



STRUCTURAL ENGINEERS ASSOCIATION OF SOUTHERN CALIFORNIA

A Non-Profit California Corporation

437 S. CATARACT AVENUE, #4B
SAN DIMAS, CALIFORNIA 91773

DIANNE OCHOA
EXECUTIVE DIRECTOR

TEL: (562) 908-6131
FAX: (562) 692-3425
EMAIL: seaosc@seaosc.org

2018-2019 BOARD OF DIRECTORS

Massoud Abolhoda
Wayne Chang
Patti Harburg-Petrich
Donny Harris
Truong Huynh
Annie Kao
Garrett Mills
Bryan Seamer
Mehran Pourzanjani, President
Kenneth O'Dell, President-Elect
Matt Barnard, Treasurer
Robert Lyons, Past-President

December 5, 2018

City Building and Safety Departments,

The Structural Engineers Association of Southern California (SEAOSC) continues to be encouraged by the increased number of Cities responding to the seismic risks posed by Soft, Weak or Open-Front (SWOF) wall line buildings throughout Southern California. Many of our cities have implemented or are in the process of implementing retrofit ordinances that are focused on SWOF wall line buildings. Our understanding is that these mandated retrofit ordinances intend to reduce the risk of severe damage or collapse of SWOF wall line buildings during a major seismic event. To achieve the intended performance objective, seismic retrofits must meet certain criteria that aim towards predictable building behavior in a more controlled and reliable manner.

Unfortunately, SEAOSC has become aware of several Southern California mandated SWOF retrofits that do not appear to adequately satisfy critical structural engineering principals nor the overall goal of the ordinance. The following is a summary list of critical issues that have been observed in some approved mandatory seismic retrofits:

1. Deformation Compatibility: Proper consideration of the imposed seismic drift perpendicular to the new lateral load resisting system.
2. Load Path: Proper detailing to attach the existing structure to the new lateral force-resisting element(s).
3. Eccentric Loads: Connection detailing resolving significant seismic load eccentricities caused by offsets between the new lateral force-resisting systems and the SWOF center line.
4. Redundancy: Use of substantially heavy retrofit members with long collector distances when limiting the number of new lateral force-resisting systems.
5. Drift Limitations: Use of substantially heavy retrofit members to meet stringent drift limitations.

SEAOSC urges cities with a SWOF wall line ordinance, and those considering implementing a SWOF wall line ordinance, to pay special attention to these issues when reviewing retrofit designs. In addition, SEAOSC, recommends that ordinances and related design bulletins or guidelines include language that clarify these issues. Addressing these critical concerns can be achieved by clarifying the ordinance to ensure the following are considered by the engineer responsible for the design:

- Ensuring the lateral force-resisting system has an appropriate number of elements (i.e., moment frames, cantilever columns, or plywood shear walls) to provide good redundancy for the system.

- Ensuring the spacing of lateral force-resisting elements appropriately considers the necessary force transfer and ability of the system to develop collector forces.
- Ensuring the design addresses eccentric loading due to offsets of lateral force-resisting elements to reduce the effects of torsion within the connections and the individual elements of the lateral force resisting system.

We believe, these design considerations will improve the performance of the retrofits and more likely achieve the goals of the seismic retrofit programs as outlined in the seismic ordinances.

To assist cities with a mandated SWOF wall ordinance, SEAOSC has tasked our Existing Buildings Committee (EBC) with developing more specific recommendations on the issues identified above. These recommendations will be released to the cities' building and safety departments and our Members once they are developed. In the meantime, please do not hesitate to contact our EBC Chairs, Mr. Daniel Zepeda and Mr. Garret Hagen for further technical discussion or questions.

Respectfully,



Mehran Pourzanjani, S.E.
SEAOSC President
626-304-2616
mehran@saifulbouquet.com



Daniel Zepeda, S.E.
Co-Chair of the SEAOSC EBC
213.596.5014
dzepeda@degenkolb.com



Garrett Hagen, S.E.
Co-Chair of the SEAOSC EBC
213.596.4993
ghagen@degenkolb.com

CC: City of Santa Monica, City of Los Angeles, City of West Hollywood, City of Pasadena, City Beverly Hills