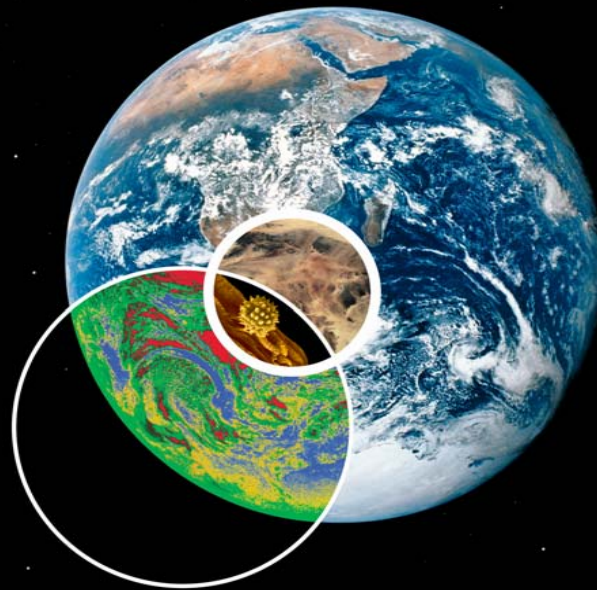


LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY



R/V Maurice Ewing Replacement...



3D Seismic Vessel Western Legend



17. 5. 2

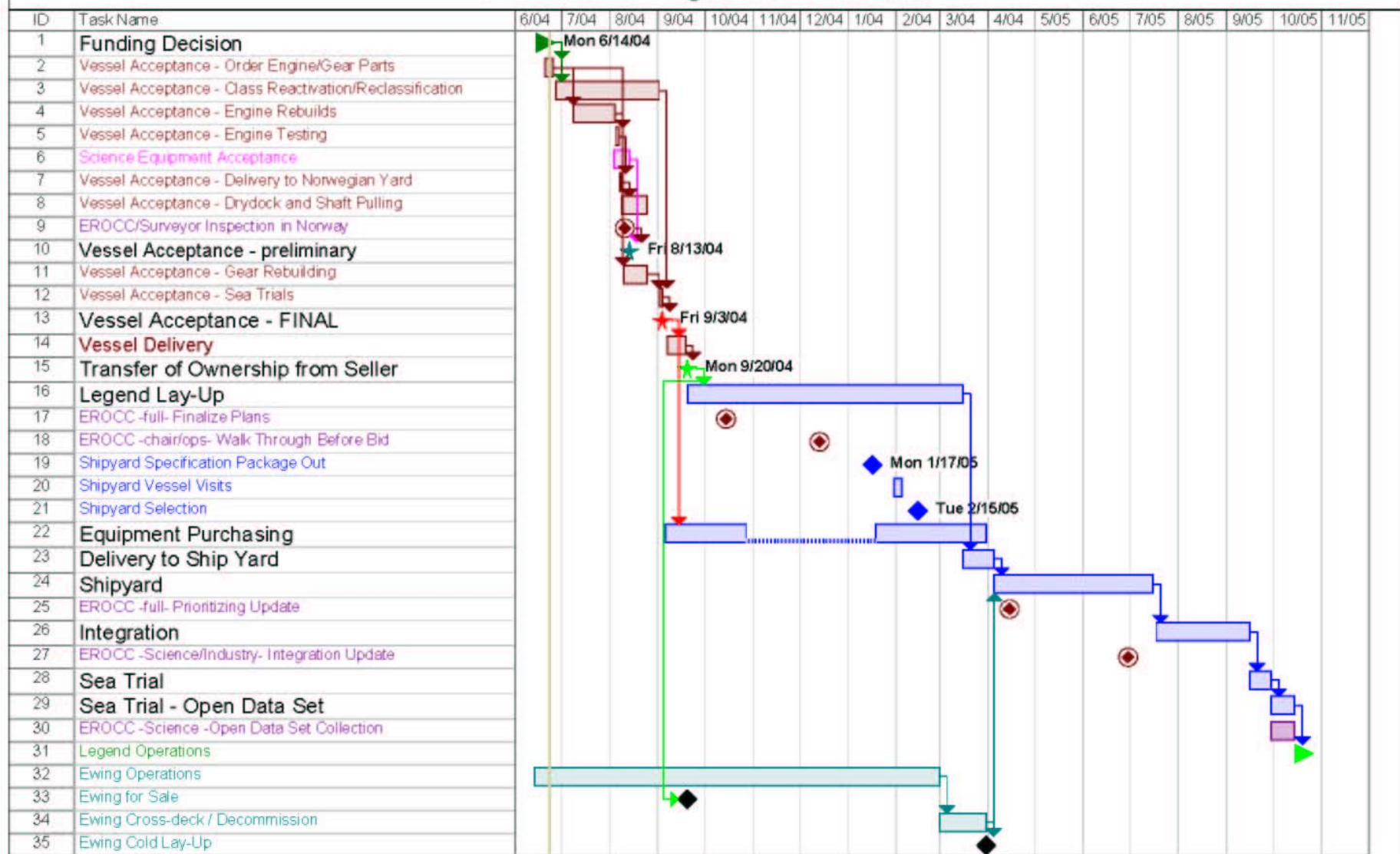
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Replacement Vessel – Western Legend as an Example

(EWING after midlife in parenthesis)

Length:	235 feet	<i>(237 feet)</i>
Beam:	56 feet	<i>(46 feet)</i>
Displacement Lightship Tonnage:	2578 metric tons	<i>(1867 metric tons)</i>
HP:	7200 HP	<i>(3200 HP)</i>
Bollard Pull:	86.2 metric tonnes	<i>(20.2 metric tonnes)</i>
Compressor Capacity:	2x2750cfm	<i>(3x1000cfm)</i>
Speed Cruising/Max:	12/14 kt	<i>(11/13 kt)</i>
Ship's Complement/ Maximum Science Party	60/40 people	<i>(50/29 people)</i>

Western Legend Timeline



Project: legend_time5
Date: Wed 6/23/04

Task		Rolled Up Task		External Tasks	
Progress		Rolled Up Milestone		Project Summary	
Milestone		Rolled Up Progress		Group By Summary	
Summary		Split			

EWING Replacement Oversight Conversion Committee (EROCC)

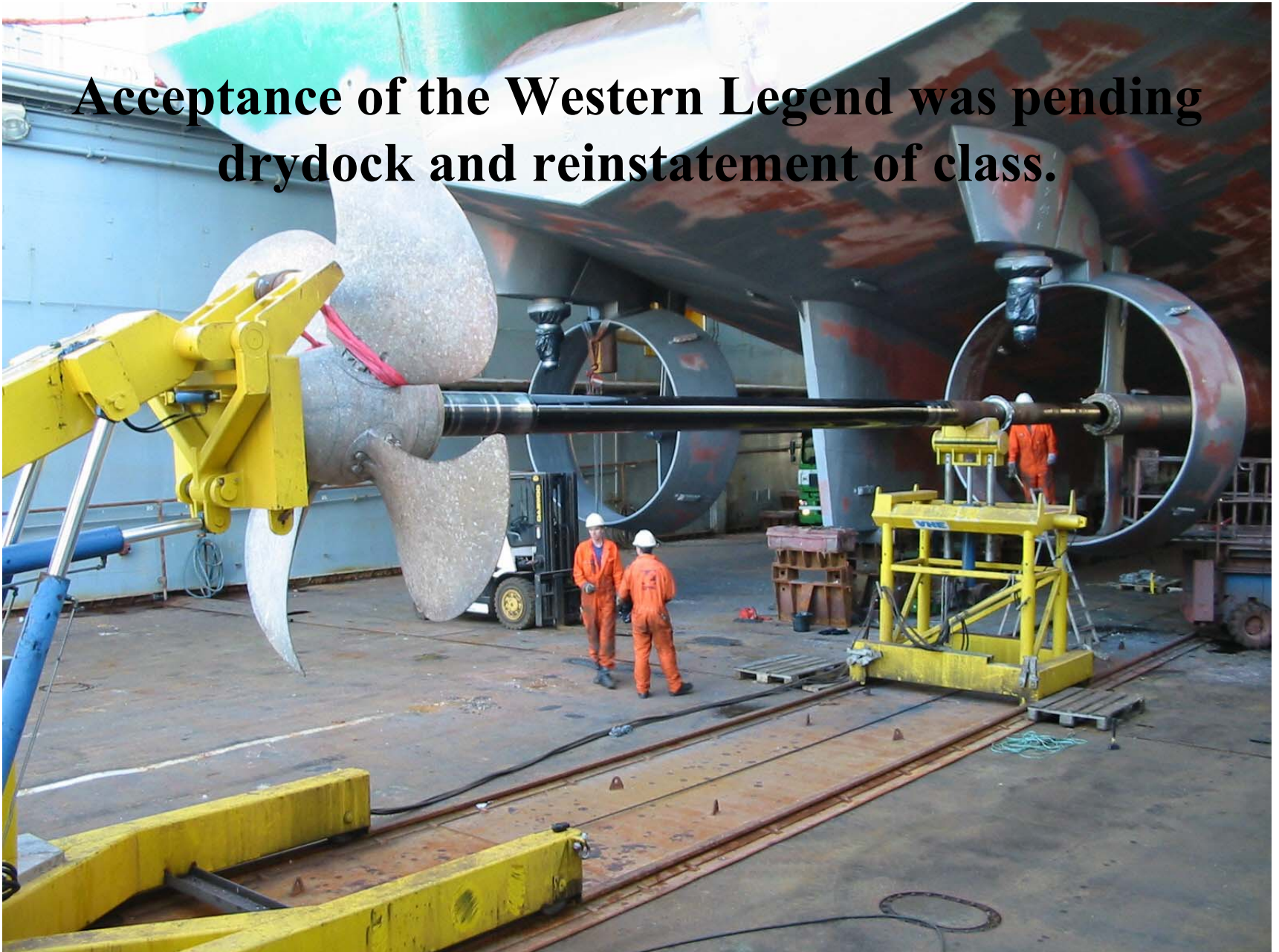
The Committee is established to provide oversight on all aspects of the conversion of the Western Legend for use as a research vessel within the UNOLS fleet. This includes consideration of the ship modifications, selection and placement of the seismic and other oceanographic equipment and establishment of design and budget priorities to ensure the project remains within the agreed scope and cost.. The Committee responds to specific questions posed by NSF and LDEO Management and provides reports to NSF following each meeting. The Committee communicates regularly with LDEO management providing advice and guidance on all aspects of the conversion project. LDEO management ensures that the Committee is well informed in a timely way of all conversion related issues and decisions. A dedicated web page will be established by LDEO to facilitate this communication.

The Committee will consist of 7 -10 members, including a Chair. Employees of LDEO, or subcontractors involved in this project, may not be members of this Committee but may participate in an ex-officio capacity. The Committee is established and supported by LDEO, and its membership and scope of activities are approved by NSF.

It is anticipated that the EWING Replacement Oversight Conversion Committee will have carried out their charge with the completion of science sea trials. Thus, shortly thereafter, the Committee will be dissolved.

Committee Membership- Tom Shipley UTIG Chairman, Tom Althouse SIO, Jeff Babcock SIO, Fred Jones OSU, Peter Littlewood Shell International, Larry Mayer UNH, Al Suchy WHOI, Jim Cochran LDEO (ex-officio), Paul Ljunggren LDEO (ex officio).

Acceptance of the Western Legend was pending drydock and reinstatement of class.



This included hull survey, gauging, issuance of
ISSC, SMC...



Overhaul of main engine and reduction gear...







**On completion of drydock and sea trial, a
Western Geco crew delivered the ship...**

09.11.2004

...to a lay berth at Quonset Point , RI.



LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY

Legend Modifications

- **Reflagging**
 - Stability Bulkhead and Inclining
 - Structural Fire Integrity
 - Safety Equipment
- **Open Main Deck**
 - Remove Structure
 - Remove Equipment for 8 Streamers
- **Increase General Laboratory Area**
 - Add Main Deck Labs (Port Side, Forward, Wet)
 - Instrument Room more General Purpose
 - Add Upper Deck Lab
- **Over-the-Side Ability**
 - Side A-Frame and Aft Over Boarding Boom
 - Cross-Deck Ewing Winches (Core, CTD, Camera)
 - Add Articulating Cranes



Reflagging review by Coast Guard include ship's firefighting system, safety equipment, and stability.

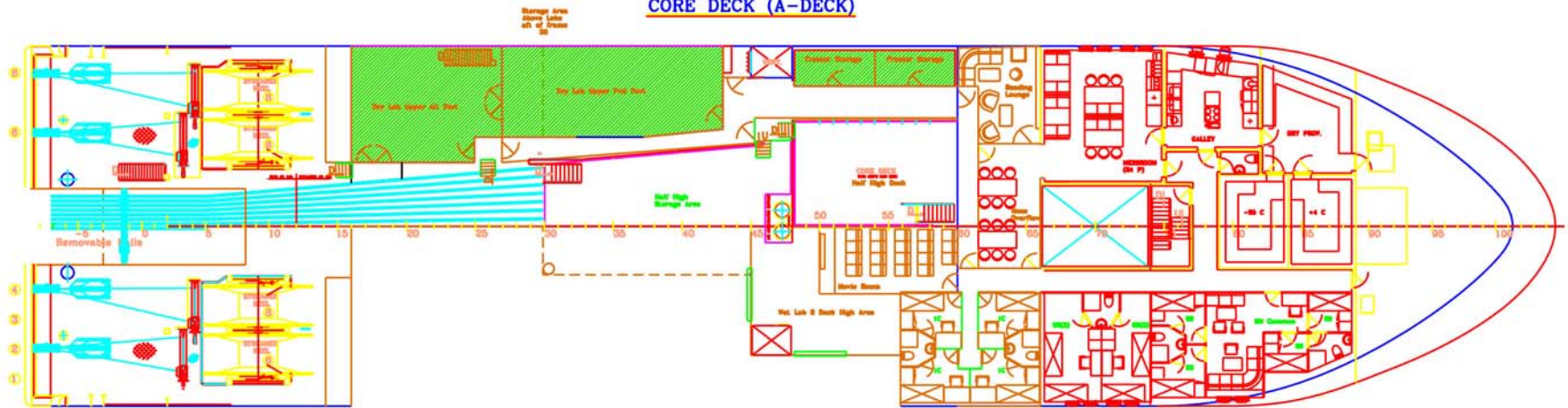
LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY

Legend Modifications

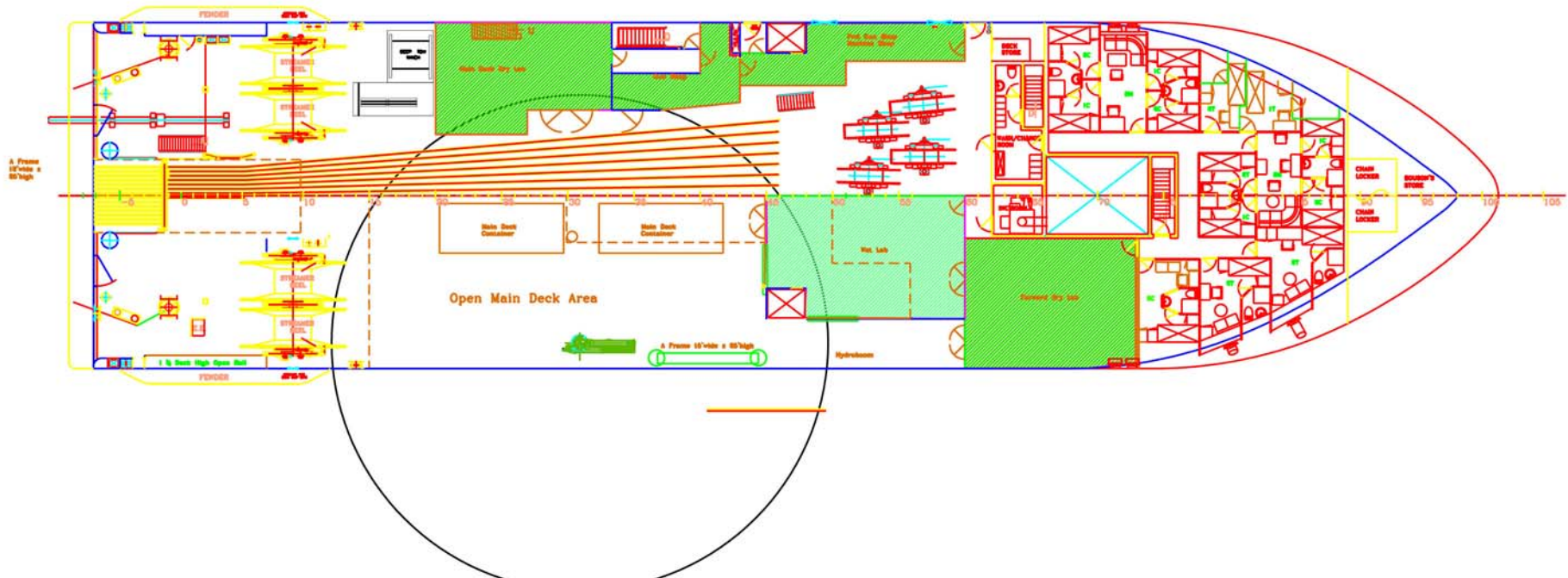
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Western Legend Main & A Deck

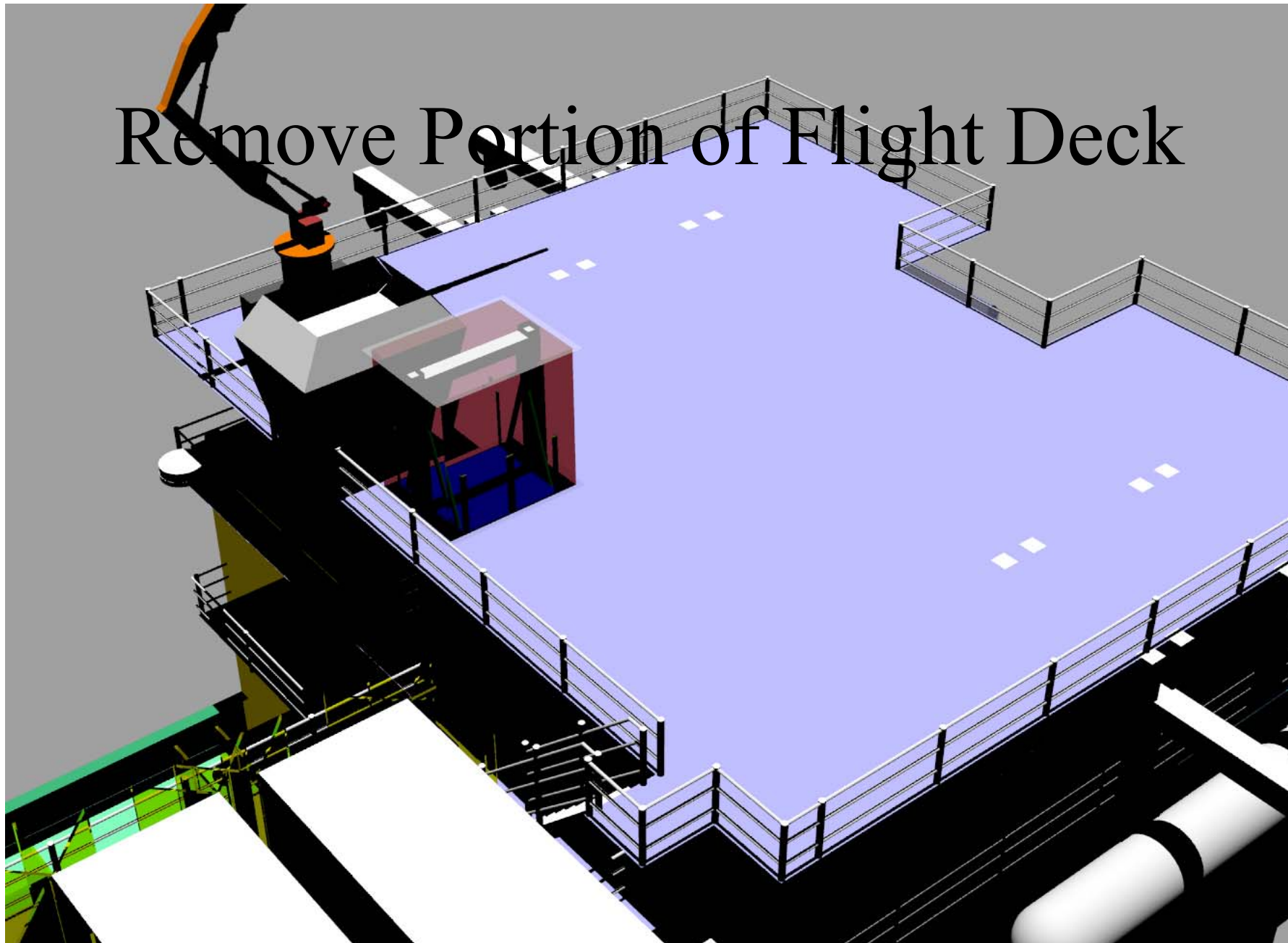
CORE DECK (A-DECK)



MAIN DECK



Remove Portion of Flight Deck



Open main deck



LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY

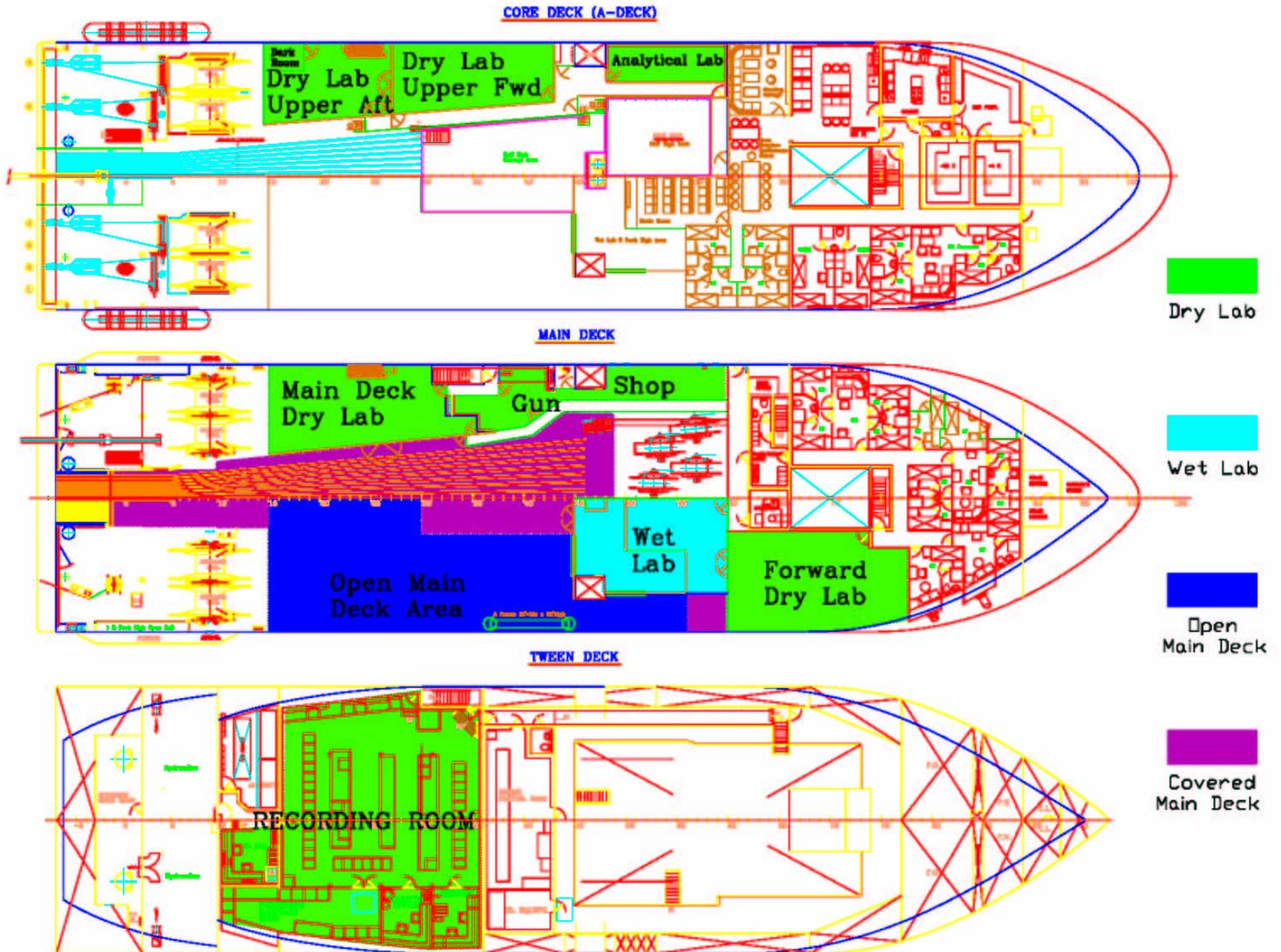
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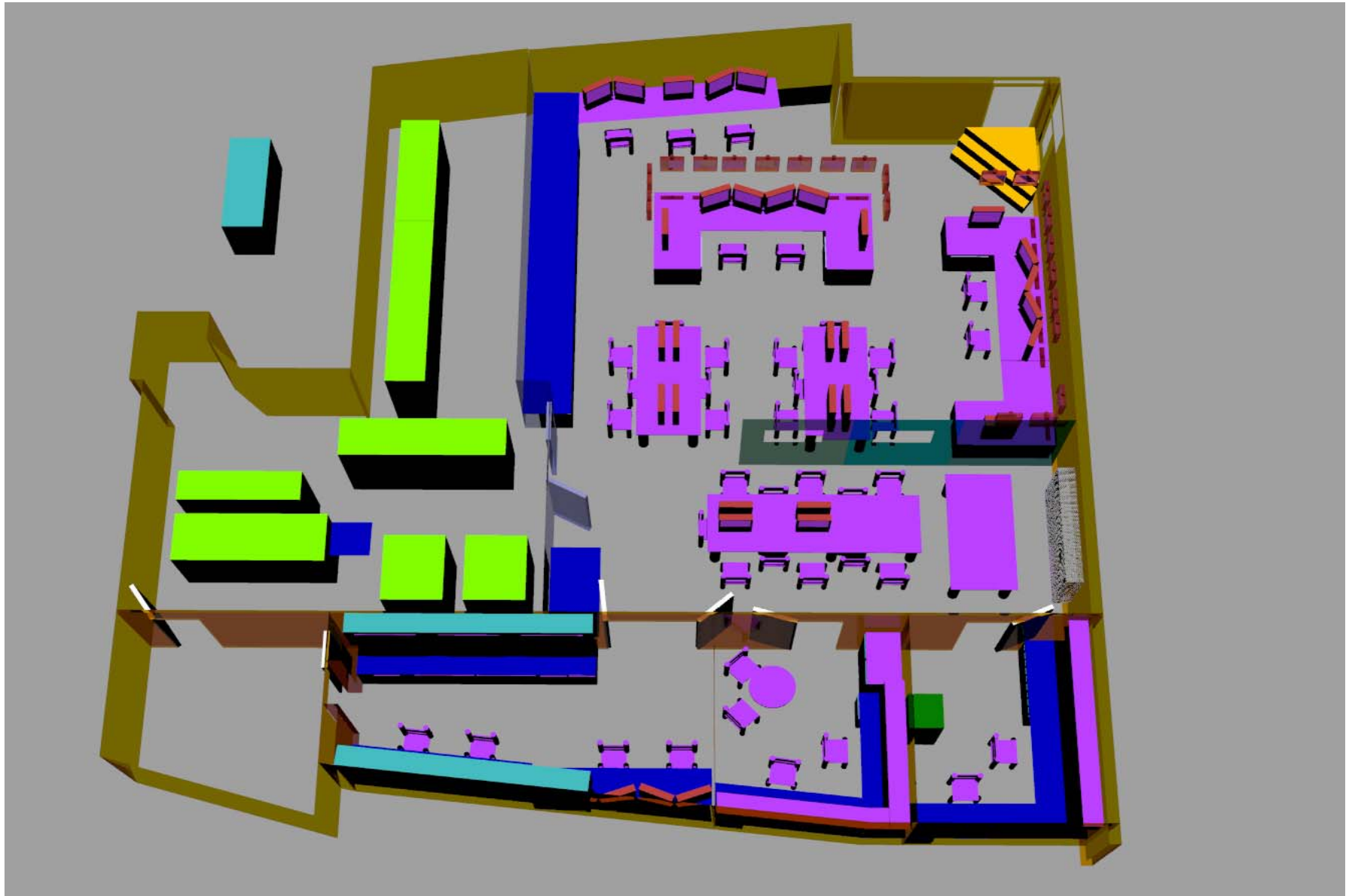
Recording Room



Lab Layout



Recording Room Arrangement



LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY

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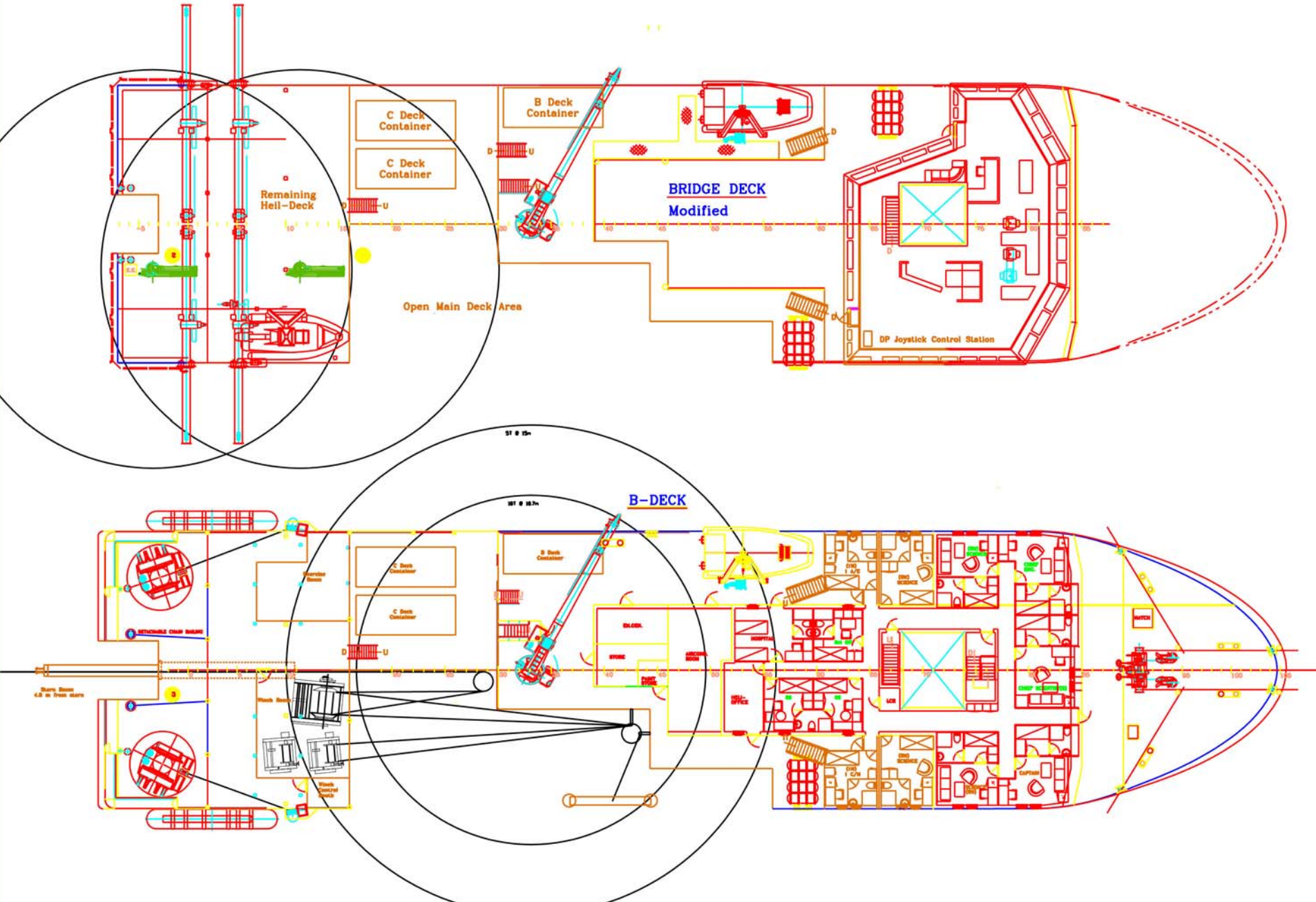
WESTERN LEGEND

WESTERN
LEGEND
1988

NORCA



Western Legend Bridge & BDeck





LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY

Legend Modifications -continued

- **Accommodation**
 - Habitability Improvements (Mess, Reading Room, Movie Room)
 - Add 8 Staterooms
 - Maximize Single Crew Staterooms/Increase on Ewing's capacity
- **Sonar Systems**
 - 1°x1° Deep Sea Multibeam and Sub-bottom Profiler
- **Dynamic Positioning Control System**
- **Mammal Observation and Mitigations**
- **General Purpose Abilities**
 - Equipment Lift
 - Computer and Network Systems
 - Clear Main Deck with Long Open Rail
- **MCS**
 - Retain Equipment Designed for Multiple Streamer Operations

Captain's Cabin



3 Person Cabin



Messdeck



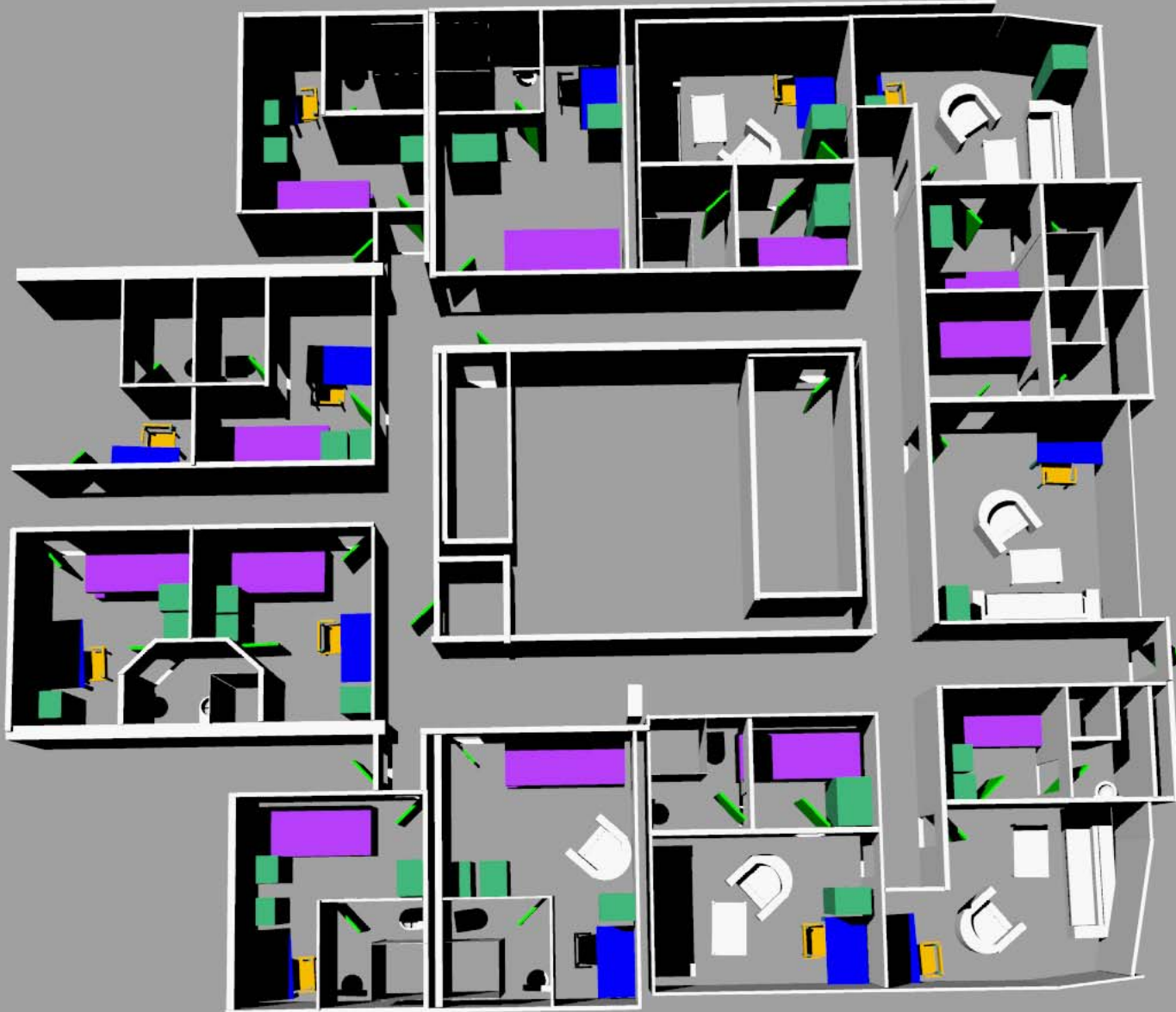
Galley



Movie Room

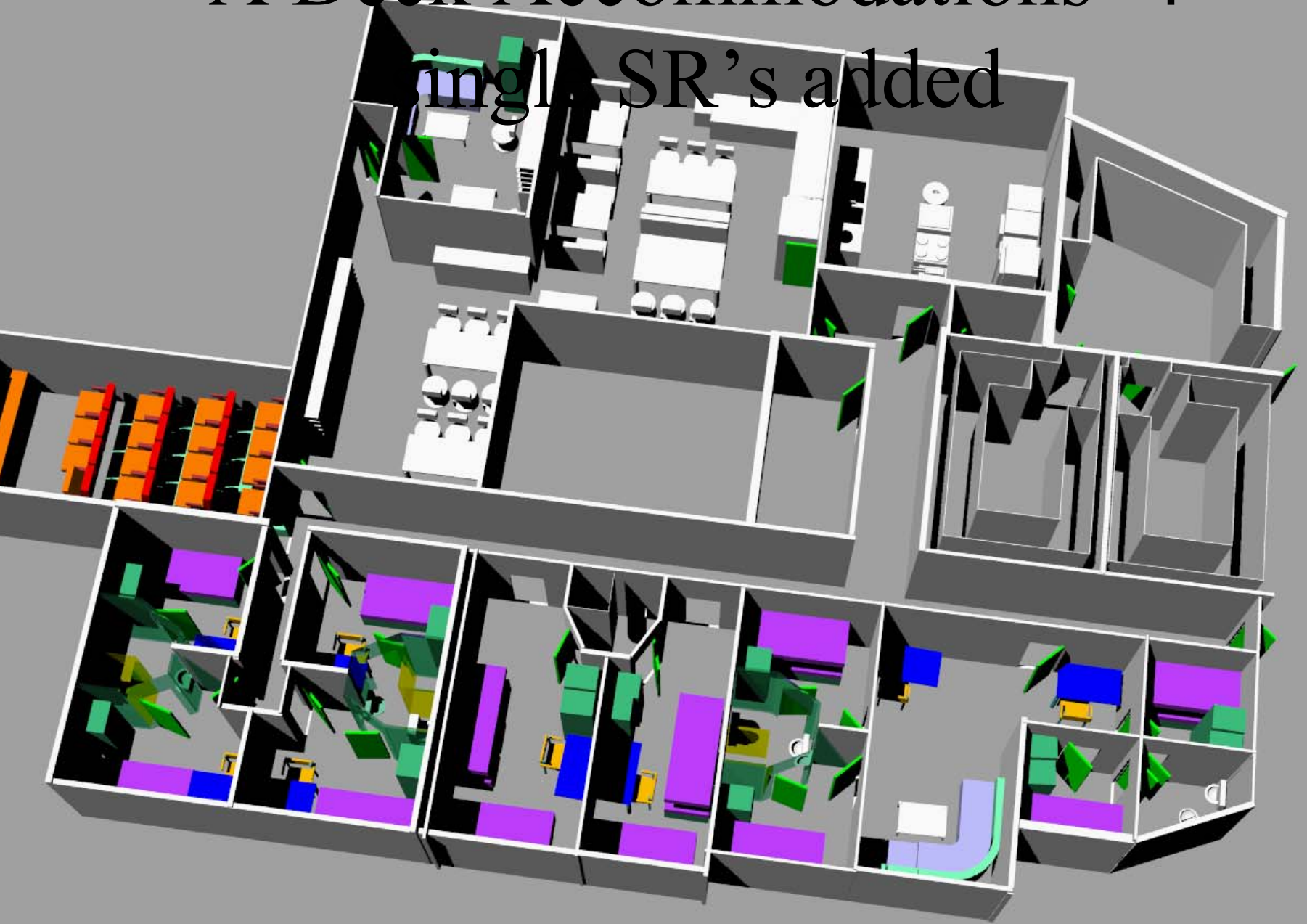


B Deck – 4 SR's added

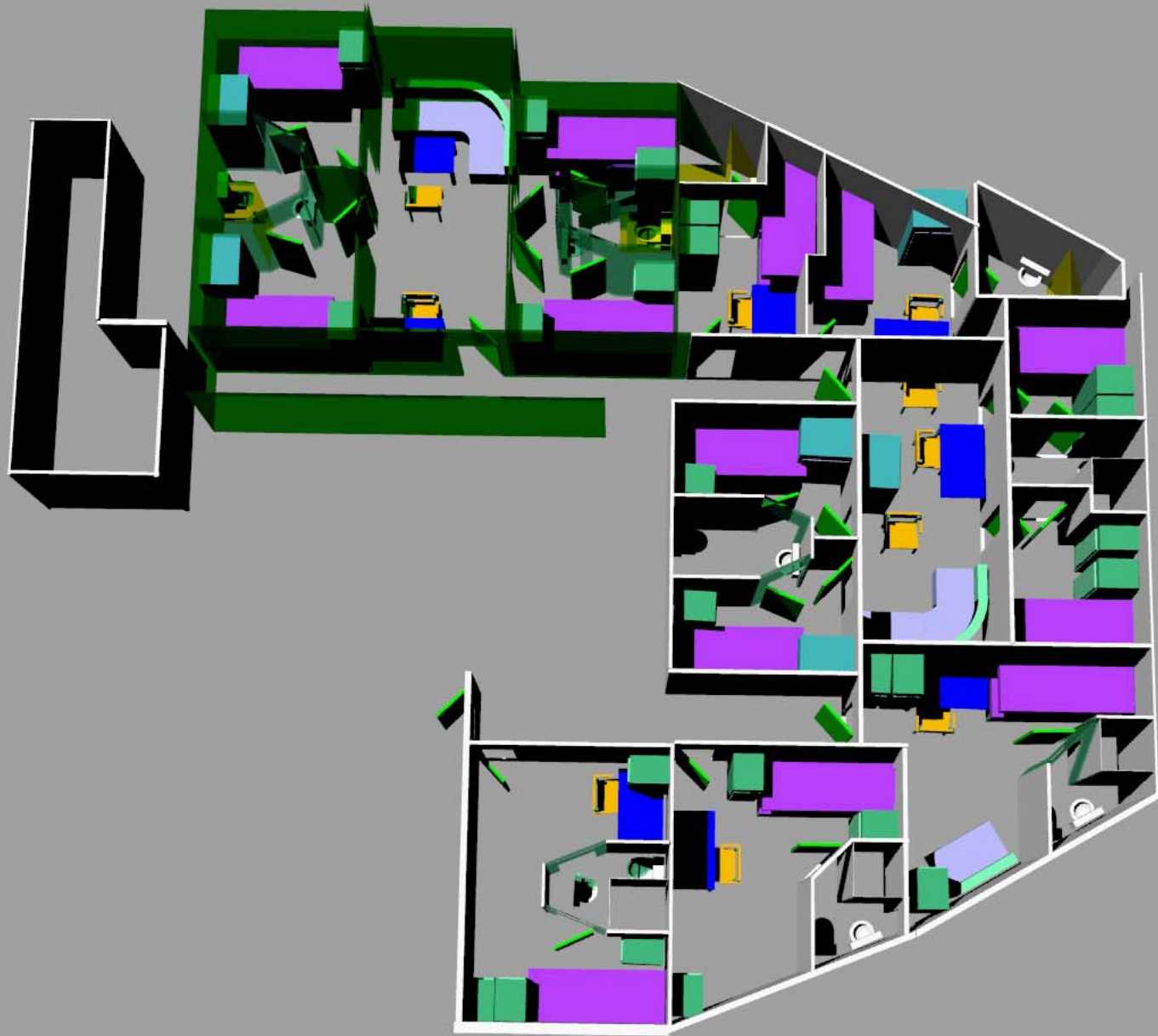


A Deck Accommodations- 4

Single SR's added



Main Deck Accommodations



LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY

Legend Modifications -continued

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Sonar Pod

58
56
54
52
5M
48
46



2002 5 15

LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY

Legend Modifications -continued

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Marine Mammal Observation

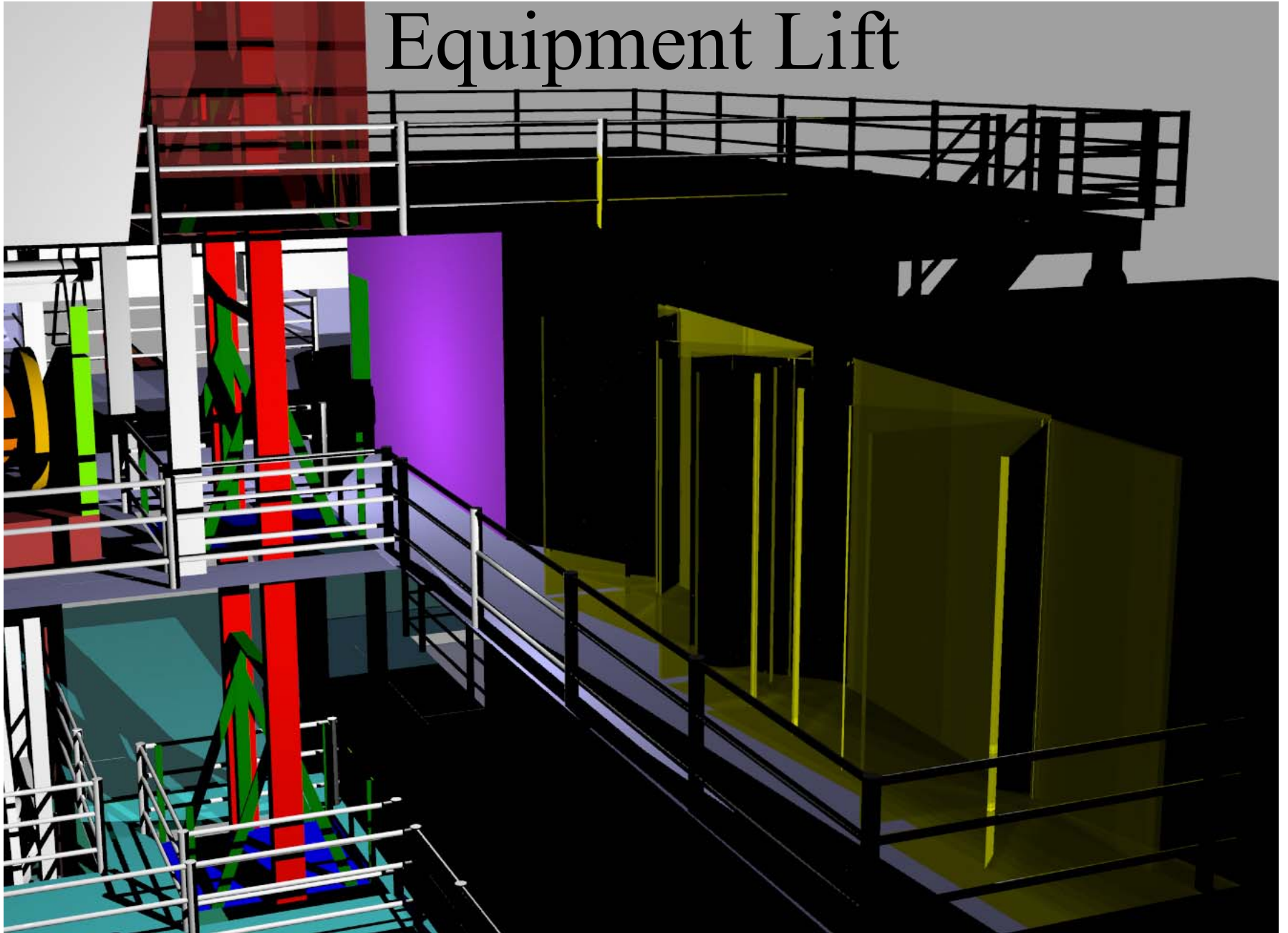


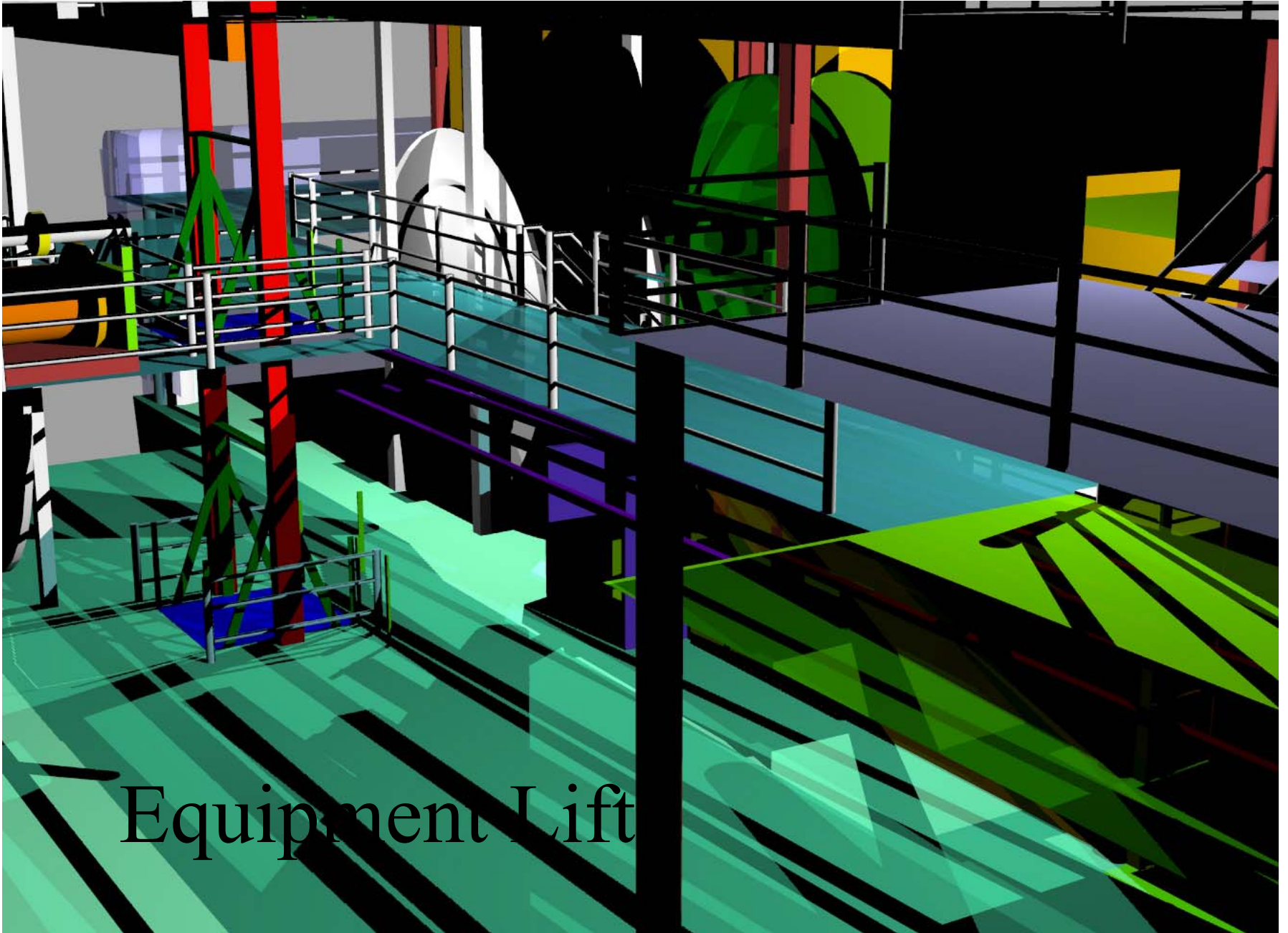
LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY

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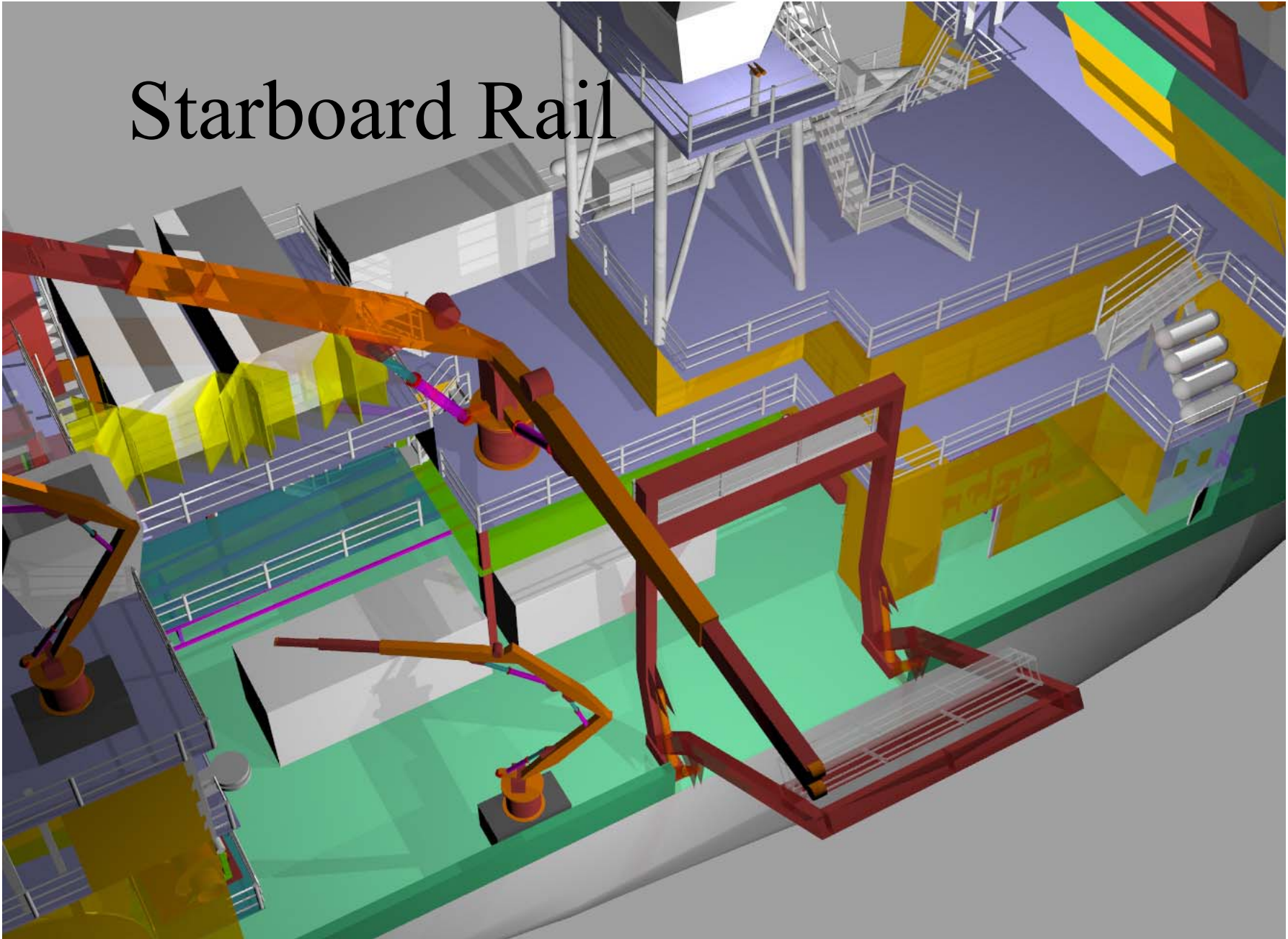
Equipment Lift





Equipment Lift

Starboard Rail

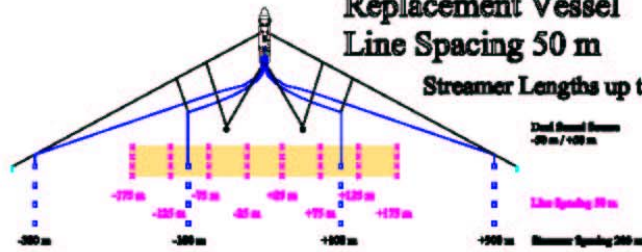


LAMONT-DOHERTY EARTH OBSERVATORY OF COLUMBIA UNIVERSITY

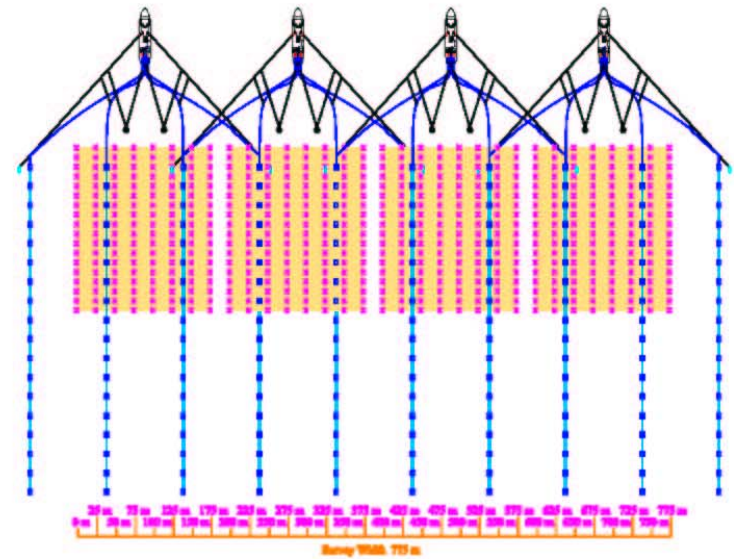
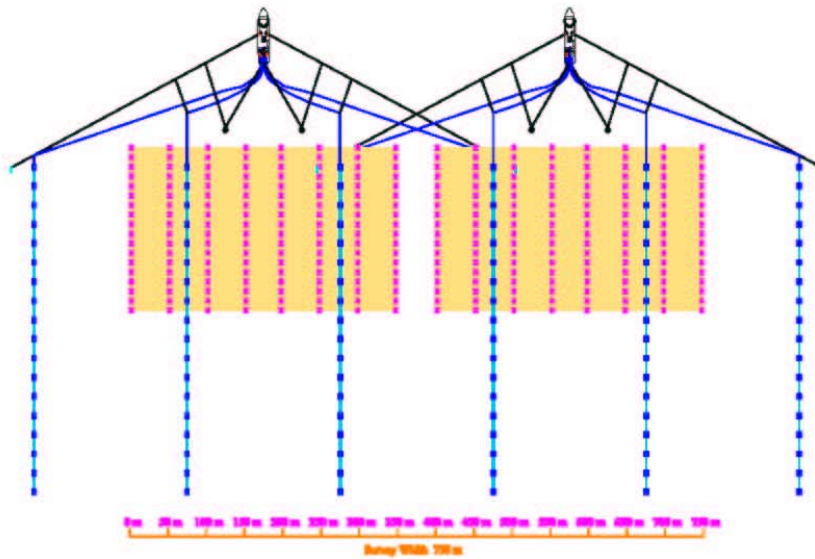
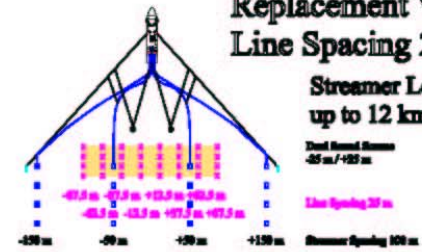
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**Replacement Vessel
Line Spacing 50 m
Streamer Lengths up to 12 km**



**Replacement Vessel
Line Spacing 25 m
Streamer Lengths up to 12 km**



Paravanes



Linear Gun Array





Gun Winches

Paravane Winch and Boom



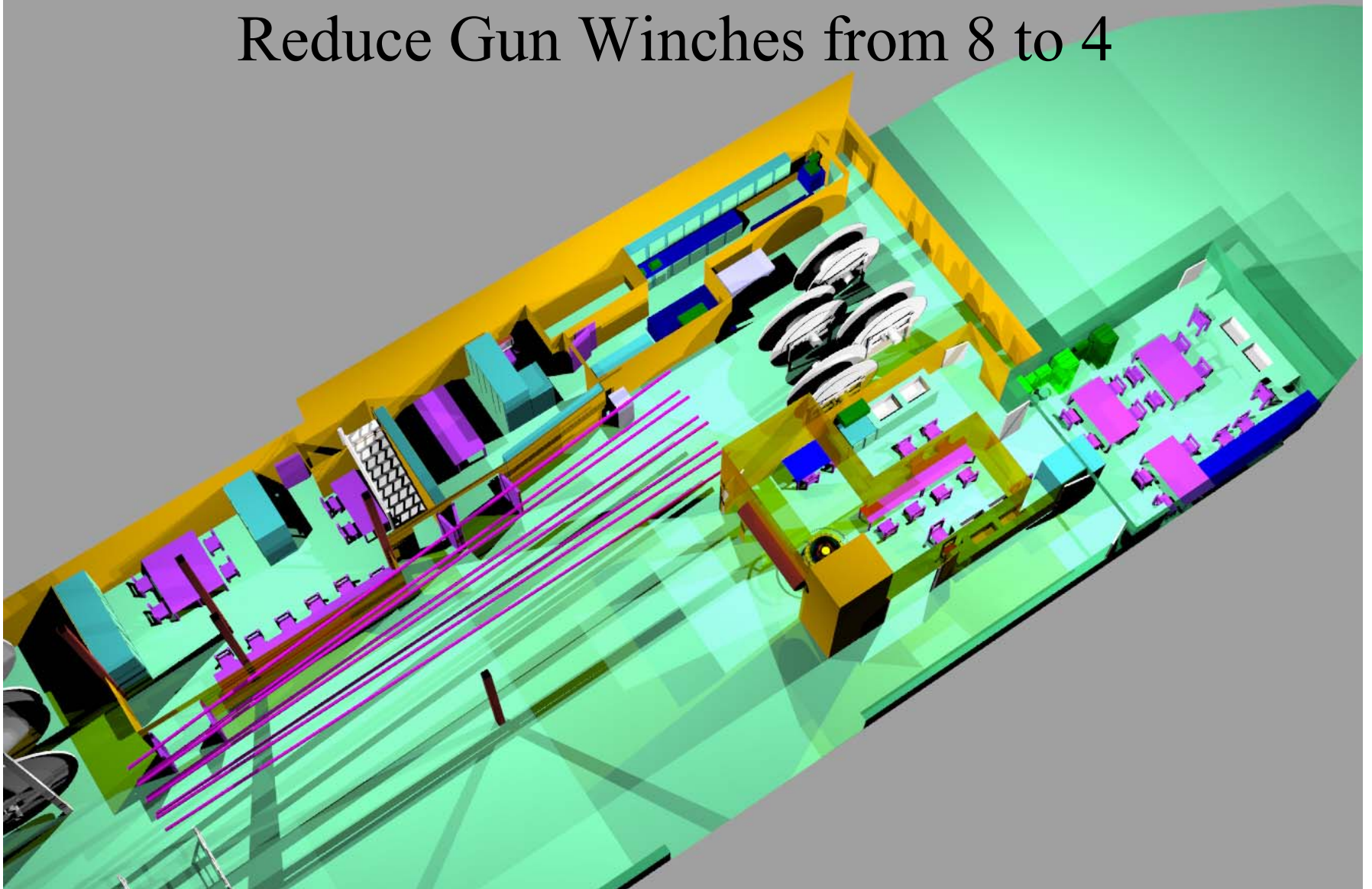
Streamer Reels



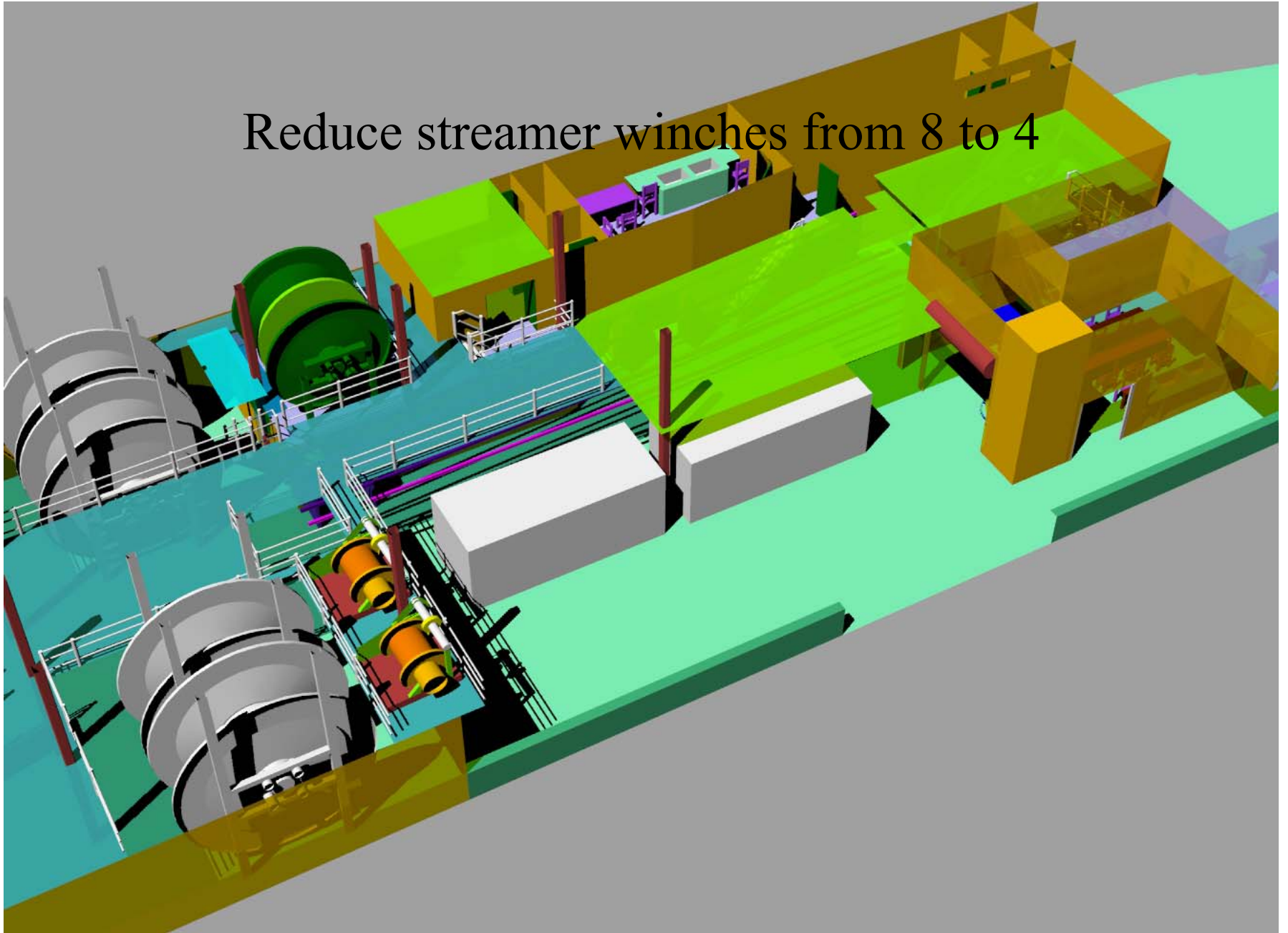


MCS Streamer

Reduce Gun Winches from 8 to 4



Reduce streamer winches from 8 to 4



Acquisition of the *Western Legend* is a unique opportunity to revolutionize the international academic community's capabilities for observational marine geophysics.

