1. BACKGROUND

The Continental Automated Buildings Association (CABA) is an industry association dedicated to the advancement of connected home and intelligent building technologies. CABA is an international association, with over 3500 major private and public technology organizations committed to research and development within the intelligent building and connected home sectors. Association members are involved in the design, manufacture, installation and retailing of products for home and building automation. CABA is a leader in initiating and developing cross-industry collaborative research, under the CABA Research Program.

CABA has two councils, the Connected Home Council (CHC) focusing on residential homes and the Intelligent Buildings Council (IBC) focusing on larger commercial buildings. Each Council produces one collaborative “Landmark Research” project per year which is fully funded by CABA members. These projects are approximately US$150,000 in scope. Each Landmark Research project is directed by a steering committee made up of the project funders. The steering committee provides feedback and input throughout the course of the research to help define the scope, direction, and methodology. CABA and the project steering committee commission a research firm to conduct the research while CABA provides project management and leadership.

The Intelligent Building market is a fast evolving industry segment that is being influenced by a number of emerging industry trends and pressing “hot button” issues. CABA’s Intelligent Buildings Council (IBC) participated in several research ideation sessions to generate topics and select the next IBC Landmark Research project for 2017. Several excellent ideas were generated, the top two (2) topics were voted on by the CABA membership, and “Intelligent Building Design & Implementation” was selected as the IBC Landmark Research topic for 2017.

2. PURPOSE OF THE RESEARCH

The purpose of this research is to address the approach and application of technical design in Intelligent High-Performance Buildings from the perspective of architects, building engineers, designers, OEM hardware/software providers, service providers and facility managers. This research will provide a
comprehensive examination of all the major aspects of Intelligent Building design and implementation, including: state of the market, key industry players, business opportunities, technical barriers and opportunities, future market direction, issues, case studies and industry recommendations.

3. RESEARCH VENDOR QUALIFICATIONS

Overarching criteria will be determined by the Steering Committee, Council Executive Committee and CABA, via competitive bid criteria and process. At a minimum, the research firm will have a history of working and conducting research relating to Intelligent Buildings.

4. STRATEGIC VALUE OF THE STUDY

The outcomes of this collaborative research project should provide the Steering Committee members a clear understanding of Intelligent Building design and implementation and the opportunities and solutions in relation to Intelligent Building Design. This study will assist organizations to make sound business decisions using reliable third party qualitative and quantitative data.

5. PROJECT SCOPE

Increasingly more buildings are partially or fully incorporating elements of Intelligent Building Design which utilizes the latest technologies and processes to create more efficient, sustainable, comfortable, functional and cost effective buildings. This research will examine these technologies and processes along with implementation and the many challenges and opportunities that exist. This research will utilize both qualitative (In-depth interviews) and quantitative (Consumer or industry questionnaires) research to provide actionable data relevant to: business opportunities, technical barriers and opportunities, future market direction, issues, use cases and industry recommendations.

Topics that might be covered in this research include, but are not limited to, the following:

- Comfort and climate control
- Green and sustainable buildings
- Utility management (Hydro, water and gas, etc.)
- Lighting implementation and design
- Productivity and workplace performance
- Information processing, big data and data analytics
- Energy management systems
- Energy assessments
- Life cycle costing and Return on Investment (ROI)
- Capital expenditures (CAPEX) vs. operating expenditures (OPEX)
- Role of product and service provides
- Bid specification process and system selection
• System integration
• Interoperability
• Communication network architecture
• Passive vs. active building systems
• Safety, security (physical and cybersecurity) and access control
• Transportation systems, such as parking, elevators and escalators, etc.
• Regulations, standards and compliance
• Structured cabling (fiber optic and copper, etc.) vs. wireless solutions
• Space utilization and flexibility
• Passive and active energy efficient technologies
• Continuous building commissioning

Disclaimer: The topics mentioned above are meant to be a general outline of this research project. The final research may not address all the topics outlined above, and additional topics may be added. The scope of the final research will be narrowed down or expanded further in the RFP submission process, and later by the Steering Committee. The research scope and prospectus is designed to be only a general outline, this allows for more freedom and creativity in the RFP submissions.

6. STUDY APPROACH and RESEARCH METHODOLOGY

This Landmark Research will leverage several different methodologies to maximize the value of and validate the deliverables

Review and Analyze Existing Applicable Industry Research:

The research will leverage relevant industry research and thought leaders to create a base from which the Steering Committee and research firm can begin to develop concept hypotheses for testing.

Methodologies to be considered for opportunity identification and vetting:

Qualitative Research (in-depth interviews) and Quantitative Research (consumer or industry questionnaires) will be used.

7. PROJECT DELIVERABLES

The general deliverables for this project consist of the following:

• Introductory Webinar (1 hour) to help promote the project to existing members and potential funders.
• Kick-off Webinar to the Steering Committee to outline the research purpose, scope, objectives, approach, and timelines.
• Regular Steering Committee meetings (via webinar) to communicate; progress, preliminary findings, approvals of research methodologies, and
next steps. Depending on the stage of the study, email updates may at
times replace webinar meetings.

- Delivery of five (5) draft documents in a format that CABA will provide
  through past CABA Landmark Research.
  (1) Full report (Microsoft Word format)
  (2) Executive summary (Microsoft Word format)
  (3) Full report presentation (Microsoft PowerPoint format)
  (4) Executive summary presentation (Microsoft PowerPoint format)
  (5) Raw Data

- Delivery of five (5) final documents
  (1) Full report (Microsoft Word format)
  (2) Executive summary (Microsoft Word format)
  (3) Full report presentation (Microsoft PowerPoint format)
  (4) Executive summary presentation (Microsoft PowerPoint format)
  (5) Raw Data

- Final Webinar (1.5 – 2 hours) will be presented to all the funders, after the
  final documents have been delivered. This webinar is for all funders of
  the research not just Steering Committee level funders.

- Individual Steering Committee Organization Webinars (1 hour) for each
  organization on the Steering Committee, unlimited attendance per
  organization. These webinars will be presented after the final documents
  have been delivered to the funders. Steering Committee members have
  one month to arrange for these presentations.

- CABA Membership Webinar (1 hour) to present the high level executive
  summary findings only. This occurs after the four (4) month embargo
  period.

8. PROPOSED TIMELINE

Timeline details will be finalized during the initial planning session by a selected
research firm, CABA and the Steering Committee. This timeline is tentatively
based on the scope of the project as defined in this document. Depending on the
breadth of agreed specification, estimated project duration is 18-20 weeks,
from prospectus development to final report delivery. Steering Committee
members will be asked to provide valued input to project development. The
selected research firm, in conjunction with CABA, will prepare detailed timelines,
project milestones, responsibilities, and action/delivery dates; as agreed to by the
Steering Committee. Bi-weekly webinars with the Steering Committee will serve
to keep funders abreast of progress, developments, and key findings.
The following outline may be adjusted, pending confirmation of tasks and timing:

<table>
<thead>
<tr>
<th>IBC Landmark Research 2017:</th>
<th>Anticipated Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intelligent Building Design &amp; Implementation – DRAFT/ESTIMATED</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Activity</strong></td>
<td><strong>Anticipated Date</strong></td>
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<tr>
<td>Research set-up and kick-off meeting</td>
<td>TBD</td>
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<tr>
<td>Secondary research</td>
<td>TBD</td>
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<tr>
<td>Primary research</td>
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<tr>
<td>Analysis and reviews</td>
<td>TBD</td>
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<tr>
<td>Draft report delivery</td>
<td>TBD</td>
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<tr>
<td>Final report delivery</td>
<td>TBD</td>
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<tr>
<td>Final Webinar (1.5 – 2 hours) with all the funders to highlight the findings of the research.</td>
<td>TBD</td>
</tr>
<tr>
<td>Individual Steering Committee Organization Webinars (1 hour each), one (1) webinar for each organization on the Steering Committee.</td>
<td>TBD</td>
</tr>
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<td>TBD</td>
</tr>
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</table>

## 9. PARTICIPATION OPPORTUNITIES

**Bronze Funder ($5K):**
- Name and logo will be placed on the front page of the research report, slide deck, media releases, and marketing material.
- Opportunity to participate in the final webinar with all the funders which will highlight the findings of the research in detail.
- Ability to ask the questions to the research analysts.
- Final report, executive summary and presentations.

**Silver Funder ($10K):**
- All benefits of the Bronze Funder.
- Will be on the Steering Committee and allowed to: define the research scope and methodology, provide feedback and input regarding the direction of the study, and participate in Steering Committee webinars.
- Will have a special one (1) hour webinar specifically for your organization. Anyone from your organization can attend and receive a detailed overview of the research findings that relate to your organization.
- Will receive bonus research reports that the vendor may provide.
Gold Funder ($15K):
- All benefits of the Silver Funder.
- Will receive a case study within the research to highlight the work your organization has been doing in the area. Case studies are typically supplied by the funder, but in some instances research firms have developed case studies on the funder’s behalf. This case study will be included with the executive summary, which will be distributed to all CABA member contacts.

*Note: All funds are in US dollars.*

10. PREVIOUS CABA RESEARCH

CABA has undertaken a number of Landmark and Multi-Client Boutique research projects. To better understand the intelligent building research that CABA has completed, please review the following executive summaries in the CABA Members Library, [http://www.caba.org/member-research-library](http://www.caba.org/member-research-library):

- Intelligent Buildings and Cybersecurity (2016)
- Intelligent Buildings and Big Data (2015):
- Smart Grid Impact on Intelligent Buildings (2011):
- Market Size in North America (2010):

*If you do not have access to the CABA Members Library, please contact CABA to receive your passcodes.*

11. CONTACT INFORMATION:

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