

**Meeting of Experts to Develop a Revised Code
of Practice on Safety and Health in the Iron and
Steel Industry**Geneva
1-9 February 2005

Final report

Introduction

1. At its 287th Session (June 2003) the Governing Body decided to convene a Meeting of Experts to Develop a Revised Code of Practice on Safety and Health in the Iron and Steel Industry. The Meeting was held in Geneva from 1 to 9 February 2005.
2. The agenda of the Meeting was to review a draft and adopt a revised code of practice on safety and health in the iron and steel industry and recommend to the Office a programme of follow-up action.

Participants

3. Twenty-three experts attended the Meeting, seven of them appointed by the Governments of Australia, Brazil, China, Germany, India, South Africa and the United States, eight after consultation with the Employers' group and eight after consultation with the Workers' group of the Governing Body.
4. Several observers also attended the Meeting, representing the International Confederation of Free Trade Unions, the International Iron and Steel Institute, the International Metalworkers' Federation and the International Organisation of Employers and the World Confederation of Labour.
5. A list of participants is annexed to this report.

Opening address

6. The Secretary-General of the Meeting opened the Meeting on behalf of the Director-General of the ILO and the Executive Director of the Social Dialogue Sector. Social dialogue was both a strategic objective and a means to promote rights at work, employment and social protection. The many changes in the industry had led to the decision to update the existing code of practice on iron and steel adopted over 20 years ago. A code of practice, which was not a Convention and therefore not legally binding, was meant to serve as a practical guide for achieving decent, safe and healthy work through industry-wide application, even in small-scale foundries and workshops. After an

interval of massive structural changes and job losses in many regions, the industry was again booming, with steel production exceeding 1 billion tonnes for the first time in 2004. A widely-promoted and supported code of practice would be instrumental in ensuring that steel, an infinitely recyclable product, was produced, used and recycled in a safe, healthy and responsible way. The Secretary-General then introduced the draft code of practice on safety and health in the iron and steel industry.

General discussion

7. The Chairperson of the Meeting referred to his extensive experience in the industry, signalling to the experts that it was important to compromise in order to guarantee a finished product.
8. The spokesperson for the Employer experts found the document complete, but raised concerns about coverage of the iron and steel production process. He favoured a shorter text focusing on items of core concern to the iron and steel industry.
9. The spokesperson for the Worker experts, commending the high level of expertise on the three benches, said that the Meeting should concentrate on a code which would meet three objectives: address all the major issues; be flexible enough to withstand the test of time; and be clear and comprehensible to everyone in the industry. Experts needed to go beyond their own national laws and regulations and emulate best practices.

Glossary

10. *Active monitoring*: The suggestion of the Employer experts to incorporate the concepts of “hazard identification” and “risk assessment” in addition to “appropriate preventive and protective measures” was accepted.
11. *Competent person*: The proposal of the Employer experts to delete all the words after “specific work” was accepted. The Government expert from South Africa observed, however, that it should be left to the competent authority to define the competent person. The Government expert from Australia preferred to keep the Office text which would ensure that the competent persons were warned of hazardous conditions.
12. *Continual improvement*: The experts agreed to delete this entry.
13. *Contractor*: A proposal of the Employer experts to insert a reference to “national laws and regulations” was accepted. The Worker experts noted that most of the contents of this code could be qualified in a similar way: “in accordance with national laws and regulations” was understood even when it was not so explicit. The Government expert from Australia proposed that the notion of “principal contractor” be introduced in the definition. The Meeting approved.
14. *Dangerous occurrence*: A proposal made by the Employer experts to delete this definition was opposed by the Worker experts and some Government experts as well. The proposal was withdrawn.
15. *Facility*: The experts agreed to the proposal of the Employer experts to delete this entry which was seen as restrictive.
16. *Hazard assessment*: The Office text was deleted.

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17. *Labour supply agent*: The experts did not agree to a proposal by the Employer experts to delete this definition. A number of experts considered that in a number of countries a supplier of workers was not a contractor as meant in this code.
 18. *Occupational accident*: The Employer experts proposed the deletion of the reference to “acts of non-consensual violence”. While a number of experts supported the removal of the reference to “non-consensual”, they were in favour of retaining the reference to “violence”. In their view, the code must be complete and cover all issues even if “violence” was relevant to all industrial sectors, not only iron and steel. The Government expert of the United States pointed out that random acts of violence were beyond the control of the employer but its high incidence should be addressed. The experts therefore agreed to keep the reference to “acts of violence” but to delete the expression “non-consensual”.
 19. *Occupational disease*: The Employer experts proposed an alternative definition as follows: “a disease contracted as a result of an exposure to risk factors or arising from the work activity”. This proposal was opposed by several Government experts. The Worker experts were also opposed and suggested that occupational diseases were constantly evolving and could not be restricted to the ILO’s list of occupational diseases. The Employer experts’ proposal was not accepted.
 20. *Occupational health surveillance*: Following a proposal by the Employer experts this definition was deleted. It was also agreed that any mention of this expression in the text would be revised accordingly.
 21. *OSH*: A proposal of the Employer experts to delete this term in the glossary was not accepted.
 22. *Reactive monitoring*: The Employer experts’ proposal was accepted.
 23. *Risk assessment*: The Office text was deleted.
 24. *Safety and Health Committee*: The Employers suggested that this definition could be modified to match the one contained in the ILO *Guidelines on occupational safety and health management systems*. The Worker experts could accept either of the two versions which they found to be equivalent. The definition from the reference was used.
 25. *Supervisor*: The Meeting modified the Office text.
 26. *Workplace*: The Worker experts proposed the addition of a sentence to ensure that the “workplace” included mobile workplaces such as a transport vehicle. Although the Employer experts held the view that the existing definition included that aspect, they did not oppose the proposal which was therefore accepted.
 27. New definitions on asphyxiant, engulfment, hazard identification, risk assessment and control, social security and welfare, based on proposals from the Worker experts, the Employer experts and the Office respectively, were adopted.

1. General provisions

1.1. Objectives

28. Following a statement by the Employer experts that one of the paragraphs 1.1.1(a) or (c) was redundant, the Worker experts suggested to amend paragraph 1.1.1(a) so that it

incorporated the element of prevention found in paragraph 1.1.1(c). This was agreed upon by the Meeting, which consequently decided to delete paragraph 1.1.1(c). It was also decided to substitute the term “controlling work-related injuries” with “reducing work-related injuries” in paragraph 1.1.1(a). The Employer spokesperson’s suggestion to rephrase paragraph 1.1.1(b) by replacing “in or about the workplace” with “at the workplace” was supported by all experts. Following a debate on paragraph 1.1.1(d), the Meeting took into account concerns by the Worker and Employer experts and agreed with a Government expert’s suggestion to replace “the fullest consultation” with “effective consultation”.

29. The Employer experts’ suggestion to rephrase paragraph 1.1.2(a) by deleting the reference to welfare, since they deemed the term was unclear, was not supported by the Meeting, which reached a common understanding on the term’s meaning and agreed to retain “welfare”, subject to the insertion of a restricted definition of welfare in the glossary that would clarify that this term referred to the facilities specified in Chapter 20. The Meeting also supported the Employer experts’ proposal to replace the term “persons employed” by “workers”, although a Government expert had preferred the term originally contained in MEISI/2005, since “persons employed” was the correct technical term used in employment law.
30. The Employer spokesperson’s proposal to replace “further bodies” with “others” in paragraph 1.1.2(b) was supported by all experts.

1.2. Application

31. In order to better reflect the non-mandatory nature of the code, the Meeting supported the Employer experts’ suggestion to replace “apply” with “provide guidance” in paragraph 1.2.1. It was also decided to amend paragraph 1.2.1(a) in accordance with the decisions reached regarding the terms “welfare” and “persons employed” in paragraph 1.1.2(a).
32. Following a proposal by the Employer experts to also include reference to downstream processes, the Meeting agreed to expand the original wording of paragraph 1.2.1(c) to “all operations in the iron and steel industry”.
33. The Meeting agreed that a new paragraph dealing with the effect of OSH measures on the general environment should be inserted. On the suggestion of the Chairperson, it was placed after 1.2.1.
34. The Meeting agreed that the new text for 1.3 prepared by the Office should be added with minor additions.

2.1. Iron- and steel-making

35. A redraft proposed by the Worker experts was agreed upon by the Meeting, which strived to provide a short, but accurate description of the industry by capturing the variety of technical processes used in the industry.

2.2. Occupational hazards

36. The Meeting agreed to the text prepared by the Office with minor modifications to point out that the hazards are discussed in subsequent chapters.

3. General responsibilities, duties and rights, and legal framework

37. After a long discussion on Chapter 3 of the Office text, the Employer experts proposed to incorporate Chapter 3 of the non-ferrous metals code of practice in its entirety to replace text on competent authorities, employers' responsibilities, workers' duties and rights and cooperation. Agreed text on labour inspectorates, suppliers and contractors would be added. The Meeting therefore used Chapter 3 of the code of practice on safety and health in the non-ferrous metals industries as the basis for discussion.
38. The Worker experts suggested that the words "international and national" be inserted into section 3.3.1, which the Meeting agreed to. The Worker experts also proposed that the text "... as prescribed, approved or recognized by the competent authority" be deleted from the text. The Employer experts did not agree on the basis that employers should not be required to adopt provisions that were not prescribed by the competent authority. The Worker experts said that as it stood, instruments such as this code would never be taken into account unless they were incorporated into law. This was rarely the case but it did not detract from the value of the code.

3.3. Duties of labour inspectorates

39. After some discussion on the appropriate placement of the phrase, the Meeting decided to insert "in a manner prescribed by national laws and regulations" in heading 3.3.1.
40. Paragraph 3.3.1(b) was revised to be more general in scope. References to the choice and use of safe working methods and appropriate PPE were eliminated.
41. In paragraph 3.3.1(c), it was agreed to refer to "safety and health requirements", rather than simply "safety requirements". As a general rule, the phrase "safety and health" would be used throughout the text unless, in a particular instance, reference was made to only one of these.
42. As in paragraph 3.3.1, the heading of 3.3.2 was revised to include "in a manner prescribed by national laws and regulations:".
43. In paragraph 3.3.2(a), the words "special problems" were replaced by "safety and health issues".
44. In paragraph 3.3.2(b), the words "concerned personnel" were replaced by "employers and workers" and the reference to workers' representatives was shifted forward.
45. A new paragraph 3.3.2(c), proposed by the Worker experts, was adopted by the Meeting, to ensure the labour inspector's authority to remove workers from imminent and serious danger. The subsequent paragraph was renumbered.
46. A reference to the authority of labour inspectors was included in paragraph 3.3.3 as well.
47. After considerable discussion and in order to avoid a deadlock, the Meeting accepted a proposal by the Office to insert an additional sentence at the end of paragraph 1.2.2 to read: "In the absence of national laws and regulations on a particular OSH issue, guidance should be drawn from the provisions of this code of practice, as well as other relevant national and international instruments." It was felt that this text would make it clear that relevant international instruments, such as this code, should provide guidance in the event of there being no national laws and regulations. In this way, none of those to whom the

code applied would be obliged to go beyond the provisions in national laws and regulations. On this basis the Meeting agreed to leave all of the text for Chapter 3 of the non-ferrous metal code as it was.

48. The Worker experts' agreement to accept the Employer experts' proposal not to alter the text drawn from the non-ferrous metals code was made with great reluctance. They expressed their "disgust" that there would be no language in the code to the effect that employers should comply with international instruments, where applicable. The Worker experts added that it had been a difficult decision, made on the basis that workers would be better protected by having a code, even without this reference, than by having no code at all.
49. Sections 3.7 and 3.8 of the Office text on suppliers, manufacturers and designers, and contractors were adopted without change.

4. Occupational safety and health management

50. At the request of the Meeting the Office proposed a new Chapter 4, to replace existing Chapters 4, 5 and 6. In section 4.1 of the new Office text, the Meeting agreed to the Worker experts' suggestion to add the text: "The relevant instruments may be updated from time to time. The current versions are listed and summarized in the annexes, but users of the code should refer to the updated versions for guidance." The Office agreed to mention in the Introduction that when revised versions of the relevant instruments became available, the annexes of electronic versions of the code would be updated accordingly. The text, as amended, was adopted.

PART II. SAFE IRON- AND STEEL-MAKING OPERATIONS

7. Industry-specific prevention and protection

7.1. Hazards and health

51. The Meeting added "engulfment" to the list of common causes, recognizing it was a hazard distinct from "falling objects" and "working in confined spaces". The term would be included in the glossary. Additional text was added to point (vi) to alert to the dangers resulting from forklifts and cranes. It was also agreed that (xvii) should refer to electric shocks.

7.2. Physical hazards

7.2.1. Noise

52. In the first sentence, it was agreed to delete "for pitch and level". To take into account audible warning systems, "speech" was taken out of the second sentence; "occupational deafness" was replaced with the more common term "noise-induced hearing loss". New text was appended that referred more comprehensively to the effects of high noise levels.

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53. The Meeting amended paragraph 7.2.1.2.1 to refer to “other recognized standards”, considering that applicable standards were not always international. In section (b) “speech” was deleted, in keeping with the changes made in 7.2.1.1.1.
 54. The title of paragraph 7.2.1.3.2 was changed by adding “Workers’ health surveillance”. Additionally, a new paragraph was inserted on regular audiometric testing for workers that may be exposed to high noise levels. Accordingly, paragraph 7.2.1.3.2.2 was amended to ensure that workers would be informed of the results of these tests.
 55. Hearing protections and audiometric testing were added to the list in paragraph 7.2.1.3.3.6.

7.2.2. Vibration

56. It was agreed to change the term “competent standards” to read “recognized standards” in (d) of paragraph 7.2.2.2.2 and to include text on resonance frequencies in paragraph 7.2.2.2.3.

7.2.3. Ambient temperatures

57. The Meeting agreed to change the heading of this section to “Heat and cold stress”, in order to clarify that the section did not only address temperature levels, but also issues such as radiant heat. Moreover, it was a specific term commonly used in the industry.
58. The experts agreed to add “with the proper electrolytes, where appropriate” to the end of paragraph 7.2.3.3.2.9.

New section to follow 7.2.4. Ionizing radiation

59. The Meeting agreed to insert a new section on non-ionizing radiation contained in the code of practice on safety and health in the non-ferrous metals industries.

7.2.5. Ergonomic problems

60. The Meeting agreed to amend the title to read “Ergonomics” to make it consistent with the other titles in the chapter.
61. In accordance with an earlier decision, paragraph 7.2.5.1.1 was amended to refer to “iron- and steel-making facilities”.
62. The title “7.2.5.3.1. Training and information” was deleted. All paragraphs were re-arranged in an order that reflected their hierarchy. Additionally, “working” was added before “environment” in paragraph 7.2.5.3.1.5 and the text of paragraph 7.2.5.3.1.6 was amended to include a general statement on the goal of ergonomics. Paragraphs 7.2.5.3.1.2 and 7.2.5.3.1.3 were deleted since they covered issues also addressed in section 7.3.

7.3. Chemical hazards

7.3.1. Chemicals in the workplace

63. The Meeting agreed to delete “aerosol” in paragraph 7.3.1.1.1.

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64. In order not to reinforce the common misconception that exposure to chemicals was a problem most common to laboratory environments, it was decided to move reference to laboratory work towards the end of the first sentence of paragraph 7.3.1.2.1. It was also decided that reference to the Globally Harmonized System for the Classification and Labeling of Chemicals be included in paragraph 7.3.1.2.4.
65. A new point (e), similar to paragraph 17.8.2, was added to paragraph 7.3.1.3.2.1 to reflect its importance for the prevention of chemical hazards. Additionally, a new point (f) on facilities where food was consumed was included.

7.3.2. Inhalable agents (gases, vapours, dusts and fumes)

66. In paragraph 7.3.2.1.2, the words “by displacing oxygen” were added to clarify the properties of asphyxiants.

7.3.3. Asbestos

67. The Meeting amended paragraph 7.3.3.2.3 to refer only to “known” asbestos-containing materials. Accordingly, the concept of “test before touch” was inserted.
68. In order to prevent unnecessary exposure of workers to asbestos, “walk-through” was deleted in point (a) of paragraph 7.3.3.3.3. Following a discussion on the differences between on-site fibre identification and comprehensive workplace exposure monitoring, it was agreed that text on laboratories, which was recognized by the competent authority, would be inserted in point (c). Finally, it was agreed that a new point (e) be inserted on periodic medical examination of workers.
69. In paragraph 7.3.3.3.6.1, the experts agreed to include an explicit reference to the most important workplace actions susceptible to lead to asbestos exposure. Following a long discussion on the total ban of asbestos-containing materials, the Worker experts withdrew their original suggestion to indicate that no asbestos should be used and agreed instead to only include a reference to such bans. They stated that workers’ organizations would continue to pursue a global ban on all asbestos products.

7.3.4. Insulation wools

70. A proposal by the Employer experts to insert “may” before “pose” in paragraph 7.3.4.2.1 was agreed.
71. A proposal by the Government expert from India to insert, between paragraphs 7.3.4.4.1 and 7.3.4.4.2, a sentence stipulating that “periodic medical examination of the workers exposed to insulation wool should be conducted” was agreed since it was considered worthwhile to be explicit whenever necessary.
72. The Government expert from the United States suggested the insertion, after 7.3.4.4.7, of the following text: “Employers should provide information and training to their employees on the hazard and health risk of insulation wools, and safe handling operations”. The Meeting agreed.
73. The Worker spokesperson remarked that since the ILO code of practice referred to in 7.3.4.4.5 explicitly excluded RCFs, it should be noted that those substances were carcinogenic. A sentence to this effect was added at the end of paragraph 7.3.4.2.2.

Moreover, “wherever reasonably practicable, respirable RCFs should be substituted by safer material” was inserted in 7.3.4.4.2.

74. The Employer spokesperson, while in favour of the wording of the first suggestion, wondered whether it would be possible to draft the text in such a way that persons seeking information on RCFs be directed to a proper source.

75. The Worker spokesperson agreed to revisit that issue at a later stage.

7.4. Safety hazards

7.4.1. Confined space

76. Following a proposal by the Worker spokesperson, it was agreed to insert in paragraph 7.4.1.1.1, after “confined space”, the following: “in particular, the build-up of toxic or flammable gases, oxygen displacement, and engulfment”, and the word “prompt” before “rescue” in paragraph 7.4.1.3.3.8, in the phrase “provision for rescue”.

77. After some discussion as to whether (a) and (b) under 7.4.1.1 should be switched, it was agreed to have the competent authority mentioned later in the sentence.

78. The Meeting agreed that in 7.4.1.2(d) the word “electrical” should be inserted before the word “oxygen depletion” and the words “or enrichment” added after it.

79. In 7.4.1.3.2(a) a reference to appropriate rescue devices was added. In (b) “make inert” was deleted.

80. Changes suggested and agreed to in 7.4.1.3.3.6-9 made the text more specific regarding certification of equipment, tracking presence in confined spaces and on who should be trained in rescue procedures.

81. In order to clarify that respirators were also PPE, “other” was inserted before “personal protective equipment” in paragraph 7.4.1.3.4.1.

7.4.2. Control of hazardous energy

82. In paragraph 7.4.2.1, a sentence was added suggesting that the source of energy itself be isolated rather than the control mechanism. Also, reference to the need to de-energize equipment was added. In the same paragraph, the sentence on the provision of PPE was deleted, since a new point (j) on appropriate tools and PPE was added to paragraph 7.4.2.2. It was also agreed that three additional steps be included as points (f), (g) and (i). In paragraph 7.4.2.5, “interlock” was inserted after “such as” and a new sentence was added to ensure that electric installations were installed or maintained only by certified personnel.

7.4.3. Work equipment and machinery guarding

83. A new paragraph 7.4.3.1.2 was inserted dealing with industrial robots.

84. Paragraph 7.4.3.2.2 was amended by replacing “be advised” by “ensure” and by substituting “possible” with “necessary” in point (a). In paragraph 7.4.3.2.3, the concept of periodical evaluations was added to point (e) and a new point (f) was created on the role of supervisors.

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85. To stress the importance of training, it was decided that points (b) and (c) of paragraph 7.4.3.3.1 should be slightly amended and joined together. The experts also agreed to add “authorized to” to the beginning of (e) in 7.4.3.3.1.1.

7.4.4. Cranes and hoists

86. In paragraph 7.4.4.5 a reference to record-keeping was introduced. Paragraph 7.4.4.6 was broadened to include installations and modifications. In paragraphs 7.4.4.6 and 7.4.4.17, references to certification by competent persons were expanded to also include authorized organizations. Taking into account high noise levels, the experts amended paragraph 7.4.4.11 to refer to “audible and visual communication devices”. A sentence was added to paragraph 7.4.4.12 to indicate that equipment used under high heat conditions needed to be designed for this type of use. Following a discussion on the need to ensure ergonomic seating for crane operators, appropriate language was included in paragraph 7.4.4.15. A new paragraph 7.4.4.18 was introduced concerning operators checking their cranes at the beginning of each shift. The next paragraph was amended to reflect that molten metal routes were most often not level and to introduce a reference to the hazards of water in connection with molten metal. Also, a sentence was added on transport routes for wheeled or tracked cranes.

7.4.5. Falling objects

87. The Meeting made minor changes to 7.4.5.1(d) to include warning signs, to insert a new subparagraph (e) concerning access to areas where there is a risk of falling objects and to add “emergency” in 7.4.5.2.

7.4.6. Slips and falls

88. The term “trips” was added to the section’s title. Paragraph 7.4.6.1 was amended to suggest that all floors should be robustly constructed, but only needed to be fireproof in furnace areas.

8. Furnaces and ovens

89. The Meeting discussed the additional text provided by the Worker experts entitled “Coke ovens and byproduct plants” to be inserted as the new Chapter 8 of the text. After a brief discussion, minor changes were made to paragraphs 8.1.2, 8.2.4, 8.2.9, 8.2.12 and 8.2.15 to make the text clearer. Paragraphs 8.2.17 and 8.4.11 were deleted to make the text more concise.

New chapter on iron and steel-making

90. The Meeting then turned to a proposal submitted by the Employer experts to reorganize and slightly amend text taken from Chapters 8, 9 and 10 of the Office text into two new chapters “Iron and steel-making” and “Foundries”, new Chapters 9 and 10 respectively. The discussion proceeded on the basis of the Employers’ handout, with the renumbering of paragraphs to be handled by the Office.

8.2. Preventing fires and explosions

91. Paragraph 8.2.1 was revised to include reference to leaks from the furnace cooling system and leaks in the building.
92. In paragraph 8.2.5 the words “surrounding area” replaced “plant or premises”.
93. It was agreed to add a new paragraph 8.2.8 to ensure that furnaces would not be operated in an unsafe state, i.e. when they were in need of relining.

8.3. Lighting furnaces

94. For safety reasons, the Meeting agreed to add in 8.3.4 after “fuel supply” the words “on the possible escape of fuel and on continuing ignition”.

8.4. Dusts and fibres

95. In paragraph 8.4.1, a reference to the ILO code of practice on safety in the use of synthetic vitreous fibre insulation wools was deleted.

9.2. Preventing carbon monoxide poisoning

96. At the end of paragraph 9.2.1, two gases containing large concentrations of carbon monoxide were cited as examples.
97. A new paragraph concerning hazard identification and risk analysis was inserted following paragraph 9.2.1.
98. Paragraph 9.2.2 was revised to ensure that all workers potentially at risk of carbon monoxide poisoning should be trained to recognize the symptoms.
99. After some discussion regarding the circumstances in which portable carbon monoxide monitors and self-contained breathing apparatus should be provided for workers in gas hazard areas, new text was adopted to replace paragraph 9.2.4, which had referred simply to the monitoring of exposure levels.
100. Paragraph 9.2.5 was revised to focus on the readiness of breathing and resuscitation equipment for the emergency rescue team.
101. A new paragraph 9.2.6 on rescue drills was added.
102. In the section on handling molten metal, dross and slag, paragraphs 10.1.1, 10.1.3 and 10.1.4 were deleted.
103. In Paragraph 10.2, reference to specific types of injury at different stages of the process was revised to ensure assessment of the likelihood of injury in general at all stages of the process.
104. Minor editorial corrections were made in paragraphs 10.4.1.2 and 10.4.3.2.
105. In paragraph 10.4.3.5 the term “compliance” was replaced with the words “that the corrective measures have been completed”.

New chapter on foundries

- 106.** Turning to the proposed new Chapter 10 on foundries, the Meeting revised the title to read “Iron and steel foundries” and accepted the Employers’ proposal for a new general introductory paragraph 9.1 on specific hazards.
- 107.** The same changes to paragraphs 10.4.3.2 and 10.4.3.5 introduced in new Chapter 9 were adopted in new Chapter 10.
- 108.** A minor editorial correction was made in paragraph 9.7.1.
- 109.** Section 9.8 was renamed “Abrasive blasting” and a new paragraph was inserted to eliminate the use of sand and other toxic materials in blasting.
- 110.** The experts recalled an earlier decision to shift the references to foundry processes previously found in Chapter 11 to the new chapter on foundries and asked the Office to ensure proper placement. Shakeout and fettling were particularly mentioned.

11. Process and waste gases

- 111.** The Meeting decided to eliminate Chapter 11, by deleting the introductory text under 11.1, shifting subsections 11.1(a), (b), (c), (d), (e), (f), (g), (h), (i) and (k) with minor modifications to appropriate places elsewhere in the code, and moving section 11.2 to section 7.3.2 on inhalable agents.

12. Rolling mills

12.1 Hazard description

- 112.** To extend the coverage to all rolling mills and to take into account the risk of being trapped between rolls, even when mills were not running, the Meeting amended paragraph 12.1.2. It was also decided that “other injuries”, which referred to serious injuries such as those resulting from lashing cables should be included in paragraph 12.1.7. Two additional paragraphs were added: on cobbles, and on cuts resulting from contact with the edges of thin sheets or strip.

12.2. Control strategies

- 113.** Paragraph 12.2.1 was broadened to include a reference to risk assessment and to include all kinds of work, not just cleaning. Also, a cross-reference to section 7.4.3 “Work equipment and machinery guarding” was added. In paragraph 12.2.5, the words “with appropriate guard rails” were added after “bridges”. In line with earlier decisions, “trips” was added to paragraph 12.2.6. Additionally, two new paragraphs were added: paragraph 12.2.8 on bacterial contamination of lubricants and coolants; and paragraph 12.2.9 on the ergonomic design of operating pulpits. Finally, relevant paragraphs from Chapter 11 were moved to section 12.1.

13. Coating lines

- 114. The experts agreed that this section needed to be partly redrafted to cover forms of coating other than plastic.
- 115. The Meeting considered a number of revisions to Chapter 13 proposed by the Employer experts. New introductory text, which explained the function and features of coating lines, was inserted at the start of paragraph 13.1.1. Examples of toxic metal fumes were provided at the end of that paragraph at the suggestion of the Worker experts.
- 116. New paragraphs 13.1.2 and 13.1.3 were adopted.
- 117. The word “occlusive” was deleted from paragraph 13.2.1 and a typographical error was corrected in 13.2.2.
- 118. The section on control strategies was considerably reworked. In paragraph 13.3.1, other examples of protective devices were listed along with “signs” as means to protect personnel from various dangers, among which “molten metal” was added.
- 119. In paragraph 13.3.2, “both ... and” replaced “either ... or”.
- 120. Two new paragraphs were inserted before paragraph 13.3.3, in which the words “chemical products” were replaced by “hazardous chemicals”.
- 121. Paragraph 13.3.4 was deleted and a new paragraph 13.3.7 was added.
- 122. In paragraph 13.4.1, the words “the ongoing” were replaced by “safe” and in paragraph 13.4.2, the word “proper” was replaced by “safe” as well.
- 123. At the suggestion of the Worker experts, paragraphs 13.4.3 and 13.4.4 were shifted to the section on control strategies. In paragraph 13.4.4, the beginning of the sentence was revised to refer specifically to metal coating processes that generate hazardous contaminants and the words “vapours or other” were deleted before the word “contaminants”. In the final sentence, the words “when required” were deleted.

14. Internal transport

14.1. Hazard description

- 124. Paragraph 14.1.1 was amended to include rail-type vehicles.

14.2. Control strategies

- 125. In paragraph 14.2.1.4, the wording “external workers” was replaced by “contractors and other visitors”.

14.2.2. *Prevention and control*

- 126. Following discussion, the Meeting agreed to amend the first part of paragraph 14.2.2.3 to also cover tracks and work areas, where vehicles moved. The reference to “polluted atmospheres” in paragraph 14.2.2.8 was deleted. Given the dangers of water in conjunction with molten metal, mention of water-filled tyres was removed from paragraph 14.2.2.11.

For reasons of clarity “hooks” was changed to “devices” in paragraph 14.2.2.12. To achieve consistency with agreed changes to section 7.4.4 regarding checks of cranes prior to use and the need to keep respective records, a similar paragraph was added. Additionally, two new paragraphs were included under this section: one on the need for a clear field of view or appropriate communication; another on rail stops and blocking devices to protect workers on tracks.

15. Recycling iron and steel

127. For reasons of clarity, the experts deleted “obsolete/” and replaced “sources” with “materials” in paragraph 15.1. The Meeting agreed to amend paragraph 15.2 to recommend that bales should be “appropriately inspected and broken open, if necessary”. Besides adding “cans” to “aerosol”, “airbag inflators” were included in the list of potential hazards. Language to clarify the need to store scrap in a secure manner and thus prevent accidents resulting from falling material was introduced to 15.3. Paragraph 15.9 was amended by deleting “manual handling of” and by replacing “vapours” with “materials”. Paragraph 15.11 was removed, since it was adequately covered elsewhere. Two paragraphs were added regarding the information of workers of the hazards inherent to metal scraps and the education of new entrants to the scrap metal market.

16. Competence and training

128. The Meeting agreed to include education in the title.

129. The Meeting agreed to delete “in the absence thereof” and to replace “workers’ representatives” by “workers and their representatives” in paragraph 16.1.1. In (a) of paragraph 16.1.3 “members of the establishment” was substituted with “workers at the facility”.

130. Subject to the Office changing the sequence of subsections (a)-(f) under 16.1.4, and responding to a request by the Worker experts to clarify the meaning of “line managers” in 16.2.2, the Meeting agreed to the changes suggested in this section. This decision followed a proposal by the Worker spokesperson that, with regard to paragraph 16.1.4(d), it was necessary to accommodate two different issues – hazard control and rights and responsibilities – which meant reordering those subsections. Other amendments introduced by the Government expert from Australia on behalf of the Government group were accepted by the Worker and Employer experts, either as proposed or with minor modifications from the Worker or the Employer experts.

131. Under paragraph 16.1.4, the Government expert from Australia suggested adding a new item (n): “Workers should be informed in the handling of metal scrap.” The Employer spokesperson argued that section 15 already covered that requirement. However, the experts agreed with the Government expert from the United States that section 15 only dealt with what information should be provided in the recycling of metals, while section 16 concerned training in safe handling of metal scrap.

132. In paragraph 16.2.1, the Meeting agreed to replace “organization’s” by “facility’s” and to add “including contractor’s activities” to the end of the sentence. A reference to supervisors was added to the first sentence of paragraph 16.2.2; “will” changed to “should”. Also, paragraphs 16.2.2 and 16.2.3 were joined into a single paragraph.

133. Some points of paragraph 16.3.1 were changed as follows: in (a), “sufficiently” was replaced by “appropriately”; (b) was amended to read “... their work and in their working

environment...”; (d) was amended to indicate workers should also be informed of the employer’s safety and health responsibilities; in (e), “sufficiently” was substituted with “appropriately”.

134. In reply to a question from the Employer spokesperson, the Government expert from Australia observed that “ergonomic posture” was determined by each worker, each tool, and each situation, that there the term “correct posture” had no meaning, and paragraph 16.3.2 was amended.
135. In paragraph 16.3.3, the text was amended to read “... hazardous chemicals used to ...”.
136. Paragraph 16.3.5 was deleted.
137. In paragraph 16.4.1 the word “safety” was replaced by “OSH”.
138. In paragraph 16.4.2, following the Employers’ observation that, while only contractors had been captured in the Office text, the facility owner had a critical role, the text was reworded as “Best practices in OSH should be applied to contractors at the facility.”
139. To paragraph 16.4.3 reference to “adequate safety and health management systems” was added.
140. A few minor modifications were followed by a debate on whether to amend or delete paragraph 16.4.5, concluded by agreeing to a deletion subject to retaining the useful concepts of “competence” and “coordination” elsewhere in the chapter.
141. It was agreed to reword paragraph 16.4.6 and that it would be preferable to move it to section 3.8.

17. Personal protective equipment and protective clothing

142. The Meeting agreed to delete the term “protective clothing” from the section’s title.

17.1. General provisions

143. Paragraph 17.1.1 was reworded to stress that PPE was only a supplementary means to protect workers. The term “risk” was replaced by “hazard” and wording introduced to ensure that workers’ representatives and concerned workers were consulted. Paragraph 17.1.2 was shortened to recommend that items of PPE comply with relevant national standards and criteria approved or recognized by the competent authority. A new sentence to ensure that PPE was provided in sufficient numbers was added to paragraph 17.1.4. It was also changed to reflect that PPE needed to be tailored to the specific facility’s needs. Paragraphs 17.1.4 and 17.2.7 were consolidated. Paragraph 17.1.7 was redrafted to include a reference to ergonomic design and to ensure that PPE did not create any hazards. In paragraph 17.1.9, “are” was changed to “may”. Paragraph 17.1.11 was deleted because this issue was already addressed in section 7.3. To paragraph 17.1.13, reference to workers’ training and the need to ensure that they were in the position to maintain their equipment was added. Additionally, paragraphs 17.1.5, 17.1.6, 17.1.10, 17.1.12 and 17.1.13 were slightly amended to make the wording clearer and more consistent. A new paragraph recommending that PPE should not contain hazardous substances was added.

17.2. Head protection

144. To simplify the section, paragraphs 17.2.2 and 17.2.4 were deleted. In paragraph 17.2.5, “thermoplastic” was replaced with “non-conducting”. Paragraph 17.2.6 was shortened; 17.2.7 was altered to read: “The helmet should be as light as possible; the harness should be flexible and should not irritate or injure the worker; and a sweat band should be incorporated.” Finally, paragraphs 17.2.8 and 17.2.9 were merged.

17.3. Face and eye protection

145. The Meeting decided to add a new paragraph on recommended materials for eye correctors. The last sentence of paragraph 17.3.4 was reworded to take into account that protection was needed for all those exposed to hazards.

17.4. Hand and foot protection

146. The title was broadened to “Upper and lower limb protection”. Paragraph 17.4.6 was condensed to “Slip-resistant properties should be taken into consideration when choosing footwear.” Paragraph 17.4.2 was amended to refer to physical, chemical and other hazards. Paragraph 17.4.3 was reworded to indicate that accidents “may occur” and reference to leg protection was introduced.

17.5 Respiratory protective equipment

147. As a result of the agreements reached in section 18, the Meeting deleted the first sentence in paragraph 17.5.2 on emergency respiratory protection and shifted the second sentence to the preceding paragraph. In paragraph 17.5.8, “of some sort” was deleted. Since some of the points for inspection were specific to technical properties of different designs, “should” was substituted with “may” in the *chapeau* of paragraph 17.5.6. Its point (b) was amended to reflect that both inlet and outlet coverings needed to be checked. Since it was deemed redundant, paragraph 17.5.9 was deleted. A new paragraph was added on criteria limiting respirators. Also a new paragraph was introduced to take into account that certain medical conditions prohibited the use of respirators.

17.6. Hearing protection

148. At the Employers’ suggestion, it was agreed to insert an introductory paragraph to the effect that hearing protectors should be available when effective engineering controls were not feasible or not implemented. References to specific decibel levels were deleted throughout the section.

149. In paragraph 17.6.1, the experts agreed to refer to “elevated” long-term exposure and to delete a sentence referring to the acceptance in some countries of higher exposure levels.

150. A proposal of the Worker experts to delete two sentences in paragraph 17.6.2 relating to the impact of short periods of removal of hearing protection was accepted.

151. Paragraph 17.6.3 was deleted.

152. The reference to “comfort” as a critical issue was deleted from paragraph 17.6.4.

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- 153. In paragraph 17.6.5, the experts agreed to insert a sentence to stress that noisy areas should be indicated by appropriate signs.
 - 154. A new paragraph 17.6.7 was added to reiterate the need for periodic evaluation of hearing protection through the audiometric testing of exposed workers.

17.7. Protection from falls

- 155. A proposal of the Employer experts to insert a new paragraph on the provision of fall prevention equipment and training to workers was accepted after minor amendments.
- 156. Paragraph 17.7.3 was replaced with a provision on the wearing of safety harnesses and the need for lifelines with appropriate attachment points.
- 157. At the Worker experts' suggestion, a new paragraph 17.7.4 was added on the need to ensure that the choice of harness would not render unsafe the use of other PPE that might be worn simultaneously.
- 158. At the Worker experts' suggestion, a new paragraph 17.7.5 was adopted to stress the need for appropriate and timely rescue to be provided in order to avoid suspension trauma.

17.8. Clothing

- 159. The title of the section was changed to "Work clothing".
- 160. The Employer experts suggested the addition of a new lead paragraph to stress that workers should wear the appropriate protective clothing as required after risk assessment. The Worker experts pointed out that such clothing should be provided by the employer and on that basis the new paragraph was adopted.
- 161. A proposal by the Worker experts to delete a bracketed reference in paragraph 17.8.2 to "if disposable or single use" was accepted.
- 162. Two references to "equipment" were deleted from paragraph 17.8.3 on the basis that the section dealt with work clothing.
- 163. The Worker experts suggested that paragraph 17.8.4 refer not only to "asbestos dust" but also to other substances which pose a risk to those outside the containment area. A new sentence was added on the safe disposal of contaminated clothing.
- 164. In paragraph 17.8.5, the phrase "before each use" replaced "on a frequent basis".

18. Contingency and emergency preparedness

18.1. General

- 165. At the suggestion of the Worker experts, a lengthy reference to "first aid" in paragraph 18.1.1 was replaced by "plans for emergency response".

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- 166.** A proposal of the Employer experts to delete the first sentence in paragraph 18.1.2, which referred to international instruments and national laws and regulations, was accepted by the Worker experts on the condition that an outstanding difference between the social partners on the issue of compliance with international instruments in section 3.1 would be resolved satisfactorily. The experts also adopted two new points for inclusion in the emergency response plan, notably the roles and responsibilities of workers assigned to respond, and provisions for first aid. In point (e), “other” duties were included.
- 167.** A new sentence was added to the end of paragraph 18.1.3 to ensure that periodic emergency drills should be performed.
- 168.** The Meeting adopted a proposal by the Worker experts to amend paragraph 18.1.4 to include the protection of both workers and the public as an objective in the design of emergency arrangements.

18.2. First aid

- 169.** The Meeting amended the title to read “First aid and medical care”.
- 170.** In paragraph 18.2.1, the Meeting agreed to replace the words “organizing first aid” with “implementing effective first aid programmes”. With regard to those involved in the implementation of such programmes, there was consensus that: (i) workers and their representatives should be added; (ii) the reference to plant managers seemed redundant, since they belonged to the employers; (iii) non-governmental organizations could be removed, if the words “public health services” were replaced with “public health organizations”, so that such organizations as the Red Cross might be included.
- 171.** The Meeting replaced the words “in every enterprise” in the first sentence in 18.2.2 with “at every facility” and decided that this change should be made throughout the text. In the second sentence, the words “clearly marked” replaced “easily accessible”.
- 172.** The Meeting reworded paragraph 18.2.4 to make clear the need for coordination between the workplace and the medical facility providing continuing care in the design of a first aid programme.
- 173.** A reference to the location of rescue equipment was removed from paragraph 18.2.5, since section 18.3 covered rescue.
- 174.** A list of items for inclusion in first-aid boxes was eliminated from 18.2.6 in favour of more general wording regarding the appropriateness of the contents to the risks of the injured workers and the protection of the first-aid providers.
- 175.** A new provision was added after 18.2.7 on cooperation with external emergency services where medical care is required.

18.3. Rescue

- 176.** The Meeting agreed to change the title to “Escape and rescue” and consequently to add “escape and” before “rescue” in paragraph 18.3.1.
- 177.** It was decided to insert a new paragraph after paragraph 18.3.3 on the need to supply all persons in the facility with equipment necessary for escape, such as emergency escape respirators.

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- 178.** For consistency, the Meeting added the words “and should be provided” at the end of paragraph 18.3.4.
- 179.** It was agreed that the term “respirators” in 18.3.5(d) would be replaced with “self-contained breathing apparatus” and the reference to SCBAs deleted from clause (e). A new point referring to any other protective equipment normally required for workers in the area was added.
- 180.** In paragraph 18.3.6, the Meeting agreed to add wording to the effect that simple means should be accessible for immobilizing injured or sick persons. The reference to transporting the person to the first-aid facility was deleted since, depending on the injury, the person might be transported to an external first-aid provider.
- 181.** The Meeting deleted paragraph 18.3.7 as the transport issue was covered in paragraph 18.3.6 and stretchers were inadequate for immobilizing injured persons.

New chapter on Work organization

- 182.** After minor amendments, the Meeting adopted the text proposed by the Worker experts for a new chapter on Work organization to follow the chapter on Emergencies.

19. Special protection

19.1. Employment and social insurance

- 183.** The Meeting agreed to change the title of 19.1 to “Social protection”.
- 184.** The Meeting agreed to the Worker experts’ replacement text for 19.1. However the Employer experts stated that whilst they would accept the text, they did not think that details of an employment contract should be discussed in the code.

19.2. Working hours

- 185.** After much discussion, the Meeting agreed to delete 19.2.1. The Meeting agreed to 19.2.2 with a small addition proposed by the Worker experts. After some discussion, the Meeting agreed to the Worker experts’ suggestion to change the reference of extended workdays to “above 8 hours”, to replace the words “are suitable” in 19.2.3(a) to “permit”, and to delete 19.2.3(c), and 19.2.4 to 19.2.8. After brief discussion, the Meeting agreed to the Worker experts’ proposal to refer to work schedules and workers and their representatives in 19.2.9.

19.3. Alcohol- and drug-related problems

- 186.** After much discussion, the Meeting agreed to the Office text in 19.3 with a reference to the code of practice on the management of alcohol- and drug-related issues at the workplace in 19.3.1 and a minor addition to 19.3.5.

19.4. HIV/AIDS

187. The Meeting agreed to the Office text, with the exception of 19.4.3 which was made more specific. A minor addition was made to 19.4.4.

Smoking at work

188. The Government expert from Australia proposed text for a new section after 19.4 on smoking at work. The Meeting slightly amended, then agreed to this new text.

20. Welfare

189. The Meeting agreed to the Employer experts' suggestion to replace the text of this section with the section on "Personal hygiene" contained in the code of practice on safety and health in the non-ferrous metals industries, with the addition of a sentence to clarify the provision of drinking water.

Introduction

190. The Meeting reviewed and adopted an introductory text prepared by the Office.

New sections

191. Due to the lack of time for discussion, the Meeting agreed that three sections proposed by the Worker experts would be put provisionally in the draft code on the basis that they would be accepted or rejected at the time of adoption of the code. These texts dealt with hand tools, heat treating and surface preparation.

Adoption of the code of practice and of the report

192. After examining the text of the draft revised code of practice on safety and health in the iron and steel industry, the experts adopted the code with minor modifications.

193. After examination of the draft report, the experts adopted it. Thereafter the experts adopted the report and the revised code of practice.

Geneva, 9 February 2005.

(Signed) E. Friend,
Chairperson.

List of participants
Liste des participants
Lista de participantes

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PRESIDENT
PRESIDENTE**

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