

Summary

WBC Research Themes

Review & Update

Theme A

Theme A: Improved Performance and Functionality

Successful research projects will address the fundamental study of product functionality, improved short or long-term performance, and evaluation methods. Projects focus on specific products or assembled systems.

Subtheme A.1.: Improved Performance and Durability

1. Strength, stiffness, and creep response
2. Dimensional stability
3. Mold/fungus resistance
4. Insect resistance
5. Moisture resistance
6. Fire performance
7. Thermal resistance
8. Under extreme conditions
9. Natural Disasters
10. Full-scale weathering

Subtheme A.2.: Functionality

1. Energy efficiency
2. Insulation
3. Electrical conductivity
4. Thermal conductivity
5. Gas barrier
6. Fire resistance
7. Products that serve more than one function
8. Fasteners and connections

Subtheme A.3.: Performance Evaluation

1. Examination of failure mechanisms
2. Improved test methods
3. Evaluating energy efficiency of products or assemblies
4. Improved understanding of filler properties and resin/filler interactions
5. Investigating alternatives for the IB test

Subtheme A.4.: Newly developed products associated with coatings, treatments, insulation, etc.

No items

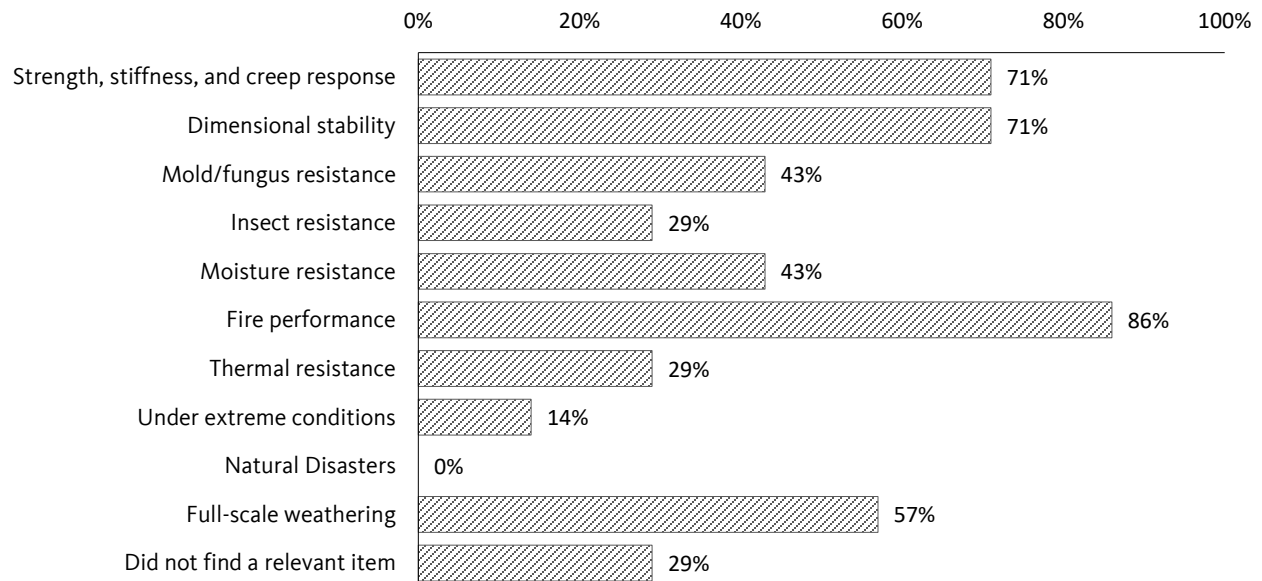
Theme A: Improved Performance and Functionality Review & Update

Response Rate 56%

Question 1. **Subtheme A.1. Improved Performance and Durability** contains several items, please choose the ones that are important/relevant for your field of work (check all that apply):

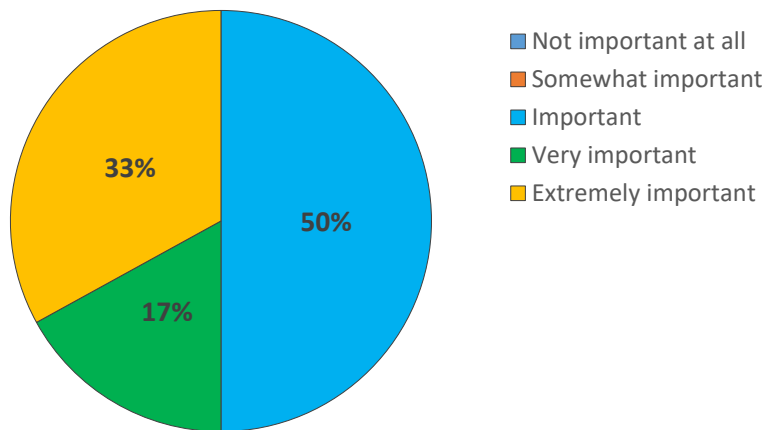
| Items | Count | Percentage |
|---|-------|------------|
| Strength, stiffness, and creep response | 5 | 71% |
| Dimensional stability | 5 | 71% |
| Mold/fungus resistance | 3 | 43% |
| Insect resistance | 2 | 29% |
| Moisture resistance | 3 | 43% |
| Fire performance | 6 | 86% |
| Thermal resistance | 2 | 29% |
| Under extreme conditions | 1 | 14% |
| Natural Disasters | 0 | 0% |
| Full-scale weathering | 4 | 57% |
| Did not find a relevant item | 2 | 29% |

Subtheme A.1. Important/Relevant Items



Question 2. Please rate the importance of **Subtheme A.1. Improved Performance and Durability** for your field of work:

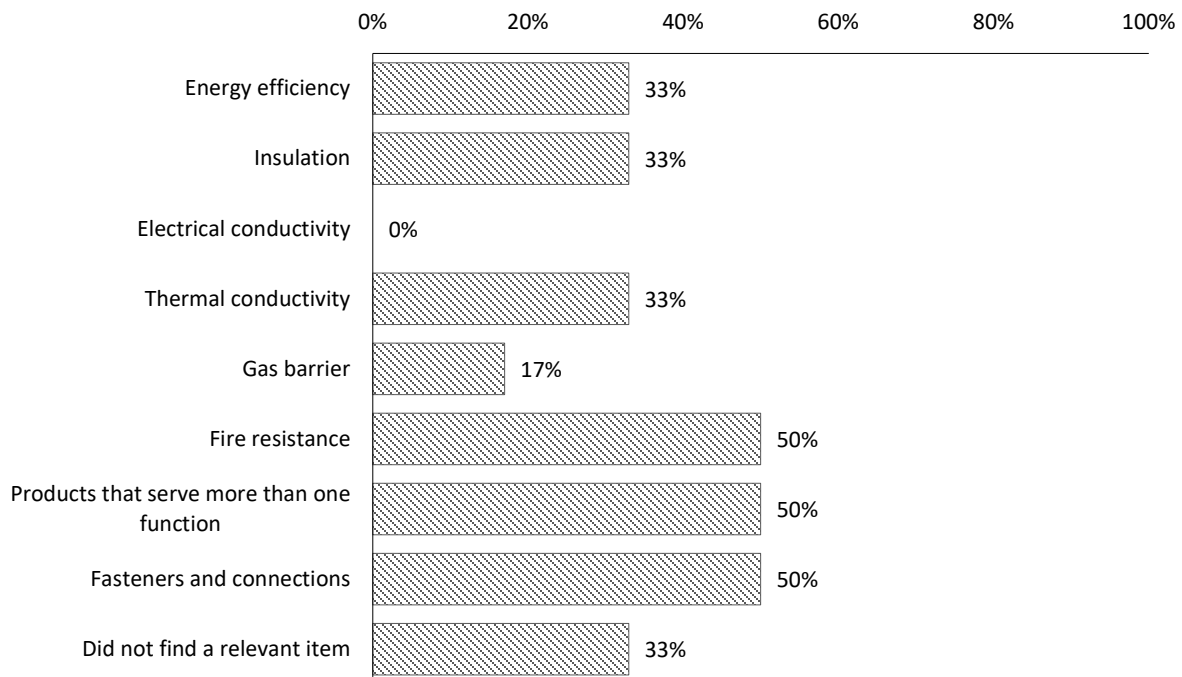
| Level of Importance | Count | Percentage |
|----------------------|-------|------------|
| Not important at all | 0 | 0% |
| Somewhat important | 0 | 0% |
| Important | 3 | 50% |
| Very important | 1 | 17% |
| Extremely important | 2 | 33% |



Question 3. Subtheme A.2. Functionality contains several items; please choose the ones that are important/relevant for your field of work (check all that apply):

| Items | Count | Percentage |
|--|-------|------------|
| Energy efficiency | 33% | 2 |
| Insulation | 33% | 2 |
| Electrical conductivity | 0% | 0 |
| Thermal conductivity | 33% | 2 |
| Gas barrier | 17% | 1 |
| Fire resistance | 50% | 3 |
| Products that serve more than one function | 50% | 3 |
| Fasteners and connections | 50% | 3 |
| Did not find a relevant item | 33% | 2 |

Subtheme A.2. Important/Relevant Items

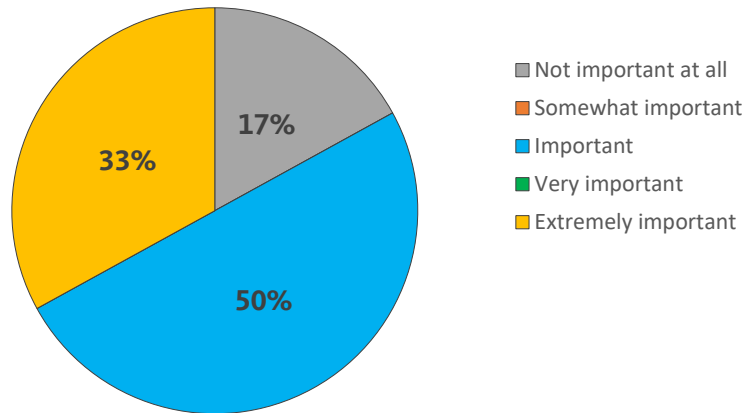


Question 4. Please recommend a new item(s) for **Subtheme A.2.Functionality**. Please add a short definition for the item(s).

- *Moisture Performance*

Question 5. Please rate the importance of **Subtheme A.1. Improved Performance and Durability** for your field of work:

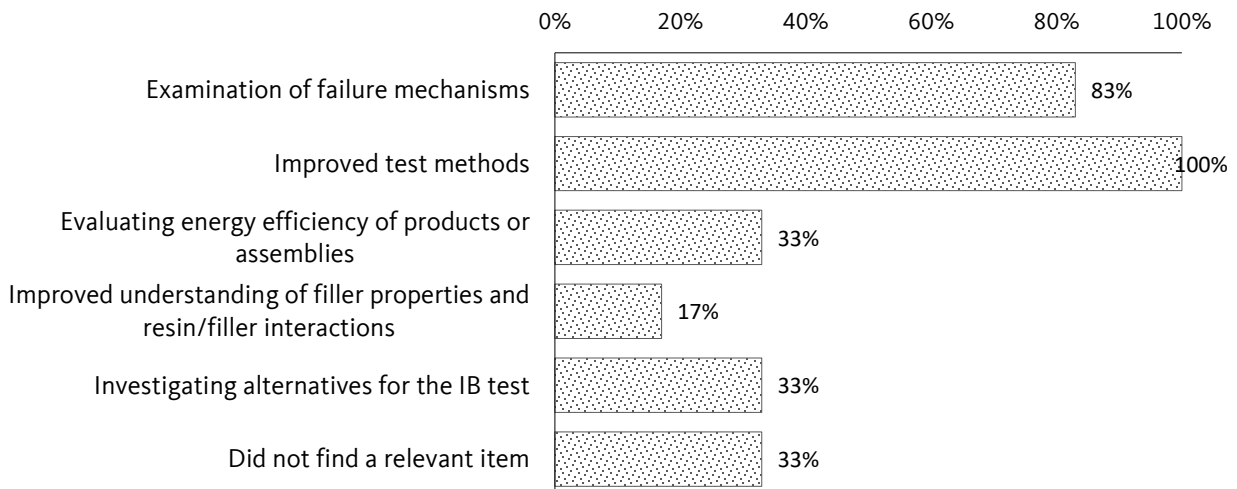
| Level of Importance | Count | Percentage |
|----------------------|-------|------------|
| Not important at all | 0 | 0% |
| Somewhat important | 0 | 0% |
| Important | 3 | 50% |
| Very important | 1 | 17% |
| Extremely important | 2 | 33% |



Question 6. **Subtheme A.3. Performance Evaluation** contains several items; please choose the ones that are important/relevant for your field of work (check all that apply):

| Items | Count | Percentage |
|---|-------|------------|
| Examination of failure mechanisms | 83% | 5 |
| Improved test methods | 100% | 6 |
| Evaluating energy efficiency of products or assemblies | 33% | 2 |
| Improved understanding of filler properties and resin/filler interactions | 17% | 1 |
| Investigating alternatives for the IB test | 33% | 2 |
| Did not find a relevant item | 33% | 2 |

Subtheme A.3. Important/Relevant Items

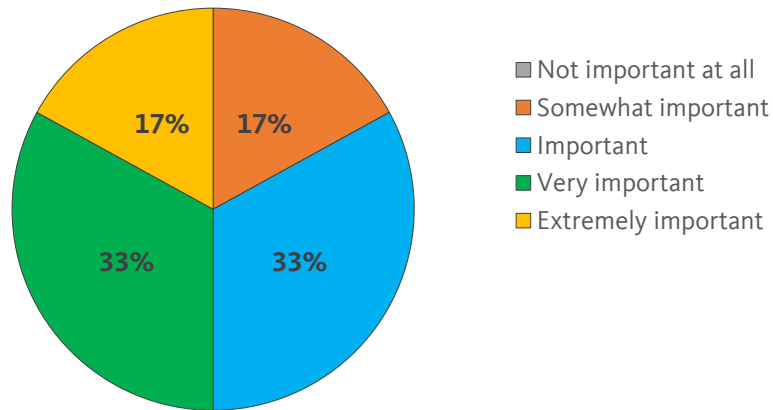


Question 7. Please recommend a new item(s) for **Subtheme A.3. Performance Evaluation**. Please add a short definition for the item(s).

- Broaden testing for all D1037 as applied performance evaluation for/per application/composite.
- Explore enhance quality testing to remove subjectivity
- Next generation adhesive filler technologies

Question 8. Please rate the importance of **Subtheme A.1. Improved Performance and Durability** for your field of work:

| Level of Importance | Count | Percentage |
|----------------------|-------|------------|
| Not important at all | 0 | 0% |
| Somewhat important | 0 | 0% |
| Important | 3 | 50% |
| Very important | 1 | 17% |
| Extremely important | 2 | 33% |

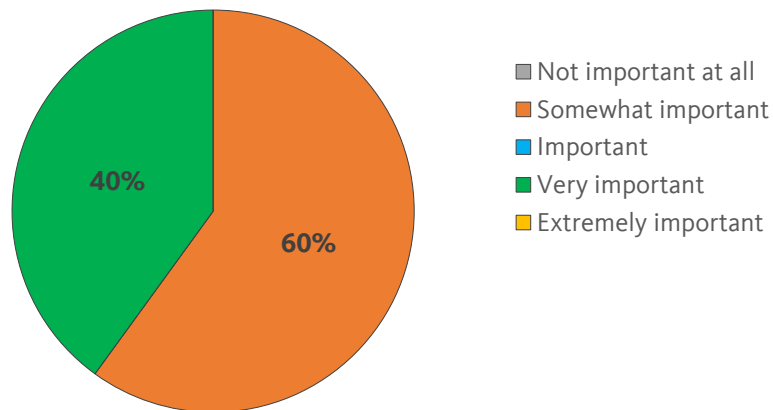


Question 9. Please recommend a new item(s) for **Subtheme A.4. Newly developed products associated with coatings, treatments, insulation, etc.** Please add a short definition for the item(s).

- Enhanced weathering performance
- Use of coatings as predictive indicators
- Wood enhancements (i.e., chemical, mechanical, etc.)
- Acoustics via treatments, coatings, modification, etc.
- Further development of wood fiber insulation and foams
- This topic is relevant to the previous subthemes.
- Suggested title for A.4 -- Coatings and Treatments. Specific refer to A.1 through A.3.
- I would suggest a title as "Coatings and Treatments" and refer to A.1-A3.

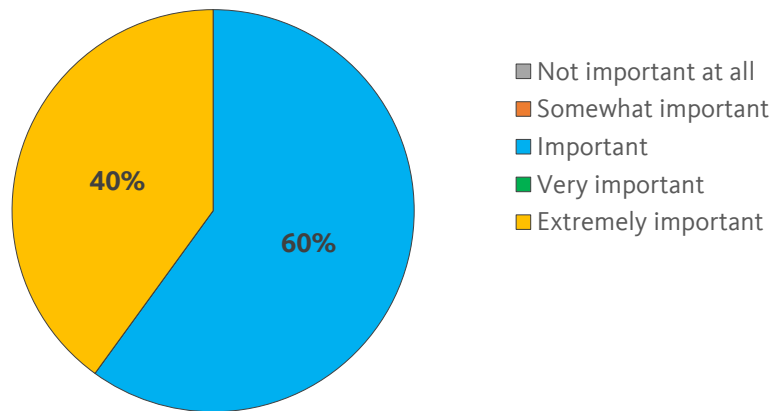
Question 10. Please rate the importance of **Subtheme A.4. Newly developed products associated with coatings, treatments, insulation, etc.** for your field of work:

| Level of Importance | Count | Percentage |
|----------------------|-------|------------|
| Not important at all | 0 | 0% |
| Somewhat important | 3 | 60% |
| Important | 0 | 0% |
| Very important | 2 | 40% |
| Extremely important | 0 | 0% |



Question 11. Overall, please rate the importance of theme **A. Improved Performance and Functionality** for your field of work:

| Level of Importance | Count | Percentage |
|----------------------|-------|------------|
| Not important at all | 0 | 0% |
| Somewhat important | 0 | 0% |
| Important | 3 | 60% |
| Very important | 0 | 0% |
| Extremely important | 2 | 40% |



Suggestions & Comments

Suggestions

Please provide suggestions to improve and update research theme **A. Improved Performance and Functionality**, subthemes, and items.

- *My intent is to provide a PDF with my suggestions.*
- *I would like to send a separate document with my suggestions and comments.*
- *I will provide suggestions outside of the L.I.F.E form. (See below):*

In **purple** items modified or eliminated, in **blue** items added:

| Current | Suggested |
|---|--|
| A. Improved Performance and Functionality | A. Evaluating the Performance and Functionality |
| Subtheme A.1.: Improved Performance and Durability <ol style="list-style-type: none"> 1. Strength, stiffness, and creep response 2. Dimensional stability 3. Mold/fungus resistance 4. Insect resistance 5. Moisture resistance 6. Fire performance 7. Thermal resistance 8. Under extreme conditions 9. Natural Disasters 10. Full-scale weathering | Subtheme A.1. Performance and Durability <ol style="list-style-type: none"> 1. Strength, stiffness, and creep response 2. Dimensional stability 3. Fungal and Insect Resistance 4. Moisture/Ultraviolet Resistance 5. Fire Performance 6. Thermal Resistance 7. Extreme environmental conditions performance 8. Seismic performance 9. Weathering resistance 10. Acoustic performance 11. Blast and ballistic resistance |
| Subtheme A.2.: Functionality <ol style="list-style-type: none"> 1. Energy efficiency 2. Insulation 3. Electrical conductivity 4. Thermal conductivity 5. Gas barrier 6. Fire resistance 7. Products that serve more than one | Subtheme A.2.: Functionality <ol style="list-style-type: none"> 1. Energy efficiency 2. Electrical/thermal conductivity 3. Gas barrier 4. Fire resistance. 5. Fasteners and connections |

| Current | Suggested |
|--|--|
| <p>function</p> <p>8. Fasteners and connections</p> | |
| <p>Subtheme A.3.: Performance Evaluation</p> <ol style="list-style-type: none"> 1. Examination of failure mechanisms 2. Improved test methods 3. Evaluating energy efficiency of products or assemblies 4. Improved understanding of filler properties and resin/filler interactions 5. Investigating alternatives for the IB test | <p>Subtheme A.3.: Performance Evaluation</p> <ol style="list-style-type: none"> 1. Examining failure mechanisms. 2. Improving standard test methods 3. Developing new test methods 4. Evaluating products and/or assemblies for: <ol style="list-style-type: none"> a. Energy efficiency b. Fire performance. c. Acoustic performance |
| <p>Subtheme A.4.: Newly developed products associated with coatings, treatments, insulation, etc.</p> <p>No items</p> | <p>Subtheme A.4. Coatings and Treatments</p> <ol style="list-style-type: none"> 1. See A.1 to A.3 2. Effects of treatments and coatings on adhesive bond quality. |

Comments

Please comment on how to improve and update research theme **A. Improved Performance and Functionality**, subthemes, and items.

- *To be provided.*
- *Subtheme 4 seems dependent on the first three subthemes and does not necessarily need to stand alone.*
- *My intent is to provide a PDF with my comments*
- *I would like to send a separate document with my suggestions and comments.*