Team Riparian, from the University of Oregon, uses architecture and net zero resources as tools for influencing social equity in the underrepresented communities of Portland’s King District. As the diverse neighborhood continues to face shifting socio-economic conditions, the school’s architecture promotes community-oriented teaching moments and provides unique and varying modes of learning. The site promotes interaction between indoor and outdoor spaces and will foster Montessori core values of community, friendship, responsibility, and sustainability. On non-school days, the common spaces, community rooms, and site landscape become open for public use. These architectural interventions, only possible through net-zero operations, will solidify roots and strengthen the rich culture of this community.

### Project Data

- **Location**: Portland, OR
- **Climate Zone**: 4C
- **Conditioned Area**: 57,860 SF
- **Lot Size**: 2.7 acres
- **Students**: 12
- **Classrooms**: 16
- **Students**: 360 K-5th graders
- **EUI Target**: 16 kBtu/ft²

### Technical Specifications

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall Assembly</td>
<td>R-21 + 17 ci</td>
</tr>
<tr>
<td>Slab Assembly</td>
<td>R-20</td>
</tr>
<tr>
<td>Roof Assembly</td>
<td>R-38</td>
</tr>
<tr>
<td>Heating Load</td>
<td>189.4 kBtu/h</td>
</tr>
<tr>
<td>Cooling Load</td>
<td>17.8 kBtu/h</td>
</tr>
<tr>
<td>Peak Heating Load</td>
<td>12.8 Btu/ft²/h</td>
</tr>
<tr>
<td>Peak Cooling Load</td>
<td>8 kBtu/h</td>
</tr>
<tr>
<td>Ventilation Load</td>
<td>1085.1 cfm</td>
</tr>
</tbody>
</table>

![Rendering - South Facade](image-url)
Martin Luther King Jr. Montessori: Design Highlights

- Reduced Active Systems
  - Smaller, Efficient Systems
- Operable Envelope
  - Making Connections to Community
- Low Energy Mechanical
  - Radiant Heating and Chilled Beams
- Outdoor Learning
  - Nature Based Classes
- Photovoltaic Arrays
  - Energy Independence
- Active Learning
  - Students Choose Preferred Environment
- Light Wells
  - First Floor Daylighting
- Spatial Opportunities
  - Engages Neighborhood
- Accessible Environments
  - Universal Design for All
- Acoustic Separations
  - Keeping Focus in the Classroom
- Resilient Envelope
  - Cost Efficient Maintenance
- Appropriate Scale
  - Language Reflects Surrounding Neighborhood
- Locally Sourced Materials
  - CLT Structures and Recycled Finishes
- Water Harvesting
  - Rainwater Management
- Passive Circulation
  - Flexible Energy Savings