44: And what else can you do to help change common
00:01:44 --> 00:01:47: misconceptions around forest health and wildfires?
00:01:48 --> 00:01:49: Next slide.
00:01:53 --> 00:01:55: My name is Melissa Crosskey, and I'll be moderating the
00:01:55 --> 00:01:56: webinar today.
00:01:57 --> 00:02:00: I'm both a licensed architect and structural engineer in the
00:02:00 --> 00:02:03: state of California and have a broad perspective on the
00:02:03 --> 00:02:06: building industry. I'm a technical director with woodworks, the Wood
00:02:06 --> 00:02:09: Products Council, and have led the expansion of our audience
00:02:09 --> 00:02:13: to real estate developers. There are national partnerships with you.
00:02:13 --> 00:02:13: Well, I.
00:02:15 --> 00:02:19: They work on generating resources for the developer audience, including
00:02:19 --> 00:02:22: our business case studies, which we'll hear about more today.
00:02:23 --> 00:02:25: I spent quite a bit of my time trying to
00:02:25 --> 00:02:28: convince developers to share their financial secrets and our business
00:02:28 --> 00:02:28: case series.
00:02:30 --> 00:02:34: I'm vice chair of Uri Sustainable Development Council and manage
00:02:34 --> 00:02:39: our national partnerships with USLI greenprint leaders in the building
00:02:39 --> 00:02:43: industry who are working to reduce the environmental footprint of
00:02:43 --> 00:02:45: our built environment.
00:02:46 --> 00:02:48: In my free time you can spend you can find
00:02:48 --> 00:02:51: me on the water paddle boarding, raising wild dolphins and
00:02:51 --> 00:02:53: cleaning plastic out of our water.
00:02:54 --> 00:02:58: Our first speaker today is Molly McCabe. She's CEO and
00:02:58 --> 00:03:02: founder of Hayden Tanner, a development and investor advisory firm,
00:03:02 --> 00:03:06: accelerating impact and sustainability in the built environment.
00:03:07 --> 00:03:12: She's also co-founder of the Lotus Campaign, which provides housing

00:03:12 --> 00:03:16: driven solutions for homelessness by engaging profit non private for

00:03:16 --> 00:03:21: profit real estate community. Molly is past chair of Mutualized

00:03:21 --> 00:03:25: responsible Property Investment Council and has been involved with many

00:03:25 --> 00:03:29: ULI reports, technical assistance channels and other efforts.

00:03:30 --> 00:03:34: She's an industry leader and has authored books on sustainable

00:03:34 --> 00:03:37: and resilient property development, investment and financing.

00:03:38 --> 00:03:41: Molly is a mom, a dog lover, an amateur, handy

00:03:41 --> 00:03:43: woman, and serial entrepreneur.

00:03:44 --> 00:03:47: Today, Motley will be talking with us about assessing wildfire

00:03:47 --> 00:03:48: risk at the market scale.

00:03:50 --> 00:03:54: Our second speaker today is Paul Hessburg. Paul is a

00:03:54 --> 00:03:58: leading research ecologist with the USDA US Forest Service and

00:03:58 --> 00:04:02: affiliate professor at the UW School of Environment and for

00:04:02 --> 00:04:05: Science and the OU College of Forestry.

00:04:07 --> 00:04:10: He leads a team of researchers that studies a variety

00:04:10 --> 00:04:14: of topics, including the landscape and disturbance ecology of the

00:04:14 --> 00:04:16: US forest past, present and future.

00:04:17 --> 00:04:21: Climate change effects on our forest wildfire resilience mechanisms and

00:04:21 --> 00:04:27: landscape restoration and adoption. Paul's attend speaker has done numerous

00:04:27 --> 00:04:30: talks on the new era of mega fires and has

00:04:30 --> 00:04:33: authored over 200 books, articles and chapters.

00:04:34 --> 00:04:38: In 2017, he researched he he received the Distinguished Scientist

00:04:38 --> 00:04:40: Award from the Chief of the US Forest Service.

00:04:42 --> 00:04:45: In his free time, Paul and his wife Mary enjoy

00:04:45 --> 00:04:49: a variety of outdoor outdoor activities, including including kayaking.

00:04:50 --> 00:04:53: So when Paul and I aren't talking about fires, forests

00:04:53 --> 00:04:55: and mass timber, we're sharing epic paddling and ventures.

00:04:56 --> 00:04:59: Today, Paul will provide a brief overview on the science

00:05:00 --> 00:05:04: behind increasingly catastrophic wildfires in the western United States.

00:05:05 --> 00:05:08: And our final speaker of the day is Noel Johnson.

00:05:09 --> 00:05:12: Known as a real estate developer, consultant and nonprofit leader.

00:05:13 --> 00:05:17: His real estate experience spans over $1 billion of investment

00:05:17 --> 00:05:19: and over 20 developments.

00:05:20 --> 00:05:23: As a developer, he's completed the most mass timber deals

00:05:23 --> 00:05:24: in the United States.

00:05:25 --> 00:05:28: His consulting work serves firms facing business strategy and built

00:05:28 --> 00:05:30: environment challenges.

00:05:31 --> 00:05:35: Noah's managing partner of Conrad Investment Management, Woodworks's partner on

00:05:35 --> 00:05:37: the mass timber business case studies.

00:05:38 --> 00:05:41: He teaches entrepreneurship at Lewis and Clark College and as

00:05:41 --> 00:05:44: president of Teacup Nordic Ski area. In the winter months,

00:05:44 --> 00:05:47: you'll find him cross country skiing on Mount Hood.

00:05:49 --> 00:05:53: Today, knolls presentation, economically viable real estate responses to fire

00:05:53 --> 00:05:56: and climate will focus on mass timber and building scale

00:05:56 --> 00:05:59: solution that can contribute value while reducing.

00:05:59 --> 00:06:00: Force goals.

00:06:01 --> 00:06:02: Forest fire fuels.

00:06:03 --> 00:06:07: For questions, we encourage you to submit all your questions

00:06:07 --> 00:06:10: throughout the webinar, and we'll have time at the end

00:06:10 --> 00:06:12: for the panelists to address them.

00:06:13 --> 00:06:14: Next slide.

00:06:17 --> 00:06:21: What works is a UI green print innovation partner and

00:06:21 --> 00:06:25: we are a nonprofit organization. We're largely funded by the

00:06:25 --> 00:06:30: US Forest Service, Forestry Innovation Investment and Softwood Lumber Board.

00:06:30 --> 00:06:34: We also have a series of national wood product manufacturers.

00:06:34 --> 00:06:38: We don't sell anything. We are completely product neutral. Rather

00:06:38 --> 00:06:42: we advocate for the use of wood and commercial and

00:06:42 --> 00:06:46: multifamily buildings and really our bread and butter is free

00:06:46 --> 00:06:47: project assistance.

00:06:47 --> 00:06:50: We're off. We're there to offer free project assistance for

00:06:50 --> 00:06:54: developers and their design teams on any commercial and multifamily

00:06:54 --> 00:06:55: buildings in the United States.

00:06:56 --> 00:06:59: We have a series of regional directors throughout the country

00:07:00 --> 00:07:02: who can answer any question that you have on wood

00:07:02 --> 00:07:06: buildings, whether it's innovative mass timber, what's possible with the

00:07:06 --> 00:07:09: new tallwood code provisions, maximizing heights and areas, and a

00:07:09 --> 00:07:11: variety of other technical topics.

00:07:13 --> 00:07:15: In the chat, we just dropped a link to our

00:07:16 --> 00:07:20: project assistance. You can also e-mail our helpdesk **** and

00:07:20 --> 00:07:23: you'll get a response and one to two days.

00:07:24 --> 00:07:26: And next slide.

00:07:28 --> 00:07:30: And with that, I'll hand it over to you, Molly

00:07:30 --> 00:07:32: McCabe, our first speaker.

00:07:33 --> 00:07:36: Thanks so much, Melissa. As Melissa noted, I will frame

00:07:36 --> 00:07:39: for you what's at stake and why you as investors,

00:07:39 --> 00:07:43: developers, community members, parents, grandparents, and especially for those of

00:07:44 --> 00:07:46: you who are not in areas that are immediately at

00:07:46 --> 00:07:49: risk of burning, why you should care about the risk

00:07:49 --> 00:07:52: of wildfire and the implications of the changing climate that

00:07:52 --> 00:07:56: make wildfires more likely and damaging. Paul's going to talk

00:07:56 --> 00:07:58: about, you know, how we got here with regards to

00:07:58 --> 00:08:01: land use and forest health and give us some big

00:08:01 --> 00:08:04: picture policy and community scale solutions.

00:08:04 --> 00:08:07: In response to to wildfire risk and Noel will offer

00:08:07 --> 00:08:10: up some reactions to this new reality and some ideas

00:08:10 --> 00:08:13: on how we can practically address these changing conditions in

00:08:13 --> 00:08:16: the form of building solutions that respond in a very

00:08:16 --> 00:08:20: intentional way that's sensitive to what's happening within the built

00:08:20 --> 00:08:23: environment and this asset class. So before we get there,

00:08:24 --> 00:08:25: go to the next slide please.

00:08:26 --> 00:08:30: Let me point you to some really valuable resources that

00:08:30 --> 00:08:33: UI is put together. UI has done a number of

00:08:33 --> 00:08:38: reports, most specifically the Firebreak report which is available online

00:08:39 --> 00:08:42: at uli.org URL. I interviewed about 50 members of or

00:08:42 --> 00:08:46: 50 developers and others in the in land use policy

00:08:46 --> 00:08:49: makers and so forth in the region that.

00:08:50 --> 00:08:53: Is at risk of wildfire and can give you some

00:08:53 --> 00:08:57: really specific district and best scale best practices at a

00:08:57 --> 00:09:01: site scale solution. We also did a Sonoma County Advisory

00:09:01 --> 00:09:06: Services panel which looked at the fires that happened in

00:09:06 --> 00:09:10: Sonoma County back in 2018-2019, 2020 and then finally you

00:09:10 --> 00:09:14: Li has partnered with First St Foundation on Risk Factor

00:09:14 --> 00:09:15: Pro which shows.

00:09:16 --> 00:09:21: Very specific property, property effects of wildfire and climate

risk.

00:09:22 --> 00:09:27: Around flooding, wildfire and heat impacts. Next slide.

00:09:29 --> 00:09:31: So here let me talk a little bit about why

00:09:31 --> 00:09:32: we should care.

00:09:33 --> 00:09:37: Prosperity of along the globe is really focused around places

00:09:37 --> 00:09:42: where it's temperate and Mediterranean. There's a correlation between prosperity

00:09:42 --> 00:09:46: and temperate climates. The more moderate climates produce civilization and

00:09:46 --> 00:09:50: therefore that's where all the capital flowed. As the climate

00:09:50 --> 00:09:55: impacts are intensifying, those cities that have temperate climates are

00:09:55 --> 00:09:59: going to see livability becoming more increasingly challenged and with

00:09:59 --> 00:09:59: some.

00:10:00 --> 00:10:04: Areas facing daily daytime temperatures that are so high that

00:10:04 --> 00:10:06: even workers can't be safe outside.

00:10:09 --> 00:10:13: With the addition of rising sea levels, salination of groundwater

00:10:13 --> 00:10:15: and the expansion of arid terrain.

00:10:16 --> 00:10:20: We're going to find governments and private sector citizens burdened

00:10:20 --> 00:10:24: with the need for more infrastructure and individual property level

00:10:24 --> 00:10:29: improvements. These changes will affect agriculture and economic productivity and

00:10:29 --> 00:10:32: will drive migration to more habitable areas. Next slide.

00:10:35 --> 00:10:38: So the reality is that having a stable climate is

00:10:39 --> 00:10:42: the core to a thriving and stable world.

00:10:43 --> 00:10:46: So if you don't live in what's called the wooley.

00:10:47 --> 00:10:51: Why should you care? That's the the Wildlands Urban Interface

00:10:51 --> 00:10:55: Society and the real estate industry today are grossly unprepared

00:10:55 --> 00:10:59: for this coming era of instability due to climate change.

00:10:59 --> 00:11:03: And it's just not. It's not just about warmer temperatures,

00:11:03 --> 00:11:06: it is about that loss of stability and and what

00:11:06 --> 00:11:08: happens in an increasingly.

00:11:09 --> 00:11:11: Less stable world. Next slide.

00:11:14 --> 00:11:18: The bottom line is that hotter and more frequent wildfires

00:11:18 --> 00:11:23: are causing increasing amounts of infrastructure destruction, economic hardship and

00:11:23 --> 00:11:27: trauma throughout the United States and the world. It affects

00:11:27 --> 00:11:31: large regions, including even the most prepared

communities.

00:11:31 --> 00:11:36: It impacts adjacent areas that receive evacuate evacuees from those

00:11:36 --> 00:11:38: wildfire migration patterns.

00:11:40 --> 00:11:44: And also those evacuees who are moving because of strict

00:11:44 --> 00:11:48: preventative measures which are rising, causing rising prices and less

00:11:48 --> 00:11:50: favorable conditions to live in.

00:11:51 --> 00:11:55: The occurrence of wildfires and the scale of their consequences

00:11:55 --> 00:11:59: and how they have changed in recent decades are directly

00:11:59 --> 00:12:03: related to current climate and development trends, as well as

00:12:03 --> 00:12:07: to historical Land Management strategies. Climate change and housing and

00:12:07 --> 00:12:12: the housing affordability crisis especially, are exacerbating the severity of

00:12:12 --> 00:12:16: wildfires and the difficulty of managing them as we move

00:12:16 --> 00:12:21: more housing into those areas that previously weren't developed next.

00:12:21 --> 00:12:21: Slide, please.

00:12:25 --> 00:12:30: Wildfire risk across the United States has been increasing dramatically

00:12:30 --> 00:12:35: over the last decades. From 1980 to 2022, there have

00:12:35 --> 00:12:39: been 21 wildfire events with losses exceeding $1 billion.

00:12:40 --> 00:12:46: This growing risk threatens economic stability, natural resources and quality

00:12:46 --> 00:12:49: of life for the communities and property owners affected.

00:12:52 --> 00:12:57: These costs are exceedingly high. In recent years, damage estimates

00:12:57 --> 00:13:00: between 2012 and 2016 totaled 8.5 billion.

00:13:01 --> 00:13:03: Noah has reporting that.

00:13:04 --> 00:13:09: Between 2018 and 2021, that number has increased to $79.8

00:13:09 --> 00:13:15: billion of direct costs. That represents nearly a tenfold increase.

00:13:16 --> 00:13:17: Next slide.

00:13:20 --> 00:13:22: I want to note that this particular slide is courtesy

00:13:22 --> 00:13:24: of the 1st St Foundation.

00:13:25 --> 00:13:31: Per Noah's research, that $79 billion is projected to rise

00:13:31 --> 00:13:36: to 141 billion between the years of 2020 and 2029.

00:13:37 --> 00:13:41: And these direct cost estimates are only a fraction of

00:13:41 --> 00:13:46: the larger economic costs associated with wildfires. The estimate does

00:13:46 --> 00:13:50: not include many of the costs associated with Land Management

00:13:50 --> 00:13:55: or long-term indirect or additional costs, for example, supporting wildfire

00:13:55 --> 00:13:56: suppression.

00:13:57 --> 00:14:01: Is one of the most expensive things that we do.

00:14:01 --> 00:14:05: It costs the government about $2 billion annually today, and

00:14:05 --> 00:14:09: estimates from the Office of Management and Budget Budget suggest

00:14:09 --> 00:14:13: that these costs could rise to 2.83 billion under conservative

00:14:13 --> 00:14:17: climate change scenarios and as much as 4.3 billion in

00:14:17 --> 00:14:19: higher emission scenarios.

00:14:20 --> 00:14:23: And even those states who are capable of suppressing the

00:14:23 --> 00:14:27: most destructive wildfires today find we'll find their resources stretched

00:14:27 --> 00:14:31: thinner, unable to use their those fine those finances for

00:14:31 --> 00:14:32: other things such as.

00:14:33 --> 00:14:38: Parks such as such as police, such as as libraries,

00:14:38 --> 00:14:39: things like that.

00:14:40 --> 00:14:42: So next slide please.

00:14:45 --> 00:14:48: So you as an ambassador, why should you care? And

00:14:48 --> 00:14:51: in particular, if your city is not going to burn

00:14:51 --> 00:14:54: or your community is not at risk, why should you

00:14:54 --> 00:14:57: care? Well, I think if you can see this picture

00:14:57 --> 00:15:00: from San Francisco, you can note that this bright orange

00:15:00 --> 00:15:03: skyscape is really a wake up call to all of

00:15:03 --> 00:15:06: us and an exclamation on the point of these changing

00:15:06 --> 00:15:11: conditions. Climate change definitely causes more wildfires, more days when

00:15:11 --> 00:15:14: we have them, and more days when we will have

00:15:14 --> 00:15:14: heavy snow.

00:15:15 --> 00:15:20: Countervailing my market and migration forces may be creating near

00:15:20 --> 00:15:22: term opportunities in regions.

00:15:23 --> 00:15:26: But those regions have longer term climate risks.

00:15:28 --> 00:15:29: Next slide, please.

00:15:31 --> 00:15:34: What we know now is that metro areas have a

00:15:34 --> 00:15:36: fundamental threat.

00:15:37 --> 00:15:38: From climate risk.

00:15:39 --> 00:15:41: Different than it was before.

00:15:42 --> 00:15:46: The analytical challenges of defining and addressing systemic risk and

00:15:46 --> 00:15:49: resilience factors like migration.

00:15:50 --> 00:15:54: Run up against the need to make immediate investment decisions

00:15:54 --> 00:15:59: about opportunities in high risk areas. Often we find ourselves

00:15:59 --> 00:16:02: pushing out further to develop due to the high cost

00:16:02 --> 00:16:05: of land and increase fees and regulation.

00:16:06 --> 00:16:10: The real estate industry runs the risk of maintaining sort

00:16:10 --> 00:16:12: of a business as usual approach to investment.

00:16:14 --> 00:16:17: We are looking often at policy or legislation as the

00:16:17 --> 00:16:21: driver for our decision making, making only slight adjustments so

00:16:22 --> 00:16:25: that we don't get into trouble with the regulators or

00:16:25 --> 00:16:28: client or our clients despite the need frankly for more

00:16:28 --> 00:16:30: climate sensitive strategies.

00:16:32 --> 00:16:36: And wildfires are really one of the big bigger climate

00:16:37 --> 00:16:41: challenges that are impacting real estate as well as other

00:16:41 --> 00:16:43: investable assets.

00:16:44 --> 00:16:48: Anyone who wants to invest increasingly needs to navigate.

00:16:49 --> 00:16:50: This shifting environment.

00:16:53 --> 00:16:54: Next slide, please.

00:16:57 --> 00:16:59: Between 1964 and 1990.

00:17:00 --> 00:17:02: We've seen an extraordinary increase.

00:17:03 --> 00:17:08: Currently, we have 79 million homes that currently have wildfire

00:17:08 --> 00:17:12: risk. 4.2 million of those homes have cumulative burn probabilities

00:17:12 --> 00:17:16: greater than 26%. That means that 25%, one in four

00:17:16 --> 00:17:19: of these homes will burn over the course of their

00:17:19 --> 00:17:20: mortgage.

00:17:21 --> 00:17:24: Insurance, if it's even available, will not cover the cost

00:17:24 --> 00:17:25: to rebuild.

00:17:27 --> 00:17:28: So who's actually at risk?

00:17:32 --> 00:17:35: Well, right now the insurance industry is actually in great

00:17:35 --> 00:17:39: turmoil. They're grappling between those increasing costs. And what we're

00:17:39 --> 00:17:43: finding is that many of those insurers are actually declining

00:17:43 --> 00:17:46: to continue to ensure in places like California, the state

00:17:46 --> 00:17:49: has had to put in moratoriums in place so that

00:17:49 --> 00:17:52: those insurers will in fact state in that economy for

00:17:52 --> 00:17:53: some period of time.

00:17:54 --> 00:17:55: Next slide, please.

00:17:56 --> 00:18:01: Increasingly, we're investing in in risky places and increasingly risky

00:18:01 --> 00:18:02: assets.

00:18:03 --> 00:18:06: Last December in 2021, the wildfires in Boulder County were

00:18:06 --> 00:18:08: especially haunting.

00:18:08 --> 00:18:12: In some places, in a few hours, homes were engulfed,

00:18:12 --> 00:18:14: and then whole neighborhoods.

00:18:15 --> 00:18:19: The fires cost at least $500 million in damages and

00:18:19 --> 00:18:23: store destroyed 1100 buildings. That's in December, and many of

00:18:23 --> 00:18:25: those households were underinsured.

00:18:27 --> 00:18:28: Next slide, please.

00:18:31 --> 00:18:34: $1.3 trillion of property.

00:18:34 --> 00:18:38: Resides currently in the wildland urban interface. At risk of

00:18:38 --> 00:18:38: fire.

00:18:39 --> 00:18:42: There are other things that come into play as we

00:18:42 --> 00:18:45: look at the risk to real estate and the risk

00:18:45 --> 00:18:49: to your businesses and to your communities into your home

00:18:49 --> 00:18:49: life.

00:18:50 --> 00:18:51: Business interruption.

00:18:51 --> 00:18:54: You know, if you decide if you're making decisions on

00:18:54 --> 00:18:58: where you want to move, you probably should think about

00:18:58 --> 00:19:01: what's the financial cost of setting up your business in

00:19:01 --> 00:19:04: those locations? What's the potential financial cost of a climate

00:19:04 --> 00:19:06: risk? They're delays in construction.

00:19:09 --> 00:19:12: As developers, we're opting adding things to our buildings. And

00:19:12 --> 00:19:15: so some of the asset features that we're currently adding

00:19:15 --> 00:19:18: now are air filtration systems that will address harmful air

00:19:18 --> 00:19:22: quality. We're also coming up with backup systems to deal

00:19:22 --> 00:19:25: with things like public safety power shutoffs. And if you're

00:19:25 --> 00:19:28: not in California and other places, you don't know that

00:19:28 --> 00:19:31: sometimes your power can be shut off. For in Sonoma

00:19:31 --> 00:19:33: County, it was, you know, hours and sometimes days at

00:19:33 --> 00:19:36: a time that really impacts your ability to do business

00:19:36 --> 00:19:38: and there's a whole component.

00:19:38 --> 00:19:42: Around economic viability for small businesses in particular and large

00:19:42 --> 00:19:43: businesses as well.

00:19:45 --> 00:19:49: They're expenses for flame resistant roofs, energy efficient air conditioning.

00:19:51 --> 00:19:53: You know, and those kinds of costs take big bites

00:19:53 --> 00:19:56: out of anyone's budget, but in particular for those who

00:19:56 --> 00:19:57: are on limited incomes.

00:19:59 --> 00:20:02: And increasingly we're finding that people are taking climate risk

00:20:02 --> 00:20:05: into consideration when they choose where to live and where
00:20:05 --> 00:20:06: to open businesses.
00:20:07 --> 00:20:08: Next slide, please.
00:20:14 --> 00:20:17: If you think back to say California and we, I,
00:20:17 --> 00:20:20: I chaired the panel on the Sonoma Wildfire panel and
00:20:21 --> 00:20:24: what we found for example was in the wine country
00:20:24 --> 00:20:27: as all those plumes of smoke and the fires wafted
00:20:28 --> 00:20:33: through those community, we saw complete communities shut down. Vacation
00:20:33 --> 00:20:38: spots became evacuation zones, revenues from wineries and local businesses
00:20:38 --> 00:20:43: completely dried up impacting wages, productivity, the community tax base.
00:20:43 --> 00:20:47: And dislocating community members to faraway places, the impact on
00:20:47 --> 00:20:50: the nearby property markets was pretty substantial.
00:20:51 --> 00:20:55: And again, we're finding that housing affordability is really impacted.
00:20:55 --> 00:20:59: A recent core logic analysis showed that housing values and
00:20:59 --> 00:21:01: rents in the wake of wildfires.
00:21:02 --> 00:21:06: When a particular area was significantly impacted, the areas housing
00:21:06 --> 00:21:10: and distracted to the housing supply, prices and rents went
00:21:10 --> 00:21:14: up dramatically. So for example in Santa Rosa, the biggest
00:21:14 --> 00:21:17: city in Sonoma County housing prices, it had about 6%
00:21:17 --> 00:21:20: of its housing stock destroyed in the 2017 Tubbs Fire.
00:21:20 --> 00:21:23: Those people had to move somewhere and what they found
00:21:24 --> 00:21:26: is that annual growth rate of rents tripled.
00:21:28 --> 00:21:29: And home prices jumped.
00:21:32 --> 00:21:35: We're also at risk of watersheds and the municipal water
00:21:35 --> 00:21:38: supply being at risk energy costs, many, many places are
00:21:38 --> 00:21:40: subject to you know, hydro and other types of of
00:21:41 --> 00:21:44: systems that are impacted when the fires run through the
00:21:44 --> 00:21:45: through the communities.
00:21:47 --> 00:21:49: And then there's the cost of fighting fires and the
00:21:49 --> 00:21:53: competition for resources, which I mentioned earlier. If you're spending
00:21:53 --> 00:21:56: money fighting fires, you're putting in new systems to address
00:21:56 --> 00:21:59: it, you can't use that money for anything else. And
00:21:59 --> 00:22:02: finally, let's talk just a little bit about health. Next
00:22:02 --> 00:22:03: slide, please.
00:22:04 --> 00:22:05: Heat and wildfires.
00:22:06 --> 00:22:09: Wildfire smoke damaged the body, and for many, what it

00:22:09 --> 00:22:12: does is it moves all of our activities indoors. People
00:22:12 --> 00:22:15: don't go to local restaurants, they don't shop at local
00:22:15 --> 00:22:17: stores, they don't get exercise.
00:22:20 --> 00:22:24: And now, during many of these elongated fire fire seasons,
00:22:24 --> 00:22:28: people don't even step outside for longer than it takes
00:22:28 --> 00:22:31: to walk to their cars. Life has become more air
00:22:31 --> 00:22:36: conditioned. Already the impacts add up to billion dollars of
00:22:36 --> 00:22:39: lost wages and lost work. Next slide please.
00:22:44 --> 00:22:48: So many people do not think about the relationship between,
00:22:48 --> 00:22:48: you know.
00:22:49 --> 00:22:52: Climate change and other things. They think of climate change
00:22:52 --> 00:22:55: and wildfires being in a sort of a discrete, discrete
00:22:55 --> 00:22:58: category, but in fact climate change is a threat multiplier.
00:22:59 --> 00:23:02: And we need to address how we can look at
00:23:02 --> 00:23:05: the relationship between how we build and where we build,
00:23:05 --> 00:23:09: and how emissions from burning fossil fuels contribute to heat,
00:23:09 --> 00:23:12: drought, wildfires and other extreme weather events.
00:23:13 --> 00:23:16: Sometimes small sounding changes can make a big difference. We
00:23:16 --> 00:23:18: have a limited window in which to use our knowledge
00:23:18 --> 00:23:21: and abilities to change the course of the future for
00:23:21 --> 00:23:21: good.
00:23:22 --> 00:23:24: So where do we go from here? Well, we know
00:23:24 --> 00:23:26: what we need to do, each of us individually, and
00:23:26 --> 00:23:28: a society is to reduce our footprint.
00:23:29 --> 00:23:29: And.
00:23:31 --> 00:23:34: We are witnessing a paradigm shift where the private sector
00:23:34 --> 00:23:37: now sees climate action is no longer a threat for
00:23:37 --> 00:23:40: job losses, but rather is an opportunity for create job
00:23:40 --> 00:23:42: creation and economic revitalization. So.
00:23:44 --> 00:23:47: The clearest path to reducing future losses is thinking about
00:23:47 --> 00:23:49: where and what you build and how you build, where
00:23:49 --> 00:23:52: you invest and how you place your wealth in light
00:23:52 --> 00:23:54: of climate change. So with that, I'm going to pass
00:23:54 --> 00:23:55: it along to Paul.
00:24:02 --> 00:24:03: Thanks, Molly.
00:24:04 --> 00:24:05: That's a great setup.
00:24:07 --> 00:24:08: Morgan. Yeah. Thank you.
00:24:09 --> 00:24:13: So my assignment today is to talk to you about.
00:24:15 --> 00:24:19: The constellation of factors that have come together produced the

00:24:19 --> 00:24:23: current lack of landscape resilience and to discuss some things

00:24:24 --> 00:24:27: that we can do about it. Next slide. Appreciate the

00:24:27 --> 00:24:29: excellent setup, Molly.

00:24:31 --> 00:24:35: We we know that there's a significant threat. There's no

00:24:35 --> 00:24:38: need to do convincing there. But it's good to talk

00:24:38 --> 00:24:43: about those things that work together to create the current

00:24:43 --> 00:24:48: predicament. Fire exclusion, historical timber harvest, climate change and smoke

00:24:48 --> 00:24:53: management are but three significant influences, whether you realize it

00:24:53 --> 00:24:57: or not, going back into the early to mid 1800s,

00:24:57 --> 00:25:01: the introduction by your American colonists of European.

00:25:01 --> 00:25:05: Diseases caused a mass depopulation of the western United States,

00:25:05 --> 00:25:09: actually the entire United States, there's a lot of indigenous

00:25:09 --> 00:25:13: burning going on, and so it declined really rapidly beginning

00:25:13 --> 00:25:17: there. Livestock grazing began in sheep and cattle grazing in

00:25:17 --> 00:25:20: the West on a massive scale. And if you think

00:25:20 --> 00:25:24: about it, cattle and sheep are eating the grasses and

00:25:24 --> 00:25:27: that had been the conveyor belt for spreading many of

00:25:27 --> 00:25:29: the historical environments.

00:25:30 --> 00:25:34: We developed built environments increasingly as the West became settled

00:25:35 --> 00:25:39: and once people were they had structure and infrastructure that

00:25:39 --> 00:25:42: was valuable to them. They wanted fires no longer to

00:25:42 --> 00:25:46: be around them. And finally in the 20th century, usually

00:25:46 --> 00:25:48: in about the 20s and 30s of the 1900s, we

00:25:48 --> 00:25:52: see fire suppression having a massive influence on excluding fire.

00:25:53 --> 00:25:56: Early timber harvest logged the large old fire tolerant trees

00:25:57 --> 00:26:00: and then a lot of shade loving intolerant trees replaced.

00:26:00 --> 00:26:05: The spaces where the large trees were removed, climate change

00:26:05 --> 00:26:10: beginning in about 1985 and beyond quite significantly brought us

00:26:10 --> 00:26:16: warmer, drier and now windier climates. And these conditions, they're

00:26:16 --> 00:26:20: escalating. So year round fire season in California is is

00:26:20 --> 00:26:25: a normal condition now. And in many other states throughout

00:26:25 --> 00:26:28: the W 40 to 80 days of exposure is is

00:26:28 --> 00:26:30: occurring and finally we add.

00:26:30 --> 00:26:34: Uh, smoke management. There's no time when the air

quality
00:26:34 --> 00:26:38: was like the air quality that we're striving for. Much
00:26:38 --> 00:26:41: of the United States burned over the courses of the
00:26:42 --> 00:26:46: millennia, and so we're looking at unsustainable air quality. And
00:26:46 --> 00:26:50: that is the influence of actually increasing severe fire and
00:26:50 --> 00:26:54: poor air quality because we're not doing the prescribed burning
00:26:54 --> 00:26:57: that would improve that air quality.
00:26:58 --> 00:27:02: And in addition to that, we've got a growing wildland
00:27:02 --> 00:27:06: interface and urban areas that are increasing the desire for
00:27:06 --> 00:27:09: improved smoke management. Next slide please.
00:27:12 --> 00:27:14: So I want to show you some photos that sort
00:27:14 --> 00:27:17: of dial in the changes that we're seeing. 1st I'm
00:27:17 --> 00:27:21: going to show you the frequent fire forests. These are
00:27:21 --> 00:27:24: the dry pine dry mixed conifer forests that top photo
00:27:24 --> 00:27:27: from the 1930s and the the sites that are more
00:27:27 --> 00:27:30: open are S aspects and Ridge tops and the bottom.
00:27:30 --> 00:27:32: You can see in 2010 that many of those open
00:27:32 --> 00:27:35: areas have filled in well in those open areas in
00:27:35 --> 00:27:38: the top photo firewood have spread on the ground and
00:27:39 --> 00:27:41: many times there wouldn't have been enough fuel.
00:27:42 --> 00:27:44: For the fire to continue spreading so you can see
00:27:44 --> 00:27:48: there's strong topographic control on where forest occurred and how
00:27:48 --> 00:27:50: it would burn next slide.
00:27:53 --> 00:27:57: In moderately frequent fire forests like you see on the
00:27:57 --> 00:28:00: top, you see this really diverse patchwork of areas that
00:28:00 --> 00:28:05: were recently burned, older burns, open conditions, more closed conditions
00:28:05 --> 00:28:09: and this was a really important patchwork condition, if you
00:28:09 --> 00:28:12: will. When you take fire out of the woods, you
00:28:12 --> 00:28:16: get the the conditions in the bottom slide and you
00:28:16 --> 00:28:19: can see that the Gray and brown trees and red
00:28:19 --> 00:28:23: trees there, these are bark beetles that are responding to
00:28:23 --> 00:28:24: overly dense.
00:28:24 --> 00:28:28: Forest conditions killing large swaths of trees. Next slide, please.
00:28:30 --> 00:28:33: Even in the upper elevation cold forest, you can see
00:28:33 --> 00:28:37: in the top photo those Gray areas are recently burned
00:28:37 --> 00:28:41: areas, areas where hardwood shrubs and hardwood trees have come
00:28:41 --> 00:28:44: back. And these were essentially a governor on the flow

00:28:44 --> 00:28:48: of fire across many cold forest landscapes because a lot
00:28:48 --> 00:28:52: of hardwood conditions act as a wet blanket under many
00:28:52 --> 00:28:55: fire behavior conditions. And you can see that that forest
00:28:55 --> 00:28:58: patchwork has filled in and it's now in many areas
00:28:59 --> 00:29:00: that were burned.
00:29:00 --> 00:29:02: Previously a continuous carpet of forest.
00:29:04 --> 00:29:05: Next slide, please.
00:29:06 --> 00:29:09: So, so just about everywhere you look, there was some
00:29:10 --> 00:29:13: manner of change in forest conditions as a result of
00:29:13 --> 00:29:17: those factors that I discussed before. And so I want
00:29:17 --> 00:29:21: to highlight a couple of stabilizing feedbacks and the low
00:29:21 --> 00:29:26: and moderate severity fire force. That frequency tended to thin
00:29:26 --> 00:29:30: forest patches and reduce density of forests and the fuels
00:29:30 --> 00:29:34: on the ground and so that tended to promote more
00:29:34 --> 00:29:35: frequent fires.
00:29:35 --> 00:29:39: Of low severity and so that's a stabilizing local feedback.
00:29:39 --> 00:29:40: Next slide please.
00:29:42 --> 00:29:45: And when you take that feedback out of the woods,
00:29:45 --> 00:29:49: what you get is regeneration and release of small and
00:29:49 --> 00:29:52: medium sized trees that fill in the gaps. And those
00:29:52 --> 00:29:55: act as fuel ladders, places where.
00:29:55 --> 00:29:58: Fire from the ground can climb up the canopies of
00:29:58 --> 00:30:02: the smaller trees into the crowns of larger trees, and
00:30:02 --> 00:30:05: that gives us severe fire behavior and severe fire effects.
00:30:05 --> 00:30:06: Next slide, please.
00:30:10 --> 00:30:13: In addition to this local stabilizing feedback, we have a
00:30:13 --> 00:30:17: landscape scale feedback that we've lost these higher severity fires.
00:30:17 --> 00:30:22: They created pathworks of meadows and prairies, shrublands, young, middle-aged
00:30:22 --> 00:30:26: and older forests and conditions were open and closed and
00:30:26 --> 00:30:30: there were patches of hardwood and all of these patterns
00:30:30 --> 00:30:34: work together to spatially regulate the future size and severity
00:30:34 --> 00:30:37: of fires. These these feedbacks are really critical to the
00:30:37 --> 00:30:40: landscape and sort of that's the net.
00:30:40 --> 00:30:43: Effect of a lot of these fire exclusion influences. Next
00:30:43 --> 00:30:44: slide please.
00:30:46 --> 00:30:50: Climate change. Molly tied up the vital role of climate
00:30:50 --> 00:30:51: change.
00:30:51 --> 00:30:54: In the top left you can see the 1951 to
00:30:55 --> 00:30:58: 1980. This is sort of a Goldilocks, a mild and
00:30:58 --> 00:31:03: equitable climate of that mid century. Before we really see

00:31:03 --> 00:31:07: the climate ratcheting up. And now as you advance clockwise

00:31:07 --> 00:31:11: to 198393 you can see the climate is warming and

00:31:11 --> 00:31:16: these are northern hemisphere summer temperatures. And as you continue

00:31:16 --> 00:31:21: you can see summer temperatures from 94 to 2004 increasingly

00:31:21 --> 00:31:21: warm.

00:31:21 --> 00:31:26: By 2005 to 2015, we're really out-of-the-box and our climate

00:31:26 --> 00:31:31: is significantly warmer with many more extremely hot days and

00:31:31 --> 00:31:36: the trends are continuing. After 2015, the conditions are even

00:31:36 --> 00:31:39: hotter in summer. Next slide please.

00:31:41 --> 00:31:43: So what I want to show you here is that

00:31:43 --> 00:31:47: the exposure that's provided by the warming of the climate,

00:31:47 --> 00:31:50: by the end of this century, we're going to see

00:31:51 --> 00:31:54: summers in the northern hemisphere to last nearly half the

00:31:54 --> 00:31:59: year. That's going to diminish the snowpack where forests grow

00:31:59 --> 00:32:02: as a consequence of snow accumulation, and it's going to

00:32:03 --> 00:32:06: cure out fuels earlier and longer during the season. So

00:32:06 --> 00:32:10: we can expect a tripling or quadrupling of burned area

00:32:10 --> 00:32:12: by the end of this century.

00:32:12 --> 00:32:13: Next slide, please.

00:32:14 --> 00:32:17: Here I want to show you in several states here

00:32:17 --> 00:32:20: in the West how the high fire years are associated

00:32:20 --> 00:32:24: with not enough water. That's the climatic water balance or

00:32:24 --> 00:32:28: climatic water deficit. That's simply the difference between what vegetation

00:32:29 --> 00:32:32: cover needs to grow and the amount that's available. You

00:32:32 --> 00:32:35: can see low fire years in the left or where

00:32:35 --> 00:32:38: there's plenty of water and the high fire years are

00:32:38 --> 00:32:41: where there's simply not enough water and even the live

00:32:41 --> 00:32:43: vegetation is curing out. Next slide.

00:32:46 --> 00:32:49: All right, what does this mean? So on the left

00:32:49 --> 00:32:52: map of the United States, I'm showing hazardous fuels and

00:32:52 --> 00:32:55: the likelihood of containment. Hot colors.

00:32:56 --> 00:32:59: High hazard potential, cool colors less so.

00:32:59 --> 00:33:03: You can see the West really has a bullseye on

00:33:03 --> 00:33:06: it on the right side. What does that mean when

00:33:06 --> 00:33:09: fires escape? If in fact we have a poor likelihood

00:33:09 --> 00:33:14: of containment, what is the consequence when these fires escape?

00:33:14 --> 00:33:17: And this is the risks to home in percentile. So

00:33:17 --> 00:33:21: if you look at the the hottest colors, what you're
00:33:21 --> 00:33:24: seeing is most of the risk to homes is living
00:33:24 --> 00:33:28: in the West, some also high risk in Florida and
00:33:28 --> 00:33:29: Texas and Oklahoma.
00:33:30 --> 00:33:33: So the key ideas here are the worst wildfires in
00:33:33 --> 00:33:36: the US are ahead of us. Fire suppression alone can't
00:33:36 --> 00:33:40: solve this, and it won't protect us by itself. Next
00:33:40 --> 00:33:41: slide, please.
00:33:43 --> 00:33:47: Some key takeaways for forest landscapes I think it's important
00:33:47 --> 00:33:52: for for folks to be advocates of promoting changes, improvements
00:33:52 --> 00:33:57: in wildfire resilience in the landscapes that surround the wildland
00:33:57 --> 00:33:58: urban interface.
00:33:58 --> 00:34:02: Key things to promote are to recreate these diverse patterns
00:34:03 --> 00:34:07: of forest age, density, composition at hardwoods back to the
00:34:07 --> 00:34:12: forest, rebuild Pathworks, rebuild open and closed canopy forest mosaics
00:34:12 --> 00:34:16: and promote these adaptation changes. Next slide please.
00:34:18 --> 00:34:22: And built environments. Adopt the International Wooley code. All of
00:34:22 --> 00:34:26: it. Those separate egress roads out of new developments are
00:34:26 --> 00:34:30: really important. About 70% of all new housing starts in
00:34:30 --> 00:34:34: the West are in high fire danger environments. This critical
00:34:34 --> 00:34:38: maintaining defensible spaces. Go to Google Firewise to find out
00:34:38 --> 00:34:43: what that means. In rural environments, maintaining the capacity to
00:34:43 --> 00:34:47: douse fires, water storage tanks, hoses and pumps, build with
00:34:47 --> 00:34:48: wood, we approved.
00:34:48 --> 00:34:52: Building products again, Google Firewise for what that list looks
00:34:52 --> 00:34:52: like.
00:34:53 --> 00:34:57: Promote living in wood rather than smoke. Then out the
00:34:57 --> 00:35:01: trees. Use those in mass timber products. Reduce the associated
00:35:01 --> 00:35:05: smoke. Prescribe burning saves half to 90% of the smoke
00:35:05 --> 00:35:10: over wildfires. Avoid developing in high fire danger. Environments build
00:35:10 --> 00:35:11: up, not out.
00:35:12 --> 00:35:16: Appropriate air filtration is going to be critical. Smoke going
00:35:16 --> 00:35:19: to be with us, whether wild or prescribed fire, it's

00:35:19 --> 00:35:22: important to be able to live safely and work safely.

00:35:22 --> 00:35:26: And finally, emergency shelters and Emergency Management plans are going

00:35:26 --> 00:35:29: to be key for shut INS and folks who really

00:35:29 --> 00:35:32: don't have access to safe environments. Next slide, please.

00:35:34 --> 00:35:38: We have time tested methods to to create more resilient

00:35:38 --> 00:35:43: landscapes. They're listed here thinning and prescribed burning. An open

00:35:43 --> 00:35:47: canopy forest is a more fire safe forest. Prescribed burning

00:35:47 --> 00:35:51: is needed to maintain these treatments. It really reduces the

00:35:51 --> 00:35:55: smoke associated with wildfire smoke as I said by many

00:35:55 --> 00:35:59: times and that makes our communities more livable. Less period

00:36:00 --> 00:36:04: of smoke, less smoke overall using managed wildfires and Backcountry.

00:36:04 --> 00:36:07: This is away from urban areas. Allow them to do

00:36:07 --> 00:36:11: some of the thinning work that's necessary. Work at a

00:36:11 --> 00:36:14: fast pace on a large scale. This opportunity will have

00:36:14 --> 00:36:17: passed in the next couple of decades and then doing

00:36:17 --> 00:36:22: the maintenance work that's needed. This is an enduring transgenerational

00:36:22 --> 00:36:25: commitment. We need to do the work and pass on

00:36:25 --> 00:36:29: forests that are prepared for the next generation. And finally,

00:36:29 --> 00:36:33: these resilience treatments provide a green fiber source for mass

00:36:33 --> 00:36:35: timber products. It's an end to end.

00:36:35 --> 00:36:39: Scan for forest carbon storage and healthy living environments next

00:36:39 --> 00:36:40: slide, please.

00:36:42 --> 00:36:46: So you would ask why a research ecologist might white

00:36:46 --> 00:36:49: say why mass timber? And the reason is we have

00:36:50 --> 00:36:54: many interacting challenges that cross many spaces, large and severe

00:36:54 --> 00:36:59: wildfires like we've been talking about, extended droughts, insect and

00:36:59 --> 00:37:04: disease, which is creating increasing amounts of fuel. Communities are

00:37:04 --> 00:37:08: at risk, local economies are at risk. These issues cross

00:37:08 --> 00:37:13: many boundaries and the problems align with doing work across

00:37:13 --> 00:37:14: several spaces.

00:37:14 --> 00:37:16: That creates the corresponding benefits.

00:37:17 --> 00:37:22: It also provides more sustainable building materials. The thinning that

00:37:22 --> 00:37:26: is needed to make these forests more fire safe yields
00:37:26 --> 00:37:30: tremendous wood and fiber assets to mass timber. Next slide
00:37:30 --> 00:37:30: please.
00:37:33 --> 00:37:37: The Forest Service is keenly interested in mass timber strategy
00:37:37 --> 00:37:42: and investments. Over $55 million have been invested so far
00:37:42 --> 00:37:47: in education, technical assistance, development of research and codes and
00:37:47 --> 00:37:52: other initiatives. I believe that Melissa and Lindsey can provide
00:37:52 --> 00:37:57: resources if you're interested in diving deeper here, last slide
00:37:57 --> 00:37:57: please.
00:38:00 --> 00:38:03: I want to thank you for your time and attention.
00:38:03 --> 00:38:07: Hopefully it makes sense that creating resilient landscapes surrounding our
00:38:08 --> 00:38:12: communities is actually critical to making our communities more livable
00:38:12 --> 00:38:15: and sustainable and healthy environments for living.
00:38:18 --> 00:38:21: That's great. Thank you so much Paul and and and
00:38:21 --> 00:38:24: before you Molly for setting this up and I think
00:38:24 --> 00:38:28: having some rather sober motor motivation to what I'm going
00:38:28 --> 00:38:28: to try and.
00:38:29 --> 00:38:35: Discuss, because I think obviously in challenge there's always opportunity
00:38:35 --> 00:38:39: and the the fun part about this thinking is to
00:38:39 --> 00:38:43: be a protagonist and to think about what are viable
00:38:43 --> 00:38:47: responses. And you know, Paul just did a very nice
00:38:47 --> 00:38:50: job of laying out a number of them. I think
00:38:50 --> 00:38:55: before I go into the details, it's helpful within the
00:38:55 --> 00:38:59: real estate investors mindset within the developers tasks.
00:39:00 --> 00:39:03: To keep a bit of an empathy towards the fact
00:39:03 --> 00:39:07: that we have a responsibility, the chart on the left
00:39:07 --> 00:39:11: in the green is noting that the built environment bears
00:39:11 --> 00:39:15: a huge amount of responsibility with respect to emissions. And
00:39:15 --> 00:39:19: on the right, it's sort of just motivating what Paul
00:39:19 --> 00:39:22: did so well. But if we go to the next
00:39:22 --> 00:39:25: slide, it is one of many economist cover stories, and
00:39:26 --> 00:39:29: I use the Economist as sort of a barometer for.
00:39:29 --> 00:39:34: The global mindset or what's of issue, as Molly noted,
00:39:34 --> 00:39:38: a climate change is a risk magnifier. And of course
00:39:38 --> 00:39:41: there's so many risks out there that some of my
00:39:42 --> 00:39:46: friends I've noticed on that on this webinar today and

00:39:46 --> 00:39:50: others who have the daunting task to invest in a
00:39:50 --> 00:39:55: fiduciary fiduciary in a responsible fiduciary sort of long term
00:39:55 --> 00:40:00: stewardship way, invest the resources, the money if pensions.
00:40:00 --> 00:40:03: In the like, there's a lot of things to navigate
00:40:03 --> 00:40:06: and so as the next slide shows.
00:40:07 --> 00:40:10: The issues of wildfire and how it can impact society,
00:40:10 --> 00:40:13: they're both local in terms of, like a lot of
00:40:14 --> 00:40:18: people know, people who have been impacted. It's not ethereal
00:40:18 --> 00:40:22: and it's visually stunning. It plays really well on the
00:40:22 --> 00:40:23: Evening News.
00:40:23 --> 00:40:26: But it's one of many in a context of real
00:40:26 --> 00:40:28: challenges that confront.
00:40:29 --> 00:40:32: Where and how we build the assets and the investments
00:40:32 --> 00:40:36: that we're thinking into the future about because as the
00:40:36 --> 00:40:37: next slide shows.
00:40:38 --> 00:40:40: The consequences that Paul laid out.
00:40:41 --> 00:40:44: Are essentially creating a lot of feedstock, not a lot,
00:40:44 --> 00:40:47: but some of the feedstock on the left that can
00:40:48 --> 00:40:51: go to become on the right a beautiful home. And
00:40:51 --> 00:40:54: in this case this literally these logs on the left
00:40:54 --> 00:40:57: from Southern Oregon are the CLT on the right that
00:40:57 --> 00:41:00: you see in one of my recent mass timber home
00:41:00 --> 00:41:04: developments, the subdivision in in Portland OR.
00:41:04 --> 00:41:08: And so maybe there's some good that's coming out of
00:41:08 --> 00:41:13: this challenge that can motivate us because the next slide
00:41:13 --> 00:41:16: is to remind us that there's no free lunch in
00:41:16 --> 00:41:20: this world, right. The Economist in me is is always
00:41:20 --> 00:41:25: needing to say this because if we're trying to consume
00:41:25 --> 00:41:29: more responsibly from our EV vehicles, you can see two
00:41:29 --> 00:41:33: of them here parked inside of a mass timber garage.
00:41:34 --> 00:41:37: And if we're trying to build new homes, as Molly
00:41:37 --> 00:41:41: said, we're probably going to have a substantial amount of
00:41:42 --> 00:41:46: climate driven migration. So the let's build less, IE let's
00:41:46 --> 00:41:50: consume less housing is probably not a realistic scenario when
00:41:50 --> 00:41:54: we have substantial movement of peoples we're going to either
00:41:54 --> 00:41:55: be.
00:41:55 --> 00:41:59: Using our forests or we're going to be using our
00:41:59 --> 00:42:02: minds. This is literally a picture of the whole rust
00:42:02 --> 00:42:06: Mahoning mine in northern Minnesota, where my family is

from,

00:42:06 --> 00:42:10: where I'm born and raised in Minnesota. So there isn't.

00:42:11 --> 00:42:15: An option where there is no difficult decisions to be

00:42:15 --> 00:42:19: made. They're all hard decisions. And I do think that

00:42:19 --> 00:42:23: the response that mass timber provides and we can go

00:42:23 --> 00:42:28: to the next slide is a comparatively reasonable response. This

00:42:28 --> 00:42:32: comes from the observation that's shown on the right.

00:42:33 --> 00:42:39: From the journal Nature that's illustrating how wood timber both

00:42:39 --> 00:42:45: stores carbon. It's sequesters it but also probably emits less

00:42:45 --> 00:42:50: than our other main structural materials that are steel and

00:42:50 --> 00:42:55: cement, concrete being being made from cement and steel.

00:42:56 --> 00:43:00: This is by weight and so different buildings will use

00:43:00 --> 00:43:04: different proportions of these three elements. I'm never expecting or

00:43:05 --> 00:43:08: going to be arguing that mass timber in a pure

00:43:08 --> 00:43:11: way is the right way because steel and concrete do

00:43:11 --> 00:43:16: phenomenal things. But I do believe a more thoughtful hybrid

00:43:16 --> 00:43:20: mix as we're building our homes, our office buildings, whatever,

00:43:20 --> 00:43:24: into the future is a viable and interesting response to

00:43:24 --> 00:43:26: the challenges that we face.

00:43:26 --> 00:43:27: Because.

00:43:28 --> 00:43:30: New buildings. Let's assume they'll be built.

00:43:31 --> 00:43:34: They need to satisfy not just one, but multiple stakeholders.

00:43:34 --> 00:43:37: If you're an occupant, you simply want something that's beautiful,

00:43:37 --> 00:43:40: fair enough, and you want to have an enjoyable experience.

00:43:40 --> 00:43:43: But you're also interested increasingly, and I think more and

00:43:43 --> 00:43:47: more will be what's the social, responsible, healthy option as

00:43:47 --> 00:43:47: an occupant.

00:43:48 --> 00:43:52: I think if you're an investor, you're also having different

00:43:52 --> 00:43:55: pressures to put money in the direction of ESG values.

00:43:55 --> 00:43:58: But at the same time, you need to also be

00:43:58 --> 00:44:03: looking for lower volatility, differentiated cash flows, especially given the

00:44:03 --> 00:44:07: tumult that we are seeing and that the initial economist

00:44:07 --> 00:44:10: slides remind us of are going to be with us

00:44:10 --> 00:44:13: and they're probably going to be increasing. So with the

00:44:13 --> 00:44:14: next slide.

00:44:15 --> 00:44:20: We are going into the business case studies.

00:44:21 --> 00:44:24: That take these broader ideas and look at it on

00:44:24 --> 00:44:29: the individual asset level. Credit goes to woodworks for funding

00:44:29 --> 00:44:33: this multi year study where we are authoring just like

00:44:33 --> 00:44:38: you would in Business School case studies that look at

00:44:38 --> 00:44:42: the multitude of apartment buildings be they high rise, mid

00:44:42 --> 00:44:46: rise or normal Type 5 office buildings big and small,

00:44:46 --> 00:44:50: but they're really and the next slide shows this there

00:44:51 --> 00:44:51: really all.

00:44:51 --> 00:44:56: Examples of what we would call sort of normal development,

00:44:56 --> 00:45:01: the 90% of the capitalism market out there that's producing

00:45:01 --> 00:45:06: the built environment. There's a lot of government projects, there's

00:45:07 --> 00:45:11: a lot of higher Ed projects, maybe nonprofit or foundation

00:45:11 --> 00:45:15: kind of 1 off passion projects. But of course this

00:45:15 --> 00:45:20: scale of change is coming from the standard development world

00:45:20 --> 00:45:22: and there's so.

00:45:22 --> 00:45:25: That is to say, we need to, as we're studying

00:45:25 --> 00:45:29: replicable and scalable examples, we need to be paying attention

00:45:29 --> 00:45:32: to what we're studying. The scale of the project, the

00:45:32 --> 00:45:35: impetus for it, the location of it, its asset class

00:45:35 --> 00:45:39: does it neatly in normally fit and the sponsor, for

00:45:39 --> 00:45:42: example, is the sponsor doing the project, the developer, the

00:45:43 --> 00:45:47: protagonist, knowledgeable? Do they have had they considered other options,

00:45:47 --> 00:45:51: the traditional options, and why did they opt in to

00:45:51 --> 00:45:52: do a mass timber?

00:45:52 --> 00:45:56: Project O, that's the study methodology that is hopefully well

00:45:56 --> 00:46:00: founded and with the next slide helps us go into

00:46:00 --> 00:46:04: an example here. This is a San Francisco well respected

00:46:04 --> 00:46:08: San Francisco developer that's done an office building in a

00:46:08 --> 00:46:13: great location. This is called the one deharo office project.

00:46:13 --> 00:46:16: The next slide shows how we look at the project

00:46:16 --> 00:46:20: team. They are name brand normal well recognized teams. This

00:46:21 --> 00:46:22: is helpful because.

00:46:22 --> 00:46:25: We know that they know what they're doing and they

00:46:25 --> 00:46:29: wouldn't have done something silly. The next project, the next

00:46:29 --> 00:46:32: slide gives us a sense of the project itself, some

00:46:33 --> 00:46:35: of the details. I'm not going to spend time on

00:46:36 --> 00:46:39: the project, but I'm just giving you a sense of

00:46:39 --> 00:46:43: what each individual case studies content contains. The next

slide

00:46:43 --> 00:46:47: will show you the quantitative details. As Melissa mentioned, this

00:46:47 --> 00:46:51: is not easy to necessarily convince developers, investors to share,

00:46:52 --> 00:46:53: but we are genuinely.

00:46:53 --> 00:46:57: Looking at an asset individually in the context of its

00:46:57 --> 00:47:00: sub market and its asset class to say what was

00:47:00 --> 00:47:05: the market return that should have been generally expected and

00:47:05 --> 00:47:09: then what did this projects Performa IE what was it

00:47:09 --> 00:47:13: thinking it would achieve and then what did it achieve?

00:47:13 --> 00:47:16: Because at the end of the day a project that

00:47:16 --> 00:47:19: cost twice as much and has a whole return is

00:47:20 --> 00:47:23: not going to be a scalable or replicable project.

00:47:23 --> 00:47:28: It will attract the volume of changed mindsets that we're

00:47:28 --> 00:47:31: hoping could be in the future. So we can respond

00:47:31 --> 00:47:36: to what Molly and Paul have been well describing. The

00:47:36 --> 00:47:41: next slide gives the qualitative learnings, not just quantitative learnings.

00:47:42 --> 00:47:46: And we're able to from the quantitative and qualitative in

00:47:46 --> 00:47:49: the next slide sort of discern what.

00:47:51 --> 00:47:54: Learnings we can from these projects, I will say that

00:47:54 --> 00:47:58: our analysis is generally framed by a very traditional sort

00:47:58 --> 00:47:59: of.

00:47:59 --> 00:48:02: Real Estate 101 mindset which is the net income in

00:48:02 --> 00:48:06: the numerator, the costs in the denominator and or the

00:48:06 --> 00:48:09: purchase price like what is the value. These are three

00:48:09 --> 00:48:13: things, cost, purchase price value depending on your perspective and

00:48:13 --> 00:48:17: what seat you're sitting in that are the denominator and

00:48:17 --> 00:48:21: then the return often called the cap rate depending again

00:48:21 --> 00:48:24: which seat you're sitting on. That's the basic measure that

00:48:24 --> 00:48:27: we're trying to make sure we we sort of look

00:48:27 --> 00:48:28: at all of this.

00:48:29 --> 00:48:32: In that context, so going into learnings in the next

00:48:32 --> 00:48:35: slide from the dozen that we've been able to deeply

00:48:35 --> 00:48:40: study both quantitatively and qualitatively looking at the project, talking

00:48:40 --> 00:48:44: to multiple sources on the project team, talking to informed

00:48:44 --> 00:48:47: participants in each sub market. So we are trying our

00:48:47 --> 00:48:50: best to make sure we're getting the real scoop at

00:48:50 --> 00:48:53: the asset level and at the submarket level what we're

00:48:54 --> 00:48:54: seeing.
00:48:55 --> 00:48:58: In some ways it's dumb simple, but we don't know
00:48:58 --> 00:49:01: until we know. Which is to say, these things are
00:49:01 --> 00:49:05: leasing up fast, which is awesome. That's a hugely important
00:49:05 --> 00:49:10: thing and these things are attracting really high quality tenants
00:49:10 --> 00:49:11: if you're in the office.
00:49:12 --> 00:49:16: Asset class, they're attracting absolutely who you want in terms
00:49:16 --> 00:49:20: of a credit tenant. If you're in the apartment, you're
00:49:20 --> 00:49:24: getting outstanding, qualified residents excited to move in.
00:49:25 --> 00:49:28: If with, with, with respect to the lease up, the
00:49:29 --> 00:49:33: apartments are phenomenally having phenomenal absorption rates.
00:49:35 --> 00:49:38: And then with the office buildings we're seeing tremendous pre
00:49:38 --> 00:49:42: leasing which is so huge that the tenant improvements and
00:49:42 --> 00:49:45: the and and that can happen while the building is
00:49:45 --> 00:49:48: being constructed. And so when the building's done it's not
00:49:48 --> 00:49:52: empty but it's literally got seats on seats doing things
00:49:52 --> 00:49:55: in that building. These are the two key trends irrespective
00:49:55 --> 00:49:59: of office or multifamily that we're seeing mass timber buildings
00:49:59 --> 00:50:04: sharing other buildings, other individual assets have interesting storylines of
00:50:04 --> 00:50:06: outstanding rents or of.
00:50:06 --> 00:50:10: Actually saved costs, but what we see universally are these
00:50:10 --> 00:50:14: two trends. The next slide will go into specific to
00:50:14 --> 00:50:17: multifamily a little bit deeper we're seeing.
00:50:18 --> 00:50:18: That.
00:50:19 --> 00:50:23: Basically everyone loves the the look and feel of it
00:50:23 --> 00:50:27: and if you of course can broaden your target market
00:50:27 --> 00:50:32: that helps you irrespective of everything else. I mentioned the
00:50:32 --> 00:50:36: pre leasing and you can see here that pre leasing
00:50:36 --> 00:50:40: translates to lower costs in certain ways and what is
00:50:40 --> 00:50:43: also of interest I think and again this is a
00:50:43 --> 00:50:45: bit of a prognostication but.
00:50:46 --> 00:50:49: These things, when you wake up in the morning and
00:50:49 --> 00:50:51: you walk out, you know you're in a different home.
00:50:52 --> 00:50:54: You're not in the standard multifamily home.
00:50:55 --> 00:50:58: And there's a distinction with that, that when the next
00:50:58 --> 00:51:01: thing gets built right next door has a bit of
00:51:01 --> 00:51:02: a durability.

00:51:03 --> 00:51:06: Against future supply. So if you're an investor, your asset
00:51:06 --> 00:51:09: that might be 10 years old continues to sort of
00:51:09 --> 00:51:12: have some distinction and stand apart. That's hard to do
00:51:12 --> 00:51:15: and that's awesome to have if you're holding an asset
00:51:15 --> 00:51:18: for a longer term. The final thing that I think
00:51:18 --> 00:51:21: is really helpful and increasingly important is it's really a
00:51:21 --> 00:51:24: tangible example of the brand values. So I can't tell
00:51:24 --> 00:51:27: you how many times I go into development deals and
00:51:27 --> 00:51:30: they call themselves like ecovillage and they look, smell and
00:51:30 --> 00:51:33: act exactly like the standard run-of-the-mill.
00:51:33 --> 00:51:33: Project.
00:51:34 --> 00:51:37: And that sort of greenwashing is I think something we
00:51:37 --> 00:51:40: all have seen and and and don't really like. In
00:51:40 --> 00:51:43: this case, it's a very concrete way of aligning an
00:51:43 --> 00:51:47: asset, an investment and new development with the brand that
00:51:47 --> 00:51:50: is increasingly being sought by members of society.
00:51:52 --> 00:51:55: On the next slide, the office market is in some
00:51:55 --> 00:52:00: ways similar, but there's some important distinctions because in the
00:52:00 --> 00:52:04: second bullet point, you'll see here that if you're an,
00:52:04 --> 00:52:08: if you're a firm operating in society today, you're being
00:52:08 --> 00:52:13: asked by different stakeholders what you're doing, for example, to
00:52:13 --> 00:52:17: attract and retain great talent. So if you deliver them
00:52:17 --> 00:52:21: this better space, that's a comparative advantage that you can
00:52:21 --> 00:52:22: demonstrate.
00:52:22 --> 00:52:26: Uh, to your ownership, to your stockholders that you are
00:52:26 --> 00:52:31: taking action towards ensuring you've got the best talent from
00:52:31 --> 00:52:35: the regulatory side, IE the local governments. We all know
00:52:35 --> 00:52:39: that some firms are favored and they're the good guys
00:52:39 --> 00:52:41: and some firms are seen not as this is a
00:52:41 --> 00:52:43: way that I believe.
00:52:44 --> 00:52:48: Firms can be showing the regulatory side how they are
00:52:48 --> 00:52:52: trying to behave as a business, as a member of
00:52:52 --> 00:52:58: society. I think these are important and increasingly challenging questions
00:52:58 --> 00:52:59: for CEO's to to navigate.
00:53:00 --> 00:53:04: And of course we're also seeing, I want to highlight
00:53:04 --> 00:53:07: the very bottom if you're an office owner, it's a
00:53:07 --> 00:53:11: hard market right now and what we've seen is tremendous
00:53:11 --> 00:53:15: sub leasing and or these buildings staying occupied even

during
00:53:15 --> 00:53:19: this COVID disruption and this sort of work from home
00:53:19 --> 00:53:23: shift that again it's too early to make strong conclusions
00:53:23 --> 00:53:26: of, but that is worth its weight in gold. So
00:53:26 --> 00:53:30: that's an important observation. Let's go one more slide here.
00:53:30 --> 00:53:34: I believe yes. And so I believe we're inviting you
00:53:34 --> 00:53:37: to learn more. This is these are a sample of
00:53:37 --> 00:53:41: the projects that we've been able to complete. We're working
00:53:41 --> 00:53:44: on more and excited to release those. Soon this QR
00:53:44 --> 00:53:47: code will pause and you can take a picture with
00:53:47 --> 00:53:51: your phone to to link right there. And with this,
00:53:51 --> 00:53:53: we can go to the next slide and go to
00:53:53 --> 00:53:57: Q&A if I'm understanding it correctly, which I think.
00:53:58 --> 00:53:58: Might be Melissa.
00:54:00 --> 00:54:02: Yes, we're going to go to Q&A now and if
00:54:03 --> 00:54:06: all of the speakers can please turn their videos back
00:54:06 --> 00:54:10: on. And I also want to mention that this webinar
00:54:10 --> 00:54:13: will be recorded and a copy of the slides will
00:54:13 --> 00:54:17: be available on ULI Knowledge Finder and about two weeks,
00:54:17 --> 00:54:20: along with a PDF and a list of resources on
00:54:20 --> 00:54:22: wildfires and mass timber.
00:54:23 --> 00:54:26: And and we only have a few minutes here for
00:54:26 --> 00:54:29: questions, so I'm going to jump right into questions. The
00:54:29 --> 00:54:33: first question is from Molly. Molly, as a real estate
00:54:33 --> 00:54:37: developer, you've explored mass timber for some of your projects.
00:54:37 --> 00:54:40: Can you share with us some of the challenges that
00:54:40 --> 00:54:43: you faced in pursuing mass timber and in an area
00:54:43 --> 00:54:46: where you'd be one of the first developers?
00:54:47 --> 00:54:47: To do so.
00:54:48 --> 00:54:51: Yes, I can and we would definitely be the I
00:54:51 --> 00:54:55: I actually am working on a project currently in Montana
00:54:55 --> 00:54:58: and we would be the first one in the market
00:54:58 --> 00:55:00: and so some of the challenges are a.
00:55:01 --> 00:55:04: Contractors who are not familiar with it and so therefore
00:55:04 --> 00:55:07: their ability to sort of figure out how to make
00:55:07 --> 00:55:10: it happen and how to price it. In Montana in
00:55:10 --> 00:55:13: particular as it relates to the building codes, we did
00:55:13 --> 00:55:16: not, we just approved the most current building codes but
00:55:16 --> 00:55:19: we skipped the last one and So what by skipping
00:55:19 --> 00:55:22: the last one we sort of missed out in that
00:55:22 --> 00:55:25: you know preparation and understanding of of some of the

00:55:25 --> 00:55:28: mass timber things that are showing up in the building
00:55:28 --> 00:55:31: code. So we're kind of playing catch up so I
00:55:31 --> 00:55:31: think.
00:55:31 --> 00:55:34: Those are, those are particular as it relates to some
00:55:34 --> 00:55:37: of the things that Noel said. You know we don't
00:55:37 --> 00:55:40: know whether or not we will get higher rents or
00:55:40 --> 00:55:43: better you know any of those things because it's just
00:55:43 --> 00:55:47: we don't necessarily have what I would call credit tenants
00:55:47 --> 00:55:49: so to speak in our market. We believe that those
00:55:50 --> 00:55:52: are the cases and we have a lot of excitement
00:55:52 --> 00:55:56: around it, but that's definitely been one of the challenges
00:55:56 --> 00:55:59: from our perspective of getting it adopted here.
00:56:00 --> 00:56:04: And no, would you like to offer some advice following
00:56:04 --> 00:56:07: up on that for developers who are in markets where
00:56:07 --> 00:56:10: they might be the first in mass timber?
00:56:11 --> 00:56:13: Yeah, I think the simple advice I've always given is
00:56:13 --> 00:56:16: ensure that you're working with a team that is less.
00:56:16 --> 00:56:19: It's not necessarily the experience, but it's the mindset, right?
00:56:20 --> 00:56:22: Are you going to roll your sleeves up, not assume
00:56:22 --> 00:56:25: and do some hard work, right? Doing something new and
00:56:25 --> 00:56:28: being the protagonist is going to be a challenge. And
00:56:28 --> 00:56:31: so if you surround yourself with sort of committed persons
00:56:31 --> 00:56:33: that are really from the architect of the engineer to
00:56:34 --> 00:56:36: the contractor to trying to find the persons in your,
00:56:36 --> 00:56:40: in your, in your permitting departments, whether it's building code
00:56:40 --> 00:56:40: or land use.
00:56:41 --> 00:56:43: That are going to work hard on this idea. That's
00:56:43 --> 00:56:45: the 1st and most important step I'd suggest.
00:56:47 --> 00:56:50: And I'll just add to that that woodworks, we've also
00:56:50 --> 00:56:54: expanded our audience to general contractors being small and many
00:56:55 --> 00:56:59: face the same problem as you finding experience builders and
00:56:59 --> 00:57:03: we're always there with our project assistance to help navigate
00:57:03 --> 00:57:05: new territory and educate entire teams.
00:57:07 --> 00:57:09: And Paul, the next question is for you.
00:57:10 --> 00:57:13: And the US, you've told me that you know, our
00:57:13 --> 00:57:17: the public perception of the US Forest Service has has
00:57:17 --> 00:57:20: been in the past to suppress fires. But what we
00:57:20 --> 00:57:23: heard from you today is that we're not going to.
00:57:23 --> 00:57:27: Battle these mega files fires with fire suppression. So if

00:57:27 --> 00:57:30: you could please paint a picture for us of what
00:57:30 --> 00:57:34: the future of the forest ServiceNow looks like or should
00:57:34 --> 00:57:35: look like.
00:57:37 --> 00:57:42: So it's a great question. Going forward, the Forest Service
00:57:42 --> 00:57:47: and other state organizations are going to continue to suppress
00:57:47 --> 00:57:49: fires with their best resources.
00:57:50 --> 00:57:54: My point really is that resource availability is always going
00:57:54 --> 00:57:57: to be lacking and so a multi tool toolkit is
00:57:57 --> 00:58:01: going to be necessary to to essentially exceed the pace
00:58:01 --> 00:58:04: and scaling of wildfires, changing the landscape. And I I
00:58:04 --> 00:58:08: talked about some of those additional tools. But if you
00:58:08 --> 00:58:12: stop and think about it, just doing a reactive trying
00:58:12 --> 00:58:15: to suppress fires isn't getting the job done and it's
00:58:15 --> 00:58:18: also not leaving for us in a condition we want
00:58:18 --> 00:58:21: them and so a lot of different tools are going
00:58:21 --> 00:58:22: to be required.
00:58:22 --> 00:58:26: But obviously there's no position where fire suppression will will
00:58:26 --> 00:58:29: stop happening. It just can't get the job done by
00:58:29 --> 00:58:30: itself.
00:58:32 --> 00:58:33: Right and.
00:58:35 --> 00:58:39: I wanted to share with you in closing just a
00:58:39 --> 00:58:44: few kind of misconceptions, common misconceptions in the industry that
00:58:45 --> 00:58:49: that I think are speakers really did a fantastic job
00:58:49 --> 00:58:53: of addressing today and I just want to reinforce them
00:58:53 --> 00:58:58: and leave you all with a few final thoughts. Wildfires
00:58:58 --> 00:59:03: impact both urban and rural development and a variety of
00:59:03 --> 00:59:05: different ranges that.
00:59:05 --> 00:59:09: Molly pointed out. From our municipal water supply to energy
00:59:09 --> 00:59:12: infrastructure, air quality and beyond.
00:59:13 --> 00:59:16: And we heard Paul talk about the need to restore
00:59:16 --> 00:59:20: patchwork force and it's a common misconception that the easy
00:59:20 --> 00:59:24: button for sustainability is to plant more trees. But in
00:59:24 --> 00:59:28: our forests in North America, we actually need to work
00:59:28 --> 00:59:33: towards restoring through the patchwork through prescriptive burning and also
00:59:33 --> 00:59:38: creating value creating demand for high value forest products like
00:59:38 --> 00:59:42: mass timber, which can create an economic rationale for helping
00:59:42 --> 00:59:43: to thinner.

00:59:43 --> 00:59:47: Of course, I think the one of the former Cal

00:59:47 --> 00:59:53: Fire chiefs, Ken Pimlott, said it best with the extreme

00:59:53 --> 00:59:58: catastrophic wildfires ahead of us. We need every tool in

00:59:58 --> 01:00:00: our tool belt and.

01:00:01 --> 01:00:04: Paul shared Paul, Molly shared quite a few of them

01:00:04 --> 01:00:07: with you today and we've also included some other resources

01:00:07 --> 01:00:10: that you I's resilience team has on those.

01:00:11 --> 01:00:15: And lastly, a lot of developers have the tendency to

01:00:15 --> 01:00:18: think when they come to us with mass timber, their

01:00:18 --> 01:00:21: first question is what does it cost and if it's

01:00:21 --> 01:00:24: not cheaper, I'm not going to build it. And our

01:00:24 --> 01:00:29: business case studies that we've talked about today, mass timber

01:00:29 --> 01:00:32: is consistently a slight premium. And I hope that you

01:00:32 --> 01:00:36: have all learned that there are other ways to contribute

01:00:36 --> 01:00:40: value and contribute to the financial bottom line as well

01:00:40 --> 01:00:42: as stakeholder and investor.

01:00:42 --> 01:00:42: Desires.

01:00:44 --> 01:00:46: Even though it might be a slight premium.

01:00:46 --> 01:00:47: And.

01:00:48 --> 01:00:51: We are out of time, but I would like to

01:00:51 --> 01:00:54: invite you all to continue say thank you all of

01:00:54 --> 01:00:57: you for joining us today and invite you to continue

01:00:57 --> 01:00:59: the resilience conversation.

01:00:59 --> 01:00:59: At.

01:01:00 --> 01:01:03: The 4th annual Resilience Summit, which will be held in

01:01:03 --> 01:01:06: conjunction with the UL I spring meeting and Toronto and

01:01:06 --> 01:01:10: you have all of our e-mail addresses. Please feel free

01:01:10 --> 01:01:13: to reach out with any questions and thank you again.
