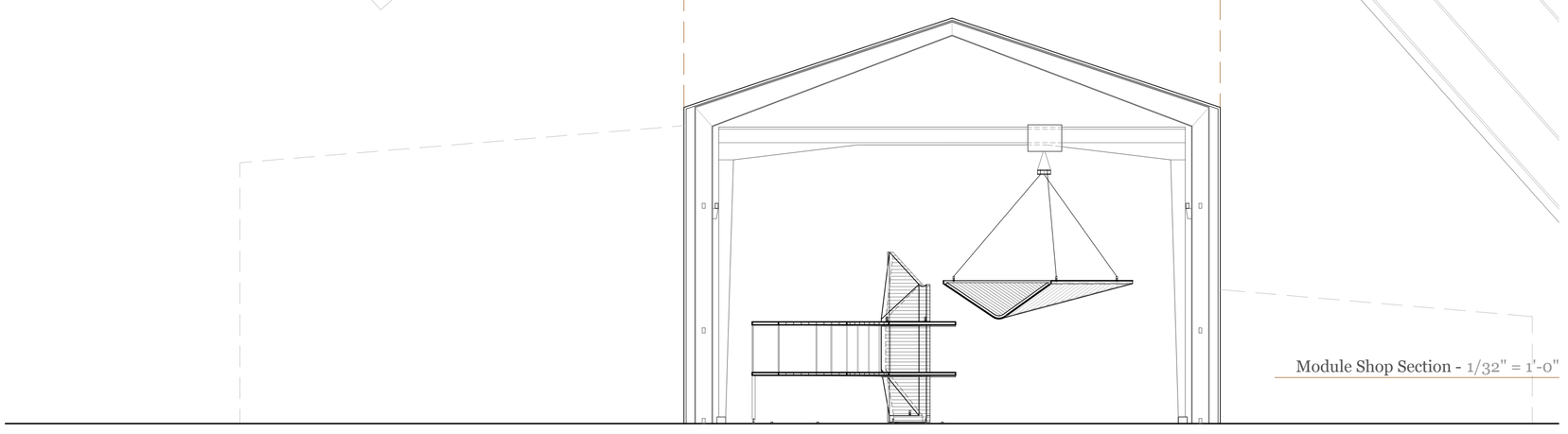
02 - Tower Assembly and Module Fabrication

ONCE THE RAIL ASSEMBLIES AND TOWER CORES LEAVE DRYDOCK, THE ASSEMBLY OF THE WALL + FLOOR MODULES AND THE ROOF MODULES BEGINS - THEY ARE BUILT AT THE SAME TIME BECAUSE THEIR DETAILS ARE ALMOST IDENTICAL: ROLLED AND WELDED STEEL PLATE ATTACHED TO SOLID CEDAR TIMBERS AND CORK INSULATION. THE STEEL IN THE WALL + FLOOR MODULES IS FOLDED TO INCREASE ITS STIFFNESS, AND THE WOOD SHIFTS TO ALIGN TO THE FOLDING, WHILE THE VALLEYS OF THE ROOF MODULES ARE ROLLED TO CHANGE ANGLE, REQUIRING THE ROOF TIMBERS TO BE STEAM-BENT INTO POSITION. TO ACCOMMODATE THE SHIFTING WALL, A SECTION OF THE TIMBERS IS CUT OUT AND SET ASIDE FOR FUTURE SITE FINISHING.

THE OVERLAPPING OF THE WOOD AT THE CORNERS OF THE FOLDED STEEL INCREASES THE STIFFNESS OF THE WALL, WHILE IN THE ROOF, THE GRAIN OF THE WOOD RESISTS COMPRESSION AND THE STEEL RESISTS TENSION. IN BOTH MODULE TYPES, AN INSULATIVE CERAMIC PAINT AND A HYDROPHOBIC COATING IS APPLIED TO THE EXTERIOR SIDE OF THE WOOD. IN THE WALL + FLOOR MODULE, STEEL BRACKETS WELDED TO THE BUILDING SIDE OF THE STEEL PLATE ATTACH TO CARBON FIBER BEAMS THAT FORM THE FUTURE FLOOR STRUCTURE. THE FLOOR STRUCTURE PERIMETER IS FORMED FROM A STEEL ANGLE WITH VERTICAL POSTS LINKING THE FLOORS, AND THAT IS CONFIGURED TO ATTACH TO THE TOWER CORES AND TO OTHER MODULES IN THE ASSEMBLED BUILDING. THE STEEL PLATE OF THE ROOF SECTIONS FLARES UP AT THE PEAKS TO ATTACH TO FUTURE BEAMS THAT LINK THE MODULES TOGETHER IN THE ASSEMBLED BUILDING.

AFTER THE MODULES ARE FABRICATED, THEY ARE LIFTED INTO POSITION INSIDE OF DRYDOCK USING THE LARGE HOIST, BASED OFF OF THE ORIGINAL TEMPLATE. ONCE ALIGNMENTS ARE CONFIRMED, THE MODULES ARE LIFTED INTO A WAITING CARGO VESSEL FOR TRANSPORTATION TO THE SITE. WHEN THE MODULES LEAVE DRYDOCK, THE FABRICATION OF THE PRECAST CONCRETE FLOOR PANELS BEGINS, FOR ASSEMBLY IN THE FINISHED BUILDING.

Module Shop Plan - 1/32" = 1'-0"



Module Shop Section - 1/32" = 1'-0"