Bylaws of the MMPDS (Metallic Materials Properties Development and Standardization)
General Coordination Committee

Revision A
Oct, 25th, 2010
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**Acronyms**

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<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ASG</td>
<td>Airframer Steering Group</td>
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<tr>
<td>FTG</td>
<td>Fastener Task Group</td>
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<tr>
<td>GCC</td>
<td>General Coordination Committee</td>
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<tr>
<td>GSG</td>
<td>Government Steering Group</td>
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<tr>
<td>GTG</td>
<td>Guidelines Task Group</td>
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<tr>
<td>ISG</td>
<td>Industry Steering Group</td>
</tr>
<tr>
<td>MATSIG</td>
<td>Material and Technical Services Steering Group</td>
</tr>
<tr>
<td>MIL-HDBK-5</td>
<td>Metallic Materials and Elements for Aerospace Vehicle Structures</td>
</tr>
<tr>
<td>MMPDS</td>
<td>Metallic Materials Properties Development and Standardization (Handbook)</td>
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<td>MTG</td>
<td>Materials Task Group</td>
</tr>
<tr>
<td>OEW</td>
<td>Original Equipment Manufacturer</td>
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<tr>
<td>SWG</td>
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Introduction

These bylaws define the operating procedures for the MMPDS General Coordination Committee (GCC) and its associated steering, working and task groups and secretariat. It is a "living document" that will change, as operating procedures are refined, and more effective procedures are generated. This document and any future changes to it must have GSG and ISG approval.

Background

The Metallic Materials Properties Development and Standardization (MMPDS) Handbook represents a continuation of and replacement for the military handbook entitled “Metallic Materials and Elements for Aerospace Vehicle Structures” (MIL-HDBK-5). MMPDS is the primary source within the United States and many other countries of statistically based material and fastened joint design allowables accepted for meeting aircraft certification and continued airworthiness requirements. It holds this distinction because of its rigorous standards for mechanical property data collection, analysis, review, and approval. The Handbook also contains extensive information and data for other material properties and design requirements, such as fracture toughness, fatigue, creep strength, rupture strength, fatigue-crack propagation rate, and resistance to stress corrosion cracking.

The MMPDS handbook and its predecessors have been in existence for over 70 years and they have been reviewed and updated by industry and government on a consensus basis throughout that period. The Handbook was first published in 1937 as Army-Navy-Commerce Handbook 5 (ANC5). The United States Air Force (USAF) took over the primary responsibility of continuing development in 1954 and, subsequently, the name of the Handbook was changed to MIL-HDBK-5 in 1956. The Federal Aviation Administration took over the primary responsibility for the Handbook in 2002, and subsequently renamed the Handbook in 2003 as noted above. Throughout this long history the Handbook has continued to incorporate new methodologies, add new material properties, and update existing ones. This continuing effort has enabled the handbook to keep up with technology development and maintain up-to-date information for materials being used by industry.

The MMPDS (formerly MIL-HDBK-5) GCC has held semiannual technical coordination meetings since the late 1950s. As a result of these coordination meetings the Handbook has gone through numerous major change notices and/or revisions over the years. Formal guidelines for statistical analysis and presentation of design data in the Handbook were introduced in 1969. Major aerospace original equipment manufacturers and supplier companies created the Industrial Steering Group (ISG) in 1997 to fund and pursue related development activities of common interest. The heritage purpose of the ISG was to provide industry funding and guidance to pursue select independent projects within the framework of the MIL-HDBK-5 coordination activities. The ISG maintains a board of trustees composed of the representatives of member companies in good standing. It also operates under and maintains a set of bylaws similar to this document. Concurrent with the formation of the ISG, the activities and responsibilities of the Government Steering Group (GSG) were increased. Since 1997 the GSG has worked closely with the ISG and together they have served as the oversight body for maintenance of the MMPDS Handbook.
Overview

A rigorous process has been established to ensure that data entered in the handbook is properly screened, analyzed for goodness, and reliable. Decisions relating to Handbook additions, modifications, and deletions are made by the MMPDS GCC at coordination meetings held on a semi-annual basis. The MMPDS GCC is a voluntary group led by the Government Steering Group (GSG) with critical support provided by the Industry Steering Group (ISG) and the Secretariat, as shown in Figure 1.

The MMPDS GCC consists of approximately 150 members from various government agencies, industry (e.g. airframe manufacturers, material producers, suppliers, fastener manufacturers, and technical service providers), and academia. An unbiased third party acts as the MMPDS GCC secretariat for the planning, facilitating, coordinating, and implementing activities necessary to develop and maintain the handbook. Data reduction, presentation of statistical and characteristic properties, and compliance with handbook requirements are all functions of the secretariat. Supporting the MMPDS GCC, are four steering groups and three task groups as follows:

1. Government Steering Group (GSG)
2. Industry Steering Group (ISG)
3. Airframer Steering Group (ASG)
4. Material and Technical Service Steering Group (MATSSG)
5. Materials Task Group (MTG)
6. Guidelines Task Group (GTG)
7. Fastener Task Group (FTG)

Additionally, there are a number of active working groups. Each working group addresses specific technical issues as tasked by a cognizant task group. MMPDS GCC and group meetings are held twice a year, typically in April and October. The secretariat acts as the meeting facilitator, providing agenda and meeting minutes. The meetings generally take 3-4 days with group meetings held in the days leading up to the MMPDS GCC meeting, which is generally the last half-day of the week. The meeting agenda is normally distributed by the secretariat to attendees approximately 4 weeks prior to the meeting date and typically includes:

- A review and approval of data proposals (in general, 20-30 data proposals are reviewed and approved at each meeting).
- A review and approval of S-, A- and B-basis material properties for inclusion to the handbook.
- An approval of change notices on changes and updates as well as revisions (each of the change notices approved at the coordination meeting consists of 300-500 pages).
- A review and approval of updates and/or modifications of guidelines and methodologies.
- A review of status reports on ongoing data analysis and methodology development.

At each MMPDS GCC meeting, the MMPDS GCC acts upon proposed changes to the document that are submitted in writing to the secretariat before the meeting. The approved changes are entered into the meeting minutes, which are compiled and distributed by the secretariat to attendees approximately 4 weeks after the meeting. The meeting minutes are then recognized as approved data for entry into the subsequent handbook release.
Article I. Organization

Section 1.01 Name

The name of this organization shall be “METALLIC MATERIAL PROPERTIES DEVELOPMENT AND STANDARDIZATION” (MMPDS) GENERAL COORDINATION COMMITTEE (GCC).

Section 1.02 Objective

The objective of the MMPDS GCC is to bring together participants from government and industry to form a consortium which will collaboratively,

1. Establish data requirements and statistical methods for deriving statistically-based static design properties for metallic materials and fastened joint system allowables;
2. Develop and publish static design properties for metallic materials used in aerospace application which meet MMPDS guidelines and the probability and confidence standards required by 14 CFR § 2x.613 (civil) or JSSG 2006 (military);
3. Document other fundamental material properties useful in design, as identified by the consortium;
4. Provide guidance for developing design values for process dependent metallic materials, in a revision controlled handbook.

Section 1.03 Scope of Activities

1. Coordinate the technical efforts of government and industrial organizations interested in developing and maintaining an up-to-date Handbook of reliable metallic materials and fastening elements design allowables database.
2. Provide guidance and oversight for the MMPDS Secretariat in the development of analysis methods, material property data and design element (fasteners) data common to aerospace vehicle OEM, government research and aerospace industrial supplier companies.
3. Provide a forum for professional interaction, problem solving and discussion of common issues among participating companies and government agencies.
4. Provide a network to rapidly gain member feedback on issues of concern to MMPDS GCC members.

Section 1.04 Supporting Groups and the Secretariat

There are four standing steering groups and three standing task groups that support the MMPDS GCC in meeting its objective. Additional groups may be formed as needed at the discretion of the MMPDS GCC. Steering groups typically provide non-technical guidance and recommendations based on their own unique perspectives while task groups focus on technical aspects. The standing groups are identified below along with a brief description of their role and that of the Secretariat.

1. The GSG and ISG shall provide oversight of the operation of the GCC. The GSG Chairman shall be a representative of the government organization managing the technical coordination contract with the MMPDS Secretariat. A GSG Vice-Chairman may be selected from representatives of GSG organizations.
(2) The Materials Task Group, Guidelines Task Group and Fastener Task Group address technical issues associated with materials, guidelines and fasteners respectively.

(3) The Airframer Steering Group and Material and Technical Services Steering Group provide recommendations to the GCC based on an aircraft manufacturer’s perspective and a material and technical services provider respectively.

(4) The Secretariat is an unbiased third party under contact to a member of GSG. The secretariat manages the core activities needed to maintain the MMPDS Handbook. He also acts as an arbitrator and performs data assessments and required statistical analyses.

There are typically a number of working groups that are active at any given time working on focused technical issues. Since these groups are formed and disbanded on an as-needed basis their number and focus is always subject to change and therefore it is considered inappropriate to list them in these Bylaws.

Additional standing or Ad Hoc steering, task and working groups may be formed to address long term activities, or unique, short-term areas of interest to the GCC. New groups may be formed or existing ones dissolved with the approval of the GCC. The creation or dissolution of a steering, task or working group will be published in the meeting minutes of the meeting at which they are formed or dissolved.

Article II. Responsibilities and Membership

Section 2.01 MMPDS General Coordination Committee (GCC)

The MMPDS GCC is ultimately responsible for overall technical maintenance of the MMPDS Handbook with help from the Secretariat, direction from the steering groups and technical support from task and working groups. The GCC is responsible for all decisions associated with MMPDS Handbook changes.

MMPDS GCC membership is open to representatives of industry, academia, and government agencies interested in supporting the objective of the MMPDS GCC. Unless given an exemption by the GSG, a person must attend at least one MMPDS coordination meeting every 2 years to be considered active. The list of active MMPDS members shall be documented in the minutes of each MMPDS meeting.

Section 2.02 Steering Groups

(a) Government Steering Group (GSG)

The GSG provides oversight and direction to the GCC from an airworthiness authority and government procuring activity perspective. The GSG works closely with the Secretariat with respect to programmatic issues including meeting logistics and funding. The GSG, in collaboration with the ISG, seeks to insure adequate funding is available for activities performed by the Secretariat in maintaining the MMPDS Handbook. The GSG along with the ISG are responsible for maintaining the MMPDS GCC Bylaws and together have sole authority for making changes.

Membership in the GSG is open to all interested United States government agencies. Additional information on GSG responsibilities and membership is contained in the GSG Bylaws.
(b) Industry Steering Group (ISG)
The ISG provides oversight and direction to the GCC from an industry perspective. For example, controversial guidelines and/or material design allowable issues are reviewed by the ISG and recommendations are made to the GSG and GCC. The ISG is also responsible for the oversight of technical activities undertaken by the current ISG coordinating contractor, including the development of specialized ISG and GSG statistical analysis tools that conform to current MMPDS guidelines and the development of numeric databases that provide efficient ISG and GSG member access to design allowable properties in the Handbook. Funding for those activities is the responsibility of the ISG. A subcommittee of the ISG oversees the technical and financial aspects of that activity in collaboration with the GSG. ISG membership is open to aerospace metallic material suppliers and users throughout the world. Membership in the ISG requires payment of an annual membership fee and acceptance of an annual agreement. Further details concerning ISG membership requirements may be obtained from the ISG website www.mmpds.org. Additionally, information on membership and responsibilities is contained in the ISG Bylaws.

(c) Airframer Steering Group (ASG)
The ASG provides oversight and direction to the GCC from the perspective of the aircraft and aerospace manufacturers. Most ASG members are also ISG members, although ISG membership is not required to participate in the ASG. ASG membership is only open to representatives from aircraft and aerospace manufacturers.

(d) Material and Technical Services Steering Group (MATSSG)
The MATSSG provides oversight and direction to the GCC from the perspective of the aircraft and aerospace material suppliers and technical service organizations. Most MATSSG members are also ISG members, although ISG membership is not required to participate in the MATSSG. MATSSG membership is only open to representatives from aircraft and aerospace material suppliers and technical service organizations.

Section 2.03 Task and Working Groups

(a) General
Standing and ad-hoc task or working groups may be formed at any time based on the recommendation of the GCC Chairman or a task group and approval by the GCC. Task groups typically focus on subject areas (e.g. materials, fasteners, technical guidelines) and are needed long term. Working groups typically focus on specific technical issues within a subject area for a short term. All task and working groups shall function in an advisory capacity to the GCC. Each working group shall be comprised of a minimum of three persons and they are responsible for electing a chairman. However, if needed the GCC shall appoint one. Working group chairmen shall report on their activities at task group meetings and at such other times as directed by the chairman. All working group chairmen should prepare a written report summarizing their respective group’s activities since the previous meeting. This report shall be included in the overall MMPDS archives. Details concerning the responsibilities and membership requirements for the three standing task groups follow.
(b) Guidelines Task Group (GTG)

The GTG focuses on the development and maintenance of state-of-the-art analytical and experimental methods for the development of metallic material design allowables. The MMPDS Secretariat is responsible for the development and verification of proposed new analytical and experimental procedures. These new guidelines must be reviewed and approved by the GTG before they are incorporated into the Handbook. Active GTG members are sought from industry and government, representing major metallic material suppliers and users throughout the world.

The GTG also oversees the work of specialized working groups, such as the Statistics Working Group (SWG) and other working groups. The SWG is a long-standing working group, which has focused on the development and evaluation of statistical procedures that must be employed to ensure the development of accurate and reliable metallic material design properties. Active SWG members are sought from industry and government, including a mix of individuals with specialized statistical skills and individuals with critical engineering needs to use these statistical procedures efficiently for the development of reliable metallic material design allowables.

(c) Materials Task Group (MTG)

The MTG focuses on the development and maintenance of reliable, up-to-date static strength design properties for metallic aircraft and aerospace materials. The MMPDS Secretariat is responsible for the collection of certification and other supporting strength data (e.g. elastic modulus, compression, shear, bearing, and typical and full-range stress strain response) on a proprietary basis from industry and government suppliers and users of these materials. The MMPDS Secretariat also assists with the statistical analysis of these data in accordance with current guidelines and the presentation of these analysis results to the MTG for review and approval before the new or updated data are added to the Handbook.

In conjunction with the work on static strength design properties the MTG is also responsible for the development and maintenance of reliable, up-to-date “dynamic” material properties (e.g., load and strain control fatigue, fatigue crack growth, plane stress and plane strain fracture toughness). The MTG is also responsible for the development and maintenance of reliable information and quantitative material data with respect to the corrosion resistance and/or environmental issues associated with the use of these materials in aircraft and aerospace structures.

Active MTG members are sought from industry and government, including a mix of individuals with specialized metallurgical and processing skills and individuals with engineering needs to safely and efficiently incorporate these materials into critical aircraft structures.

(d) Fasteners Task Group (FTG)

The FTG focuses on the development and maintenance of reliable, up-to-date static strength design allowables for aircraft and aerospace metallic material fasteners and metallurgical joints.

Active FTG members are sought from industry and government who have specialized knowledge concerning the design, testing, and/or reliable usage of mechanical fasteners and other joining technologies in aircraft and aerospace structures. Membership to the FTG is open to all interested parties. All FTG members may fully participate in all guideline and rule making discussions, voting and any new data set or sunset reviews. During the course of work in the FTG raw data submitted by fastener suppliers or independent testers may be reviewed and discussed in an open forum. Data suppliers
that submit data for publication in MMPDS should understand that, due to the nature of the review process, some sanitized raw data may be shown, discussed and commented on by competitors in the interest of publishing accurate allowables data.

To address any proprietary issues:

(1) During the open review process, the data will be presented to the group in a format which will mask individual data values.

(2) If discussions of specific data point values become necessary, approval from the data supplier will be obtained and documented in the meeting minutes. The raw data shall not be made available to competitor fastener supplier FTG members in any hard or electronic copy.

(3) Raw data shall not be included in the minutes distributed by the secretariat; however, the secretariat will complete the general circulation of final reports containing final allowables data (tables and curves) to MMPDS membership for approval. In specific instances for a particular data set, a fastener supplier may request that now raw data, in any form (including sanitized) be made available to competitor FTG members. The FTG will address these instances on a case-by-case basis.

FTG members are expected to be, or to become, proficient users of the fastener analysis procedures defined in the Handbook guidelines. Data sets submitted by any entity may be partially or entirely rejected by the FTG Chairman at his or her discretion. The cause for rejection shall be documented in the meeting minutes.

(e) Task and Working Group Governance

All task and working group chairs will be selected from the pool of active MMPDS coordination members and approved by the ISG and GSG.

Task and working group chairs may continue to serve indefinitely, at the pleasure of the task or working group membership, the ISG and GSG. Current leadership positions may be continued in the event he/she transfers employment from one member organization to another. A formal announcement will be made at the next coordination meeting to the representatives in attendance. Any comments or concerns shall be resolved at the next coordination meeting by the representatives in attendance.

Participating MMPDS GCC companies and government agencies may replace task and working group members who leave their employment. However, in the event a chair position becomes open, the GSG will then select a replacement at the next coordination meeting.

Task and working group chairman and vice-chairman duties are described below.

**Chairman** - The task or working group chair shall preside at all regular and special meetings. Chairman duties at a minimum shall include the following:
- Preside over coordination meetings.
- Introduce and present agenda items for general discussion
- Coordinate closely between meetings with the MMPDS Secretariat
- Establish meeting agendas and summarize status of existing agenda items
- Appoint heads and members of sub-committees

**Vice-Chairman** – A vice-chairman shall be selected to work with the chairman of each task group in all aspects of his or her position. Where appropriate, a vice-chairman may
also be selected to work with the chairman of a working group. The vice chair will normally succeed the chairman following the expiration of the chairman’s term of service. If the chairman’s position becomes vacant for any reason, the vice-chairman shall immediately assume the office of chairman.

Vice-chairman duties at a minimum shall include the following:

- Maintain communications with any working group leaders and report the progress of each group to the chairman and members attending the coordination meetings.
- Determine the need for the creation of additional working groups and report the need to the task group. If the vice-chairman determines such a need, the final decision for creation of a new group will be decided by majority vote of the full task group.

Section 2.04 Secretariat

The secretariat shall be an unbiased third party representing neither industry nor government. For example, a technical nonprofit organization could be chosen and contracted to act as the MMPDS Secretariat.

Responsibilities of the secretariat shall be as follows:

1. The MMPDS Secretariat shall arrange for all meeting facilities.
2. The Secretariat shall function as archivist and meeting facilitator. Upcoming agenda packages and meeting minutes for bi-yearly coordination meetings (typically held in April and October) shall be distributed to active MMPDS members according to the following schedule:
   - Meeting Announcement: at least 90 days prior to start of coordination meeting
   - Meeting Agenda Package: approximately 4 weeks prior to start of coordination meeting.
   - Meeting Minutes Package: approximately 4 weeks after meeting conclusion
3. The Secretariat shall coordinate and/or perform statistical analysis, research, testing and reporting tasks associated with ongoing maintenance of the MMPDS.
4. The secretary position for individual task and working groups is reserved for a member of the MMPDS Secretariat and shall have the following duties:
   - Record and maintain minutes of all meetings and activities
   - Have charge of all papers, archives, records and property
   - Issue all notices of meetings
   - Maintain an up-to-date membership roster
   - Provide periodic reports on the activities of the task or working group.

Article III. Change Procedures

Changes to the MMPDS GCC Bylaws (i.e. this document) and the MMPDS Handbook may be made by following the procedures described below. In all cases every attempt should
first be made to achieve a consensus. However, when it has been determined that a consensus cannot be achieved a proposed change can be put to a vote.

Section 3.01 MMPDS Handbook Changes

(a) General Process
The general process to be used for making changes to the MMPDS Handbook is as follows:

- Changes may be proposed by any Steering, Task or Working Group or any MMPDS member at a MMPDS GCC meeting.
  - Any proposed change to the documented Chapter 9 guidelines on property or allowable calculations shall be made prior to the publication of values based on the changed process.
- If the Chairman determines that there is sufficient interest after discussion in the open forum, an agenda item is established and a tracking number assigned.
- The agenda item is assigned to a Task Group who may in turn assign it to an existing or newly created Working Group.
- The assigned Group investigates the agenda items as required and reports back to the MMPDS GCC with a recommendation to make an MMPDS Handbook change or not.
- A consensus of the MMPDS GCC should first be sought for any change recommended and, if obtained, the change shall be made. If the Chairman determines that a consensus cannot be achieved the item may be held open or put to a vote using the procedure described below.
- If an assigned item has been held open due to controversy for 5 or more years, or the item has been designated as a “fast track” item by the ISG or GSG, the task or working group chairman may request that a formal vote be taken on any guideline or data item that is ready for acceptance and inclusion in the Handbook.

(b) Voting
Voting shall be by a show of hands with each MMPDS GCC member in attendance having one vote. Any change receiving a 2/3 majority or greater vote in its favor shall be forwarded to the GSG for final approval. The GSG shall have the power to veto any change forwarded to them.

Section 3.02 MMPDS General Coordination Committee Bylaws Changes

(a) General Process
Changes to the MMPDS GCC Bylaws may be proposed by any Steering, Task or Working Group or any MMPDS GCC member at a MMPDS GCC meeting. If the MMPDS GCC supports the proposal by consensus or vote (same as described in Section 3.01 for Handbook changes) the proposed changes are forwarded to the ISG and GSG for consideration.
Changes to the MMPDS GCC Bylaws shall only be made jointly by the ISG and GSG. A consensus of the industry and government representatives present at a joint ISG/GSG

1 An item may be designated as a “fast track” item if the ISG or GSG considers it a priority that the changes and/or additions in Handbook data or guidelines covered by that item is approved in time for incorporation into the next edition of the Handbook.
meeting should first be sought and, if obtained, the changes can be made. If a consensus cannot be achieved then the change may be put to a vote.

(b) Bylaws Voting
Voting shall be by open ballot wherein each GSG member agency and each ISG member company/organization shall have one vote weighted in proportion to their contribution to their membership in the GSG or ISG. Any change receiving a 2/3 majority or greater vote in its favor shall be forwarded to the GSG for final approval. The GSG shall have the power to veto any change forwarded to them. If a proposed change is unacceptable to the GSG it can be vetoed prior to voting.

To clarify how the vote tallying will occur, here are the guidelines that will be used:

1. Only members in good standing who have made actual contributions during the active year are counted in the total. Members who have promised payment shall not be included in the voting.

2. Within a given year, as the member contributions fluctuate, the fractional contribution of each member may change. The fractional contribution shall be calculated based on the membership contribution of those member companies casting a ballot at the time of the vote.
   a. The member contribution of a company abstaining shall be included in the total.
   b. The member contribution of a company not voting shall not be included in the total.

3. In general, voting will occur during a meeting; however a member company/organization in good standing that is not present at the meeting may cast a proxy vote. This vote shall be received by the Secretariat prior to the vote at the meeting.

4. Voting may also occur by email. Only votes arriving by the voting deadline shall be valid and counted.

A voting example is provided in Appendix B for clarification.

Article IV. Meetings
Two MMPDS coordination meetings are typically held each year, generally in April and October.

Section 4.01 Registration
The MMPDS Secretariat shall maintain the list of active MMPDS members. An individual will automatically become a member of the MMPDS GCC by registering and attending a GCC meeting.

The primary contact at Battelle is Anne Mundy:
Anne K. Mundy
Phone: (614) 424-6496
Fax: (614) 424-3457
E-mail: mundya@battelle.org
Section 4.02 Meeting Procedures
MMPDS General Coordination Committee meeting procedures shall be as follows:
1. Chairman or vice-chairman will open the meeting with introductions, and comments on the status of current MMPDS coordination activities.
2. Secretary will ask for comments on the prior meeting’s minutes; then propose their approval with noted amendments, if any.
3. Chairman or secretary will introduce special presentation speakers, as appropriate.
4. Secretary will review the current status of all open agenda items, along with the recommendations of the assigned task or working group. New agenda items will be identified in the course of this presentation.
5. Chairman or vice-chairman will coordinate selection of next meeting location and provide closing remarks / summary.
6. Meeting adjourned.

Section 4.03 Item Introduction Procedures
1. An MMPDS GCC member may coordinate with either the chairman or vice-chairman of the applicable task group to define the proposed item. This coordination activity can occur prior to the general meeting, whereupon the whole task group will consider the item for discussion, disposition and/or revision.
2. Alternatively, an item can be introduced at the applicable task group and discussed by the full membership. The goal of item introduction and discussion is to create a well-defined agenda item for subsequent consideration.
3. Item introduction, discussion and definition will be limited to 25 minutes.
## Appendix A Change History

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<th>Description</th>
<th>Author</th>
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<td>A</td>
<td>October 2010</td>
<td>Document Revised in Entirety by Bylaws working Group: Lori Flansburg (chair), Bret Vogel, Roy Nash, John McCarrick, Mark Freisthler, Steve Thompson, Robert Eastin and Rich Rice.</td>
<td>L.K. Flansburg</td>
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Appendix B Bylaws Voting Example Problem

(Reference Article III, Section 3.02(b))

Suppose there are 4 ISG members and 3 GSG members which make up the combined ISG/GSG group. At a given meeting, their membership contributions are as shown in the table below. The total membership contribution is summed, in this case to $200,000. This total does not include the contribution of ISG #4 who was not in attendance and did not provide a proxy vote to the Secretariat prior to the meeting. And the fractional contribution of each member company/agency is computed by dividing their individual contribution by the total membership contribution. For example, Member ISG# 1 contributed $25000 to the $200000 total or 25000/200000 = 0.125.

During the meeting a Bylaws item comes up for vote and the votes are cast as shown in Column 4 of the Table. Each company/agency gets a single vote and the vote is assigned a numerical value based on their fractional contribution. The yes numerical votes are summed. If the total exceeds the required 2/3 (0.667) then the change carries.

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<td>A</td>
<td></td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>GSG #2</td>
<td>100,000</td>
<td>0.50</td>
<td>Y</td>
<td>0.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GSG #3</td>
<td>5,000</td>
<td>0.025</td>
<td>Y</td>
<td>0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>200,000*</td>
<td>1.0</td>
<td></td>
<td>0.675</td>
<td>0.075</td>
<td>0.25</td>
</tr>
</tbody>
</table>

* $200000 does not include ISG #4 who was not in attendance and who did not provide a proxy vote to Battelle prior to the meeting. It does include the contribution of GSG#1 who abstained. The numerical value of the “Yes” vote sums to 0.675. A 2/3 majority (0.667) is required for a change to occur, thus this particular vote is carried.