



# SUTPHEN

*Family Owned and Operated since 1890!*



Date 11/12/2020  
Jim Garver  
Engineering

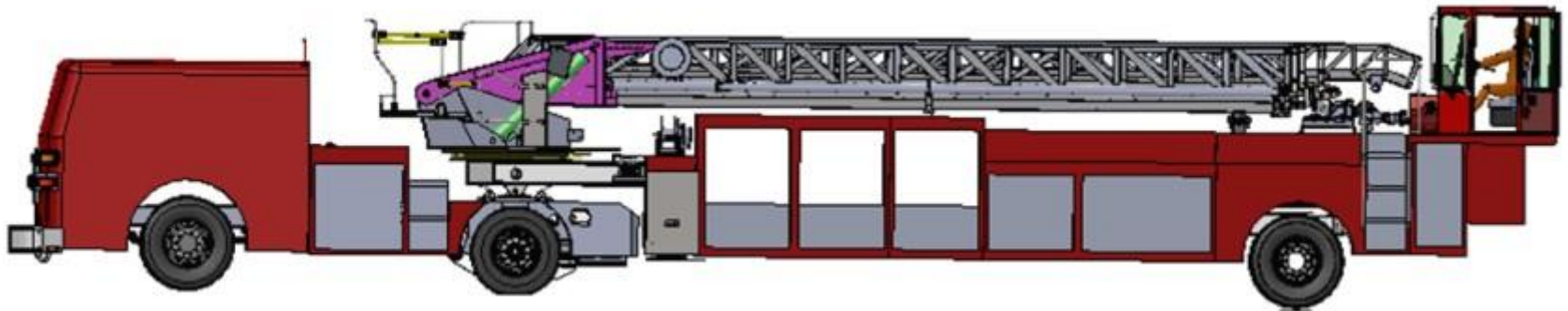
# Mid-Mount Aerials

Sutphen SLTDA108



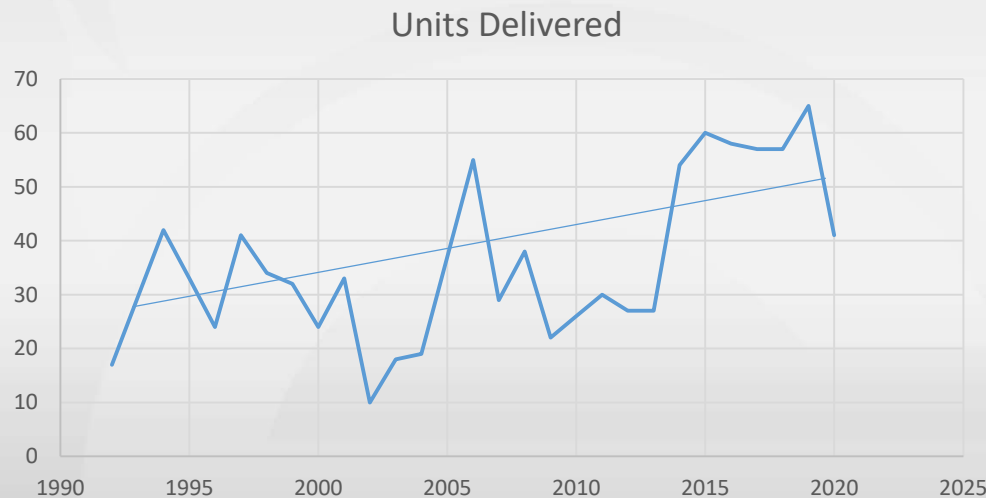
# Sutphen SLTDA108

Because a tiller is a mid-mounted aerial.



# Why a tiller now?

## 1. Growing market in which we have no current offering



1992 – 17 units built  
1994 – 42 units built  
1995 – 33 units built  
1996 – 24 units built  
1997 – 41 units built  
1998 – 34 units built  
1999 – 32 units built  
2000 – 24 units built

2001 – 33 units built  
2001 – 33 units built  
2002 – 10 units built  
2003 – 18 units built  
2004 – 19 units built  
2005 – 37 units built  
2006 – 55 units built  
2007 – 29 units built

2008 – 38 units built  
2009 – 22 units built  
2010 – 26 units built  
2011 – 30 units built  
2012 – 27 units built  
2013 – 27 units built  
2014 – 54 units built  
2015 – 60 units built

2016 – 58 units built  
2017 – 57 units built  
2018 – 57 units built  
2019 – 65 units built  
2020 – 41 (year to date)



# Why a tiller now?

## 2. Customer demand

- We have had numerous customers approach us to add tillers to our product line up
- The time was right when Dekalb County, GA made the joking request, the sincere commitment to purchase, and provided constructive design input for a newly designed Sutphen Ladder Tractor Drawn Aerial (SLTDA)
- To open conversation with new customers who are new to the TDA market, or dissatisfied with their current supplier



# Why a tiller now?

## 3. Expand Sutphen Aerial Ladder product offering

### Aerial ladders line

- SL75
- SL100
- SLR75
- SLR108
- **SLTDA108**



# Sutphen history with Tillers

Peter Pirsch connection

104' Aerial on Pirsch Trailer

**AERIAL LADDER MILESTONES—**

**1912**  
85' Pirsch Three-Part High Aerial Ladder Truck

**1931**  
85' Pirsch Hydro-Mechanical Aerial Ladder Truck. America's First AS-Powered Aerial.

**1934**  
100' Pirsch Aerial Ladder Truck. America's First 100' Aerial and America's First AS Metal Aerial Ladder.

**1954**  
100' Pirsch Aerial Ladder Truck with latest Pirsch built aluminum alloy main and ground ladders, and Pirsch built two-door cab, also other modern features.


**PETER PIRSCH & SONS CO. KENOSHA, WIS.**

**NEW.....from SUTPHEN**  
**105' tractor-trailer**

COUNTERWEIGHT, COUNTERWEIGHT, COUNTERWEIGHT, COUNTERWEIGHT....

Counterweight is the all important factor that keeps an apparatus from tipping over

(Chassis weight x jack span = aerial weight CG + load x length).



**SHORT, SHORT, SHORT, SHORT....**  
**UNDER 55 FT.**

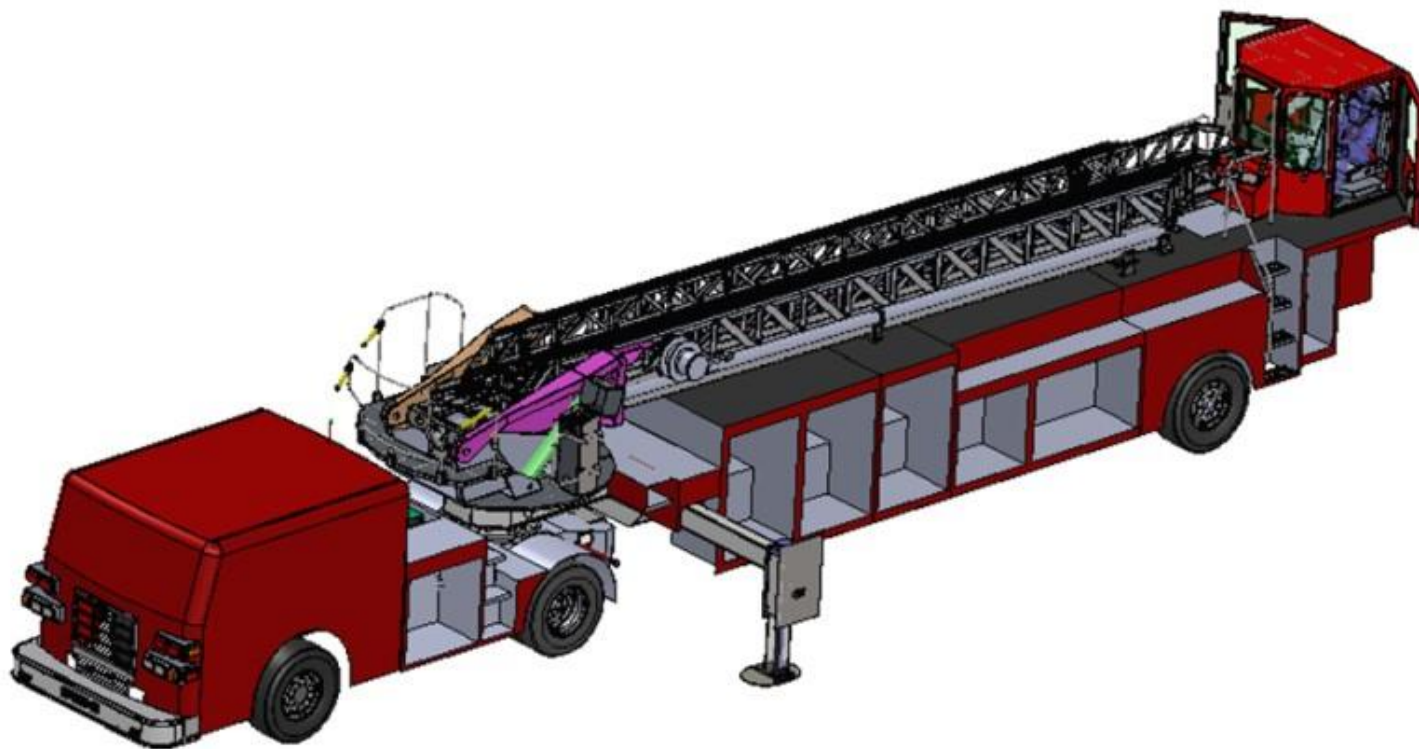
With Sutphen's counterbalance design the length is only 55 ft. - about 6 feet shorter than any other 100 foot tractor trailer. (Sutphen has approximately 1000 aerial devices in service.)



# Super Tower of the Future



# All new SLTDA





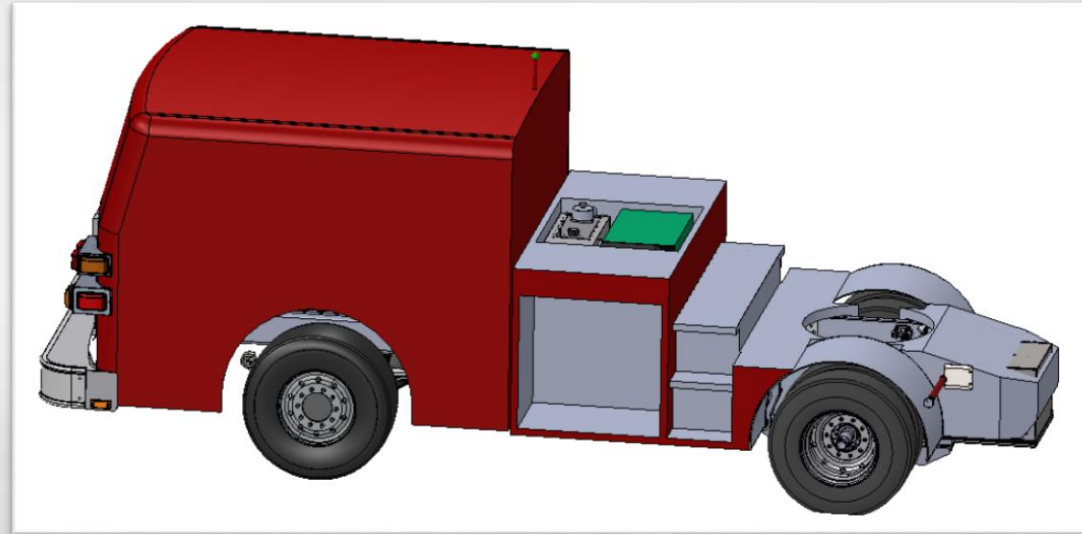
# Defining the (new) parts

1. Sutphen tractor
2. 5<sup>th</sup> wheel design
3. Trailer design
4. Trailer body design
5. Tiller cab design



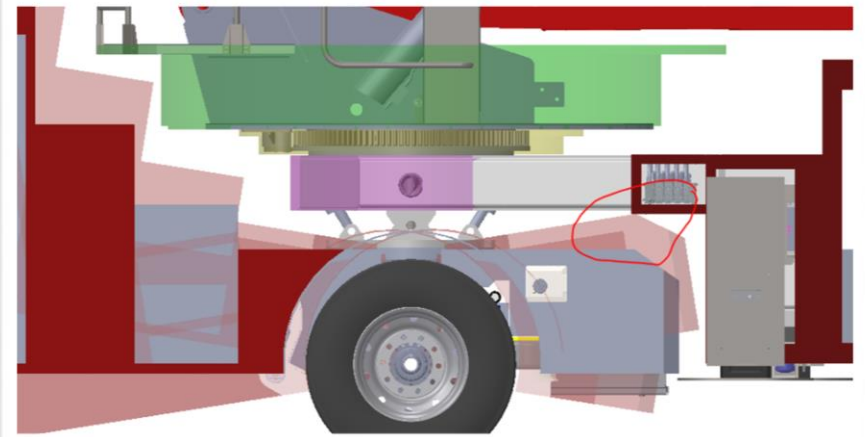
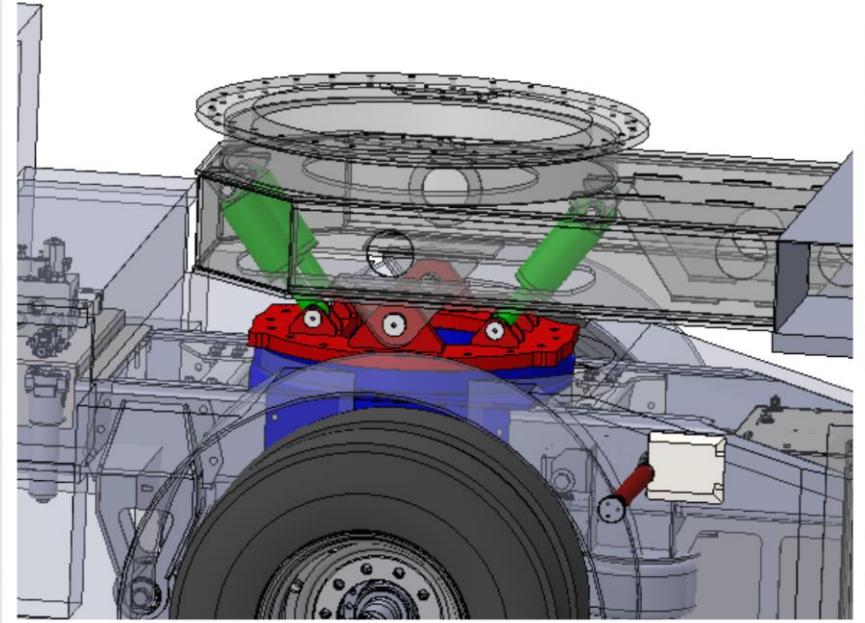
# Sutphen Tractor

- The same high quality Sutphen chassis as all Sutphen vehicles
- Tractor body layout to allow 90 degree jack-knife



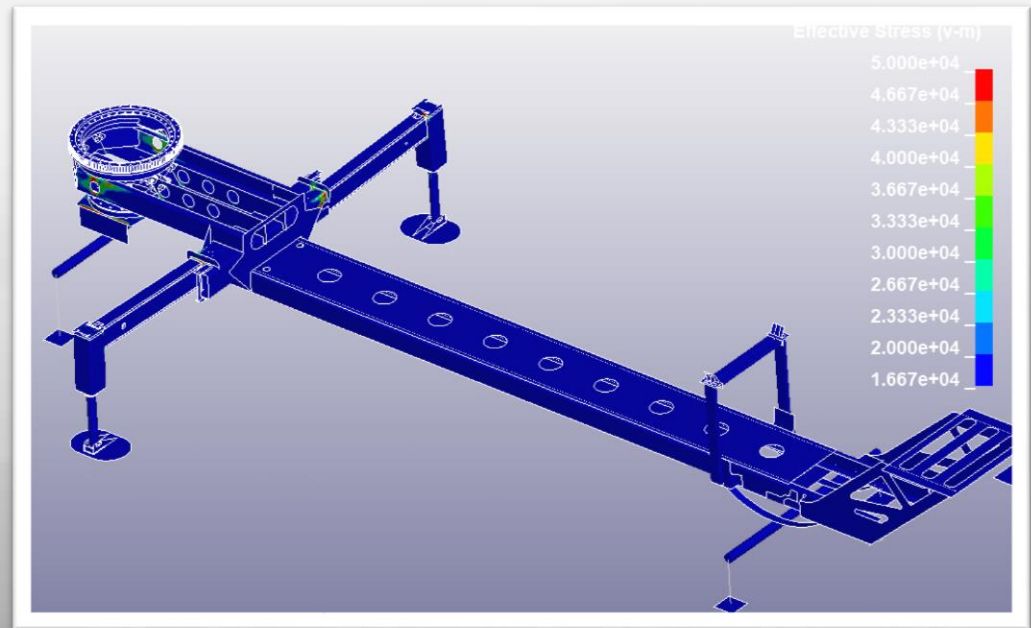
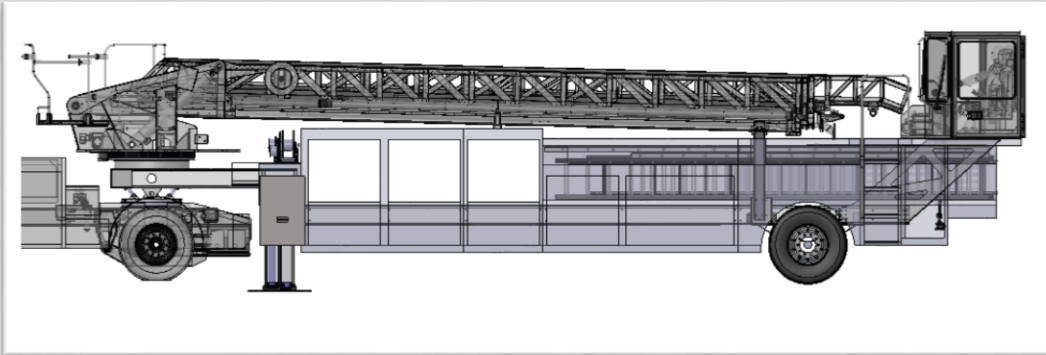
# 5<sup>th</sup> wheel design

- Undergoing structural analysis
- Operating range
  - Closed circuit hydraulic lockout
  - 15° Breakover angle



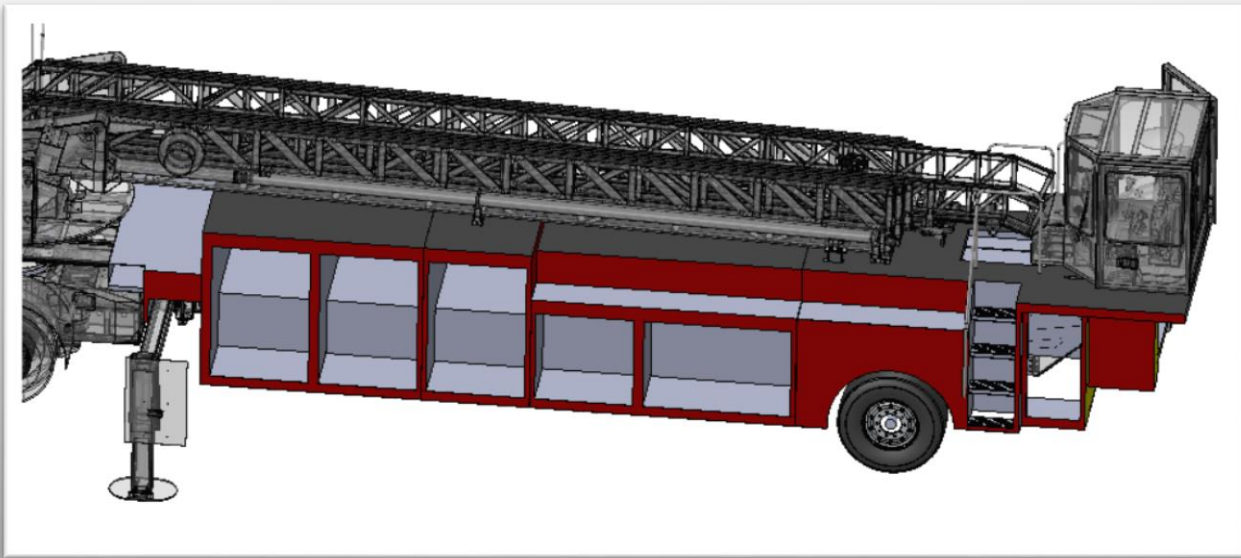
# Trailer design

- Drop frame (gooseneck) design
- Single pair of stabilizers built into trailer frame
- Structural analysis to validate material selection.



# Trailer body design

- Modular stainless-steel bolt together
- Transverse compartment above trailer frame
- Approximately 790 cu. ft. volume shown



# Trailer body design

- Ground Ladder Storage

Shown:

45' 3-section

35' 2-section

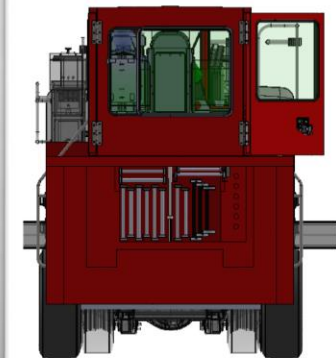
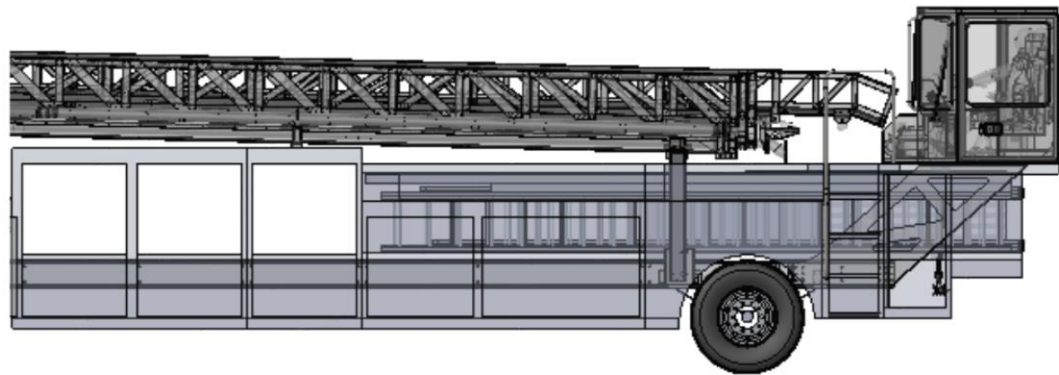
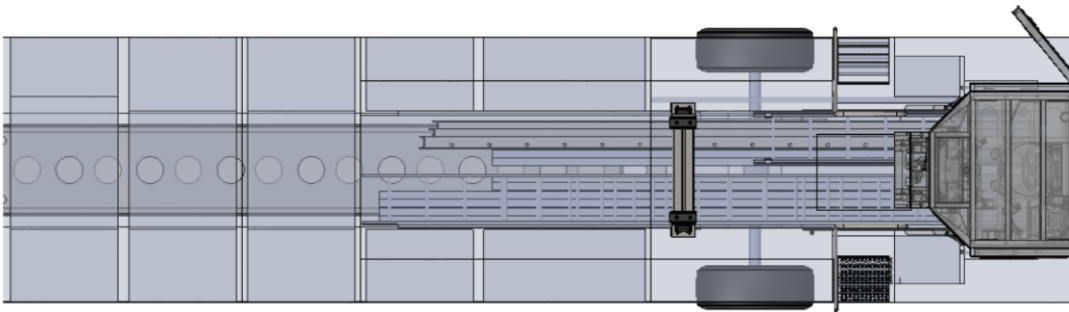
35' 2-section

28' 2-section

28' 2-section

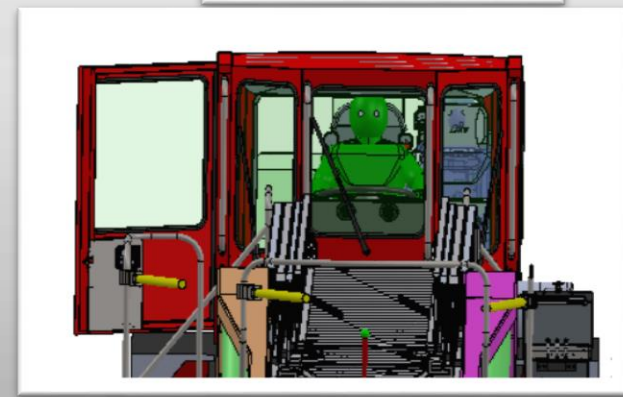
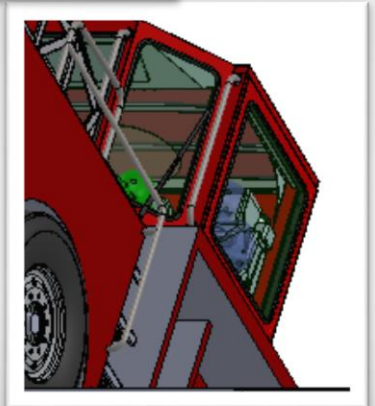
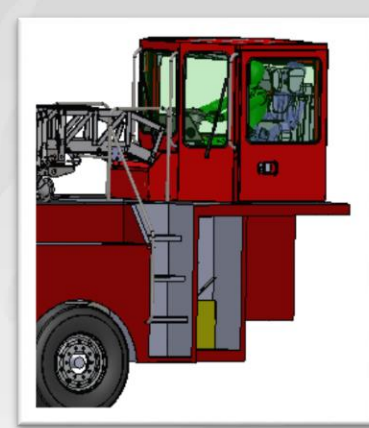
20' roof

16' roof



# Tiller cab design

- Wide tiller cab, with room for trainer's seat
- Initial design with rear hinged doors
  - Feedback shows that sliding doors become a maintenance issue.
- Three windshields – improved visibility for tillerman
  - One front with visibility inside aerial
  - One angled each side for visibility to sides of aerial
- Large sliding windows in doors and rear wall
- HVAC defrost/driver air



THANK YOU!

