SUTPHEN

Family Owned and Operated since 1890!

October 2024

Benjamin Neal, Curtis Hoskins, David Payne
Dublin Aerial

Dublin Aerial Round Table

- Aerial Growth Plan
- Aerial Team
- 2024 NFPA Changes
- New Engine Design Changes
- Other SPH Improvements
- Questions

Dublin Aerial Growth

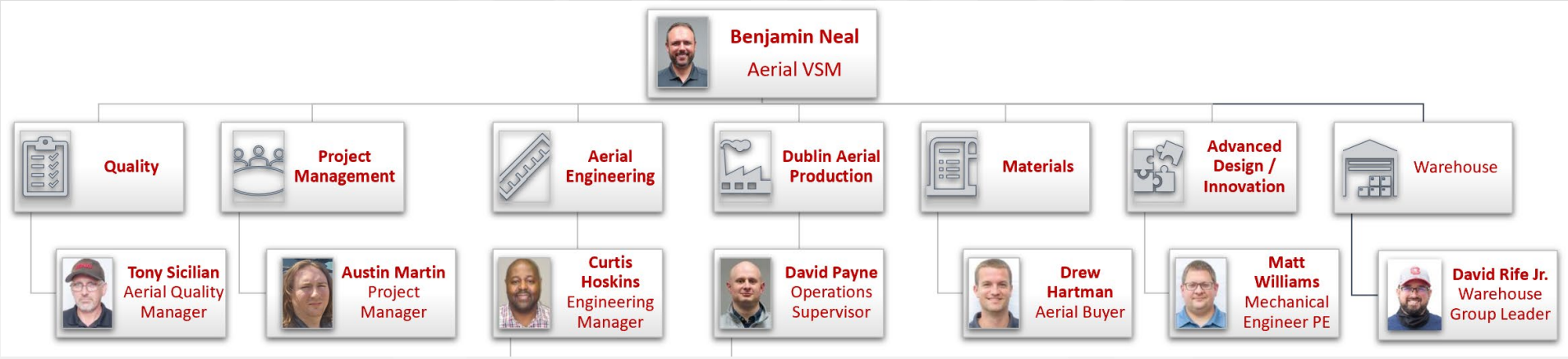
- Project Launch JUNE 2023
- Plan production 36 Units in FY25
- FY 2026 target to be 3+ units / month by end of fiscal year (2/28/2025)

Dublin Aerial Growth

Challenges

- Leadership Training
- Shop Floor Training
- Engineering Design Capacity
- Parts Availability / Lead Times

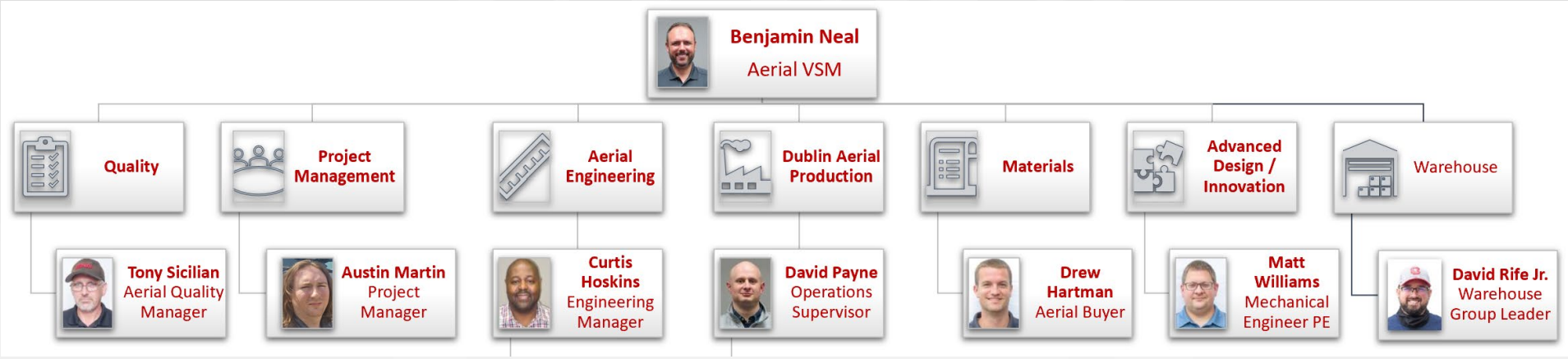
Dublin Aerial Org Chart



Benjamin Neal

Aerial VSM

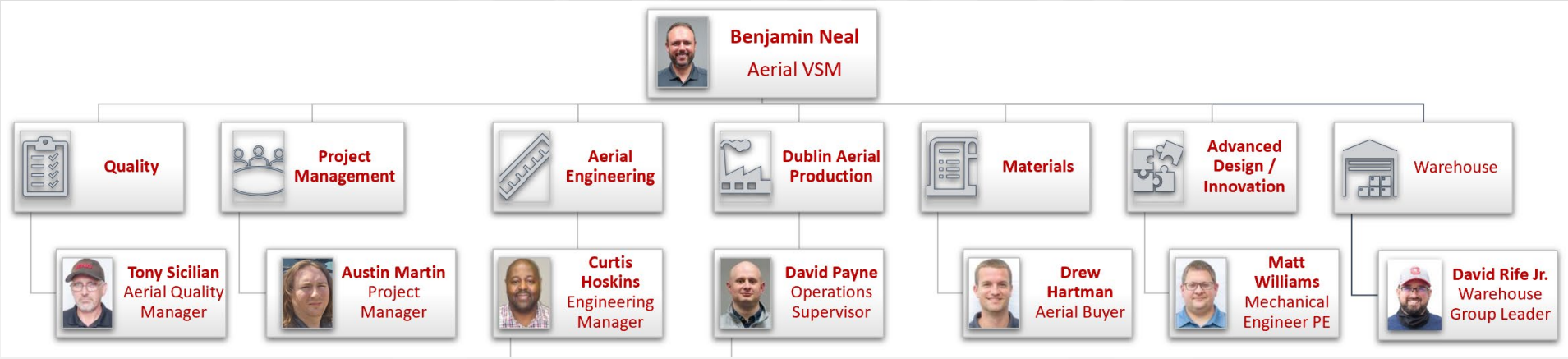
Dublin Aerial Org Chart



Tony Sicilian

Aerial Quality Manager

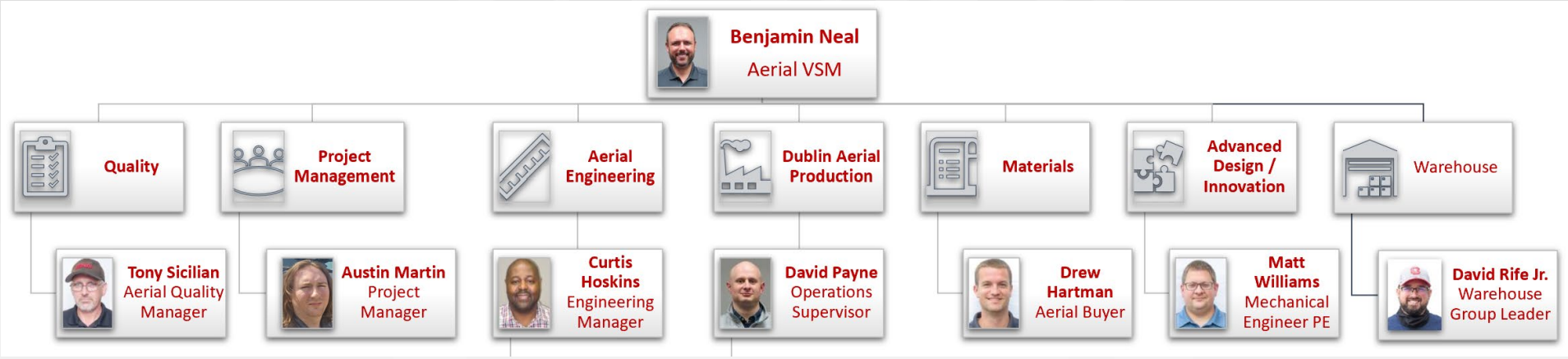
Dublin Aerial Org Chart



Austin Martin

Project Manager

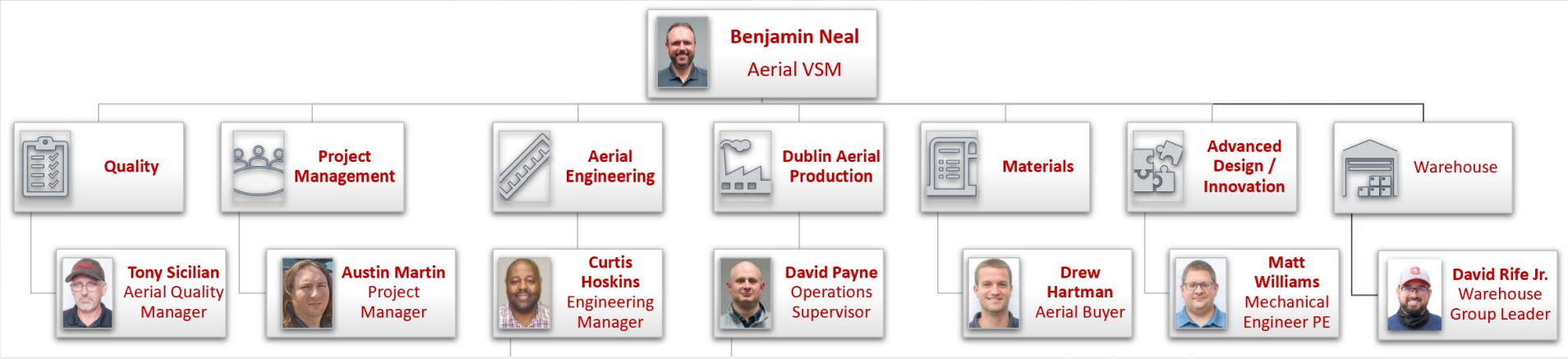
Dublin Aerial Org Chart



Curtis Hoskins

Engineering Manager

Dublin Aerial Org Chart

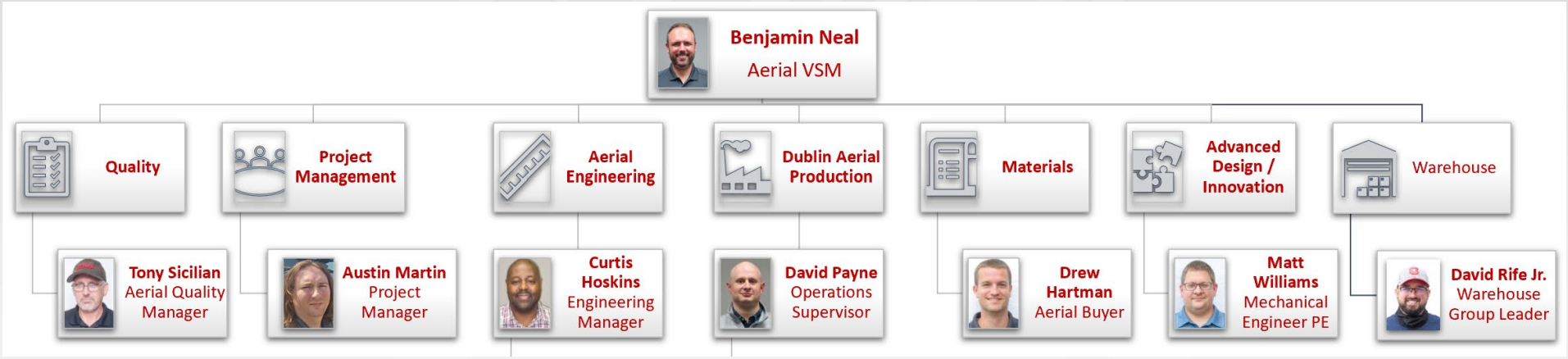


David Payne

Operations

Supervisor

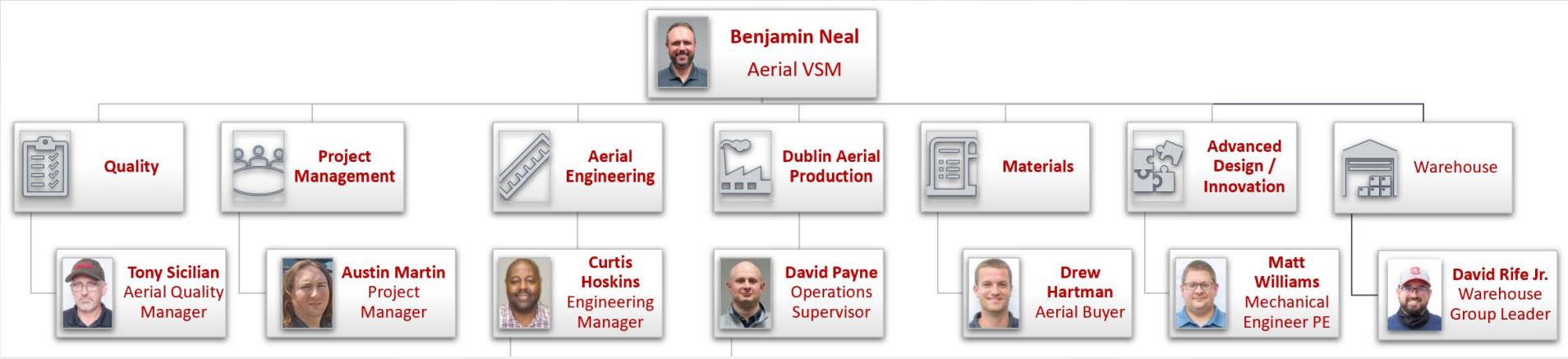
Dublin Aerial Org Chart



Drew Hartman

Aerial Buyer

Dublin Aerial Org Chart

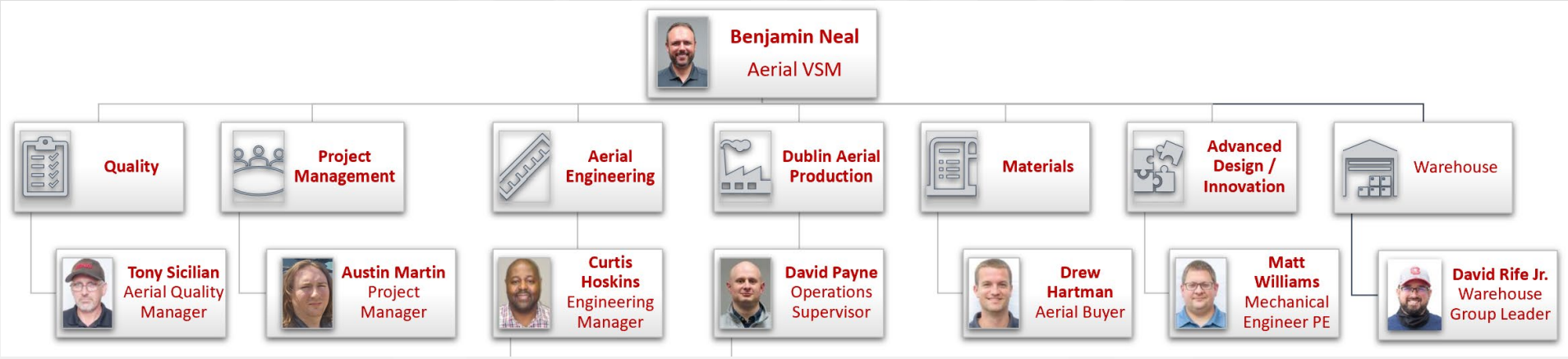


Matt Williams

Mechanical

Engineer PE

Dublin Aerial Org Chart



David Rife Jr.

Warehouse

Group Leader

Dublin Aerial Growth – FLOW

Stage 1 – Chassis to Body Set

- Bryan Roth

Stage 2 – Body Set to Ladder Set

- Adam Salyers

Ladder Build – Building 4 (Ladder Barn)

- Mike LeMaster (TINY)

Stage 3 – Ladder Set to Final Inspection

- Ryan Ebner / Isaiah Powell / Gene Maharg

Dublin Pumper -> Andy Roush

Dublin Aerial Design Engineering

Curtis Hoskins (Engineering Manager)

- Caleb Tincher
- Elisabeth Blankenship
- Kim Turner
- Bradley Powell (Previously Pumper)
- Jim Holland – Cad Administration

Dublin Aerial Electrical Engineering

Curtis Hoskins (Engineering Manager)

- **Tim Lett** – Retiring 12/31/2024
  - Thanks for 19 Years with Sutphen!!

- Nathan Ballinger
- Jeremiah Whisler (Previously Pumper)

Dublin Aerial Design Changes

- Integrated Jack Feet (NFPA 2024)
- Base / Mid Design (NFPA 2024)
- Reinforced Platform / Yoke (SPH) (NFPA 2024)
- Other NFPA 2024 Changes
- Cummins Emission / Changes
- Design Improvements

Dublin Aerial Design NFPA 2024

Integrated Jack Feet

- Regulation increase in allowable pounds per square inch maximum from 75 psi -> 100 psi
- Allows Sutphen to reduce size of integrated jack foot and standardize design of base
- Jack pads and holders will be a costed option

Dublin Aerial Design NFPA 2024

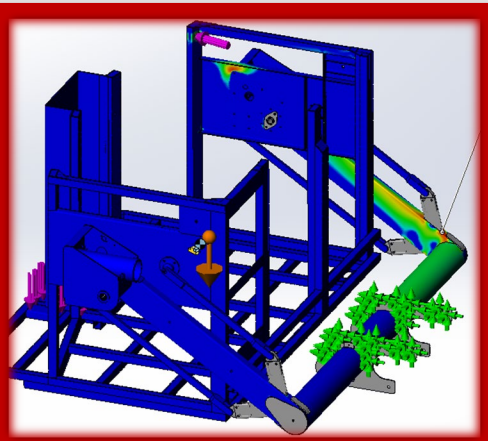
Reinforced Platform

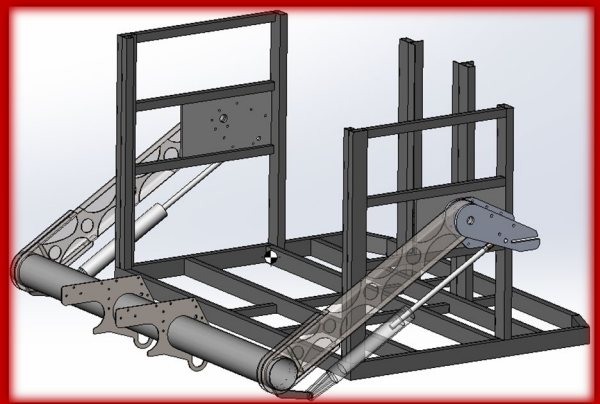
- Minimum of 4 tie offs required (currently have 6)
- Regulation revised from tie off point to include mounting and platform. The point and platform must withstand and not deform up to **450** Lbs. of force.
- Regulation increase from **450 -> 1,800** Lbs. of force. The tie off point and mounting must withstand and stay attached to the platform.

Dublin Aerial Design NFPA 2024

Reinforced Platform – Proposed Solution

- Sutphen invested in advance simulation software – Abaqus
- Destructive testing required to validate results
- New proposed design of Platform – Material Changes
- New Design of Yoke - material changes and corrosion resistance
- Leveling system simplification
- Center Platform relative to the ladder / truck
- **Goal ->Lighter, Stronger, and Safer Overall Platform / Yoke**





Dublin Aerial Design NFPA 2024

Other NFPA Changes

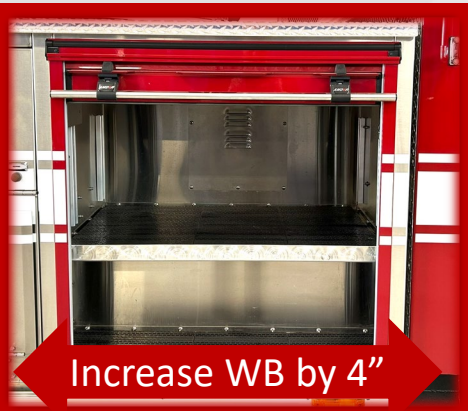
- Roll stability required on all trucks
- Rear backup cameras required on all trucks
- Standardize Platform Controls / Labels
  - Rotation will match NFPA and Hilliard
    - rotate right is joystick up
    - rotate left is joystick down

Current view of rotation different than NFPA

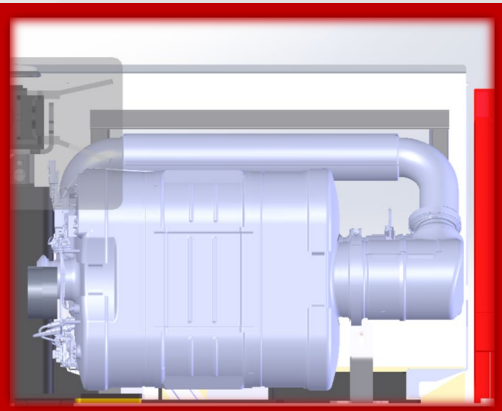
Dublin Aerial Design Emission Changes

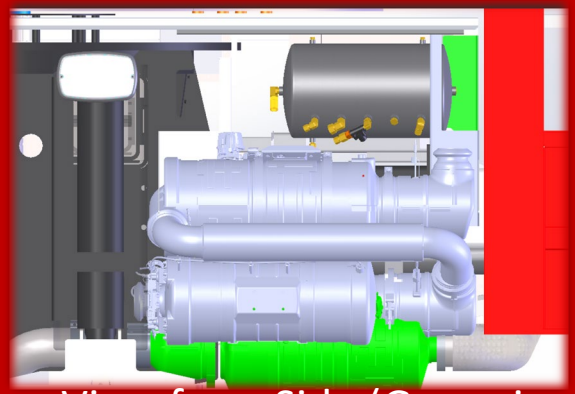
New Engine Design Impacts - Proposed

- Expanded Exhaust After Treatment System
- Mid Truck Design
  - R1 lost -> new exhaust system location
  - Location of Generator (Hose bed, Inside R2, or Top of L4)
  - Consider use of an Inverter vs Generator
- Additional Frame length (approximately 2-4”) to accommodate the longer exhaust on all cabs
- Increases turning radius by 4.4” approximately



View From Side
Existing R1


View From Under Truck


View from Side (Green is existing after treatment)

Dublin Aerial SPH Body Sag

- Lower Front Suspension Standard
  - Conforms to approach adopted by Hilliard and 2024 SPH Demo
  - 8.5” gap at front tire and 42” level frame height (was going down hill 43”-> 41”)
- Pinning rear drop high or adjust after loading
- Root Cause, frame is deflecting due to weight of body with gear
  - Long term **possible** solutions
    - Change rear suspension to Hendrickson and move pivot point further back
    - Increase height of the frame (results in higher truck) – recent SPI 112
    - Utilize advanced simulation software to model solutions

Dublin Aerial Design Changes

All Jack displays and lights standardized to inside the L1

- Safer user interface
- Simplifies design

Stainless Steel Fixed Steps

- Significantly less risk of corrosion
- Simply body build process

Dublin Aerial Design Changes

New Steps on Cab

- Removes Trip Hazzard
- Makes spacing consistent at 9”

Fixed Steps Standard on all Trucks

- Remove risk of ripping off fold down steps
- Make spacing consistent on all step spacing

New Front Steps

Dublin Aerial Design Changes

Emergency Entry Paddle Latches

- Standard on Demos
- Still in trial period

Emergency Paddle Latch

Next Up:

- Alignment Committee Items
- Focused efforts on assembly time and lead-time reduction items to increase manufacturability

Dublin Aerial Design Changes

Questions / Follow-up?

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