

Transportation Market Segments

Appliance



Automotive



Bus



Electronics



General Industrial



Rail





Market Segment

Process

Application

Rail



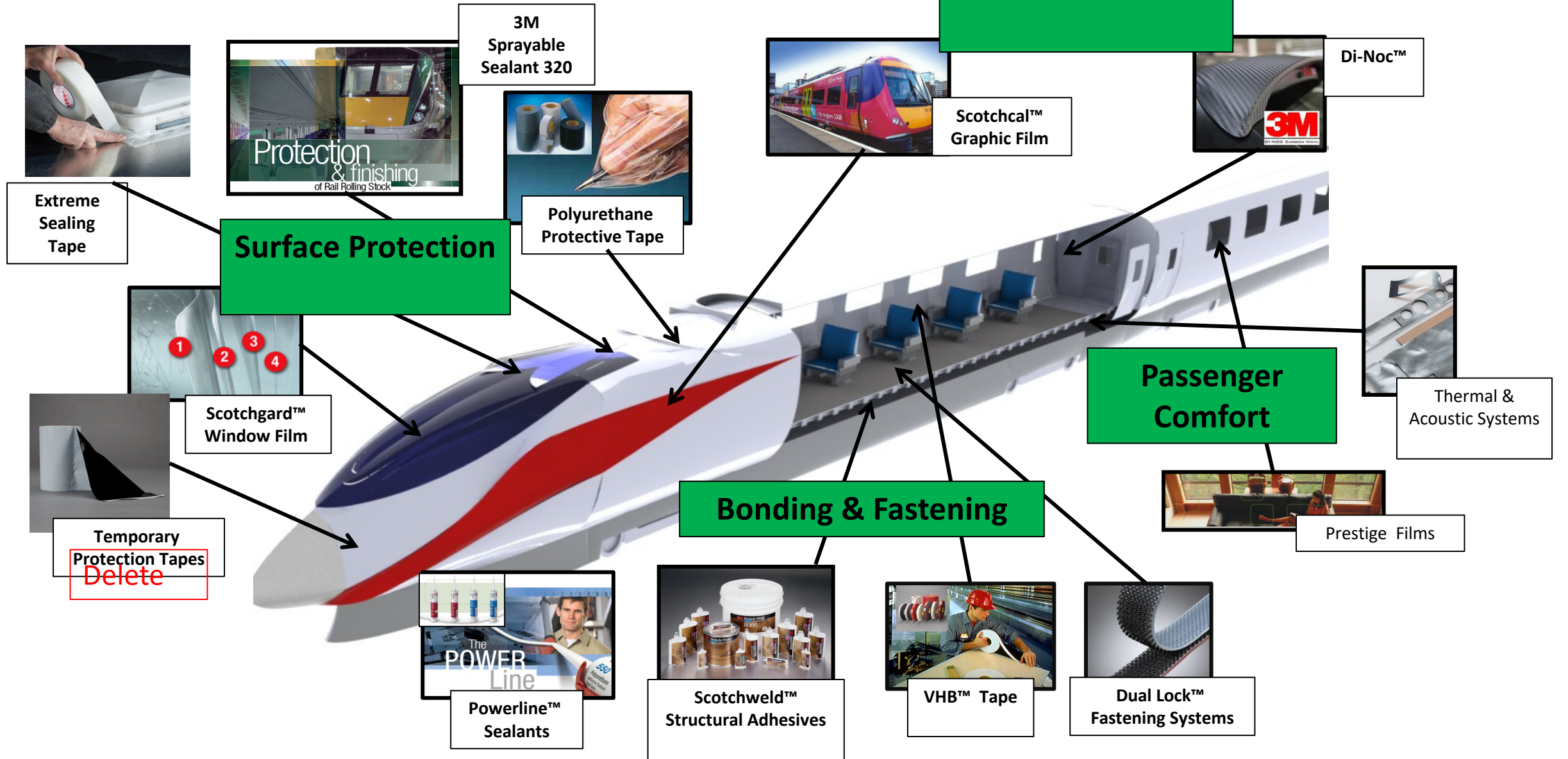
Assembly

Paint Process

Final Finish

- Floor System Assembly - Floor Cover Bonding
- Floor System Assembly - Floor Panel Seam Sealing
- Floor System Assembly - Floor Panel Bonding
- Window Installation
- Wall Construction/Installation - Panel to Post & Wall Sealing
- Wall Construction/Installation - Wall Attachment & Small Fixture Attachment
- Wall Construction/Installation - Insulation Bonding
- Paint Masking
- General Sealing
- Surface Protection

Passenger Rail Applications



Market Segment

Passenger Rail

Manufacturing Process

Assembly

Application

Floor System Assembly:

Floor Cover Bonding

Application Description

Floor Cover Bonding

- Large surface bond
- Water resistance
- Life Cycle Consideration

Application Profile

Customer Pain Points

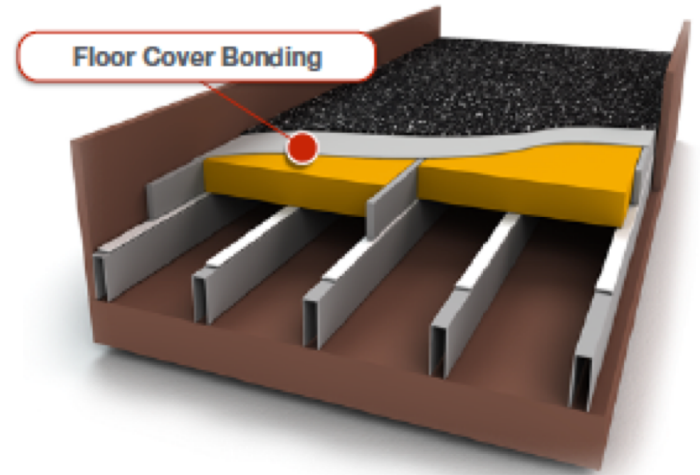
- Installation time
- Walkability time
- Moisture exposure

Potential 3M Solutions

- 3M™ 2K Structural Adhesives (LSB60NS, 7231)
- 3M™ Laminating Adhesives (9775WL)
- 3M™ Contact Adhesives (30NF)

3M Value Proposition

- Assembly Speed
- Address needs in floor system life cycle
- Solutions provider for all bonding and sealing needs for floor system install



Market Segment

Passenger Rail

Manufacturing Process

Assembly

Application

Floor System Assembly:

Floor Panel Seam Sealing

Application Description

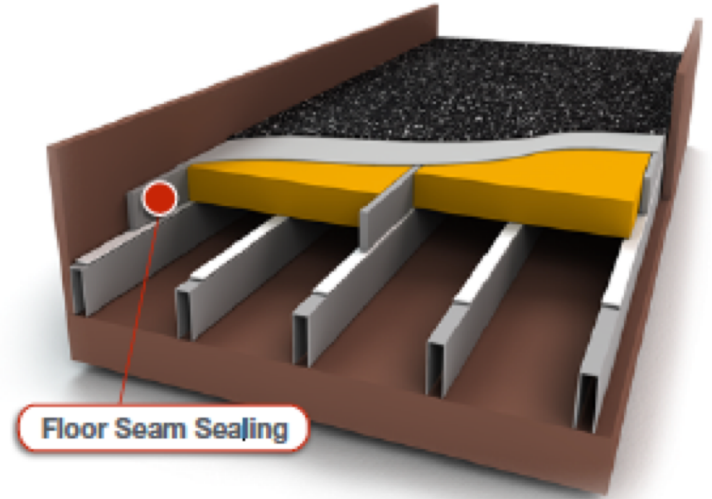
Floor Panel Seam Sealing

- Prevent water ingress & fire transfer
- Allow floor movement
- Prevent “Print Through”

Application Profile

Customer Pain Points

- Installation time
- Walkability time
- Moisture exposure



Potential 3M Solutions

- 3M™ Semi-Rigid Urethane Adhesive (DP608)
- 3M™ Flexible Epoxy Adhesive (DP125)
- 3M™ Adhesive Sealants (560/590)
- 3M™ Fire Protection Products (CP-25WB, 3000WT)

3M Value Proposition

- Assembly Speed
- Address needs in floor system life cycle
- Solutions provider for all bonding and sealing needs for floor system install



Market Segment

Passenger Rail

Manufacturing Process

Assembly

Application

Floor System Assembly:

Floor Panel Bonding

Application Description

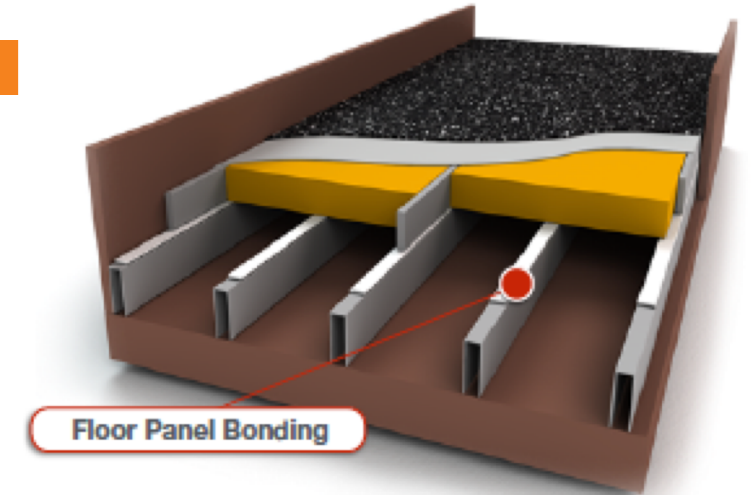
Floor Panel Bonding

- Removal of Mechanical fasteners
- Speed installation
- Quieter vehicle

Application Profile

Customer Pain Points

- Installation time
- Walkability time
- Moisture exposure



Potential 3M Solutions

- 3M™ Adhesive Sealants (560/760)
- 3M™ Boosted Adhesive Sealant (550FC)
- 3M™ Scotch-Weld™ Structural Adhesives (DP420/LSB60NS)

3M Value Proposition

- Assembly Speed
- Weight reduction...removal of mechanical fasteners
- Address needs in floor system life cycle
- Gap filling with fast cure



Market Segment

Passenger Rail

Manufacturing Process

Assembly

Application

Window Insulation

Application Description

Window Installation

- Water tight seal
- Fast installation
- Removability

Application Profile

Customer Pain Points

- Installation time
- Walkability time
- Moisture exposure



Potential 3M Solutions

- 3M™ VHB™ Tapes
- 3M™ Adhesive Sealants (590/595)

3M Value Proposition

- Combination Build: VHB and Adhesives/Sealants
- Help speed up the assembly process
- Help reduce warranty claims
- Lower overall cost to assemble



Market Segment

Passenger Rail

Manufacturing Process

Assembly

Application

Wall Construction/Installation: Panel to Post & Wall Sealing

Application Description

Panel to Post & Wall Sealing

- Removal of mechanical fasteners
- Speed of installation

Application Profile

Customer Pain Points

- Installation time
- Curing time
- Need high strength
- Fire protection requirements
- Moisture exposure



Potential 3M Solutions

- 3M™ VHB™ Tapes (5952, CV62F)
- 3M™ Polyurethane Sealants (550FC)
- 3M™ Scotch-Weld™ Toughened Epoxy Adhesives (LSB60NS, 7231, DP8425NS)
- 3M™ Dual Lock™ Reclosable Fastener (SJ3550, SJ3551)

3M Value Proposition

- Assembly Speed
- Durability
- Solutions provider for all bonding and sealing needs for panel to post and wall sealing install



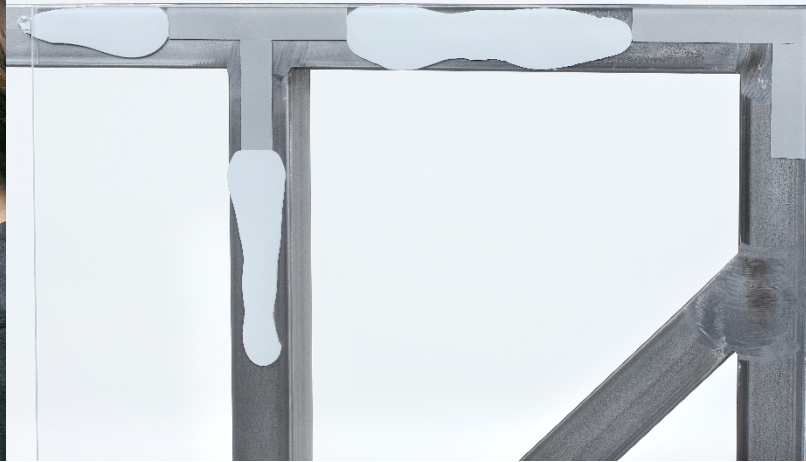
Panel to Post

3M™ VHB™ & Sealants Combination

VHB™ Tape
Immediate Holding Strength

+

3M Adhesive Sealant
Permanent Bonding Strength



Market Segment

Passenger Rail

Manufacturing Process

Assembly

Application

Wall Construction/Installation: Wall Attachment

Application Description

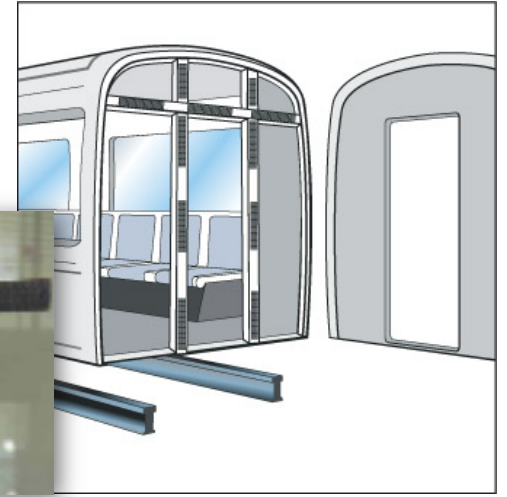
Wall Attachment & Small Fixture Attachment

- Removal of mechanical fasteners
- Speed of assembly

Application Profile

Customer Pain Points

- Installation time
- Appearance
- Need high strength
- Durability



Potential 3M Solutions

- 3M™ VHB™ Tapes (5952, CV62F)
- 3M™ Polyurethane Sealant (760)
- 3M™ Scotch-Weld™ Epoxy Adhesive (DP100NS)
- 3M™ Dual Lock™ Reclosable Fastener (SJ3550, SJ3551)

3M Value Proposition

- Assembly Speed
- Durability
- Solutions provider for all bonding and sealing needs for panel to post and wall sealing install



Market Segment

Passenger Rail

Manufacturing Process

Assembly

Application

Wall Construction/Installation:
Insulation

Application Description

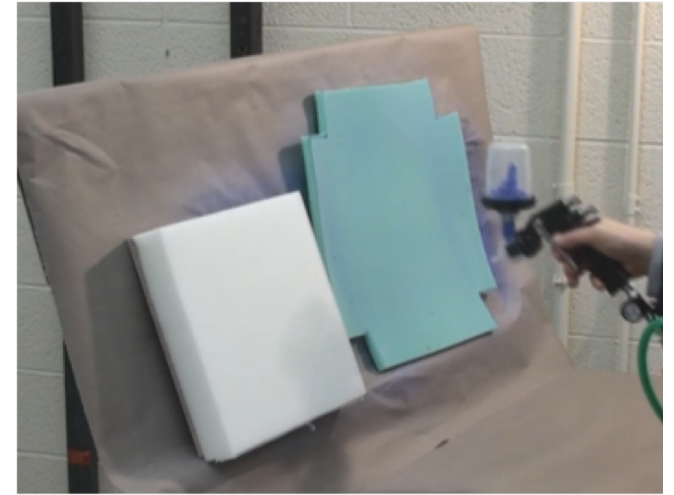
Insulation Bonding

- Replace pins and other fasteners
- Speed of installation
- No VOCs

Application Profile

Customer Pain Points

- Installation time
- Appearance
- Need high strength
- Environmental impact



Potential 3M Solutions

- 3M™ Fast Tack Water Based Adhesive (1000NF)
- 3M™ Holdfast 70 Spray Adhesive
- 3M™ Sprayable Hot Melt Adhesives (6111/6111HT)
- 3M™ Foil Tapes (3340)

3M Value Proposition

- Assembly Speed
- High performance bond to a wide variety of substrates
- Solutions provider for all bonding and sealing needs for panel to post and wall sealing install



Market Segment

Passenger Rail

Manufacturing Process

Painting Process

Application

Paint Masking

Application Description

Paint Masking

- Interior car side
- Rail car side panel

Application Profile

Customer Pain Points

- Temporary vs permanent application
- Temperature – high/low and bake cycles
- Surface – bare/painted metal or plastic
- Conditions – outdoor, oily, dusty, humid?



Potential 3M Solutions

- 3M™ Masking Tapes
- 3M™ Abrasives
- 3M™ Scotchblok™ Masking Paper

3M Value Proposition

- Help reduce slivering, adhesive picking, paint edge bleed, and blow-by create less rework and better quality finishes
- Consistent unwind helps aide operator comfort and consistent line quality
- Tapes that perform on paint surfaces, paper to paper, paper to plastic and plastic to plastic



Market Segment

Passenger Rail

Manufacturing Process

Final Finish

Application

Vehicle Sealing

Application Description

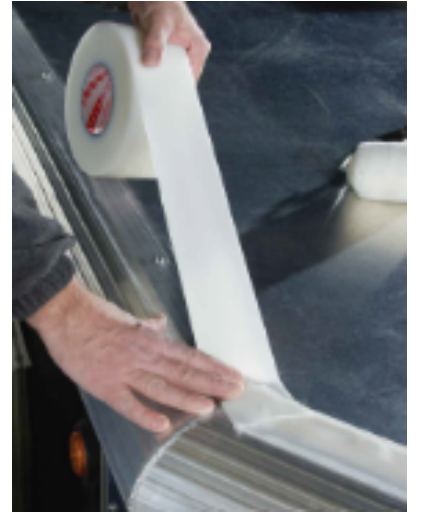
Vehicle Sealing

- Exteriors
- Interiors

Application Profile

Customer Pain Points

- Multiple and different areas to seal on the rail car
- Tools needed to perform the sealing
- Cure time
- Size and accessibility of the areas to seal



Potential 3M Solutions

- 3M™ Adhesive Sealants (540, 740)
- 3M™ Adhesive Sealants (550FC)
- 3M™ Extreme Sealing Tape (4412)
- 3M™ Water-based Sprayable Sealant (320)

3M Value Proposition

- Breadth of Sealing options: Tapes, caulks, and sprayable adhesive products
- Speeding cure times (550FC)
- Emergency repairs (4412)
- Sealing large surfaces and hard to reach spots (320)



Market Segment

Passenger Rail

Manufacturing Process

Final Finish

Application

Surface Protection

Application Description

Surface Protection

- Temporary
- Interiors
- Exteriors

Application Profile

Customer Pain Points

- Surface materials that are prone to damage
- Surface materials that are costly to replace
- Time and cost to repair/replace current surfaces



Potential 3M Solutions

- 3M™ Scotchgard™ (1004)
- 3M™ Industrial Protective Tape (7070UV/7071UV)







3M Value Proposition

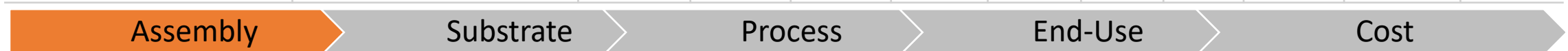
- Range of products from temporary to long term solutions
- Ease of application and removal... adhesive expertise
- Labor savings with multi-layer films
- Industrial strength protection with aesthetic finish



Solutions for Durable Assembly

The Importance of a Broad Portfolio: Multiple technology options for a given application

Common Industrial Assembly Applications		Markets	3M™ Adhesive Transfer Tapes	3M™ Double Coated Tapes	3M™ Contact and Spray Adhesives	3M™ Hot Melt Adhesives	3M™ Reclosable Fasteners	3M™ VHB™ Tapes	3M™ Adhesive Sealants	3M™ Scotch-Weld™ PUR Adhesives	3M™ Scotch-Weld™ Instant & Anaerobic Adhesives	3M™ Scotch-Weld™ Structural Adhesives
Panel to Frame/ Stiffener to Panel		Transportation , Construction Façade, Elevator, Signs and Displays, Metal Enclosures, HVAC, Doors					●	●	●			●
Large Surface Lamination		Transportation , Furniture, Woodwork, HVAC, Elevator, Signs and Display	●		●	●				●		●
Mounting and Trim Attachment		Appliance, Electronics, Transportation , Furniture, Woodwork, Signs and Display	●	●		●	●	●		●	●	●
Small Joint Assembly		Appliance, Electronics, Metalwork, Furniture, Woodwork, Sporting Goods				●				●	●	●
Gasket Attachment		Transportation , Electronics, Furniture, Metal Enclosures, HVAC	●		●			●			●	
Sealing, Potting and Encapsulating		Transportation , Construction, Metal Enclosures, HVAC, Electronics and Electrical, MRO				●		●	●			●



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