

Alternative False Deck Design Optimization And Qualification



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Project Goal & Objectives

Goal:

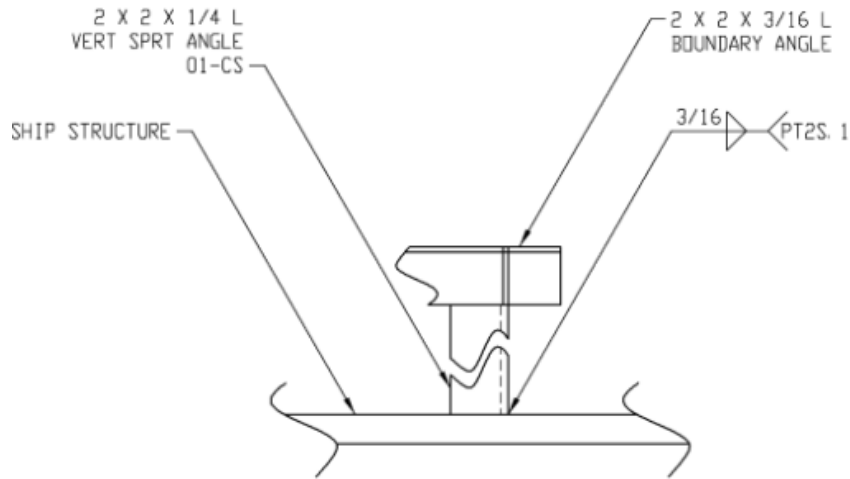
This project is a continuation of the research provided by project 2015-464. It will seek to further define the opportunities presented by an alternative false deck design by qualifying the design or similar design of the alternative deck presented in project 2015-464. The goal is to optimize design for weight and qualify to MIL-STD-901E in collaboration with Government Technical Warrant Holders.

Objectives:

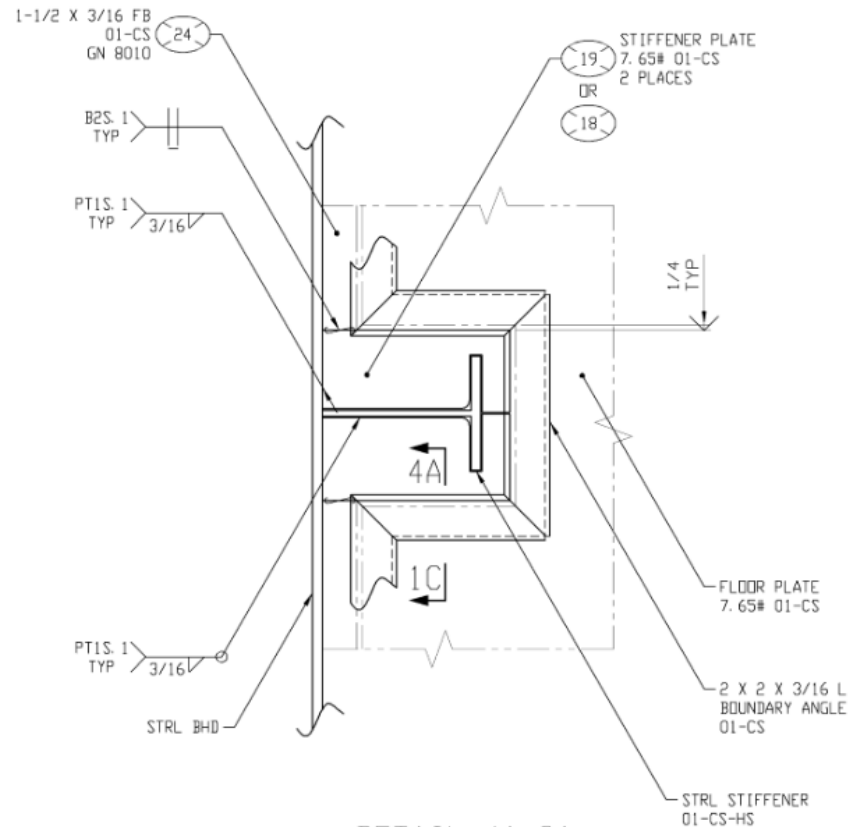
- Reduced labor hours required to produce false decks
- Reduced engineering and design hours required to design false decks
- Increased standardization of false deck design across the fleet
- Obtain NAVSEA approval to implement onboard Navy platforms



Typical Legacy False Deck Details



DETAIL 4A-4C
 TYPICAL VERTICAL SUPPORT ANGLE
 ATTACHMENT TO STRUCTURE
 SCALE: 3 = 1'-0"
 (4-4A, 5-4A, 6-4A,
 7-4A, 9-4A)

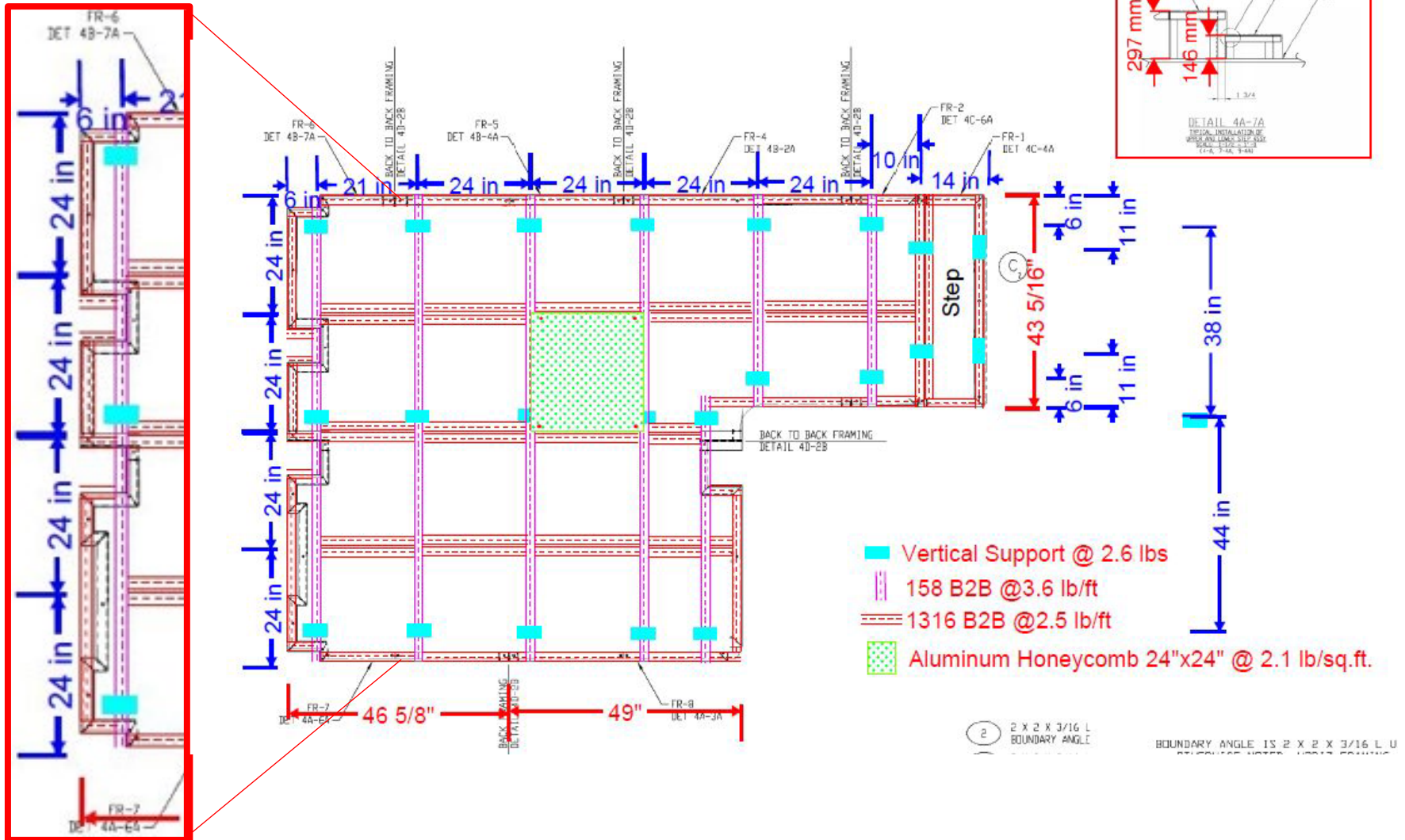


DETAIL 4A-2A
 TYPICAL STIFFENER PLATE
 ATTACHMENT TO FRAMING BOUNDARY
 ANGLE AND STRUCTURE
 SCALE: 3 = 1'-0"
 (4-4A, 5-4A, 7-4A, 9-4A)

Extensive Welding & Cutting Of Angle To Close-Out Perimeter OF Space



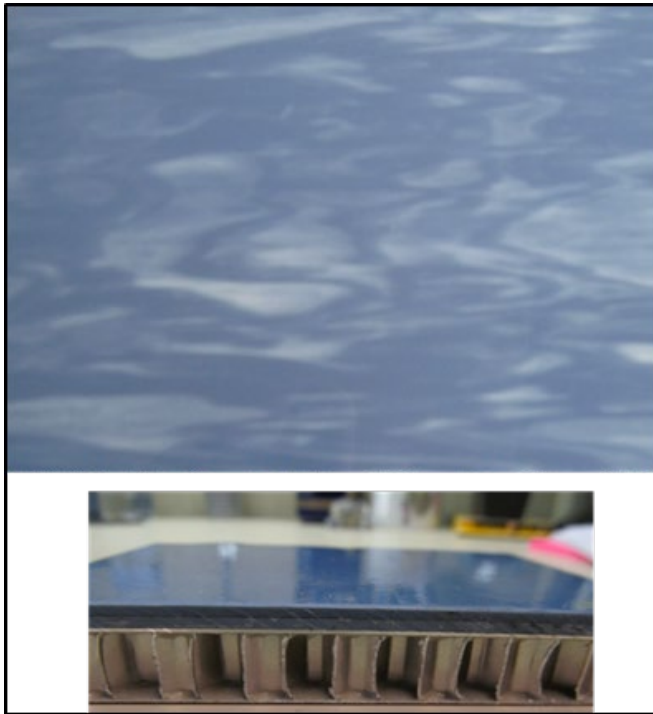
Alternative False Deck Design Layout



Hilti Standard Commercial Products



Aluminum Honeycomb Core Deck Panel W/ Lonmat



Legacy Fasteners
1/4-20 Nylon W/ Ferrule

Aluminum Deck Panel
Cross-Section

Weight Savings Benefit W/ Aluminum Deck Tiles IAW MIL-PRF-XX714



Alternative False Deck Options Investigated

- Aluminum deck plates
 - 2ft x 2ft Aluminum Honeycomb Core Deck Panels (ManTech Project S2723)
 - Attachments points to be determined based on Aluminum HC Panel data
 - Weight of AL H/C Panel 2.1 lbs/ sf vs. Legacy 3.5 lbs/ sf
- Floating Deck
 - Eliminate welded perimeter bar W/ Hilti adjacent to bulkheads
 - Maximizing straight lines to minimize strut cutting and weight
 - Evaluating deck plate cuts to create plate to bulhead matchup
 - Adjustable mechanical attachment points for deck unfairness
- Reduced number of vertical supports
 - Vertical Supports on nominal 2ft x 4ft layout
 - Maximize space below False Deck for thru-services

Focus of Investigation



Alternative False Deck Design Benefits

- Benefits Being Analyzed

- Reduce Weight
 - Remove perimeter welded angle iron
 - Reduce number vertical supports
 - Reduce panel weight
 - Install AL honeycomb vs. AL plate
- Reduce Labor
 - Less vertical supports
 - Mechanical fittings vs. welded angle iron
 - Install welded studs vs. welded pads
- Maintain Ease of Vertical Adjustments
 - Adjustable mechanical attachments
 - Shims

- Additional Benefits Being Evaluated

- Cross Platform Install Standardization
 - Standardize Honeycomb Panels
 - Evaluate attachment points
- Pre-Install Preparation
 - Maximize off ship preparation benefits
 - Kitting and Pre-Assembly
 - Optimize on ship preparation effects
 - Laser leveling across space
 - Cordless cutting tools for adjustments
- Piping and Cable Support Options
 - Install below deck plates
 - Easily add by installing crossbar

Benefit Focus of Alternative Design



Discussion/ Questions

