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CITY OF OAKLAND

SAFER HOUSING FOR OAKLAND PROGRAM (SHOP)

Engineering Requirements

This document establishes acceptable design criteria, standards, and technical provisions to satisfy the minimum requirements of the Safer Housing for Oakland Program (SHOP). It references, modifies, and provides commentary on Appendix Chapter A4 of the 2016 *California Existing Building Code* (CEBC), as adopted and amended by the City of Oakland in Oakland Municipal Code Title 15, cited here simply as Chapter A4.

A complete description of program guidelines is available at the program website: https://www.oaklandca.gov/topics/safer-housing-for-oakland-program

Part A. Administrative Provisions

A.1 Applicability

A.1.1. Safer Housing for Oakland Program. These Engineering Requirements for the Safer Housing for Oakland Program (SHOP), referred to herein as the "Requirements," are intended only to support SHOP, a program that uses state and federal government grants to reimburse eligible design and construction costs necessary for the seismic retrofit of certain buildings.

A.1.2. Participation and compliance. Participation in SHOP is voluntary, but cost reimbursements for participating owners is contingent on compliance with these Requirements. In addition, the owner or permit applicant is responsible for complying with any rules or procedures established by the SHOP office.

> ***Commentary:*** *In addition to these Requirements, other rules apply regarding SHOP eligibility, deadlines, etc. These are available at the SHOP website. Design professionals should familiarize themselves with program guidelines, especially those regarding FEMA Environmental and Historic Preservation (EHP) review. In brief, completed work visible from the exterior of the building might result in project delays for FEMA review and is therefore discouraged.*

A.1.3. Role of the building official. During the permitting process, the building official will review the retrofit design for compliance with these Requirements. Issuance of a building permit shall not be construed as compliance with other program rules or procedures.

A.1.4. Other regulations. Unless otherwise specified, work considered by these Requirements, including

optional work described in Section A.1.5, is subject to all City of Oakland regulations and procedures applicable to voluntary building alteration projects.

> ***Commentary:*** *The main purpose of these Requirements is to reference, modify, and interpret CEBC Chapter A4, as shown in Part B. It is the intent of SHOP and of the Oakland Bureau of Building that all work should otherwise comply with normal regulations and procedures, including those related to design review, permitting, fees, and inspections.*

A.1.5. Classification of work. All work done to comply with these Requirements or done concurrent with work done to comply with these Requirements shall be identified as one of the following three types:

1. Required seismic retrofit work. This work shall comply with Part B of these Requirements. This work shall be classified as "voluntary seismic improvements" pursuant to *California Existing Building Code* Section 403.9 and is deemed to comply with that section.

2. Optional seismic retrofit work. Subject to the approval of the building official, this work may be classified as "voluntary seismic improvements" pursuant to *California Existing Building Code* Section 403.9 and may be deemed to comply with that section.

3. Optional non-seismic alteration.

   Commentary: *This provision recognizes that SHOP projects might involve work beyond the minimum scope of Part B, as well as other work shown on the same plans.*
   - *Part B covers the basic retrofit of the "soft story" condition using a modified version of CEBC Appendix Chapter A4. This is the minimum scope necessary to be eligible for reimbursement through SHOP. The reference to CEBC Section 403.9 facilitates the retrofit by clarifying that additional structural work is not to be triggered by the voluntary retrofit.*
   - *Optional seismic improvements might also be reimbursable, subject to the approval of the SHOP Project Manager. Typically, this work might involve mitigation of nonstructural seismic risks, such as bracing of gas-fueled equipment (e.g., water heater tanks) or removal of masonry chimneys or other falling hazards. If approved, it could also include structural improvement above the soft story or designed to a higher standard than that required in Part B. Since Part B does not provide engineering criteria for optional work, the owner is responsible for proposing criteria and for obtaining discretionary approval from the building official. See Requirements Section A.2 regarding plans and permits for this optional work. Though optional, this work is also subject to FEMA environmental and historic preservation review; see the SHOP Guidelines and Owner Instructions.*
   - *Owners may opt to do other work at the same time as the SHOP retrofit. For example, it might be convenient for an owner to reconfigure a parking or storage area or to upgrade mechanical systems. This optional work is not reimbursable through SHOP. See Requirements Section A.2 regarding plans and permits for this optional work. Though optional, this work is also subject to FEMA environmental and historic preservation review; see the SHOP Guidelines and Owner Instructions.*

A.2 Documentation

A.2.1. Combined work scopes. Optional seismic retrofit work may be shown on the same plans and regulated under the same permits as required seismic retrofit work, subject to the approval of the

building official. Optional non-seismic alteration work may be shown on the same plans as required seismic retrofit work but shall be regulated under separate permits.

> ***Commentary:*** *This provision facilitates SHOP procedures for tracking reimbursable and non-reimbursable costs. Optional non-seismic alteration is not reimbursable through SHOP, but the work may be shown on the same plans to facilitate design review, construction, and inspection.*

A.2.2. Permit Application Worksheet. The Permit Application Worksheet shall identify the Type of Work as "Retrofit" and shall include, in the Description of Proposed Work, the following: "Voluntary seismic retrofit designed to comply with the 2018 SHOP Engineering Requirements."

A.2.3. Plans. Submitted plans shall include all information and details needed to properly construct all of the intended work. Any optional seismic retrofit work and any optional non-seismic alteration shall be clearly identified and distinguished from the required seismic retrofit work. In addition, submitted plans shall include:

1. As part of the Project Title, the words "SHOP seismic retrofit."

2. In the Background Information section, the following: "Voluntary seismic retrofit designed to comply with the 2018 SHOP Engineering Requirements."

3. Existing conditions requiring verification during construction, clearly identified, and coordinated with the structural calculations.

4. Information required by the reference code indicated in Section B.1 of these Requirements, as modified in Section B.2 of these Requirements.

A.2.4. Structural calculations. Submitted calculations shall include all information needed to support and validate the submitted plans and to demonstrate compliance with these Requirements. The calculations shall include:

1. A statement that the calculations are intended to comply with the 2018 SHOP Engineering Requirements.

2. For any optional seismic retrofit work or optional non-seismic alteration, a statement and description of the proposed engineering criteria.

3. A listing of existing conditions assumed for purposes of condition assessment and structural design, each of which shall also be identified on the plans as requiring verification during construction.

4. All building investigation, soils, geotechnical, condition assessment, or other supporting reports, as well as a summary of such reports indicating how the findings or conclusions are reflected in the structural calculations.

5. Identification of structural properties and capacities assumed for all existing materials and elements, including any capacity reductions for damage, deterioration, or defect.

6. Identification of structural properties and capacities assumed for all new materials and

elements, including product literature for proprietary devices or systems.

7. If requested by the building official, verification calculations for any engineering software used.

8. Other information as required by the building official.

Part B. Design and Construction Provisions for Required Seismic Retrofit

B.1 Reference code. Required seismic retrofit work, as described in Section A.1.5, shall comply with Appendix Chapter A4 of the current edition of the *California Existing Building Code* (Chapter A4), as adopted and amended by Oakland Municipal Code Title 15 and as further modified and interpreted by Section B.2 of these Requirements. Any code references shall be construed to apply to the corresponding provisions of the *California Building Code* (CBC), the *California Existing Building Code* (CEBC), and their reference standards, as adopted and amended by the City of Oakland.

> ***Commentary:*** *The current CEBC is the 2016 edition. When the 2019 CEBC becomes effective, it will be applicable instead. The 2019 Chapter A4 will be based on the 2018 International Existing Building Code (IEBC) and is essentially identical to the 2015 IEBC (and 2016 CEBC) versions. Both editions as published by ICC are available in read-only mode at https://codes.iccsafe.org/public/collections/I-Codes. Until the 2019 CEBC becomes effective, the 2018 IEBC Chapter A4 may be used instead of the 2016 CEBC Chapter A4, with building official approval.*
> *Since SHOP criteria already involve a FEMA historic preservation review, these Requirements do not allow the use of the California Historical Building Code as alternative criteria.*
> *The commentary below also refers in places to FEMA P-807 (May 2012), titled Seismic Evaluation and Retrofit of Multi-Unit Wood-Frame Buildings With Weak First Stories, available at: https://www.fema.gov/media-library-data/20130726-1916-25045-2624/femap_807.pdf*

B.2 Modification and interpretation of CEBC Chapter A4

The following modifications and interpretations refer to Chapter A4 section numbers.

A401.2 Scope. *Omit this section.*

> ***Commentary:*** *In the context of SHOP, the applicability of Chapter A4 is established by program rules and procedures, reflected in part by Part A of these Requirements.*

A402 Definitions. *Add, omit, or revise as follows:*

GROUND FLOOR. *No modification, but see commentary.*

> ***Commentary:*** *Within Chapter A4, the term ground floor generally means a target story. Alternately, depending on context, ground floor might mean the floor level at the base of a target story.*

STORY STRENGTH. *Omit this definition.*

> ***Commentary:*** *This definition is omitted because it is unnecessary and to avoid conflict with "expected story strength" as used in Section A403.3.1. It is used only once in Chapter A4, in the definition of "weak wall line." See that definition for the clarification needed there.*

TARGET STORY. Either (1) a basement story or underfloor area that extends above grade at any point or (2) any story above grade, where the wall configuration of such basement, underfloor area, or story is substantially more vulnerable to earthquake damage than the wall configuration of the story above, except that a story is not a target story if it is the topmost story or if the difference in vulnerability is primarily due to the story above being a penthouse or an attic with a pitched roof.

> ***Commentary:*** *This definition is added as a preferred way to refer to the structural deficiency of interest in Chapter A4 and the subject of required seismic retrofit work within SHOP.*
>
> - *The definition simplifies and clarifies the Chapter A4 terminology. Chapter A4 and these Requirements call for consideration of whole stories, but Chapter A4 only defines its critical deficiencies in terms of wall lines and does not clearly recognize complexities posed by sloped sites (e.g. the target story might not be the ground story, and a building might have more than one target story). That said, any story that contains a soft wall line, a weak wall line, or an open-front wall line as defined in Chapter A4 would normally be considered a target story.*
> - *Because the definition is not quantitative, it usefully relies on the judgment of voluntary participants in SHOP and their consultants; any building accepted for participation in the program should be considered to have a qualifying target story.*
> - *By including underfloor areas, the definition avoids confusion about crawl spaces and the code definition of "story," especially on sloped sites.*
> - *The definition facilitates coordination with similar programs in Berkeley and San Francisco and with an ordinance recently introduced in Oakland.*

WEAK WALL LINE. *Add the following sentence at the end of the definition*. For purposes of this definition, nonconforming structural materials shall not be considered.

> ***Commentary:*** *See the commentary at the definition of "story strength."*

WOOD FRAME TARGET STORY. A target story in which a significant portion of lateral or torsional story strength or story stiffness is provided by wood frame walls.

> ***Commentary:*** *Together with the definition of target story, this definition identifies the deficiency of interest in Chapter A4 and the subject of required seismic retrofit work within SHOP. As with the definition of target story, the definition relies intentionally on the judgment of SHOP participants, and any building accepted for participation in the program should be considered to have a qualifying wood frame target story.*

A403.1 General. *Omit the exception and revise the first sentence as follows:* All modifications required by the provisions in this chapter shall be designed in accordance with the *California Building Code* provisions for new construction, except as modified or otherwise allowed by this chapter and by the SHOP Engineering Requirements.

Commentary: *The exception is omitted because the additional phrase "or otherwise allowed" makes it moot.*

A403.2 Scope of analysis. *References to "soft, weak, or open-front wall line" shall be taken to mean "wood frame target story." Omit the exception.*

Commentary: *By substituting the definition of wood frame target story, this modification clarifies the scope of work. (It also makes the two sentences about podium structures and hillside conditions largely moot.) The exception is omitted because it improperly focuses on individual wall lines; any reduced retrofit scope should be justified by full-story calculations. Also, many cases that would be covered by the exception are also covered by the prescriptive solution of Section A404.*

A403.3 Design base shear and seismic design coefficients. *Correct Δ_0 to Ω_0 in multiple places. Add Exceptions 4 and 5 and subsections A403.3.1 and A403.3.2:*

Exception 4: For retrofit systems involving different seismic force-resisting systems in the same direction within the same story, resisting elements are permitted to be designed using the least value of *R* for the different structural systems found in each independent line of resistance if the following conditions are met: (1) The building is assigned to Risk Category I or II (2) The building height is no more than four stories above grade plane, and (3) the seismic force-resisting systems of the retrofitted building comprise only wood structural panel shear walls, steel moment-resisting frames, steel cantilever columns, and steel braced frames. Values for C_d and Ω_0 shall be consistent with the R value used.

Exception 5: With reference to ASCE 7 Table 12.2-1, building height limitations on certain seismic force-resisting systems are not applicable where those systems are used only for retrofit of target stories.

Commentary: *More than one of the exceptions to Section 403.3 can apply in a single building. Added Exception 4 implements the SEAONC recommendation to allow retrofit schemes that involve different structural systems on different lines. Without this exception, a retrofit using an intermediate or ordinary steel frame along one line and wood structural panels elsewhere would be forced to over-design the wood elements. Exception 5 recognizes that height limits applicable when certain structural systems are used for a whole building should not apply when the same system is used only within a single story. In this regard, Exception 5 is like Exceptions 1 through 3, in that it decouples the design of the new retrofit system from non-conforming conditions in the existing structure. Where applicable, the allowance for a capped base shear coefficient in ASCE 7 Section 12.8.1.3 may be applied so that the value of $0.75S_{DS}$, including the 75 percent factor allowed by Chapter A4 Section A403.3, need not be taken greater than 1.00.*

A403.3.1 Expected story strength. Despite any other requirement of Section A403.3 or A403.4, the total expected strength of retrofit elements added to any target story need not exceed 1.7 times the expected strength of the story immediately above in a two-story building, or 1.3 times the expected strength of the story immediately above in a three-story or taller building, as long as the retrofit elements are located symmetrically about the center of mass of the story above or so as to minimize torsion in the target story. Calculation of expected story strength and identification of irregularities in Section A403.3 shall be based on the expected strength of all wall lines, even if sheathed with nonconforming materials. The strength of a wall line may be reduced to account for inadequate load path or overturning resistance.

Commentary: *This added provision implements the SEAONC recommendation to cap the required strength, consistent with FEMA P-807. The expected strength of the story above may be calculated using the FEMA P-807 criteria. If the strength is reduced to account for an inadequate load path, as allowed, the load path should be documented by field observation and condition assessment; otherwise, the strength calculation should assume an adequate load path to avoid underestimating the upper story strength.*

A403.3.2. Seismicity parameters, Site Class, and geologic hazards. Any building located in an area labeled "NEHRP E" on the latest USGS map of "Soil Type and Shaking Hazard in the San Francisco Bay Area" shall be assigned to Site Class E unless site-specific investigation in accordance with ASCE 7 Chapter 20 indicates otherwise. For any site designated as Site Class E, the value of F_a shall be taken as 1.3. Site-specific procedures are not required for compliance with these Requirements. These Requirements do not require mitigation of existing geologic site hazards such as liquefiable soil, fault rupture, or landslide.

Commentary: *Other than this provision regarding Site Class E, Site Class shall be determined following the normal procedures for new construction, including the use of Site Class D as a default.*

The USGS map of Bay Area site classes is at https://earthquake.usgs.gov/hazards/urban/sfbay/soiltype/map/.

Seismic hazard parameters as needed may be obtained from the USGS application, using "2015 IBC" as the Design Code Reference Document, at https://earthquake.usgs.gov/designmaps/us/application.php.

The USGS application, however, does not implement the additional requirement to take F_a as 1.3 in Site Class E; engineers will need to make that adjustment separately. This requirement implements a SEAONC recommendation related to observed performance and recorded ground motions in the Loma Prieta earthquake.

The site-specific ground motion procedures normally required by ASCE 7 Section 11.4.8 are waived for these voluntary retrofit projects. Many buildings eligible for SHOP or CEBC Chapter A4 would be exempt from site response analysis by the exception to ASCE 7 Section 20.3.1.

A403.7 Collector elements. *Omit.*

Commentary: *This provision is omitted because it conflicts with the overall intent of Section A403.2. Section A403.2 already requires a complete load path between the soil interface and the diaphragm above the uppermost target story. Collector elements, as needed, are already part of that load path (as are the diaphragms covered in Section A403.8). The "other portions of the building" mentioned in Section A403.7, however, would seem to conflict with the allowance in Section A403.2 that these other portions "need not be modified." The intent of these Requirements is that of Section A403.2.*

A403.8 Horizontal diaphragms. *Replace the entire section as follows:*

A403.8. Floor diaphragms. Floor diaphragms within the scope of Section A403.2 shall be shown to have adequate strength at the following locations:

1. For straight lumber sheathed diaphragms without integral hardwood flooring: Throughout the diaphragm. At the discretion of the building official, this requirement may be waived where the condition occurs only in relatively small portions of each dwelling unit.
2. For other diaphragms: At locations where forces are transferred between the diaphragm and a new or strengthened vertical element of the seismic force-resisting system. Collector elements may be provided to distribute the transferred force over a greater length of diaphragm.

Exception: Where the existing vertical elements of the seismic force-resisting system are shown to comply with these Requirements by evaluation, the diaphragm immediately above each target story need not be evaluated.

> ***Commentary:*** *This replacement implements a SEAONC recommendation considered appropriate for the limited objective of Chapter A4. The exception allows compliance by evaluation to focus on the vertical SFRS elements – the walls and frames – without considering a diaphragm deficiency by itself to justify an intrusive retrofit. This exception is not expected to apply to voluntary retrofits like those within SHOP; it is more for cases of mandatory or triggered retrofit.*
>
> *Straight lumber sheathed diaphragms without integral hardwood flooring are weaker and more flexible than other diaphragm systems. Though there are no known collapses due to this condition, expected poor performance could compromise the building's ability to meet even the limited objective of Chapter A4. Integral hardwood flooring – but not newer "floating" wood flooring – provides significant added strength and stiffness. Even in buildings with original hardwood flooring, some remodeled, carpeted, or tiled areas might have had the original wood flooring removed. Areas of the diaphragm that form a roof for the target story (such as the portion of a garage that extends beyond the wall line above, or at a lightwell or building setback) are also unlikely to have hardwood flooring to supplement the straight sheathing. These areas should be identified as part of the condition assessment and evaluated. Small isolated areas without hardwood flooring are not expected to affect overall building performance, so the provision grants a waiver for these cases. As a rule of thumb, an area up to 150 square feet per unit might represent such an acceptable condition.*
>
> *For other less vulnerable diaphragm types, the provision requires a local check for each new or strengthened SFRS element but does not require an overall analysis of the full diaphragm. The unit shear demand at each vertical element is calculated as the force in the element divided by the total length of the element and its collectors. The shear demand is then compared to the unit shear capacity of the diaphragm. Where demand is greater than capacity, either the diaphragm must be strengthened or the collector lengthened. An existing diaphragm can be strengthened by adding a wood structural panel soffit to the bottom of the floor joists in the critical area. Diaphragm capacity need not be checked at existing vertical elements that are not strengthened because (except for straight lumber sheathed diaphragms) it is assumed that the unit capacities of the existing vertical elements and the diaphragm are comparable.*

A403.9 Wood-framed shear walls. *Add the following sentence at the end of the provision:* Where new sheathing is applied to existing studs to create new wood-framed shear walls, the new wall elements shall be designed as bearing wall systems.

> ***Commentary:*** *Since existing studs are presumed to carry existing gravity loads, the walls they frame must be considered bearing walls, as opposed to "building frame" systems. This affects the selection of seismic design coefficients R,* C_d, and Ω_0.

A403.9.1 Gypsum or cement plaster products. *Replace the entire provision as follows:* Gypsum or cement plaster products shall not be used to provide the strength required by Section A403.3 or the stiffness required by Section A403.4.

> ***Commentary****: Since Chapter A4 is based on code provisions for new construction, code provisions and standards that allow like materials do not apply, and non-conforming materials are not allowed to be counted toward the minimum required strength. They must be considered, however, if the cap in Section 403.3.1 is applied, which is why the provision is modified.*

Add Section A403.10 and subsections A403.10.1 and A403.10.2:

A403.10 Steel retrofit systems. Steel retrofit systems shall have strength and stiffness sufficient to resist the seismic loads and shall conform to the requirements of this section.

A403.10.1 Special moment frames. Steel special moment frames shall comply with all applicable provisions of AISC 341, including but not limited to connection design and lateral bracing of beams. **Exception**: The "strong-column/weak-beam" provision of AISC 341-10, Section E3.4a is waived, provided that the columns carry no gravity load.

It is permitted to employ approved commercially available proprietary frame systems to achieve the special moment frame classification.

A403.10.2 Intermediate or ordinary moment frames. Steel intermediate or ordinary moment frames shall comply with all applicable provisions of AISC 341.

> ***Commentary:*** *See Section A403.3 Exception 5 as added by these Requirements for a waiver on height limits otherwise applicable to these systems.*

A403.10.3 Cantilevered column systems. Steel special or ordinary cantilevered column systems shall comply with all applicable provisions of AISC 341.

A403.10.4 Inverted moment frame systems. Cantilevered column systems shall be permitted to be designed as inverted special, intermediate, or ordinary moment frames, with corresponding moment frame seismic design coefficients, where the system satisfies the following conditions:

1. The columns carry no gravity load.
2. The columns are configured in pairs (or larger groups) connected by a continuous reinforced concrete foundation or grade beam.
3. The foundation or grade beam shall be designed to resist the expected plastic moment at the base of each column, computed as $R_y F_y Z$ in accordance with AISC 341.
4. The flexibility of the foundation or grade beam, considering cracked section properties of the reinforced concrete, shall be included in computing the deformation of the steel frame system.
5. The columns shall be considered as twice their actual height when checking lateral torsional buckling.

> ***Commentary:*** *This provision implements a SEAONC recommendation developed to accommodate a modification of traditional cantilevered column systems. Cantilevered column systems for new construction are normally assigned seismic design coefficients that severely limit their use. When used for retrofit of wood frame structures, however, the columns are less*

vulnerable to buckling failure because they carry no gravity load. SEAONC has therefore recommended that these cantilever column systems, configured as upside-down moment frame bents (with concrete cross beams), should be allowed to be designed as moment frame systems.

A404.1 Limitation. *In the first sentence, omit the words "and only where deemed appropriate to the code official."*

Commentary: *These prescriptive measures are deemed appropriate for SHOP.*

A405.3 Existing materials. *No modification, but see commentary.*

Commentary: *While an overall condition assessment is often beneficial, this provision is applicable primarily to the existing structural elements that will be relied on to provide the required strength and stiffness. If the cap allowed in Section 403.3.1 is used, this will include all existing elements contributing to the expected story strength in each target story and the story above, as well as diaphragms and foundations. If the cap is not used, the condition assessment may be limited to just the structural scope identified in Section A403.2. ASCE 41-17 provisions and commentary for condition assessment may be useful as a guide to the work. The investigation should be based on a combination of non-destructive testing or inspection, destructive testing or inspection, and reference to record documents. Where record documents are used to reduce the scope of testing or other on-site work, appropriate field verification is normally required. The building official is authorized to require additional investigation as needed to fulfill the purpose of the condition assessment. Findings of the condition assessment should be included with the structural calculations per Section A.2.4 of these Requirements. With the approval of the building official, field verification of assumed conditions may be performed during the construction phase; in these cases adjustments to previously approved structural calculations and plans might be needed, which is why Section A.2.3 of these Requirements calls for field verification items to be shown on the plans.*

A405.3.6 Existing masonry partitions. *Add this subsection:* Masonry partitions or fire separation walls within a target story shall be investigated to determine their capacity to resist story shears and deformations, whether intended as seismic force-resisting elements or not. The investigation shall consider their material strength and condition, grouting and reinforcing, connections and continuity to stories above and foundation below, and related detailing and load path as they relate to likely performance in in-plane shear, out-of-plane shear, overturning moment, and uplift. Based on the investigation, the design professional shall document and substantiate a design approach and acceptability criteria.

Commentary: *Some Oakland buildings are known to have concrete masonry fire separation partitions that might act as de facto seismic force-resisting elements, even if not designed to carry lateral forces and not detailed for ductile response. Since the construction of these partitions is not well documented, it is the responsibility of the design professional to understand their likely performance and to account for it in the retrofit design. In some cases, the walls might be usable as SFRS elements (as is, or as strengthened). In other cases, it might be preferable to isolate them from the seismic response by breaking the load path, as long as necessary fire safety is maintained.*

A405.3.7 Existing unreinforced brick footings. *Add this subsection:* The capacity of an existing brick footing to resist shear or pullout of an existing or new anchor shall be established by testing or by reference to approved tests of similar conditions.

> ***Commentary:*** *Older buildings might have unreinforced brick footings. In general, these are unlikely to be adequate for new or strengthened shear walls, but the added provision allows a method to substantiate their capacity. Where inadequate existing foundation elements require replacement, the design professional is encouraged to consult with the SHOP office regarding eligibility.*

A406.1 General. *Omit this subsection.*

> ***Commentary:*** *Section A.2.3 of these requirements replaces Chapter A4 Section A406.1.*

A406.2 Existing construction. *Add the following sentence to this subsection:* If the cap allowed by Section A403.3.1 is used to limit the scope of retrofit, the foregoing information shall be shown for each target story and at least one story above the uppermost target story. If the cap allowed by Section A403.3.1 is not used, the foregoing information need only be shown for each target story and for the floor immediately above the uppermost target story.

A407.1 Structural observation, testing and inspection. *Correct the reference to Section 1709 of the California Building Code with a reference to Section 1704.6.1. Add the following sentence to the end of the section:* The work shall not be eligible for Exception 1, 2, or 3 to CBC Section 1704.2 or for the Exception to CBC Section 1705.12.2.

> ***Commentary:*** *The Chapter A4 requirement for structural observation provides the specific requirement contemplated by CBC Section 1704.6.1 item 5. The added sentence rules out exceptions that are appropriate for new wood construction but are not appropriate for retrofit work.*