

Ignite Mobile Classroom Final Design & CAD Packet



Project Overview:

Through a collaborative design process involving students, teachers, and district administrators, Wonderful Wheels and Durango School District partnered to design the ideal mobile learning lab.

Key Takeaways

1. Purpose / Function:

A mobile STEAM maker lab that inspires curiosity, creativity, exploration, collaboration, and joyful hands-on learning.

2. Overall Aesthetic: Warm Natural/ Creative Play

warm wood tones • soft lighting • colorful accents • art/nature inspired elements

3. Space & Layout: Flexible, modular layout

group + individual stations • open center floor • storage • natural light • cozy lounge

4. Key Features & Enhancements:

- Outdoor learning space (awning / worktables /outdoor equipment)
- Adjustable sound + lighting to shift mood and focus
- Versatile STEAM + maker tools and materials that support hands-on projects





CAPACITY

22 PEOPLE INSIDE
20+ OUTSIDE



LAYOUT

FLEXIBLE SPACE, LOUNGE AREA
22 INDIVIDUAL WORKSTATIONS
LOTS OF STORAGE (180 CUBIC FEET)



HVAC

FULLY INSULATED
AIR CONDITIONER
HEATER



ELECTRICAL

OFF-GRID SOLAR
ELECTRICAL SYSTEM

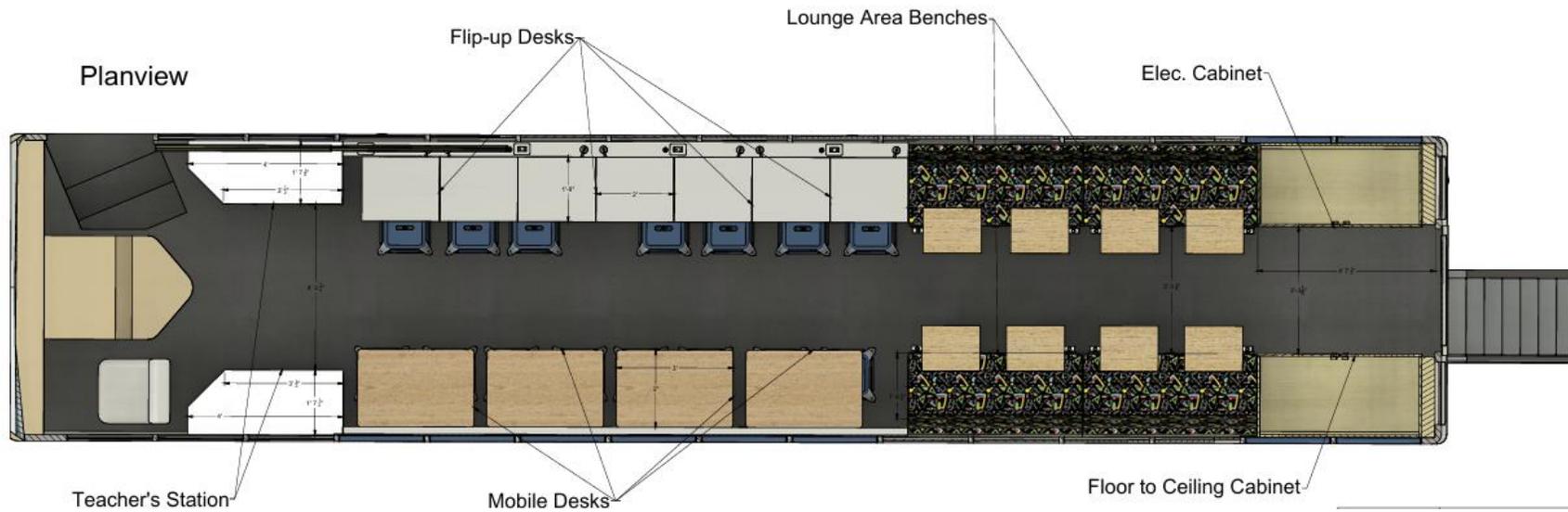
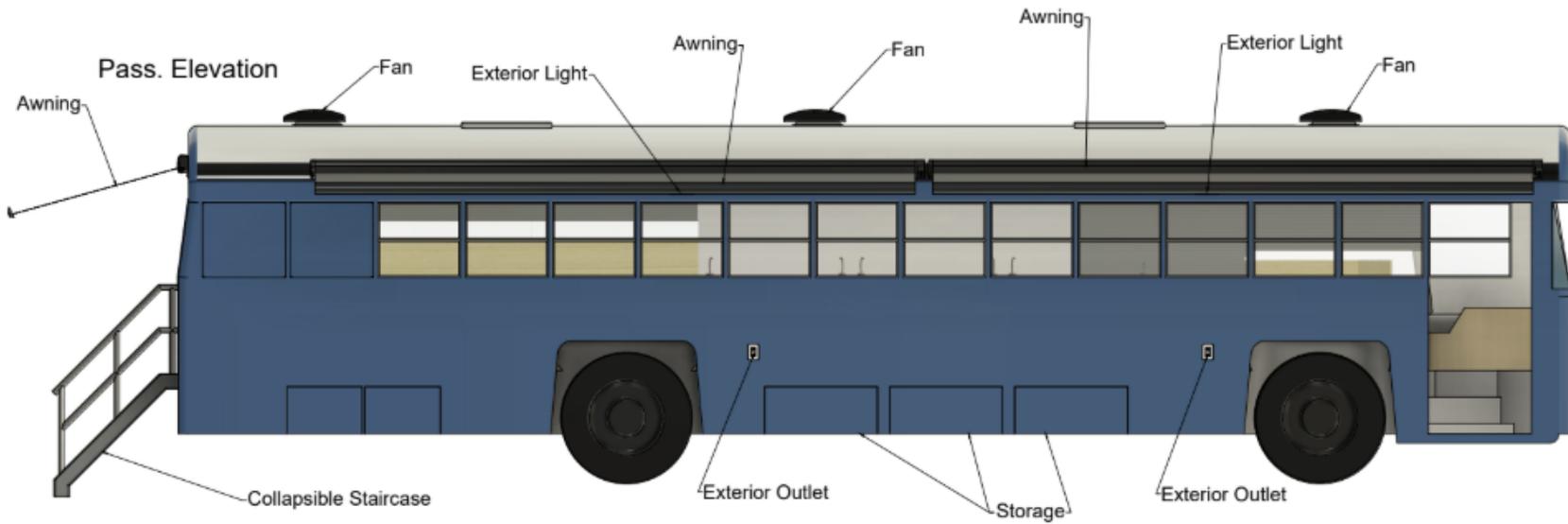


LIGHTING

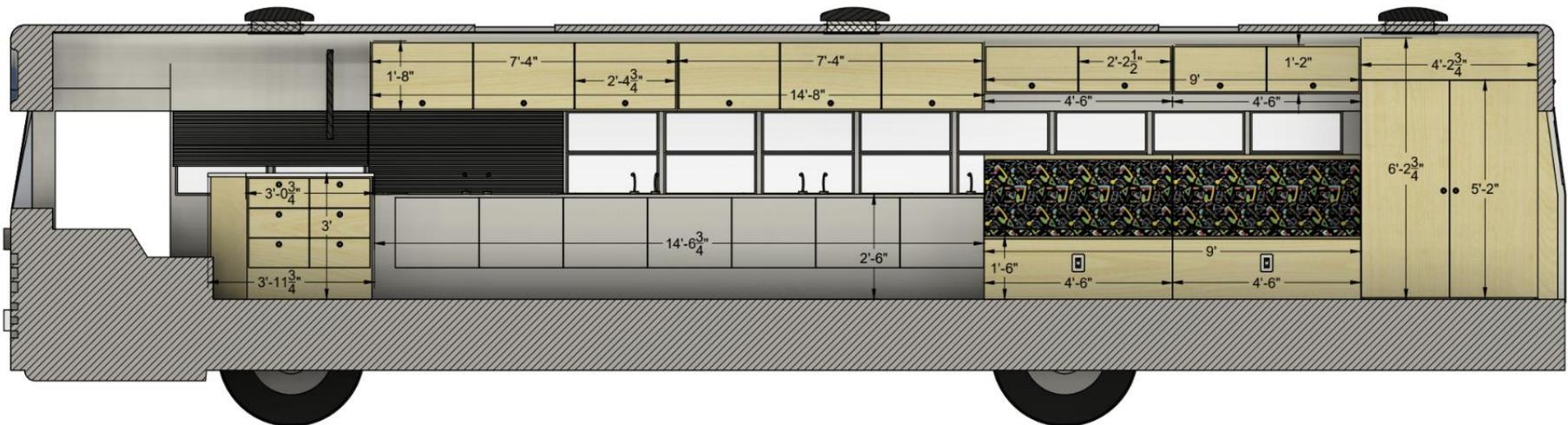
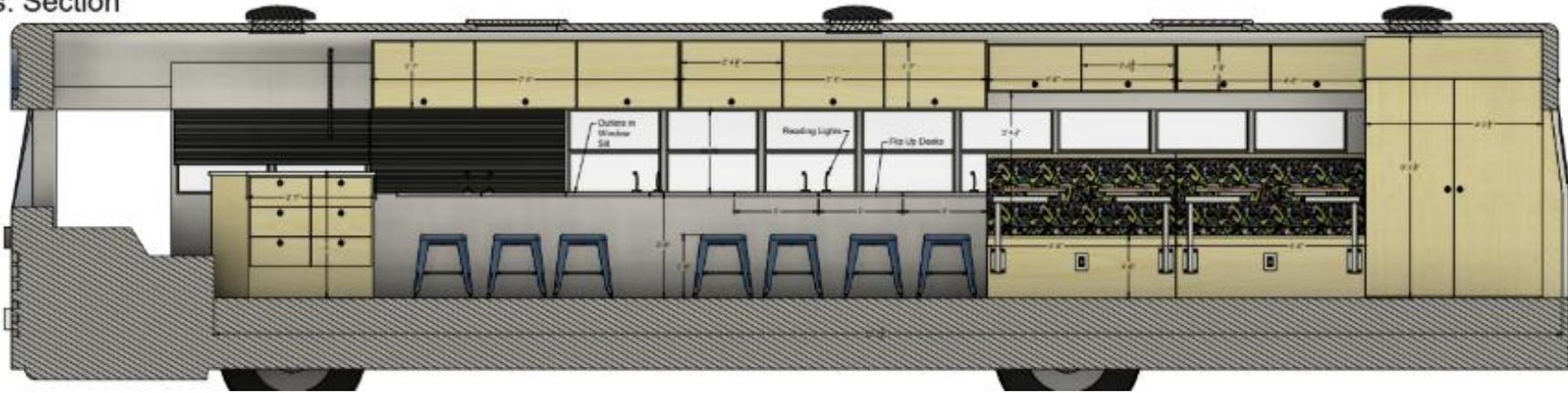
ZONE AND MOOD LIGHTING:
CEILING, CABINET LIGHTING
AND DESK LIGHTS

CAD Drawings and Renderings

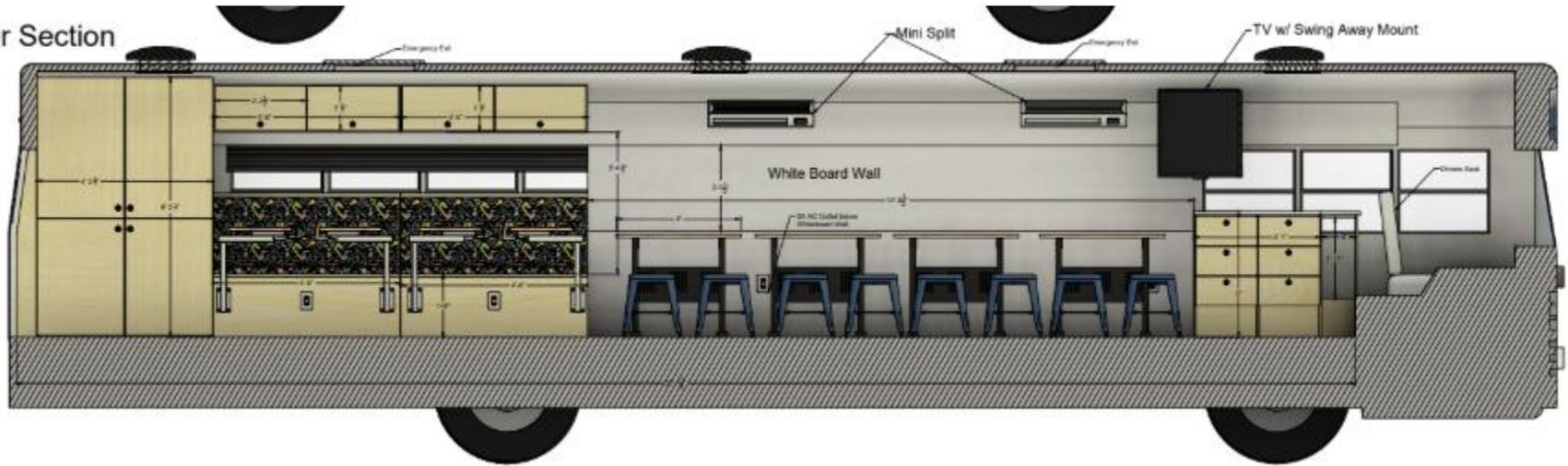
CAD Drawings:

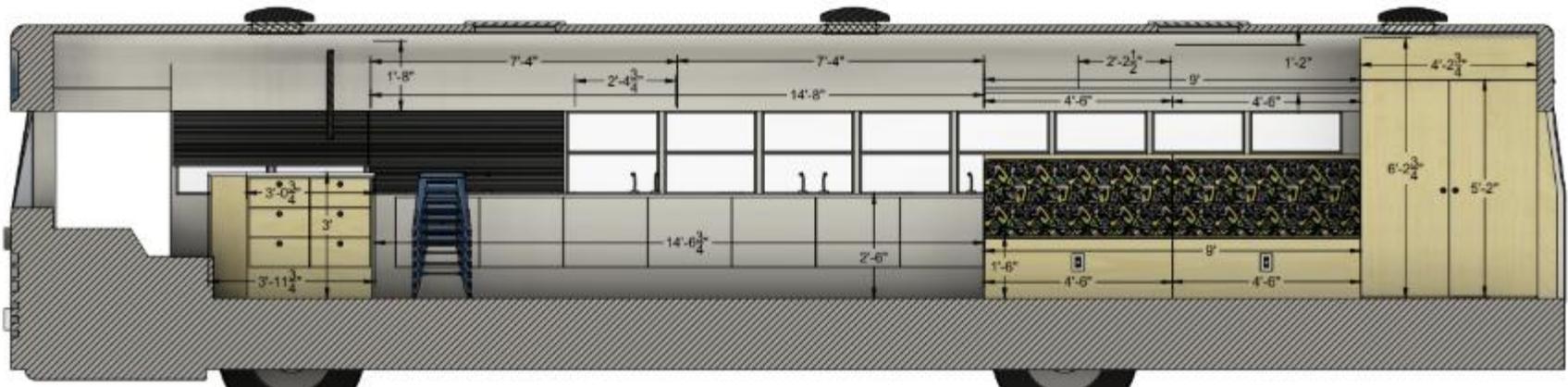
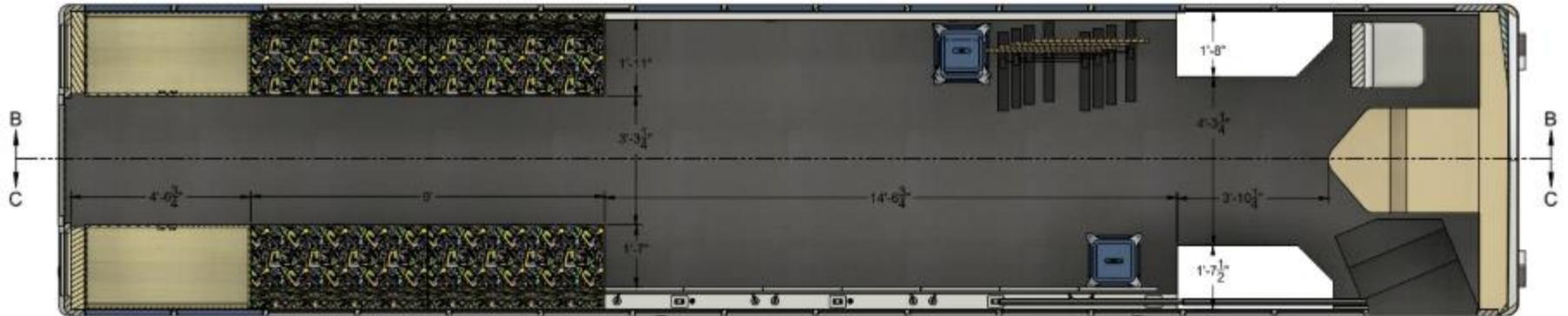


Pass. Section

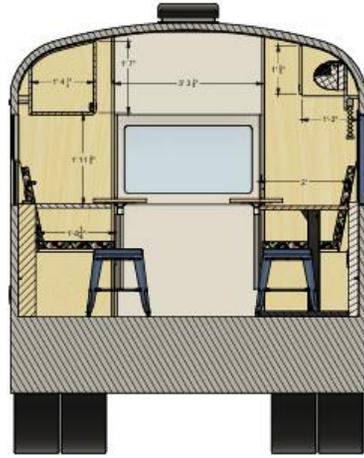


Driver Section

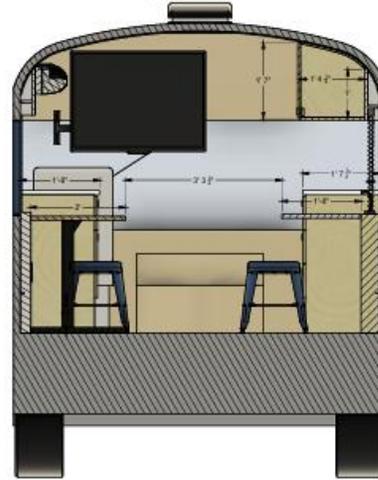




Rear Facing Section



Front Facing Section



Zone 4: Storage and Secondary Entrance

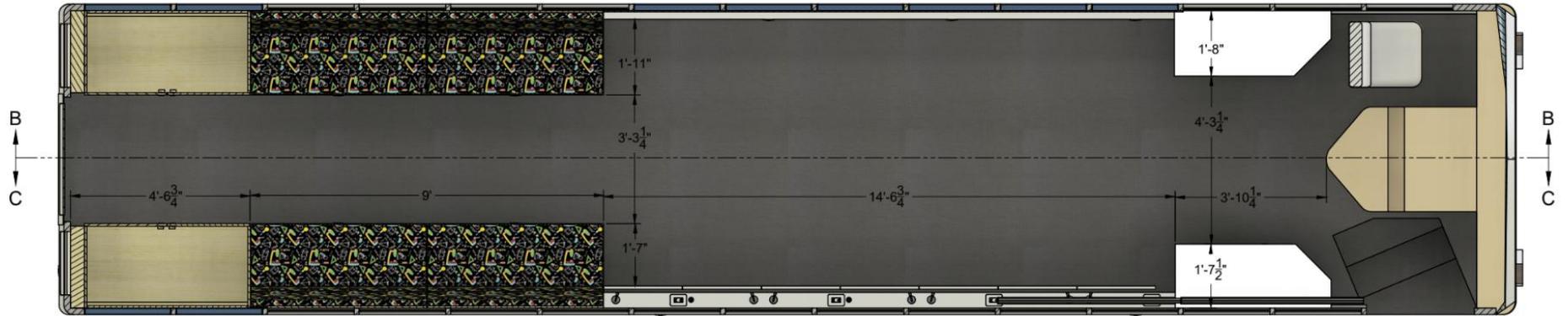
Zone 3: Lounge

Zone 2: Flex Space

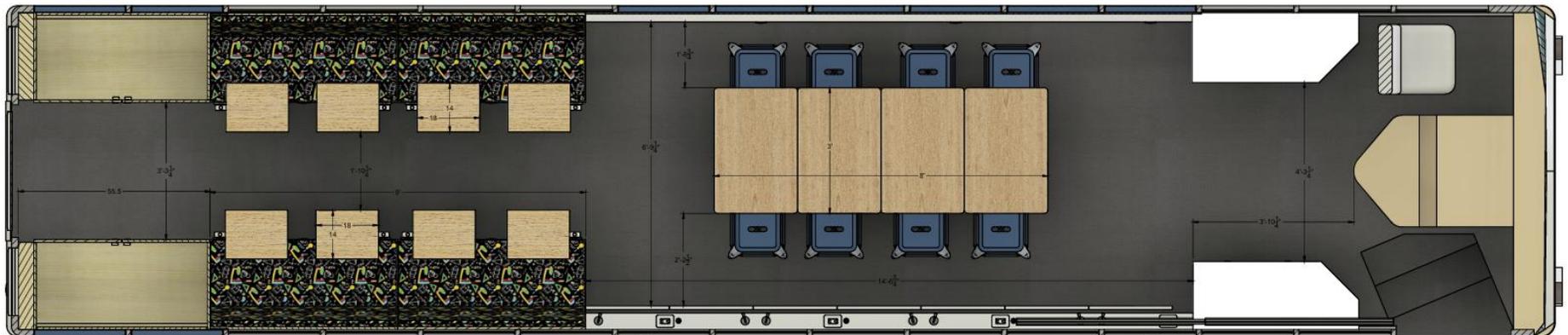
Zone 1: Entrance and Teacher Station



Flex Space: Open Floor



Flex Space: Group Table

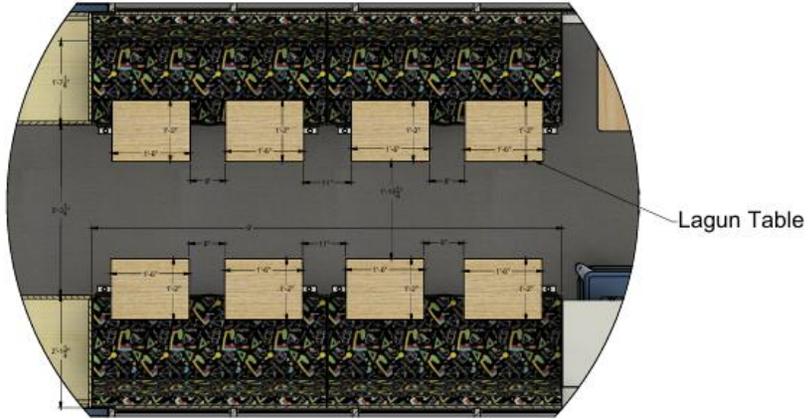
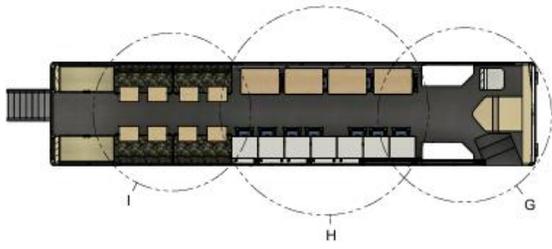


Flex Space: Modular Tables



Flex Space: Flip Tables





DETAIL I
SCALE 1:10



DETAIL G
SCALE 1:10



AC Outlet

DC
Outlet

DETAIL H
SCALE 1:10

Reading Light

Live Renderings

Exterior:





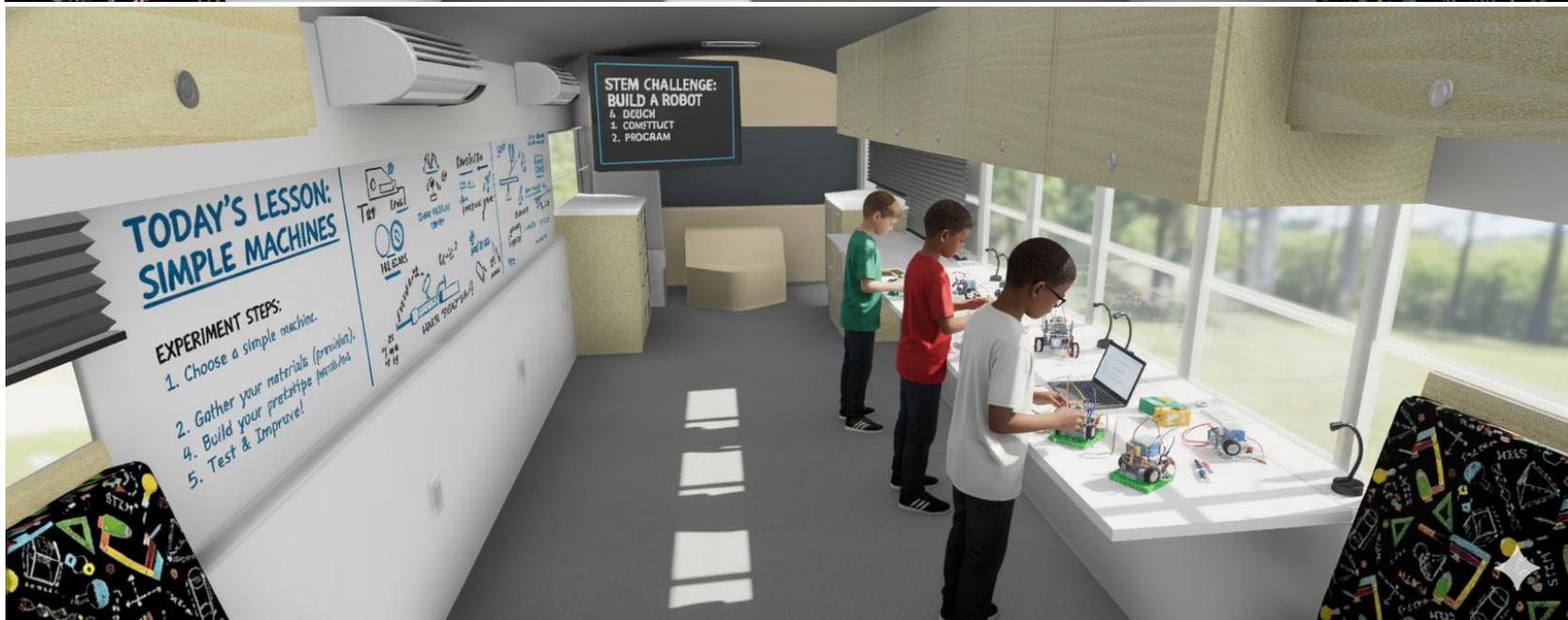
Flex Space: Open Floor



Flex Space: Group Table



Flex Space: Individual Workstations





Lounge Area



Materials & Finishes

Overall Aesthetic: Warm • Natural • Creative Play

A welcoming, student-friendly interior defined by warm wood tones, soft ambient lighting, and subtle colorful accents. The design maintains a neutral, modern foundation while offering opportunities to layer in playful STEM-inspired graphics, art, and nature-themed elements.

Walls & Ceiling

Material: Fenix Laminate

Color: White

A bright, clean surface that enhances natural light, supports easy cleaning, and provides a professional backdrop for interactive learning.



Flooring

Marine-Grade Lonseal Flooring

Durable, slip-resistant flooring designed for high-traffic educational environments. Multiple color options available to complement the overall palette.



Cabinetry

Material: Natural Birch

Warm natural birch cabinetry introduces texture and softness, balancing the crisp white walls and ceiling.



Accents

- Cushions, stools, and soft accents
- Opportunity to coordinate interior colors with exterior STEAM wrap
- Subtle color pops that support creativity without overpowering the space

Work Surfaces

Flip-Up Desks: Solid-Core Corian

Clean, durable, available in several color options.



Lounge Tables: Portable Lagun Tables

Light-wood finish for a cohesive natural aesthetic.

Furniture

Modular Interior Tables

Multiple styles and colors available to support flexible layouts, collaboration zones, and individual workspaces.



Stackable Stools

Lightweight, durable, and available in several colorways to tie into the creative learning environment.

Build Specifications

DESCRIPTION
Carpentry
Insulation: Combination of Reflectix® double-layer radiant barrier for thermal reflection, 1”–2” Pink Foam Board (EPS) for high R-value rigid insulation and Rockwool Comfortboard™ & Comfortbatt™ (fire- and mold-resistant mineral wool)
Flooring: Lonseal (Londeck or Lonridge) Industrial-grade, slip-resistant marine flooring, Waterproof, UV-stable, and rated for high-traffic environments
Walls and Ceiling: Fenix Laminate Panels Soft-touch, anti-fingerprint, scratch-resistant, premium, durable finish
Window Removal (12 Windows) Removal of factory glass, metal panel infill and structural reinforcement and finish to match surrounding panels interior and exterior
Custom Blinds: Blackout, secure, UV resistant blinds
Furnishing and Cabinetry
Upper Storage Cabinets (Birch Finish) 14 bays total, piston struts to hold doors open, soft close hinges, and locking stainless push button latches
Lounge Area (Birch Finish with custom cushions) Custom benches that sit 4-5 students on each side, built in storage, piston struts to hold doors open, soft close hinges and custom cushions. Each bench will have outlets and zone lighting.
Lagun Desktops for Lounge Collapsible and removable Lagun desktops for the lounge area (4 per side)
Floor to Ceiling Storage (Birch Finish) Passenger side is electrical with extra storage; driver side open flexible storage with adjustable shelves
Flip up Lab Tables x 7 (Corian) Wall mounted 250-pound rated flip up brackets with a Corian top, each desk area will have reading lights and outlet access
Teacher Workstation and Storage Units Easy plug in for the TV screen and control for the Starlink, 6 drawers on each side and large Corian countertop/ workspace, soft close hinges and locking push button latches
Modular Tables x 4 (24x36)
Stackable Stools (15)
Magnetic White Board
D rings and straps for securing modular furniture and equipment

Climate Control

MaxxAir Deluxe Fans x3

10-speed reversible fans, Integrated rain hood, Roof-mounted with multi-mode ventilation

Full Battery (Brand) 24V Mini Split (x2)

24V DC-Inverter Mini-Split Heat Pump, High-efficiency variable-speed DC inverter, Performs heating down to ~5°F, typically 9,000–12,000 BTU per unit, 21–42 dB (super quiet for learning environment)

18 Venting windows

Technology

48 Inch TV- Samsung (1)

Heavy duty locking articulating tv mount

Starlink

Custom 24Volt Off the Grid Electrical System

Battery Bank: 1200 AH

Victron 25.6V / 1200Ah LiFePO4 battery bank, built with UL-listed lithium iron phosphate cells engineered for high safety, thermal stability, and long cycle life. The system includes a robust, integrated Battery Management System (BMS) that handles cell balancing, over-charge/over-discharge protection, and fault monitoring to ensure consistent performance under all operating conditions.

Inverter 5000 W, Solar 2200W, & Charging

Power generation and conversion are delivered through a Victron MultiPlus or Quattro 5000W pure-sine inverter/charger, providing clean 120V AC power suitable for computers, tools, and sensitive classroom equipment. A 2200W monocrystalline solar array mounted on the roof supplies substantial renewable power, supported by a sealed solar gland and vibration-rated racking system. Solar energy is optimized by the Victron SmartSolar 250/100 MPPT charge controller, featuring Bluetooth programming and advanced energy harvesting. Additional charging capacity is provided by a Victron DC-DC alternator charger, enabling safe auxiliary charging while the vehicle is in motion.

Distribution Systems

All electrical distribution is managed through the advanced Victron Lynx ecosystem, including:

Three Lynx Distributors providing fused, high-current DC busbar protection

Lynx Power In serving as the master power feed

Lynx BMS coordinating battery health, safety functions, and communications

This structure ensures reliable, fault-tolerant energy delivery to all loads within the classroom.

System Monitoring

The system integrates a Victron Cerbo GX with a full-color touchscreen interface, providing real-time monitoring of battery status, power consumption, solar production, charging behavior, and system alerts. This centralized, user-friendly dashboard allows staff to easily understand and manage the electrical system.

Electrical Distribution

The classroom includes a full AC/DC distribution network consisting of: 120V AC outlets placed throughout the teaching and workstation areas (x11), 12V DC outlets for low-draw devices (11)
 Dedicated breaker panels for circuit protection
 Shore-power inlet for external charging
 Weatherproof exterior power cord for safe outdoor or facility-based connection
 This configuration ensures flexible power access both on and off the grid.

Interior & Accent Lighting

Illumination is delivered through a layered lighting system designed for adjustable ambient lighting. Individual workstation reading lights for student desks, LED strip lighting for efficient, low-heat illumination,
 Under-cabinet task lighting for focused work areas
 Soft ambient ceiling lighting to evenly light the main classroom space

This combination creates a bright, adaptive learning environment suitable for instruction, collaboration, and project-based activities

Safety Features

Smoke Alarms

Fire Extinguishers

First Aid Kit

Exterior

Awning (x3)

Two 16 foot awnings on the side and one 6-foot awning on the rear of the bus

Remove dividers and add pistons for outdoor storage

Drop downstairs rear exit (manual)

Portable Ramp for rear entrance/exit

Exterior GFCI Outlets (x3)

Exterior Lighting (x3)

Outside Tables (20 Students)

Outside Stools (20 Students)

Wanderful Wheels, LLC

Info@WanderfulWheels.com

970-884-0410

