



The Industry Voice for Workplace Solutions

minutes

**BIFMA
Sustainable Office Furniture Assessment Standard
Stakeholder Meeting Minutes
Grand Rapids, MI**

Meeting Attendees:

INDUSTRY:

Mary Fraser	BASF Corporation
Chris Brandel	Bretford Manufacturing Co.
Karen Worthy	Global Group
Fred Stevens	Group Dekko
Jim Kozminski	Haworth, Inc.
Larry Dykhuis	Herman Miller Inc.
Paul Murray	Herman Miller Inc.
Randy Ruster	Herman Miller Inc.
Scott Lesnet	HNI Corporation
Mark LaCroix	Interface Fabrics
Bill Foley	Interface Fabrics
Matt Earnest	Interface Fabrics
Dan Vukceovich	izzydesign
John Shank	Kimball International
Lou Newett	Knoll Inc.
Karen Smant	Milliken Fabric
Scott Bartolomei	Milliken Fabric
Mike Zimmerman,	Sauder Woodworking Co.
Randy Carter	Steelcase Inc.
Mary Ellen Mika	Steelcase Inc.
Dave Rinard	Steelcase Inc.
Denise Van Valkenburg,	Steelcase Inc.
Dave Freund	Victor Innovatex

INDUSTRY ORGANIZATIONS:

Tom Reardon	BIFMA International
Brad Miller	BIFMA International
Dick Driscoll	BIFMA International
Janan Rabiah	Association for Contract Textiles
Scott Miller	North American Insulation Manufacturing Assoc. (Knauf Insulation)

GOVERNMENT:

Alison Kinn Bennett,	EPA, Environmentally Preferable Purchasing Program
Heidi Karp	EPA, Green Suppliers Network

Clare Lindsay	EPA, Extended Product Responsibility Project
Verena Radulovic	EPA, Extended Product Responsibility Project
Sharmin Syed	EPA, Design for the Environment Program ECO Intern
Bob Thompson	EPA, Indoor Environment Management Branch
Kathleen Vokes	EPA, Design for the Environment Program
Dan Burgoyne	State of CA, Dept. of General Services
Laura Rauwerda	State of MI, Dept. of Env. Quality

OTHER:

Gary Hewson	Association of Registered Interior Designers of Ontario (ARIDO)
Susan Wiggins	Association of Registered Interior Designers of Ontario (ARIDO)
Robert Blaha	HOK
Deborah Dunning	International Design Center for the Environment
Paul Chalmer	National Center for Manufacturing Sciences
Ron Lang	National Center for Manufacturing Sciences
Linda Sorrento	Northern Virginia Community College
Jane Wilson	NSF International
Rod Vickroy	Perkins + Will
Kirsten Ritchie	Scientific Certification Systems
Bill Stough	Sustainable Research Group
Karen Wolf	The Right Place, Inc.
Tom Newhouse	Thomas J. Newhouse Design

OBSERVERS:

Michelle Cleveland	Consultant
Heather Poole	Grand Valley State University student & izzydesign intern

WEDNESDAY, FEBRUARY 15, 2006

Welcome

Tom Reardon, Executive Director of BIFMA welcomed everyone to the Sustainable Office Furniture Assessment (SOFA) stakeholder meeting and thanked everyone for participating in the process. He explained the purpose and scope of the meeting and BIFMA's goals. He then asked participants that were attending in person and via telephone to introduce themselves and the organization(s) they were representing. Tom then introduced Bill Stough from Sustainable Research Group (SRG); the contractor selected to assist BIFMA as the SOFA project manager.

Bill Stough gave an overview of BIFMA's objectives in helping establish an office furniture sustainability standard and listed some of the market drivers and benefits. He listed the objectives of creating an office furniture sustainability standard to include:

- Providing an open alternative to proprietary certification programs
- Providing a common definition of EPP for government customers
- Provide a leading edge option for the US Green Building Council, the State of California, and other interested parties; and
- Provide a common sustainability framework for manufacturers and suppliers

Bill outlined the day's activities and reinforced that a major goal of the first day was to present the draft materials developed by BIFMA's Sustainability Subcommittee and to obtain stakeholder feedback. On the second day the group would divide into topic specific work groups to modify and refine the draft material further. The last half-day would be used to present the findings of work groups to all participants.

Review of Draft Purpose and Scope - The project manager asked Larry Dykhuis from Herman Miller, Inc., and Co-chair of the Sustainability Subcommittee to provide an overview of the draft purpose and scope. Bill then led a discussion with stakeholders to seek their comments.

Purpose - A question was asked if it would be useful to include tools in the scope to help or facilitate the application process? After some discussion it was decided that this issue should be temporarily placed in the general requirements or reference sections of the standard instead of the scope section. There was a recommendation that the titles on the document and title of the draft standard should be consistent and the term sustainable furniture was offered as a solution.

A comment was made that it will be a challenge to have one standard that adequately addresses all types of products. It was asked if the scope would include institutional and or hospitality furniture? It was suggested that the wording in the Purpose and Scope use "commercial furniture" instead of office furniture because it would be more inclusive. Another comment suggested that the name BIFMA carries a lot of weight in the market and maybe the scope should include the term business and institutional furniture instead of commercial. The consensus seemed to support the use of the term business and institutional in place of commercial or office furniture in the standard.

A participant asked what is meant by "market based" incentives. The response was that these are drivers that are not prescribed or imposed by regulations but represent attributes that represent customer demands, thereby helping the standard to be driven by the market.

The Subcommittee was asked to explain why “supply chain” is included in the Purpose. The general response was that it is the initial desire of the Sustainability Subcommittee to integrate principles of sustainability into the supply chain to help deliver components to business and institutional furniture manufacturers that create as much value as possible. There was a discussion on how far into the supply chain the standard should push without causing conformance verification redundancy? There was an example given of a component manufacturer that verifies conformance to the standard, but then the furniture manufacturer has verifies conformance for the product. Is it necessary or desirable to have multiple conformance verification?

Scope 2.1 - Does it make sense to require component manufacturers to meet the standard; does it add value to the supply chain if component manufacturers are already meeting multiple other standards? Some component manufactures thought it should be allowed if it were voluntary. Industrial designers don't care if the components conform to a standard or not, but they do need to know the ecological impact of components for their product designs. It was agreed that this issue needs further discussion and should be revisited by the technical work groups.

Scope 2.2 – Change products to business and institutional furniture.

Scope 2.4 - A participant asked if there would be multiple levels of achievement allowed in the BIFMA standard. There was a concern over having multiple levels of performance such as good, better, and best (or bronze, silver, gold) categories? It was agreed multiple levels are appropriate or should be considered. It was reiterated that applicants would likely have to meet prerequisites but then could have multiple levels of conformance to the standard.

Scope 2.6 – A comment was raised about the potential conflict between it and 3.1

3.0 Certification to the Standard

Scope 3.1 – Recommend that we change “certification” to “conformance.”

Scope 3.2 – Recommended that a product should maintain conformance to the standard as long as nothing changed in the process. Recommended changing the term “certify” to “assess”. It was also suggested that this process should attempt to incorporate existing standards like the sustainable textile standard and others into the BIFMA standard when ever possible instead of creating new standards.

Presentation by Paul Chalmer of the National Center for Manufacturing Science (NCMS)

Noting that representatives from the NCMS would not be able to stay for the full meeting, Bill Stough invited Dr. Paul Chalmer to give a presentation on his sustainable manufacturing program before he had to leave.

He indicated that NCMS had funding from EPA to help develop a sustainable manufacturing initiative and he is very interested in cooperating with BIFMA's work to develop a sustainable business and institutional furniture standard. He provided an overview of his work and described how they were developing a model of global use of materials by major sectors in the market. He is using the North American Industrial Classification System (NAICS) codes to the three digit level to segregate major sectors in the economy to determine major material flows. He suggested this work could be used to identify the 20 percent of the material flows that represent 80 percent

of the impact as a first attempt at developing a database. He believed that this way they could concentrate on heavy hitters for the furniture industry (this represented the entire top line of the flow diagram he presented, see attached NAICS code list and diagram).

The presentation generated much interest about the prospect of working with the NCMS to develop a database that could be populated with either life cycle impact data or chemical impact data or both. BIFMA agreed to follow up with Dr. Chalmer on the next steps that need to be taken.

Review of Draft Standard Template – The project manager asked Kathleen Vokes from the U.S. EPA and leader of the Work Group that developed the draft standard outline to provide an overview for participants. He then led a discussion with stakeholders to obtain their comments.

It was pointed out that the Purpose and Scope discusses the Triple Bottom Line which listed the economic bottom line, but economics does not appear in the outline of the draft standard. After a full discussion it was determined that economics already has a strong place in most companies, and it is the social and environmental elements that need attention, so specific reference to economics was left out of the outline. It was agreed that the Purpose and Scope and the Standard outline should be consistent, and it was recommended that a discussion of the economic issues should be included in the standard under the heading of general requirements. Further questions included a concern about how to put in an economic driver but keep a company's financial information proprietary if they want it to remain confidential? Many participants believed there were mechanisms available to achieve this goal, but more research should be done prior to recommending an approach.

General Requirements – the question was asked if general requirements are specific criteria that must be met or concepts that guide the development. For now they are intended to be concepts that guide users. It was generally agreed that we would list principles that should be considered under general requirements. A detailed discussion regarding Life Cycle Assessments (LCA) being part of General Requirements ensued. It was agreed that LCAs are not being proposed as a requirement but a consideration. There was support to leave both LCA and the concept of life cycle thinking in the section, but change the heading from General Requirements to General Considerations.

Under Element Six Sustainable Furniture Evaluation, subsection (c) Biobased or recycled materials, the question of how would bio-based materials be evaluated and how is the life cycle thinking of biobased materials being considered? It was determined that biobased materials are an emerging issue and is already included in several standards that are either developed or in the process of being developed and should be addressed in the furniture standard. It was agreed that this issue would have to be revisited by one of the Work Groups to provide further guidance on the issue.

Work Group Development and Membership

The project manager referred participants to the workbook section that included the beginning of the Work Group membership list. Work Groups are organized around the four focal areas identified in the Scope under 2.3, these included:

- Human and Ecosystem Health;

- Energy Efficiency and Renewable Energy;
- Use of Materials and Water Management; and
- Social Responsibility.

Participants were asked to review the Work Group lists and submit their first and second choice for membership. Staff agreed to review the lists and balance them, and will present the recommended work group make-up at Thursday's session.

THURSDAY, FEBRUARY 16, 2006

The project manager welcomed everyone back to the Sustainable Office Furniture Assessment Stakeholder meeting. He opened the meeting with a summarization of the major areas of feedback from the first day and opened up the meeting for additional comments and suggestions on either the Draft Purpose and Scope or the Standard Outline.

One of the questions that came up was if it is appropriate for BIFMA to inquire with the US Green Building Council board about how they may use LCA as innovation points? This suggestion was believed to be a good idea and work group members will follow up.

Product Design and Durability

It was pointed out that product design and durability were not covered during the first day. The consensus was that durability has to be incorporated; environmental attributes must be balanced with cost and quality; with all aspects. Durability plays a strong role, only worth while if product is desirable in the market, has to be balanced with all other goals as well. It was pointed out that durability is highlighted under design elements in the longer version of the outline and that it most likely should be addressed by the Materials Work Group

How Should we Address Innovation?

It was also pointed out that there was no discussion in the outline on what things should be considered innovative? Some suggested that a creative use of LCA or product requirement rules which addresses component issues or performance levels should be considered under the innovation credit. Other areas that could be considered include accounting for greenhouse gas or embodied energy of a product. It was decided that we still need to define what innovation means to the standard and to keep in mind that part of innovation is currently unknown or emerging issues.

Other Issues

It was suggested that glass and copper should be added to the Appendices list under product material.

Work Group Sessions

The project manager passed out the new lists of Work Group membership that included the added membership from Wednesday's submissions. He requested that participants break up into their assigned work groups and spend the rest of the day reviewing the standard outline from

their work group's perspective. He asked each work group to designate a facilitator to keep the meetings moving forward, a volunteer with a computer to run the WebEx program for remote participants and a note taker to help record decisions for reporting out the next day. The project manager asked each group to focus on three things during their deliberations. 1. Identify areas in the draft standard outline that include your topic area; 2. Determine which issues are significant enough to be included, added or are not significant and should be removed; and 3. Try to prioritize the issues by placing them in one of three levels from low to medium to high. The work groups then broke into their units for deliberating the rest of the day. Facilitators floated between the groups to provide guidance, find resources and give assistance when needed.

FRIDAY, FEBRUARY 17, 2006

The project manager welcomed everyone back. He gave an overview of progress of the work groups from Thursday's meeting and invited each of the work groups to present their findings and recommendations to the full group.

Work Group One: Human and Ecosystem Health - Denise VanValkenburg, Steelcase, Inc.

Denise identified herself as the Work Group spokesperson and presented an outline of issues and questions they developed.

- Do we need to differentiate between supply chain/manufacturing/useful life/end of life?
- How do we address the precautionary principle vs. a risk assessment approach?
- A chemical list is imperative - this area needs more research on what chemicals to include, major chemicals identified so far include:
 - Stockholm chemicals
 - For electronics ROHS/WEE
 - Flame retardants
 - PBT
 - California proposition 65 chemicals
- Another area needing further research is emissions of volatile organic compounds (VOCs).
- PVC material bans - more research needed.
- Isocyanates - this an issue that needs to be considered in more depth?
- Plating concerns – plating in third world countries is an issue that needs to be addressed in more detail.
- Risk assessment - new materials have been introduced and we don't know risk associated with them, how do we handle them and will the standard address this aspect of environmental health (see precautionary principle above)?
- We need to be sensitive about providing tools for smaller companies.
- What is realistic for upstream and downstream facilities/supplier process – this issue needs to be addressed in more detail.
- How are VOC's defined in the Furniture Emission Standard?
- Ozone depletion – how will we address foreign suppliers and existing usages?
- Import impacts- further research necessary?
- Bi-national Toxics Strategy in the Great Lakes region which brings in Canadian issues.

Questions and Comments Asked of Work Group One

- Long list of potential issues we will want to refine later after we figure out what needs to be addressed by the furniture industry.
- Environmental health and human toxicity is very important to EPA and they want to see this issue included. EPA has a lot of detailed information on this issue that they can provide.

Work Group Two: Energy Efficiency and Renewable Energy- Lou Newett, Knoll Furniture

Lou identified himself as the Work Group spokesperson and presented an outline of issues and questions they developed.

Provided an Outline format

- Develop an energy policy as a prerequisite for energy credit.
- Divided the approach into facility and product energy opportunities
- Facility - need to assess facility to discover where your largest energy savings can be made.
- Use EnergyStar building tools and criteria – LEED has already adapted EnergyStar. It is easy to use and gives good value and output.
- Look at product related energy – LCA information needed, NCMS assistance could help here if they look at the embodied energy of product and assign value. Also look at the process energy used to make the product in the facility. Activity Based Costing is a good tool; rate on energy per hour, used in a lot of assessments.
- List of biggest energy user components
- Finished product consumption –Title 2 California is new and can be addressed
- Transportation – don't have good handle on; more research needed.
- Green energy such as wind and solar and onsite energy generation – saw dust burning etc.
- Recommend using an outline format that is consistent with LEED. Many users are already familiar with LEED format and rating system.
- Only one prerequisite – develop energy policy and or program
- There is a lot of economic value in the energy section
- Points for reducing embodied energy- more research to fine tune the numbers
- How does the group suggest that a user measure transportation?
- The percent of green energy is low because of the cost and low availability of green energy sources in most part of the country.
- Regarding application to the supply chain; the group lowered the numbers because of the large amount of suppliers and their concern that it is more achievable and encouraging for the supply base to become involved.
- Generate on site energy – some may be able to get all points- encouraging the investment to put in the extra pollution control equipment
- Percentages recommended in the outline need to be researched and need additional prerequisites.

Questions Asked of Work Group Two

- Innovation ideas – Could we consider climate neutral products as an innovation credit? Movable walls have energy benefits in contrast to having to build walls etc. Floors - under floor air benefit should be considered worthy of energy credits.
- GHG issues – conversion process – where to put in the document?

There was a consensus about supporting the approach the energy group developed in developing a scoring matrix (similar to the one used by LEED). They started out with a general policy, and then went to the facility level, then to the product level, then to outside renewable energy. It

seemed to be a logical progression from simple to more complex and is potentially a good template for other groups to consider.

Work Group Three: Water and Natural Resources – Mark LaCroix, Interface Fabrics, Inc.

Mark identified himself as the Work Group spokesperson and presented an outline of issues and questions they developed.

- General discussion noted the potential overlap on many issues with Materials and the Human/Ecosystem Health and Energy Work Groups.
- Clare Lindsey from the US EPA agreed to help compile commonly accepted environmental and sustainability definitions within the EPA and provide to the group.
- Bio Based materials – heavy reliance on supply chain members for supplying the information, how will this be handled?
- Wood – not sure yet how the standard should measure - more research is needed. Certification programs – benefit to reference standards such as FSC, but also believe there is value in other less recognized programs- local, regional. How would you rate the local programs, chain of custody, develop further?
- What is available in the market place? The group had trouble answering this question.
- Biofibers – Don't limit to one solution.
- Making something of value from the waste stream – post industrial is the recommendation. Ideal tool that encompassed all impacts. Standard should help drive behavior, post consumer waste content is harder to capture – this could get higher rating/points than post industrial content?

Draft Element 6(d) - Reclamation- take back program

- What can we control- need to be realistic with the standard; not a lot of OEM's involved; write things in that we can control as an industry.
- Durability is an important issue, but do not yet have a recommended approach.
- It would be useful if a survey could be conducted to make a baseline estimate to help figure out what is going on in the industry in regards to reclamation processes.

Draft Element 6(e) Design Elements

- Design for the Environment (DfE) – look at the current tools in use. Critical to the standard and need to determine how to utilize this instrument.
- Product packaging – looking outward for information, design for reuse, not necessarily for downcycling.
- BIFMA needs to start collecting key sustainability issues using those metrics to show progress in environmental improvement. Report to BIFMA – get credit/point?

Draft Element 7(c) Water Management

- Recommend looking at water use and relating it to a unit of production.
- Attempt to measure embodied water content.
- Produce less and less waste; the work group wants to encourage closing the loop where possible. Working towards the least waste possible. Compostable material is desirable.

Questions Asked of Work Group Three

- How should the standard outline be used with the suppliers; use it as is or just certain line items?
- The Work Group needs more information in disposal and recycled content.
- Support the direction the standard is going on recycled content –just relying on post consumer isn't always economically viable, we need both.
- The toxicity issue also needs to be addressed, design them out along supply chain. Handling of hazardous materials shouldn't be left out, something similar MBDC cycle of technical nutrients.
- Will we accommodate levels 1, 2, and 3 conformance verification, recommend that all levels of conformance verification should be considered.
- It assumed that the market would decide which conformance verifications are appropriate, but to that extent, all viable conformance verifications need to be considered.

Work Group Four: Social Responsibility – Bill Foley, Interface Fabrics, Inc.

Bill identified himself as the Work Group spokesperson and presented an outline of issues and questions they developed.

- Do BIFMA members have positions on social responsibility; what is the state of knowledge on this topic? How many members have a social responsibility policy?
- Members looked at Hewlett Packard's Social Responsibility Report and thought it was a good start, and might serve as a model.
- What are the current standards that have a Social Responsibility element? Can BIFMA survey the current offerings on this issue to create a benchmark?
- The Global Reporting Initiative may be too rigorous as a starting point.
- Some level of Social Responsibility should be implemented into the supply chain, however too early to suggest what level at this point?
- A first-cut at identifying voluntary issues that would be considered relevant in the standard were listed, they included:
 - Work place health and safety program
 - A formal policy on Social Responsibility
 - Guidelines on work place diversity
 - Extend expectations into the supply chain
 - Conform to a Social Responsibility Standard
 - Report on Social Responsibility Performance

It was suggested that a work place health and safety program could be a prerequisite.

Questions for Work Group Four

- It was announced that an international standard on social equity is being developed by the International Standards Organization and will be developed as ISO 26000.
- Companies like Nike have completed a blanket social responsibility assessment.
- There was a concern that other cultures (outsourced to third world nations) don't implement social responsibility programs well.
- The intent of the standard is to start companies down the road in developing a social responsibility position, use the standard to get interest in the subject and to accelerate its

inclusion in their business plans. Would like to use the standard as incentive not a requirement.

- The market place is starting to look more carefully at social responsibility, it looks at this issue as a proactive but easy to use and improve on what they currently offer. The metrics for Social Responsibility are just starting to evolve and are not strong now.
- Has there been any consideration on how the Social Responsibility portion of the standard will be rolled out?

At the conclusion of the Report Out by Work Group Four, the project manager complemented the participants on their work and expressed how impressed he was with the significant amount of work and progress that was accomplished in the short amount of time available. He asked if there were any additional comments, questions or suggestions from anyone that had not already been addressed? The following questions were asked:

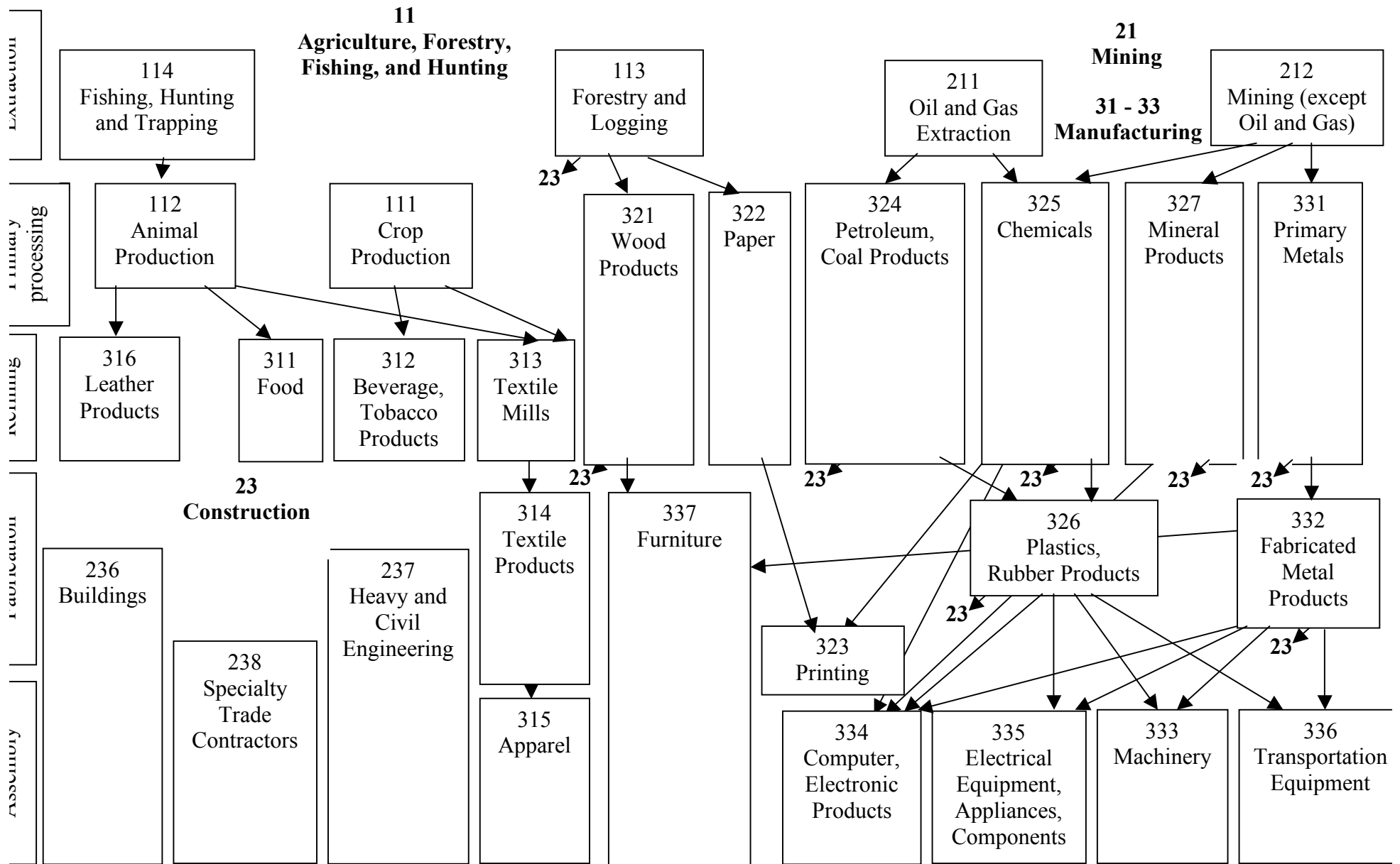
- Why are we trying to meet such an aggressive schedule? The response listed several reasons, to meet market pressures from customers, to harmonize a growing field of conflicting and partially redundant offerings and to keep participants engaged and motivated.
- Is it possible for the meetings to be one full day and have the workgroups meet at another time? It is possible, but would mean longer involvement but is worth considering.

The project manager thanked all participants for their contributions and promised to provide follow up information and updates as the project moves forward. The meeting was adjourned at 11:50 a.m.

NAICS Categories (11 – 339, three digit level)

- 11 Agriculture, Forestry, Fishing and Hunting
 - 111 Crop Production
 - 112 Animal Production
 - 113 Forestry and Logging
 - 114 Fishing, Hunting and Trapping
 - 115 Support Activities for Agriculture and Forestry
- 21 Mining
 - 211 Oil and Gas Extraction
 - 212 Mining (except Oil and Gas)
 - 213 Support Activities for Mining
- 22 Utilities
 - 221 Utilities
- 23 Construction
 - 236 Construction of Buildings
 - 237 Heavy and Civil Engineering Construction
 - 238 Specialty Trade Contractors
- 31-33 Manufacturing
 - 311 Food Manufacturing
 - 312 Beverage and Tobacco Product Manufacturing
 - 313 Textile Mills
 - 314 Textile Product Mills
 - 315 Apparel Manufacturing
 - 316 Leather and Allied Product Manufacturing
 - 321 Wood Product Manufacturing
 - 322 Paper Manufacturing
 - 323 Printing and Related Support Activities
 - 324 Petroleum and Coal Products Manufacturing
 - 325 Chemical Manufacturing
 - 326 Plastics and Rubber Products Manufacturing
 - 327 Nonmetallic Mineral Product Manufacturing
 - 331 Primary Metal Manufacturing
 - 332 Fabricated Metal Product Manufacturing
 - 333 Machinery Manufacturing
 - 334 Computer and Electronic Product Manufacturing
 - 335 Electrical Equipment, Appliance, and Component Manufacturing
 - 336 Transportation Equipment Manufacturing
 - 337 Furniture and Related Product Manufacturing
 - 339 Miscellaneous Manufacturing

On the following page, these categories are arranged in a hierarchy according to materials flows.



Major material flows in products, by NAICS Category (to three digit level)