

Seattle Permits

— part of a multi-departmental City of Seattle series on getting a permit

Seattle Building Code Requirements for Existing Buildings that Undergo Substantial Alterations

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This TIP is intended to clarify the definitions of substantial alteration and provide guidance on how Seattle Department of Construction and Inspections (SDCI) interprets Seattle Existing Building Code (SEBC) Section 307. Buildings that undergo substantial alterations must meet the requirements in Section 307 of the SEBC.

SDCI wants to make buildings safer and conserve energy. When a lot of work is proposed for an existing building, we require parts of the building to comply with current codes. We call this a substantial alteration. A project may be considered a substantial alteration when it includes any of the following (see SEBC Section 307.1.1):

- A significant repair
- A large addition
- An alteration
- A change to a more hazardous occupancy
- Occupancy of a vacant building
- Adding a lot of occupants in an unreinforced masonry building

If a project is a substantial alteration, SDCI requires that it be modified to meet specific sections of the Seattle Codes. These sections address some of the most important safety and energy conservation requirements. The sections are listed later in this TIP.

The building owner and designer should determine whether the project may be considered a substantial alteration. If the project is considered a substantial

alteration, they need to identify the structural, life safety, and energy conservation issues that will be required as part of the project. Because it is often difficult to determine whether a project is a substantial alteration, a pre-submittal conference is strongly encouraged.

The examples presented below are representative and do not reflect specific values that indicate substantial alterations.

IS YOUR PROJECT A SUBSTANTIAL ALTERATION?

Definition 1: Does your project include repair of significant damage?

A damage ratio of 60 percent or more is considered significant, and SDCI considers the project a substantial alteration. The damage ratio is the cost of the repair work divided by the estimated replacement cost of the building. SDCI Director's Rule 24-2008 provides information for determining the damage ratio for a building.

SDCI generally considers damage from an event to evaluate this definition. Events are things like earthquakes, fires, vehicle impacts, or severe weather. Damage may include deterioration of the building after the event from delayed repairs or maintenance. Routine maintenance is not included in the cost of the repair work.

Definition 2: Does your project extend the useful physical or economic life of a significant portion of the building?

Significant investment in the building extends the useful physical and economic life of the building. To assess the level of investment in the building, SDCI considers additions, upgrades, alterations, and/or replacements to major building systems. The major building systems typically considered include elevators and escalators, electrical, plumbing, mechanical, structural framing, and the building envelope. Both currently proposed and recently permitted work may be considered together to determine whether the project is a substantial alteration.

Typical tenant improvements which include minor mechanical, plumbing, and electrical work, and partition construction are not substantial alterations. However,



if the scope of work includes significant investment in the building, a tenant improvement project may be a substantial alteration.

This is the most frequently applied definition. It is also one of the most difficult to evaluate. A careful review of existing conditions, proposed work, and other recent work is important in determining whether a given proposal will trigger substantial alteration requirements.

Examples are representative and do not indicate thresholds. Projects are evaluated on a case by case basis by experienced review staff.

Example 1:

Building Description: An apartment building

Proposed Scope of Work:

- Replace roof and rigid insulation
- Replace all siding
- Replace water damaged sheathing
- Replace all windows
- Replace all decks
- New boiler system recently permitted

Substantial Alteration: Yes, Definition 2

Example 2:

Building Description: Fire damaged mixed-use building

Proposed Scope of Work:

- Repair fire damage (40 percent damage ratio)
- Replace all air handling units and boiler
- Replace all windows
- Insulate roof
- Replace all decks

Substantial alteration: Yes, Definition 2 (would not trigger definition 1)

Example 3:

Building Description: Storage warehouse (S-1)

Proposed Scope of Work:

- Change entire building occupancy to office
- Insulate building envelope
- Upgrade mechanical system to provide conditioned space

Substantial alteration: Yes, Definition 2

Example 4:

Building Description: Any two-story building

Proposed Scope of Work:

- Two-story addition next to the existing building increasing the total building area by 30 percent
- Extend mechanical system into the addition
- Extend plumbing system into the addition

Substantial alteration: Yes, Definition 2 (Addition is not independent from the existing building)

Example 5:

Building Description: Any two-story building

Proposed Scope of Work:

- One-story addition over the existing building
- Reframe building to support addition
- Upgrade building envelope
- Upgrade plumbing system
- Extend electrical system
- Upgrade mechanical equipment

Substantial alteration: Yes, Definition 2

Example 6:

Building Description: Ten-unit apartment building

Proposed Scope of Work:

- Reconfigure building into a 14-unit building
- Work to add and relocate plumbing, electrical, and mechanical systems

Substantial alteration: Yes, Definition 2

Example 7:

Building Description: Restaurant in any building

Proposed Scope of Work:

- Tenant changes from one restaurant to another
- Change all kitchen equipment
- Replace Type I hood
- Change furnishings
- Update lighting

Substantial alteration: No

Example 8:

Building Description: Small office building

Proposed Scope of Work:

- Change to small restaurant
- New restrooms
- New electrical service to the building
- New mechanical equipment to serve the restaurant

Substantial alteration: Yes. Definition 2

Definition 3: Does your project change a significant portion of a building to a more hazardous occupancy?

SDCI uses SEBC Table 307.1 as a guideline to determine the combined fire and life risk rating of all occupied levels of the building (including basements). The table identifies risk ratings by occupancy group as determined by Seattle Building Code Chapter 3. Ratings are assigned based on the number of occupants, the

likelihood that they are alert and familiar with the building exits, the combustible materials likely to be present, and the likelihood of a fire. To determine the appropriate occupancy group and character of use from a previous Seattle Building Code edition, the applicant may refer to Code Interpretation SEBC 101.4, SBC 302.1 Historical Occupancy Classification.

When only a portion of a building changes to a higher hazard rating, SDCI considers how much of the building is changing to a higher risk rating, and how much the hazard in that portion is increased. SDCI uses a weighted average approach to compare the combined risk rating of the existing and proposed occupancies for the entire building. The equation is stated as: Weighted average = sum of the area of each occupancy x the combined risk factor for that occupancy, divided by the total building area. (See example below.)

This calculation will result in a number from 1 to 20. Evaluate the combined risk rating of the occupancies in the proposed scenario and compare that to the combined risk rating of the occupancies in the existing scenario. A significant increase in the combined risk rating will result in a substantial alteration. SDCI evaluates whether the increase is significant based on the existing and proposed occupancies and the weighted average. SDCI encourages applicants to present this comparison with their permit documents or at their pre-submittal conference.

Example 9:

An existing 2-story building has 8,000 square feet of group R-2 apartments on the lower floor, and 5,000 square feet of group B offices on the upper floor. The owner proposes to change the upper floor to group A-3 conference rooms. Since the weighted average increases from 6.3 to 10.2, this is considered a substantial alteration.

EXISTING COMBINED RISK

LOCATION	AREA (sq ft)	OCCUPANCY PER SBC 302	COMBINED RISK RATING FROM SEBC TABLE 307.1	AREA x COMBINED RISK RATING
UPPER FLOOR	5000	B OFFICE	2	10,000
LOWER FLOOR	8000	R-2 APARTMENT	9	72,000
TOTAL	13000			82,000
WEIGHTED AVERAGE			6.3	

Apply the Weighted Average Risk Equation:

$$\begin{aligned}
 \text{Existing Weighted Average Risk} &= \frac{\sum \text{Area}_1 \times \text{Risk Rating}_1 + \text{Area}_2 \times \text{Risk Rating}_2 \dots}{\sum \text{Area}_1 + \text{Area}_2 \dots} \\
 &= \frac{(5000 \times 2) + (8000 \times 9)}{5000 + 8000} = \frac{10000 + 72000}{13000} = 6.3
 \end{aligned}$$

PROPOSED COMBINED RISK

LOCATION	AREA (sq ft)	OCCUPANCY PER SBC 302	COMBINED RISK RATING FROM SEBC TABLE 307.1	AREA x COMBINED RISK RATING
UPPER FLOOR	5000	A-3 CONFERENCE ROOMS	12	60,000
LOWER FLOOR	8000	R-2 APARTMENT	9	72,000
TOTAL	13000			132,000
WEIGHTED AVERAGE			10.2	

Apply the Weighted Average Risk Equation:

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$$\begin{aligned}
 \text{Proposed Weighted Average Risk} &= \frac{\sum \text{Area}_1 \times \text{Risk Rating}_1 + \text{Area}_2 \times \text{Risk Rating}_2 \dots}{\sum \text{Area}_1 + \text{Area}_2 \dots} \\
 &= \frac{(5000 \times 12) + (8000 \times 9)}{13000} = \frac{60000 + 72000}{13000} = 10.2
 \end{aligned}$$

Definition 4: Does your project include re-occupancy of a vacant building?

SDCI wants to ensure that buildings that have been mostly vacant for more than 2 years are retrofitted when they become more fully occupied. SDCI considers space in a building that was formerly occupied but has been used for general storage to be vacant.

Example 10:

Building Description: Three-story mixed-use building

Vacancy: Upper 2 stories have been vacant for 4 years

Proposal: Re-occupancy of upper 2 story

Substantial Alteration: Yes, Definition 4

Definition 5: Does your project significantly increase the occupant load of an unreinforced masonry building?

Unreinforced masonry buildings that have not been retrofitted are hazardous and we do not want to have a lot of people in them. Compare the existing occupant load for the entire building to the proposed occupant load. Calculate occupant loads using the current occupant load factors from Seattle Building Code Section 1004. The percentage of occupant load increase that is considered significant varies based on the existing occupant load of the building. The number of occupants and the percentage increase are considered when determining whether the project is a substantial alteration.

Example 11:

A retail store is remodeled, and the occupant load increases from 30 to 45. This is a 50 percent increase. It is not a substantial alteration because the overall occupant load is low.

Example 12:

A night club proposes an increase in the occupant load from 500 to 625. This is a 25 percent increase. It is a substantial alteration because the overall occupant load is high, and the percentage increase is significant.

MY PROJECT IS A SUBSTANTIAL ALTERATION... NOW WHAT?

Once the project is considered a substantial alteration, certain code requirements apply to the entire existing building. The scope of work is required to include upgrades to the building so that the following requirements are met per SEBC Section 307.1:

FIRE AND LIFE SAFETY REQUIREMENTS:

The following Sections of the Seattle Building Code apply:

- Section 403 (High rise buildings)
- Special requirements for the Fire District found in Chapter 4 when applicable
- Section 717 (Ducts and air transfer openings)
- Chapter 8 (interior finishes)

- Section 903 (automatic sprinkler systems)
- Section 905 (Standpipe systems)
- 909.20.5 (Stairway and ramp pressurization for high rise and underground buildings)
- 909.20.6 (Stairway pressurization for low rise buildings)
- 909.21 (Elevator hoistway pressurization alternative)
- Chapter 10 (Means of egress)
- Fire alarms as required by the Seattle Fire Code

STRUCTURAL REQUIREMENTS:

- SEBC 307.1.2 requires buildings and structures to comply with SEBC section 303.4.2 “Compliance with reduced International Building Code seismic forces.”
- SEBC 307.1.3 requires a Seismic Evaluation Report per SDCI Director’s Rule 15-2021. The evaluation must include a detailed description of the building and a prioritized list of all seismic deficiencies and recommended mitigation.
- Director’s Rule 5-2004 specifies additional regulations for unreinforced masonry chimneys.

ENERGY CONSERVATION REQUIREMENTS:

SEBC Section 307.1.4 requires compliance with Seattle Energy Code (SEC) section C503.8 when substantial alteration definitions 1, 2, or 4 apply. SEC section C503.8 requires full compliance with the Seattle Energy Code, but there are multiple compliance options that reduce those requirements. Those include:

- Full compliance with the prescriptive requirements for new construction
- Demonstrate envelope thermal performance is within 15 percent of the code requirement for new construction
- Demonstrate total building performance is within 10 percent of the code requirement for new construction
- Demonstrate operating energy consumption is within 20 percent of code for a new building

There are additional exceptions for landmark buildings, unreinforced masonry buildings, recently constructed buildings, and other situations deemed “impractical” by the code official. SDCI encourages a pre-submittal conference to discuss the compliance options and any impracticalities.

ENVIRONMENTALLY CRITICAL AREA:

If your proposed work is located in or near an environmentally critical area (ECA), you may be subject to additional requirements in SMC 25.09 - Regulations for Environmentally Critical Areas. For steep slope areas and their buffers, see Tip 327A - Environmentally Critical Areas Exemptions, Relief from Prohibition on Steep Slope Development, and Modifications to Submittal Requirements to begin the process of determining how the ECA code for steep slopes may apply to your project.

SHOULD I SCHEDULE A CONSTRUCTION PRE-SUBMITTAL CONFERENCE?

A pre-submittal conference is an opportunity to present your project and obtain concept approval for complex code issues. A pre-submittal conference is highly recommended when you have questions about applying the code requirements for a substantial alteration determination. During the pre-submittal conference, you can discuss possible changes to the scope of work to avoid substantial alterations. Concept approval is documented in the form of meeting minutes which are reviewed and approved by the building official.

Refer to Tip 318, *Construction Pre-Submittal Conference*, for more information about pre-submittal conferences. To schedule a pre-submittal conference send an email to sci_presubapp@seattle.gov. The construction pre-submittal conference form is on the SDCI website at <https://www.seattle.gov/Documents/Departments/SDCI/Forms/ConstructionPreSubmittalConferenceApplication.pdf>.

WHAT ELSE DO I NEED TO KNOW?

The examples given in this tip do not cover the full range of projects. The intent is to provide general guidance on how the definitions are applied to real projects. The examples presented above are representative and do not indicate thresholds.

Flexibility:

Ideally, all code requirements should be met. However, meeting every code requirement may impose severe hardships. SDCI Tip 343, *Opportunities for Flexibility in the Building Code* clarifies how SDCI may waive or modify specific requirements where compliance is impractical.

SDCI may modify or waive a requirement if the design team provides adequate justification. Such justification may

include a risk analysis, functional issues, a cost-benefit analysis, test results, professional judgment, and redundancies.

Accessibility:

Accessibility improvements may be required, see SEBC Section 305 for more information.

Tenant Relocation:

If tenants will be displaced during a substantial alteration project, refer to Tip 123, Seattle's Tenant Relocation Assistance Ordinance for information.

Access to Information

Links to electronic versions of SDCI **Tips**, **Director's Rules**, and the **Seattle Municipal Code** are available on our website at www.seattle.gov/sdci.