



UNITED STATES OF AMERICA
OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION
 One Lafayette Centre
 1120 20th Street, N.W. — 9th Floor
 Washington, DC 20036-3419

FAX:
 COM (202) 606-5050
 FTS (202) 606-5050

SECRETARY OF LABOR,

Complainant,

v.

WORCESTER STEEL ERECTORS, INC.,

Respondent.

OSHRC Docket No. 89-1206

DECISION

BEFORE: FOULKE, Chairman; MONTROYA, Commissioner.

BY THE COMMISSION:

This case involves a floor collapse in a multi-story building under construction during winter 1988-89 at the Worcester Polytechnic Institute in Worcester, Massachusetts. *See also Simpson, Gumpertz & Heger, Inc.*, 15 BNA OSHC 1851, 1992 CCH OSHD ¶ 29,828 (No. 89-1300, 1992) (citation for same floor collapse), *aff'd*, No. 92-2237 (1st Cir. Aug. 20, 1993). The metal decking for the floor successfully supported a 4½-inch layer of poured concrete for several hours, until a second 3-inch layer was poured on the same day (December 13, 1988). Under the weight of the 7½-inch load of uncured concrete (along with a 3-inch layer of insulation) and a work crew, one end of the metal decking slipped off the angle iron, to which it had been welded, and swung down like a trapdoor. Several employees standing on the decking fell to the ground, 42 feet below.

A compliance officer from the Occupational Safety and Health Administration (“OSHA”), of the United States Department of Labor, came to the worksite to investigate the accident and, as a consequence, the Secretary of Labor (“the Secretary”) issued a four-item willful citation to Worcester Steel Erectors, Inc. (“Worcester Steel” or “the company”), the subcontractor that erected the metal decking. The four citation items all alleged

noncompliance with 29 C.F.R. § 1926.703(a)(1), an OSHA standard for construction, which states the following performance requirement at issue in this case:

Formwork shall be designed, fabricated, erected, supported, braced and maintained so that it will be capable of supporting without failure all vertical and lateral loads that may reasonably be anticipated to be applied to the formwork.

Each of the four citation items described a specific deviation from manufacturer's specifications for erecting the metal decking and alleged that Worcester Steel's failure to adhere to specifications rendered the decking incapable of supporting all reasonably anticipated loads. Worcester Steel contested the citation, and the case came before Administrative Law Judge Richard DeBenedetto for a hearing.

Judge DeBenedetto found two deviations from specifications, not four, and found that the two deviations from specifications did not affect the decking's capacity to carry the reasonably anticipated loads; most significantly, he found that Worcester Steel had reasonably anticipated two pours of concrete, sufficiently separated in time to allow for the first layer to cure and provide extra support for the second layer. Nevertheless, Judge DeBenedetto affirmed the citation on the legal basis that an employer who deviates from manufacturer's specifications without permission cannot claim that the decking met the cited standard's performance requirement.

I. BACKGROUND

In addition to Worcester Steel, there were at least three other companies at work on the project. Francis Harvey & Sons, Inc. ("Harvey"), was the general contractor at the construction site. D & M Concrete Company ("D & M") was the concrete subcontractor. Simpson, Gumpertz & Heger ("SGH"), an engineering company, had a contract with the architect to provide design and structural engineering consulting services. Also, Epic Deck Company ("Epic") was the manufacturer of the metal decking, sold under the trade name "Epicore," a 22-gauge metal decking specified by the architect to be used throughout the building.

A. The Structure and the Collapse

The multi-story building contained most of its 70,000 square feet of space in a central block. Atop one side of the building was a narrow multi-story atrium structure. It overhung

the building entrance and was supported by columns surrounding the entrance stairway. The story or floor on which the collapse occurred contained 30,000 square feet in the central block and another 224 square feet in an "atrium." The atrium was 14 feet across ("the width") by 16 feet deep ("the length"), and 42 feet above the ground; the underside of its floor rested upon the columns and was exposed to the open air. The atrium floor had to be insulated, therefore, and was thicker than the floors inside the central block of the building. Inside, each floor was $4\frac{3}{4}$ inches thick, but the atrium floor was $10\frac{3}{4}$ inches thick (consisting of the $4\frac{3}{4}$ -inch layer of concrete, the 3-inch layer of insulation, and the other 3-inch layer of concrete).

In the central block of the building, the Epicore decking could be laid upon the top flanges of the I-beams that formed the structural steel framework of the building. In the atrium, however, the decking had to be recessed below the top flanges in order to accommodate the greater depth of the floor. Worcester Steel recessed the decking by laying it upon angle irons attached to the "web" of each I-beam (an I-beam's main post). Across the center of the atrium, Worcester Steel also installed a recessed I-beam ("center beam"), apparently having a shorter web, to provide further support for the decking.

Each sheet of the Epicore decking was 2 feet wide and 15 feet, 10 inches long. In the atrium, the sheets were laid side by side, with the side edges overlapping, along the atrium's 14-foot width. They projected outward from the central block of the building across the atrium's 16-foot length perpendicular to the I-beam at the perimeter of the building's central block (I-beam designated "B" throughout the record). When the collapse occurred, half of each sheet gave way at the B beam; the sheets buckled and bent downward along the center beam, and the welds that had been holding the decking sheets to the B beam gave way, along the edge of the central block of the building. That is, the decking fell off the B beam. There was some buckling in the other half of the atrium also, between the center beam and the parallel I-beam that formed the outside edge of the atrium (designated "A" throughout the record). The half of the atrium floor between the center beam and the A beam did not collapse.

Subsequent investigation revealed that up to an extra $1\frac{1}{2}$ -inch of concrete had been poured onto the atrium deck, for a total of $9\frac{1}{4}$ inches of concrete (or a $12\frac{1}{4}$ -slab, including

the 3 inches of insulation). How this extra 1½-inch came to be poured was never entirely explained, although several witnesses, including Worcester Steel's expert witness and SGH's structural engineer for the construction site, posited that the cause was a downward bending of the decking sheets under the weight of the two layers of concrete.

B. Deviations from Epicore Specifications

At issue on review are the two deviations from specifications that Judge DeBenedetto found. The side edges of the Epicore decking sheets were shaped like inverted J's, each curving outward so that the edges of the sheets could overlap each other. There was an abbreviated ("short") J-curve projecting outward on one side of each sheet and a full ("long") J-curve projecting outward from the other side. Epic's specifications showed that the short J-curves were supposed to have been lapped over the long J-curves ("short over long"), not the other way around ("long over short"). Also, Epic's specifications called for a total of four tech screws in the overlapped edges, two screws on each side of the center beam.

C. The Anticipated Amount of Concrete

The judge's finding that Worcester Steel only anticipated that the 4¾-inch layer of concrete was to be poured on one day and not the second 3-inch layer is supported by a preponderance of the evidence, as we will briefly show. The Secretary no longer seriously disputes this fact, for he states in his review brief that "it appears that a 'curing,' or hardening, period was intended to come between the pouring of the two layers of concrete on the atrium floor."

A significant piece of evidence is Epic's specifications. They expressly allow 4¾ inches of concrete to be poured onto an unshored 7-foot, 8-inch span of Epicore decking, which is just slightly more than the unsupported distance between the B beam and the center beam (as well as between the A beam and the center beam, but hereafter we will refer to the B beam, only). The specifications do not allow 7¾ inches of concrete to be poured onto an unshored 7-foot, 8-inch span. In fact, the specifications indicate that if the concrete depth is 6¾ inches (the greatest depth mentioned on the table included in the specifications), the permissible unsupported span is only 6 feet, 8 inches. Thus, the table establishes that Worcester Steel's decking met the explicit requirements for 4¾ inches of concrete. The

Secretary's expert, Theron Zolly Chastain, emphasized in his testimony that the Epicore specifications were explicit about requiring shoring if more concrete was to be poured.

The compliance officer, Walter J. Cienaski, Jr., testified that he regarded Epic's shoring specifications as proof that Worcester Steel knew that its decking was inadequate to carry the 7¾ inches of concrete that was poured. However, Cienaski never accepted that Worcester Steel could in good faith have planned for a concrete layer that is acceptable under Epic's specifications--a 4¾-inch layer.¹ Because we conclude that the record as a whole demonstrates the assumption underlying Cienaski's opinion testimony to be false, we therefore discount that testimony.

Worcester Steel's foreman, Robert Stukowski, testified that deciding how to pour the concrete "wasn't . . . my business," and that he "presumed" there would be two pours because Harvey's superintendent, Dwight "Butch" Mitchell, had told him so. Mitchell denied having talked with Stukowski about pouring the concrete, and he claimed in his testimony that he "had always intended on one pour, I think," so that there would not be a seam between the atrium floor and the main building floor.² But Paul Kelley, who was SGH's structural engineer and senior project manager on the job, testified that he and the architect had contemplated two pours on different days. Therefore, according to his testimony, even though he had authority to plan for shoring wherever he determined a need for it, he had not seen any need to plan for shoring under the 7-foot, 8-inch span of Epicore decking between the B beam and the center beam of the atrium, and he believed that for the same reason Worcester Steel had not proceeded on its own initiative to install shoring

¹The compliance officer testified that Harvey had planned to pour both layers of concrete on one day and told him so during the inspection, and that he understood from the inspection that SGH had always had the same plan. He stated that he made his own assumption about SGH's views on the basis of its last-minute agreement to proceed with Harvey's plan on the day of the accident, that he never asked Stukowski what he had always understood to be the plan, and that no one at the construction site ever indicated that there was a plan for layers on separate days.

²The compliance officer, too, opined that anyone familiar with pouring concrete floors, including ironworkers, should have known that, to avoid a seam between the atrium and the main floor, it would be necessary to pour all the concrete on one day. Cienaski was a mechanical engineer by training and he had once supervised ironworkers doing "structural steel precast reinforcing rods." But he himself had never worked as an ironworker. He testified that he saw "nothing in any document that would lead you to believe that there should have been anything but a single pour out there on that day."

under that unsupported span, even though the company was responsible for determining whether or not to install shoring wherever the plans did not call for it.

Kelley further indicated that, inasmuch as it is customary for the general contractor to review the construction plans that it submits for acceptance, Harvey and Mitchell surely understood that shoring was not being planned for the atrium and that two separate days of pours were planned in conformance with the Epicore specifications. Apparently, however, neither Kelley nor anyone else at SGH ever discussed this two-pour plan with Mitchell or anyone else at Harvey, and Mitchell never asked Kelley how SGH had envisioned that the pours could best proceed.

Mitchell's testimony reveals that the first concrete was actually scheduled to be poured on the Friday (December 9, 1989) preceding the Tuesday of the collapse (December 13, 1989), and that Friday's concrete work was postponed to Monday because of cold weather. Other witnesses' testimony reveals that, as it turned out, Tuesday was the first day that any concrete was poured. Kelley testified specifically that cold weather had delayed the concrete work.

Also, after Tuesday's pour of $4\frac{3}{4}$ inches of concrete produced an unexpected downward deflection of the decking in the building's central block, Mitchell telephoned Kelley to discuss whether he could safely proceed with two layers in the atrium.³ The lengthy and late exchange of information that took place in that telephone conversation, viewed in light of the delay because of cold weather, tends to indicate that Mitchell's plan for one pour was either a last minute change or his plan alone, not SGH's. It also tends to indicate that either the original plan or SGH's plan had been for two pours, just as Stukowski's testimony suggests.

³The record tends to reveal that Kelley was deliberating about whether to pour both layers on the same day, having previously planned on doing two separate pours, whereas Mitchell had at some point already determined to do the whole job on one day and just wanted to make sure that the building's structure would hold up under the load. Mitchell asked Kelley, "[W]hat's your feelings about the thicker slab" in the atrium and Kelly replied by asking, "[W]ell, how do you plan on pouring it?" After a step-by-step description of how Mitchell planned the concrete would be poured on one day, Kelley paused or "thought for a minute" before okaying the single pour in the atrium area. Kelley was at first opposed to putting fresh concrete onto fresh concrete because doing so would trap water inside and it would freeze. But, after consideration, he decided that the extra thickness would just keep the water warmer. Kelley wanted to be sure that the two layers cured properly, but Mitchell understood his reply to mean that the building's structure was safe.

In sum, there is no evidence (1) that any document pertaining to the construction project specified that both layers of concrete would be poured on one day or (2) that anyone told Worcester Steel to anticipate that both layers would be poured on one day and therefore to shore the unsupported 7-foot decking span. Only Mitchell and Cienaski thought that ironworkers would see the aesthetic value of one pour to avoid a seam, *see supra* note 2 and related text, but neither witness was asked to discuss whether there are other ways to avoid such a seam. For example, no one considered whether the whole floor, *i.e.*, central block and atrium, could be poured several days after pouring the extra layer for the bottom of the atrium floor. Moreover, Stukowski's uncontradicted and unrefuted testimony establishes that Worcester does not handle concrete pouring; it merely applies its steel erection expertise to constructing a competent deck for the concrete subcontractor and any other contractor who manages the pouring of the concrete. These two activities must be coordinated but, generally speaking, it is primarily the general contractor's responsibility to coordinate the subcontractors.⁴ In this case, there is no clear evidence that Harvey coordinated D & M's concrete work with the decking being erected by Worcester Steel; in fact, upon this record it appears that the subcontractors had conflicting ideas of the plan for doing the concrete work. Worcester Steel evidently adhered to Epic's specifications regarding permissible loads on unsupported spans, and there was no evidence that this course of action was unprofessional and unreasonable in the circumstances. We conclude that the Secretary has failed to establish by a preponderance of the evidence that Worcester Steel had actual or constructive awareness of any "load[] that may reasonably be anticipated to be applied to the formwork" other than the 4½ inches of concrete to be poured on one day.

⁴See *Electric Smith, Inc. v. Secretary*, 666 F.2d 1267, 1273-74 (9th Cir. 1982) (general contractor acts in supervisory capacity over entire worksite; subcontractors must exercise reasonable diligence); *Marshall v. Knutson Constr. Co.*, 566 F.2d 596, 599-600 & 601 (8th Cir. 1977) (general contractor "normally" has responsibility and ability to supervise subcontractors in fulfilling obligations toward safety of all worksite employees); *Anning-Johnson Co. v. OSHRC*, 516 F.2d 1081, 1087 n.13 & 1088 (7th Cir. 1975) (general contractor controls worksite; subcontractors assume responsibility for portions of work).

D. The Decking's Stability for 4¾ Inches of Concrete

Having found that Worcester Steel had no reason to anticipate that any additional concrete would be added to the initial pour until it cured, we now consider whether Worcester Steel's failure to follow Epic's specifications for overlapping the J-curved edges of the Epicore decking sheets and fastening the sheets together with tech screws made the decking incapable of carrying that load. In finding in the negative, Judge DeBenedetto relied chiefly on the testimony of Worcester Steel's expert witness, a structural engineer, John E. Brennan III. The ultimate point of Brennan's testimony was that Worcester Steel's deviations from specifications could not have affected the capacity of the decking to carry the load which the company had expected to be applied. Brennan testified as follows:

[The] requirements for the [cited OSHA] standard have been met and proven by the deck, actually carrying the allowable load with the requisite factor of safety. Screws, welds, side laps are not issues which effect [sic] the ability to carry the expected load.

Brennan posited that the collapse resulted from the overload that came into existence when the whole slab was poured on one day. His theory was that the weight of the 7¾ inches of concrete (plus the extra 1½ inch that came to be poured) on the center of the decking caused the J-curved edges of the decking sheets to buckle, as though the top flange of the center I-beam were being thrust upward into the decking.

Similar testimony came from SGH's structural engineer Kelley, whose own "basic conclusion" was that "the deck had failed due to an overloading." He even testified that, "even though the deck was overloaded, there are reasons to suspect that maybe it should have carried that overload, if all of the fasteners were installed properly." That is, when the concrete slab reached 7¾ inches plus the extra 1½ inch that came to be poured, the load was "just about at yield" or "just went over yield"--yield being the point at which "the metal begins to stretch" under the load and "has some permanent deformation." The yield stress point is not necessarily the collapse point, this witness testified, unless there are deficiencies in how the decking was put together, such as that the welds holding the decking sheets to the beams are unsound.⁵

⁵The judge found no unsoundness established on this record, and the welds are not in issue on review.

Kelley believed that, in addition to any unsoundness of those welds, the failure to use tech screws would have been critical, because these two things “keep the shape from buckling prematurely,” and make the yield stress point the collapse point. Chastain, the Secretary’s expert, added his testimony that tech screws perform critical functions, distributing loads and preventing concrete from becoming wedged between the sheets when employees walk on them, holding them down. Chastain’s opinion *upon direct examination* was that the decking was “unstable,” particularly because of the failure to use tech screws, and that therefore it could not be presumed capable of sustaining even the first layer of $4\frac{3}{4}$ inches of concrete.

1. Load Calculations

As Chastain’s testimony progressed, however, it became apparent that he agreed with certain calculations demonstrating that the weight of $4\frac{3}{4}$ inches of concrete did not come close to constituting an overload on the decking. Chastain essentially testified that the decking, if properly constructed (with tech screws and so forth), would be capable of carrying about 50 percent more load than was imposed by pouring the $4\frac{3}{4}$ inches of concrete.

The calculations with which Chastain agreed were provided by Cienaski, the compliance officer. His calculations establish that the load associated with the $4\frac{3}{4}$ inches of concrete did not approach overload. Cienaski calculated that the load of D & M’s employees and their tools, *i.e.*, the “construction load,” was 20 pounds per square foot.⁶ Applying other information given by him, we calculate that $4\frac{3}{4}$ inches of concrete, *i.e.*, the “concrete load,” weighed 57 pounds per square foot.⁷ Adding the concrete load (57 pounds per square foot) to the construction load (20 pounds per square foot), we get 77 pounds per

⁶We have in the conventional manner rounded off any fractions (less than .5 to the next lower whole number, .5 or more to the next higher whole number).

⁷Cienaski estimated, apparently on the basis of accepted source authorities, that concrete weighs 145 to 148 pounds per cubic foot. Using this figure, he calculated that the $4\frac{3}{4}$ -inch slab had weighed about 6,428 pounds. In his testimony he went on to determine the weight of the whole $7\frac{3}{4}$ -inch slab that was poured on the day of the collapse. But from a calculation that he made in the course of this discussion, we can calculate that the $4\frac{3}{4}$ inches of concrete weighed 57 pounds per square foot. Also, according to Cienaski’s testimony referring to Epic’s specifications, Epic estimates that 4 inches of concrete weighs 48 pounds per square foot. This would mean that 1 inch weighs 12 pounds per square foot and 5 inches weighs 60 pounds per square foot; therefore, a weight of 57 pounds per square foot seems approximately correct for $4\frac{3}{4}$ inches of concrete.

square foot. Chastain further testified that the yield point of the Epicore decking in the atrium was 120 pounds per square foot and that a safety factor of 1.6 would be exceeded if any load exceeded 93 pounds per square foot.⁸ Thus, on the basis of Chastain's testimony we find (and Chastain essentially agreed) that there would have been an allowance of approximately 16 pounds per square foot even before the safety factor would have been exceeded by the 4½-inch pour.⁹

Brennan gave only slightly differing figures. He calculated the concrete load at 55 pounds per square foot and the construction load at 25 pounds per square foot, for a total of 80 pounds per square foot while the 4½ inches of concrete was being poured. This total, 80 pounds per square foot, he termed the "applied load." What he termed the "allowable load" of the decking, *i.e.*, "the load which the decking is designed to carry," he calculated to be 72 pounds per square foot, and the yield point, or "yield load," he calculated was 121 pounds per square foot. He testified that the difference between the allowable load and the yield load is the factor of safety, which he indicated is supposed to be 1.67. Thus, the difference was 49 pounds per square foot, or 1.67, as required. Because the safety factor was not exceeded while the 4½ inches of concrete was being poured, and because the performance requirement of the cited OSHA standard had been "met and proven by the decking[] actually carrying the allowable load with the requisite factor of safety," Brennan believed that the reversed overlapping and the missing tech screws could not have affected the ability to carry the heaviest load that Worcester Steel reasonably anticipated would be applied on one day, *i.e.*, one layer of concrete. "The yield loads and the collapse loads would not be changed by the presence or lack of welds or side laps or side lap fasteners," Brennan concluded. Thus, he posited that the collapse resulted from pouring a second layer on the same day, which overloaded the decking.

⁸We note that 93 pounds per square foot is approximately 1.6 times 57 pounds per square foot ($1.6 \times 57 = 91$).

⁹We further note that the concrete load and the construction load combined, *i.e.*, 77 pounds per square foot, is 43 pounds per square foot below the yield point of 120 pounds per square foot, the point beyond which a properly constructed deck would approach collapse, according to this testimony.

2. Theories About why the Deck Collapsed

Brennan believed that the weight of the 7¾ inches of concrete plus the extra 1½-inch that came to be poured exceeded the yield load during the time that D & M's employees had been on the decking, doing the second pour.¹⁰ Brennan concluded that this total applied load had pressed heavily into the center of the decking at the center beam and had buckled the J-curves of the decking sheets, finally causing the sheets to slip off the B beam.

A similar opinion was put forward during the cross-examination of Chastain, the Secretary's expert. When Worcester Steel's attorney pointed out that the deck had not collapsed under the 4¾-inch load but had stood for about 3½ hours until the overload of concrete was poured, Chastain qualified his earlier testimony upon direct examination that the decking was unstable because of deviations from specifications, as follows: "I was describing the condition under the full load, the collapse load." Worcester Steel's attorney explored Chastain's view of the deck's stability under the 4¾-inch load, asking Chastain

¹⁰These are Brennan's figures for the total applied load:

<i>Construction Load</i>	--	25.0 pounds per square foot (psf)
<i>Initial Loads -- First Layer of Concrete</i>		
Decking	--	2.3 psf
Concrete & Rebar	--	53.0 psf
		55.3 psf
<i>Later Loads -- Second Layer of Concrete</i>		
Insulation	--	3.0 psf
3 Inches of Concrete	--	36.3 psf
Compensation for Deflection	--	4.5 psf
1½ Inches Extra Concrete	--	18.1 psf
		61.9 psf
<i>Maximum Total Applied Load</i>	--	142.2 psf

These figures also show that, even if the second layer had not included the extra 1½ inches of concrete and the compensation for deflection, the total applied load would have amounted to approximately 119 pounds per square foot, which would have been closely approaching the yield point at 121 pounds per square foot.

whether the deck “deflected because of the method of installation.” Chastain replied, “No, because of the load.” Chastain further stated that he had “no idea that there would have been” any problem if the initial 4¾-inch pour had been allowed to cure to the point of reaching approximately 75 percent of its compressive strength before more concrete was poured. He testified that: “The hardened concrete would take care of any of the deficiencies in the deck.” Chastain explained that the collapse came about because of the additional 3 inches of concrete that was poured on the same day; that overload caused it to “slip[] off the . . . B [beam] and you had the collapse.”

Chastain added the following about the capacity of the decking to carry the 4¾ inches of concrete:

From what I saw, I would not say it would be capable of it. However, I know that it did for a while. That was -- that was the -- it held up until they started putting additional concrete on it. But that doesn't mean that it was safe.

He then testified that there was a probability that it was unsafe and a probability that it was safe. Chastain testified that the portion of the deck that did not collapse “was . . . on the verge of collapse” after the first layer of concrete was poured even though it did not collapse during the pouring of the second layer of concrete.¹¹ Upon further recross-examination, Chastain ended up testifying that the improperly constructed deck, with its overlapping reversed and tech screws missing, could support 4¾ inches of concrete as long as none of the decking sheets had been damaged while fitting them into the cramped area of the atrium, and as long as the decking sheets had proper bearing, *i.e.*, as long as their ends were resting equally on the A and B beams. It was Chastain's belief that there had been almost no

¹¹Notwithstanding, upon subsequent redirect examination Chastain maintained that Worcester Steel's failure to adhere to specifications unpredictably and incalculably reduced the safety factor of 1.6 (*i.e.*, 93 pounds per square foot) to perhaps 1.1 or less (*i.e.*, 63 pounds per square foot or less), such that the decking was on the verge of collapse even after only 4¾ inches of concrete was poured. Cienaski, also, testified that he would assume instability at that point, because the decking had not been built according to specifications. In his view, Epic's specifications that permit 4¾ inches of concrete on an unsupported 7-foot, 8-inch span assume that the decking has been put together properly. But if the decking has not been put together properly, there could be no sound basis for assuming, Cienaski opined, that those specifications could still apply. In short, in his view Worcester Steel's decking was presumptively incapable of supporting the 4¾-inch load.

bearing at the B beam because the decking sheets were not laid evenly, with their ends evenly resting on the A and B beams.¹²

Brennan did not believe that the spaces between the J-curves of the decking sheets had become impacted with concrete because of the lack of screw fasteners or that the cause of the collapse was merely a lack of adequate bearing at the B beam. He had examined the wreckage of the decking and had seen that “[i]t [was] a classic uniform collapse of all the panels at once, within reason.” That is, when the collapse occurred along the B beam, the ends of the decking sheets fell together:

The panels in the photos show the panels together with the crease, where the panel bends. You can see the panels are there[;] they didn’t come apart where it creased. That proves they did not separate before the failure. Otherwise, how could you have the panels attached at the crease if they had separated before the crease had formed?

The calculations upon which Brennan relied in his testimony indicate that the angle irons onto which the decking sheets were welded were about 3 inches wide. Thus, according to his calculations, because the decking sheets were only 2 inches shorter than the 16-foot length of the atrium, they would have had 1 inch of bearing on the angle iron at the B beam even if they had been jammed up against the angle iron attached to the A beam; they could not have lacked 1 inch of bearing. Furthermore, according to Brennan’s calculations, if the J-curved edges of the decking sheets had retained their shape, *i.e.*, if they had not buckled, they would have stiffened the 15-foot, 10-inch decking sheets sufficiently that the sheets could not possibly have bent downward enough to slip off their 1-inch bearing at the B beam even if all the sheets had been jammed up against the A beam.

3. Possible Consequences of the Deviations From Specifications

Cienaski believed that the lack of tech screws alone made the decking unsafe because the sheets remained unattached to each other; consequently, they could bend downward

¹²Upon redirect examination, Chastain had at first returned to the opinion that he had initially expressed on direct examination. This is, he opined that the decking with the reversed overlapping and tech screws missing was “not sufficient to support 4¾ inches of concrete.” He held this opinion because “the welds were not sufficient to hold the deck in place and it could have slipped.” The judge found the welds adequate, however, and on review their condition is not at issue. “[A]lso, the bearing at the end failed.” Chastain was referring, of course, to the fact that the decking did finally fall off the B beam.

independently of each other and, in response to any load imposed upon one sheet or in response to any concrete poured heavily on one small area, the sheets could fail to distribute and carry the load. Cienaski believed that these problems would exist even though, as Stukowski testified, the decking sheets were wedged in so tightly that he had not been able to shift them. Cienaski also posited that concrete could get wedged between the sheets. He had not established that this had happened, but during the hearing Chastain referred to certain photographs in evidence in which he found, as he pointed out, visible instances of concrete having become wedged between the decking sheets. In another photograph he also saw a buckling of the J-curved edges of the decking sheets, a condition which had been visible to him during his examination of the collapsed portion of the decking during his post-accident investigation.

Brennan submitted that a main reason for using tech screws is to improve the appearance of the decking, if it is going to be visible from below in the finished structure. He agreed with the other witnesses, however, that tech screws also allow loads to be distributed over the whole deck, prevent the sheets from moving, and prevent concrete from leaking between sheets. When he examined the wreckage, he noticed no leakage, and in a photograph of the portion of the decking that did not collapse he noticed no leakage. Also, he observed that there was no separation between the wrecked decking sheets, which he believed to be proof that they had not separated either while they were slipping off the B beam or while the heavy load of concrete was being poured.

According to Cienaski, the reversed overlapping could have hindered Worcester Steel from attaching the sheets to each other. When a short J-curve is lapped over a long J-curve, as the Epic Deck Company specifies, the employee installing the tech screws can still see both edges of the sheets and therefore can know that he is pushing the screw through both sheets. When lapped long over short, however, the long J-curves hide the short ones such that, according to Cienaski, the tech screws coming through from the top sheets might miss the bottom sheets, either partly or entirely, and fail to make secure contacts between them. Chastain said the same thing. Stukowski testified, however, that he had reversed the overlapping of similar decking on other occasions, that reversed overlapping did not make

decking unsafe, and that when he put in tech screws he was able to know he had contacted both edges by the way the drill “grabbed.”

Cienaski also posited that Stukowski might have damaged the sheets while installing them, since the atrium area was such a tight fit for the seven decking sheets. Cienaski did not have any evidence to support this supposition, however, nor did any other witness. Chastain posited that the sheets would have had to be bent to get them in. But Chastain later described how the sheets could have been installed without being bent. And Stukowski followed up by testifying, upon being recalled as a witness, that he had put the sheets in without bending them.

II. ANALYSIS

As the foregoing indicates, the two major factual issues presented by the standard are (1) what was the load that “may reasonably be anticipated” and (2) whether the deck was “capable of supporting [it] without failure.”

A. The Judge’s Decision

Judge DeBenedetto found against the Secretary on these issues. He found that Worcester Steel did reasonably anticipate a pour of no more than 4¾ inches for one day and that the decking was capable of carrying that limited load despite two deviations from specifications, *i.e.*, reversed overlapping and missing tech screws.

Despite these strong factual findings, however, Judge DeBenedetto went on to hold Worcester Steel in violation. The judge reasoned that, because the cited standard appears at the head of standards that set forth detailed specifications for formwork, the cited standard must not be interpreted and applied literally and without reference to an employer’s noncompliance with the pertinent manufacturer’s specifications. “[J]ob specifications are a vital part of the general conditions of a contract for construction,” and “no contractor or subcontractor may be permitted to deviate from the specifications without [the] approval of the appropriate party under the terms of the contract[;] otherwise, the results could be catastrophic.” The judge noted that Chastain testified, “in substance, that failure to follow the specifications undermines the integrity of the floor deck and introduces some uncertainty to the process of analyzing the load capacity” of any decking. “Such a path would inevitably lead to the realm of happenstance, and away from the goal of preventing accidents.” In

Judge DeBenedetto's view, "It would frustrate the OSH Act's basic purpose of achieving safety in the workplace to permit an employer to challenge the Secretary's enforcement of the [cited] standard by showing at a hearing, through the testimony of an expert witness, that the floor deck was capable of supporting the anticipated load without regard to the specifications." The judge reasoned that "to accept such a view would reduce the [formwork] standard[s] . . . to many unnecessary words and phrases." Therefore, the judge concluded that "[i]t seems quite reasonable and appropriate for the Secretary to require that an employer who engages in the erection of formwork or floor decking do so under the restraints of existing specifications, unless the employer has received approval by the appropriate party under the terms of the construction contract to deviate from the specifications." On this basis, the judge affirmed the two citation items regarding overlapping and tech screws.

B. The Arguments of the Parties

Certain facts are conceded. Worcester Steel concedes that the overlaps were reversed and tech screws not used. The Secretary concedes that several days were supposed to lapse between pours of concrete. Both parties argue, however, the one outstanding issue of fact, *i.e.*, whether, in view of the deviations from specifications, the decking was capable of carrying the 4½-inch layer of concrete, and the one issue of law, *i.e.*, whether the cited standard is susceptible of what amounts to, on the facts of this case as found by the judge, a presumption of noncompliance where an employer deviated from manufacturer's specifications.

1. Worcester Steel

Worcester Steel argues that Judge DeBenedetto's factual findings are well supported, by undisputed testimony and by the sense of the record as a whole. The company further argues that the cited standard only establishes a performance level that must be achieved, and that nothing in the standard requires compliance with a particular manufacturer's

specification unless it is essential to meeting the performance level. Worcester Steel emphasizes that there can be no liability for omissions that cause no harm.¹³

2. *The Secretary*

The Secretary argues that Worcester Steel misunderstands the gravamen of the violation:

The OSHA violation was Worcester's unilateral disregard of the project specifications in areas where the deviations could reduce the safety and reliability of the steel decking. Accordingly, the fact that the reverse lapping and the absence of tech screws may not have been the "proximate cause" of the actual accident is not dispositive, and indeed is scarcely relevant, to the violation showing.

The Secretary points to Chastain's testimony that the deviations from specifications incalculably reduced the dependability of the decking. *See supra* note 11. The Secretary also points to Brennan's testimony indicating that the decking's capacity was exceeded even during the first pour of 4¾ inches of concrete; that is, the allowable load, which Brennan figured was 72 pounds per square foot, was a full 8 pounds per square foot less than his figure for the construction load and concrete load, 80 pounds per square foot.

Worcester deals with this excess [of construction load and concrete load over allowable load] by stating that it was well within the "margin of safety["]; that is, the anticipated 80-pound [per square foot] load was well below the 120-pound [per square foot] failure point[, *i.e.*, the yield load]. However, it is not known precisely to what extent the reverse lapping and omission of screw fasteners reduced the load-bearing capacity of the decking. However, it *is* known--and the judge credited expert testimony to this effect--that the deviations diminished the structural integrity of the decking.

¹³Worcester Steel makes the argument that "there is no evidence that the [cited] standard applies to the cited conditions." By this, the company means that, if the gravamen of the Secretary's case is something approaching strict liability for unapproved deviations from manufacturer's specifications, then this approach turns the cited performance standard, pertaining only to capacity to carry expected loads, into a specifications standard, pertaining to approval for deviations. Yet the undisputed evidence in this case is, Worcester Steel emphasizes, that "[h]ad the first pour been left undisturbed[,] . . . there is nothing . . . to suggest that there would have been any problem nor that the formwork standard was violated." Thus, Worcester Steel also points out, because the cited standard does plainly make the actual performance of the deck not only relevant to but the crux of the case, and because the Secretary has the burden to prove that the decking's performance was actually deficient for its reasonably anticipated load, the company is fully justified in focussing attention on, as part of rebuttal, the actual cause of the accident.

The Secretary agrees with Judge DeBenedetto that compliance with manufacturer's specifications is vital, and that no subcontractor should be permitted to make unapproved, untested, and inexpert deviations from them.¹⁴

C. Resolution

In reviewing an administrative law judge's decision, we determine whether a preponderance of the evidence supports the factual findings. *E.g., Ultimate Distrib. Sys., Inc.*, 10 BNA OSHC 1568, 1570, 1982 CCH OSHD ¶ 26,011, p. 32,653 (No. 79-1269, 1982). In this case, having carefully studied and weighed the pertinent evidence, we find that a preponderance of the evidence does support Judge DeBenedetto's findings against the Secretary. That is, although the Secretary made some small attempt to establish a known or ascertainable plan to pour both layers of concrete on one day, a preponderance of the evidence establishes that the heaviest load that Worcester Steel reasonably anticipated upon the decking on one day was a single layer of 4½ inches of concrete with reinforcement bars, as well as D & M's employees and their equipment. Furthermore, although the Secretary adduced some testimony as to how the particular deviations from manufacturer's specifications could have weakened the decking, a preponderance of the evidence establishes that, as constructed, it was capable of supporting the reasonably anticipated load without failure. As did the judge, we rely on Brennan's testimony. We find it persuasive and sufficiently corroborated by Chastain's testimony on cross-examination that the decking was capable of carrying the first load of concrete despite deviations from manufacturer's specifications, and Cienaski's testimony (with which Chastain agreed) that the decking's yield load and safety factor well exceeded the actual loads associated with the first layer of concrete.

Remaining is the legal issue: Whether noncompliance with the cited standard can be presumed where the record establishes not only that the decking was sufficiently strong for

¹⁴The Secretary does not, however, assert that we have before us in this case his own interpretation to which we must defer under the test of reasonableness set out in *Martin v. OSHRC*, 111 S.Ct. 1171, 1178-80 (1991). But even if the Secretary had so argued, we would be unable to defer because, for the reasons set forth in this opinion, we are unable to find the interpretation reasonable. See *Department of Labor v. OSHRC (Goltra Castings, Inc.)*, 938 F.2d 1116, 1118-19 (10th Cir. 1991) (interpretation contrary to standard's "express language" is unreasonable and undeserving of deference).

the reasonably anticipated load but also that the employer knowingly deviated from manufacturer's specifications which could, in turn, diminish the strength of decking. For the following reasons, we reject such a presumption. In order to establish a violation, the Secretary must establish by a preponderance of the evidence that, because of deviations from specifications or other circumstances, the decking was incapable of supporting the reasonably anticipated load.

In coming to this conclusion, we have carefully examined the cited standard in context to see whether there is support for Judge DeBenedetto's reasoning and the Secretary's arguments in agreement with it, but we find that the other standards in section 1926.703 to which the judge looked do not involve manufacturer's specifications, or any other job specifications, or the facts of this case. Instead, the other standards in section 1926.703 merely concern types or parts of formwork, *i.e.*, "*Shoring and reshoring*," "*Vertical slip forms*," and "*Reinforcing steel*." These are types or parts of formwork that have never been more than peripherally involved in this case. Also, as did the judge, we have looked at the preamble to the cited standard. It only reveals, however, that the Secretary intended to give employers the freedom to devise their own methods of complying with the cited standard, as long as they meet its performance requirement. The preamble provides no support for the view that an employer who deviates from such specifications may be presumed to have violated the standard's requirement that the decking be strong enough to support the reasonably anticipated load. It does not mention any duty of an employer to certify prior approval for deviations from manufacturer's specifications for the formwork or to adhere strictly to any manufacturer's requirements or any job requirements.

The plain language of the standard also constrains us to reject the proposed presumption of non-performance if there have been unapproved deviations from a manufacturer's specifications. The requirement of the cited standard that formwork "be capable of supporting . . . loads" is plainly an outcome or a performance requirement, only, as Worcester Steel argues, and it neither states nor implies that employers must conform to all manufacturer's specifications. Thus, it cannot by any means be construed as a by-the-book requirement for the erection process. As has been discussed many times before, the Secretary's occupational safety and health regulations may not be construed to mean what the

Secretary might have intended, especially with hindsight, but did not adequately express. *E.g.*, *Donovan v. A.A. Beiro Constr. Co.*, 746 F.2d 894, 905 (D.C. Cir. 1984); *Diamond Roofing Co. v. OSHRC*, 528 F.2d 645, 649 (5th Cir. 1976); *Bunge Corp.*, 12 BNA OSHC 1785, 1791, 1986 CCH OSHD ¶ 27,565, p. 35,806 (No. 77-1622, 1986). Adoption of a strained interpretation does not serve the purposes of the Act, for the occupational safety and health standards must provide employers sufficient pre-enforcement guidance to conform their conduct to the actual requirements to which they will be held in any enforcement proceeding. *See Bethlehem Steel Corp. v. OSHRC*, 573 F.2d 157, 161-62 (3d Cir. 1978); *Diamond Roofing*, 528 F.2d at 650; *A.H. Beck Foundation Co.*, 13 BNA OSHC 1040, 1043, 1986-87 CCH OSHD ¶ 27,797, p. 36,355; *Lisbon Contrac., Inc.*, 11 BNA OSHC 1971, 1973-74, 1984 CCH OSHD ¶ 26,924, p. 34,500 (No. 80-97, 1984). This proposition is particularly true in the case now before us, where the argued interpretation imposing a presumption of noncompliance really cannot be derived from the standard's plain language.

Thus, in any case brought against an employer under this standard, the Secretary has the burden to show that, more likely than not, the erected formwork was not strong enough to support the reasonably anticipated load. The cited employer can rebut by showing that, more likely than not, the erected formwork was strong enough to support such a load. If deviations from manufacturer's specifications are relied on, there must be evidence that they affected the decking's actual performance or its load-bearing capacity, thereby making it unable to support the reasonably anticipated load. Under the plain language of the standard, it is not enough for the Secretary simply to presume a violation because the deviations would add an element of uncertainty as to the strength of the decking. As Judge DeBenedetto found, Worcester Steel met the cited standard's performance requirement, and we determine that there is no further specifications requirement.

III. ORDER

Accordingly, we reverse the judge's decision upon the factual findings made by him, and we do not reach the issues of possible duplication of charges and penalty that were directed for review.



Edwin G. Foulke, Jr.
Chairman



Velma Montoya
Commissioner

Dated: September 29, 1993



UNITED STATES OF AMERICA
OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION
 One Lafayette Centre
 1120 20th Street, N.W. — 9th Floor
 Washington, DC 20036-3419

PHONE:
 COM (202) 606-5100
 FTS (202) 606-5100

FAX:
 COM (202) 606-5050
 FTS (202) 606-5050

SECRETARY OF LABOR,	:	
	:	
Complainant,	:	
	:	
v.	:	Docket No. 89-1206
	:	
WORCESTER STEEL	:	
ERECTORS, INC.,	:	
	:	
Respondent.	:	

NOTICE OF COMMISSION DECISION

The attached decision and order by the Occupational Safety and Health Review Commission was issued on September 29, 1993. **ANY PERSON ADVERSELY AFFECTED OR AGGRIEVED WHO WISHES TO OBTAIN REVIEW OF THIS DECISION MUST FILE A NOTICE OF APPEAL WITH THE APPROPRIATE FEDERAL COURT OF APPEALS WITHIN 60 DAYS OF THE DATE OF THIS DECISION.** See Section 11 of the Occupational Safety and Health Act of 1970, 29 U.S.C. § 660.

FOR THE COMMISSION

Ray H. Darling, Jr.

Ray H. Darling, Jr.
 Executive Secretary

September 29, 1993
 Date

NOTICE IS GIVEN TO THE FOLLOWING:

Daniel J. Mick, Esq.
Counsel for Regional Trial Litigation
Office of the Solicitor, U.S. DOL
Room S4004
200 Constitution Ave., N.W.
Washington, D.C. 20210

Albert H. Ross, Esq.
Regional Solicitor
Office of the Solicitor, U.S. DOL
11th Floor
One Congress Street
Boston, MA 02114

William J. LeDoux, Esq.
Christopher & LeDoux
370 Main Street
Worcester, MA 01608

Richard DeBenedetto
Administrative Law Judge
Occupational Safety and Health
Review Commission
Room 420
McCormack Post Office and Courthouse
Boston, MA 02109-4501



UNITED STATES OF AMERICA
 OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION
 1825 K STREET N.W.
 4TH FLOOR
 WASHINGTON D.C. 20006-1246

FAX:
 COM (202) 634-4008
 FTS 634-4008

Secretary of Labor,
 Complainant,

v.

Worcester Steel Erectors, Inc.,
 Respondent.

Docket No. 89-1206

NOTICE OF DOCKETING

The Administrative Law Judge's Report in the above referenced case was docketed with the Commission on September 25, 1991. The decision of the Judge will become a final order of the Commission on October 25, 1991 unless a Commission member directs review of the decision on or before that date. **ANY PARTY DESIRING REVIEW OF THE JUDGE'S DECISION BY THE COMMISSION MUST FILE A PETITION FOR DISCRETIONARY REVIEW.** Any such petition should be received by the Executive Secretary on or before **October 15, 1991** in order to permit sufficient time for its review. See Commission Rule 91, 29 C.F.R. § 2200.91.

All further pleadings or communications regarding this case shall be addressed to:

Executive Secretary
 Occupational Safety and Health
 Review Commission
 1825 K St., N.W., Room 401
 Washington, D. C. 20006-1246

Petitioning parties shall also mail a copy to:

Daniel J. Mick, Esq.
 Counsel for Regional Trial Litigation
 Office of the Solicitor, U.S. DOL
 Room S4004
 200 Constitution Avenue, N.W.
 Washington, D.C. 20210

If a Direction for Review is issued by the Commission, then the Counsel for Regional Trial Litigation will represent the Department of Labor. Any party having questions about review rights may contact the Commission's Executive Secretary or call (202) 634-7950.

FOR THE COMMISSION

September 25, 1991
 Date

Ray H. Darling, Jr.
 Ray H. Darling, Jr.
 Executive Secretary

Docket No. 89-1206

NOTICE IS GIVEN TO THE FOLLOWING:

**Daniel J. Mick, Esq.
Counsel for Regional Trial Litigation
Office of the Solicitor, U.S. DOL
Room S4004
200 Constitution Ave., N.W.
Washington, D.C. 20210**

**Albert H. Ross, Esq.
Regional Solicitor
Office of the Solicitor, U.S. DOL
11th Floor
One Congress Street
Boston, MA 02114**

**William J. LeDoux, Esq.
Christopher & LeDoux
370 Main Street
Worcester, MA 01608**

**Richard DeBenedetto
Administrative Law Judge
Occupational Safety and Health
Review Commission
Room 420
McCormack Post Office and Courthouse
Boston, MA 02109-4501**

UNITED STATES OF AMERICA
OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION

SECRETARY OF LABOR,

Complainant,

v.

WORCESTER STEEL ERECTORS, INC.,

Respondent.

OSHRC DOCKET
NO. 89-1206

Appearances:

Merle D. Hyman, Esq., for Complainant
William J. LeDoux, Esq., for Respondent

DECISION AND ORDER

Respondent (Worcester Steel) was cited on March 13, 1989, for serious (citation number 1), willful (citation number 2) and repeat (citation number 3) violations of various construction safety standards and a recordkeeping requirement. The citations arose from OSHA's investigation of an incident that occurred on December 13, 1988, when five employees of D&M Concrete Company fell 42 feet as a result of the collapse of a metal deck on which they were pouring concrete.

The multi-employer project involved the construction of a three-story building on the campus of Worcester Polytechnic Institute in Worcester, Massachusetts. Worcester Steel was engaged as a subcontractor with the responsibilities of erecting

the structural steel, including the steel decking panels. It was also engaged to install the reinforcing bars in the structure. Other relevant parties involved in the building project included: Briggs Associates, which was engaged by the owner to provide testing and inspection services during the course of construction to ensure compliance with drawings and specifications; Simpson, Gumpert & Heger (SGH), engaged by the architect for structural engineering services; D&M Concrete Company (D&M), the concrete subcontractor; Epic Deck Company (Epic), the manufacturer of the "Epicore" 22-gauge floor decking specified by the architect to be used throughout the structure.

WILLFUL VIOLATION OF THE FORMWORK STANDARD,
29 C.F.R. §1926.703(a)(1)

We begin with the most serious charge leveled against Worcester Steel, centering on the standard for cast-in-place concrete, 29 C.F.R. §1926.703:

- (a) General requirements for formwork.
- (1) Formwork shall be designed, fabricated, erected, supported, braced and maintained so that it will be capable of supporting without failure all vertical and lateral loads that may reasonably be anticipated to be applied to the formwork. Formwork which is designed, fabricated, erected, supported, braced and maintained in conformance with the Appendix to this section will be deemed to meet the requirements of this paragraph.¹

¹ "Formwork" is defined by 29 C.F.R. §1926.700(b)(2) as:

[T]he total system of support for freshly placed or partially cured concrete, including the mold or sheeting (form) that is in contact with the concrete as well as all supporting members including shores, reshores, hardware, braces, and related hardware.

Under this standard the employer is given the option of complying with either the OSHA general performance standard or, pursuant to the Appendix to 703(a)(1), the specific safety requirements of Sections 6 and 7 of the American National Standard for Concrete and Masonry Work, ANSI 10.9-1983. The ANSI standard was never raised as an issue in this case.

The Secretary charges that Worcester Steel willfully violated the 703(a)(1) standard at that portion of the building referred to as the second level of the atrium in four specific instances: improper overlapping of steel deck panels according to manufacturer's specifications; failure to insert screw fasteners in deck panels according to building contract specifications; lack of welding where deck panels join the supporting steel beam according to specifications; and failure to use weld washers according to specifications.

The Secretary contends that when Worcester Steel failed to follow specifications "it had no idea whether the decking would support" any anticipated load. Secretary's brief at 12. Worcester Steel maintains that the collapse in the atrium was caused by overloading of the steel deck with concrete, and that the four cited job specifications "played no role in the collapse." Worcester Steel's brief at 31. To support their positions, both parties produced an expert witness with extensive experience in structural engineering.

Because of the design of the building, the procedures for erecting the Epicore floor forms in the main building were

Because of the design of the building, the procedures for erecting the Epicore floor forms in the main building were different from those for erecting the forms in the adjoining atrium. In the main building, the steel decking was placed on and welded to the top flanges of the horizontal beams, followed by the placement of a single layer of 4 3/4 inches of concrete. The atrium floor was designed to have a greater depth. This was achieved by depressing the deck surface in the following manner: angle irons were welded to the web of the wide-flange I beams. The steel decking, which consisted of seven abutting panels (each weighing 70 pounds and measuring about 16 feet long and 2 feet wide), was placed on the angle iron at the "B" line (contiguous to the main building) and then across the top flange of the center beam to the angle iron at the exterior "A" line. Where the panels abutted each other, the specifications called for lapping one panel over the other, with the short lap over the long.

Concrete placement in the atrium was to take place in three stages: the initial placement consisted of 4 3/4 inches of concrete which was then covered with 3 inches of insulation, followed by an additional 3-inch layer of concrete. On the morning of December 13, 1988, the day of the collapse, 4 3/4 inches of concrete was first placed by D&M in the 30,000 square foot area of the main building at level 2, and then in the atrium. At around noontime, the general contractor placed the 3 inches of insulation on top of the 4 3/4-inch layer of

concrete in the atrium. After the Worcester Steel employees left the construction site at about 3:15 p.m., the end of the workday, D & M's employees began placing the 3-inch layer of concrete in the atrium. It was during this procedure that the atrium deck collapsed.²

Lapping of Deck Ends

Robert Stukowski, Worcester Steel's foreman in charge of installing the deck, was called as a witness by both parties. Stukowski testified that the decking was placed in the main building according to the manufacturer's specifications, but because of the atrium's deck being placed in a recessed fashion on the supporting angle iron, he encountered a "tight fit", which caused him to reverse the laps by placing the long lap over the short (Tr. 35-36, 613). The compliance officer testified that proper lapping was designed to prevent displacement of the panels, and to assure that contact was made by the screw between the top and lower pieces of the panels, which were intended to be fastened together (Tr. 350-354, 639). Stukowski and the compliance officer gave conflicting testimony as to the effects of the reverse lapping procedure (Tr. 636-37, 639, 1094-95).

The Secretary's expert witness, T. Z. Chastain, testified that failure to follow the lapping specifications would not allow one to know if the formwork could have supported

² The collapse involved the portion of the seven panels attached between the "B" line and the center beam, the ends of the panels separating from the angle iron at the "B" line. The section of panel between the center beam and the "A" line buckled, but did not collapse (Tr. 260, 390, 657; R-25, JP-15).

4 3/4 inches of concrete without failure. Although he was not certain that the panels were damaged when installed as described by Stukowski, Chastain assumed they were, which led him to believe that the deck had deflected, causing extra pressure to be placed on welds. Chastain presumed the panels were dropped in vertically, which he believed would have affected the bearing of the panels. However, Stukowski testified that he forced the panels in diagonally which, Chastain agreed, may not have caused panel damage. Chastain conceded that, with proper bearing and assuming no damage was done to any panel, the deck could have been capable of holding 4 3/4 inches of concrete³ in spite of reverse lapping (Tr. 928-29, 932, 965, 1003).

Screw Fasteners

The specifications called for screws to be inserted in the deck panels at a minimum spacing of "every 36 inches on center" along the side laps of the abutting panels (Tr. 360-61, 444-45). Both the compliance officer and Paul Kelley, SGH's senior project manager at the construction site, testified that when they observed the atrium decking after the December 13 failure, they saw no indication that screws had been used to connect the panels as required by the specifications. Stukowski testified that a co-worker had applied the screws about "every two feet," "where the decking laps" (Tr. 58); and that he "checked" to

³ Worcester Steel maintains that planned procedures called for a concrete curing period of some days between placement of the 4 3/4 inches and the 3 inches of concrete. Worcester Steel's brief at 19.

ensure that they had been so inserted (Tr. 1105). However, Stukowski's testimony was seriously undermined by his own contradictory statements made during a November 2, 1990, deposition (Tr. 1107-10). Worcester Steel's president, Alexander Esteves, who visited the site on the day following the deck failure, testified that he could not say with certainty whether the screws had been used to connect the panels (Tr. 1213-14).

The Secretary's expert, Chastain, testified that the failure to fasten the panels with screws in accordance with the specifications was a factor which contributed to the uncertainty as to whether the formwork could have supported the concrete without failure. However, he again conceded that the deck could hold 4 3/4 inches of concrete without using screws for joining the side laps of the panels provided there was no damage to the deck and proper bearing was maintained (Tr. 1013, 1048, 1052). Worcester Steel's expert, Brennan, acknowledged that screw fasteners might be used to prevent concrete leakage between panels, yet he noted that there was no evidence of such leakage (Tr. 1272).

Welds and Weld Washers

Worcester Steel was cited for failure to weld the deck panels to the angle iron support members and for failure to use welding washers⁴ as required by the job specifications. There

⁴ "Weld washer" is a small perforated metal plate used to assure satisfactory quality of the weldment (Tr. 382, 384, Exh. R-2).

is considerable conflict in the testimony regarding the welding of the deck panels to the supporting structural members.⁵ Both the compliance officer and Kelley, SGH's project manager, testified as to what they observed after the collapse of the deck. They stated in substance that the welds in certain areas were deficient in both quantity and quality (Tr. 391-92, 422-52, 878-82, Exh. J-3). Their testimony was substantially corroborated by the Secretary's expert, Chastain, who observed the remains of the collapsed decking in November, 1990 (Tr. 923-27).

Stukowski testified that, because of minor distortions in the metal decking, the panel ends often did not rest flatly across the surface of the beams, thereby preventing proper welding and producing "blow-outs" or holes in the panels, and because of this, he took extra precautions in the atrium area by welding every 6 inches instead of the 12 inches required by the specifications (Tr. 48, 99). The 6-inch spacing of the welds was observed by Worcester Steel's expert, Brennan, when he viewed the collapsed decking panels (Tr. 1268).

It is undisputed that the project specifications called for the use of weld washers, and that they were not used anywhere on the project prior to the deck failure (Tr. 40-42, 133-34, 1177, Exh. C-1 at 05230-3). George Esteves, Worcester Steel's field

⁵ The specifications called for 5/8-inch puddle welds at a maximum spacing of 12 inches (Tr. 902, Exh. R-8).

superintendent, testified that he requested and received permission by telephone to dispense with the use of washers (Tr. 1141, 1153, 1175). Although this was flatly contradicted by two witnesses presented by the Secretary, Joseph Sheehan, the project manager for the general contractor, and Paul Kelley, SGH's senior project manager, there is substantial evidence to indicate that no responsible party engaged in the building project placed much stock in using weld washers despite the specification requirement. Worcester Steel aptly points out: "How would it be possible for all of the steel decking to have been placed with no washers throughout the building without a single person raising any objection...", particularly "the Briggs representative whose function it was to inspect the job as it progressed." Worcester Steel's brief at 27.

Project manager Sheehan, was somewhat doubtful as to the need for washers even after the collapse of the deck, as evidenced by his December 20, 1988, written memorandum to the structural engineer:

The Epicore Deck drawings call for a 5/8" puddle weld w/weld washers. Epicore Deck states they put that note on their drawing because it's in the project specifications. Epicore Deck says that they don't require the weld washers because ASI [American Steel Institute] does not require weld washers w/ 22 or 18 gauge metal deck. Please confirm and instruct FH&S [general contractor] on how to proceed.

(Exh. R-8). Both the Steel Deck Institute Design Manual (Exh. C-8, §4.1) and the Structural Welding Code Sheet Steel (Exh. C-9, §2.2.2.2) recommend using weld washers only on sheet

steel thinner than the Epicore 22-gauge panels used in the instant case. Kelley testified that washers remained a part of the job specifications after the deck failure because the welds failed to pass a Briggs inspection for quality and the general contractor declined to take the responsibility for assuring the quality of the welds without using washers (Tr. 881).

Worcester Steel has steadfastly maintained throughout this proceeding that the collapse of the atrium deck was caused by the overloading of the deck with concrete; that the presence or absence of weld washers or screws, the reverse lapping procedure and the number and quality of welds had no role in the failure; and that, had the initial 4 3/4-inch layer of concrete been allowed to cure, the collapse would not have occurred. Worcester Steel's brief at 31.

Worcester Steel's position receives strong support from the testimony of its expert witness, John Brennan, whose calculations show that the allowable load⁶ for the 4 3/4-inch layer of concrete was 72.8 pounds (per square foot), including rebars and construction load.⁷ The yield load--the point at which one could predict the deck would begin to fail--was 121.4 pounds. The difference between these two figures is the margin of safety (Tr. 1243, 1247, 1273; Exh. JP-4). The

⁶ "Allowable load" is that which the deck is designed to carry and that which the engineer would expect to be applied to the deck (Tr. 1241-42; Exh. JP-3).

⁷ "Construction load" is the weight of the workers, plus their equipment (Tr. 1236).

applied load of the initial layer of concrete was 80.3 pounds.⁸ Subsequent loads, including insulation, the second layer of 3 inches of concrete, compensation for deflection and 1 1/2 inches of "extra" concrete,⁹ totalled 61.9 pounds. This amounted to an applied load of 142.2 pounds, or approximately 20 pounds in excess of the yield load (Exhs. JP-1, JP-3, JP-4). Brennan testified that welds, screws and lapping were not factors which affected "the ability [of the deck] to carry the expected load," and that, in his opinion, the "requirements for the [OSHA] standard have been met and proven by the deck actually carrying the allowable load with the requisite factor of safety" (Tr. 1249).

Brennan's calculations were not effectively refuted by the Secretary. Nor has the Secretary taken serious issue with Worcester Steel's claim that the concrete placement plans called for two layers to be poured on separate days. There is substantial evidence to support this claim (Tr. 766-69, 885, 893, 953, 959). Thus, according to the uncontradicted calculations of Worcester Steel's expert witness, the formwork-deck in question did, in fact, support without failure the anticipated load, consistent with the requirements of the

⁸ This sum includes the weight of the deck, rebars, concrete and construction load (Exh. JP-1).

⁹ Uncontradicted testimony establishes that the second layer of concrete exceeded the specifications by about 1 1/2 inches (Tr. 701, 894, 1230).

703(a)(1) standard. Worcester Steel argues, in substance, that the job specifications exceeded the requirements of the standard, and that noncompliance with those specifications should not constitute a violation of the OSH Act. Worcester Steel's brief at 35-36.

Simply on the face of the literal language of the standard, Worcester Steel's argument appears compelling and renders the issue of job specifications for the application of laps, welds and screws irrelevant. However, to accept such a view would reduce the 703 standard in general to many unnecessary words and phrases. The formwork standard comprises a number of subparts covering shoring and reshoring, vertical slip forms, reinforcing steel and removal of formwork. Section 1926.703(a)(2) requires drawings or plans to be available at the jobsite. This duty is directly related to the general requirements of (a)(1). Lest there be any doubt about the importance of formwork specifications, Section 703(b)(1) states that all shoring equipment shall be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings. Section 703(e)(1)(i) and (ii) require the employer, before removing formwork, to determine the support strength of the concrete, either by following the relevant plans and specifications or by appropriate testing. "The notion that because the words of a statute are plain, its meaning is also plain, is merely pernicious oversimplification. . . A statute, like other living organisms, derives significance and sustenance

from its environment, from which it cannot be severed without being mutilated." United States v. Monia, 317 U.S. 424, dissenting opinion at 431-32, 63 S.Ct. 400, 412, 87 L. Ed. 376. And so does a section or subsection in a regulation.

It is apparent from the comments made by OSHA on the occasion of the announcement of the final rule that the employer who engages in the erection of formwork must do so with the knowledge and skills necessary to ensure compliance with the standard:

OSHA observes that. . . the ANSI A10.9-1983 standard contains a number of specific provisions designed to guide employers on how to meet this general performance requirement. In particular, formwork safety factors are prescribed for various types of shoring systems. In fact, OSHA has indicated in the final rule that formwork which has been designed, fabricated, erected, supported, braced and maintained in conformance with the ANSI requirements in sections 6 and 7 for Formwork and Shoring shall be deemed to meet the requirements of this paragraph. However, the ANSI standard does not provide all the information necessary to meet completely the requirements of §1926.703(a)(1): i.e., the ANSI standard does not specify every detail of formwork design, fabrication, erection, support, bracing, and maintenance. Therefore, the employer is still responsible for the design, fabrication, erection, support, bracing and maintenance of formwork to ensure that it meets the requirements of §1926.703 (a) (1). OSHA believes the ANSI standard will be of particular assistance in guiding smaller employers who may not engage the services of formwork designers or engineers.

*

*

*

Furthermore, OSHA notes that [under] the Occupational Safety and Health Act, the primary responsibility for employee safety rests solely with the employer as it is the employer who has control over the worksite and the authority to take corrective action when necessary. In the case of formwork design, employers may determine that the only way they can achieve compliance with this particular

requirement is to have a structural engineer design the formwork. In other instances, however, the employer may determine that the formwork can be designed by others who are qualified in formwork design, but who are not structural engineers. OSHA believes there may be situations where the job is so small and so routine that the employer has the knowledge and skills necessary to meet the intent of this requirement without the aid of others.

After careful consideration of all of the comments and testimony received, OSHA has determined that the rule, as revised, provides proper protection for employees while allowing employers flexibility in determining the best way to provide this protection....

53 Fed. Reg. 22,624, 22,266 (1988).

The purpose of the OSH Act is "to assure so far as possible every working man and woman in the Nation safe and healthful working conditions" 29 U.S.C. §651. (Emphases added.) Since the employer's duty is to protect his workers from preventable hazards, the employer's actions must be based upon some knowledge of the existing facts. Brennan v. OSHRC (Raymond Hendrix), 511 F.2d 1139 (9th Cir. 1975). In this context, no one is likely to dispute the proposition that a hazard is a danger which is apparent, or should be apparent, to the employer, and his conduct is to be judged in the light of the conditions apparent to him at the time.

No one contends, nor does the evidence suggest, that Worcester Steel was constructing the floor decking pursuant to its own specifications, or that the job was "so routine" that Worcester Steel had the knowledge and skills necessary to erect the decking without the benefit of the specifications. It should be obvious that job specifications are a vital part of

the general conditions of a contract for construction, and that no contractor or subcontractor may be permitted to deviate from the specifications without approval of the appropriate party under the terms of the contract, otherwise, the results could be catastrophic.

While, the Secretary's expert witness, Chastain, conceded that the deck could support the 4 3/4 inches of concrete with reverse lapping and no welds, washers and screw fasteners, it was conditioned on the assumption that there was no damage done to any panel, and that there was proper bearing (Tr. 1013). Chastain also testified, in substance, that failure to follow the specifications undermines the integrity of the floor deck and introduces some uncertainty to the process of analyzing the load capacity of the deck (Tr. 930). Chastain's points are well taken.

It would frustrate the OSH Act's basic purpose of achieving safety in the workplace to permit an employer to challenge the Secretary's enforcement of the 703(a)(1) standard by showing at a hearing, through the testimony of an expert witness, that the floor deck was capable of supporting the anticipated load without regard to the specifications. Such a path would inevitably lead to the realm of happenstance, and away from the goal of preventing accidents.

Section 3 of the Act, 29 U.S.C. §652, defines "occupational safety and health standard" as:

a standard which requires conditions, or the adoption or use of one or more practices, means, methods,

operations, or processes; reasonably necessary or appropriate to provide safe or healthful employment and places of employment.

It seems quite reasonable and appropriate for the Secretary to require that an employer who engages in the erection of formwork or floor decking do so under the restraints of existing specifications, unless the employer has received approval by the appropriate party under the terms of the construction contract to deviate from the specifications.¹⁰

The evidence establishes that, unlike the situation in the main building, the panel laps in the atrium were reversed because the panels fitted too closely on the recessed supporting members to allow for the manufacturer's specified lapping procedure. Worcester Steel's installation foreman did not bother to seek approval from the proper authority under the terms of the construction contract. That unauthorized deviation was a failure to comply not only with its contractual

¹⁰ The construction contract documents specify that the "[d]eck shall be erected and fastened in accordance with the manufacturer's specifications and approved shop drawings" (Exh. C-1 at 05230-3, Part 3.02A.)

The following provision appears under Article 4 of the General Conditions of the Contract for Construction (Exh. C-1 at 9):

4.12.6 The Contractor [or subcontractors] shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data or Samples under Subparagraph 2.2.14 unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation. . . .

obligations but the requirements of the 703 (a) (1) standard as well.

The Secretary has also met her burden of proving that Worcester Steel failed to fasten the deck panels with screws in accordance with the specifications. The testimony of the Secretary's witnesses was credible and not successfully rebutted by the evidence presented by Worcester Steel.

As previously noted, the evidence concerning the welding of the deck panels abounds in conflict. Much of the testimony of the Secretary's witnesses was circumstantial and altogether inconclusive. Many of the observations made by the witnesses either were impeded by the presence of concrete or called into question because of the distortions in the metal decking itself (Tr. 391, 667, 907-09). At one point in his testimony, the Secretary's witness, Paul Kelley, corroborated the testimony of Worcester Steel's foreman, Stukowski, concerning the quantity and quality of the welds. This occurred on cross-examination when Kelley was asked to comment on a photograph of the collapsed panels, and he stated: "On the sheet of deck, one would expect no more than probably two good end welds, and there are indications that there were three welds of some quality on it" (Tr. 902).

It should also be noted that the probative value of the compliance officer's testimony concerning the welds suffered some loss of weight because of his deflection from the cited "5" and "6" lines at "level 2" of the atrium (as described in the

complaint) to the "B" line and "level 1" (Tr. 391, 393, 423, 436-37, 482, 665). When the compliance officer was questioned as to why the citation did not include level 1 in view of his testimony describing the defective welds at that level, his response stretched credulity (Tr. 426-433).

As previously discussed, despite the job specification for weld washers, no one appears to have taken the washers seriously, including those charged with administering inspection and control procedures under the construction contract. While no formal or written approval to deviate from the washer specification was given to Worcester Steel, the evidence supports finding that Worcester Steel was given tacit approval. Moreover, the evidence does not support finding that the washers are within the ambit of an OSHA standard, which, as we have said, requires that it be "reasonably necessary or appropriate" to provide a safe place of employment. Indeed, one of the Secretary's own exhibits, Exhibit C-8 at §4.1, states that "stronger welds are obtained [on 22-gauge panels] without weld washers."

Did the unauthorized deviations from the specifications relating to the lapping procedure and screw fasteners constitute willful violations of the OSH Act? The Commission recently voiced the applicable rule as follows:

A willful violation is one committed with intentional, knowing or voluntary disregard for the requirements of the Act, or with plain indifference to employee safety. It is differentiated from other types of violations by a "heightened awareness -- of the illegality of the conduct or conditions -- and by a

state of mind -- conscious disregard or plain indifference." However, a violation is not willful if the employer had a good faith belief that it was not in violation. The test of good faith for these purposes is an objective one -- whether the employer's belief concerning a factual matter, or concerning the interpretation of a rule, was reasonable under the circumstances.

General Motors Corp., Electro-motive Division, 14 BNA OSHC 2064, 2068, 1991 CCH OSHD ¶29,240 (No. 82-630 et al., 1991) (citations omitted); see also Brock v. Morello Bros. Construction, Inc., 809 F.2d 161 (1st Cir. 1987)

It is important to bear in mind that the primary objective of project specifications is to describe the quality of the materials, workmanship, and the scope of the work to be performed in constructing a building (Exh. C-1). There is nothing in the record to suggest that, during the course of construction, the workers regarded the specifications primarily as a means of preventing injury to any of the workers. Because of the "tight fit" of the panels on the recessed supporting members, Worcester Steel's foreman had some reason to believe that the panels would be stable enough to support the anticipated load of concrete without risk of failure despite the reverse lapping and the lack of screw fasteners. The Secretary's case, then, lacks the important factor of "heightened awareness" that would qualify this case as a willful violation of the Act.

Inasmuch as the formwork standard is obviously intended to prevent serious injury or death¹¹, violation of the standard is serious per se.¹² Phelps Dodge Corp. v. OSHRC, 725 F.2d 1237, 1240 (9th Cir. 1984). A penalty of \$1,000 is assessed for each of the two items found to be in violation of the Act.¹³

SERIOUS VIOLATION OF THE HEAD PROTECTION STANDARD,
29 C.F.R. §1926.100(a)

Worcester Steel is charged with serious violation of §1926.100(a) which reads:

Employees working in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns, shall be protected by protective helmets.

¹¹ Where, as here, an employer is in control of an area, and responsible for its maintenance, the Secretary need only show that a hazard has been committed and that the area of the hazard was accessible to either the employees of the cited employer or those of other employers engaged in a common undertaking, such as a multi-employer construction project. Brennan v. OSHRC (Dic-Underhill), 513 F.2d 1032 (2d. Cir. 1975).

¹² A "serious violation" is defined by section 17(k) of the OSH Act, 29 U.S.C. §666(k):

A serious violation shall be deemed to exist in a place of employment if there is substantial probability that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use, in such place of employment unless the employer did not, and could not with the exercise of reasonable diligence, know of the presence of the violation.

¹³ Section 17(j) of the OSH Act, 29 U.S.C. §666(j), provides:

The Commission shall have authority to assess all civil penalties provided in this section, giving due consideration to the appropriateness of the penalty with respect to the size of the employer being charged, the gravity of the violation, the good faith of the employer, and the history of previous violations.

The compliance officer testified that, in the course of his inspection, he observed Stukowski on four occasions and another Worcester Steel employee named Kolofsky, on one occasion, exiting the main entrance of the building without head protection. Both men were seen walking in areas where vehicles were being loaded and unloaded and other employees worked overhead (Tr. 334, 510-11, 866-67).

Stukowski explained that on one of the occasions he was seen by the compliance officer without a hard hat he was on a coffee break and believed work had ceased. Stukowski testified in part as follows (Tr. 63):

I was sitting down, having my coffee, walked out of the building to the bathroom, which is maybe 40, 50, 60 feet away, went to the bathroom and left my hard hat where my coffee was.

Q Were there -- when you walked out of the building, were there people working in the building?

A I don't believe so. Everybody was on coffee break. I was having my coffee. The whole job was having coffee.

Q Was anybody unloading materials?

A I don't believe so.

Q Do you remember or are you just assuming that that was the case?

A I pretty much remember. Everybody was on coffee break. Nobody was working.

When questioned as to whether he had a conversation with the compliance officer concerning hard hats, during the course of the latter's inspection, Stukowski stated (Tr. 92-93):

A I don't -- I don't recall, to be truthful. You know, we might have talked about it or something. But

there were probably times -- I mean, he grabbed me once or twice or something. I don't remember exactly. You know, I would take the hat off if I had to weld. I'd take the hard hat off and put the welding shield on. And for some welding or something. So maybe I was spotted like that, I don't know, without a hard hat on.

While the compliance officer's testimony was positive as to the occasions he observed Worcester Steel's employees without hard hats, and was quite specific as to the overhead hazards that existed at the time, Stukowski was uncertain as to his recollection of the facts and his testimony on the whole regarding this item was less than assuring.

Worcester Steel argues that this is a case of an isolated incident which should be resolved in its favor. Worcester Steel's brief at 45. An employer may establish the defense of isolated employee misconduct if it can show that the violation resulted from employee actions which contravened an employer's work rule which was effectively communicated and uniformly enforced. H. B. Zachry Co. v. OSHRC, 7 BNA OSHC 2202, aff'd 638 F.2d 812 (5th Cir. 1981); Brock v. L. E. Meyers Co., High Voltage Div., 818 F.2d 1270 (6th Cir. 1987) cert. denied, 484 U. S. 989, 108 S.Ct. 479, 98 L. Ed. 2d 509 (1987). While employers are not strictly liable for employee conduct, it is the employer who must comply with the Act by communicating and enforcing feasible work rules. Towne Construction Co. v. Occ. Safety and Health Rev. Co., 847 F.2d 1187 (6th Cir. 1988).

The record establishes that Worcester Steel relied on Stukowski to enforce safety. He was responsible, along with

field superintendent, George Esteves, to hold brief weekly safety meetings and had the duty to check the site daily to ensure that the deck was secured properly (Tr. 68-71; 1127). Worcester Steel submitted evidence of a written safety program (Exh. R-27) which delineates the use of hard hats, yet it was Stukowski, the individual entrusted with enforcing this work rule, who was observed to have violated the policy most often. Under these circumstances, the isolated misconduct defense has no merit.

The failure to comply with the head protection standard is a serious violation warranting a \$400 penalty as proposed by the Secretary.

SERIOUS VIOLATION OF THE 29 C.F.R. §1926.750(b)(1)(iii)
STANDARD FOR SAFEGUARDING FLOOR PERIPHERY

The standard provides:

§1926.750 Floor requirements

(b) Temporary flooring--skeleton steel construction in tiered buildings.

(1)(iii) Floor periphery--safety railing. A safety railing of 1/2-inch wire rope or equal shall be installed approximately 42 inches high, around the periphery of all temporary-planked or temporary metal-decked floors of tier buildings and other multifloored structures during structural steel assembly.

It is undisputed that perimeter guarding was not in place around the second level of the atrium, and the evidence supports the Secretary's contention that a safety railing would have afforded fall protection to Worcester Steel's employees while they installed the lower rebar mat. Secretary's brief at 5-6.

Worcester Steel claims that the general contractor, who had the contractual responsibility to install a safety railing, could not place a railing along the perimeter of the atrium at the time in question because "there was no way for the [general contractor's] guarding crew to get out to the A line until the deck had been installed by Worcester Steel." Worcester Steel's brief at 42. This argument fails in the face of the evidence establishing that Worcester Steel's employees spent some time without fall protection working on the atrium's second level, after the deck was in place, as they cut and installed rebars to form the "lower mat" (Tr. 112-14, 1125, 1146). The evidence also supports a finding that the placement of a safety railing would have provided some fall protection for the workers while they welded the deck panels to the supporting members.

The Secretary attempted to broaden the basis of this citation item by presenting the compliance officer's testimony on the feasibility of setting up a safety railing along the atrium's perimeter prior to installation of the deck (Tr. 340-41). The Secretary has pursued this point in her brief, at 4. By its terms, the standard requires the presence of a floor deck as an antecedent condition of a safety rail. This essential detail is expressed in even clearer terms by a similar standard published by the American National Standards Institute, ANSI A10.13-1972, which reads as follows:

6.4 After a working floor is provided, a safety line of 3/8-inch wire rope or equal shall be installed around the periphery of all temporary-planked or metal-decked work floors of tier buildings and other

multi-floored structures. This line shall be placed 36 to 42 inches above the working floor.

The absence of the safety rail exposed Worcester Steel's employees to a 42-foot fall hazard at a time when they were working while standing on the metal deck. The violation was serious and the proposed penalty of \$480 is appropriate.

REPEAT VIOLATION OF THE RECORDS REQUIREMENT
OF 29 C.F.R. §1904.7(a)

Worcester Steel was cited for failing to make available its 1987 log and summary of occupational injuries and illnesses (form OSHA No. 200), in accordance with the following recordkeeping requirement:

29 C.F.R. §1904.7 Access to records.

(a) Each employer shall provide, upon request, records provided for in §§1904.2 [OSHA form 200], 1904.4, and 1904.5, for inspection and copying by any representative of the Secretary of Labor for the purpose of carrying out the provisions of the act. . . .

Worcester Steel admits committing the violation, but takes issue with the characterization of the citation as repeated.¹⁴

The Secretary classified the present violation as repeated on the basis of a prior citation issued on January 9, 1986, for a substantially similar condition. That citation became a final order in February 1986 (Tr. 485; Exh. C-13). The present citation was issued on March 13, 1989, more than three years after the previous citation became final--a time lapse, Worcester Steel argues, that runs counter to OSHA's own policy

¹⁴ Worcester Steel makes the same argument with respect to all three items contained in repeat citation number 3.

for issuing repeat citations, as set out in its Field Operation Manual (FOM), which states that while "there are no statutory limitations upon the length of time that a citation may serve as a basis for a repeated violation", as a matter of "policy," "to ensure uniformity":

(1) A citation will be issued as a repeated violation if:

(a) The citation is issued within 3 years of the final order of the previous citation, or,

(b) The violation is issued within 3 years of the final abatement date of that citation, whichever is later.

FOM, Ch. IV. B.5.d..

In FMC Corp., 5 BNA OSHC 1707, 1977-78 CCH OSHD ¶22,060 (No. 13155, 1977), the Review Commission discussed the legal significance of the FOM:

The manual contains only guidelines for the execution of enforcement operations. . . . Moreover, the guidelines provided by the manual are plainly for internal application to promote efficiency and not to create an administrative straightjacket. They do not have the force and effect of law, nor do they accord important procedural or substantive rights to individuals.

5 OSHC at 1710. Only "a single prior infraction need be proven to invoke the repeated violation sanction authorized by the Act." George Hyman Const. Co. v OSHRC, 582 F.2d 834, 839 (4th Cir. 1978). The length of time between two similar violations is relevant only to the "good faith" criterion for assessing a penalty, as it reflects upon the degree of an employer's continuing efforts to protect employees against

hazards. Potlatch Corp., 7 BNA OSHC 1061, 1064, 1979 CCH OSHD ¶23, 294 (No. 16183, 1979).

The Secretary proposes that a penalty of \$160 be assessed for the recordkeeping violation. This is a rather modest sum in view of the fact that the log of injuries and illnesses is one of the cornerstones of OSHA's regulations. It is necessary for enforcement of the Act, for developing information regarding the causes and prevention of occupational accidents and illnesses, and for maintaining a program of collection, compilation, and analyses of occupational safety and health statistics. 29 C.F.R. §1904.1. There is no valid reason to reduce the \$160 penalty proposed by the Secretary.

It merits observation that the issue presented by this citation item does not rate much esteem. In Williams Construction Co., 6 BNA OSHC 1093, 1095, 1977-78 CCH OSHD ¶22,325 (No. 11526, 1977), the Review Commission held that, where a penalty assessed for a repeat violation is equal to or less than the \$1,000 penalty authorized for serious or nonserious violations, "the question of whether the violation should be classified as repeated need not be addressed by the Commission."

REPEAT VIOLATIONS OF ACCIDENT PREVENTION RESPONSIBILITIES
UNDER 29 C.F.R. §1926.20(b)(2) AND OF
EDUCATION RESPONSIBILITIES UNDER 29 C.F.R. §1926.21(b)(2)

The Secretary charges Worcester Steel with failure to make frequent and regular inspections of the work area to identify

and correct unsafe working conditions, such as lack of perimeter guarding and improper placement and installation of deck panels (item 2 of citation 3 and complaint).¹⁵ Pertinent parts of the general safety and health provisions of §1926.20 read as follows:

(b) Accident prevention responsibilities. (1) It shall be the responsibility of the employer to initiate and maintain such programs as may be necessary to comply with this part.

(2) Such programs shall provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons designated by the employers.

Worcester Steel is also accused of failing to instruct its employees as to: the need for perimeter guarding; what constitutes proper placement of the deck; when personal protective equipment is required; and "what deck welding and securing procedures are to be used to include [sic] welding machine set up and rod requirements" (Item 3 of citation 3 and complaint).¹⁶ The standard at §1926.21(b)(2) reads:

The employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury.

¹⁵ The citation and the complaint also referred to "lack of shoring for unsupported lengths of deck and failure to follow upper rebar installation requirements for floor slab." The Secretary did not offer any significant evidence regarding these conditions.

¹⁶ The citation and the complaint also referred to failure to instruct as to "when unshored lengths of metal deck with freshly poured concrete is safe to work on." As previously noted, the Secretary did not offer any significant proof on this point.

Thus, with our view still focused on the conditions that formed the basis for the citations directed to formwork, head protection, and perimeter guarding, the Secretary adds two other accusations: that Worcester Steel was deficient in both its oversight and instructional responsibilities. These additional charges include one matter not previously discussed, namely welding tools.

The Secretary contends that Worcester Steel failed to meet the requirements of the 20(b)(2) standard in two respects: frequent and regular inspections of the work in progress were not done, and the person assigned those responsibilities, Robert Stukowski, was not "competent" within the meaning of the standard.¹⁷ In support of this argument, the Secretary points to the previously discussed cited conditions and the compliance officer's testimony as to Stukowski's lack of knowledge about welding equipment. Secretary's brief at 17-18.

Stukowski, a journeyman ironworker-welder since 1973, was employed by Worcester Steel at the project in question for about two or three months prior to the deck failure. As a "union ironworker", he received his job assignments from the local union. For a period of three years, he was a teacher in the ironworker-welder apprentice program. Both Stukowski and his co-worker at the jobsite were certified welders (Tr. 22-26, 73).

¹⁷ "Competent person" is defined by 29 C.F.R. §1926.32(f), as "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them."

The Secretary makes much of the fact that, when the compliance officer questioned Stukowski about the welding equipment following the deck failure, the latter was unable to say what the "welding machine parameters" were, and he was unable to give a clear answer as to the "polarity" being used on the welding machine (Tr. 498). Given his many years of work experience and training as an ironworker and welder, Stukowski's inability to give ready and correct answers to the compliance officer's questions does not disqualify the former as a "competent" person as that term is defined by §1926.32(f).

While there is evidence to support the Secretary's claim that Stukowski did not inspect the formwork to assure that screws were used to connect the panels as required by the specifications, we must also bear in mind that one of the parties involved in the building project, Briggs Associates, was hired by the owner expressly for the purpose of performing testing and inspecting services to assure compliance with the job specifications. There is also evidence showing that Worcester Steel's field superintendent, George Esteves, visited the site approximately two to three hours each day (Tr. 1125, 1172). Under these circumstances, Worcester Steel had substantial reason to assume that its employees, including the foreman, would perform their work in a proper manner. The Secretary has produced no probative evidence that would support the conclusion that Worcester Steel was not justified in relying

on Stukowski to conduct frequent and regular inspections pursuant to §1926.20(b)(2).¹⁸

Finally, the Secretary contends, in substance, that the various substandard conditions demonstrate that Worcester Steel's employees lacked the necessary skills and knowledge to protect themselves from the hazards of construction. The Secretary claims that "almost no safety training" was provided, and that whatever instructions were given "dealt with the construction activity rather than safety." Secretary's brief at 21.

Worcester Steel's written safety program is evidenced only by a brief union agreement (Exh. R-27) which specifies the use of personal protective equipment, including hard hats, and several other safety provisions, notably "planking floors", to provide safe working areas in steel erection. Both Stukowski and Alexander Esteves, Worcester Steel's president, testified to their practice of holding weekly safety meetings, lasting some 15 to 20 minutes, which covered such topics as wearing hard hats and safety goggles, properly fastening safety cables, and the use of fire extinguishers (Tr. 68-71, 1198).

While Worcester Steel's safety program leaves a lot to be desired, a course of instruction would not resolve the problems raised in this case. I fail to see how the employees would have benefited in any significant way by providing further

¹⁸ The compliance officer's testimony that Stukowski admitted inspecting the job only when the weather changed was effectively rebutted by Stukowski (Tr. 23-27, 497, 1089).

instructions in the recognition and avoidance of the dangers of sustaining head injuries from overhead hazards or of falling from a height of 42 feet. There is insufficient evidence to conclude that Worcester Steel's employees were not aware of the hazards of their job, or were not adequately instructed in the recognition and avoidance of unsafe conditions and the regulations applicable thereto.

The findings of fact, having been sufficiently set forth herein, Fed. R. Civ. P. 52(a), will not be repeated.

CONCLUSIONS OF LAW

1. The charge that Worcester Steel willfully violated the OSH Act by failing to comply with the formwork standard at 29 C.F.R. §1926.703(a)(1) is not warranted.
2. Worcester Steel seriously violated the formwork standard, §1926.703(a)(1), in two instances, and a total penalty of \$2,000 is appropriate.
3. Worcester Steel seriously violated the head protection standard at §1926.100(a) and the safety railing standard at §1926.750(b)(1)(iii), and penalties of \$400 and \$480, respectively, are appropriate.
4. Worcester Steel was in repeat violation of the regulation at 29 C.F.R. §1904.7 and a penalty of \$160 is appropriate.
5. The charges of violating the standards at §§1926.20(b)(2) and 21(b)(2) are not warranted.

ORDER

It is ordered that the citations are affirmed to the extent indicated; items 2 and 3 of citation number 3 are vacated, and penalties totalling \$3,040 are assessed.


RICHARD DeBENEDETTO
Judge, OSHRC

Dated: _____
Boston, Massachusetts



UNITED STATES OF AMERICA
OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION
JOHN W. McCORMACK POST OFFICE AND COURTHOUSE
ROOM 420
BOSTON, MASSACHUSETTS 02109-4501

PHONE:
COM (617) 223-9746
FTS 223-9746

FAX:
COM (617) 223-4004
FTS 223-4004

NOTICE OF DECISION

IN REFERENCE TO:

Secretary of Labor v. WORCESTER STEEL ERECTORS, INC.
OSHRC Docket No. 89-1206

1. Enclosed is a copy of my decision. It will be submitted to the Commission's Executive Secretary on September 11, 1991. The decision will become the final order of the Commission at the expiration of thirty (30) days from the date of docketing by the Executive Secretary, unless within that time a Member of the Commission directs that it be reviewed. All parties will be notified by the Executive Secretary of the date of docketing.

2. Any party adversely affected or aggrieved by the decision may file a petition for discretionary review by the Review Commission. A petition may be filed with this Judge within twenty (20) days from the date of this notice. Thereafter, any petition must be filed with the Review Commission's Executive Secretary within twenty (20) days from the date of the Executive Secretary's notice of docketing. See Paragraph No. 1. The Executive Secretary's address is as follows:

Executive Secretary
Occupational Safety and Health Review Commission
1825 K Street, N.W., Room 401
Washington, D.C. 20006

3. The full text of the rule governing the filing of a petition for discretionary review is 29 C.F.R. § 2200.91. (Part of Rule 91 is attached hereto).



RICHARD DeBENEDETTO
Judge, OSHRC

Dated: August 21, 1991
Boston, Massachusetts

§ 2200.91 Discretionary review; Petitions for discretionary review; Statements in opposition to petitions.

(a) Review discretionary. Review by the Commission is not a right. A Commissioner may, as a matter of discretion, direct review on his own motion or on the petition of a party.

(b) Petitions for discretionary review. A party adversely affected or aggrieved by the decision of the Judge may seek review by the Commission by filing a petition for discretionary review. Discretionary review by the Commission may be sought by filing with the Judge a petition for discretionary review within the twenty-day period provided by § 2200.90(b). Review by the Commission may also be sought by filing directly with the Executive Secretary a petition for discretionary review. A petition filed directly with the Executive Secretary shall be filed within 20 days after the date of docketing of the Judge's report. The earlier a petition is filed, the more consideration it can be given. A petition for discretionary review may be conditional, and may state that review is sought only if a Commissioner were to direct review on the petition of an opposing party.

* * * * *

(d) Contents of the petition. No particular form is required for a petition for discretionary review. A petition should state why review should be directed, including: whether the Judge's decision raises an important question of law, policy or discretion; whether review by the Commission will resolve a question about which the Commission's Judges have rendered differing opinions; whether the Judge's decision is contrary to law or Commission precedent; whether a finding of material fact is not supported by a preponderance of the evidence; whether a prejudicial error of procedure or an abuse of discretion was committed. A petition should concisely state the portions of the decision for which review is sought and should refer to the citations and citation items (for example, citation 3, item 4a) for which review is sought. A petition shall not incorporate by reference a brief or legal memorandum. Brevity and the inclusion of precise references to the record and legal authorities will facilitate prompt review of the petition.

(e) When filing effective. A petition for discretionary review is filed when received. If a petition has been filed with the Judge, another petition need not be filed with the Commission.

(f) Failure to file. The failure of a party adversely affected or aggrieved by the Judge's decision to file a petition for discretionary review may foreclose court review of the objections to the Judge's decision. See Keystone Roofing Co. v. Dunlop, 539 F.2d 960 (3d Cir. 1976). (See other side).

(g) Statements in opposition to petition. Statements in opposition to petitions for discretionary review may be filed in the manner specified in this section for the filing of petitions for discretionary review. Statements in opposition shall concisely state why the Judge's decision should not be reviewed with respect to each portion of the petition to which it is addressed.

(h) Number of copies. An original and three copies of a petition or a statement in opposition to a petition shall be filed.

WORCESTER STEEL ERECTORS, INC.

DOCKET NO. 89-1206

EMPLOYER

William J. LeDoux, Esq.
Christopher and LeDoux
370 Main Street
Worcester, MA 01608

I hereby certify that a copy of the decision in this case has been served by First Class Priority Mail upon the parties whose names and addresses appear on this notice

SOLICITOR

Albert H. Ross, Esq.
Regional Solicitor
U. S. Dept. of Labor
One Congress Street, 11th Floor
Boston, MA 02114
Attn: Merle Hyman, Esq.

Boston, Joyce M. Reynolds
August 21, 1991 (Date)

Daniel J. Mick, Esq.
Counsel for Regional Litigation
Office of the Solicitor - U. S. Dept. of Labor
200 Constitution Avenue, N.W., Room S. 4014
Washington, D.C. 20210