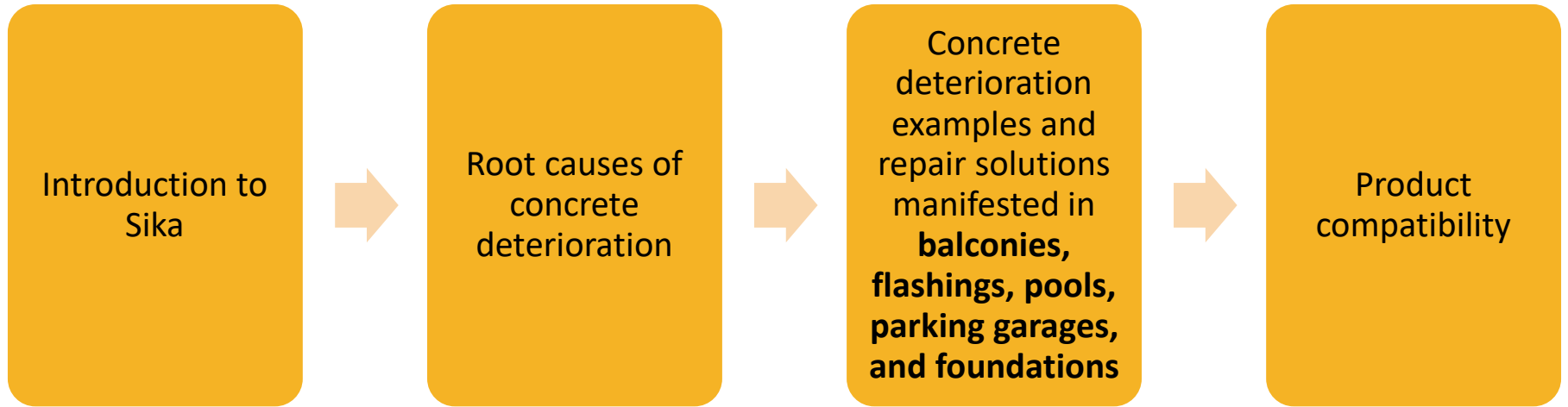




COMMON CONDOMINIUM PROBLEMS AND REPAIR SOLUTIONS

PRESENTED BY: KATIE WALTHER, PROJECT SALES REPRESENTATIVE - SOUTH FLORIDA

PRESENTATION OUTLINE





SIKA AT A GLANCE

25,000+	EMPLOYEES
100+	COUNTRIES
300+	PLANTS WORLDWIDE
7	NEW PLANTS IN 2019
93	NEW PATENTS IN 2019
5	ACQUISITIONS IN 2019
\$8.6 BN	NET SALES IN 2020

A COMPREHENSIVE APPROACH



Concrete



Waterproofing



Roofing



Building Finishing



Flooring & Coatings



Sealing & Bonding



Industry



Refurbishment

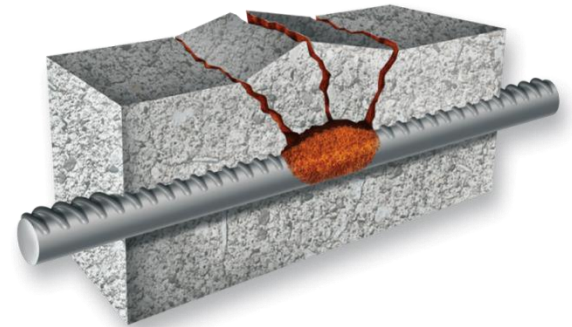


ROOT CAUSES OF CONCRETE DETERIORATION



CORROSION IN CONCRETE

- Concrete and steel start off compatible
- Corrosion is caused by a breakdown of the passivating layer formed on the rebars at new construction
- Chlorides (salts) and Carbonation are the two leading causes of corrosion
- As steel corrodes it expands up to 12x its volume, causing cracking initially, and eventually spalling



COMMON CAUSES OF CONCRETE DETERIORATION

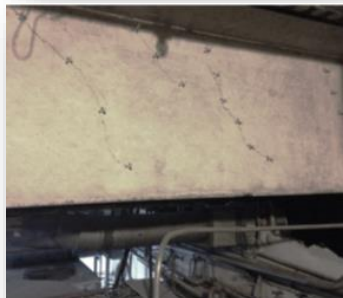
Spalling Concrete



Leaky Joints



Waterproofing Failure



Structural Deficiency



Improper Material Selection



Cracks

REPAIR AND PROTECT APPROACH



Repair

Identify the root cause of issue and fix visible damage such as spalls, rough surface, cracks and joints



Protect

Actively mitigate corrosion
Prevent future ingress of aggressive chemicals
Monitor overall health of the structure

BUILDING STRUCTURAL ELEMENTS



- Foundation
- Slabs
- Beams/girders
- Columns
- Walls
- Stairways
- Roof

STRUCTURAL CRACKS



Punching Shear Cracks



PT Slab Cracking

STRUCTURAL CRACKS



Shear Cracks on Beams



Double Tee Welded Connection Issue

ADDRESSING STRUCTURAL DEFICIENCIES



Collaboration between HOA, engineer, contractor, and product manufacturer



Perform a condition survey and diagnose root causes of issue



Enlist experienced applicators with single source manufacturer to help reduce risk and extend service life of repair



BALCONY DETERIORATION EXAMPLES AND SOLUTIONS

ROOT CAUSES OF BALCONY DETERIORATION

Low Concrete Cover



Structural Deficiency

Concrete Joint Issues



Improper Material Selection

Waterproofing Failure



Cracks

BALCONY DETERIORATION

CAUSE(S)

Concrete Joint Issues



Low concrete cover



Joint Sealant Failure



Concrete Spalling on Balcony

BALCONY DETERIORATION

CAUSE(S)

Waterproofing Failure



Cracks



Waterproofing Failure



Cracks

BALCONY REPAIR SOLUTIONS

SIKALASTIC®

SIKAFLEX®

SIKATOP®

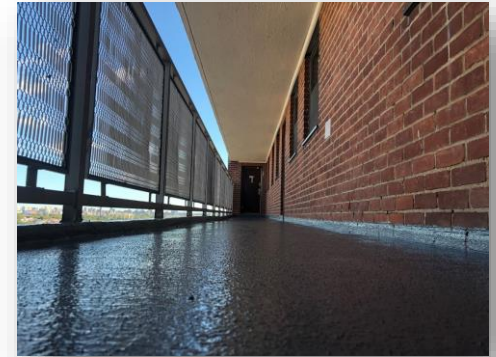
SIKAQUICK®

SIKADUR®

- Joint Issues
 - Determine mode of joint failure. Remove and replace with suitable sealant, using appropriate primer if needed
- Concrete Spalling
 - Saw cut perimeter, use appropriate mortar to repair
- Waterproofing Failure
 - Remove or recoat existing coating, use appropriate primer and waterproofing membrane

Cracks/Cold Joints

- Rout & Seal cracks over 1/16"
- Injection or coating to repair smaller cracks



JOINTS REPAIRS



Joint Sealant Replacement



Preparing Joints for Sealing

SPALL REPAIRS AND WATERPROOFING

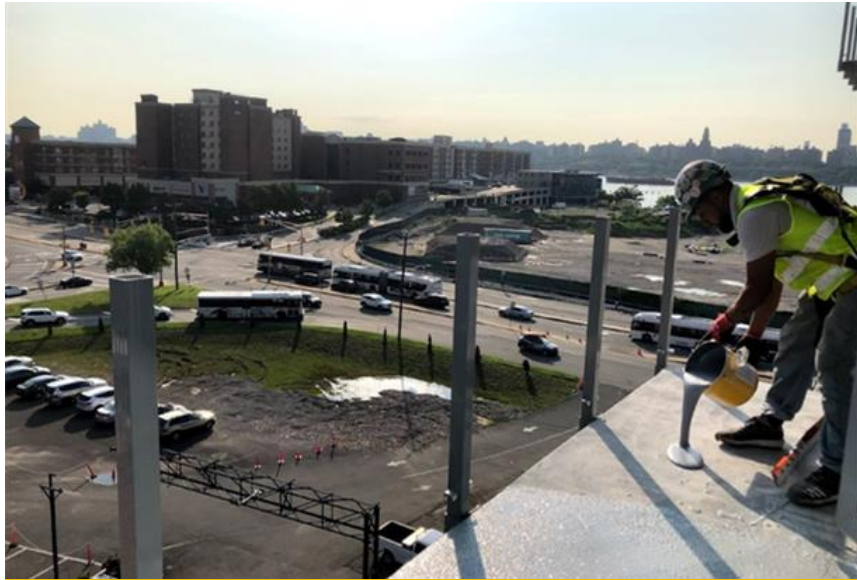


Concrete Spall Repair



Waterproofing Replacement

BALCONIES – PROTECTION SOLUTIONS



Balcony coatings



Wall coatings



WINDOW OPENING DETERIORATION EXAMPLES AND SOLUTIONS

ROOT CAUSES OF WINDOW DETERIORATION

Low Concrete Cover



Concrete Joint Issues



Waterproofing Failure



Structural Deficiency



Improper Material Selection



Shrinkage

WINDOW DETERIORATION

CAUSE(S)

Concrete Joint Issues



Waterproofing Failure



Adhesive Failure in Window Joint



Window Flashing Failure

WINDOW DETERIORATION

CAUSE(S)

Improper Material
Selection



Incompatible materials

WINDOW REPAIR SOLUTIONS

- Joint Sealant Issues
 - Remove and replace sealant
- Waterproofing/Flashing Failure
 - Remove existing coating or flashing
 - Use appropriate primer and waterproofing membrane
- Improper Material Selection
 - Ensure products that are installed are compatible
 - Ensure chemistry of products is suitable for application
 - Remove and replace with appropriate products



SIKAFLEX®

SIKASIL®

SIKAHYFLEX®

WINDOW REPAIR & PROTECTION SOLUTIONS



Sealant Replacement



Ensure Sealant is Properly Installed

WINDOW REPAIR & PROTECTION SOLUTIONS



Proper Material Selection



Window Waterproofing Flashing



COMMON ISSUES WITH POOLS, PLANTERS, AND POOL DECKS

ROOT CAUSES OF POOL DECK DETERIORATION

Low Concrete Cover



Concrete Joint Issues



Waterproofing Failure



Structural Deficiency



Improper Material Selection



Shrinkage

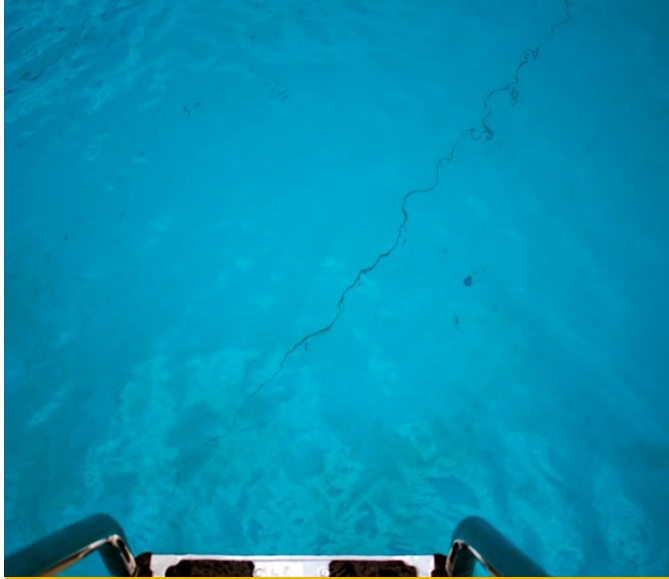
POOLS AND POOL DECKS DETERIORATION

CAUSE(S)

Concrete Joint Issues



Waterproofing Failure



Pool Basin cracks



Joint Material Deterioration

POOL DECK DETERIORATION

CAUSE(S)

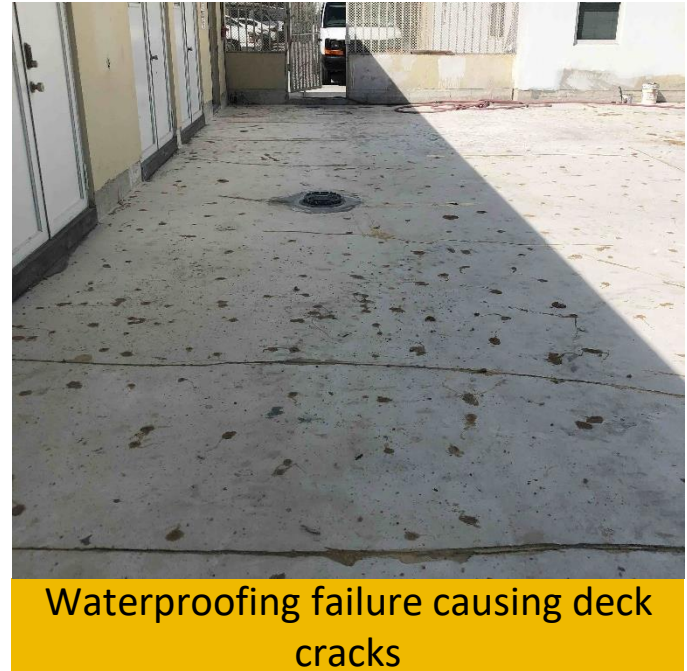
Concrete Joint Issues



Waterproofing Failure



Waterproofing membrane failure in planters



Waterproofing failure causing deck cracks

POOLS AND POOL DECKS DETERIORATION

CAUSE(S)

Waterproofing failure



Water intrusion below pool deck



Pool vault wall cracking

POOL REPAIR SOLUTIONS

SIKATOP®

SIKA
DUOFLEX®

SIKADUR®

SIKAFLEX®

SIKAHYFLEX®

SIKA
ROOFTOP®

- Clean and remove concrete surface coating
- Repair static cracks and cold joints using epoxy injection
- Seal moving joints or cracks with flexible sealants
- Repair any honeycombs or spalls
- Apply a waterproofing topcoat
- Do a water tightness test



POOL REPAIR SOLUTIONS



Crack Sealing Inside Pool Basin



Waterproofing of Pool Basin

POOL REPAIR & PROTECTION SOLUTIONS



Application of Waterproofing Membrane on Pool Deck



Water Test on Planters After Waterproofing Membrane Application



PARKING GARAGE DETERIORATION EXAMPLES AND SOLUTIONS

ROOT CAUSES OF PARKING GARAGE DETERIORATION

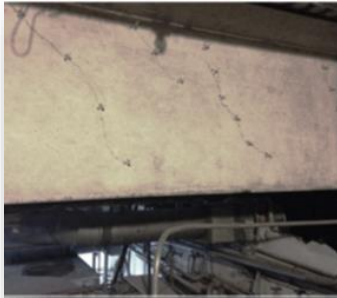
Low Concrete Cover



Concrete Joint Issues



Waterproofing Failure



Structural Deficiency



Improper Material Selection



Shrinkage

PARKING GARAGE DETERIORATION

CAUSE(S)

Low Concrete Cover



Parking Deck Spalling



PT Exposure Due to Low Cover

PARKING GARAGE DETERIORATION

CAUSE(S)

Concrete Joint Issues



Failing Joint Sealant



Garage Soffit Damage Under
Expansion Joint

PARKING GARAGE DETERIORATION

CAUSE(S)

Waterproofing Failure



Failed Deck Coating

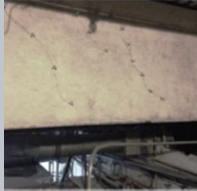


Poor Drainage/Clogged Drains

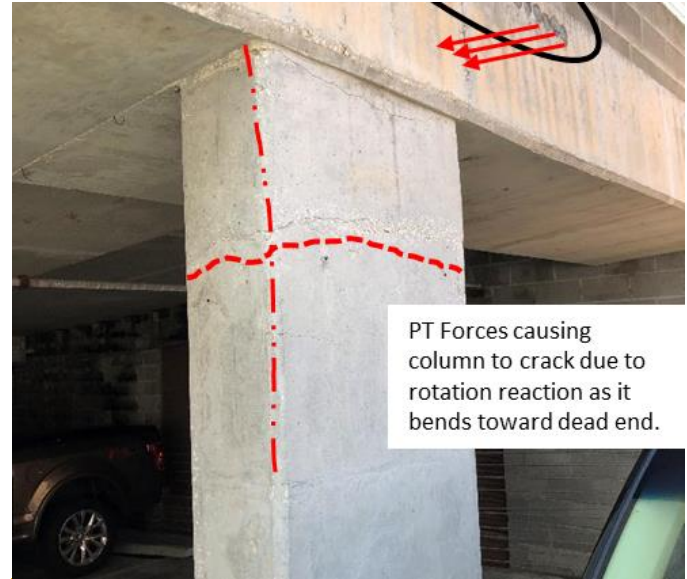
PARKING GARAGE DETERIORATION

CAUSE(S)

Structural Deficiency



PT Slab Cracking



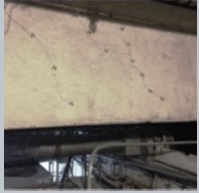
PT Forces causing column to crack due to rotation reaction as it bends toward dead end.

Column Damage due to Dead End
PT Failure

PARKING GARAGE DETERIORATION

CAUSE(S)

Structural Deficiency



Punching Shear Cracks



Beam shear Cracks

SIKATOP®

SIKAQUICK®

SIKACRETE®

SIKAGROUT®

SIKADUR®

SIKA®
FERROGARD®

SIKA
CARBODUR®

EMSEAL®

SIKAFLEX®

REPAIR SOLUTIONS

- Accurate survey & investigation by an experienced engineer
- Proper repair material selection
- Repair and protect approach
 - Remove and replace unsound concrete
 - Clean and coat exposed steel reinforcement
- Apply proper patching material
 - Cracks: rout and seal
 - Replace joint material
 - Waterproof/protect decks via coatings
- Monitor overall health

REPAIR - REBAR COATING AND SPALL REPAIRS



Clean Rust and Treat Exposed Rebar



Repair Spalls

CRACK REPAIRS



Inject Cracks with Epoxy



Rout and Seal Surface Cracks

REPAIRS – REPLACE JOINT MATERIAL AND COATINGS



Replace Deteriorated Joint Material



Replace Deck Coating

PARKING GARAGES – PROTECTION SOLUTIONS



Surface Applied Corrosion Inhibitor

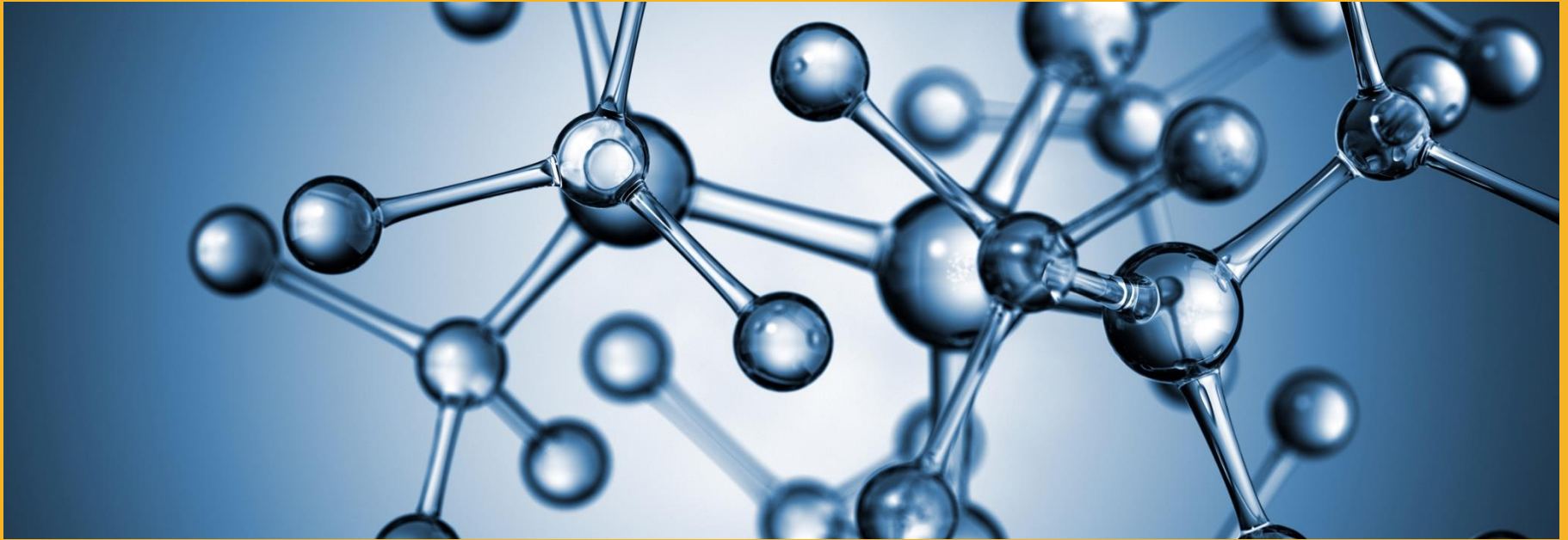


Galvanic Anodes

STRUCTURAL STRENGTHENING USING CARBON FIBER

- Strengthen beam, slabs, and columns
- Corbel Upgrades
- Corrosion deteriorated structures

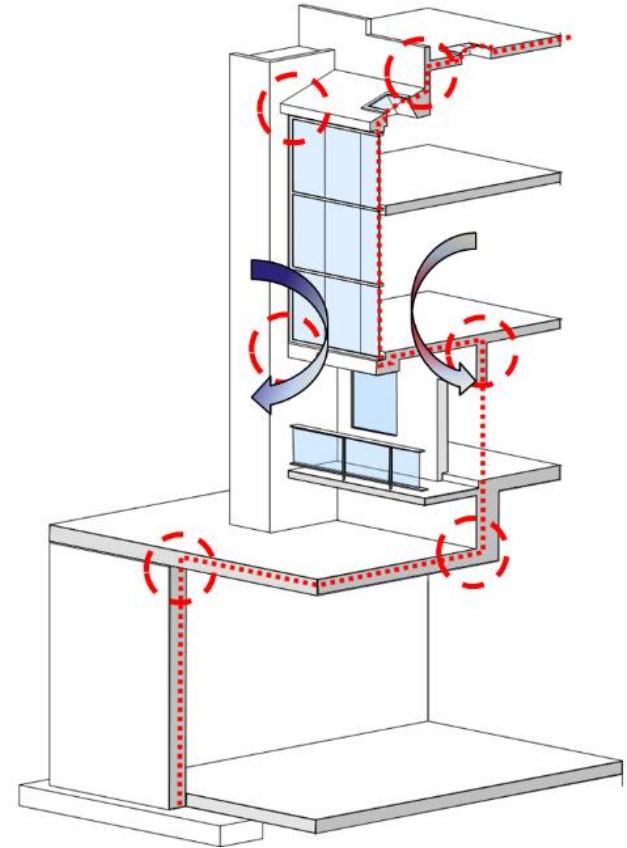




PRODUCT COMPATIBILITY

WHY IS THIS IMPORTANT?

- One of the biggest challenges for building owners and consultants is product compatibility
- **Solution: Single-source responsibility with pre-installation testing**
- Details and specifications can be based upon the compatibility results
- One company stands behind the products and the transition points



CONCLUSIONS

- Solving issues in a building requires teamwork between HOA, engineer, contractor, and material suppliers
- Product knowledge and expert advice is key to successful repairs
- Single-source material supplier ensures pre-tested product compatibility and avoidance of problems

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