



**INTERNATIONAL INSTITUTE OF WELDING**

**A world of joining experience**

## **Commission XVIII**

# **Quality Management in Welding and Allied Processes**

## **AGENDA (Draft)**

**76<sup>th</sup> Annual Assembly, Singapore**

**Wednesday, July 19, 2023**

**14.00 – 18.00 SGT**

**XVIII-316-2023**

**Robert E. SHAW, Jr., PE**  
Chair  
Steel Structures Technology Center, Inc.  
Howell, Michigan USA

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## **Commission XVIII Terms of Reference (Parts 1 and 2)** (regularly updated) See XVIII-285r1-19 for original.

### **1.0 Scope and objectives**

Commission XVIII, formerly SC-QUAL, maintains the goal to identify, create, develop and transfer global best practices in the field of quality management for welding and allied processes.

It focuses on quality management systems and the qualifications for personnel and companies involved in welding and allied processes.

Commission XVIII acts as an interdisciplinary body for the IIW, working with other Commissions to develop industry documents and standards for use by technical experts, quality managers and production personnel.

### **2.0 Key Objectives and deliverables**

At present, Commission XVIII members are:

- Drafting a new standard ISO 4061 "Soldering - Quality requirements for structural soldering of metallic materials" jointly with Commission XVII
- Publishing "IIW Recommendations and Best Practices for Welding Inspection – Tasks and Responsibilities"
- Drafting a new Commission document "Brazing and soldering coordination: Tasks and Responsibilities" jointly with Commission XVII
- Drafting a new Commission document "Recommendations for competences for personnel involved in auditing to verify the compliance in accordance with quality system in field of welding and allied processes"
- Preparing comparative studies of criteria for 1) welding company audits, and 2) structural fabrication audits
- Updating guidelines on the implementation of quality standards, for example, ISO 3834 "Quality requirements for fusion welding of metallic materials."
- ~~Drafting guidance on risks in fabrication industries~~
- Managing ISO 22688 "Brazing - Quality requirements for brazing of metallic materials" jointly with Commission XVII



*As presented Monday afternoon, July 18, 16.30 – 17.30, in the International Conference panel discussion session on IIW Technical Working Units*

**Commission XVIII Quality Management in Welding and Allied Processes**

- maintains the goal to identify, create, develop and transfer global best practices in the field of quality management for welding and allied processes
- focuses on quality management systems and the qualifications for personnel and companies involved in welding and allied processes
- acts as an interdisciplinary body for the IIW, working with other Commissions to develop industry documents and standards for use by technical experts, quality managers and production personnel

At present, Commission XVIII is currently:

- Publishing a new document "IIW Recommendations and Best Practices for Welding Inspection – Tasks and Responsibilities"
- Managing ISO 22688 "Brazing - Quality requirements for brazing of metallic materials" jointly with Commission XVII
- Drafting a new ISO standard on "Soldering - Quality requirements for structural soldering of metallic materials" jointly with Commission XVII

In the future, Commission XVIII plans to:

- Perform comparative studies of criteria for auditing welding companies, followed by criteria for structural fabrication companies
- Update guidelines on the implementation of welding quality standards, for example, ISO 3834 "Quality requirements for fusion welding of metallic materials"
- Write a new Commission document "Brazing and soldering coordination: Tasks and responsibilities" jointly with Commission XVII
- Write a guidance document on risk management for welding and fabrication industries



*As published in Welding in the World, July 2023, 75<sup>th</sup> Anniversary Edition*

### **Commission XVIII, Quality Management for Welding and Allied Processes**

Commission XVIII maintains the goal to identify, create, develop, and transfer global best practices in the field of quality management for welding and allied processes. This includes quality management systems, the qualifications for personnel and companies involved in welding and allied processes, and standards that are needed in these fields. In its work, the Commission acts as an interdisciplinary body within the IIW, working with other Commissions to develop industry quality management documents and standards for use by technical experts, quality managers, and production personnel.

C-XVIII was formed in 2016 from a Select Committee on the subject that was initiated in 2001. This permitted the work of its members to expand to include the development and maintenance of welding and joining related ISO standards that were not addressed in ISO/TC 44 or other Technical Committees. The Commission is currently organized with three sub-commissions: XVIII-A Quality Personnel, XVIII-B Quality Management Systems, and XVIII-C Quality Management Standards.

The Commission has produced numerous documents to guide and assist industry in welding management, including "Improving the Quality and Effectiveness of Welding by Utilizing the Standard ISO 3834 – Guideline for Company Implementation" "Index of Welding Quality Management System Requirements used Globally in Arc Welding Applications", "IIW Recommendations and Best Practices for Welding Inspection – Tasks and Responsibilities", and "Recommendations and Best Practices for Welding Coordination to ISO 14731 - Tasks and Responsibilities". In addition, the Commission worked cooperatively with Commission XVII Brazing, Soldering, and Diffusion Bonding to create new standard ISO 22688 "Brazing - Quality requirements for brazing of metallic materials" and now manages the standard.

**Outlook.** C-XVIII will continue its work to guide, assist, and improve welding and joining quality management as it applies to industry practices and industry personnel. It will also continue working to develop and improve existing qualification standards and guidelines for welding personnel and for companies, with a careful eye for the needs of new joining processes and new developments in existing processes. This work also supports the work being done within the IIW International Authorization Board (IAB) and other organizations.

Commission XVIII will also be performing comparative studies of industry practices, with a goal for developing new and improving existing best practices. This includes the harmonization of audit criteria and practices for welding company audits. Because the Commission is interdisciplinary and includes representation from industry, standards bodies, and certification bodies, from a diverse array of nations and regions, it will be working to address the needs of all constituents in welding and allied processes for quality management and improvement.

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## 1. OPENING OF THE MEETING AND WELCOME (14.00)

### 1a. (14.00) Introduction of Delegates and Experts, apologies

### 1b. (14.15) Antitrust statement

The **IIW Antitrust statement** should be noted. See RD-260.

### 1c. (14.15) Code of Conduct

The principles of the **IIW Board Code of Conduct** should be noted. See RD-202r1.

### 1d. (14.15) Meeting Procedures

**Confidentiality** — Any attendee can ask that the recording of minutes be stopped for confidential discussions. Such discussions shall not be recorded in the minutes, not should the discussion be repeated outside of Commission XVIII. When the confidential discussion is completed, it will be announced, and the recording of minutes will resume.

### 1e. (14.20) List of Delegates

The list below indicates who has voting rights on the administrative matters discussed during this meeting, as well as for the coming year until the Singapore Annual Assembly. If you are listed but will not be present either in-person or virtually, or if your Member Country is not represented, please contact your Responsible Member Society (RMS). The RMS can update their Delegate selection at any time prior to or following this meeting.

|                    |  |                            |
|--------------------|--|----------------------------|
| Karl JUNO          | <a href="mailto:karl.juno@tuv.at">karl.juno@tuv.at</a>                           | Austria                    |
| Bruce CANNON       | <a href="mailto:b.cannon@weldaustalia.com.au">b.cannon@weldaustalia.com.au</a>   | Australia                  |
| Guo XIAO           | <a href="mailto:guoxiaogarden@163.com">guoxiaogarden@163.com</a>                 | People's Republic of China |
| Inderpal JASWAL    | <a href="mailto:inderpal.jaswal@iiwelding.net">inderpal.jaswal@iiwelding.net</a> | Canada                     |
| Juha KAUPPILA      | <a href="mailto:juha.kauppila@iiwelding.net">juha.kauppila@iiwelding.net</a>     | Finland                    |
| Hans-Georg GROSS   | <a href="mailto:hans-g.gross@iiwelding.net">hans-g.gross@iiwelding.net</a>       | Germany                    |
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| Mathias LUNDIN     | <a href="mailto:mathias.lundin@iiwelding.net">mathias.lundin@iiwelding.net</a>   | Sweden                     |
| Philippe LEBEAU    | <a href="mailto:p.lebeau@isgroupe.com">p.lebeau@isgroupe.com</a>                 | France                     |
| Henk BODT          | <a href="mailto:hjmbodt@online.nl">hjmbodt@online.nl</a>                         | The Netherlands            |
| Nadezhda VOLKOVA   | <a href="mailto:n.n.volkova@yandex.ru">n.n.volkova@yandex.ru</a>                 | Russia                     |
| Aimée SCHMELZER    | <a href="mailto:imee.schmelzer@artwelding.ch">imee.schmelzer@artwelding.ch</a>   | Switzerland                |
| Tanil ATICI        | <a href="mailto:tatici@cimtas.com">tatici@cimtas.com</a>                         | Turkey                     |



## **2. ADOPTION OF THE AGENDA AND MINUTES (14.25)**

### **2a. (14.25) Approval of the Agenda XVIII-0316-2023**

### **2b. (14.25) Approval of the Minutes for previous meeting, hybrid, Tokyo Japan, July 21, 2022 XVIII-0315-2022**

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## **3. INFORMATION FROM THE CHAIR (14.30)**

### **3a. (14.30) Progress on publication of Best Practices, Recommendations, Position Statements, etc.**

IIW has contracted with Springer, IIW's publisher for Welding in the World, to now begin publishing SpringerBriefs for IIW. SpringerBriefs will be the principal method of publishing our best practices, recommended practices, guidelines, compendia, studies, position statements, and other material that is helpful and needed by the welding and joining community.

### **3b. (14.35) WG-Technical Commissions (WG-TCOM) and Technical Management Board (TMB)**

The name of the Technical Commission group for C-XVIII was changed from "Human Factors" to "Industry Support." Carl Peters of Commission C-XIV represents Industry Support on the TMB. The focus of the TMB has been revised to focus on strategic matters.

WG-TCOM is focused on Commission operational matters. WG-TCOM membership is the eighteen (18) Commission Chairs and the six voting members of the TMB. WG-TCOM is chaired by Bob SHAW, Chair of this Commission, who also serves as Vice-President on the IIW Board of Directors.

### **3c. (14.40) Commission XVIII Leadership**

The Chair completed his second term as Chair of Commission XVIII at the 75<sup>th</sup> Annual Assembly in Tokyo. This follows three years as Chair of SC-QUAL.

Members of Commission XVIII are welcome to express their interest in service in the leadership of this Commission by serving in the role of 1) Recording Secretary (for the purposes of taking minutes and assisting in administration), 2) Young Professional representative, or 3) in one of the three Sub-commissions (Quality Personnel, Quality management Systems, and Quality management Standards), as a Vice-Chair. Such interest should be expressed to the Chair and/or the Sub-commission Chair.

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#### **4. COMMISSION XVIII TERMS OF REFERENCE (14.45)**

##### **4a. (14.45) IIW Strategic Plan 2023-2028**

1. Improve IIW visibility through communication and marketing
2. **Expand industrial relevance of IIW sharing fundamental and applied research, best practices, and through standardization**
3. Increase the value of IIW to its community and all stakeholders
4. Improve and expand our IAB system to meet the needs of industry and the global welding community
5. Optimize organizational management structure to ensure it meets IIW stakeholders expanding needs

##### **4b. (14.50) IIW target new technologies (hot topics)**

1. Additive Manufacturing
2. Intelligent Manufacturing
3. Artificial Intelligence

##### **4c. (14.50) Questions**

1. What can/should my Commission write as a Best Practice?
2. What industry guidelines can/should my Commission write?
3. What new fields of endeavour will my Commission be entering?
4. What are the target industries for my Commission's scope?
5. What industries could benefit from, or need, my Commission's expertise?

##### **4d. (15.00 – 15.20) Update Terms of Reference**

Use existing Terms of Reference, presentation from Tokyo, Welding in the World article, and above discussions, to refocus Commission XVIII.

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## 5. XVIII-B QUALITY MANAGEMENT SYSTEMS — INDERPAL JASWAL (CAN) (15.20)

- 5a. (15.20 – 15.40) "Improving the Quality and Effectiveness of Welding by Utilizing the Standard ISO 3834 – Guideline for Company Implementation" (see SC-QUAL-218r1-15, 2nd draft (2016), update to SC-QUAL-145R4-10)

|                  |                           |
|------------------|---------------------------|
| NEW LEAD needed. | Hans-Georg GROSS (DE/EST) |
|------------------|---------------------------|

Document was written to ISO 3834-2005, received a review in 2010, and published by DVS Media in 2011. ISBN 978-3-87155-902-2. Link: <https://www.dvs-media.eu/en/books/various/publications-of-the-international-institute-of-welding-iiw/3156/improving-the-quality-and-effectiveness-of-welding-by-utilizing-the-standard-iso-3834-guideline-for-company-implementation>

Within SC-QUAL, it received an editorial and formatting review for 2015. With the recent updates to ISO 3834-series, a technical review was proposed to address changes and updates, as well as an editorial review.

Within ISO/TC 4/SC10, work is being done to revise *ISO/TR 3834-6:2007 Quality requirements for fusion welding of metallic materials — Part 6: Guidelines on implementing ISO 3834* into an ISO standard, currently at stage 40.60 (enquiry stage, close to voting) as ISO/DIS 3834-6. Changes from the /TR include

- Technical Report was changed into an ISO Standard;
- Reference to IIW and IAB has been deleted due to anticompetition rules;
- Clause 11 has been updated to address visual inspection of welds;
- This edition has been aligned with the latest edition of ISO 14731.

Note that the existing 2007 ISO document is 20 pages, the latest SC-QUAL document is 82 pages, compared to the original IIW version published by DVS version which is 52 pages.

- 5b. (15.40 – 15.50) "Comparative studies of methods for welding fabricator audits" (document number not assigned)

Document to compare CWB 47.1, AWS B5.17, AWS QC17, ISO 3834, NZS 3834 PLUS, and others as appropriate.

|                             |                       |
|-----------------------------|-----------------------|
| Inderpal JASWAL (CAN), Lead | Michail KARPENKO (NZ) |
| Doug HAWKES (AUS)           | Philippe LEBEAU (FR)  |
| Bob SHAW (USA)              |                       |

Overview may include:

Canada – CSA W47.1, CSA W47.2, CISC Guideline, and CISC Bridge Guideline

Europe – ISO 3834, EN 15085 railway, EN 1090 structural

Australia – ISO 3834, Australian Steel Institute certification

USA – AWS Certified Welding Fabricator

Direction - to see what is universal, and what may be unique to a particular audit system.



Develop a best or recommended practice for an eventual harmonized list of items to be included in a welding fabricator audit.

**5c. (15.50 – 16.00) "Index of Welding Quality Management System Requirements used Globally in Arc Welding Applications" (SC-QUAL-217r1-15) (XVIII document number not assigned)**

Dropped as an index, and to be rewritten as an overview document. The contents will be similar with technical references in the categories listed, but may blend EU countries, as an example. Additional support is needed from Comm XVIII members to provide information.

|                               |                             |
|-------------------------------|-----------------------------|
| <i>Bob SHAW (USA)</i>         | <i>Ed WHALEN (CAN)</i>      |
| <i>Herman POTGIETER (ZAF)</i> | <i>Mathias LUNDIN (SWE)</i> |
| <i>Paolo CORRONCA (AUS)</i>   | <i>Masaharu SATO (JPN)</i>  |

Product categories include:

- 1) Steel structures for civil engineering applications
- 2) Aluminium structures for civil engineering applications
- 3) Pressure equipment
- 4) Boilers
- 5) Pipelines (gaseous and liquid)
- 6) Railway vehicles
- 7) Wind energy
- 8) Nuclear power plants

Items to be included are:

- 1) Legal requirement (government law)
- 2) Product technical standard
- 3) Requirements (yes/no) for:
  - a. manufacturer certification
  - b. procedure certification
  - c. welder and operator qualification
  - d. welding coordinator
  - e. NDT technician
  - f. welding inspector

Answers to be tabulated by region, and then by country.

The document has been forwarded to Srinii Iyer, who will select a Young Professional (or more) to pursue the task.

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**6. BREAK (16.00 – 16.30)**

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## 7. XVIII-A QUALITY PERSONNEL — EMANUELE GANDOLFO (IT) (16.30)

### 7a. (16.30 – 16.40) "Recommendations and Best Practices for Welding Inspection – Tasks and Responsibilities" (XVIII-292R5-2023)

This document was approved at the 2020 Annual Assembly for publication, and confirmed in 2022. The document has been reviewed. The bibliography has been expanded and updated. The document's text has received editorial improvements. This document will be in the name of the Commission, with Bob SHAW identified as the document's lead.

Note – This document will be further reviewed by a review committee established by WG-TCOM prior to submittal to SpringerBriefs.

### 7b. (16.40 – 16.50) "Recommendations and Best Practices for Welding Coordination to ISO 14731 – Tasks and Responsibilities" Revision 6 – July 2023 (XVIII-282R6-2023)

Henk J. M. BODT, IWE (NE)

The document was presented and discussed in detail during our previous intermediate meeting and our last meeting in Tokyo. Final edits will be presented and discussed.

This document was approved at the 2022 Annual Assembly for publication, pending revision. This document will be in the name of the Commission, with Henk BODT identified as the document's lead.

Note – This document will be further reviewed by a review committee established by WG-TCOM prior to submittal to SpringerBriefs.

### 7c. (16.50 – 17.05) "Recommendations for competences for personnel involved in auditing to verify the compliance in accordance with quality system in field of welding and allied processes" XVIII-297R3-2021 (DRAFT 3 – 2021-03-01)

|                                     |                              |
|-------------------------------------|------------------------------|
| <i>Emanuele GANDOLFO (IT), Lead</i> | <i>Levente BAKOS (HUN)</i>   |
| <i>Edward WHALEN (CAN)</i>          | <i>Herman POTGIETER (ZA)</i> |
| <i>Hans-Georg GROSS (DE/EST)</i>    | <i>Nadezda VOLKOVA (RUS)</i> |
| <i>Paolo CORRONCA (AUS)</i>         | <i>Italo FERNANDES (PT)</i>  |
| <i>Mathias LUNDIN (SWE)</i>         | <i>Emma FRECKINGHAM (UK)</i> |

The scope was extended to include ISO 14554 (resistance welding), ISO 25239 (friction stir welding of aluminium), in addition to ISO 3834 and ISO 22688. An update to the draft will be presented.



**7d. (17.05 – 17.10) "Brazing and structural soldering coordination – Tasks and responsibilities"  
(XVIII-296r2-2020)**

Merging structural soldering into this document, to create a document on brazing and soldering coordination, as they are similar. Commission XVII involvement is needed. Task Group to be formed to continue work on this updated document, proposed as a future ISO standard.

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**8. XVIII-C QUALITY MANAGEMENT STANDARDS — BOB SHAW (USA)  
(17.15)**

**8a. (17.15– 17.20) "Soldering — Quality requirements for structural soldering of metallic materials"  
(XVIII-304-2020 Soldering — Quality requirements for soldering of metallic materials (CONCEPT 2020-07-01) )**

We are currently at the ISO WD (Working Draft) stage (20.20), but officially at stage 30.99.

Market applications for "structural soldering" include refrigeration, piping, heat sinks, dissimilar metals, solar panels to seal the panels and to make connections, sputtering for heat sinks for LED panels, and jewelry.

The project has not progressed sufficiently to submit the draft for a DIS ballot before the limit date (July 15, 2023). It is recommended to cancel the project, and reapply when sufficient help is available to further develop the existing draft.

Proposed motion: Cancel the above standardization project, and inform WG-STAND of the action taken by C-XVIII.

**8b. (17.20 – 17.25) ISO 22688 " Brazing - Quality requirements for brazing of metallic materials"**

Published in April 2020, this standard will come up for periodic review in about a year. No action is needed at this time.

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## 9. OTHER DOCUMENTS (17.20)

- 9a. (17.25 – 17.30) "Welding Inspection and NDE protocols in national and international standards for steel construction"  
(XVIII-298-2020, previously see SC-QUAL-192r6-13)  
(note: XVIII-298-2020 document no longer in Sharepoint)

*Bob SHAW (USA)*

The document is being updated for publication as an IIW Booklet (may be changed to a SpringerBrief), with a substantial update and expansion of discussion. Tables and text are being revised to avoid copyright issues with standards organizations. The requirements from the ISO 17607-series will be added upon completion of FDIS balloting.

Shaw requests individuals from the following countries to assist by reviewing the work related to their county listed below, prior to completion.

|                |  |
|----------------|--|
| European Union |  |
| Australia      |  |
| New Zealand    |  |
| Canada         |  |
| Japan          |  |
| China          |  |
| India          |  |
| Russia         |  |

- 9b. (17.30 – 17.35) "Comparison of ISO 5817 quality criteria to that of national steel construction standards – surface imperfections and imperfections in joint geometry"  
(IIW SC-QUAL-167r3-11, XV-1384r1-11, XIII-2392r1-11) (designated IIW-2583-15)

*Bob SHAW (USA)*

To be published as a Springer book in the IIW Collection.

Currently included standards are:

- AWS D1.1/D1.1M:2020 Structural Welding Code – Steel
- AASHTO/AWS D1.5M/D1.5:2020 Bridge Welding Code
- AS/NZS 1554.1:2014 Structural steel welding - Welding of steel structures
- AS/NZS 1554.4:2014 Structural steel welding - Welding of high strength quenched and tempered steels
- AS/NZS 1554.5:2014 Structural steel welding - Welding of steel structures subject to high levels of fatigue loading
- CSA 59-18 Welded steel construction (metal arc welding)
- JASS 6 (2007) Structural Steelwork Specification for Building Construction (in English),
- Electric Power Research Institute (EPRI) NP-5380 Visual Weld Inspection Criteria

Gaining copyright clearance from the cited standards is required, and a rework of the document for use of specific criteria in the document is underway to avoid copyright issues with the standards bodies.



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**9c. (17.35 – 17.40) "ISO/FDIS 17607:2023-X Steel Structures – Execution of Steelwork"**

Developed by ISO/TC 167 Steel and aluminium structures, WG 3, the following documents are out for ISO FDIS ballot with a due date August 28. The ISO 17607-series of standards: Steel structures — Execution of structural steelwork — consists of six parts:

|                        |   |
|------------------------|---|
| ISO/DIS 17607-1        | Part 1: General requirements and vocabulary |
| ISO/DIS 17607-2        | Part 2: Steels                              |
| ISO/DIS 17607-3        | Part 3: Fabrication                         |
| ISO/DIS 17607-4        | Part 4: Erection                            |
| <b>ISO/DIS 17607-5</b> | <b>Part 5: Welding</b>                      |
| ISO/DIS 17607-6        | Part 6: Bolting                             |

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**10. NEW BUSINESS (17.40)**

10a.

10b.

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**11. NEXT COMMISSION XVIII meetings (17.45)**

11a. Intermediate meeting (proposed February 21, 2024, Zoom)

11b. 77<sup>th</sup> Annual Assembly, Rhodes, Greece, 6-12 July 2024

11c. 78<sup>th</sup> Annual Assembly, Genoa, Italy, 22-27 June 2025

11d. 79<sup>th</sup> Annual Assembly, to be announced, Summer 2026

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**12. IIW ASSOCIATED EVENTS OF DIRECT XVIII INTEREST (17.45)**

12a. 6<sup>th</sup> Young Professional International Conference (YPIC) (January/February 2024)

12b. ISTS18, International Symposium on Tubular Structures, Beijing, China, October 17-20, 2023

12c. International Conference, Bangalore, India, January 22-24, 2024

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**13. OTHER MEETINGS AND EVENTS OF XVIII INTEREST (17.50)**

13a.

13b.



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**14. ADMINISTRATIVE ITEMS (17.50)**

14a. Update to Commission XVIII Terms of Reference (Parts 1 and 2)

14b. Review of Resolutions and Recommendations

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**15. ADJOURNMENT (18.00)**

