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Elevating Employees with Extensible-Boom Rough Terrain Forklifts

August 19, 2009

Meeting Minutes

Committee Members in Attendance:

Labor Representatives:

Dave Harrison, Operating Engineers Local 3
Ken Jorgensen, IATSE Motion Picture Unions

Employer Representatives:

Kevin Bland, California Framing Contractors Assoc. and the Residential Contractors Assoc.
Rudy Lopez, County Line Framing
John Bobis, The Bobis Group
Tony Clement, Lucas and Mercier Construction
Don Bradway, Monarch - Kneis Insurance Services and Associated General Contractors of California (AGC)
Bruce Wick, California Professional Association of Specialty Contractors
Jeff Reynolds, Pacific Coast Companies
Wendy Holt, Alliance of Motion Picture and Television Producers
Richard Harris, Residential Contractors Association
Larry Pena, Southern California Edison
Bob Burba, Pacific Coast Supply, LLC
Steve Johnson, Associated Roofing Contractors

Interested Parties

Jim Hay, State Compensation Insurance Fund

Division of Occupational Safety and Health (DOSH) Staff:

Patrick Bell, Research and Standards
Joel Foss, Research and Standards

Mike Donlon, Research and Standards
Occupational Safety and Health Standards Board (Board) Staff:

Tom Mitchell
Cathy Dietrich

The Advisory Committee Meeting Started at 9:00 a.m.

I. Introduction:

Mr. Mitchell stated that the advisory committee had been convened to discuss proposed amendments to Section 3657 dealing with variable reach rough terrain forklifts and elevating personnel, and he reviewed the meeting procedures, stating that the goal of the advisory committee is to reach a consensus on proposed text. If consensus is reached, staff and the Board still may make changes to the proposed text if necessary, and if there is a change made following the advisory committee meeting but before being noticed for public hearing, the advisory committee members will be notified. Mr. Mitchell then reviewed the rulemaking process and asked the attendees to introduce themselves.

After the introductions, Mr. Mitchell stated that California standards must be at least as effective as the counterpart federal regulations, and he indicated that a copy of the federal regulation, CFR 1910.178 for Powered Industrial Trucks, was included in the handout package. He stated that he had also included sections of the ANSI / Industrial Truck Standards Development Foundation standards on low-lift and high-lift trucks, B56.1 and the Rough Terrain Forklift standard, ANSI B56.6. Also included in the packet was General Industry Safety Order, Article 24 for Elevating Platforms and Aerial Devices, and Article 25 for Powered Industrial Trucks.

Mr. Mitchell stated that this rulemaking was initiated in response to a Division of Occupational Safety and Health (DOSH or Division) request for a change in an existing safety order and amendment proposed to the existing standard for elevating employees with forklift trucks, Section 3657. The Division's concerns were that the existing standard did not adequately address the use of variable reach rough terrain forklifts with extensible booms (telehandlers). There were two areas of concern, including stability of the equipment and fall protection for personnel

working on the platform. To address these concerns, Mr. Mitchell proposed adding a new subsection at the end of the existing text that deals specifically with rough-terrain, variable-reach forklifts and elevating personnel with them.

Although there are some proposed changes in the existing text, it was really intended to be clarifying language. Mr. Mitchell stated that he had received several written comments regarding the existing text from individuals who participated on the ANSI B56.6 committee. He further stated that one item that drew a lot of attention from the B56.6 committee members was the note at the beginning, which indicates that telehandlers were not designed for elevating personnel and suggests that other equipment be used when it is practical to do so. He suggested starting with proposed new subsection (k), dealing with telehandlers, and then dealing with the existing text afterwards if time permitted.

Mr. Wick asked whether the Division's concern had been regarding unsafe practices and feeling that the current regulation did not give guidance or whether there was not a citable offense. Mr. Foss responded that there had been a number of people within the Division that kept pointing out the fact that these devices now, especially telehandlers, were dramatically different than the equipment the standard was written for and it lacked the necessary protections.

Mr. Wick asked whether Division personnel had witnessed people using the equipment unsafely or had they just realized that there is no relevant regulation if the Division should need to cite an employer. Mr. Foss responded that there was a complaint inspection in which a camera and operator were mounted on a large forklift to film a golf tournament.

Mr. Donlon stated that the Division often issues citations for operations where the cage is not connected to the forks or guardrails are not properly installed, but in addition, in looking at these operations, from a safety standpoint it is very similar to an aerial device and maybe some of the protections that are in force for aerial devices should also be enforced here.

Mr. Foss stated that there had been so much concern about cranes and cranes getting outside of the center of gravity for which they are designed that an operator can easily tip over a crane, and

these are operations that are, in many ways, unregulated. He stated that in general, it was because the technology has moved ahead of the existing regulations, and it appears to be continuing that way.

Mr. Wick asked whether part of the Division's goal as the committee continues today is to contemplate potential future changes. Mr. Foss responded in the negative, stating that the technology, in terms of placing employees on construction jobs, is moving very rapidly and other requirements may be necessary.

Mr. Bobis asked whether there was a particular accident that prompted the Division request. Mr. Foss responded that it was a complaint inspection.

Mr. Bobis asked whether the complaint was in regard to a particular platform that did not have a guardrail or other protection. Mr. Foss responded in the negative, stating that the issue was one of no requirement for someone in a platform on a forklift to be tied off and other, similar requirements. It was a dramatic illustration of the fact that this equipment, which is so much like an aerial device, did not have the protections of an aerial device.

Mr. Bland asked whether the concern was not that there was a rash of accidents but more of an issue of providing safety rules and guidance for employers in the use of this equipment. Mr. Foss responded that there have been accidents, but Mr. Bland's assessment was correct.

Mr. Mitchell stated that the first section of the standard, which is the existing text, was written to deal with typical low-lift and high-lift trucks with vertical masts. It would apply to any lift truck used to elevate employees. In subsection (a), Board staff proposed to clarify the scope and application that the existing text in subsection (a) through (j) would apply anytime a forklift is used to elevate personnel, and when a variable reach or telehandler is used to elevate personnel, the employer must comply with subsections (a) through (j) in addition to new subsection (k). Subsection (b) deals with requirements for the work platform, and there are not many proposed changes to the other subsections. There were a few modifications made to subsection (j) so the

variable reach forklifts would be required to comply with these standards in addition to the operating rules that have been added for variable lift.

Mr. Mitchell stated that all of the written comments were received from individuals who participated on the ANSI B56.6 committee, and he reviewed those written comments.

Mr. Bradway stated that so far, he has not seen anything in the materials distributed that there is any kind of certified training for the operator of a forklift that is going to be elevating an employee, yet certified training is required for anyone who is going to be using a manlift, and he asked whether that requirement would be part of the training requirements in the proposal. Mr. Mitchell responded that Section 3650(t) and 3668 require operator training.

Mr. Bradway stated that those sections require training for operating a forklift but not for operating a forklift that is elevating an employee. He stated that there is a big difference between elevating a load of plywood and elevating a person, and there should be an acknowledgment of that difference in the proposal. Mr. Mitchell asked that the discussion regarding this issue be held until the committee reached the section on training requirements, stating that the question might be whether to reference existing requirements for operating a forklift.

Mr. Foss stated that fall protection is necessary with aerial devices not because the guardrails do not offer enough protection but because someone can be thrown out of an aerial device because there is the possibility of violent movement back and forth or up and down, and that is why it is required for aerial devices but not for scissor lifts or elevating work platforms. He stated that the commenter (Scott Bargenquast) may not understand that it is not an issue of the employee falling off; it is an issue of the employee being thrown out.

Mr. Bobis stated that the ANSI rule does not require the provision of an information plate whether or not the forklift is going to be used to lift personnel. However, there should be an information plate indicating the capacity of the equipment. In addition, subsection (k)(2) states that if there is no information plate provided for the personnel, the combined weight of the work platform, load and personnel shall not exceed more than the rated capacity of the rough terrain

forklift's rated load capacity as indicated on the information plate. He stated that the subsection requires information to be provided on a nonexistent information plate, and that the capacity of the equipment needs to be indicated, even if it is written with a permanent marker.

Mr. Harris stated that if there is no plate provided for personnel lifting, then the employer must refer to the plate that is required by law. Mr. Bobis responded that the information should be split up for purposes of clarification, with one section stating that "a nameplate shall be posted indicating the capacity of the equipment."

Mr. Jorgensen stated that that requirement is already there and subsection (k)(2) is a reference to whether an information plate for elevating personnel is not there.

Mr. Bradway stated that the term "information plate" is used twice; once for the actual forklift itself and the second one would be if the forklift was going to be used to elevate personnel. If so, there should be an information plate referencing that kind of operation, and the difference between the two information plates should be made clear in the proposal.

Mr. Mitchell stated that currently ANSI requires in B56.1 and B56.6 that there be an information plate, and California's Section 3650(b)(4) requires "all nameplates and model number, type designation and load capacity markings on industrial trucks shall be maintained in a legible condition by the employer."

Mr. Bobis suggested that the proposal state "the nameplate shall be maintained," or similar language.

Mr. Mitchell stated that that requirement is already in the existing regulation.

Mr. Wick stated that as part of the training for forklift operators, they are given to understand that a plate listing the rated capacity of the forklift must be visible to them at all times from their operating seat. If those trained operators are the people reading the proposal, the requirement may not need to be detailed, because they may not be confused. The passage indicates that if

there is a plate indicating that lifting personnel is permissible, that is fine, but forklift operators know that they have to have a plate that provides the capacity of the forklift.

Mr. Harris suggested language indicating a requirement for an information plate that states the rated capacity of the machine.

Mr. Foss stated that the plate would essentially be a load chart, which is already required.

Mr. Bland stated that the proposal should be modified to indicate that if the forklift has a capacity for lifting people, the rated load capacity for the machine is not to be exceeded. If it does not have that capacity, the load should be reduced to one-third of the rated capacity.

Mr. Mitchell stated that if the information plate specifically provides information on elevating personnel, the operator shall follow the limitations of that information. If specific information on elevating personnel is not provided, then the load capacity is reduced to one-third.

Mr. Foss stated that the information plate for elevating personnel is not just capacity, there are many other instructions, including very visual instructions about how to operate, position, and when to have the stabilizers out. The goal is to differentiate between one and two, because that is the key to the whole standard.

Mr. Clement stated that if there is a difference between the capacity of the machine and what the load chart indicates is permissible, if it is a telescoping machine, the capacity of the machine is not what can be put out five feet in front, it has to have a load chart. He stated that it is not legal to have a telescopic handler without a load chart in place.

Mr. Bobis stated that there could be confusion between the information plate and the load chart.

Mr. Foss stated that one is a load chart and the other is what has been referred to in Cal-OSHA as the data plate, which indicates the capacity and other information about the forklift. It is possible to find units in the field that do not have the load chart. The larger manufacturers all provide

load charts now, but there are still some in operation that do not have it. Subsection (k)(2) is if the load chart is not in place, the operator must use a very conservative safety factor.

Mr. Donlon asked whether the subsection should be modified to indicate that if the manufacturer provides information specific to lifting employees that information must be followed. He stated that the point of the subsection is if the employer is providing information specific to raising employees, that information must be followed.

Mr. Bland stated that as long as that does not get into the argument of product liability issues if the employer does or does not lift personnel, he agreed with Mr. Donlon.

Mr. Foss stated that that information could also be in a handbook back in the shop and not on the machine. He suggested that if the load chart is available, then that load chart should be followed.

Mr. Donlon stated that the discussion centered on two different load charts; one for personnel use and one for lifting materials. Thus, if the manufacturer provides a chart on the vehicle specific to raising personnel, that load chart shall be followed.

Mr. Bobis stated that if the manufacturer does not provide a chart specific to lifting personnel, then the limitation is one-third of the capacity for lifting loads.

Mr. Reynolds asked Mr. Foss whether he was suggesting that there be a plate on the lifts that details instructions on how to elevate personnel. Mr. Foss responded that many of these devices now have such an instruction plate, and subsection (k)(1) indicates that if there are instructions, then the work platform should be loaded and positioned with the limitations on the informational plate.

Mr. Reynolds stated that subsection (k)(1) discusses capacity. Mr. Foss responded that it also includes when the capacity limitations should be met.

Mr. Donlon stated that subsection (k)(1) includes information regarding both load capacity and positioning. He further stated that the subsection indicates that the platform shall be loaded and positioned within the limitations of the information plate. Some of the plates instruct the operator to put out the stabilizers and to put out the outriggers, and that is not contained in this language. The subsection should indicate that operators follow the information provided by the manufacturer.

Mr. Foss stated that the Division is not telling employers to put out stabilizers and outriggers if that instruction is not on the plate.

Mr. Wick suggested that perhaps the subsections should be broken out into (k)(1)(A) and (k)(1)(B) in order to clarify that if the requirements of (k)(1)(A) are not met, the employer should follow (k)(1)(B). Mr. Mitchell responded that that was a good idea, and he asked whether capacity should be indicated in the subsections.

Mr. Bland responded that load capacity is already indicated in (k)(2), and if the two subsections are broken into (k)(1)(A) and (k)(1)(B), the load capacity language would be included. If the information plate that deals with personnel is not there, then the employer will follow the capacity and reduce it.

Mr. Mitchell asked whether it would help to modify the proposal so that (k)(1)(A) indicates "maximum lifting capacity," and subsection (k)(1)(B) indicates the existing capacity. Mr. Bland responded that subsection (A) would indicate an information plate providing instructions for lifting personnel and subsection (B) would pertain to units that do not have personnel information plates.

Mr. Foss stated that the language "information plate" should be used for the sake of clarifying that the information must be on the unit.

Mr. Bradway asked for clarification of the term “name plate,” and he asked where the term “name plate” appears in other regulations. There was general consensus among the attendees that the term appears throughout Title 8 regulations.

Mr. Bradway asked whether the proposal should use the same terminology as is referenced in other places in the standards, and he asked whether “information plate” and “name plate” are synonymous. Mr. Mitchell responded that in the aerial device regulations, it is called an information plate, and Section 3650 uses the term as a catch-all to include name plates, model numbers, type, destination, load capacity, markings, etc.

Mr. Bradway stated that a common reference term should be used to eliminate confusion. Mr. Mitchell responded that the term “information plate” is the correct terminology.

Mr. Donlon stated that a standard mast forklift has a name plate that provides the manufacturer’s name, the model number, the serial number, and the capacity because that capacity does not change. The ANSI standard for standard mast forklifts uses the term “name plate.” It does not give the additional information that is provided when there is a reach forklift.

Mr. Jorgensen stated that Section 3650 simply states that a forklift “shall be labeled” without specifying the type of label.

Mr. Bland suggested placing the words “load chart” in parentheses after the term “information plate.”

Mr. Jorgensen suggested using the language from Section 3650 and just say it shall be labeled.

There was general consensus to use Mr. Bland’s suggestion of the parenthetical expression.

Mr. Bobis asked whether that parenthetical expression would appear after the second occurrence of the term “information plate.” Mr. Mitchell responded that it would appear after both instances.

Mr. Bobis stated that the first instance talks about the information plate provided specifically addressing elevating personnel, and he suggested a new phrase after "shall be provided" to state "If there is no information plate provided specifically addressing elevating personnel" and place (load chart) after the second instance of "information plate."

Mr. Foss stated that the second information plate is not a load chart but a marked capacity.

Mr. Bland stated that the discussion did not relate to maximum capacity but rather the load chart.

Mr. Harris stated that that might be unsafe, because if the boom is straight out at 20 feet, the forklift is only rated at 1500 or 1000 pounds. If the boom is extended to 18 or 20 feet on a Grade-All or a JLG, the capacity is only about 1800 to 2000 pounds, even though the machine's maximum capacity is around 9000 pounds. The platform alone could weigh nearly 1000 pounds, which does not leave room to put an employee on the platform. He asked whether the capacity in that case could be increased to 50% of rated capacity.

Mr. Donlon stated that, traditionally in engineering, a safety factor of 3:1 or 4:1 is provided, and the current language gives a 3:1 safety. A 2:1 safety factor is not in line with most good engineering practice.

Mr. Bland disagreed with Mr. Donlon, stating that the units are not designed to 3:1, and they are tested to 150%. He stated that though some parts may be designed to 3:1, but the overall safety factor is probably 2:1 on an aerial device.

Mr. Mitchell redirected the committee to subsection (k)(1), stating that the issue of capacity would come up later. He stated that the ANSI B56.6 standard in Section 8.5, entitled "Name Plates and Markings," states that "manufacturers shall stamp or otherwise permanently affix the serial number to the frame of the rough terrain forklift truck," and Section 8.5.2 states that "the following information shall be provided by the manufacturer on every rough terrain forklift truck

and shall be legibly and permanently inscribed on the lift truck and/or durable corrosion resistant name plates and/or labels:

a) the name and address of the manufacturer;
b) the model number;
c) serial number;
d) year of manufacture;
e) identity of the originally equipped front-end attachment (if the truck is not equipped with a device to allow quick interchangeable attachments);
f) the maximum weight of the unladen truck fully fueled and serviced but without the operator, and:
    - 1) with the weight of the forks or attachments if the truck is not equipped with a device to allow quick interchangeable attachments, or
    - 2) without the weight of the removable attachments if the truck is equipped with a device to allow quick interchangeable attachments.
g) the capacity of the truck;
h) the capacity of the truck and attachment combinations at maximum elevation of the load engaging means with load laterally centered only if the truck is not equipped with a device to allow quick interchange of attachments; and
i) designation of compliance with the mandatory requirements of the standard at the time of manufacture.

Mr. Bland asked whether those requirements were for high-lift trucks or rough terrain.
Mr. Mitchell responded that they were for rough terrain, and Section 8.5.5 stated “rough terrain forklift trucks equipped with a telescopic boom that provides vertical reach at variable elevations shall be provided with a clearly legible chart visible to the operator’s position giving load handling capacities in conformance with paragraphs 8.3 and 8.4 of this Standard. The load capacity chart shall allow, as a minimum, information shown in figures 1 and 2. Information shall be given with and without manually operated stabilizers if so equipped. Additional information may be included, if desired.”

Mr. Bell stated that if the committee used the ANSI language as a guide, the phrase information plate in (k)(1) and (k)(2) could be changed to load chart and simply state it for what it is. If there is a load chart for lifting personnel, then that load chart will be followed. If there is not a load chart for lifting personnel then the load capacity is reduced by some amount.

Mr. Bland stated that the passage Mr. Mitchell read was from the variable reach section, and the proposal is dealing only with variable reach and not other types of lift trucks.

Mr. Bell suggested that the term load chart be used, since that is the issue. The other items would be addressed as the committee discussed subsequent subsections of the proposal.

There was general consensus that subsection (k)(1) should read as follows: "If a load chart is provided for elevating personnel, then the work platform shall be loaded and positioned within limitations of the load chart." Subsection (k)(2) should read: "If there is no load chart provided for elevating personnel, then the combined weight of the platform, load, and personnel shall not exceed one-third of the rated capacity of the rough terrain lift truck at the load center position as indicated on the load chart for regular loads."

Mr. Pena asked for clarification of the meaning of "load center position." He asked whether that meant that if the equipment is facing north, the boom is only allowed to face north in the upright position, it cannot be articulated to the side even if the forklift has outriggers. Mr. Bell responded that the load center position is the position on the chart.

Mr. Johnson asked whether that meant that the load would be at the end of the forks. Mr. Bell responded that it is not usually at the end of the forks, it usually something less than that, usually the middle of the forks.

The discussion concluded that the load center position is generally understood to mean the horizontal position of the center of gravity of the load on the forks. The load charts will provide the angle, which is why there is an angulation device on the mast.

Mr. Clement stated that the manufacturer indicates that the load chart refers to a load fully back on the forks, up against the backboard. Thus, the load center on the load chart is always referred to the load fully back and what the capacities are as the load is extended.

Mr. Mitchell then turned to subsection (k)(3).

Mr. Donlon stated that the second sentence of the subsection stated "if a truck is equipped with outriggers," and he felt that it should state "if a truck is equipped with outriggers or stabilizers" because both are used. He also stated that the last phrase states "to prevent them from sinking in soft soil under load," and there could be a lot of other soft surfaces other than soil. The crane standard states "to distribute the loads as to not exceed the bearing capacity of the underlying material," but he is unsure whether that language is any better.

Mr. Bobis expressed agreement with Mr. Donlon's concerns and stated that the language should be modified to state "rough terrain lift trucks shall be placed level on firm ground." The term "ground" includes all surfaces on which the truck may be placed.

Mr. Bell stated that lift trucks are sometimes used up on buildings.

Mr. Bland expressed concern regarding situations, particularly in residential construction, in which the truck is level, but it is infeasible to put an outrigger down. He stated that if there is a requirement to have an outrigger down any time the basket is used, as long as the load chart provides for it to be done, and the capacity has already been reduced by 66 1/3%, that is an issue.

Mr. Clement agreed with Mr. Bland, stating that the load chart indicates how far the operator can extend the load with the outriggers up. In residential construction there are a number of instances when there is an Edison box, a fire hydrant, or something that obstructs the use of the outrigger. He stated that having the language in the regulation is not a good idea; the load chart indicates what can and cannot be done with outriggers.

Mr. Lopez agreed with Mr. Clement and Mr. Bland, stating that in a real-world application, the intent behind the use of outriggers is two-fold: the use of the load chart and not exceeding the rated capacity of the machine. That tells the operator when it is necessary to use outriggers. The use of outriggers is not necessary in all circumstances.

Mr. Foss stated that the manufacturers' instructions state that the machine is supposed to be on a firm surface at level before extending the outriggers. The outriggers are not supposed to be used to get level.

Mr. Mitchell stated that there were some comments from the B56.6 committee members regarding subsection (k)(3).

Ms. Holt stated that the use of the term "firm surface" instead of "firm footing" will present difficulties to those operators involved in the filming of golf tournaments because grass is not always a firm surface. It was pointed out that the operator can crib it in those cases. Ms. Holt responded that if the surface itself is not firm and the operator is cribbing to create that, it could be a potential violation.

Mr. Harris stated that operators crib when the surface is not firm to make the surface firm, so it is kind of self-explanatory.

Mr. Foss expressed concern about the contradiction of saying that the operator must have the outriggers out when the manufacturer says to, but elsewhere in the standard the operator must use them only when the soil is not firm. He stated that an administrative law judge may rule that the use of outriggers is not required for dry soil. He suggested striking the language "if the truck is equipped with outriggers, the outriggers shall be deployed, and modify it to state "the rough terrain lift truck shall be placed on firm footing; if necessary the outriggers shall be placed on cribbing."

Mr. Harrison stated that the load charts have a rigger chart and an outrigger chart, so it is easy to determine which to use.

Mr. Mitchell asked whether Mr. Foss wanted to strike the second sentence of the subsection and retain the existing text. Mr. Foss responded that there were concerns about the clarity of the "soft soil" language.

Mr. Donlon stated that his suggestion was to use the same language as that of the crane standard, which states that the load should be distributed so as not to exceed the bearing capacity of the underlying material.

Mr. Mitchell dictated the language for subsection (k)(3) to read: The outriggers shall be placed on cribbing to distribute the load as not to exceed the bearing capacity of the underlying material.

Mr. Jorgensen asked whether the language should read "outriggers or stabilizers." Mr. Harris responded that wherever the term "outriggers" appears, it should be modified to "outriggers/stabilizers" or "outriggers or stabilizers."

Mr. Lopez expressed concern that if that language is adopted, employers are going to be required to run engineering on the soil to determine the rated capacity of that soil. He stated that the proposal is for a forklift, not for a stationary crane that is going to be bringing tremendous loads. The loads addressed in this proposal are going to be moving on a constant basis.

Mr. Harrison stated that crane operators not only look for soil capacity; they also look for underground utilities and other things that may affect the operation of the crane.

Mr. Pena stated that Southern California Edison workers use cribbing every time they are not on a hard surface such as asphalt or concrete.

Mr. Lopez stated that it is not always necessary to crib, and using cribbing every time the unit is not on a hard surface could be burdensome to operators.

Mr. Bland suggested that the goal of the subsection is to prevent the outriggers from sinking, if the operator is going to use them. He stated that all of the members of the committee are present for the same reason—to ensure that lifting personnel with rough-terrain forklifts is safe. However, if the language becomes too specific, there is a danger that it would be burdensome for the operator to comply with the regulation, and operators will end up using unsafe options.

Mr. Jorgensen suggested the following language: "if necessary, outriggers or stabilizers shall be placed on cribbing to prevent them from sinking."

Mr. Donlon stated that his concern is not just to prevent the outriggers from sinking when they are in use, it is also when they are in use and the unit sinks a foot once the boom is extended with an employee on the platform. He stated that it is difficult to determine whether an outrigger is going to sink just by looking at the surface.

Mr. Reynolds stated that Pacific Coast Companies have been using grade-alls for years, primarily for lifting materials, but also for lifting personnel occasionally. They have also been using pad extenders and cribbing, and for years they have had incidents where the cribbing worked for a while, and then the crust breaks and the ground below the crust is mush. They have had grade-alls turn over because of it or because they were put on a slope, however slight. To include language that simply indicates to use cribbing when necessary worries him because if there is an employee in a manlift when the unit turns over, it's too late then. Damaged machines can be repaired and destroyed material can be replaced, but the same cannot be said for employees.

Mr. Jorgensen stated that a 100-foot aerial lift boom lift is similar in weight to elevating personnel, and he asked how the operators of those units deal with the situation. He stated that they do not bring in an engineer each time, and it seems that there would be similar problems between the two situations; perhaps they could use similar situations.

Mr. Harrison stated that an aerial lift requires firm, level footing for set-up, but a rough terrain forklift does not. He stated that some jobsites have substantial ruts and can get extremely muddy

after a wet winter; no employer would use an aerial lift in that situation because it would not be level.

Mr. Jorgensen stated that the ground should be firm. He expressed concern that the committee may be trying to reinvent something for which there is existing language.

Mr. Clement stated that if the regulation includes strict language, it locks everyone into performing soil engineering before work can begin. Forklift operating manuals state that the operator is responsible to know that the surface is firm.

Mr. Harris stated that Mr. Jorgensen's suggested language is very close and that it should be used.

Mr. Donlon stated that the language for aerial devices states: "outriggers shall be positioned on pads or a solid surface." He stated that the operator needs to make the determination whether it is a solid surface, and the term "solid surface" is not defined, so it is difficult to determine.

Mr. Harris stated that his company bought tower cranes and encountered the same issue. An engineer suggested using a backhoe to dig a hole four feet deep and about eight or ten feet wide, filling it with gravel, laying down a six-foot steel plate and set the outrigger on it. That process would be burdensome for rough terrain forklift operators.

Mr. Mitchell stated that the ANSI standard indicates that the operator must "be certain that the rough terrain forklift truck has a firm footing."

Mr. Clement stated that the regulation should specify the use of cribbing because otherwise the operators will not even have it available.

Mr. Bland asked Mr. Donlon to repeat his suggestion. Mr. Donlon responded that "outriggers shall be positioned on pads or a solid surface," stating that he prefers the term cribbing to pads.

Mr. Bland suggested using the phrase “pads, cribbing, or a solid surface.”

After further discussion over the various suggestions made, the consensus was to use the language, “When used, outriggers or stabilizers shall be positioned on a solid surface. If necessary, pads or cribbing shall be used to provide a firm footing.”

Mr. Mitchell stated that there had been some questions regarding leveling and manufacturer-approved use of personal work platforms for elevating employees. One of the comments that was submitted concerning subsection (j)(3) indicated that the mast should be vertical, and it should not be tilted forward or rearward while persons are elevated. The concern regarding leveling was that subsection (j)(3) could be amended to apply to both vertical masts and telehandlers.

The suggestion, from Scott Bargenquast, was to modify the clause to read “make sure that the work platform is level both longitudinally and laterally before elevating personnel. Do not elevate personnel on side slopes unless the lift truck can be laterally leveled. The work platform shall not be tilted forward or rearward while persons are elevated.”

After some discussion, it was decided to table the language regarding leveling until the committee discussed subsection (k)(5) because that subsection included instructions to employees regarding leveling.

Mr. Mitchell then moved on to the manufacturer approval of the use of personal work platforms for elevating employees. Mr. Bargenquast, in his written comments, suggested adding the clause, “if the manufacturer of the lift truck approves the use of work platforms” to subsection (k)(2). Mr. Bargenquast’s comment went on to indicate that some manufacturers do not approve the use of work platforms with their equipment, and operators should ensure that the forklift is approved for use with work platforms prior to executing the rest of the clause.

Another written comment, from Barris Evulich, suggested adding the phrase “and is specifically approved for lifting personnel by the forklift manufacturer” to subsection (k)(1), or wherever the

committee felt it would be appropriate. "Forklifts shall not be used to lift personnel or be fitted with any form of personnel work platform unless specifically approved for that use by the forklift manufacturer."

A comment from the JLG, Stephen Forgas, suggested adding the phrase "the manufacturer of the product must approve the use of personnel work platforms" to subsection (k).

Mr. Bobis and others asked whether the commenters had provided any rationale for that suggestion, aside from liability. Mr. Mitchell responded in the negative.

Mr. Reynolds stated that he had had personal contact with JLG because his company uses grade-alls all over the country, and when the issue of using work platforms came up, they would not approve any work platform that they did not sell. They would not approve any work platform manufactured by anyone else.

Mr. Bland emphasized the need to differentiate between safety and product liability, which are two different bodies of concern. He stated that following the manufacturer's load grading is a matter of engineering and has nothing to do with employee safety. In this case, the committee needs to consider the safest way to perform a job with the products available regardless of whether a manufacturer is trying to avoid a lawsuit.

Mr. Harris stated that if language indicating manufacturer approval of the use of work platforms is not in the existing standard, it should not be added.

Mr. Mitchell asked the Division representatives about the language in section 3650(d), which states that "if the truck is equipped with front end attachments other than factory installed attachments, the truck shall be marked to identify the attachments …."

Mr. Foss responded that the specific rationale for that language is that the load factors are designed for that specific attachment, but many attachments that are put on a forklift, such as a carpet bolt, change the engineering and the load center, so those factors need to be taken into

account. He stated that the Division does not enforce manufacturer approvals unless there is a specifically identified safety concern.

Mr. Harrison stated that it has already been established that there would be a load chart for the man basket, and that would probably come from the manufacturer, and he asked why the manufacturer also should have to approve the use of a work platform if the load chart already allows for a man lift.

Mr. Clement stated that a man-basket could be of varying weights, and the weight of the basket is going to change the load chart, so attachments such as truss booms, carpet rolls, and others are going to affect the swing carriage. Although the manufacturer wants to approve and sell the man-basket, there should be requirements for hand rails and other safety measures, but the standard should not require manufacturer approval.

Mr. Jorgensen stated that manufacturers are concerned with product liability. If the manufacturer indicates on the forklift that only the manufacturer's work platform or man basket is approved, then it is the employer's choice as to following the manufacturer's recommendation, but it is not a regulation.

Mr. Foss stated that Cal-OSHA does not regulate or enforce manufacturer approvals unless there is an identified safety concern for that approval.

Mr. Bland stated that there is no identified safety rational for the manufacturer approval and there is no basis for the committee to create approval criteria for a manufacturer's approval. Therefore, those comments should be disregarded. As long as the committee can craft a proposal that provides a safe way to use a personnel basket with a lift truck, then manufacturer approval is not necessary.

Mr. Harrison stated that because it is the lift that is being altered rather than the equipment, the manufacturer has provided a load chart for a personnel lift, and a 3:1 safety factor is built into the proposed standard, manufacturer approval is not necessary.

Mr. Jorgensen stated that if there is a label on the lift truck that it is not to be used with a man lift, then a man lift should not be used.

Mr. Bell stated that if there is a label on the lift truck expressly forbidding the use of a personnel platform, the employers likely will follow that recommendation.

Mr. Jorgensen agreed, stating that the manufacturer is permitted to have its own product liability language on the machine, but that recommendation is not law.

Mr. Mitchell stated that ANSI standard section 5.15, Elevating Personnel (a) indicates "a personnel platform which complies with the design requirements listed in Part 3 of this standard," but it does not require a manufacturer's approval.

Mr. Jorgensen suggested that if the committee were interested in language similar to the manufacturer approval language, ANSI Standard B56.1-2005 4.17.1 indicates that only platforms that are designed to lift personnel are to be used, but it does not require a manufacturer's approval for the platforms.

Mr. Bell responded that the committee had already covered that by specifying the definition of a work platform.

Mr. Mitchell then directed the committee's attention to the Note at subsection (a), which states that "only operator-up high lift trucks are designed to lift personnel; other types of lift trucks should not be used unless there is no other practicable option."

Mr. Bland stated that the committee had been creating and discussing safe ways to use personnel platforms safely, and it has been established that there has to be no other practical option because as long as employers follow the proposal, it can be done safely. Therefore, trying to exhaust any other practical application is not necessary, especially with the safeguards the committee has

added to the proposal. He suggested striking the note because it has no regulatory affect, and it adds confusion to the proposal.

Mr. Mitchell stated that ANSI Standard B56.6, Section 5.15.1, Elevating Personnel, states that "a rough terrain forklift truck shall not be used to lift people unless there is no other practical option, and if a rough terrain forklift truck must be used to lift people the following precautions for the protection of personnel shall be used."

Mr. Bell stated that ANSI Standard B56.1, Section 4.17.1 is similar, but it does say that if forklift trucks are used to lift people, then the ANSI standard should be followed.

Mr. Mitchell stated that Mr. Bargenquast's written comment indicates that the Note should be deleted, stating that "building methods over the past decade have embraced the use of telehandlers with personnel work platforms specifically because there is no better way, from safety, practicality, efficiency, and cost standpoints, to perform certain tasks. This note adds nothing to the requirements."

The Industrial Truck Association submitted a written comment that states that "the phrase 'unless there is no other practical option' is very broad and may not provide much actual guidance to the employer and employee nor would it seem likely that an employer could be cited on such a subjective basis. In fact, might there be cases where compliance with requirements (a) through (j) would result in a safer operation even though an operator up high lift truck is not being used than some other method. If so, perhaps the standard should not discourage the use of these other lift trucks."

Mr. Wick stated that he would prefer to have a Cal-OSHA inspector on site determine whether a lift truck is being used safely rather than spend time deciding whether or not the use of the lift truck is practical. He suggested striking the note, as well. There was general agreement with this suggestion.

Mr. Bell suggested inserting a note to refer the reader to all of the other forklift industrial truck safety rules in Section 3650(t) as an informational note so that the reader gets the sense that these rules are supplemental to other rules contained in Section 3650.

Mr. Mitchell stated that subsection (a) concerns the scope and application of the proposal, so that language could be included as part of the subsection itself and not set apart as a separate note. Subsection (a) would then state that Section 3650 also applies.

Mr. Bobis suggested language indicating that the employer must comply with Section 3650 as well as the proposal.

After some discussion of the suggestion, Mr. Bell suggested substituting "Article 25" for "Section 3650" because Section 3668 also covers training requirements for lift trucks.

Mr. Bland asked whether there is anything in Article 25 that conflicts with the use of personnel platforms. Mr. Mitchell responded in the negative.

Mr. Wick asked whether the language regarding attachments would be applicable to personnel work platforms. Mr. Bell responded in the negative, stating that some manufacturers make platforms that attach onto the quick interchange knuckle, and in that case, they provide load charts and instructions on how to use them in the manuals. There are also a number of manufacturers that do not provide that information and the employer would have to get a personnel basket from some other source. That is not an attachment; it is something that slides onto the forks like a load.

Mr. Wick expressed concern that the same information is being included in several places in the proposal. For instance, Section 3650(t) requires that everybody who operates a forklift has to be trained and certified. There is a set of operating rules in subsection (j) and now a separate set of operating rules under subsection (a) which would supplement those and are required if employees are elevated. He asked whether there is a way to tie all of the operating instructions

together so that people are not getting that message piecemeal. In response, there was some discussion regarding the best location in the proposal in which to place such a reference.

Mr. Mitchell stated that Section 3657(i) states that before elevating personnel in the lift truck, operators shall be instructed. Based on experience with Section 3650(t), these training requirements in Section 3657 cannot be enforced as operating requirements, only as training instructions. Section 3650(t) was amended so that the required training instructions became enforceable operating rules. Section 3657(i) contains instructions for elevating personnel and Section 3650(t) is rules for operating the forklift. Perhaps language could be added to Section 3650(t) to refer to Section 3657 if personnel are going to be lifted.

Mr. Bell suggested that a reference to Section 3657 be placed in Section 3668, which is the operator training requirements.

Mr. Bland stated that the goal of the proposal is to ensure that anybody certified to operate a forklift knows that there are special rules for lifting personnel, and if they are going to lift personnel they need to know what those rules are. Anyone researching the individual training requirements for forklifts is going to look at the training section, so the individual section needs to be identified in the training content.

Mr. Bradway expressed concern that an operator who has been trained to lift a load of material may not be trained in lifting personnel, and he asked whether there would be a way to specifically note on a training card that the operator has been trained to lift personnel.

Mr. Bland suggested that if employers make lifting personnel a part of forklift training content, there is no question, because there is not that much more to know from lifting loads, and once an operator has been forklift trained, he has been trained in all aspects of forklift operation.

Mr. Bradway expressed concern about communicating the new training requirements to employers to ensure that forklift operators are trained in lifting personnel.

Mr. Clement stated that OSHA inspectors do not check the operator's training cards; they contact the employer and examine the training documentation. The employer then must show all of the training documentation, which includes training on lifting personnel. Lucas does not give their employees cards anymore; they keep a list of certified forklift operators in the foreman's field manual, and only someone on that list is permitted to operate forklifts.

Mr. Donlon stated that Section 3668 states that operators must be trained in operating the forklift and in site-specific aspects. If the operator is going to be lifting employees on a particular site, it is up to the employer to train those operators in those site-specific aspects of forklift operation. In addition, the proposal states that the operator shall be instructed, which means that the operator needs to be trained. Anytime an employer trains an employee on something, that training needs to be part of the recordkeeping required in Section 3203.

Mr. Bland stated that the most important component of the discussion is to educate employees in the field how to lift personnel safely. Employers and employees need to understand that just because the operator has a card stating he has been trained in forklift operation does not necessarily mean that he has been trained in lifting personnel.

After further discussion, Mr. Mitchell suggested tabling the issue until the committee reached the training portion of the proposal, and he adjourned the meeting for lunch.

Upon reconvening the meeting, Mr. Mitchell confirmed that the committee had vetoed the comments that indicated the make and model of the rough terrain forklift must expressly approve the use of elevating personnel. There was general agreement.

Mr. Mitchell then directed the committee's attention to subsection (k)(4), "Each person on a work platform supported by the rough terrain forklift truck shall use a personal fall restraint system or a positioning device system as defined in Section 3207 of these orders in accordance with the requirements of Section 1670 of the Construction Safety Orders."

Mr. Pena expressed some confusion regarding the use of a positioning device in this application. Typically, when working on a structure such as a utility pole, the employee is supported by a strap that goes around the pole, and the employee leans into that strap. He asked what the employee would lean into in this application.

There was some discussion that the positioning device was mainly to ensure that the employee could fall no more than two feet, with Mr. Bell stating that Section 1670 addresses how much fall is permitted for a positioning device or a restraint system. Thus, it allows an option.

Mr. Clements stated that the exception discusses a work platform without guardrails and the allowance of fall arrests, but subsection (k)(4) states that if there is a basket with guardrails on a Grade-all, the employee must use a fall restraint system. He stated that between the two subsections there is a clarity issue. He asked why an employee would be permitted to use a six-foot lanyard on a platform without guardrails but only a four-foot lanyard on a platform with guardrails.

Mr. Reynolds stated that there are conditions when it is necessary to take the guard rails off the basket, but the exception seems to allow work without a basket. Somebody responded that in those cases, a platform is used.

Mr. Harris suggested that the exception indicate that when the work requires the removal of the guardrails, the shorter lanyard is required.

Somebody asked whether these are being used in places where the guardrails have to be removed. Somebody responded that if an employee is setting a big window, and the window is leaning up against the back side of the basket, the employee has to walk it out to put it in a hole, and the guardrails must be removed in that case.

Somebody stated that the exception would not allow for that, because it discusses clearance restrictions instead of cargo restrictions.

Mr. Donlon stated that aerial devices working inside a building often have clearance restrictions with tightening systems, but he has not seen the clearance restrictions with Grade-alls.
Mr. Mitchell stated that it is based on the nature of the work.

Mr. Bradway said that employees may be able to have side rails on a basket, but they might need to be able to remove the front rail for inlays or other, similar work.

Somebody suggested modernizing the personnel fall protection language in the exception.

Mr. Harris asked why employees working off a man lift on a Grade-all have to tie off any differently than the people working on any other aerial lift.

Mr. Jorgensen stated that one of the reasons for the tie-off requirement for scissor lifts and boom lifts is because fall protection is not required because of a fall risk, but rather for the risk of being thrown out of the lift.

Mr. Bobis stated that when the regulations were originally adopted, the reason tie off in the basket was required was because the guardrails were manufactured nationally at 36 inches, whereas California required 42 inch guardrails. In crafting the language, staff felt that it would be equivalent safety for cases in which a basket with guardrails at less than 42 inches was brought in from out of state.

There was some discussion of the forklift traveling with an employee elevated, and it was generally agreed that such a practice is forbidden. Employees must be lowered and let out of the basket before the forklift can travel any distance. In addition, the discussions centered on circumstances in which employees are required to tie off.

Mr. Bland suggested using the language from Section 3648(o), regarding aerial devices, for subsection (k)(4) of the proposal, stating that all of the dangers are the same, and there already is a body of DARs, citations, and arguments on when, where, and how to tie off. He also suggested using the same language in the exception in subsection (b).

Section 3648(o): "An employee, while in an elevated area shall be secured to the boom basket or tub of the aerial device through the use of a safety belt, body belt, or body harness equipped with safety strap or lanyard. Safety belts/body belts are prohibited for use in personal fall arrest systems but may be used as part of a fall restraint or positioning device system. Safety belts/body belts used as part of positioning device systems shall be rigged such that an employee cannot freefall more than two feet. A body harness may be used in a personal fall restraint, positioning, or fall arrest system. When a body harness is used in a fall arrest system the lanyard shall be rigged with a deceleration device to limit the maximum arresting force to an employee to 1800 pounds and to prevent the employee from hitting any levels or objects below the platform and shall limit freefall to a maximum of six feet."

Mr. Donlon stated that the language in subsection (k) of the proposal restricts employees to fall restraint or positioning devices. The idea is to keep the employee from coming out of the basket, and it is much more protective than the aerial device language. In addition, the aerial device language is going to be using similar language to that in the proposal soon. If the idea is to make employees on a work platform safer, then a fall restraint system is the proper method to use.

Mr. Foss stated that there is no aerial device in the country that is designed to support that kind of shock load. He stated that there really is nowhere to use fall arrest equipment in an aerial device.

Mr. Reynolds asked whether an employee could use a retractable device in a basket. Mr. Foss responded that it could not be used for fall arrest. Retractables usually stop at two feet, but if it is the kind of fall arrest system with a six-foot lanyard even with a shock absorber, the fall arrest will not work.

Mr. Jorgensen stated most of the shock absorbing lanyards in a fall arrest system are meant to provide an 800-900 pound load on the employee's back. The problem with an aerial lift is when an employee is out on the end of it and getting close to the 800-pound load limit, there is a levering device that takes up that load and slows the load down.

Mr. Bland expressed concern that what works on paper for the standard may not actually work in the field. Crafting a proposal to make employees as safe as possible is different than making them as safe as practical, and that needs to be considered in writing the standard.

Mr. Jorgensen stated that when Federal OSHA went away from being able to use belts for fall arrest for harnesses, he worked with a manufacturer to try to figure out the best way to make belts work. They rigged a 5/8" cable on the bottom of the basket in such a way that an employee could attach a lanyard to that cable and walk the entire basket dragging the cable on the floor, and he could not get his D-ring over the guardrail. That would mean having the manufacturers put a steel rod across the bottom of the basket. He stated that that was beyond the committee's authority, but that is the best way to make it work.

Mr. Bell stated that existing Section 3648(o) allows employers to use the fall arrest system with a six-foot lanyard. He stated that it is not ideal, but it is permitted. The largest platform that is going to be used in this application is approximately ten feet by four feet, and with a six-foot lanyard attached at the platform level or even back at the boom knuckle point, it is not likely that an employee will reach the six-foot fall arrest load even if they do remove the front rail. If they remove the back rail, that becomes problematic.

Most guardrails are not designed as anchorage points for fall arrest systems, and the companies that manufacture these baskets spend a fair amount of time determining how and where to install their anchorage points. Every aerial device manufacturer out there today is spending a lot of time and energy on designing fall arrest anchorage points or fall restraint anchorage points to about 3600 pounds, and the anchorage points are well labeled by the manufacturer.

Mr. Bell stated further that the exception and subsection (k)(4) are fine as written. Using a fall arrest system is very different from positioning or restraint mode and there is nothing in the restraint or positioning mode that says that an employee cannot have enough line to do the work, it just says that he cannot have enough line to fall more than two feet or he cannot fall at all from the platform.

Mr. Harris asked whether the language should be taken out of subsection (k)(4) and placed at the beginning of the proposal so that it applies to both instances. Mr. Bell responded that it does not need to apply to a vertical mast lift truck. Mr. Harris asked whether there is a difference if the truck is parked. Mr. Bell responded that the difference is the type of machine in use and the types of exposures in that type of machine.

The discussion then turned to the purpose of the fall protection, which is to prevent employees from being ejected from the basket when the lift truck moves, centering on how far a lift truck should be permitted to travel while employees are elevated. Mr. Mitchell stated that some telehandlers go up to 68 feet with a 360º rotation. The general agreement was that short movements, such as moving down the back of a building installing windows or shear panels that are four to six feet apart, are permissible, but traveling long distances, such as driving across a job site or driving from building to building, is not. The suggestion was made to include language indicating that if the truck is equipped with a mast, minor movements are permitted for final positioning.

Mr. Mitchell reviewed the written comments regarding fall protection, beginning with Mr. Bargenquast's: "Fall protection is required for those on an aerial work platform for reasons of ejection but is not required for those on a scissors lift. It is far more likely that an occupant of a boom-type aerial work platform could be ejected or catapulted from the platform than an occupant of a scissors lift. While on the surface it may seem that an aerial work platform and telehandlers with personal work platforms have the same ejection hazards, the fact is that they do not. In this regard, the telehandler with a personal work platform has more in common with a scissors lift. As stated earlier, the structural elements of the aerial work platform are of necessity lighter than those of a telehandler because of the lighter loads to be lifted. Thus, the deflections, particularly in the booms, allows for more of a whipsawing action than those components of a telehandler particularly when equipped with a personal work platform. Keep in mind that the structural elements of the telehandler with a personal work platform capable of lifting three times that of an allowable personal work platform load. Additionally, the risks of ejection are highest when the aerial work platform is traveling. The operator of the machine is in a position at the

end of a 20- to 30-foot boom behind the fulcrum, which is the machine wheels, as the machine traverses undulating terrain. Risks of ejection are almost non-existent with a telehandler with a personal work platform because 1) the B56.6 clearly states in its clause 5.15.1(l) to set parking brake, effectively not allowing travel, and 2) the position of the personal work platform is typically less than six feet away from the fulcrum (front wheels) when the telehandler is in the load-carrying position. We must also look at how the products are employed on the jobsite. Aerial work platforms are primarily access machines. That is, they allow a person access to an area with a small amount of tools and materials to accomplish a task. A telehandler with a personal work platform is primarily a lifting machine that allows for a person or specifically a number of people to gain access that allows for the lifting of significant materials to a work area. Typical applications for an aerial work platform are installation of cables and light piping and operating on concrete or asphalt, which are very smooth, level surfaces. Typical applications for a telehandler with a personal work platform are installations of siding, windows, or roofing, while on disturbed terrain. It can easily be seen from these comparisons that aerial platforms and telehandlers with personal work platforms are very different machines; therefore, it is difficult to conclude that those safety requirements for aerial work platforms can or should be applied to telehandlers with personal work platforms."

Steven Forgas, JLG, written comments stated: "All occupants of the personal work platform must wear approved personal fall protection equipment whether the guardrails may or may not be removed. Occupants must be attached directly to points in the personnel work platforms in accordance with the manufacturer's instructions for those attachment points."

Mr. Mitchell stated that Barris Evulich agreed with Mr. Forgas. Mr. Evulich's comment stated:

> "A lanyard shall be attached to each person's harness or safety belt and to an anchorage on the work platform identified as an anchorage by the work platform manufacturer. No more than one lanyard shall be attachment to a single anchorage unless rated for more than one by the platform manufacturer."

Mr. Evulich suggested adding the following language to subsection (4)(b): "the strength requirement shall apply only to the anchorage and their attachments to the platform."

Mr. Kucksdorf's written comment stated:

> "Currently B56.6 does not address use of fall protection regardless if railings are present or not. There has been some discussion within committee regarding this issue, which includes justification of fall protection on aerial work platform product to address the hazard of a man being thrown or ejected from the platform or to arrest falling event over railing. There are technical difficulties with these created due that frequently work platforms installed on variable reach are rough terrain forklifts than that of an aerial work platform. Hence, fall protection can become tangled with multiple persons present and possibly material on the platform. Based on my experience, fall protection is not needed on work platforms installed on forklifts and if they were would likely cause unintended hazards to themselves."

Mr. Jorgensen stated that the problem with JLG's approach is that employers will run into a situation where a contractor and employees are trying to figure out which devices are on the jobsite on a given day. He stated that it would be nice from an engineering point of view if things could be regulated this way, but the regulated community needs something that is relatively black and white that they can get used to doing on a daily basis.

Mr. Mitchell asked if there was agreement on the fall protection language in subsection (k)(4)(A). There was general agreement.

Mr. Jorgensen stated that the subsection needs to specify that only one person can attach to a lanyard. He suggested modifying subsection (k)(4)(B) to indicate that "each person shall be attached by a lanyard to the anchorage point."

Subsection (k)(4)(B) was modified to add the following: "Each person's lanyard shall be attached to an approved anchorage point."

Mr. Hay asked whether the 3,000 pound limit is because it is a fall restraint system as opposed to a fall arrest system. Mr. Mitchell responded affirmatively.

The discussion then centered on whether the anchorage point requirement was for a capacity of 3,000 or twice the load, or whether the greater of the two is required. Mr. Bland stated that if the load is 2,000 pounds, the rated capacity of the anchorage point must be 4,000. The employer is not permitted to choose one option from the two presented; it must be whichever is the greater capacity. There also was discussion about whether or not to define the size of the platform or how far an employee could reach his arms outside the platform, but the consensus was to leave subsections (C) and (D) as written.

The committee then moved on to subsection (k)(5).

Mr. Bell suggested that the subsection included unnecessary language, which should be eliminated. The subsection should be modified to remove the words "operating rules" and remove the words from (B) through "rules" at the end of the sentence; the subsection would be modified to read, "before elevating personnel with a variable reach rough terrain lift truck, the operator shall:" and include subsections (A), (B), (C), and (D).

Mr. Clement stated that the ability to "set the hydraulic control for the fork to prevent the fork from being tilted up or down" does not exist on a Grade-all. Mr. Bell responded that it depends on the model of truck; not all of them have it, but most of them do. There is a control for the hydraulic system that can be rotated, and when it is rotated all the way down, it maintains the forks at the position set by the operator.

The ensuing discussion concluded that, in any case, the forks, or platform, need to be maintained in a level position.

Mr. Mitchell read Mr. Bargenquast's comment on the subsection: "Eliminate this clause. This is already covered in revised clause (k)(3). Additionally, it is not possible to prevent fork tilt control from operating. This is not possible on an aerial work platform either."

Mr. Bargenquast's comment on subsection (j)(3) regarding leveling: "Reword the clause as follows: 'Make sure the work platform is level, both longitudinally and laterally, before elevating personnel. Do not elevate personnel on side slopes, unless the truck can be laterally leveled.'"

The consensus was that subsection (k)(5) should be modified as follows: "When elevating personnel with variable reach rough terrain forklift, the operator shall: (A) Maintain the platform level while personnel are being lifted; (B) alert elevated personnel before moving the platform and move the platform smoothly and with caution."

Mr. Bland suggested developing language to allow the minimal movement or adjustment for some of the production-oriented operations such as placing windows.

Mr. Reynolds suggested language that indicates lowering the work platform to ground level if the lift truck changes work location.

Mr. Wick suggested eliminating subsection (k)(5)(C) and eliminating or modifying the portion of subsection (j)(8) that permits minor movements. He suggested that the term "minor movements" be defined to limit the distance a lift truck can travel while an employee is elevated.

Mr. Harrison stated that in an aerial lift, the slightest movement of the lift is felt in the basket. The operator may not feel it or think it is a significant movement, but if the lift is 40 feet in the air, the employee can feel it.

Mr. Reynolds stated that if the operator is watching the people up in the basket, he is not watching what is behind the truck or what is on the ground in front of it. Even if there is a spotter on the ground, he cannot see every corner of the grade-all. The safest place for the employees in the man lift is as close to the ground as possible or down where they are relatively safe and the operator can turn around to look where he is going before he starts moving.

Mr. Jorgensen stated that Grade-alls have much greater speed and turning capacity so that the ability to throw employees out of the basket is greater than the aerial lifts, which move much

more slowly, and they do not have the turning capacity to cause the whipping action that can be achieved with a variable reach rough terrain forklift.

Mr. Clements stated that as an operator, he had never had an issue of being able to look around and see what the terrain was like and being able to creep forward and watch the men in the basket and watch the building.

Mr. Jorgensen stated that he had seen employees drop loads of drywall or roofing material just by moving a little bit. The forks only need to be off by a couple of inches for the load to drop, and if the operator is lifting employees, they could be seriously injured or killed.

Mr. Mitchell stated that there is existing language in aerial devices about movement. Section 3648(l) contains the following language: "An aerial device truck shall not be moved when the boom is elevated in a working position with employees in the basket or platform except when all of the following are complied with:

(1) The equipment is specifically designed for this type of operation in accordance with the provisions of Section 3638.
(2) All controls and signaling devices are tested and are in good operating condition.
(3) An effective communication system shall be maintained at all times between the basket or platform operator and where applicable, the vehicle operator.
(4) The route to be traveled is surveyed immediately prior to the work trip, checking for overhead obstructions, traffic, holes in the pavement, ground or shoulder, ditches, slopes, etc., for areas other than paved, a survey should be made on foot.
(5) The speed of the vehicle does not exceed three (3) miles per hour.
(6) Only one employee is in the basket.

He suggested that the language could be modified to fit variable lift rough terrain lift trucks.

Mr. Clements stated that there already is language requiring fall protection above a trigger height. Common sense dictates that operators should not be driving with employees in the

basket at 40, 50, or 60 feet. However, if the operator can go 20 or 25 feet and creep forward. If he has to travel 40 feet, he should bring the platform down, reposition the truck, and then raise the platform back up.

Mr. Mitchell stated that Section 3648 covers all aerial devices.

Mr. Harris stated that Grade-Alls have controls up in the basket that allow the elevated employee to operate the truck.

Mr. Harrison stated that, as an elevated employee, he would feel more confident if he were able to operate the truck than if he had to rely on the operator who may not be able to feel minor movements.

Mr. Clements stated that the language needs to provide for the height of the platform including the employee in the basket to reach approximately 20 feet or 25 feet and the boom has to be back close to the truck. He suggested language to indicate that the boom cannot be extended past the front of the machine and cannot be higher than a specified number of feet, and the truck can only drive in a straight line on level ground at a specified speed.

Mr. Lopez stated that in crafting the language, the committee must keep in mind that the operator has a natural blind spot on the right side of the machine with the boom down. The only way to see to the right on a Grade-All is with the boom up. Requiring the boom to be down before moving it means that the operator will be blindly moving the employee in the basket, whereas if the boom is allowed to be up, the operator can see where he is going.

The ensuing discussion centered on how much movement, if any, would be safe and practical and whether that movement should be made with the boom extended or retracted. In addition, the committee discussed the possibility of a trigger height at which it would no longer be permissible to move the truck.

Mr. Clements suggested the following language: "Work along a straight line of travel at a single work location where the line of travel is level and free from obstructions and speed is carefully controlled."

Mr. Bell suggested amending subsection (j)(8) as follows: "~~If the lift truck is equipped with a mast~~, Minor movements of the lift truck are permitted for ~~final~~ positioning of the platform." With those changes, the subsection deals with repositioning the platform, not traveling. Travel would mean moving from site to site or from one end of the worksite to the other as opposed to positioning of the platform, thus allowing the operator to move slowly in continuous repositioning operations.

Mr. Clements suggested inserting language regarding an inspection of the ground the truck is expected to travel immediately prior to any creeping while employees are elevated to ensure that the area is free from obstructions, holes, or other hazards.

Mr. Bell suggested adapting the language from the aerial devices language in Section 3648.

There was support to modify subsection (j)(8) as follows: "Never travel with personnel on the work platform. Minor movements of the lift truck are permitted for positioning of the platform."

Mr. Bobis suggested the following language for the second sentence in subsection (j)(8): "If the lift truck is equipped with a mast, minor movements of the lift truck are permitted for repositioning of the platform at the same location in a straight line, on level ground, free of obstruction, at a speed less than three miles per hour."

The response was to disagree with the mast requirement, as some rough terrain forklifts do not have masts, and to discuss the meaning of the word "level." Trucks that have masts should be separate from those without, and machines that are self-leveling should not be grouped with machines that are not self-leveling. There was some concern that provisions made for forklifts on construction sites would affect forklifts in warehouses and industrial plants as well, and that must be taken into consideration. The distinction needs to be made between traveling and

positioning. The language must indicate that the platform can be adjusted to keep the basket relatively level, as well.

Mr. Reynolds expressed concern about referencing the surface being level on job sites, particularly construction sites, because the surface on those sites is not level.

Mr. Bell suggested an exception in subsection (j)(8) for rough terrain, boom-type trucks.

Mr. Harris suggested modifying subsection (b)(2) to indicate that "the platform shall be secured to the forks or fork carriage of the mast." He stated that it should not be secured to the boom.

Mr. Bland suggested clarifying the language to indicate that the above language applies in cases where the platform is not affixed directly to the boom.

Mr. Clements stated that if the platform is attached to the top of the fork carriage, the forks can still float up; the platform must be attached to the bottom of the carriage so the forks cannot move.

The consensus was to modify the language to indicate that the base of the work platform shall be attached to the base of the fork carriage to prevent the platform from tipping.

Mr. Clements stated that one problem with attaching the work platform to the forks is that there are machines where the forks are not secured, so when the mast is in a particular position, the forks hang down and swing back and forth. Therefore, the work platform should not be attached to the forks but to the fork carriage.

The consensus was to modify subsection (b)(2) as follows: "Where the platform is not attached to the boom, the base of the platform shall be secured to the forks or the base of the fork carriage to prevent the platform from tipping, slipping, or falling."

Mr. Bell stated that if the forks can tip down unexpectedly, that is obviously not a compliant situation if the forks cannot be maintained level.

In reviewing subsection (f), there was some discussion regarding the following language: "when a truck is equipped with vertical only or vertical and horizontal controls that elevate with the lifting carriage or forks…"

Mr. Bland suggested modifying the language to read "if a truck is equipped with upper controls that elevate with the lifting carriage or forks, means shall be provided whereby personnel on the platform can shut off the motor or the power of the truck." In other words, if personnel can operate the truck from the platform, they must be able to turn the truck off, as well.

Mr. Mitchell stated that cleaning up existing language was beyond the original scope of the advisory committee, but if the committee members wanted to modify the existing language, he would do so.

Mr. Wick stated that since the committee was already convened, it made sense to review the entire standard, instead of possibly having to reconvene at a later time.

Mr. Bland stated that the committee did not want to change the meaning of the existing passage but rather to change the way it is worded so that it is easier to understand by the regulated community.

Mr. Bell suggested that a parenthetical expression be used to define "upper controls" so that it is clear that the controls referenced are those that elevate with the platform.

Mr. Bland suggested adding the parenthetical expression be placed after the phrase "that elevate with the lifting carriage or forks," so it would read as follows: "…that elevate with the lifting carriage or forks (upper controls)…"

Mr. Bell asked whether the changes made in subsection (k) were moved to subsection (j), pursuant to the discussion about making them rules as opposed to operating instructions. Mr. Mitchell responded in the negative. Mr. Bell stated that that modification was necessary in order to make the rules in subsection (j) consistent with the rules in subsection (k).

The committee then moved on to subsection (h), with specific reference to motorized equipment that needs to be shut down when personnel are on the work platform. Mr. Clements asked whether the Division would expect all other heavy equipment in the area to be shut down when employees are in the man box. Mr. Bell responded that the only equipment that was required to shut down is the equipment that can overrun the lift truck or otherwise injure the employees in the basket. The discussion focused on equipment, such as bridge cranes, that lift loads or move at elevations. The proposal was to include a lock-out provision to the shut-down requirement. Some members of the committee expressed concern, however, regarding multi-employer sites where they might have to shut down the equipment of another employer to be in compliance.

Mr. Wick asked whether there was similar existing language for aerial work platforms. Mr. Bell answered in the negative.

Mr. Mitchell stated, however, that there have been a number of accidents resulting from this type of situation. From 1992 to 1999 there were 26 deaths per year from lifts in construction, and half of the fatal falls involved ejection from the bucket after work aerial lifts were struck by vehicles or objects.

The consensus was to retain the lock-out provision as is in subsection (h) and to retain subsection (i) as it currently exists.

Mr. Mitchell then confirmed that the advisory committee members wanted to modify subsection (j) to make it consistent with the changes made in subsection (k).

Mr. Mitchell then addressed subsection (j)(4) regarding movement or adjustments while employees are elevated. Mr. Bell stated that there is a specific exception for construction

operators and others who need to make small movements in subsection (k)(5)(c). Mr. Mitchell asked whether subsection (k)(4) should be modified to include the words "when stationary." The consensus was affirmative.

In subsection (k)(6), Mr. Bland suggested the addition of the following language: "…the lift path of the work platform…" The other committee members agreed.

Mr. Bobis expressed concern about working on a lift truck around overhead lines. Mr. Bell stated that the overhead lines referenced are not transmission lines and other outside lines but rather all overhead wiring. If the work is being performed in an industrial plant, the employees still must be concerned about overhead wiring. Mr. Clements stated that if travelling with personnel in the basket is going to be allowed, there is a need to ensure that there are no obstacles above or below the truck. The regulation does not address that requirement.
Mr. Bland suggested adding the following language: "…make sure the path of the work platform travel is clear of hazards such as…" The other committee members agreed to this addition.

Mr. Bland asked for clarification of the language indicating that an employee must "keep hands and feet clear of controls other than those in use…" Mr. Bradway responded that an employee must keep his hands and feet inside the basket at all times that the truck is moving.
Mr. Clements stated that it is to prevent the operator from accidentally engaging the controls and creating sudden, jerking movements of the lift truck and/or the man basket. There was some discussion regarding the goal of the provision to prevent sudden shifts in movement while employees are elevated. The general consensus was to delete the subsection.

Mr. Mitchell stated that he had received comments suggesting that subsection (e) be deleted. That subsection is as follows: "There shall be an operator to control position on the truck while employees are on the elevated platform." However, that provision cannot be deleted, as Federal OSHA requires it.

Mr. Bland suggested adding the words, "unless the attachment is equipped with upper controls" to the end of the subsection. Mr. Bell stated that Federal OSHA does not provide an exception

for upper controls; they simply state that an operator must be at the controls. The consensus was to leave the subsection as it is currently written in order to remain at least as effective as the Federal standard.

There being no further comments, Mr. Mitchell adjourned the meeting.