**McCaleb, Iris**

**From:** Siegel, Scot
**Sent:** Monday, June 26, 2017 8:59 AM
**To:** 'Craig Stephens'
**Subject:** RE: LU 17-0039 PRD RE: Re seismic resiliency code requirements

Craig,

I think we are talking/emailing past one another. This is my final reply on the subject. The proposed code amendment is limited to the city's development code (zoning and aesthetic standards), not the building code, which focuses exclusively on life-safety. That is because the City Council direction was to allow greater flexibility/creativity in urban design in the downtown (Lake Oswego Style), not to draft new life-safety standards for buildings.

We have two different codes that regulate building design, each with its distinct purpose. The city's Community Development Code (LOC 50) regulates urban design, and the International Building Code (IBC/LOC 45) regulates building life-safety. As directed by the City Council, the amendment is to the former. While compliance with one affects compliance with the other, the propose changes to LOC 50 do not diminish building safety.

One of your concerns is underground parking. From an urban design perspective, underground parking, which is already allowed by LOC 50, is a good thing; it conserves land (more compact urban form), promotes walkability, and reduces stormwater runoff. It is also desirable for residents of mixed-use buildings who want to park in a dry and secure place where they can easily access their dwelling. From a life-safety perspective, parking garages, like all structures, must comply with current building codes, which include seismic, fire safety, and ADA requirements.

I understand and appreciate your point. According to FEMA F-154 and the rapid visual screening class that we both attended, buildings with a high degree of vertical and horizontal irregularity are more vulnerable to seismicity than those without. In other words, all things being equal (soils, code, construction, etc.) a shoebox with no underground parking and no architectural detailing is the most efficient shape for designing seismically sound building. But it is also true, all things being equal, a surface parking lot free of falling debris hazards is a safer place to be in an earthquake than in a parking structure. But we are not interested in building out the downtown with shoeboxes and surface parking lots. That would be contrary to the community vision (village character). Instead, we set a high standard for architectural design and require adherence to adopted building codes that the state has deemed applicable to our region. The current proposal is meant to better define the process and criteria for allowing flexibility in architectural styles.

As always, thank you for your comments.

Scot

**Scot Siegel**
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**From:** Craig Stephens [mailto:cyanblue189@gmail.com]
**Sent:** Saturday, June 24, 2017 1:28 PM
**To:** Siegel, Scot
**Subject:** Re: LU 17-0039 PRD RE: Re seismic resiliency code requirements

Hi Scot
OK. I want to try to put this idea of having uniform building codes into context so I can try to understand and be more clear. Obviously you do not include allowing certain design innovations and not others in that idea because the purpose of this project is to establish new unique building code criteria for Lake Oswego.
I am trying to get across is that seismic resilience and building design are linked. I think that should be fully understood by anyone discussing building design codes. As I said the most obvious and profound link is that of vertical and horizontal dislocations that create a point of high stress and start fracturing. The FEMA class starts with the credo that architects innovating are the enemy of structural seismic event security.

Also the uniform standard for building construction is not and cannot be the same by zone of risk and changes when the risk assessment changes so it is only prudent to understand the Cascadia risk assessment for this area and be proactive in meeting what will be the new standards since the code is being reviewed.
In short I suggest adding to your mission statement to address "sustainability" and allowing a wider variety of architectural "design styles" with "innovation" to include the most important element namely seismic design and structural integrity in a Cascadia level seismic event.
Leaving that to some state or federal agency by ignoring it until or unless someone chooses to consider it important when building downtown is short sighted in my humble opinion.
Thanks again
Craig

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On Jun 23, 2017, at 1:42 PM, Siegel, Scot <ssiegel@ci.oswego.or.us> wrote:

> Craig,
>
> Thank you for your comment. I will be sure to include it with others the city receives for the planning commission public hearing on LU 17-0039.
>
> In my response to the commission, I will explain that in Oregon, the 'key learning', as you refer to the process of building code reviews, below, is conducted at the State level in consultation with local building officials, not by individual local jurisdictions, because there is a state interest in having uniform standards.
>
> The city's emergency operations plan establish priorities for inspections after an earthquake, beginning with city buildings and infrastructure. The Building Official is the lead for structural damage assessment, and the Public Works department is responsible for assessing damage to city road and bridge systems. Here is a link to the Emergency Management Program.
>
> The city has also been working diligently to upgrade essential facilities, such as the new water treatment plant and trunk line, to withstand a major earthquake. The same approach is being taken in the design of the new civic center.
>
> Thanks again for taking the time to review the draft code amendments relating to downtown architectural design variances.

Scot

**Scot Siegel**
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**From:** Craig Stephens [mailto:cyanblue189@gmail.com]
**Sent:** Friday, June 23, 2017 12:43 PM
**To:** Siegel, Scot <ssiegel@ci.oswego.or.us>
**Subject:** Re: Thank you for calling re seismic resiliency code requirements

Hi Scot
Thank you for your response, excellent as always.
I would like for our building codes to reflect key learning from major earthquakes and when I look at the Kessi building I get the same feeling as when I looked at the Cypress structure in the Bay Area. The Northridge earthquake showed that parking underneath with this type of construction allows collapse with people living in such structures to be at risk.

Looking at the Barry Cain building right across the street with the parking not underneath shows that it is possible to have a quality design without jeopardizing the seismic safety.

So I suggest that the City of Lake Oswego hire a consultant familiar with the key learning from Chile, Christchurch, LA and the Bay Area to specifically create upgrades to be "tested good" for a Cascadia quake on the Oregon coast.

And I also suggest that the City Manager establish a base level criteria and have an assessment done on structures in Lake Oswego to identify structures that should be prioritized for checking after an earthquake to insure life safety is OK or to evacuate.

I am coming at this as being close to the Van Nuys earthquake (which forced LA to change the building codes and require strengthening on thousands of existing structures), the Northridge earthquake (which taught the weakness of underground parking with concrete pillars with welded rebar and taught that broken glass in homes is the major cause of injury), the Loma Prieta earthquake (and I was on the key learning team that corrected some 130 problems within the Lockheed complex alone) which taught that earthquake resilient structures with cross beams work and concrete pillars without anti-splay rebar welding internally collapse like the Cypress Structure, that flex on bridges is necessary or they fall down, etc. It also taught that unreinforced brick masonry such as with fireplace chimneys fall down and houses not attached to the foundation move ... a lot. So it strikes me as a shame that the key learning for each of these is localized and every place has to experience a disaster before taking this as seriously as it needs to be to avoid expense and loss of life. That is where I am coming from.

Best
Craig

On Wed, Jun 21, 2017 at 1:38 PM, Siegel, Scot <ssiegel@ci.oswego.or.us> wrote:

> Thanks, Craig.
>
> The city follows the state building code for seismic standards, which as you know are based on occupancy type. We can encourage building designs that exceed those standards, and in fact public agencies can implement a higher standard in projects they control, but ultimately the state code governs private projects. I am forwarding your comment to the city building official who is an expert on this and will take your comments under advisement.
>
> As for architectural design (aesthetic) standards, I agree that the city's development/zoning code should afford flexibility where owners are required to make seismic upgrades, and I think it already does so. LOC 50.08.003.3 General Design Variance Criteria allows variances where "Compliance with the applicable standard is not practicable due to the physical characteristics of the site or existing structure" (subsection a.i).
>
> A different question is whether the code should allow variances, or require different designs (e.g., no under-structure parking, as you put it) simply to reduce the cost of voluntarily building to a higher seismic standard. That is a policy question.
>
> If you wish provide comments on the development code relative to downtown design variances, please refer the public review draft and request for comments here:
>
> http://www.ci.oswego.or.us/planning/lu-17-0039-amendments-design-variance-criteria-developments-downtown-redevelopment-design
>
> Thank you for your interest and ongoing contributions. Please let me know if I can be of further assistance.
>
> Sincerely,
>
> Scot
>
> **Scot Siegel**
>
> Planning & Building Services Director
> City of Lake Oswego
> PO Box 369
> Lake Oswego, OR 97034
> tel: 503.699.7474

**From:** Craig Stephens [mailto:cyanblue189@gmail.com]
**Sent:** Wednesday, June 21, 2017 1:17 PM
**To:** Siegel, Scot <ssiegel@ci.oswego.or.us>
**Subject:** Thank you for calling re seismic resiliency code requirements

Hi Scot

Thank you for calling me about the possibility of code upgrades for increased seismic stability in new building construction.

As you suspect I am asking that seismic stability be included in the considerations for changing the building code in addition to providing more innovative design and sustainability. In the FEMA assessment class one of the general remarks are that architectural complexity is the enemy of seismic stability and the scoring system deducted points for vertical and horizontal offsets because these create high stress points that then progress like a "zipper".

I think now that my first question has been answered in that you have indicated a willingness to talk about this consideration. The problem that I have and why I am emailing you and not asking for a meeting to share my thoughts is that I am not knowledgeable enough to do anything more than request that someone who is knowledgeable be consulted and that the bar for seismic resistance be set higher than it is now.

A model for seismic resistance is found in the construction for hospitals such as the new OHSU facility. The underground parking is not under the structure and the ground floor is not weakened by having large expanses without major support beams. The new construction by Kessi is just the opposite and the support beams rely on welded bundles of rebar with circular ties, which is good but very limited compared to simply requiring no under-structure parking. The Northridge earthquake was a good example of why this is a good idea. Non-ductile concrete beams and high speed welding both failed to pass even a low scale earthquake when tested in Houston on a shake table (the only way to know for sure as shown in the FEMA class on structural integrity with the giant facility in Japan shown).

So this is a list of things to consider in a building code to stop allowing buildings that have known weakness points. If you and your staff would please take into account seismic resistance to at least as great an extent as architectural design flexibility and sustainability in writing new code (and I would argue for giving the edge in such a trade-off to seismic safety because of the risk, cost and danger vs having a less than thrilling regularity and shape or even a somewhat heavy look at the base is a trade-off that seems pretty clearly weighted toward life safety.

So 1) No under-structure parking (which eliminates a host of problems_

2) No broad expanse of window on the ground floor but rather close and arched peripheral support columns 3) No vertical or horizontal structural transitions (which could lead to separate buildings which is what Kessi did to his credit) 4) When using a technology that has not been fully tested or proven such as narrow concrete supports poured from above with dependence on circular welds to not splay and on linear flex to add ductility and coatings not to rust etc, require evidence of testing on a shake table and under worst case corrosion conditions etc as a good reliability engineer would do. Preferably use I beam construction but have quality checks of the welds and certification of material.

And no brick facade above the ground floor should be allowed for obvious reasons. Emergency access and multiple egress are also a given.

As I mentioned the OHSU buildings follow these mandates and they look good, are attractively designed (strong structures normally do), are build for sustainability and while expensive not prohibitively so.

One good thing about having buildings that survive in a big quake where emergency personnel have a hard time getting to where they are needed is that no emergency personnel are needed for buildings that survive and do not present a hazard for collapse. All of this argues for upgrading the building code I hope.

Thanks very much for considering consulting with someone expert and using this opportunity to finally upgrade our LO building code for new construction downtown in light of the Cascadia earthquake danger.

Craig

Comments from Paden Prichard DRAFT June 30, 2017
RE: Request for comments; Design Variances in the Downtown Redevelopment District:

Page 1. Background: I believe architectural variety is necessary. I do not agree that there are regulatory barriers in the code for sustainable building designs. The word sustainability is too easily used as a sort of cop-out.

Page 2. "History….."I think we need to wait to see how the 4th street townhouses turn out to use as an example. Comment …the garages are much taller than needed (14' ceiling in garage) and they are built like studio apartments, yet cannot be rented. Who is going to regulate this?
Opinions: Best example of LO style is 555 second street.
if these various projects can be approved, then I don't think there are really very many barriers to design variability.
Footnotes: The main fire station had to be "complementary to adjacent structures of good design". What were those buildings at the time??? , and this is totally subjective to use as criteria.

Page 5. III OPTIONS: ….. large undivided windows ….. and …..flat roofs….
Large undivided windows are not necessarily the most sustainable or energy use friendly. The material used and the actual design is more critical. Large plate glass is very energy costly to manufacture and hard to double glaze. Coatings can be used to reflect heat and let in light but they are mostly too reflective or costly to use. Divided light windows can be large and still meet the LO style for; example an 8 foot tall window can be divided into 24" panes with muntin bars that show on both sides …..(I think this is a critical determinant, that the bars must show on the outside and not be between the glass) … and still meet the LO style.
Flat roofs … a sloping roof is better for photovoltaic panels. Flat roofs are permitted now, just related to building height which is critical.
I think using the catch-all buzz-word of sustainability for these two variance possibilities is real hard to justify.

Recommended approach:
I am not sure that the variance route is the best way to approach this. I agree there needs to be variability, but to define a couple of ways to get a variance, I don't believe is the way to go. I think we should spend the time to redefine somewhat, the LO style or include some other examples of actual buildings in the "named" styles. Other examples than are shown in our design handbook.

Page 6. I agree that certain projects or properties should NOT be exempt or set aside.
#1 Why would we want to create more of the same of something that may be really bad?
#2 OK, but probably not able to be used regarding site. As it relates to existing structure, this may be able to apply.
#3 Variance needed to implement a sustainable….. or green building…. I don't see how this can really apply or that the necessity can be proved.
#4 Is this just for City Hall and LOCOM? Why strike out .. ..."will better …. property" ?

**Summary:** ***I would be in favor of redefining and broadening the LO Style or broaden the definition to be more informed about how the existing styles could be interpreted. As opposed to relying on variances to accomplish the necessary goals.***

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**McCaleb, Iris**

**From:** Craig Stephens <cyanblue189@gmail.com>
**Sent:** Saturday, July 01, 2017 10:47 AM
**To:** Siegel, Scot
**Subject:** Request for inclusion of seismic design principles into Comment

Hello Scot
I would like to request that the document that I have provided a link to be included in the comment relative to the proposed design criteria changes. Understanding the information in this tutorial is the only way that the statement that you make that there is no way that opening up the design criteria to a wider list of styles can be verified without understanding the the shape of the building matters and that re-entry points need to be avoided or brought to a higher standard of seismic resistance even at the risk of a building looking rectangular which you say must be avoided at all costs.

https://www.wbdg.org/resources/seismic-design-principles

Thanks very much
Craig

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**From:** Lisa Adatto
**To:** Siegel, Scot; Hamilton, Leslie
**Subject:** Comments on Lake Oswego Design Standards
**Date:** Monday, July 03, 2017 1:55:55 PM

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Dear Mr. Siegel and Ms. Hamilton:

Thanks for the opportunity to comment on the Lake Oswego design standards. Here are my thoughts:

- I don't think we need a town "theme". I think it is unnecessary and cheesy to require that every building have a steep roof and look like a swiss chalet, or have some other uniform look. In terms of appearance, I think that a variety of designs is fine.
- If possible, it would be good to include quality standards or ask that builders consider using local materials or consider asking that builders meet LEED standards.
- It is important that the standards not preclude the use of solar energy or other building techniques that will reduce energy use or promote renewable energy. The builders of the WIZER block buildings told me that design standards prevented them from including solar energy in the design.

Thanks for soliciting opinions!

All the best,

Lisa Adatto
Uplands Neighborhood
c: (503) 914-9678
ladatto3@gmail.com

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