MT MODULAR CLASSROOM

Schools and school districts often need to add classroom space quickly to accommodate their student body. This might be because of population growth, short-term population shifts as was the case during Covid, or because of buildings being off-lined due to age or renovation work.

To address this, schools deploy temporary modular classrooms. Though they add space, they are substandard learning environments. Issues with acoustics, climate control, and comfort—along with a lack of access to technology and restrooms—can negatively impact learning and education.

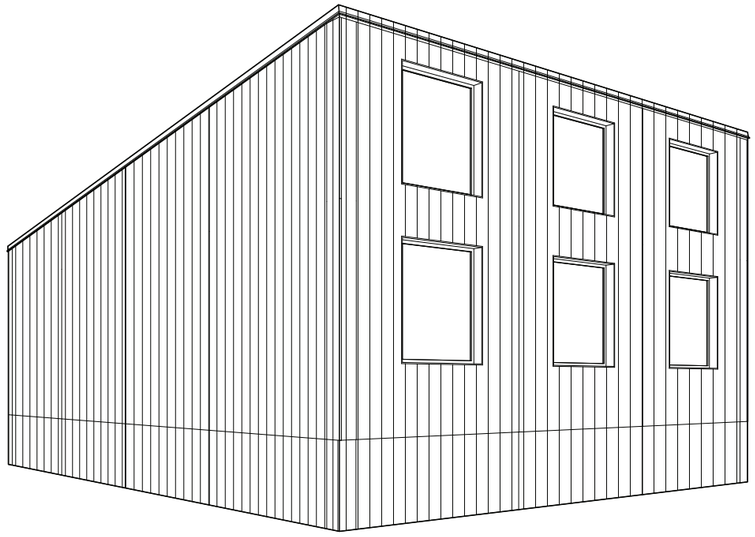
We developed ‘MT Modular Classroom,’ a deployable classroom system that uses mass timber. The classrooms are designed from the inside out with a primary focus on the quality of the learning environment for staff and students, creating a desirable environment in which occupants feel valued and motivated to learn. Natural light, good acoustics and thermal comfort encourage learning whilst providing a space that is durable and easy to maintain.

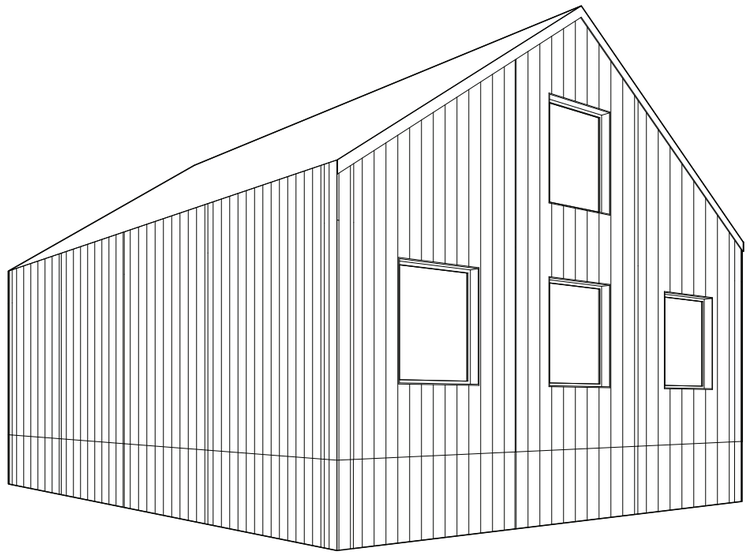

Gable Roof

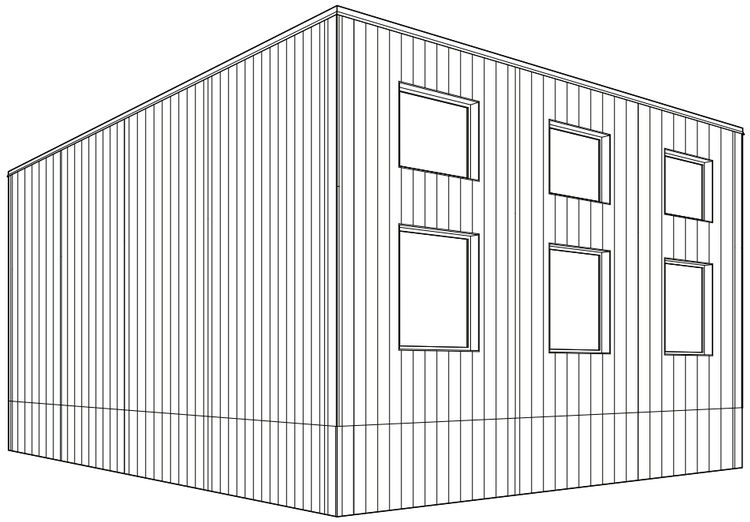

Pitched Roof


Flat Roof

The design also minimizes embodied and operational carbon to reduce environmental impact. The mass timber modules are fabricated off-site and can be erected in just a few days using local labor. They are cost competitive with, and create significantly less Embodied Carbon during construction and installation than, traditional modular classrooms.
The system provides three options for the form of the units: flat roof; shed roof; gable roof. These provide a range of functional and visual solutions that can fit into any environment and be viewed positively.







Base Unit Plan

LOW VOLTAGE DESIGN:

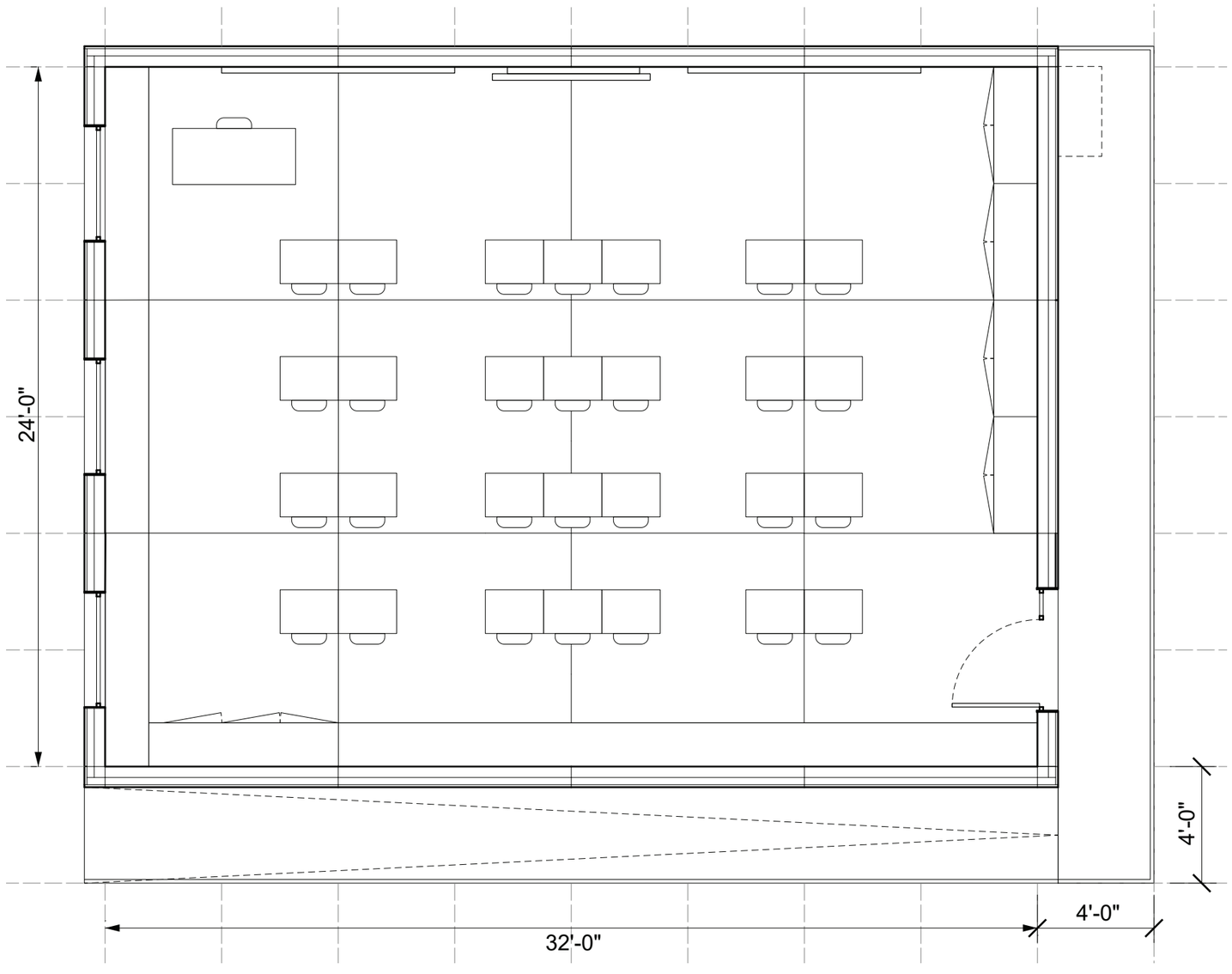
6LV LINES PRE-WIRED
6 low voltage lines pre-wired within walls

PREWIRED FOR SOLAR
Roof is designed ot take load for solar panels and wiring is in place to connect to solar panels

DAYLIGHTING INFO:

300 LUX
50% daylight autonomy (DA) target

<10% ASE
Direct sunlight of more than 1000 lux for more than 250 hours a year



ACOUSTIC DESIGN CRITERIA:

30NC (35dBA)
Background noise design goals including HVAC equipment

50 STC
Classroom to Classroom

45 STC
Classroom to Corridor

45 IIC
Adjacent vertical spaces

0.6 - 0.7 RT
Reverberation time within classrrom

ARITFICIAL LIGHTING INFO:

40FC
Artificial lighting to provide 40ft candles with daylight responsive controls

3000K
All lighting will have a correlated color temprature of 3000k equatign as close as possible to natural daylight

VENTILATION SPECS:

6 ACH
Air changes per hour - the amount of “new” air added or removed from a room

MERV 9+13
A rating for the filtration system based on the filter’s ability to capture particles of a specific size. 1 is the lowest and 20 is the highest

25 IAQ INDEX
A measure of the combined indooor air quality with 0 being the best and 150 the worst

STORAGE PROVISION:

232.5 LF
Amount of storage within classroom

SINKS AND EQUIPMENT
There are a range of millowrk options including sink that can be provided for the room

LOW VOC FINISHES
All finishes will give off limited fumes

ADA COMPLIANT
The structure is fully ADA compliant

Base Unit Section
(with Flat Parapet Roof)

SUSTAINABILITY:

98% RECYCLABLE
The structure and all materials can be taken down and re-used for a new classroom or the materials recycled

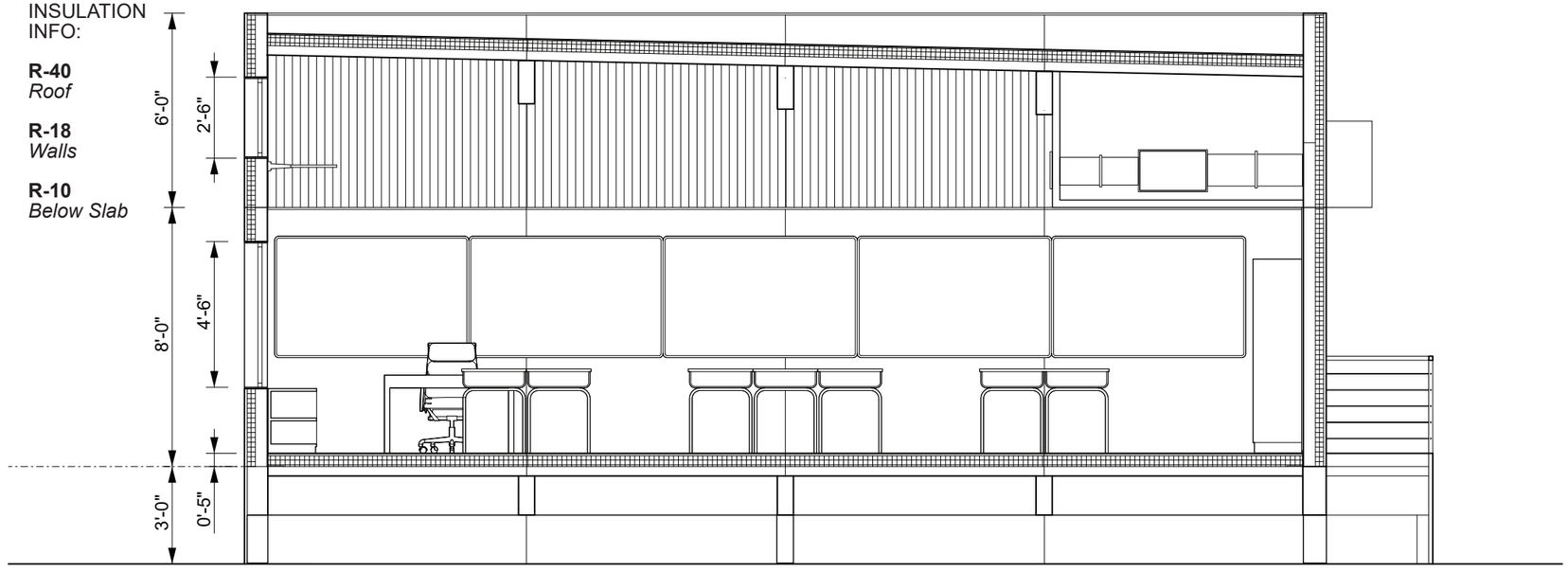
CIRCULAR
All structural connections are designed so that they can be unbolted

INSULATION INFO:

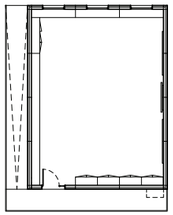
R-40
Roof

R-18
Walls

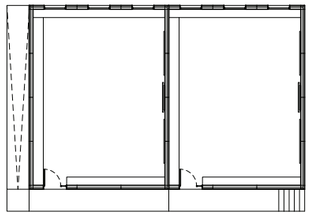
R-10
Below Slab



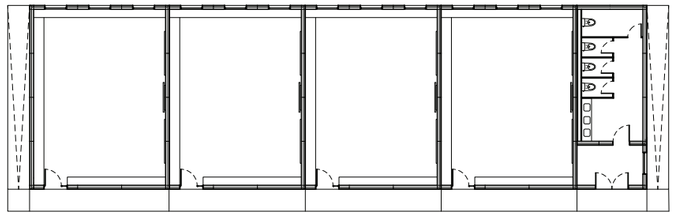
1 Classroom



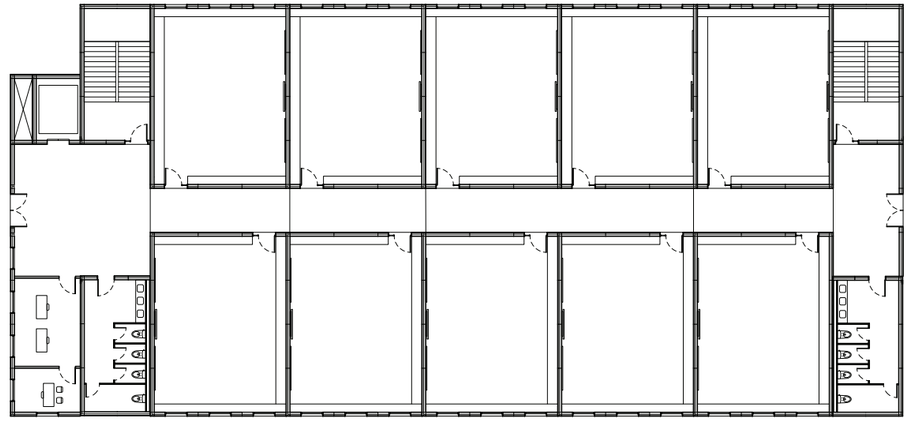
2 Classroom



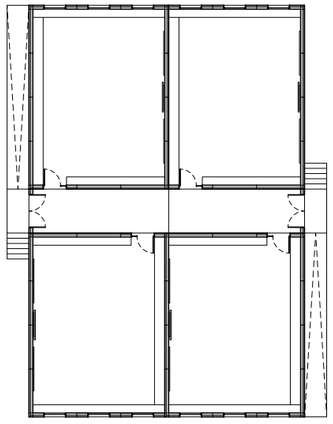
4 Classroom - Single Loaded w/ Bathroom



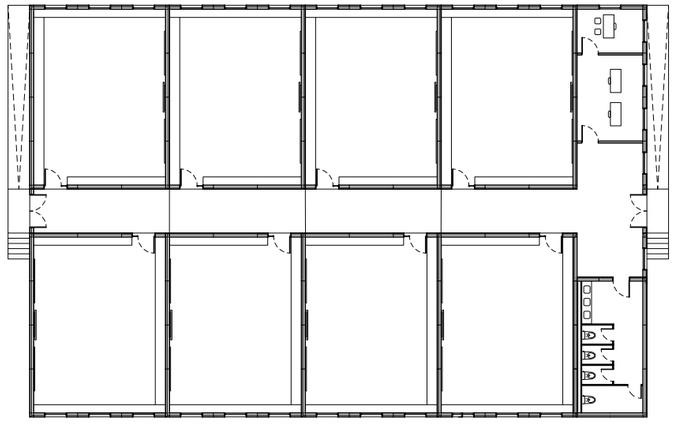
10 Classroom - Multi-story Configuration



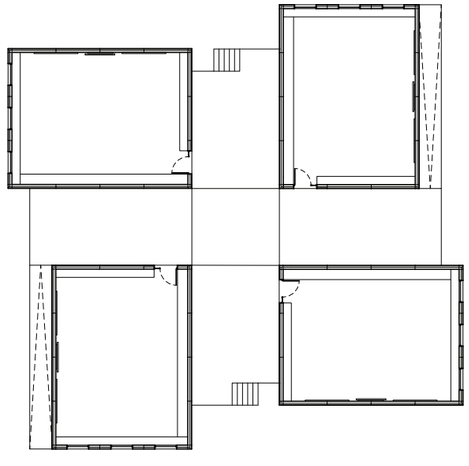
4 Classroom - Double Loaded



8 Classroom - Double Loaded w/ Bathroom + Office

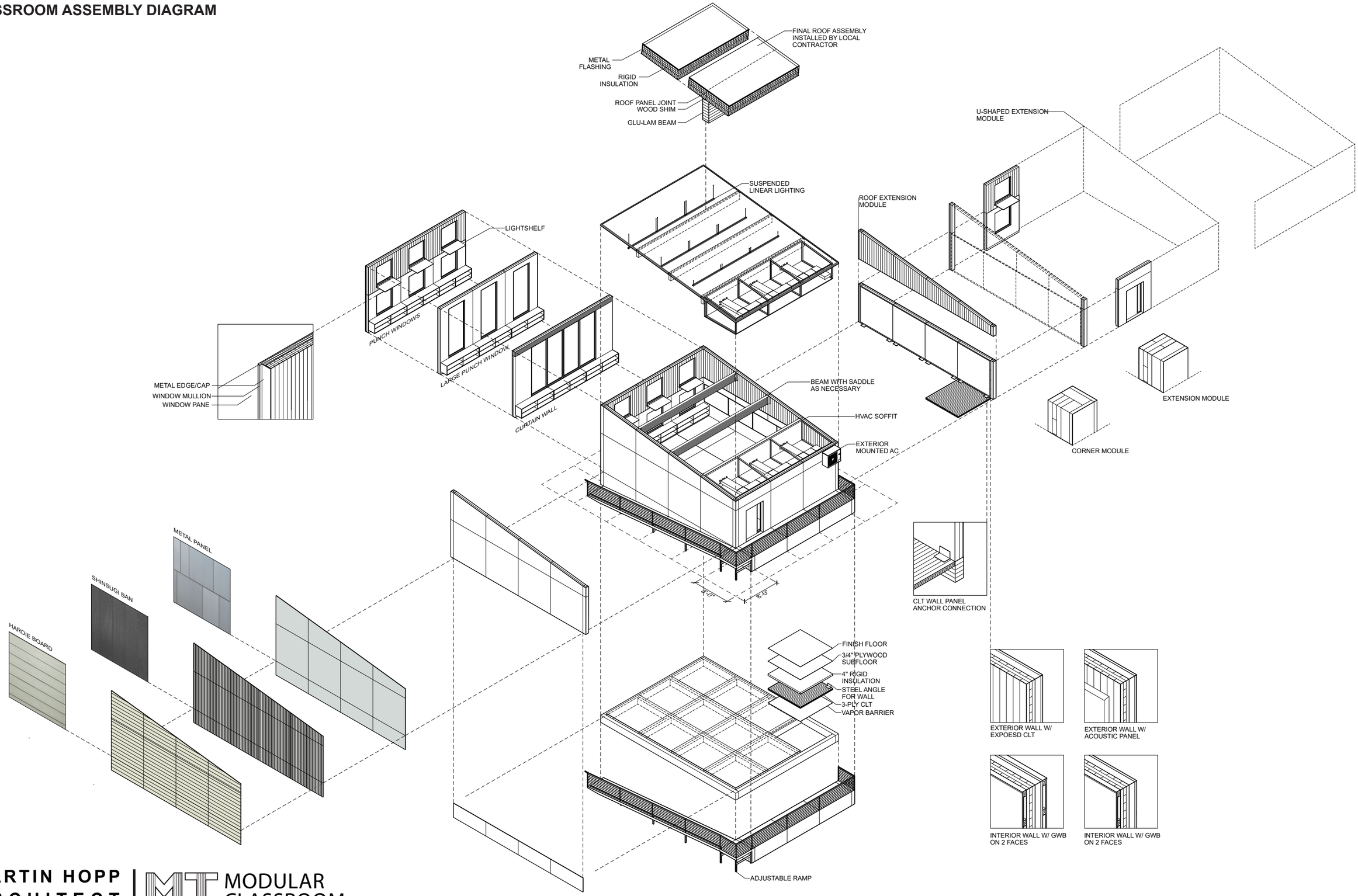


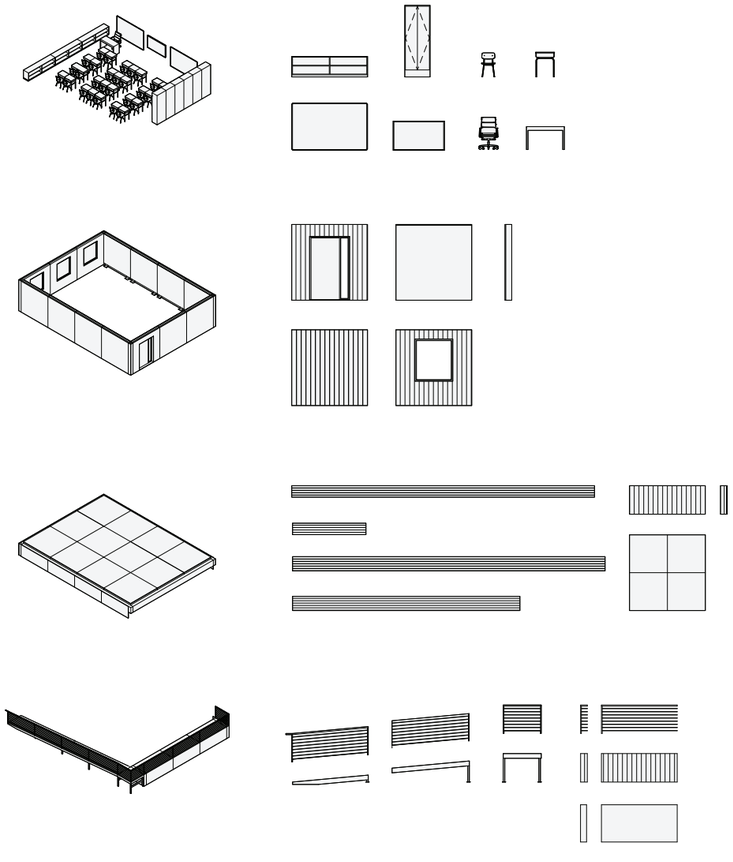
4 Classroom Cluster

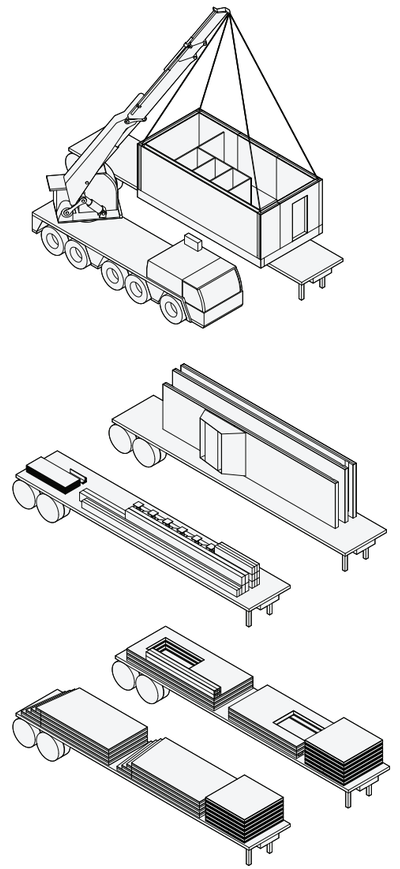


The system allows for a small grouping of classrooms or a two-story school structure that meets all the requirements of a new school building. Off-site fabrication and flat-pack assembly allow for quick assembly by local construction crews and reduced schedule times from a conventional school structure.

CLASSROOM ASSEMBLY DIAGRAM







Each classroom is built from a set of interchangeable parts allowing for rapid construction and a large degree of flexibility and customization. Bathrooms, stairs, and other complex constructions are manufactured off-site as ready to install modules to expedite the construction process. All components are designed with transportation in mind and fit on a standard flatbed trailer.

We intend to partner with state education departments, school districts, and large educational organizations. Our objective is to pinpoint the difficulties they encounter and offer mass timber alternatives that outperform current strategies that provide subpar learning environments and do not adequately support the needs of students, faculty, and their communities.