City and County of San Francisco
Department of Building Inspection

London N. Breed, Mayor
Patrick O'Riordan C.B.O., Director

INFORMATION SHEET

NO. S-12

DATE : May 23, 2024

CATEGORY : Structural

SUBJECT : **Cross-Laminated Timber**

PURPOSE : The purpose of this Information Sheet is to clarify the reference standard for projects involving cross-laminated timber (CLT) and the procedure to establish the design standard.

REFERENCE :

San Francisco Building Code (SFBC), 2022 Edition

California Building Code (CBC), 2022 Edition

Minimum Design Loads and Associated Criteria for Buildings and Other Structures, American Society of Civil Engineers / Structural Engineering Institute (ASCE/SEI) 7-16 and ASCE/SEI 7-22

American National Standards Institute (ANSI) / American Wood Council (AWC) Special Design Provisions for Wind and Seismic (SDPWS) 2021

Administrative Bulletin AB-005 Procedures for Approval of Local Equivalencies

Administrative Bulletin AB-082 Guidelines and Procedures for Structural Design Review

Background:

Prior to 2016, the CBC did not have provisions allowing the use of cross-laminated timber (CLT). In the 2022 edition, CBC 602.4 includes provisions for the use of CLT in Type IV construction, and CBC 2303.1.4 allows for the use of CLT elements for gravity loads.

The 2022 CBC's referenced standard, the 2021 SDPWS, provides design requirements for CLT diaphragms and shear walls to resist lateral forces. However, the 2022 CBC referenced design standard, ASCE 7-16, does not recognize CLT systems and therefore does not provide the seismic performance factors required to determine the lateral loading on a CLT structure.

The newer version of the standard, the ASCE 7-22, provides the necessary seismic performance factors for CLT systems to determine the lateral loading on the building. However, this newer version of the referenced standard is not yet adopted into the model code.

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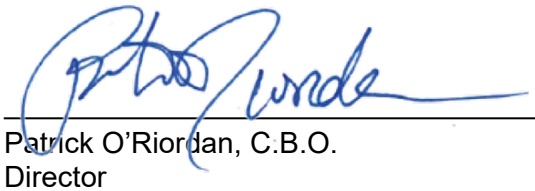
Discussion:

The Department of Building Inspection recognizes the use of CLT in the lateral force-resisting system despite the seismic performance factors not yet incorporated in the ASCE7-16 design standard. Thus, projects utilizing CLT as part of the seismic force-resisting system under the 2022 CBC may request to employ the updated ASCE 7-22 design standard via Administrative Bulletin AB-005 *Procedures for Approval of Local Equivalencies.* This alternate method of compliance for the project must use the ASCE 7-22 design standard in its entirety in lieu of ASCE 7-16.

Conditions deviating from the prescriptive design requirements detailed in 2021 SDPWS and ASCE 7-22 may be evaluated on a case-by-case basis by the plan review supervisor or manager and shall be subject to approval as an alternative system in accordance with Administrative Bulletin AB-082 *Guidelines and Procedures for Structural Design Review*.



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