Twenty-Third Annual Undergraduate Seismic Design Competition (SDC)

Architectural Requirements & Guide

1. Introduction

The 2026 competition introduces a revised framework for evaluating architectural design. Rather than focusing solely on aesthetics, this framework assesses architecture as an integrated discipline that actively shapes the human experience before, during, and after a seismic event. Just as engineering sub-teams are expected to design a robust structure, architectural sub-teams must design the spatial experience within that structure. While façades and visual appeal remain important, the primary focus is on spatial decisions that directly enhance earthquake resilience, safety, and functionality. This document supplements the Official Rules to ensure architectural grading is fairer, standardized, and meaningfully connected to seismic design thinking. Teams must demonstrate spatial logic that works seamlessly with their structural systems. While excellent renderings are celebrated, successful architecture in this competition requires a comprehensive, holistic approach and resilient spatial thinking. Architectural considerations must not overwhelm the primary engineering focus of the competition. Teams will be rewarded for treating architecture as a collaborative discipline rather than a superficial visual add-on. These requirements are not intended to limit creative freedom; rather, they standardize deliverables to ensure all teams are judged fairly and on the exact same basis. Creative exploration is always welcome and encouraged. As long as the mandatory requirements below are met, representation style and conceptual creativity are left entirely up to the teams, provided the communication remains clear, as judges may be from non-architectural backgrounds.

2. Mandatory Architectural Requirements

All architectural productions must comply with the following parameters.

2.1 Concept and Program

- **Architectural Concept:** The required concept is a biophilic tower integrated with the Portland Green Loop. Teams must demonstrate how this concept is embedded in the design, not merely applied as a decorative feature. "Bridge City" is exclusively the metaphor for the prescribed four-zone massing form. It is not to be adopted as the architectural concept.
- **Program:** The lobby, garden terraces, and rooftop can be publicly accessible spaces. All remaining floors are restricted to residential units only.

2.2 Scaling, Proportions, and Realism

To ensure fair comparison and prevent spatially implausible configurations, all architectural representations must follow strict scaling rules. Realism refers to spatial and structural plausibility, not photorealism. Corridor widths, unit dimensions, ceiling heights, and elevator shaft sizes, etc., must fall within believable real-world ranges.

- **Design Ratio:** All architectural productions must adhere to a 1:96 design ratio. Enlarging the balsa model's floor plan 96 times yields the corresponding architectural floor plan dimensions. Architectural graphics should be drawn at a minimum conceptual level of detail, approximately equivalent to a 1/16" = 1'-0" scale (1:200 metric scale).
- **Floor Mapping Rule:** One floor in the physical balsa model corresponds to two floors in all architectural representations. For example, a 19-floor balsa model (18 regular floors with a double-height lobby) must be depicted as a 38-story building with a double-height lobby. See the diagram Figure 1 below.
- **Application:** These scaling rules apply exclusively to architectural productions and must not be applied to the structural design or the balsa model itself.

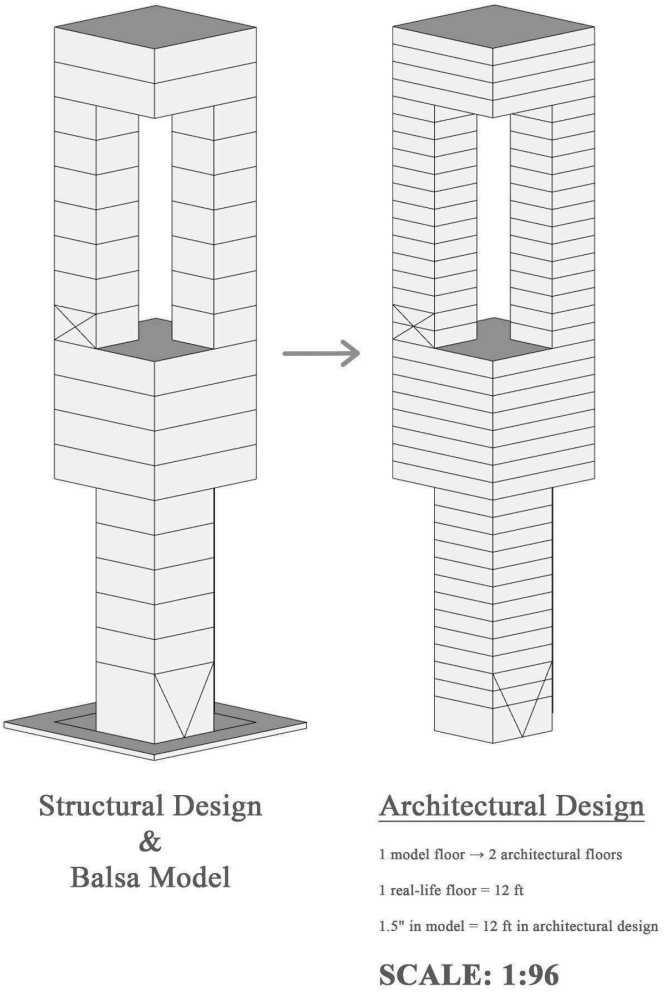

Figure 1: Scaling and floor mapping for Architectural Productions

2.3 Structural Honesty and Integration

The architectural design must be coherent with the structural design. All submissions, posters, and presentations must depict the exact same building.

- **Total Visibility:** All structural elements visible in the structural design and balsa model must appear consistently across all architectural drawings and renderings.

  Important: Do not erase, relocate, reduce or omit structural members for aesthetic purposes. Doing so will result in no marks being awarded for structural honesty. Do not introduce false transparency, unjustified column-free zones or structural inconsistencies between drawings and renderings.

e.g., If the structural design includes columns at the lobby or trusses spanning the Zone 2 façade, these elements must also appear in the corresponding architectural representations.

- **Buildable Areas:** Non-structural elements (balconies, façade greenery, sun-shading, etc.) may appear in architectural productions outside the buildable area but must not appear on the structural design or balsa model. Circulation elements must remain strictly within the buildable area. For architectural purposes, the 2" x 2" area that is unbuildable for structural purposes may be used for architectural design elements.

2.4 Required Visuals

- **Primary Rendering:** At minimum, one exterior rendering of the finished building is required. It must showcase the integrated façade design, follow the scaling rules set in this document, and show the building in its urban context with surroundings, not isolated on a blank background.
- **Floor Plans:** At minimum, one representative floor plan per zone is required (four plans total). Structural elements must be distinctly highlighted on the plans according to the table below.

Required Representation on Architectural Plans	
Vertical structural elements	Must be distinctly highlighted (e.g., hatching, bold outlines, color fills).
Beams	Must be shown with dashed centerlines overlaid on architectural plans similar to a structural grid.

- **Vantage Point Marks:** The camera position for every interior, terrace, or ground-level rendering must be clearly marked on the corresponding floor plan. This allows judges to cross-check renders against the plans.

- **Graphic Standards:** Basic architectural representational standards (scale bars, human figures, entourage etc.) are expected. Graphics must be high-resolution, legible from a distance, and communicative to a non-architect audience. Simple, honest diagrams often communicate more effectively than spatially impossible photorealism.

3. Architectural Considerations

For all considerations in this document, the standard is: **intent + proof of how**. Generic labels without an explanation, diagram, or annotated plan will not receive full marks. e.g., Stating "Our building is ADA compliant" is insufficient; you must demonstrate how your design is ADA compliant. Very detailed drawings are not expected. Diagrams and explanatory texts are adequate. Each consideration below corresponds directly to a criterion in the Part B Architectural Considerations matrix in Section 6. Teams are encouraged to read both sections together.

- **Spatial Logic:** Logical arrangement of rentable spaces is expected. e.g., Placing the primary circulation core at the perimeter where it blocks daylight from residential units is poor planning.
- **Egress and Circulation:** Cores must be plausibly sized. Teams must address egress continuity across the zones to show how occupants move continuously from the top floor to street level. Blocked or dimensionally implausible circulation will not receive full marks.
- **Post-Earthquake Thinking:** Address whether and how the building can be re-entered or used after an earthquake, how your design elements perform during an earthquake
- (e.g., façade panels), assembly points considered.
- **Sustainability Strategy:** Sustainability elements that have a physical presence (e.g. solar panels, wind turbines) must appear where they are actually integrated in architectural representations. All other sustainability strategies must be explained through diagrams or annotations rather than decorative representation. Clearly explain the strategy: e.g., "Rainwater collected from the Zone 2 terrace is directed to planted filtration beds and stored in a cistern for landscape irrigation" is a valid strategy; "We collect rainwater to be used in the building" is not.
- **Inclusive Design:** Demonstrate universal design intent through clearly addressed accessibility features (e.g., ramps, lift dimensions, and accessible circulation etc.).
- **Urban & Site Context:** The building must relate to the Green Loop, the neighborhood, the skyline, and pedestrian access. e.g., A building presented in isolation on a white background is an incomplete submission.
- **Interdisciplinary Narrative:** Teams must be able to articulate an interdisciplinary narrative explaining how the engineering and architectural sub-teams worked together (e.g., how lateral bracing informed the façade expression, how a shear wall moved the circulation core, etc.).

4. Generative AI Policy

The use of Generative AI is permitted provided the outputs remain spatially logical and plausible. Any AI-assisted content must be disclosed immediately beneath the relevant material. Failure to declare AI use will result in no marks being awarded for the affected criterion and may result in disqualification from the competition in accordance with Official Rules Section 2.4.

Acceptable AI Use	Textures, lighting, entourage, atmospheric effects, daytime and nighttime rendering conditions, flyovers, animations, and image enhancement etc.; provided the final output accurately reflects the physical model in terms of scale, floor count, and massing.
Prohibited AI Use	Using AI to generate complete architectural designs without human spatial judgment, or in a way that produces inconsistent massing, unrealistic dimensions, implausible configurations or structural incoherence is prohibited.

5. Deliverables & Judging

The architectural bonus is assessed through the poster and live presentation. Architecture is scored by rank, with the top 10 teams earning a percentage bonus on Annual Revenue (10% for 1st down to 1% for 10th). The Best Architecture Award, presented by the California Earthquake Authority (CEA), is awarded to the 1st place team. Not placing does not result in a penalty or disqualification, but failure to comply with these requirements may render the team ineligible to receive the architecture annual revenue bonus. The architectural design in the proposal may be revised or changed for finals, and proposal grading does not affect the final architectural bonus. There is no separate scoring rubric distributed to teams. Judges evaluate and rank submissions using a standardized scoring framework based directly on the criteria described in this document.

- **The Printed Poster:** The physical poster displayed in the exhibition area is the primary visual communication tool. It must concisely explain the design and include the required elements above. See the Poster Requirements document for details.
- **Live Presentation & Q&A:** Teams must be prepared to verbally present, defend their architectural decisions and how they were reconciled with engineering constraints. See the Presentation Requirements for details.
- **Optional Materials:** Teams may include additional models to enhance their architectural decisions in their display area, provided they do not clutter the space.

Judges Value	Judges Do Not Require
• Spatial reasoning and logical planning • Structural coherence and integration • Representational quality and honesty • Human experience and life-safety thinking • Interdisciplinary collaboration • Visual communication legible to non-architects • Consideration intents and their explanation	• Professional-level architectural refinement • Exhaustive building code compliance • Stylistic sophistication for its own sake • Complex architectural calculations • Construction documents • Formal innovation disconnected from structure • An architecture-heavy submission

6. Architectural Evaluation Matrix

Teams must satisfy all Part A Mandatory Requirements to be eligible for the architecture Annual Revenue bonus (Official Rules 4.1.c). Part B Architectural Considerations determine the team's rank among eligible teams.

Part A - Mandatory Requirements		
Criteria	**Meets Standard**	**Does Not Meet Standard**
Biophilic Concept	**The biophilic tower integrated with the Portland Green Loop is clearly stated as the design concept and is traceable to at least one spatial or structural decision.**	**Concept is absent, decorative, or cannot be traced to any design decision.**
1:96 Design Ratio	**All architectural drawings and renderings adhere to the 1:96 design ratio.**	**Drawings do not comply with the 1:96 ratio.**
Floor Mapping Rule	**One floor in the physical balsa model is represented as two floors in all architectural drawings and renderings.**	**Floor mapping rule is not applied.**
Primary Rendering	**At minimum, one exterior rendering of the finished building is submitted. It shows the building in its urban context and accurately reflects the physical model's massing, floor count, and structure.**	**No exterior rendering is submitted, or the rendering does not reflect the physical model.**
Floor Plans	**At minimum, one representative floor plan per zone is submitted (four plans total). Structural elements are graphically distinguished.**	**Fewer than four plans are submitted, or structural elements are not graphically distinguished.**
Structural Honesty	**All structural elements visible in the physical model appear in all drawings and renderings. No structural member is erased, relocated, or concealed for aesthetic purposes.**	**Any structural member is omitted or concealed. The same building is not depicted consistently across all documents.**
Vantage Points	**The camera position for every interior, terrace, or ground-level rendering is clearly marked on the corresponding floor plan.**	**Vantage point marks are missing from one or more floor plans.**
Graphic Standards	**All drawings include a scale bar and human-scale entourage. Graphics are high-resolution and legible to a non-architect audience.**	**Graphics are low-resolution, lack a scale bar or human-scale entourage, or are not legible to a non-architect audience.**
AI Use	**All AI-assisted content is declared immediately beneath the relevant material and adheres to acceptable use policies.**	**AI use is present but not disclosed or AI use produced inconsistent results.**
Design Consistency Across Documents	**The poster and presentation depict the same building: consistent floor count, massing, structural configuration and visuals.**	**Different floor counts, massing, or structural elements appear across documents. Visuals are not consistent.**

Part B Architectural Considerations		
Criterion	**Meets Standard**	**Does Not Meet Standard**
Concept and Structural Alignment	**The design concept is clearly articulated and visibly consistent with the structural model. The architectural form responds to, rather than ignores, the structural system.**	**The concept is vague or purely decorative. The architectural form contradicts or ignores the structural model.**
Urban and Site Context	**The design demonstrates awareness of its surrounding environment: the city, the neighborhood, the skyline, the street, and the Green Loop. At least one design decision visibly responds to this context.**	**The building is presented in isolation with no relationship to its surroundings, the urban fabric, or the Green Loop.**
Spatial Logic	**Rentable spaces are arranged logically. The relationship between circulation, structure, and program is legible and spatially plausible.**	**Spatial arrangement is illogical or incoherent. Circulation conflicts with structural elements or program requirements.**
Egress and Circulation	**The submission demonstrates how occupants move through the building, vertically and across zone transitions, under normal and emergency conditions.**	**Circulation is absent, blocked at zone transitions, or spatially implausible. Emergency movement is not addressed.**
Post-Earthquake Thinking	**The submission addresses how the building and its occupants are affected after an earthquake. The approach taken is at the team's discretion.**	**Post-earthquake conditions are entirely absent from the submission.**
Sustainability	**At least one sustainability strategy is identified and explained with enough specificity to understand how and where it is integrated into the design.**	**Sustainability is referenced as a label or aspiration with no explanation of how it works or where it appears in the design.**
Inclusive Design	**The submission demonstrates awareness of how all occupants, regardless of physical ability, can use and move through the building. The approach taken is at the team's discretion.**	**No consideration of access or movement for occupants with different physical abilities is present.**
Interdisciplinary Narrative	**The team can articulate at least one instance where engineering and architectural decisions genuinely informed each other. This must be prepared for Q&A.**	**Engineering and architecture are presented as parallel, independent workstreams with no evidence of coordination.**

This document must be read in conjunction with the Official Rules, Design Guide, Presentation Requirements, and Poster Requirements. For any questions, please reach out via email or the dedicated SDC Discord channel.