

**OCCUPATIONAL SAFETY
AND HEALTH STANDARDS BOARD**

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**NOTICE OF PROPOSED MODIFICATION TO****CALIFORNIA CODE OF REGULATIONS****TITLE 8: Chapter 4, Subchapter 4, Article 30, Section 1730, and
Proposed New Section 1731
of the Construction Safety Orders****Roof Hazards – New Production-Type Residential Construction**

Pursuant to Government Code Section 11346.8(c), the Occupational Safety and Health Standards Board (Standards Board) gives notice of the opportunity to submit written comments on the above-named standards in which modifications are being considered as a result of public comments and/or Board staff consideration.

On May 18, 2006, the Standards Board held a Public Hearing to consider revisions to Title 8, Section 1730, and proposed new Section 1731 of the Construction Safety Orders. The Standards Board received written comments on the proposed revisions. The standards have been modified as a result of these comments and Board consideration.

A copy of the full text of the standards as originally proposed, and a copy of the pages with the modifications clearly indicated, are attached for your information. In addition, a summary of all written comments regarding the original proposal and staff responses is included.

Pursuant to Government Code Section 11346.8(d), notice is also given of the opportunity to submit comments concerning the addition to the rulemaking file of the following documents relied upon:

- Roofing Industry Accident Investigations, U.S. Department of Labor, Occupational Safety and Health Administration, IMIS Report, from 20010101 to 20051231, SIC 1761, State of CA specified, dated 2006/05/15 (Note: this is a partial report due to IMIS 100 page report limit – actually covers the period 01/01/2001-06/11/2003).
- Roofing Industry Accident Investigations, U.S. Department of Labor, Occupational Safety and Health Administration, IMIS Report, from 20010101 to 20051231, SIC 1761, State of CA specified, dated 2006/05/16. (Note: this is a partial report due to IMIS 100 page report limit – actually covers the period 06/12/2003-04/18/2005).
- Roofing Industry Accident Investigations, U.S. Department of Labor, Occupational Safety and Health Administration, IMIS Report, from 20010101 to 20051231, SIC 1761, State of CA specified, dated 2006/05/18 (Note: this is a concluding report for the specified period. Previous reports were truncated due to IMIS 100 page report limit – actually covers the period 04/12/2005-12/31/2005).

*CSO 1730-1731, Roof Hazards - New Production-Type Residential Construction
Notice of Proposed Modification*

Copies of these documents are available for review during normal business hours at the Standards Board Office located at the address listed below.

Any written comments on these modifications must be received by 5:00 p.m. on January 2, 2007, at the Occupational Safety and Health Standards Board, 2520 Venture Oaks Way, Suite 350, Sacramento, California 95833. The standards will be scheduled for adoption at a future business meeting of the Standards Board.

The Standards Board's rulemaking files on the proposed action are open to public inspection Monday through Friday, from 8:00 a.m. to 4:30 p.m., at the Standards Board's office at 2520 Venture Oaks Way, Suite 350, Sacramento, California 95833.

Inquiries concerning the proposed changes may be directed to Keith Umemoto, Executive Officer at (916) 274-5721.

OCCUPATIONAL SAFETY AND HEALTH
STANDARDS BOARD

Date: December 13, 2006

Keith Umemoto, Executive Officer

STANDARDS AS ORIGINALLY PROPOSED

**STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

Subchapter 4, Construction Safety Orders
Article 30. Roofing Operations and Equipment

Amend Section 1730 as follows:

§1730. Roof Hazards.

* * * * *

(f) Slopes Greater Than 5:12--Multiple-Unit Roof Coverings. Employees shall be protected from falls from roofs that are of a height of more than 20 feet by one or a combination of the following methods:

- (1) A parapet at least 24 inches high.
- (2) Personal Fall Protection [Section 1724(f)].
- (3) Catch Platforms [Section 1724(c)].
- (4) Scaffold Platforms [Section 1724(d)].
- (5) Eave Barriers [Section 1724(e)].
- (6) Roof Jack Systems [Section 1724(a)] (Safety lines shall be required in conjunction with roof jack systems on roofs steeper than 7:12)

EXCEPTION for Section 1730: For roofing work on new production-type residential construction with roof slopes 3:12 or greater, see Section 1731.

NOTE: For purposes of Section 1730, the height measurement shall be determined by measuring the vertical distance from the lowest edge of the roof or eaves to the ground or level below. The height of parapets shall not be included in the roof height measurements.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

**STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

Subchapter 4, Construction Safety Orders

Article 30. Roofing Operations and Equipment

Add new Section 1731 as follows:

§1731. Roof Hazards - New Production-Type Residential Construction.

(a) Scope and Application.

(1) This section shall apply only to roofing work on new production-type residential construction with roof slopes 3:12 or greater.

(2) This section does not apply to custom-built homes, re-roofing operations, roofing replacements or additions on existing residential dwelling units.

NOTE: For other roofing operations, see Section 1730.

(b) Definitions.

Custom-built home. A single detached housing unit built under a single contract.

Eaves. The lowest edge of a sloped roof.

Production-type residential construction. Any new residential housing unit that is not a custom-built home.

Roof. The exterior surface on the top of a building. This does not include floors or formwork which, because a building has not been completed, temporarily become the top surface of a building.

Roof slope. For the purposes of this section, the incline angle of a roof surface, given as a ratio of the vertical rise to the horizontal run. For example, a 4:12 roof has 4 feet of vertical rise for 12 feet of horizontal run.

Roofing work. The loading and installation of roofing materials, including related insulation, sheet metal that is integral to the roofing system, and vapor barrier work, but not including the construction of the roof deck.

(c) Fall protection for roofing work.

(1) Roof Slopes Less Than 7:12: Employees shall be protected from falling when on a roof surface where the eave height exceeds 15 feet above the grade or level below by use of one or any combination of the following methods:

(A) Personal Fall Protection (Section 1670).

(B) Catch Platforms [Section 1724(c)].

(C) Scaffold Platforms [Section 1724(d)].

(D) Eave Barriers [Section 1724(e)].

(E) Standard Railings and Toeboards (Article 16).

(F) Roof Jack Systems [Section 1724(a)].

TO

CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

(2) Roof Slopes 7:12 or Greater: Personal fall protection systems shall be required on roofs with slopes 7:12 or greater regardless of height.

(d) Training.

(1) In addition to training required by Sections 1509 and 3203, each affected employee shall be trained to ensure specific awareness of the fall hazards associated with roofing work, including, but not limited to:

(A) Work on or near gable ends,

(B) Slipping hazards,

(C) Roof holes and openings,

(D) Skylights,

(E) Work on ladders and scaffolds,

(F) Access to roof,

(G) Placement and location of materials on the roof,

(H) Impalement hazards, and

(I) Care and use of fall protection systems.

(2) Documentation of employee training shall be maintained as required by Section 3203 of the General Industry Safety Orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

PROPOSED MODIFICATIONS
(Modifications are indicated in bold,
double underline wording for new language,
and bold, strikeout for deleted language.)
(Only modified pages are included)

**STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

Subchapter 4, Construction Safety Orders
Article 30. Roofing Operations and Equipment

Add new Section 1731 as follows:

§1731. Roof Hazards - New Production-Type Residential Construction.

(a) Scope and Application.

(3) This section shall apply only to roofing work on new production-type residential construction with roof slopes 3:12 or greater.

(4) This section does not apply to custom-built homes, re-roofing operations, roofing replacements or additions on existing residential dwelling units.

NOTE: For other roofing operations, see Section 1730.

(b) Definitions.

Custom-built home. A single detached housing unit built under a single contract.

Eaves. The lowest edge of a sloped roof.

Production-type residential construction. Any new residential housing unit that is not a custom-built home.

Roof. The exterior surface on the top of a building. This does not include floors or formwork which, because a building has not been completed, temporarily become the top surface of a building.

Roof slope. For the purposes of this section, the incline angle of a roof surface, given as a ratio of the vertical rise to the horizontal run. For example, a 4:12 roof has 4 feet of vertical rise for 12 feet of horizontal run.

Roofing work. The loading and installation of roofing materials, including related insulation, sheet metal that is integral to the roofing system, and vapor barrier work, but not including the construction of the roof deck.

(c) Fall protection for roofing work.

(1) Roof Slopes ~~Through Less Than~~ 7:12: Employees shall be protected from falling when on a roof surface where the eave height exceeds 15 feet above the grade or level below by use of one or any combination of the following methods:

(A) Personal Fall Protection (Section 1670).

(B) Catch Platforms [Section 1724(c)].

(C) Scaffold Platforms [Section 1724(d)].

(D) Eave Barriers [Section 1724(e)].

(E) Standard Railings and Toeboards (Article 16).

(F) Roof Jack Systems [Section 1724(a)].

STANDARDS PRESENTATION
TO
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

PROPOSED STATE STANDARD,
TITLE 8, CHAPTER 4

(2) Roof Slopes Steeper than 7:12 or Greater: ~~Personal fall protection systems shall be required on roofs with slopes 7:12 or greater regardless of height. Employees shall be protected from falling by methods prescribed in Subsections (c)(1)(A), (B), (C), or (E) regardless of height.~~

(d) Training.

(1) In addition to training required by Sections 1509 and 3203, each affected employee shall be trained to ensure specific awareness of the fall hazards associated with roofing work, including, but not limited to:

(A) Work on or near gable ends,

(B) Slipping hazards,

(C) Roof holes and openings,

(D) Skylights,

(E) Work on ladders and scaffolds,

(F) Access to roof,

(G) Placement and location of materials on the roof,

(H) Impalement hazards, and

(I) Care and use of fall protection systems.

(2) Documentation of employee training shall be maintained as required by Section 3203 of the General Industry Safety Orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

SUMMARY AND RESPONSE TO COMMENTS

SUMMARY AND RESPONSE TO WRITTEN AND ORAL COMMENTS

I. Written Comments

Beth Curran, Executive Director, CALPASC OCIE (California Professional Association of Specialty Contractors - Orange County Inland Empire), by letter dated April 12, 2006,
and
Natalie Murdaugh, Membership Services Director, CALPASC Northern California, by letter dated April 12, 2006,
and
Cees Molenaar, Executive Vice President, CALPASC San Diego, by letter received April 25, 2006.

Comment:

The commenters each submitted letters noting that CALPASC is a statewide organization of specialty contractors which employ approximately 80,000 persons who are engaged in residential construction activities. They stated that the residential building industry is in dire need of clarity and an effective fall protection standard for residential roofing activities. Their organization is of the opinion that the proposed trigger height reduction from 20 feet to 15 feet will provide much needed clarity in fall protection standards for the residential building industry which will, in turn, promote compliance. They stated that CALPASC wholeheartedly supports the proposed standard.

Response:

The Board thanks the commenters, CALPASC OCIE, CALPASC Northern California, and CALPASC San Diego, for participating in the rulemaking process and for their support for the proposal.

Lonnie L. Clary, President, Clary Roofing, Inc., by letter received April 17, 2006,
and
Mike Rochholz, President, Secure Roofing, by letter received April 21, 2006,
and
Joseph DePinho, President, DePinho Roofing, Inc., by letter received April 24, 2006

Comment:

These commenters, collectively employing approximately 280 persons, submitted letters of support substantially similar in content to one another.

The commenters agreed that the residential building industry is in dire need of clarity and an effective fall protection standard for [new] residential roofing activities. They opined that the proposed reduction in trigger height will create a safer work place while promoting compliance. The commenters offered their wholehearted support for the proposal.

Response:

The Board thanks Messrs. Clary, Rochholz, and DePinho, for participating in the rulemaking process and for their support for the proposal.

Timothy M. Davey, Chairman, DRI Residential Corporation, by letter dated April 17, 2006

Comment:

Mr. Davey noted that DRI Residential is a roofing contractor which employs approximately 450 employees and that the practical effect of the trigger height reduction will be to require fall protection for work on all new two-story tract houses built in California. He opined that it should result in the elimination of numerous serious injuries in the future and should reduce workers' compensation costs. He offered his strong support for the proposal and looks forward to its implementation.

Response:

The Board thanks Mr. Davey for participating in the rulemaking process and for his support for the proposal.

Kevin D. Bland, Private General Counsel for CALPASC, by letter dated May 9, 2006,

and

Bruce Wick, Vice President of Risk Management, CALPASC, by letter dated May 9, 2006.

Comment:

These individuals submitted separate letters of support substantially similar in content. Mr. Wick and Mr. Bland co-authored Petition 462, the vehicle which initiated the rulemaking process culminating in this proposal.

Mr. Bland noted that his firm, Granado Bland, is a firm that represents roofing contractors, CALPASC, the California Framing Contractors Association, the Residential Contractors Association, as well as numerous private residential contractors. To this end, Granado Bland focuses its practice on health and safety for the construction industry.

Mr. Wick noted that CALPASC represents 530 companies across California. CALPASC members are trade contractors and their suppliers. Mr. Wick estimated that their member firms employ approximately 85,000 workers in California. He offered CALPASC's support for the proposal, noting that the proposed standard will bring greatly needed clarity and provide for an effective fall protection standard for production residential roofing activities.

Messrs. Bland and Wick offered the following proposed modifications which they felt could be handled administratively:

1. Section 1731(c)(1): Replace the term "less than" with the term "through" in reference to the roof slope of 7:12, because it will provide consistency with the residential fall protection requirements of Section 1716.2(g)(1)(B) for working on roofs with a 15 foot trigger height.
2. Section 1731(c)(2): Replace "7:12 or greater" with the term "steeper than 7:12."

3. Section 1731(c)(2): Replace the phrase “personal fall protection systems shall be required on roofs with slopes 7:12 or greater regardless of height” with “employees shall be protected from falling by methods prescribed in Subsections (c)(1)(A), (B), (C), or (E) above.”

The commenters believe that their proposed changes provide consistency with Sections 1670, 1730, and the residential fall protection requirements of 1716.2(g)(1)(B) for work on roofs with a 15 foot trigger. The recommended changes will also maintain the intent of the advisory committee to ensure consistency in enforcement and compliance on residential production-type building projects.

Response:

The Board agrees that the proposed modifications are necessary to prevent confusion and conflicts between the residential production-type framing standard Construction Safety Orders (CSO 1716.2) and the proposed residential production-type roofing standard (CSO 1731) and proposes to incorporate them.

The Board thanks Messrs. Bland and Wick for participating in the rulemaking process, for their suggested clarifications, and for their support for the proposal.

Jeffery Tamayo, General Manager, Town & Country Roofing, by letter received May 11, 2006,
and
Timothy M. Davey, Chairman, DRI Residential Corporation, by letter dated May 11, 2006,
and
Martin J. Stout, Vice-President, Sales, Mayer Roofing, Inc., by letter dated May 12, 2006,
and
Lonnie L. Clary, President, Clary Roofing, Inc., by letter received May 17, 2006.

Comment:

These individuals, collectively employing approximately 1500 persons, submitted separate letters of support substantially similar in content to one another.

The commenters agreed that the residential building industry is in dire need of clarity and an effective fall protection standard for residential roofing activities. They opined that the proposed reduction in trigger height will create a safer work place while promoting compliance. The commenters offered their support for the proposal with the modifications proposed by Messrs. Wick and Bland.

The commenters believe the proposed changes are necessary to provide consistency with Sections 1670, 1730, and the residential fall protection requirements of 1716.2(g)(1)(B) for work on roofs with a 15 foot trigger. The recommended changes will also maintain the intent of the advisory committee to ensure consistency in enforcement and compliance on residential production-type building projects.

Response:

The Board agrees that the proposed modifications are necessary to prevent confusion and conflicts between the residential production-type framing standard (CSO 1716.2) and the

proposed residential production-type roofing standard (CSO 1731) and proposes to incorporate them.

The Board thanks Messrs. Tamayo, Davey, Stout and Clary for participating in the rulemaking process, for their suggested clarifications, and for their support for the proposal.

William T. Callahan, Jr., PhD., Executive Director, Associated Roofing Contractors of the Bay Area Counties, Inc. (ARCBAC), by letter dated May 12, 2006.

Comment:

The commenter notes that the Associated Roofing Contractors represents union roofing contractors in 14 metropolitan San Francisco Bay Area counties, and that a number of their member firms perform production residential roofing. He also noted that his association and all three Locals of the Roofers Union with whom they negotiate working agreements were represented on the advisory committee which considered this proposal.

Dr. Callahan agreed that the proposal to lower the trigger height for fall production in the production residential roofing arena from 20' to 15' will improve worker safety, bring much needed clarity to the bidding process and improve compliance and enforcement. However, he stated that there were several important administrative changes necessary before they could lend their support for adoption of the proposal.

These changes are as follows:

1. Section 1731(c)(1): Replace the term “less than” with the term “through” in reference to the roof slope of 7:12 because it will provide consistency with the residential fall protection requirements of Section 1716.2(g)(1)(B) for working on roofs with a 15 foot trigger height.
2. Section 1731(c)(2): Replace “7:12 or greater” with the term “steeper than 7:12.”
3. Section 1731(c)(2): Replace the phrase “personal fall protection systems shall be required on roofs with slopes 7:12 or greater regardless of height” with “employees shall be protected from falling by methods prescribed in Subsections (c)(1)(A), (B), (C), or (E) above.”

Dr. Callahan noted that the first two recommended changes are necessary since the current proposal is in conflict with the criteria for steep roofing found in CSO 1670(a), 1716.2(g)(1)(B) and 1730(f)(6). If the proposal is adopted without modification, the inconsistent trigger slopes could result in confusion, creating compliance and enforcement problems.

Dr. Callahan noted that the third recommended change would address an inequity between Section 1731(c)(2) as proposed and Section 1716.2(g) which provides framing contractors with a number of fall protection options. If left unchanged, the proposal would limit roofing contractors to only one fall protection option when performing work on steep roofs (sloped steeper than 7:12). Dr. Callahan commented that, in its present form, framers and roofers performing nearly identical tasks under the same jobsite conditions would be subject to completely different fall protection requirements. For example, roofers would have to wear personal fall protection despite the presence of protective scaffolding being used by framers. He

noted that adopting proposed amendment #3 will harmonize residential framing and residential roofing standards and allow roofing contractors to choose the most appropriate fall protection method from several alternatives.

Dr. Callahan concluded that his organization supports the proposal if it is amended.

Response:

The Board accepts these recommended changes and proposes to incorporate them. The Board thanks Dr. Callahan for his suggested clarifications, for his participation in the rulemaking process, and for his organization's support for the proposal.

Richard J. Lawson, Sr. Vice president, The Lawson Roofing Co., by letter dated May 12, 2006,
and

Ray Lowrance, Vice President, Reinhardt Roofing, by letter received May 12, 2006,
and

Steven Tucker, Business Manager, United Union of roofers, Waterproofers and Allied Worker,
Local Union No. 40, by letter received May 12, 2006,

and

Ronald D. Johnston, Ph.D., Executive Director, Union Roofing Contractors Association (Union-
affiliated roofing contractors in Southern California), by letter dated May 12, 2006,

and

Craig J. Lau, President, Acme Roofing Company, by letter dated May 15, 2005.

Comment:

The commenters noted that the different criteria for "steep roofing" currently proposed in Section 1731 conflicts with every other definition of the term contained in Title 8, and that this inconsistency must be eliminated to prevent confusion which would negatively impact compliance and enforcement.

They also commented that Section 1731(c)(2) as currently proposed allows only one means of providing fall protection for employees performing steep roofing work. This is unrealistic, inconsistent with residential framing standards and unacceptable. They noted that Cal-OSHA standards generally recognize that construction jobsites are extremely varied and the "one size fits all" approach simply will not work. Other Title 8 standards provide contractors with freedom to select from a number of different fall protection options the one that is best suited to jobsite conditions.

The commenters concluded by urging the Standards Board to adopt proposed Section 1731 amended as proposed by CALPASC and by ARCBAC.

Response:

The Board agrees that the proposed modifications are necessary to prevent confusion and conflicts between the residential production-type framing standard and other parts of Title 8. The changes proposed by CALPASC and ARCBAC are proposed to be incorporated.

The Board thanks the commenters for participating in the rulemaking process and for their support for the proposal.

Ward Connerly, Executive Director, Roofing Contractors Association of California, by letter dated May 17, 2006.

Comment:

The commenter, speaking on behalf of the Roofing Contractors Association of California urged the Board to adopt the rulemaking proposal with amendments as proposed by CALPASC and ARCBAC for the reasons previously delineated by Mr. Callahan of ARCBAC.

Response:

The Board accepts this comment and proposes to incorporate the amendments and modifications recommended by CALPASC and ARCBAC into the 15-Day Notice.

The Board thanks Mr. Connerly for his participation in the rulemaking process.

E. Frank Shoemaker, President/Treasurer, and Frank Shoemaker II, Vice President/General Manager, Dynamic Roofing Company, by letter dated May 12, 2006.

Comment No. 1:

The commenters allege that the proposed standard will require the use of proprietary fall protection equipment.

Response:

Although the commenters were not specific about which section would require proprietary equipment, it appears that this comment was directed toward Section 1731(c)(2) which only permitted the use of fall protection systems on roofs sloped 7:12 or greater. The Board proposes to amend this section to provide fall protection options for roof slopes steeper than 7:12. Board staff has investigated fall protection options available and is of the opinion that the proposed modification would provide a sufficient number of fall protection means and methods available and not compel the regulated public to use a proprietary system. Fall protection options available will include those enumerated in Sections 1731(c)(1) and (c)(2) [as amended] which includes guardrails, catch platforms and scaffold platforms. The Board is of the opinion that the proposal, as amended and modified, will not favor any single method of fall protection. Thus, the Board believes the commenters' concern has been addressed by the proposed modifications.

Comment No. 2:

The commenters believe that the use of conventional fall protection (rope and harness) on concrete tile roofs creates as many hazards as it eliminates. They state that concrete tile roofs are typically loaded with stacks of 6 to 8 tiles spaced approximately 3 feet apart. They add that some parts of the roof may have stacks as high as 15 tiles, depending on the size and design of the roof. They opine that this potentially presents a condition for the fall protection lanyard to snag on stacks of tile as the installer moves about the roof. If this occurred, the installer could be pulled off-balance and fall. The lanyards could also knock tiles off the stacks, and tiles sliding down the roof could either knock tiles off more stacks on their way down, or they could possibly fall on workers below.

Response:

Fall protection is not limited to personal fall protection systems. Other options include catch platforms, scaffold platforms, roof jacks and guardrail systems, which do not present the problems cited by the commenters. Also, the loading process should be pre-planned so that materials are loaded at the most remote parts of the roof first and progressively work back to the supply point, thus eliminating or minimizing interference with stacks that have already been placed.

Partially in response to the commenters concerns, proposed modifications have added more fall protection options for roofs sloped steeper than 7:12.

Comment No. 3:

This proposed standard could also create difficulties in loading the roof. Some roofs, due to their design and lack of convenient access, require that material be carried by hand for the full length of the roof. This presents challenges in providing fall protection and the commenters are not aware of any fall protection system that satisfactorily addresses this need.

Response:

One of the goals of this rulemaking proposal is to harmonize the fall protection trigger height for production-type roofing (CSO 1730-1731) with residential framing (CSO 1716.2). Therefore, fall protection for loading roofing materials should be considered in the context of CSO 1716.2(g)(1); i.e., fall protection is already required and should be in-place for the roof sheathing operation which precedes loading and installing. Thus, in most cases it should be possible for the roofing materials provider to coordinate the use of the same fall protection or to make arrangements with the roofing installer to have other fall protection in-place prior to delivery. In some cases, the roofer and the materials supplier is one and the same. Regardless, arrangements can be made with the sheathing and the roofing installers to assure availability of fall protection.

This comment seems to suggest that personal fall protection is the only option available for loaders. This is not the case. Both 1716.2(g)(1) and 1731(c) permit the use of other means, including catch platforms, scaffold platforms, eave barriers, railings and toeboards, and roof jack systems for fall protection.

Thus, the Board is of the opinion that fall protection for loading roofing materials can be assured through coordination and cooperation with the sheathing subcontractor and the roofing installer who will all be subject to the same 15 foot trigger height. (See the response to Comment No. 4).

Comment No. 4:

The commenters challenge the statement that the proposal will not result in a significant, statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states. They believe costs will be incurred in the purchase, maintenance and replacement of fall protection equipment. Furthermore, they believe these systems will reduce the productivity of roof installers and loaders by slowing the pace of their work, as well as the time needed for set-up and removal. They said their insurance broker opined that the proposal will not result in a reduction in workers compensation claims and liability premiums.

Response:

CalPASC reports favorable experience with the implementation of CSO 1716.2 for residential framing. They state that although there were costs involved in providing various types of fall protection for framing, the industry has embraced the use of fall protection and the minimal costs of compliance has had no real impact on business. They opine that there has been a significant decrease in serious injuries from falls in the residential framing industry as a result of implementation of the 15 foot trigger height (CSO 1716.2).

Furthermore, fall protection is already required for roofing operations above 20 feet, so unless an employer only does single story homes, and his employees never get higher than 20 feet, they should already have at least some of the fall protection equipment needed for compliance. Thus, there should be only an incremental cost for fall protection above one story due to the proposed amended standards. Moreover, since the proposal will establish the same trigger height for residential framing and roofing, there will be synergies and opportunities to share fall protection methods, means and costs. This proposal provides for several fall protection options and new cost-effective fall protection equipment continues to be developed, as evidenced by the various new devices available on the market as a result of the residential framing standard.

Comment No. 5:

The commenters stated that most of their opinions are based on their experience with rope and harness type systems. They opine that guardrails, scaffolding or safety nets would be far more expensive as well as interfere with the execution of other trades' work.

Response:

One of the purposes of Section 1731 is to provide a uniform fall protection trigger height for all residential construction, therefore coordination with other trades for scaffolding, guardrails and other fall protection should be much easier since there will be a uniform 15 foot fall protection trigger height for all.

Comment No. 6:

Based on their informal survey, the commenters believe that a majority of the roofing contractors and roofing material distributors statewide are unaware of this proposal. They believe that the public comment period should be extended to request input from roofing contractors and roofing material distributors statewide.

Response:

The Board has complied with all the notification requirements as required by the Administrative Procedures Act, it has been publicly noticed, and known trade associations have been contacted. The Board typically relies on public notice (written and electronic), trade associations, labor unions and word-of-mouth to inform the public. Over seven months have passed since the commenters indicated this concern; however with the exception of one other letter (included in this response to comments) no other parties have contacted the Board to raise an issue that they were left out of the process. Therefore, the Board is of the opinion that the roofing and roof materials industries are satisfied with this proposal. The Board does not find it necessary to extend the comment period for this rulemaking.

The Board thanks Messrs. Shoemaker for their participation in the rulemaking process.

Rick Twamley, President, Bourne Roofing, by letter dated May 12, 2006.

Comment No. 1:

Mr. Twamley stated that he is in opposition to the proposed changes to the roofing fall protection standard. He commented that this proposal only applies to new residential tract-type roofing and that it is not proposed to cover custom homes and re-roofing projects. He estimates that the re-roofing market is three times as large as new tract work, in terms of materials installed.

Response:

The scope of this rulemaking is limited to reflect the scope of the petition. In addition, the practice of the Board is to use consensus rulemaking unless federal standards are promulgated, in which case the Board is mandated to be at least as effective as the federal counterpart. (The perceived discrepancy between state and federal trigger heights will be discussed in our response to Federal OSHA Region IX advisory opinion discussed below). In this case, only the production-type residential roofing industry approached the Board to lower the fall protection trigger height from 20 feet to 15 feet.

In past rulemakings regarding roofing fall protection trigger heights, other segments of the roofing industry have been highly resistant to any reduction in trigger height. This rulemaking is proposed to be limited to production-type residential roofing because there is an apparent consensus among the members of this segment of the roofing industry to lower the trigger height. Furthermore, other segments of the roofing industry were not involved in the consensus rulemaking process as the scope of the proposal was limited and did not involve these other segments. The Board therefore declines the suggestion that the scope of this proposal should be expanded to include residential re-roofing.

Comment No. 2:

The commenter opines that re-roofing is much more dangerous than tract work, and thus appears to infer that residential re-roofing should be included in this proposal.

Response:

The scope of the rulemaking is limited to production-type residential roofing, as requested by the petitioner that requested this rulemaking. Therefore, other type of roofing work was not discussed in the advisory committee. Similarly, stakeholders and other experts and other roofing operators were not asked to address the numerous issues of other roofing operations.

The Board is of the opinion that inclusion of re-roofing in this proposal is outside the scope of the proposal and therefore declines to accept this comment.

Comment No. 3:

The commenter noted that custom homes were not included in the scope of this rulemaking.

Response:

Like re-roofing, the custom home segment of the industry was not within the scope of the rulemaking. (See response to Comment No. 2 for more detail).

Comment No. 4:

The commenter disputes one of the reasons given by the petitioner for the rulemaking; i.e., that the 15 foot trigger height is necessary for establishing a clear break between one and two-story construction, because it is not always possible to determine the eave height above grade from the plans. The commenter opines that plans are very clear and that eave height can easily be ascertained from sections.

Response:

The Board disagrees. Production-type housing plans are not site specific. Differing site conditions can and do affect the eave height. The petitioner offered the difficulty in determining the eave height due to uneven terrain and differing site conditions as a reason why the existing 20 foot trigger height had become problematic with increasingly common floor-to-floor heights of approximately 10 feet. Therefore, the Board maintains that the 15 foot trigger proposal is necessary.

Comment No. 5:

The commenter questions why the Board should be concerned about “bidding issues” and “cost impact” to the roofing industry. He suggests that if the 20 foot trigger height is problematic, it should be changed to 21 or 22 feet.

Response:

If the eave height exceeds 20 feet due to differing site conditions and uneven terrain, then current standards require fall protection provisions. The potential and uncertain cost impact is not only a bidding problem, but it is also an enforcement issue, because due to uneven terrain, different fall protection provisions can be required for different parts of the roof perimeter wherever the 20 foot trigger is exceeded. The Board finds the suggestion that if 20 feet is a problem the trigger height should be raised to 21 or 22 feet, to without merit.

Comment No. 6:

The commenter states that there has been no scientific or statistical study of the difference between falling from 20 feet and 15 feet. He opines that there may be an effect on severity, but not frequency.

Response:

The petitioner presented a summary of scientific studies of this subject in support of their request for the rulemaking. The studies generally support the commenter’s opinion that fall injury severity tends to increase with height. However, other factors also come into play, such as the surface upon which the worker falls, the age, weight and physical condition of the worker and what the worker may hit as he/she falls and lands. Unfortunately, and probably related to the number of factors involved, there is, as yet, no definitive study relating fall height and injury severity.

The Board interprets the intent of this comment to question the necessity of the proposal by questioning the scientific basis for lowering the trigger height from 20 feet to 15 feet. The Board is of the opinion that there is sufficient evidence of necessity for the proposal as a trigger height at 15 feet results in either fewer and/or less severe injuries. CALPASC reports that framers are

benefiting from lower insurance costs since the trigger height for residential framing was lowered to 15 feet (CSO 1716.2).

Comment No. 7:

The commenter argues against fall protection. He states that if the worker lands on the ground, first aid can be rendered much more quickly than if the worker is injured in the fall and is suspended in the air by fall protection equipment because it will be necessary to lower the worker to the ground in order to render first aid.

Response:

This theory is not shared by most safety professionals. Similarly, the commenter does not support this claim with evidence. While it is possible that the worker may be injured during the fall, the injuries are likely to be much less serious than those sustained if the worker free-falls to the surface below. The Board does not accept this theory.

Comment No. 8:

The proposed changes will have a significant negative impact on the cost of installation. The commenter estimates they will add approximately 7% to the cost of installation. He does not think this will be offset by savings in workers compensation, since he estimates that only approximately 20% of all injuries are associated with falls.

Response:

A study of falls from elevation for Standard Industry Classification (SIC) 1761, Roofing, Siding, and Sheet Metal Work, for accidents in California for the period Jan. 1, 2001 – December 31, 2005, reveals that falls from elevation accounted for approximately 55% of all injuries during this time frame. The advisory committee estimated the proposed changes to the standard would add between 2-7% to the cost of the job. However, based on their experience with residential framing, the advisory committee anticipated that the savings in workers compensation costs will equal or exceed the cost of the additional fall protection. Also, the cost for fall protection will only be an incremental cost as fall protection is currently required for all roofing above 20 feet. Therefore, any additional cost would be associated with work currently done without fall protection from 15 feet to 20 feet. The Board therefore declines to accept this comment.

The Board thanks Mr. Twamley for his participation in the rulemaking process.

II. Oral Comments

Oral comments received at the May 18, 2006, hearing in Glendale, California.

William T. Callahan, Jr., PhD., Executive Director, representing Associated Roofing Contractors of the Bay Area Counties, Inc. (ARCBAC).

Comment:

Dr. Callahan spoke in support of the proposal with the amendments proposed in his May 12, 2006, letter previously discussed. He commented that workers are trying to work as fast as possible and safety precautions can often be ignored or compromised. He concluded that the

proposal, with his proposed amendments, will harmonize roofing and framing fall protection standards, thus facilitating compliance and worker safety.

Response:

The Board accepts Dr. Callahan's comments and proposes to incorporate them into the amended proposal.

The Board thanks Dr. Callahan for his participation in the rulemaking process.

Liz Arioto, Board Member.

Board member Arioto had questions and comments regarding the proposed trigger height that she directed to Board staff during the hearing. These questions and comments are consolidated as follows:

Comment No. 1:

Ms. Arioto stated that she had the same concerns expressed by Dr. Callahan regarding the need to harmonize the roofing fall protection standard with residential framing.

Response:

Board staff proposes to incorporate Dr. Callahan's recommendations into the amended rulemaking proposal.

Comment No. 2:

Ms. Arioto inquired about the differences between production-type and custom home roofing.

Response:

The custom home roofing segment of the industry is a relatively small portion of the roofing industry. Projects are often scattered geographically, and the industry is fragmented with work usually being done by smaller, entrepreneurial specialty contractors. Furthermore, custom homes often have characteristics which complicate the use of fall protection, for example:

- Varying and steeper roof pitches.
- A variety of roofing materials (e.g., shake, shingle, tile, slate, tin, copper, and other metals, etc.).
- A variety of roof types (e.g., gable, hip, gambrel, Victorian, mansard, shed, etc.).
- Roof features (e.g. dormers, cupolas, towers, vents, etc.).

These features and materials, often used on custom homes, complicate development of new fall protection standards. It is proposed that this segment of the market should be left under existing roofing fall protection standards at this time. However, implementation of the production-type roofing fall protection standard may spur development of fall protection means, methods and technology so that at some future date more fall protection options will be available for custom roofing. The scope of the rulemaking is limited to reflect the scope of the petition.

Robert Harrison, M.D., Board Member.

Board member Harrison had several questions and comments regarding the proposed trigger height that he directed to various members of the public during their testimony. Board member

Harrison's questions and comments are consolidated as follows:

Comment No. 1:

Dr. Harrison inquired about other fall protection options that roofers would like to see in the standard.

Response:

Dr. Callahan responded that roofers would like to have the option to use scaffold platforms. Board staff notes that the amendments proposed by Dr. Callahan will also add catch platforms, standard railings and toe boards as fall protection options for slopes steeper than 7:12.

Comment No. 2:

Dr. Harrison inquired about fall protection for non-production roofing.

Response:

The current fall protection trigger height for all roofing activities is 20 feet. This proposal will only lower the trigger for production-type residential roofing. Production-type roofing accounts for approximately 200,000 housing units per year in California which is a significant portion of the roofing business. Non-production roofing, consisting of commercial roofing, custom homes and re-roofing, is much more specialized, and fall protection solutions for those sectors are often different from production-type residential roofing. For reasons discussed previously regarding this proposal's scope, non-production-type sectors should be addressed as a separate rulemaking.

Comment No. 3:

Dr. Harrison asked that the Board look at inconsistencies not only with trigger height, but also in trigger slopes between production-type residential roofing, commercial, re-roofing and custom homes.

Response:

There was no concurrence by other Board members to do this. Neither the Division of Occupational Safety and Health (Division) nor the industry asked the Board to take a comprehensive look at these issues. Since this issue is outside the scope of the proposal, the Board declines to pursue the matter at this time.

Ronald D. Johnston, Ph.D., Executive Director, representing the Union Roofing Contractors Association (Union-affiliated roofing contractors domiciled in Southern California).

Comment:

Dr. Johnston summarized his written comments and spoke in support of the proposed standard with the amendments proposed by Dr. Callahan.

Response:

The Board accepts Dr. Johnston's comment and proposes to incorporate Dr. Callahan's comments into the amended proposal.

The Board thanks Dr. Johnston for his participation in the rulemaking process.

Bruce Wick, Vice President of Risk Management, representing CALPASC .

Comment:

Mr. Wick had previously submitted written comments. He spoke in support of the standard. He said the proposal will provide a clear demarcation between one and two-story construction and it will increase safety. He believes that research and development of new fall protection options will explode and continue to increase the number of fall protection options available to roofing contractors. He opined that the labor and management consensus amendments requested by Dr. Callahan and by CALPASC are primarily administrative. He urged their prompt adoption.

Response:

The Board accepts this comment and proposes to incorporate the consensus amendments into the proposal, although due to the nature and extent of the proposed amendments, a 15-Day Notice for public comments is necessary.

The Board thanks Mr. Wick for his participation in the rulemaking process.

The following individuals gave testimony in support of the proposed standard:

Name:	Title:	Representing:
Martin Stout	Vice President	Mayer Roofing, Inc.
Jim Perteet	Vice President	Old Country Roofing
Brian Dougherty		Clary Roofing
Carlos Morales	Safety Manager	DRI Residential
Tim Davey	CEO	DRI Companies
Nelson DePinho		DePinho Roofing

The aforementioned individuals had the following additional comments:

Mr. Stout stated that his company specializes in production-type residential roofing. He stated that they do approximately 15,000 residential units per year. He added that they do not do custom roofing, re-roofing and/or commercial work. He opined that the 15 foot trigger will simplify bidding and compliance because the trigger height will be the same as for residential framing. Thus, it will facilitate providing the right fall protection methods and means.

Mr. Perteet said that since the current residential framing standards have been in place, framers are benefiting from a safer work environment due to the varied options for fall protection. He believes a 15 foot trigger height will do the same for the roofing industry and allow consistent compliance.

Mr. Morales stated that his company employs approximately 337 workers on residential roofing. His firm already requires fall protection on all two-story production-type residential roofing jobs. He is of the opinion that this will make for a safer workplace and ensure that fall protection will be provided on all two-story roofing.

Mr. Davey's company employs approximately 700 workers and they have adopted a policy

requiring fall protection on all residential roofing projects two-stories and higher, regardless of height from eave to ground. Since implementation, they have had no falls resulting in serious injury.

Mr. DePinho said that lowering the trigger height to 15 feet will allow for more consistent compliance, creating a level playing field.

Response:

The board thanks the forenamed for their participation in the Board's rulemaking process.

Kevin Bland, Esq., representing CALPASC.

Comment:

Mr. Bland spoke in support of the proposed standard with modifications requested by CALPASC and ARCBAC. He summarized the requested amendments as follows: (1) The first recommendation will change roof slope in (c)(1) from "less than 7:12" to "through 7:12." (2) The second recommendation will change (c)(2) from "roof slopes 7:12 or greater" to "roof slopes steeper than 7:12." (3) The third recommendation will add fall protection options for work on roof slopes steeper than 7:12. He stated that these proposed amendments will harmonize fall protection requirements for residential roofing with those for residential framing.

Response:

The Board accepts these comments and proposes to incorporate the requested amendments into the proposal.

The Board thanks Mr. Bland for his participation in the rulemaking process.

III. Federal OSHA Advisory Opinion, received on May 30, 2006, from Christopher Lee, Acting Regional Administrator, Region IX, U.S. Department of Labor, Occupational Safety and Health Administration.

Comment:

The proposed changes and new section do not provide protection equivalent to the Federal standard in that fall protection is not required until a height exceeds 15 feet. The Federal standard requires fall protection for a height exceeding 6 feet.

Response:

Federal OSHA Region IX expressed concern that the new Section 1731 has a uniform fall height of 15 feet, whereas OSHA CFR 1926 Subpart M has a fall height of 6 feet. However, the 15-foot fall height is not new, but is adopted from the existing fall height requirements in CSO Section 1716.2 for Residential Framing Activities along with a long-standing provision for a 15 foot trigger height for work on trusses, beams, purlins or plates [CSO Section 1669(a)] which dates back to the early 1970's which has been tacitly accepted by Federal OSHA.

Although Federal standards ostensibly establish a 6 foot trigger height, Federal OSHA Directive

STD 03-00-001 (STD 3-0.1A) “Plain Language Revision of OSHA Instruction STD 3.1, Interim Fall Protection Compliance Guidelines for Residential Construction,” modifies the requirement for conventional fall protection for work at or above 6 feet. STD 3-0.1A permits employers engaged in certain residential construction activities to routinely use alternative procedures instead of conventional fall protection for work up to 25 feet. No showing of infeasibility of conventional fall protection is needed before using these alternative procedures. The Federal Directive permits the use of an *unwritten* fall protection plan (FPP) which does *not* have to be specific to the jobsite. Different alternative procedures for roofing work are as follows:

- All roofs up to 4:12 – use safety monitoring system or slide guards.
- All roofs except tile or metal, over 4:12 and up to and including 8:12 – slide guards are required.
- Tile or metal roofs up to and including 8:12 – safety monitoring system may be used instead of slide guards.
- Any roof over 8:12 slope and/or any roof with eave height over 25’: no alternative fall protection methods available.

Although the Federal OSHA’s STD 3-0.1A appears to require slide guards as an alternative to conventional fall protection up to 25 feet on most roof types, it still is not as safe as California’s proposal in that conventional fall protection is required at 15 feet or at any height where the slope exceeds 7:12. Many stakeholders strongly feel that the use of slide guards below 15 feet provides no added protection and that this requirement actually creates a tripping hazard and greater exposure to the employee during installation and removal at lesser heights and roof slopes. Furthermore, slide guards are not personal fall protection. Therefore, by requiring the use of conventional fall protection at 15 feet, rather than relying on the use of slide guards, the proposed standard creates a safer work practice for residential roofing activities.

In contrast to the Federal (STD 3-0.1A) criteria of 25 feet and 8:12 roof slope, the proposed California standard requires conventional fall protection methods for work on roofs with eave height greater than 15 feet. Conventional fall protection is also required on *all* roofs sloped steeper than 7:12 regardless of height.

It is important to recognize that this proposed standard was achieved as a result of a consensus developed through an working committee comprised of labor, management, safety professionals, interested parties, and the Division over nearly a two-year period. This working committee also became a large part of the rulemaking advisory committee. The goal of the working committee and advisory committee was to ensure a safer workplace by developing a more consistent and rational standard. The working committee conducted itself similarly to a Federal OSHA negotiated rulemaking committee. Notably, this rulemaking has resulted in a strong consensus of all affected and interested parties. In fact, the proposed standard received only two negative comments during the public comment period. These negative comments opposed any reduction in the existing 20 foot trigger height.

In regard to the proposed standard, the Board believes that it will be at least as effective as the Federal standard, partially because the proposed standard does not rely solely on a fall protection plan or safety monitoring system. Generally, fall protection and safety monitoring system plans

are not properly adhered to or enforced. As a result of the new standard, it is firmly believed that the residential construction industry will see far greater compliance.

The advisory committee that drafted Section 1731 believes it is necessary to create a uniform fall height for residential construction because of confusion created by multiple trigger heights in the CSO. Reducing the trigger height for production-type residential roofing activities from the existing 20 foot trigger to 15 feet accomplishes uniformity and creates a safer working environment. To that end, the advisory committee felt that the uniform fall height of 15 feet also created a clear boundary between one-story work (which will *not* require the use of safety monitors, fall protection plans or personal fall protection under the new standard) and two-story work (which clearly *will* require conventional fall protection in all cases). Under Federal OSHA's STD 3-0.1A, conventional fall protection is *not* required until a fall height of 25 feet, effectively eliminating the requirement for conventional fall protection for *all* residential dwellings two stories or less.

The Board also notes that Federal OSHA has accepted 10 foot trigger heights in Oregon and Washington.

- Both Oregon and Washington have indicated to Board staff that their 10 foot trigger serves to delineate between single story and multi-story construction.
- California's proposed 15 foot trigger has been proposed as a clear-cut division between single story and multi-story residential construction, and thus it will have the same effect as the 10 foot trigger in Oregon and Washington.
- Greater floor-to-floor heights, increasingly popular in California, have made application of a 10 foot trigger height problematic, as the second floor in multi-story construction can frequently be right at or slightly above 10 feet when slab thickness and variations in site grade are considered. Thus, builders may not know until they arrive at the jobsite whether fall protection is required.

Furthermore, California's horizontal training standards found in Sections 1509, 3203 and 1730(d) are at least as effective as the "General Requirements" of Federal OSHA's STD 3-0.1A for Group 4 (Roofing Work). Furthermore, California vigorously enforces its illness and injury prevention program (IIPP) for which there is no direct federal counterpart.

This proposal creates a uniform fall protection trigger height of 15 feet for residential roofing, in part to provide consistency with the trigger height for residential framing. This proposal will thus create a uniform trigger height for most work on the "shell" phase of production-type residential construction, thereby improving compliance and enforcement. Builders report that workers' compensation rates have decreased since the 15 foot trigger height was implemented for new residential framing and a similar affect is anticipated when the 15 foot trigger becomes effective for production-type residential roofing.

California's insistence on fall protection equipment for residential framing, rather than relying on administrative remedies like fall protection plans and safety monitoring systems, has brought about the introduction and broad use of new types of scaffolding and fall protection equipment in California, which are not required by Federal OSHA's STD 3-0.1A.

- It is logical to anticipate that a uniform fall protection trigger height for both framing and

roofing will expand the availability and use of fall protection systems for residential construction.

- Cal-OSHA has noted increased compliance since implementation of the 15 foot trigger for residential framing.

The Occupational Safety and Health Standards Board does not have the authority to regulate or clarify by directives such as Federal OSHA Directive STD 3-0.1A. However, the Board believes that the proposed California fall protection standard is at least as effective as the Federal-OSHA standard and directive. California's clearly defined and rational proposed standard will lead to greater compliance throughout the industry. As a result, consistent enforcement throughout the industry will create a level playing field for new production-type residential roofing contractors. The net effect of the new standard will be a safer work environment for the employee.