Purple Project: The Innovative Use of Structural Engineering in a Safety Project

Daniel Agramonte, PE | Session 767, Safety 2017, ASSE – June 22, 2017
Background

In 2014, a client employee was severely injured due to a collapsing in-store display.

The incident triggered a review of display-related claims, bringing to light significant risk.
We combined various skillsets
Structural Engineers, EHS Expertise, Merchandising Expertise

Form a “purple” force which is analogous to how we performed this project

Using various types of forces

Plays off the concept of how our military fights

What is Purple Project?
Problem Statement

- Better understand the risks associated with in-store displays
- Mitigate the risk associated with in-store displays
<table>
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<th>Issue 1</th>
<th>Lack of consistent guidance to design and assemble in-store displays.</th>
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<td>Issue 2</td>
<td>Fragmented understanding of the life cycle and unclear ownership of in-store displays throughout the stages of the life cycle.</td>
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<td>Issue 3</td>
<td>Inconsistent dissemination of information regarding in-store displays throughout the organization.</td>
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Starting Point
First Order of Business: Display Configuration

- Gap: No consistent, organization-wide guidance existed for displays
- Approach: Develop this guidance; key elements of the guidance:

  - Need to be “defensible” – should be grounded on solid principles.
  - Buy-in of stakeholders* was critical – the voice of experienced individuals should be heard.
  - Should be straightforward – the intended audience would be very broad and clarity is key.

*Stakeholders included those using the guidance and those who would be affected by the guidance.
Display Configuration – How We Did It

Identified Stakeholders:
- Merchandisers
- Merchandising Managers

Identified Support Team:
- HSE Team
- Technical Experts (Structural Engineers)

Developed game plan...
The Game Plan

Kicked off the project with a meeting with stakeholder representatives

Sought recommendations and potential solutions

Framed the issue (collapsing displays)

Identified next steps:
- Going to a distribution center/warehouse using a trial and error approach
- Develop a mutually-agreeable, defensible approach
Summer of Field Activity

Purpose: To develop guidance (design criteria) document.

Cross-functional Team: Merchandisers, HSE team, Structural Engineers

Spent two days assembling and collapsing displays.

In the end, we divided the display into a base and a super structure.

Came up with a potential solution.
Maximum stack height of individual cases is 8 high.

Tape the top of every 10 rows above the base with packing tape.

Base is 10 cases high with a rotated row of cases at levels 5 and 10.

Place packing tape along top row or make the top row of the display a rotated level of all displays when completed to prevent end stacks from falling away from overall display.
REVIEW DESIGN GUIDELINES

- Two people are required to build displays, one MUST have previous display building experience
- Cases must be orientated so that the cans within the cases are upright, not on their sides
- The MAXIMUM height of displays (including the base) shall not exceed 30 cases tall.
  - Verify additional height restrictions with store

Required tools for display building include:

- A CLEAR PACKAGING TAPE
- B TAPE GUN
- C INSPECTED LADDER
BASE ASSEMBLY REQUIREMENTS

The base of the display shall always be supported directly on the ground/floor (*never on a pallet*).

- The base of the display must be 10 cases tall.
  - The 5th and 10th rows of the base must be rotated 90° to interlock the rows.

- The base width, in cases, should be divisible by 3, with a minimum base width of 12 cases wide.
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DISPLAY ASSEMBLY REQUIREMENTS

- After completing the display base, begin building.
  - NEVER stand on the display to gain access. Always stand on the ground or utilize a ladder maintaining 3 points of contact.
- Stack cases neatly according to design
- Remember – TAKE A MOMENT TO EVALUATE the display as you build
- ENSURE STABILITY: disassemble and rebuild if necessary
- Apply packing tape across top of every 5-8 rows past the base
- Provide “shoppable” product around only the base of display when completed to prevent customers from disturbing or damaging display
Operationalizing
Display Lifecycle

Planning: 1 to 2 days
Assembly: 3 to 6 hours
Active: 3 days to 6 weeks
Disassembly: 3 to 6 hours
Planning

Key Considerations:

- At least 36” from nearest exist; can’t block exit
- > 18” from bottom of lowest sprinkler
- Can’t block electrical panel(s), at least 36” from nearest wall-mounted electrical device
- Secure perimeter at least 18” around display during assembly
- Review design guidelines
- At least 36” from shoppers during assembly

Effort here avoids trouble later!
Assembly

Key Considerations:

- At least 36” from nearest exist; can’t block exit
- > 18” from bottom of lowest sprinkler
- Can’t block electrical panel(s), at least 36” from nearest wall-mounted electrical device
- Secure perimeter at least 18” around display during assembly
- Minimum 2 people during display assembly (ladder safety)
- Safe lifting
- At least 36” from shoppers during assembly

Incorporate information from Planning Stage.
Key Considerations:

- Weekly inspection must be completed
- Consult with and consider training store staff on potential issues that may arise that would trigger a notification to employees (e.g., merchandising team)
- HSE representative must be contacted in the event of a health, safety or environmental-related incident

Monitor the Display after Assembly.
Disassembly

Key Considerations:

- Disassembly while store closed or during minimum traffic times
- Secure perimeter at least 18” around display during disassembly
- At least 36” from shoppers during disassembly
- Can carefully split taped boxes (when clear packing tape is used) to avoid damaging product

Similar approach as used during Assembly.
▪ Standards document to cover life cycle of in-store displays
▪ Specification document addressing “design” requirements
▪ Inspection checklist for “active” phase
▪ Training documentation
The use of novel approaches can be beneficial when deployed as part of a coordinated effort.

The skillsets that should be deployed may not be readily apparent at the outset.

Identifying stakeholders early and getting them involved in the project is key.

Creating a need such as when the issues were reviewed with the stakeholders enables buy-in and leads to understanding and acceptance.

Training and inspections are key components of long term success when a new process is implemented.
Initial focus was on a specific type of display for a specific product; future expansion into other products and types of displays is expected.

Monitoring claims and similar costs will give the best indication that the new process is working.

The industry measures how much merchandise is placed near the point of sale (you get what you measure); it will be interesting to share the results with industry trade groups to discuss potential unintended consequences.
YOUR FEEDBACK IS IMPORTANT!

Session Evaluations can be completed:

- On the Safety 2017 App
- Using the link in the email reminder you will receive at the end of each day
Thank You!

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