

INTRODUCTION TO DOCKS

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➤ **Dock Types & Function**

➤ **General Dock Design**

➤ **OSMB Boarding Docks**

- **History**
- **Design Evolution**
- **Construction**
- **Next Generation - Aluminum**

DOCK TYPES & FUNCTION

- **Boarding**
- **Self-Adjusting**
- **Short Term Tie-up**
- **Marina or Mooring**
- **Ski**
- **Fishing**
- **Swim**
- **Paddle**
- **Debris Boom**



BOARDING DOCK



SELF-ADJUSTING BOARDING DOCK



SHORT TERM TIE-UP DOCK



MARINA OR MOORING DOCK



SKI DOCK



FISHING DOCK



SWIM DOCK – PADDLE DOCK



NOT A SWIM DOCK



PADDLE – SHORT TERM DOCK



PADDLE DOCK



DEBRIS BOOM

GENERAL DOCK DESIGN

- **Component Style**
- **Integrated Style**
- **Floatation**
- **Stability**



COMPONENT STYLE – SPACED TUBS



COMPONENT STYLE - CONTINUOUS TUBS



COMPONENT STYLE – POLY PIPE



COMPONENT STYLE – FOAMED TIRES



COMPONENT STYLE - LOG



INTEGRATED STYLE - CONCRETE



INTEGRATED STYLE - CONCRETE



INTEGRATED STYLE - PLASTIC



INTEGRATED STYLE - WOOD



INTEGRATED STYLE - ALUMINUM



EPS FOAM FLOATATION

STABILITY

Inherent

vs.

Experiential

OSMB BOARDING DOCK HISTORY AND DESIGN EVOLUTION

- **Design Criteria**
- **Background**
- **Dock Modifications**

OSMB BOARDING DOCK DESIGN

Load & Design Criteria

The docks are located within a boat ramp. Each dock section is 6 feet wide by 20 feet long and connected using a hinge system. Docks are supported with steel piling at 40 foot spacing. The total length of the docks will vary but typically range from 100'-160' (5-8 dock sections). The intent is to have 40 feet of dock floating at low water. Dock sections will "ground out" on the ramp surface as water levels rise and fall.

Environmental loads will have the greatest impact on the docks since boat tie-up is limited to one or two boats at a time and for very short periods of time (15 minutes max.).

Wind	:	Per current Code
Wave	:	1.5'
Wake	:	2.0' period 2.5 sec.
Current	:	10 fps (perpendicular to dock length)
Debris	:	Minimal
Impact	:	Slow speed from design boat
Draft	:	7.5 inches (DL only) 11.5" (DL + LL)
Freeboard	:	12.5 inches (DL only) (8.5" DL + LL)
Live Load	:	20 psf
Design Boat:		20' length, 8' width, 3' exposure above waterline
Pile Size	:	Steel 12 ¾" O.D. x ½" wall thickness. 30' penetration typical
Pile Spacing:		40 feet. Piles placed at midpoint of every other dock.



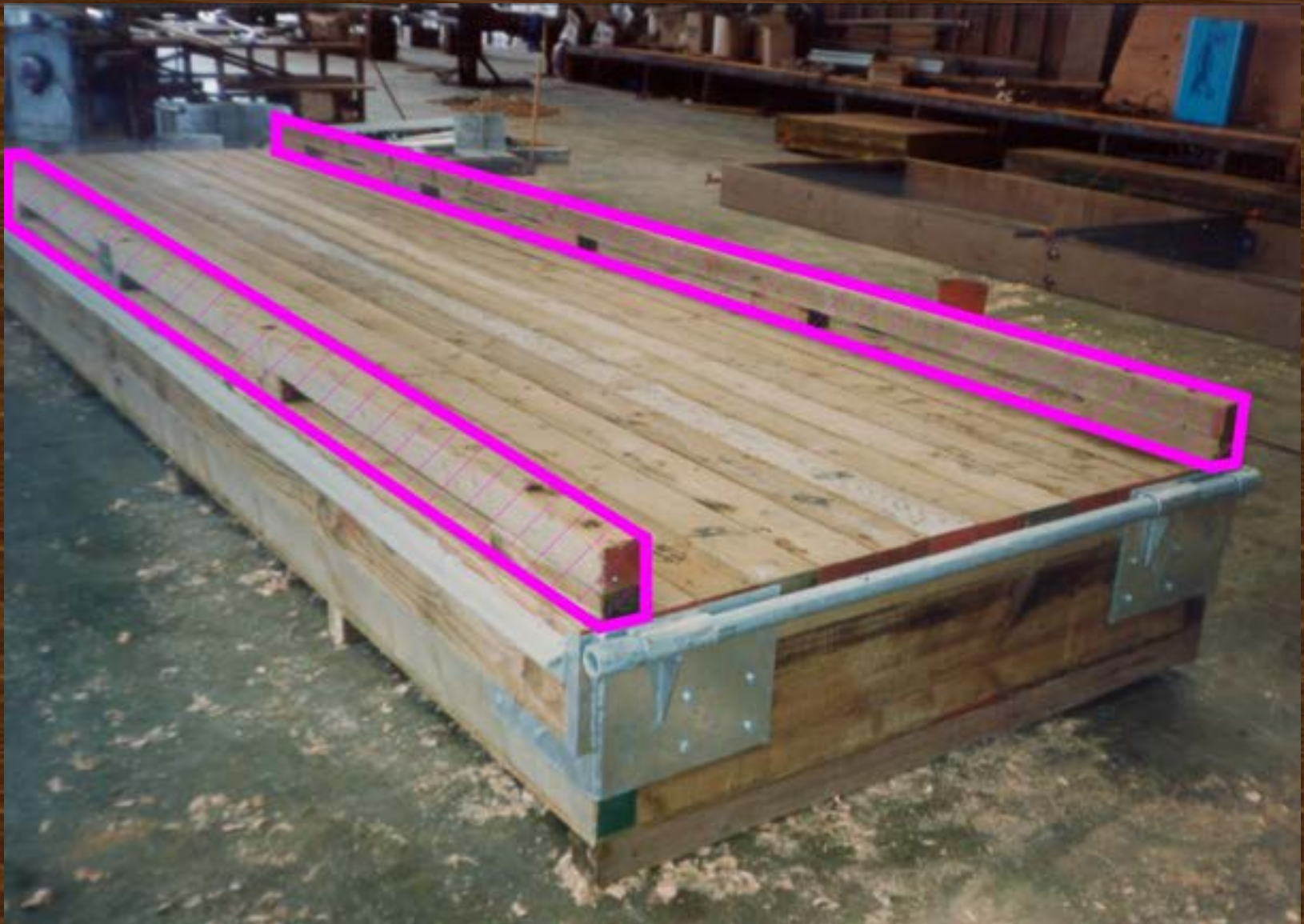
OSMB WOOD DOCK - 1988



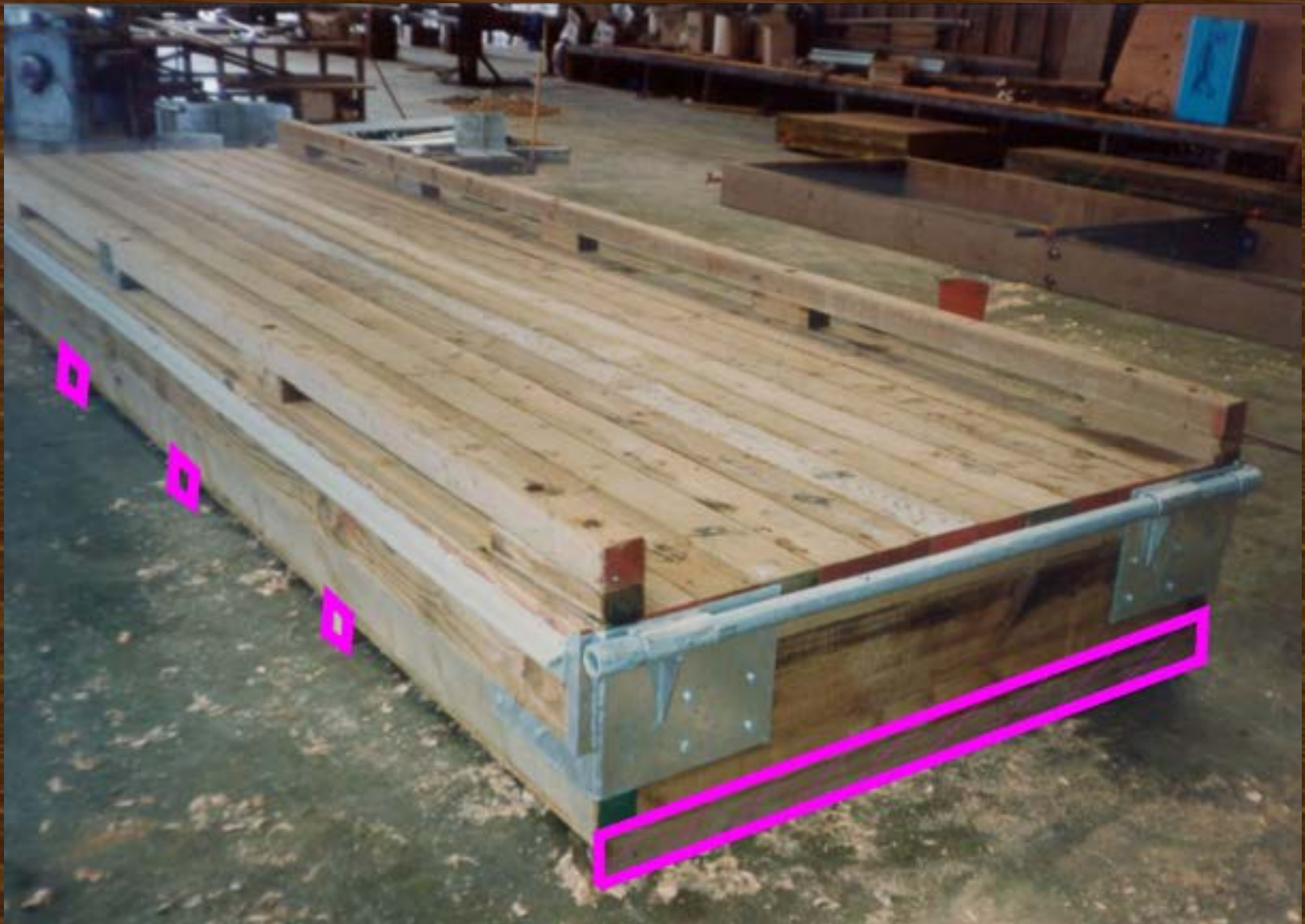
FRAMING



DECKING



BULLRAILS



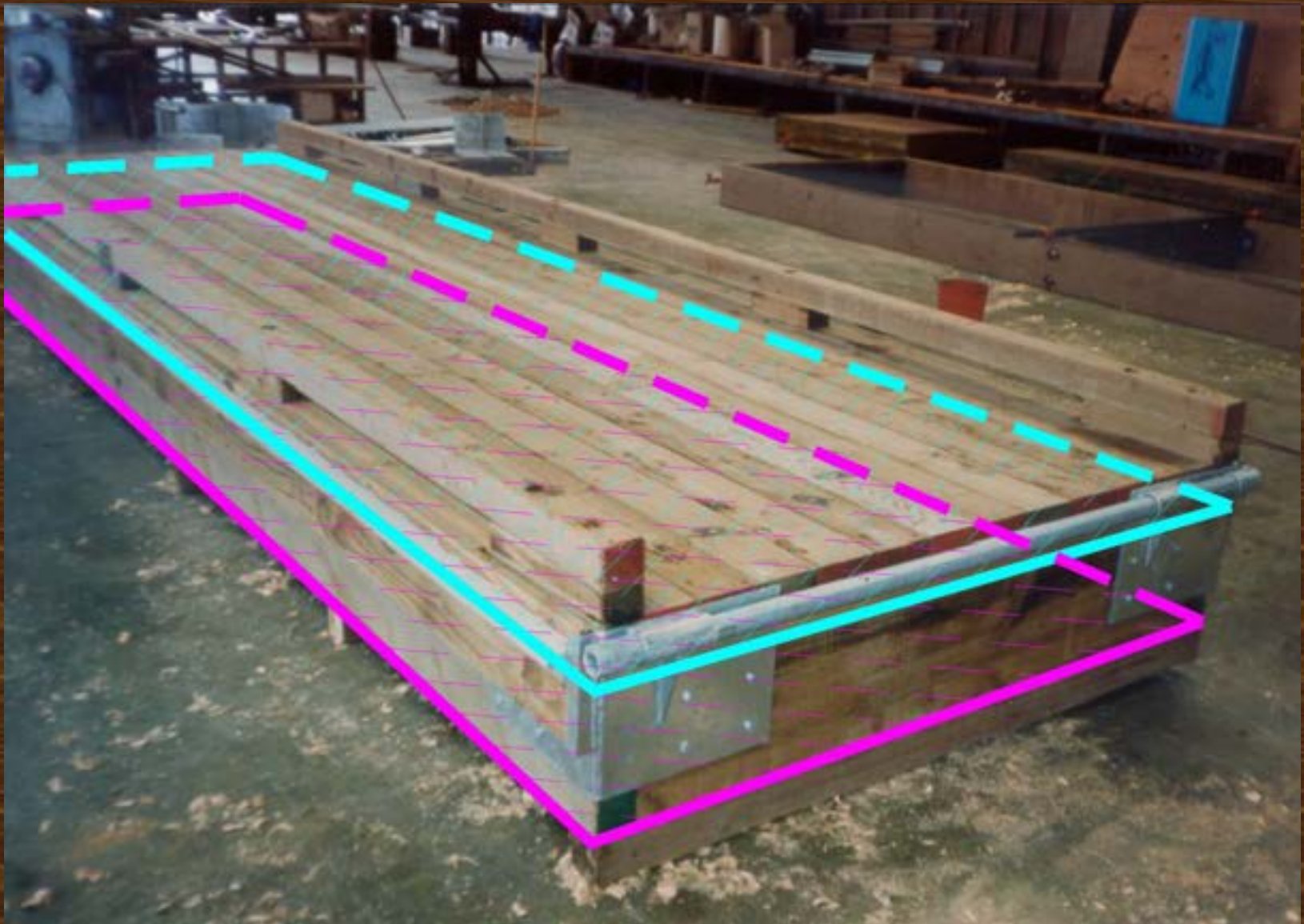
GROUNDING RAILS



HINGE BARRELS & PINS



WALES and RUB STRIPS



TOP & BOTTOM COVERS



LONGITUDINAL DECK BOARDS



PERPENDICULAR DECK BOARDS



NON-SLIP DECK COATING



COMPOSITE DECKING



ORIGINAL HINGE BARRELS



DOCK DAMAGE



HEAVY DUTY HINGE BARRELS



BELTING



RUBBER RUBSTRIP



POLYESTER RUBSTRIP



RECYCLED PLASTIC BULLRAILS



COMBINATION BULLRAILS (ADA)



GALVANIZED STEEL BULLRAILS



GROUNDING RAILS & COVERS



INTEGRATED PILE HOOP



FRAME CUT TO REMOVE DOCK FROM PILE



GATED PILE HOOP



PRESSURE TREATED WOOD



PRESSURE-TREATED WOOD



NON-PT WOOD (PORT ORFORD CEDAR)



Transition Project - 2002

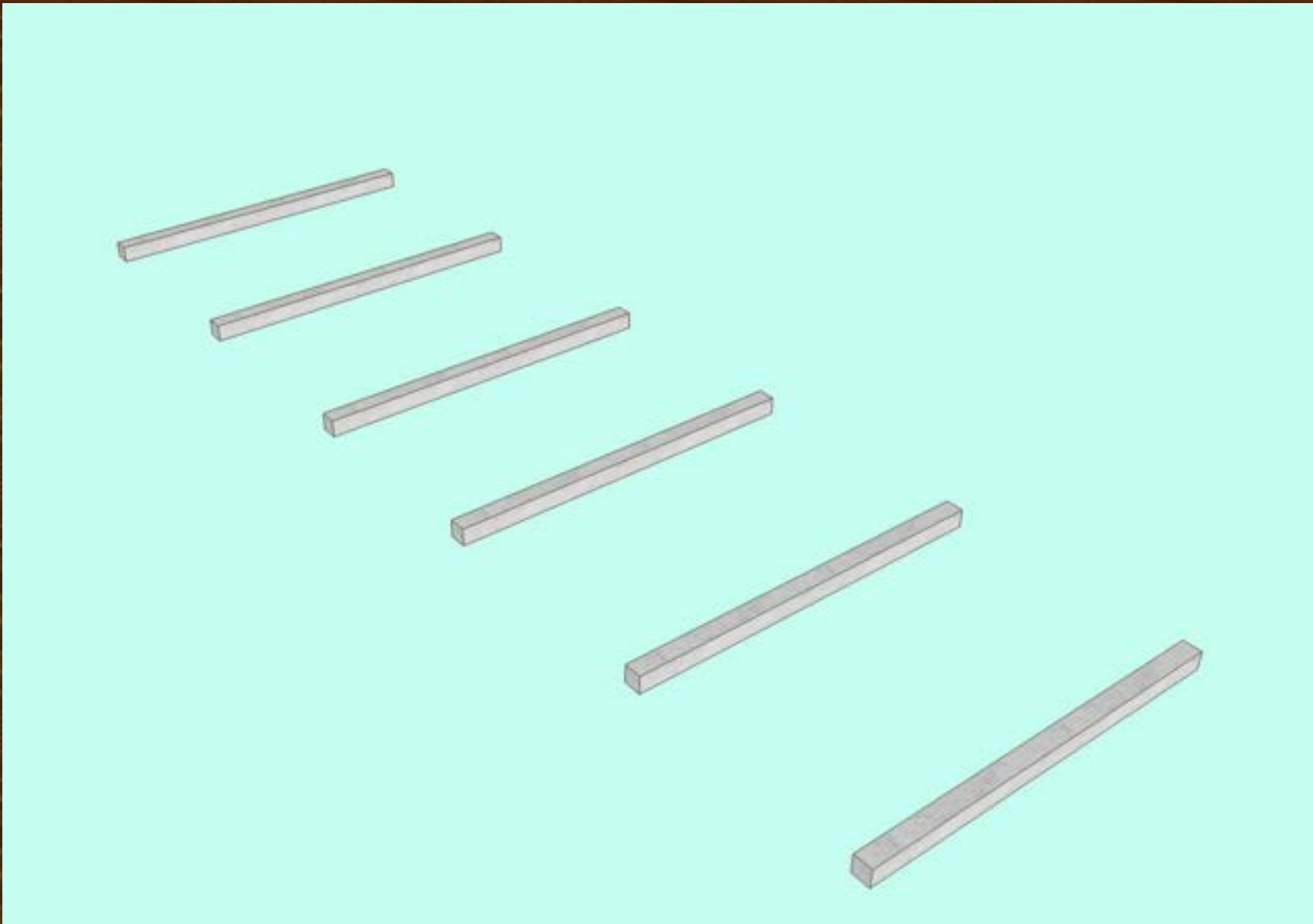


Transition Project - 2007

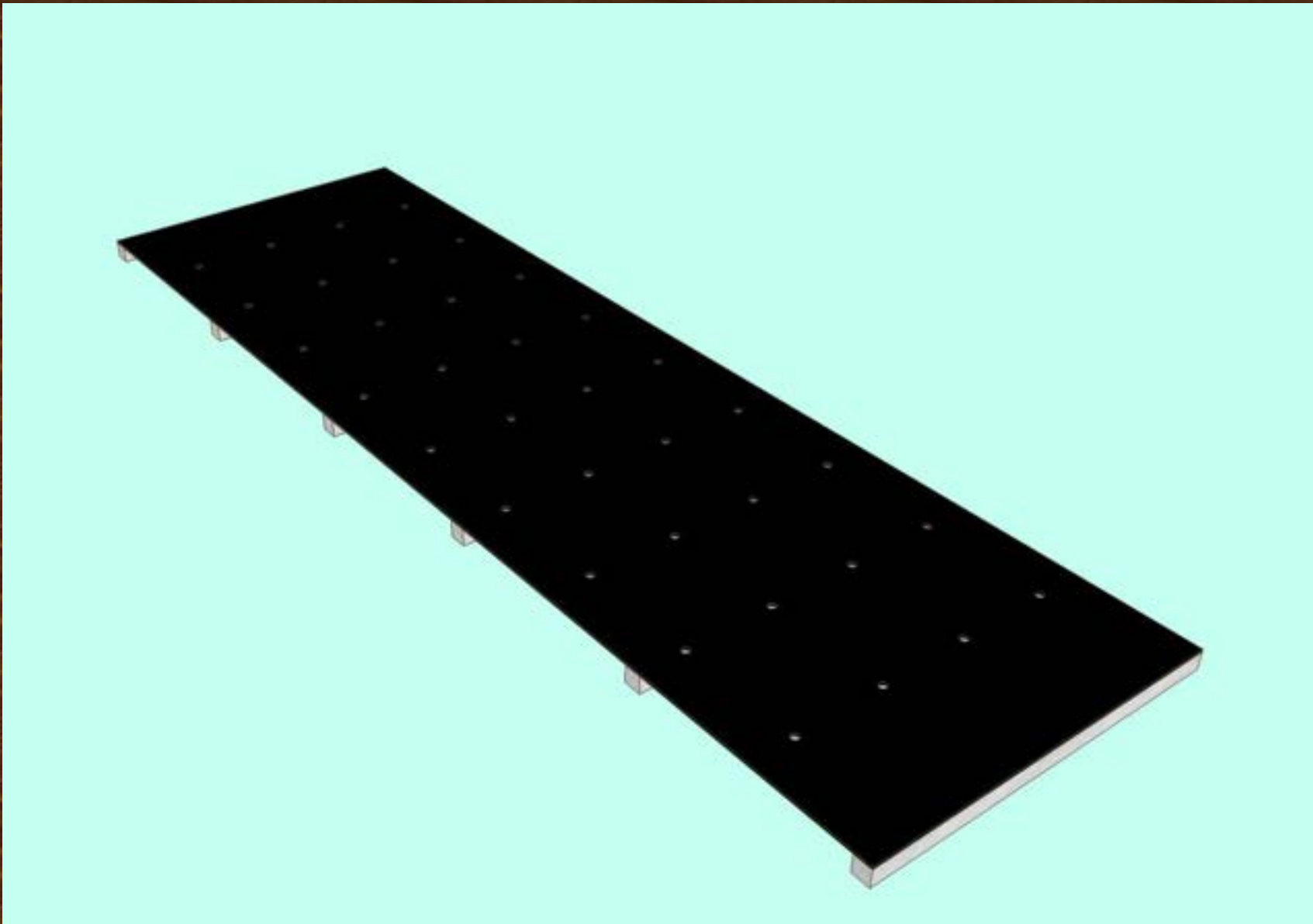




OSMB WOOD BOARDING DOCK CONSTRUCTION



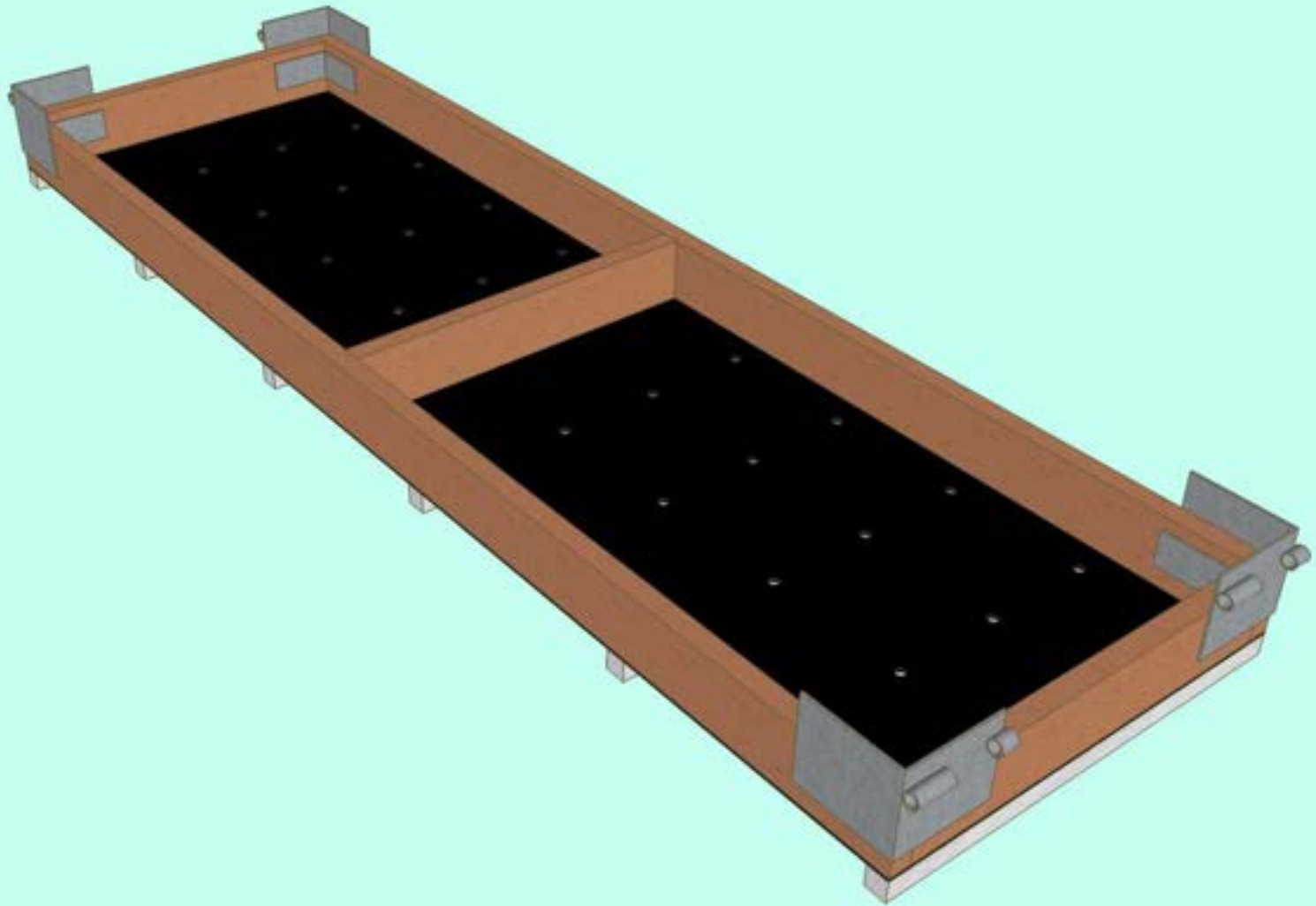
GROUNDING RAILS



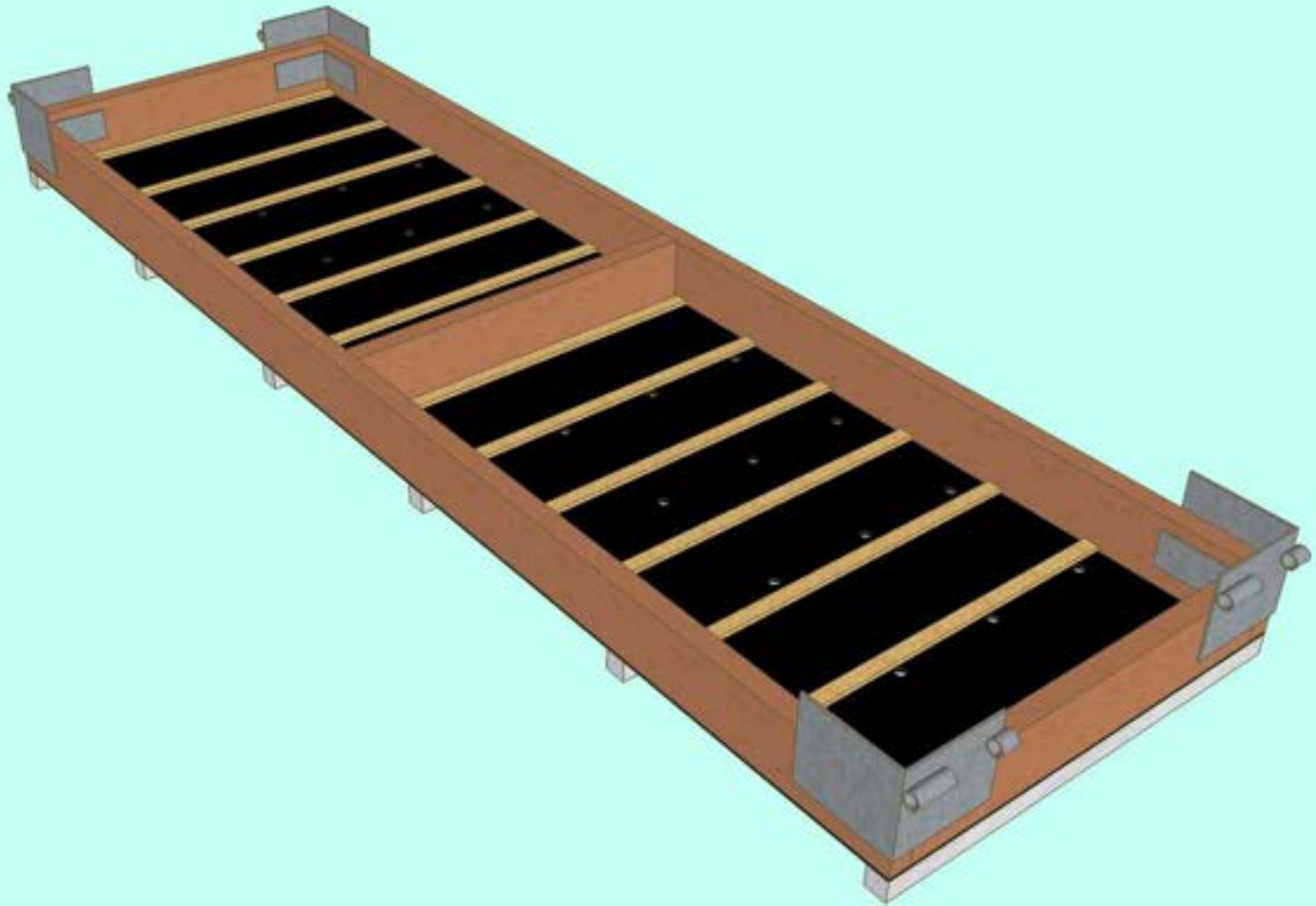
BOTTOM COVER



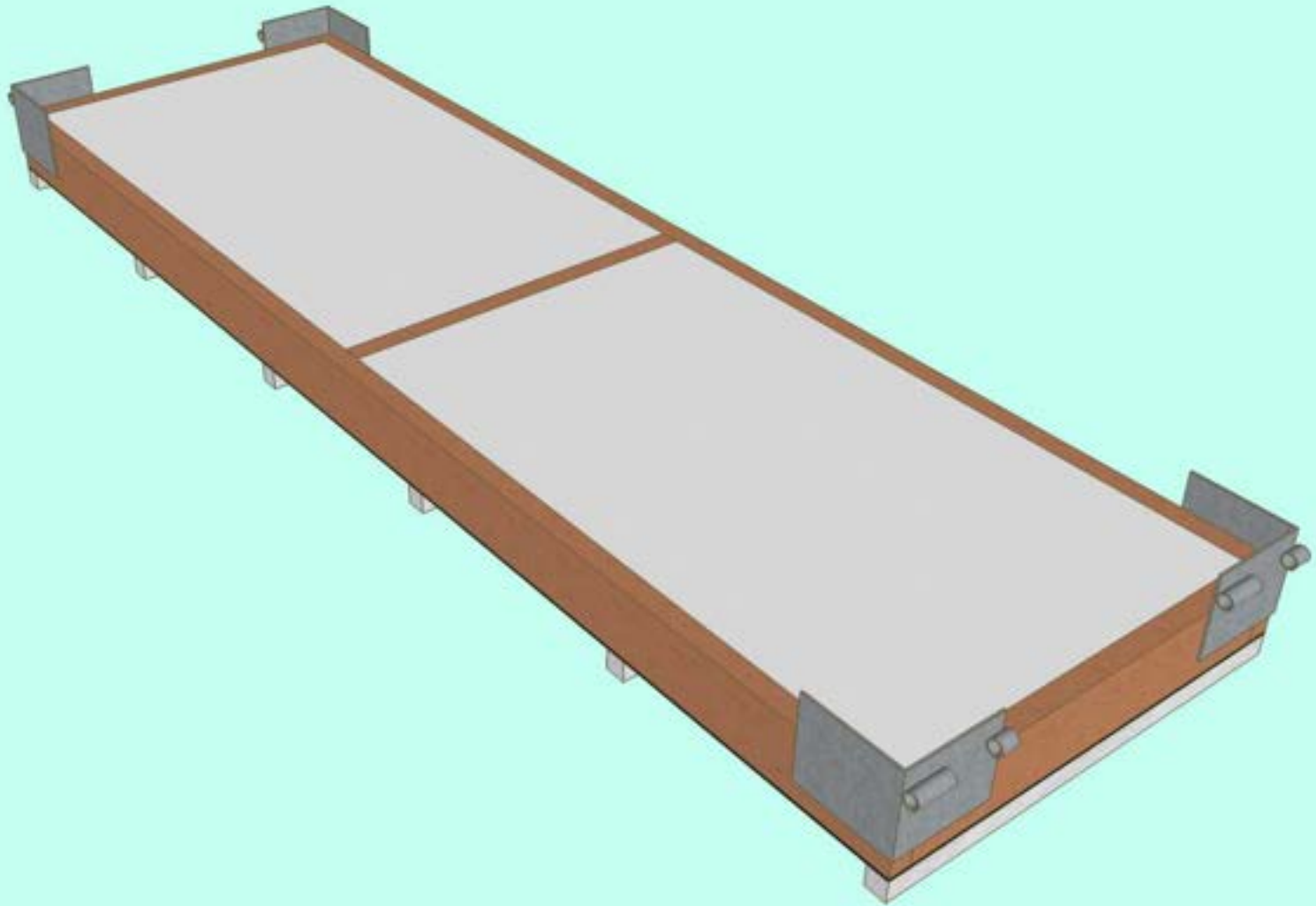
LOWER FRAME



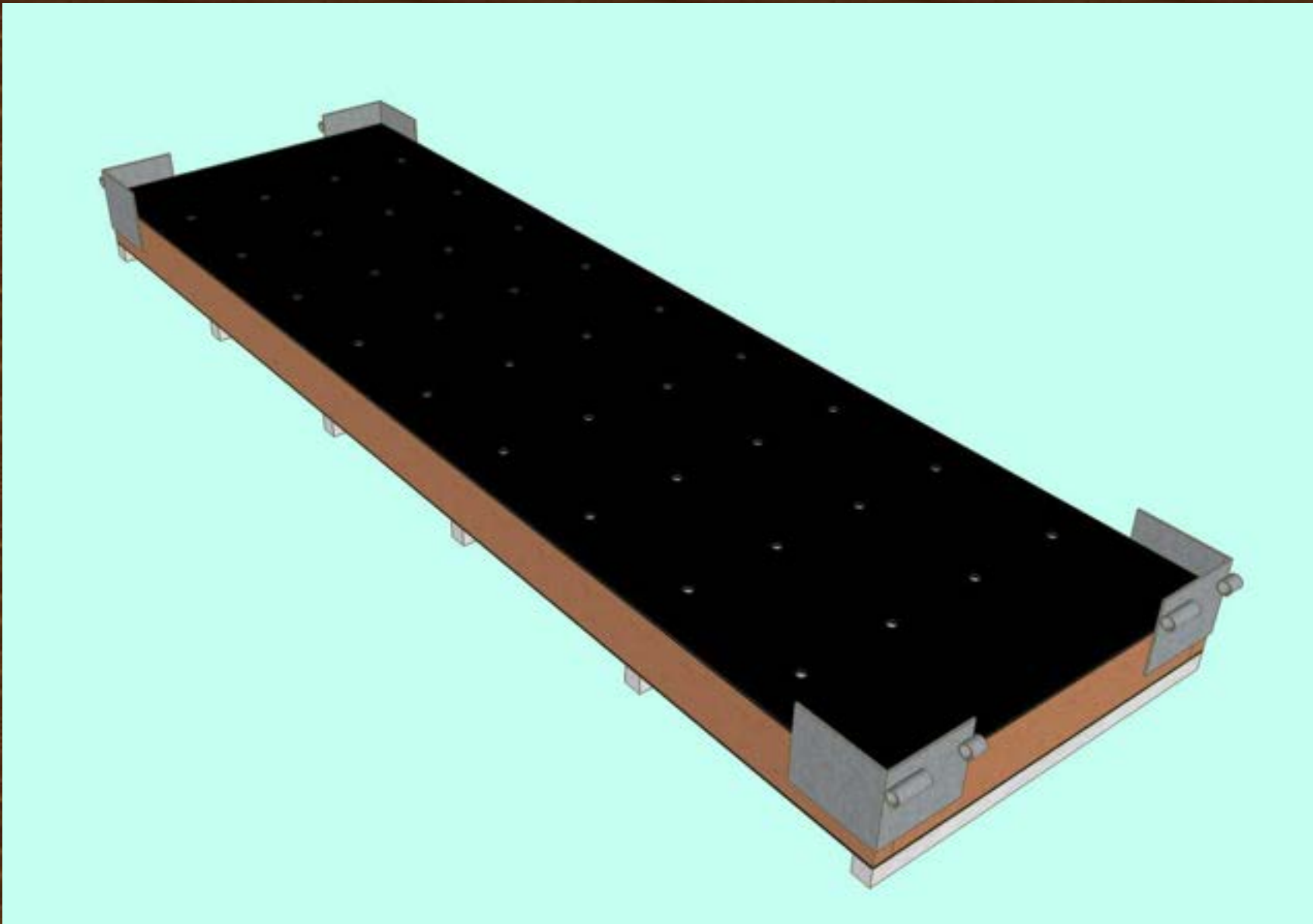
CORNER BRACKETS



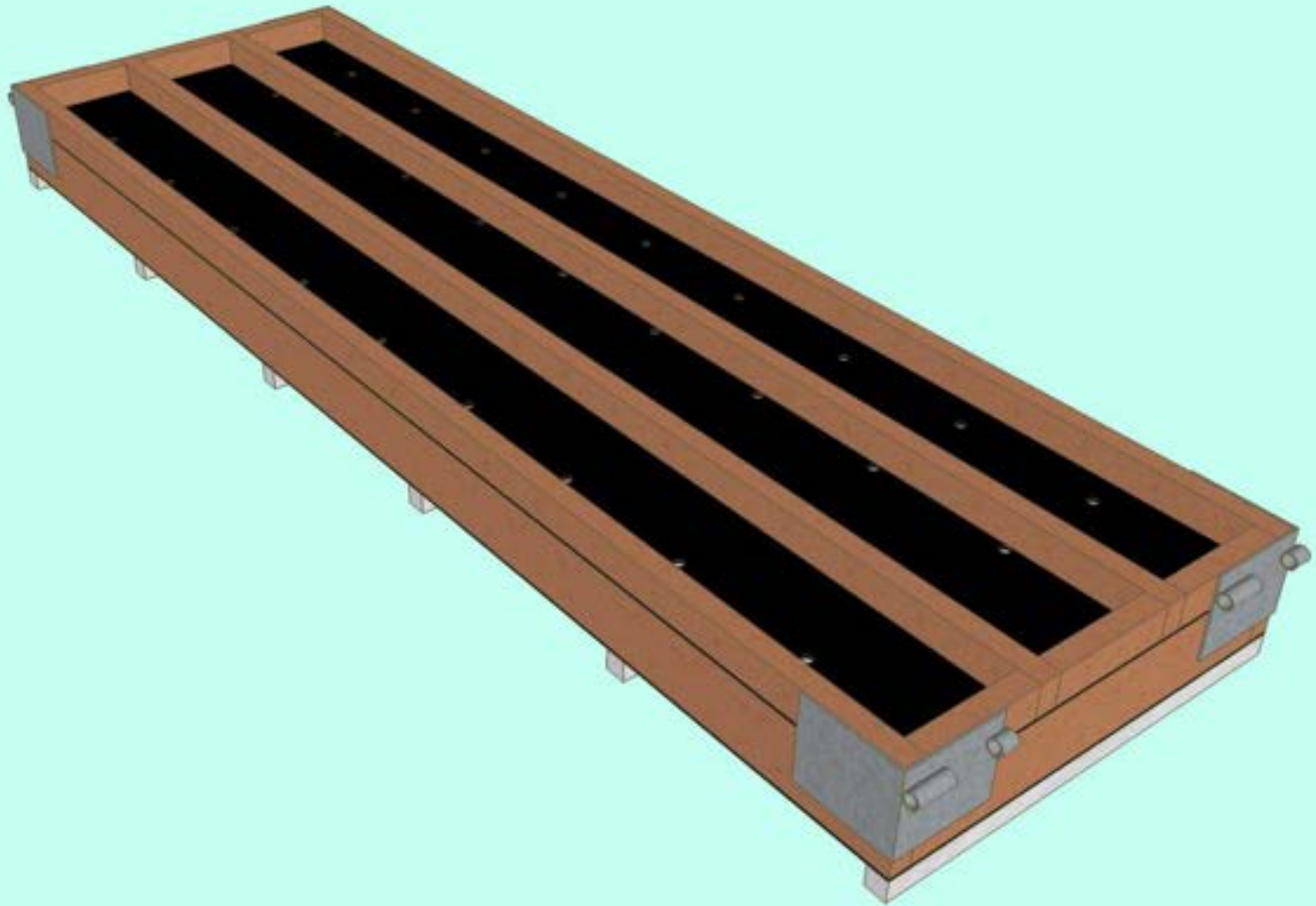
SPACERS



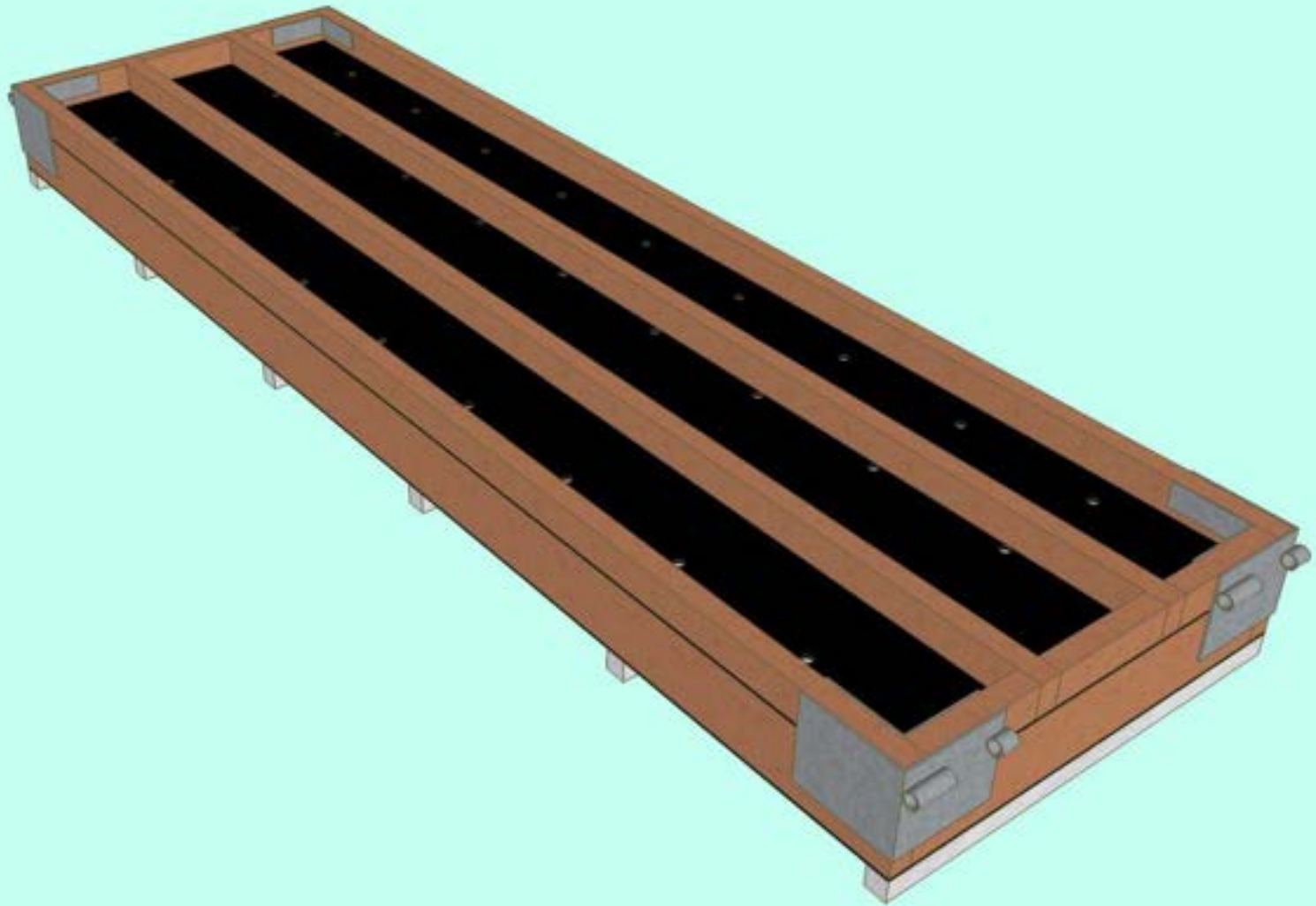
FOAM FLOATATION



TOP COVER



UPPER FRAME-DECK SUPPORTS



CORNER BRACING



DECKING



BULLRAILS



DOUBLE WALES



RUBSTRIP



HINGE PINS

**OSMB ALUMINUM
BOARDING DOCK DESIGN
AND CONSTRUCTION**

DESIGN OBJECTIVES

- 1. Compatibility with existing facilities**
- 2. Increase longevity**
- 3. Reduce maintenance**

DESIGN OBJECTIVES

- **Maintain dimensions**
- **Maintain weight**
- **Maintain draft and freeboard**
- **Eliminate degradable materials**
- **Use marine grade materials**
- **Form parts from common material**
- **Avoid bolt on parts**
- **Isolate metal components to minimize wear**
- **Provide continuous slip-resistant walking surface**



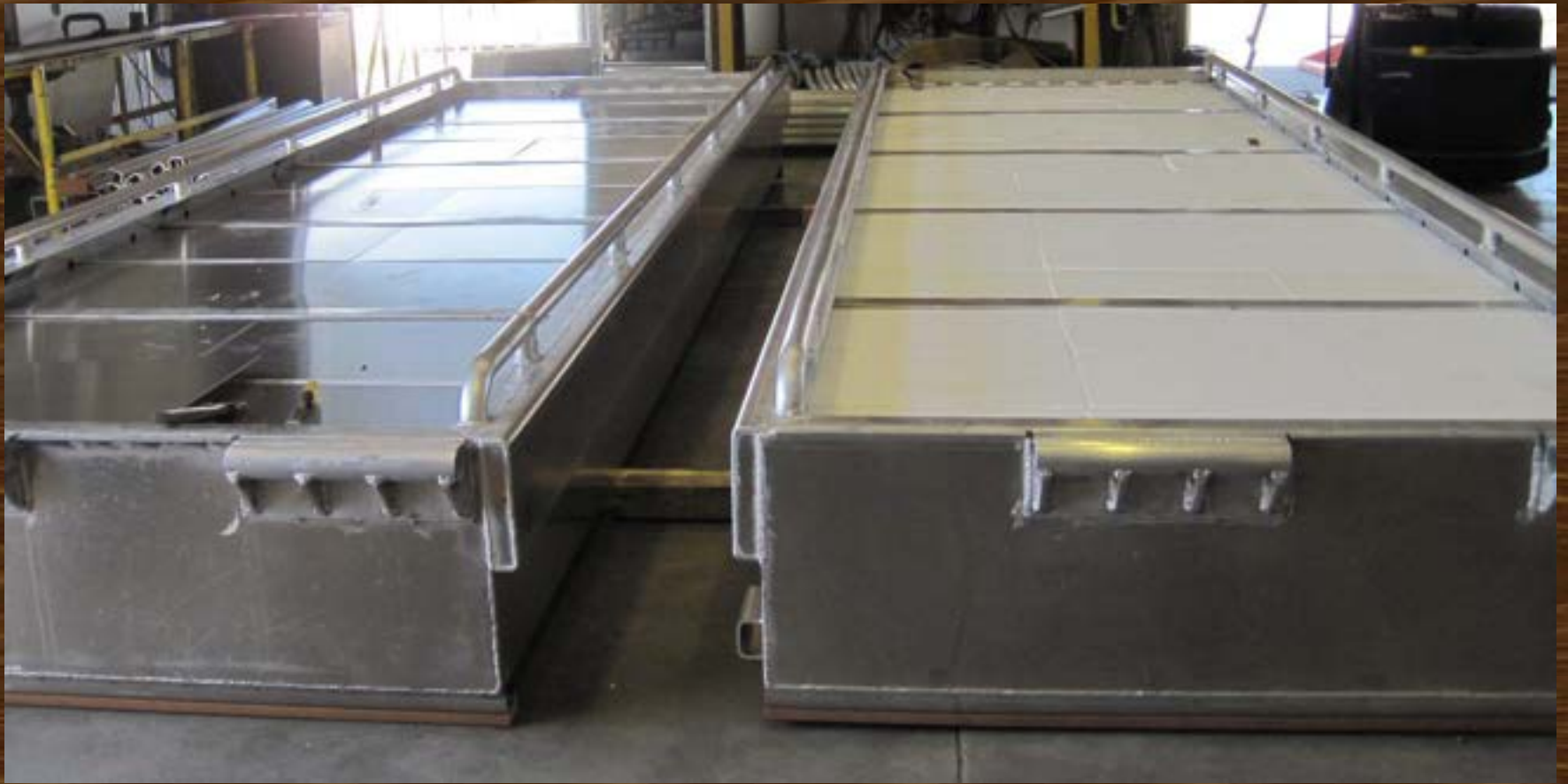
SHELL & INTERNAL STRUCTURE



SHELL & INTERNAL STRUCTURE



BARRIER COATING & CONCRETE



FOAM & TOP COVER



DECK SUPPORTS



FIBERGLASS DECKING



DETAILS



DOCK JOINT & PILE POCKET



OUT WITH THE OLD - IN WITH THE NEW

ALUMINUM DOCK PROJECTS

- **First installation - 2014**
- **16 facilities**
- **225 dock sections (27,000 s.f.)**
- **\$3.8 million**



QUESTIONS

