STATE OF CALIFORNIA
OCCUPATIONAL SAFETY AND HEALTH
APPEALS BOARD

In the Matter of the Appeal of:

ACCO ENGINEERED SYSTEMS, INC.
6265 SAN FERNANDO ROAD
GLENDALE, CA  91201

Employer

ACCO ENGINEERED SYSTEMS, INC. designs, installs, and services commercial
and industrial HVAC, refrigeration, plumbing, process piping, and building automation systems.
Beginning November 30, 2016, the Division of Occupational Safety and Health (the Division),
through Associate Safety Engineer Christian Nguyen, conducted an accident investigation at
Employer’s worksite located at 887 Francisco Street, Los Angeles, California (the site). On
March 30, 2017, the Division issued Citation 1, Item 1, to Employer for a violation of California
Code of Regulations, title 8.1

Citation 1, Item 1, classified as Serious Accident-Related, alleges Employer failed to
ensure that multiple prefabricated modular pipe sections on the flat bed of a semi-truck trailer
were secured against dangerous displacement, and that failure resulted in a serious injury to an
employee.

Employer filed a timely appeal of the citation contesting the existence of the alleged
violation, the reasonableness of the proposed penalty, the abatement requirements, and the
classification of the citation. Additionally, Employer pleaded numerous affirmative defenses.2

This matter came regularly before Christopher P. Merrill, Administrative Law Judge
(ALJ), for the California Occupational Safety and Health Appeals Board (Appeals Board) in
West Covina, California on November 6 and 7, 2018. Kathryn J. Woods, Staff Attorney,
represented the Division, and Lisa Prince, Esq., of Walter & Prince LLP, represented Employer.

The Division and Employer timely submitted post-hearing briefs on December 7, 2018,
and the undersigned on his own motion extended the submission date to March 9, 2019.

1 Unless otherwise specified, all references are to California Code of Regulations, title 8.
2 Except as otherwise noted in this Decision, Employer failed to present evidence in support of its pleaded
affirmative defenses, and said defenses are therefore deemed waived. (See, e.g. Central Coast Pipeline Construction
Co., Inc, Cal/OSHA App. 76-1342, Decision After Reconsideration (July 16, 1980) [holding that the employer bears
the burden of proving all of the elements of the Independent Employee Action Defense].)
Issues

1. Did Employer violate section 3704?

Findings of Fact

1. Employer engaged in transportation activities when its crew unstrapped multiple prefabricated modular pipe units on the transportation trailer and prepared to rig and hoist individual units by crane to the roof of the building under construction at the site.

2. The particular prefabricated modular pipe unit Employer rigged and attempted to hoist vertically up to the roof weighed 1,700 pounds.

3. The minimum force required to tip the module pipe unit from a horizontal angle of 60 degrees was 530lbf.\(^3\)

4. A human is capable of providing 24lbf to 164lbf to move an object depending on the angle.

5. The prefabricated modular pipe units sat flat on the trailer without straps, and were inherently secure against dangerous displacement.

6. The chain-fall slack on the rigged prefabricated modular pipe unit hoisted by crane to the roof of the structure caught onto an unstrapped prefabricated modular pipe unit remaining on the trailer, flipping the unit and an employee off the trailer to the ground.

7. Bolting or strapping the unrigged prefabricated modular pipe units on the trailer during Employer’s crane hoisting operations would have resulted in a greater hazard to employees than the logical application of section 3704.

Analysis

1. Did Employer violate section 3704?

Section 3704, found under Article 27 (Transportation of Employees and Materials), Group 4 (General Mobile Equipment and Auxiliaries) of Subchapter 7 (General Industry Safety Orders) provides “[a]ll loads shall be secured against dangerous displacement either by proper piling or other securing means.”

In citing Employer, the Division alleged:

Prior to and during the course of the investigation, multiple prefabricated modular piping sections located on the flat bed of a semi-truck were not secured against

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\(^3\)“lbf” is the symbol for pound-force that represents a measurement unit of force.
dangerous displacement. As a result, on or about Nov. 17, 2016, an employee suffered serious injury when he was struck by an adjacent unsecured modular piping section that fell off the bed of a semi-truck and crushed him.

The Division has the burden of proving a violation, including the applicability of the safety order, by a preponderance of the evidence. (Howard J. White, Inc., Cal/OSHA App. 78-741, Decision After Reconsideration (June 16, 1983).) “Preponderance of the evidence” is usually defined in terms of probability of truth, or of evidence that when weighted with that opposed to it, has more convincing force and greater probability of truth with consideration of both direct and circumstantial evidence and all reasonable inferences to be drawn from both kinds of evidence. (Lone Pine Nurseries, Cal/OSHA App. 00-2817, Decision After Reconsideration (Oct. 30, 2001), citing Leslie G. v. Perry & Associates (1996) 43 Cal.App. 4th 472, 483.)

a. Applicability of the Safety Order

Section 3704 appears in the portion of the General Industry Safety Orders entitled "Transportation." The Appeals Board has held that transportation includes the loading and unloading of transportation vehicles. (Forklift Sales of Sacramento, Inc., Cal/OSHA App. 05-3477, Decision After Reconsideration (July 7, 2011).)

The uncontroverted evidence in this matter demonstrates that on the day of the incident Employer engaged in rigging and hoisting prefabricated modular piping sections (loads) from a flatbed trailer to the roof of a tall structure under construction using a large crane. The non-employee truck drivers secured the loads with straps to the flatbed trailer at a separate yard and then transported the loads to the site.

Once the secured loads arrived at the site on the flatbed trailer, Employer’s crew inspected the loads for security and stability in preparation for unloading activities in the form of hoisting the rigged loads to the roof with a large crane. Employer’s crew then removed the straps used by the non-employee truck drivers to secure the loads to the trailer for transport and confirmed the stability of the loads again before rigging one of the loads for hoisting to the roof by crane. As the crane vertically hoisted the rigged load towards the roof, the chain-fall slack caught onto the remaining unrigged load on the trailer. The vertical force used by the crane caused the unrigged load caught with the chain-fall to flip off the trailer to the ground, along with the employee straddling the unrigged load.

Employer’s activity demonstrates unloading of a transportation vehicle. Therefore, section 3704 applies to this incident.
b. Violation of the Safety Order

In order to demonstrate a violation, the Division must show that Employer failed to secure the loads on the flatbed trailer against dangerous displacement.

The requirement to secure a load before transporting it is preventative in nature, and has been required even without an employer having any indication that the load could become unstable or displaced. (Traylor Bros. Inc., Cal/OSHA App.98-2345, Decision After Reconsideration (Jun. 12, 2002) [construing the same language in § 1593, sub.(f), i.e. "loads shall be secured against displacement."]) The words "secured against displacement" require that "the load be safe from the type of movement that may . . . occur" at any time. (Obayashi Corporation, Cal/OSHA App. 98-3674, Decision After Reconsideration (Jun. 5, 2001) construing § 1593 sub.(f) ["Unstable Loads"]) Language appearing in one enactment which is identical to that of another enactment should be given the same meaning. (Outdoor Resorts etc. Owners' Assn. v. Alcoholic Beverage Control Appeals Board (1990) 224 Cal App. 3d 696, 701.)

The Appeals Board has upheld violations of section 3704 where loads were not secure during the loading and unloading activities involving a truck.

In Hood Corporation, Cal/OSHA App. 85-672, Decision After Reconsideration (Dec. 2, 1987), the employer removed bands securing the pipes it was in the process of unloading from a truck. That employer failed to take measures to ensure the pipes did not disengage and roll off the delivery truck.

In Preston Pipelines, Inc., Cal/OSHA App. 11-2530, Denial of Petition for Reconsideration (Jan. 3, 2013), a truck driver was injured while loading a 14-foot length of pipe onto a flatbed of a truck. A forklift had lifted the pipe to the edge of the flatbed. The truck driver positioned a 2x4 piece of lumber between him and the pipe to limit the movement of the pipe while he rolled it onto the flatbed. The truck was parked in a manner that tilted the flatbed slightly to one side, which caused the pipe to gain momentum as the truck driver manually loaded the pipe. The pipe rolled over the 2x4 piece of lumber and caused the truck driver to jump off the flatbed and sustain injuries when the pipe rolled into him on the ground.

In Bragg Crane & Rigging Co., Cal/OSHA App. 01-2428, Decision After Reconsideration (June 28, 2004), the employer was in the process of unloading jibs from a flatbed truck and released the straps securing the jibs with slings. This resulted in an unsecured jib falling from the truck killing one employee and injuring another.
In *Duininck Bros. Inc.*, Cal/OSHA App. 06-2870, Decision After Reconsideration and Order of Remand (Apr. 13, 2012), employees were manually unloading a heavy pallet of pipe from a flatbed truck at the site instead of waiting for forklift to perform the task. The employees cut the bands securing the pallet of pipe while the load was on the truck creating the risk of dangerous displacement. As the employees manually lifted the heavy pipe from the truck, one end of the pipe rolled off and landed on an employee that fell of the truck.

Here, Nguyen testified that Jason Quinones (Quinones), the injured employee, informed him during his investigation interview that the loads on the trailer were very unstable prior to unloading. (Exhibit 10.) Quinones informed Nguyen that he believed if the non-rigged remaining loads, including the load he straddled, were strapped to the trailer Employer could have prevented the accident. Quinones did not testify at hearing. Employer counsel requested a running hearsay objection to Nguyen’s testimony based on Quinones statements, including those regarding the instability of the loads prior to unloading and the preventative measures Quinones believed would have prevented the accident. The undersigned granted Employer’s request for a running hearsay objection over the Division’s objection.

Nguyen’s testimony regarding Quinones out of court statements to him is hearsay and cannot support a finding that Employer did not secure the loads against dangerous displacement.

The Division argues in its post-hearing brief that there can be no doubt Employer failed to secure the loads on the flatbed of the trailer against dangerous displacement. The Division points to the Appeals Board language in *Preston Pipelines, Inc.*, supra, Cal/OSHA App. 11-2530, to define displacement in section 3704 as “not necessarily requiring immobilization of the load, but rather requires that the load be limited in distance it can move so as to avoid ‘dangerous displacement’.”

The facts in *Preston Pipelines, Inc.* are distinguishable from the instant matter. In *Preston Pipelines, Inc.*, a truck driver attempted to roll a 14-foot piece of pipe manually onto the flatbed from the edge of the truck parked at an angle. The manual movement coupled with the angle of the parked truck caused the pipe to generate momentum, which resulted in the pipe rolling over and off the truck injuring the truck driver. Thus, no limitation on the distance the load could move existed to avoid dangerous displacement once the truck driver manually initiated movement.

Here, the trailer transporting the loads was parked on a flat surface in a static state. (See Exhibits 2A, 2B, 2C, 2D, 2E, 5A, 5B, 5D.) Rafael Santacruz (Santacruz), Employer’s shop fabrication foreman, testified the loads consisted of three 20x20 inch bases of 5/8 inch steel welded to the support pieces and attached to the pipes. The loads were low to the ground and

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4 Hearsay is admissible in Appeals Board proceedings, with the only limitation being that, if a timely objection is made, hearsay shall not be sufficient in itself to support a finding unless it would be admissible over objection in civil actions. (§ 376.2.)
measured between two and three feet. Dennis Lagodimos (Lagodimos), a journeyman pipefitter who worked for Employer and witnessed the incident at the site, credibly testified that after the crew removed the straps securing the loads during transport to the site, the loads sat flat on the trailer and he could not move the loads by his own force due to the weight. Lagodimos basis for this opinion was that he and another colleague attempted to move the load that fell on Quinones, with a bar to leverage their weight to generate the force to move the load off Quinones, and could only lift the load a few inches. Unlike the facts in *Preston Pipelines, Inc.*, with or without straps, there was no chance human force could move the load on the trailer any notable distance to cause dangerous displacement.

David Eason (Eason), a California licensed Mechanical Engineer of Exponent Engineering & Scientific Consulting, provided expert testimony on the stability of the loads on the trailer at the site.⁵ Prior to his testimony, Eason reviewed the Division’s case inspection file (including photographs), Employer’s original drawings of the load at the site, and performed research into human factors to determine what amount of force could have an effect on the load at the site. Eason then conducted an extensive analysis on the stability of the loads on the trailer. (Exhibit B.)

Eason worked with Santacruz to create an exact fabrication of the approximately 1,700-pound load involved in the incident at the site. Eason then determined, with the aid of a computer-generated model, the center of gravity of the load and was able to calculate the moment (force applied at a distance from a tipping axis) for the loads on the trailer. Eason performed live testing on the fabrication load to determine the force required to tip over the load in horizontal and vertical conditions. The minimum force required to tip the module from a horizontal angle of 60 degrees was 530lbf. The minimum force required to tip the module from a vertical angle was 620lbf. Eason opined that based on his research the range of force a human is capable of providing to move an object depending on the angle is 24lbf to 164lbf. Eason did note he believed that straps or another means of securing the loads was important for safety during the actual transportation of the loads on the trailer from the yard to the site. However, he determined the loads did not need to be secured by straps or other means once the trailer was in a static state at the site while unloading occurred due to the inherent stability of the loads themselves.

The credible evidence demonstrates the loads were secure against dangerous displacement when Employer unstrapped them on the trailer in preparation for unloading at the

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⁵ David P. Eason is California licensed Mechanical Engineer (#M38071). Mr. Eason received his B.S. in Mechanical Engineering from the University of Colorado, Boulder, *magna cum laude*, and M.S. in Mechanical Engineering from Stanford University. He possesses experience in automotive, aerospace, and biomedical devices. Additionally, he possesses research experience in mechanical design and analysis, manufacturing, stress analysis and fatigue, vehicle dynamics and performance, plus testing and data acquisition. Mr. Eason has worked as an expert for both plaintiffs and defendants in industrial accident litigation matters. (Exhibit C.)
c. Logical Time

Employer argues in its post-hearing brief that the Division’s interpretation of section 3704 requiring Employer to secure each load on the trailer at multiple points to avoid any movement from a mechanical source is inconsistent with the logical application of the regulations.

The logical time defense is an Appeals Board created affirmative defense. An employer bears the burden of proof for affirmative defenses. (Gal Concrete, Cal/OSHA App. 89-317, Decision After Reconsideration (Sept. 27, 1990).)

"The logical time defense exists to protect employees from situations where the otherwise suitable application of a safety rule illogically exposes the employee to greater danger." (Bay Cities Paving & Grading, Inc., Cal/OSHA App. 12-1665, Denial of Petition for Reconsideration (May 16, 2014).) Thus, if an employer can prove by a preponderance of the evidence that the employee(s) would be exposed to greater danger if the safety order were applied at a particular stage of the work rather than a later time, the safety order will not apply until compliance does not create the added or greater hazard. (Ibid.)

In Bay Cities Paving & Grading, Inc., the Division cited the employer for a violation of section 1593, subdivision (f) [failing to secure loads on vehicles against displacement]. The Appeals Board determined that securing the K-Rail loaded onto the flatbed at the time of the employee’s injury would have been more hazardous than non-compliance. The accident occurred before the loader and its affixed cables had fully cleared away from the K-Rail and the truck. Thus, securing the K-Rail to the trailer before the loader cleared away exposed the employees to a greater hazard than non-compliance.

The facts in Bay Cities Paving & Grading, Inc. and the present matter are analogous. Section 1593, subdivision (f), and section 3704 contain nearly identical language regarding securing loads against displacement and should be afforded the same meaning. Nguyen testified that a violation of section 3704 existed because during his investigation he determined that Employer failed to secure the individual load remaining on the trailer against dangerous displacement while the crane hoisted a rigged load to the roof of the structure. Nguyen testified that gravity could not serve as a means to secure any load against dangerous displacement. Nguyen further testified that Employer did not bolt or strap the remaining unrigged load to the trailer while hoisting the rigged load to the roof by a crane.

Lagodimos credibly testified that once the rigged load on the trailer was clear to move vertically, Quinones straddled the unrigged load on the trailer that the crew planned to hoist next and held the chain-fall of the rigging connected to the hoisted load to ensure clearance. As the
hoisted rigged load reached Quinones’ chest height, Quinones let the hoisted chain-fall slack release because he thought it was clear of the load he was straddling on the trailer. The slack of the chain-fall then caught on the load that Quinones straddled. The crane continued to pull the hoisted load up vertically and this caused the unrigged load to flip off the trailer. Quinones then fell to the ground with the flipped load. The unrigged load fell on Quinones and pinned him to the ground, resulting in the ankle and foot injury.

Nguyen’s testimony on Employer’s failure to bolt or strap the unrigged load to the trailer while the crane hoisted the rigged load to the roof raises the issue of the logical time to comply with the regulation cited. If Nguyen’s interpretation of section 3704 were applied, it would require Employer to secure the remaining load against dangerous displacement on the trailer before the crane hoisting the rigged load safely cleared. Consequently, Employer would then expose employees to significant hazards.

Lagodimos credibly testified that bolting down the remaining load to the trailer while they hoisted the rigged load to the roof could result in a disastrous incident. The crane could continue to hoist the caught bolted down load and flip over the entire trailer. This could include hazards of the trailer flipping over and potentially exploding, throwing multiple employees off the trailer, or even bringing down the crane vertically pulling the rigged load and the employee operating the crane. Employees, or non-employees, in the vicinity before the rigged load cleared safely away from the trailer could suffer serious or catastrophic injury if the conflict created by the crane vertically hoisting the rigged load, now caught against a bolted or strapped unrigged load secured to the trailer, jeopardized the trailer’s stability.

Quinones accident occurred before the rigged load fully cleared away from the trailer and the unsecured load. The logical time to secure the remaining load to the trailer did not arrive until the crane, the rigging cables, and chain-fall slack had appropriate clearance from the unrigged load and employees on the trailer. The logical time defense applies at the time of Quinones's injury because requiring compliance with section 3704 at that time would expose load-securing employees or nearby bystander employees to greater danger. The Division’s position requiring application of section 3704 at that time would be more hazardous than applying the safety order at a later time. Therefore, the Division failed to establish a violation of section 3704.

**Conclusion**

The Division failed to establish a violation of section 3704. The credible evidence demonstrates Employer secured the loads against dangerous displacement prior to hoisting the loads by crane to the roof. The Division’s interpretation of a suitable application of section 3704

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6 The finding that Employer did not violate section 3704 obviates the need to address the classification, the abatement requirements, and proposed penalty grounds raised by Employer on appeal.
during Employer’s crane hoisting operations at the time of the incident would have illogically exposed employees to greater danger.

**Order**

It is hereby ordered that Citation 1, Item 1, is dismissed and the corresponding proposed penalty is vacated, as set forth in the attached Summary Table.

Dated: 03/22/2019

Christopher P. Merrill
Administrative Law Judge

The attached decision was issued on the date indicated therein. If you are dissatisfied with the decision, you have thirty days from the date of service of the decision in which to petition for reconsideration. Your petition for reconsideration must fully comply with the requirements of Labor Code sections 6616, 6617, 6618 and 6619, and with California Code of Regulations, title 8, section 390.1. **For further information, call: (916) 274-5751.**
APPENDIX A
SUMMARY OF EVIDENTIARY RECORD

Inspection No.: 1195414
Employer: ACCO ENGINEERED SYSTEMS, INC.
Date of hearing(s): September 12, 2017, August 14, 2018, August 15, 2018, November 7, 2018, November 6, 2018

DIVISION’S EXHIBITS

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<td>02</td>
<td>ACCO Engineered Systems Incident Investigation Report</td>
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<td>09</td>
<td>ACCO Engineered Systems - Safety Manager's Report</td>
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Summary of Evidentiary Record and Certification of Recording

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EMployer's Exhibits

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<td>Exemplar Drawing Made by David P. Eason at Hearing</td>
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Witnesses testifying at hearing:

- Dennis Lagodimos - Pipefitter
- Sergio Gomez - Pipefitter
- Christian Nguyen - Cal/OSHA - Associate Safety Engineer
- Rafael Santacruz - ACCO Engineered Systems, Inc. - Shop Fabrication Foreman
- David P. Eason - Senior Engineer/Mechanical Engineer - Exponent Engineering & Scientific Consulting
APPENDIX A
CERTIFICATION OF HEARING RECORD

Inspection No.: 1195414
Employer: ACCO ENGINEERED SYSTEMS, INC.

I, Christopher P. Merrill, the California Occupational Safety and Health Appeals Board Administrative Law Judge duly assigned to hear the above-entitled matter, hereby certify the proceedings therein were electronically recorded or recorded by a certified court reporter. If the proceedings were recorded electronically, the recording was periodically monitored during the hearing. Either the electronic recording or the recording made by a certified court reporter constitutes the official record of the proceedings, along with the documentary and other evidence presented and received into evidence during or after the hearing. To the best of my knowledge the recording equipment, if utilized, was functioning normally and exhibits listed in this Appendix are true and correct, and accurately represent the evidence received during or after the hearing.

[Signature]
Christopher P. Merrill
Administrative Law Judge

03/22/2019
Date
## SUMMARY TABLE

### OCCUPATIONAL SAFETY AND HEALTH APPEALS BOARD

In the Matter of the Appeal of:  
ACCO ENGINEERED SYSTEMS, INC.

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<th>Citation I Issue Date:</th>
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### CITATION/ITEM RESOLUTION | AFFIRMED | PENALTY PROPOSED BY DOSH IN CITATION | FINAL PENALTY ASSESSED |
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**Sub-Total**  
$22,500.00 $0.00

*You may owe more than this amount if you did not appeal one or more citations or items containing penalties. Please call (415) 703-4291 if you have any questions.*

### PENALTY PAYMENT INFORMATION

1. Please make your cashier's check, money order, or company check payable to:  
   **Department of Industrial Relations**

2. Write the **Inspection No.** on your payment

3. If sending via US Mail:  
   CAL-OSHA Penalties  
   PO Box 516547  
   Los Angeles, CA 90051-0595

   **If sending via Overnight Delivery:**  
   US Bank Wholesale Lockbox  
   c/o 516547 CAL-OSHA Penalties  
   16420 Valley View Ave.  
   La Mirada, CA 90638-5821

   *Online Payments can also be made by logging on to http://www.dir.ca.gov/dosh/CalOSHA_PaymentOption.html*

   **-DO NOT** send payments to the California Occupational Safety and Health Appeals Board-

### Abbreviation Key:

- G=General  
- R=Regulatory  
- Er=Employer  
- S=Serious  
- W=Willful  
- Ee=Employee  
- A/R=Accident Related  
- RG=Repeat General  
- RR=Repeat Regulatory  
- RS=Repeat Serious