smma

Advisory Team – Sustainability & MEP Systems 2

Project Name:	Medford High School	Project Number:	25100
RE:	Advisory Team - Sustainability & MEP Systems	Meeting Date:	01/15/2026
Prepared by:	Brenda Lam	Meeting Number:	02
Distribution:	Attendees		

Owner

- [x] Libby Brown, *SBC Member, Architect at Goody Clancy*
- [x] Suni Dillard, *Medford Resident, Sustainability Leader at HMFH Architects*
- [x] Austin Ditz, *Medford Resident, Solar Project Manager*
- [x] Audrey Feitor, *Medford High School Teacher*
- [x] Jenny Graham, *Chair of SBC, Vice Chair of School Committee*
- [x] Chris Hogan, *Medford Resident*
- [ ] Elisabeth Krautscheid, *Medford Resident, MassSave Decarbonization Program*
- [x] Ken Lord, *MPS Chief Operating Officer*
- [x] Sarah Michelman, *Medford Resident, Sustainable Design Consultant at The Green Engineer*
- [ ] Nicole Morell, *SBC Member*
- [x] Jessica Parks, *Medford Resident, MIT Energy Efficiency Project Manager*
- [x] Brenda Pike, *City of Medford Climate Policy Planner*
- [x] Luke Preisner, *SBC Member*
- [x] Chris Richard, *Medford Resident, Senior Project Superintendent at Turner*
- [x] Paul Ruseau, *SBC & School Committee Member*
- [x] Nathan Scott, *Medford Resident, Capital Construction at Tufts University*

SMMA & Consultants

- [x] Martine Dion, *Director of Sustainable Design*
- [x] Brenda Lam, *Sustainable Design Project Coordinator*
- [x] Helen Fantini, *Project Manager*
- [x] Matt Rice, *Principal-in-Charge, Architect*
- [x] Abigail Ransmeier, *Head of Research*
- [x] Soala Ajienka, *Architectural Designer*
- [x] Emily Ehlers, *Mechanical Engineer*
- [x] Andrew Barros, *Electrical Engineer*
- [ ] Anthony Jimenez, *Electrical Engineer*
- [x] Sarah Long, Interior Designer

- [x] James Job, *Plumbing & Fire Protection Engineer*, AKAL Engineering
- [ ] Tommaso Bitossi, Transsolar

Leftfield

- [x] Jen Carlson, *Project Director*
- [x] Matt Gulino, *Project Manager*
- [ ] Adele Sands, *Educational Liaison*

Item No.	Action	Discussion
02.01	Record	**Meeting #2 Agenda** • Welcome & introductions • Overview of the Advisory Team process & milestones • Topics and Priorities - Takeaways from Meeting #1 ○ LEEDv5 Preliminary Overview ○ Climate Resiliency ○ Embodied Carbon ○ Healthfulness, Environmental Quality Literacy ○ Life Cycle Cost Analysis - Cost Effectiveness Overview • Next Steps
02.02	Record	**Overview of Advisory Team Process & Milestones** • Four Advisory Teams - not individual silos of discussion; all are connected but each team gives space for deeper discussion

		○ Each team will produce a set of recommendations for the full SBC to review and approve • Objective of Sustainability & MEP Systems: Reviews preferred MEP systems, sustainable design features and components, healthy materials; site design and landscape features for environmentally friendly design. • Sustainable Design Givens include: MSBA Green School Policy, Massachusetts Specialized Stretch Energy Code, and Medford Sustainable Goals and Guidelines. **Overall process: 4 meetings** • Listen > Review & Respond > Confirm & Recommend > Reconvene **Goals & Aspirations Discussion** • Participant was not present at previous meeting for the goals and aspirations discussion. Conveyed goal for resiliency and building as a community resource, in the case that residents need food/water/etc. Passive survivability is important to maintain comfortable temperatures in case of emergencies. The building to be designed also as an emergency shelter. This topic needs to be discussed with first responders to understand the city's perspective.
02.03	Record	**Topics and Priorities - Takeaways from Meeting #1** 1. **LEEDv5 Overview**: SMMA provided an overview of the LEED version 5 credit categories and a preliminary assessment for the LEED version 5 Scorecard for the proposed project. The base MSBA reimbursement requires LEED Silver. Gold/Platinum will require assessment of LEED points from SMMA. Medford to discuss/aspiration for LEED Gold or Platinum. Several LEED credits have costs tied to them, such as renewable energy. LEED Gold or Platinum schools are not awarded greater reimbursement from MSBA. Additional reimbursement is tied to certain IAQ and Materials credits. <u>Discussion:</u> ○ At Wakefield Memorial HS (WMHS), the community confirmed LEED Silver minimum and voiced aspiration to LEED Gold. Wakefield has municipal power company, while Medford does not, and would like to understand applicability in terms of energy storage when compared to Medford. The design team noted that the WMHS battery storage system did not affect LEED as it was not included in the base project and installed as a separate scope. ○ Existing building's peak loads need to be reviewed. The design team noted that they will collaborate with Medford's energy manager to review the data. ○ Net Zero and Passive House are valuable goals. ○ LEED Platinum is nice, but the full life cycle cost of operating the building is more important. Reimbursement from MSBA is also important. ○ LEED Silver and code minimum is preferred. Systems to be tried and true technology (what we can afford). Cutting edge technology may be difficult to maintain or replace in long run. 2. **Climate Resiliency:** SMMA provided an overview of the topics of Climate Resiliency, which includes Energy Efficiency, MEP Systems, Operations & Systems Maintenance, Passive Design Strategies, Solar PV & Energy Storage, and EV Charging. SMMA discussed sustainable site attributes and water conservation, which are part of LEED (givens). The project will optimize energy performance to meet MSBA thresholds, all supported by the MA Specialized Stretch Energy Code. Passive strategies are a priority. Commissioning is part of LEED and mandated by the MSBA. The predicted Energy Use Intensity goal for this project is 25-35, which is typical for modern school buildings. This will be achieved through passive design strategies, high-performance insulated enclosure, triple-glazing, all-electric HVAC and plug load management. The design team will track total building carbon of the existing facility versus the proposed design, including operational and embodied carbon, over 60 years. HVAC Design Considerations include Comfort & Health, Safety, LCCA, Reliability, Maintenance, Controls, and Space. System Operations is

critical from beginning of the design process and work with who will operate system. The SMMA teas has met with Facilities department to discuss the importance of training, educating the staff, commissioning, and operating systems as they are designed. The potential HVAC system options to be assessed include ground source heat pump, air to water heat pump, air source heat pump, or hybrid of systems - to be looked at more closely in the next design phase.
Solar PV and Energy Storage topics covered the Medford Solar PV policy, which is mandated for all buildings greater than 10,000 SF, sized 50% of the roof areas / 90% of top level of uncovered parking structures. As part of Specialized Stretch Code, the all-electric pathway requires 40% readiness or the fossil fuel pathway requires installation of Solar PV equivalent to fossil fuel emissions. The additional solar PV area opportunities include parking, walkways, outdoor classrooms, roof (high canopy, patio, screens) and/or building-mounted. Renewable energy contributes to LEEDv5 additional points.
Discussion:

- The CxA scope needs to be reviewed and confirmed with the MSBA for updates as it relates to LEEDv5.
- The MSBA reimbursement varies by community and scope of eligible costs.
- Question regarding MHS have rate dispatching storage on regular basis; assuming how much PV and how much to be offset (or is battery only used for demand response). The design team noted that it is typically standard commercial rate. The cost analysis includes cost escalation. The use of the battery storage is up to facilities management (take advantage of demand response) or manage/hold storage and use when it peaks.
- Solar to be owned by City or School. Note that the rate differs if community owns the system versus contracted out.
- School is the highest energy user in the community, and so demand charges are expensive. Consider energy storage vs savings from demand response for the batteries.
- HVAC System Operations is huge point of contention as the classrooms can get very uncomfortable. In the past, individual control over the rooms and currently is not functional. The systems and operations need to allow teachers to control their own rooms.
- In the SOI (2019) Report, there is data from 9 year period of the EUI including electric and natural gas usage. Encourage community to review. A PPA vs purchase system requires cost benefits analysis. Reimbursement varies widely, what is reimbursable and what is not (i.e. Revere as an example is getting approximately 80%). Question regarding the 57 PDP design concepts that vary with PV deployment and other aspects, and how the concepts are being reviewed. Solar suitability to be included in the overall evaluation criteria and any input from the advisory groups. The design team noted that in terms of how the overlap of this group and SBC review, it will not be reduced until the PSR phase. This group will provide input on topics and evaluation criteria, which should be set before the next phase.

3. **Embodied Carbon**: SMMA provided an overview of Embodied Carbon requirements of LEED and embodied carbon reduction strategies. The Project team will look to go beyond minimum LEED requirements, with no/low cost. Most of embodied carbon resides in enclosure and structure. The project will utilize low-carbon materials including steel and concrete, as well as insulation and other building materials. Additionally, embodied carbon reduction strategies include exposed ceilings and mass timber/wood structure. Mass timber/wood structure feasibility will be reviewed by the team as the design develops.
   Discussion:
   - Costs of timber/wood structure needs to be studied. Wood structure with exposed wood ceilings would reduce costs of ceiling panels.
   - The building code and restrictions are to be considered, including sprinkler systems, fire-protection systems and fire proofing, when designing the structural system.

		4. **Healthfulness, Environmental Quality and Literacy:** SMMA provided an overview of healthfulness, environmental quality and literacy. Healthfulness is tied to an enhanced indoor environmental quality, which is supported by daylight, lighting design, thermal and acoustic comfort, and IAQ practices (such as flush-out). Healthy materials (Red List) will be screened when reviewing building products, which will support LEED v5. The design team noted the importance of environmental literacy to support student engagement and integration with the vocational trade programs. Environmental literacy can be supported by a green education program, outdoor classrooms, and occupant behavior and monitoring - the school and site as educational tools. Discussion: ○ Stress on the importance of due diligence when reviewing the all-electric versus gas options. Supports not looking at VRF as an option. ○ Passive House Certification has significant soft costs that are community may not understand. There are 29 concepts. Passive house requires an envelope analysis. We have not narrowed down the sustainability criteria for those particular goals and determine goal vs strategy. We are setting goals and SMMA is providing the strategies. A lot of money spent on the certification to just have the certification. Design to what the certification says, students still getting positive value of the design (still benefits students and tax payers). Need to understand how we operate and what it takes in the future. ○ Water consumption and conservation to be further discussed. ○ Consider light wells as done at an Arlington project. 5. **LCCA - Cost Effectiveness** SMMA provided an overview of the Life Cycle Cost Analysis (LCCA) approach. The design team will conduct a 50-year life cycle analysis comparing the systems, includes building, enclosure and mechanical, which accounts for installation, replacement, and maintenance costs. It includes incremental costs comparing the systems and also accounts for the incentives. Discussion/Comments: ○ School Committee has confirmed LEED version 5. The aspiration to Gold should be assessed. Supportive of the many design options. It is important to look at costs of heat and electrify this building. This group to review the evaluation criteria to narrow our concepts.
02.04	SMMA	Next Steps • Meeting 3: The Advisory Team will review recommendations as to what Sustainable Design and MEP Systems design elements to include in the project (which were discussed in Meetings 1 and 2). Scope items will be characterized as givens, items warranting team discussion, or items that are not recommended for inclusion in the project. The design team will be looking for consensus on these items. • Meeting #3 is scheduled for 3/11/2026 at 4:00 pm.