



JamesHardie

R&D OVERVIEW

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24 September 2014




DISCLAIMER

This Management Presentation contains forward-looking statements. James Hardie may from time to time make forward-looking statements in its periodic reports filed with or furnished to the SEC, on Forms 20-F and 6-K, in its annual reports to shareholders, in offering circulars, invitation memoranda and prospectuses, in media releases and other written materials and in oral statements made by the company's officers, directors or employees to analysts, institutional investors, existing and potential lenders, representatives of the media and others. Statements that are not historical facts are forward-looking statements and such forward-looking statements are statements made pursuant to the Safe Harbor Provisions of the Private Securities Litigation Reform Act of 1995.

Examples of forward-looking statements include:

- statements about the company's future performance;
- projections of the company's results of operations or financial condition;
- statements regarding the company's plans, objectives or goals, including those relating to strategies, initiatives, competition, acquisitions, dispositions and/or its products;
- expectations concerning the costs associated with the suspension or closure of operations at any of the company's plants and future plans with respect to any such plants;
- expectations concerning the costs associated with the significant capital expenditure projects at any of the company's plants and future plans with respect to any such projects;
- expectations regarding the extension or renewal of the company's credit facilities including changes to terms, covenants or ratios;
- expectations concerning dividend payments and share buy-backs;
- statements concerning the company's corporate and tax domiciles and structures and potential changes to them, including potential tax charges;
- statements regarding tax liabilities and related audits, reviews and proceedings;
- statements regarding the possible consequences and/or potential outcome of the legal proceedings brought against two of the company's subsidiaries by the New Zealand Ministry of Education and the potential product liabilities, if any, associated with such proceedings;
- expectations about the timing and amount of contributions to Asbestos Injuries Compensation Fund (AICF), a special purpose fund for the compensation of proven Australian asbestos-related personal injury and death claims;
- expectations concerning indemnification obligations;
- expectations concerning the adequacy of the company's warranty provisions and estimates for future warranty-related costs;
- statements regarding the company's ability to manage legal and regulatory matters (including but not limited to product liability, environmental, intellectual property and competition law matters) and to resolve any such pending legal and regulatory matters within current estimates and in anticipation of certain third-party recoveries; and
- statements about economic conditions, such as changes in the US economic or housing recovery or changes in the market conditions in the Asia Pacific region, the levels of new home construction and home renovations, unemployment levels, changes in consumer income, changes or stability in housing values, the availability of mortgages and other financing, mortgage and other interest rates, housing affordability and supply, the levels of foreclosures and home resales, currency exchange rates, and builder and consumer confidence.



Words such as “believe,” “anticipate,” “plan,” “expect,” “intend,” “target,” “estimate,” “project,” “predict,” “forecast,” “guideline,” “aim,” “will,” “should,” “likely,” “continue,” “may,” “objective,” “outlook” and similar expressions are intended to identify forward-looking statements but are not the exclusive means of identifying such statements. Readers are cautioned not to place undue reliance on these forward-looking statements and all such forward-looking statements are qualified in their entirety by reference to the following cautionary statements.

Forward-looking statements are based on the company's current expectations, estimates and assumptions and because forward-looking statements address future results, events and conditions, they, by their very nature, involve inherent risks and uncertainties, many of which are unforeseeable and beyond the company's control. Such known and unknown risks, uncertainties and other factors may cause actual results, performance or other achievements to differ materially from the anticipated results, performance or achievements expressed, projected or implied by these forward-looking statements. These factors, some of which are discussed under “Risk Factors” in Section 3 of the Form 20-F filed with the Securities and Exchange Commission on 26 June 2014, include, but are not limited to: all matters relating to or arising out of the prior manufacture of products that contained asbestos by current and former James Hardie subsidiaries; required contributions to AICF, any shortfall in AICF and the effect of currency exchange rate movements on the amount recorded in the company's financial statements as an asbestos liability; governmental loan facility to AICF; compliance with and changes in tax laws and treatments; competition and product pricing in the markets in which the company operates; the consequences of product failures or defects; exposure to environmental, asbestos, putative consumer class action or other legal proceedings; general economic and market conditions; the supply and cost of raw materials; possible increases in competition and the potential that competitors could copy the company's products; reliance on a small number of customers; a customer's inability to pay; compliance with and changes in environmental and health and safety laws; risks of conducting business internationally; compliance with and changes in laws and regulations; the effect of the transfer of the company's corporate domicile from The Netherlands to Ireland, including changes in corporate governance and any potential tax benefits related thereto; currency exchange risks; dependence on customer preference and the concentration of the company's customer base on large format retail customers, distributors and dealers; dependence on residential and commercial construction markets; the effect of adverse changes in climate or weather patterns; possible inability to renew credit facilities on terms favourable to the company, or at all; acquisition or sale of businesses and business segments; changes in the company's key management personnel; inherent limitations on internal controls; use of accounting estimates; and all other risks identified in the company's reports filed with Australian, Irish and US securities agencies and exchanges (as appropriate). The company cautions you that the foregoing list of factors is not exhaustive and that other risks and uncertainties may cause actual results to differ materially from those referenced in the company's forward-looking statements. Forward-looking statements speak only as of the date they are made and are statements of the company's current expectations concerning future results, events and conditions. The company assumes no obligation to update any forward-looking statements or information except as required by law.



BACKGROUND

Michael Benjamin, Director, R&D

11+ years in James Hardie USA

6 years in R&D Fontana

- Product Development
- Technology Implementation

4 years in R&D Chicago

- Non-FC R&D Manager
- ColorPlus R&D Manager

1+ year in R&D Fontana

- US R&D Director
- Role includes R&D, Engineering and Claims Management



PRESENTATION AGENDA

- **R&D Strategy**
- **R&D Overview**
 - Dynamic Capability
 - FC Centric Focus
 - JH Business Impact
- **Key Takeaways / Summary**
- **Questions**



TECHNOLOGY STRATEGY

Enable James Hardie Product Leadership Strategy

- Provide a continuous pipeline of innovative new products and technologies with sustainable advantages to achieve our category and market share goals
- Our role is to act as the technology pipeline for the organization

R&D OVERVIEW

JH R&D's Key Strengths

Dynamic Capability

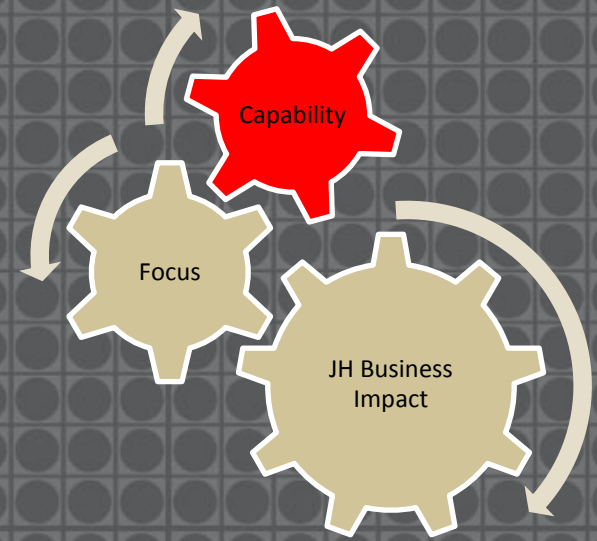
Evolves further – technology advantage

FC Centric Focus



JH Business Impact





R&D Overview

DYNAMIC CAPABILITY

R&D LOCATIONS

Three research centers – US and Australia

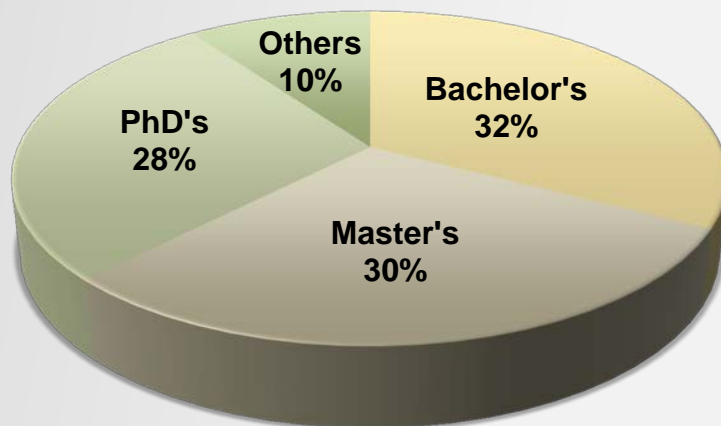
- Fontana, CA
- Naperville, IL
- Sydney, NSW



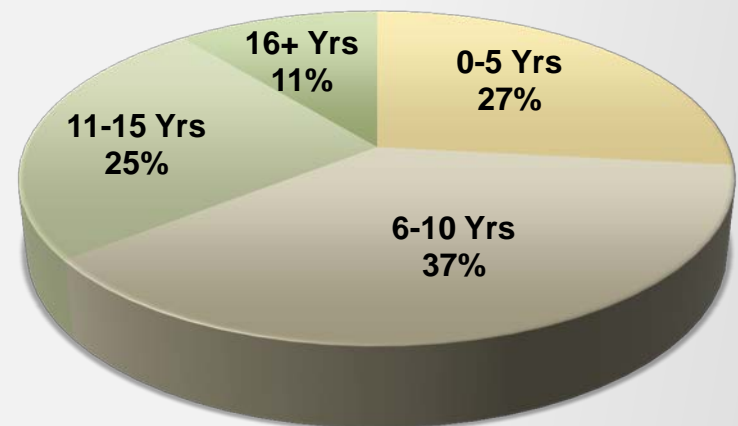
R&D RESOURCES

Diverse workforce of 130+ technologists

- Scientists → Chemistry, Materials, Inorganic, Composite, Wood & Fibers and Building Science
- Engineers → Chemical, Mechanical, Electrical, Civil and Environmental



~60% have PhD or Master's Degree



~70% with greater than 6 years service

RESEARCH CAPABILITIES



Thermal
Properties

Compositional
Analysis



Mechanical
Properties

Microscopy



RESEARCH CAPABILITIES



Longer-Term,
Real-Life
Exposure

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Innovation tools

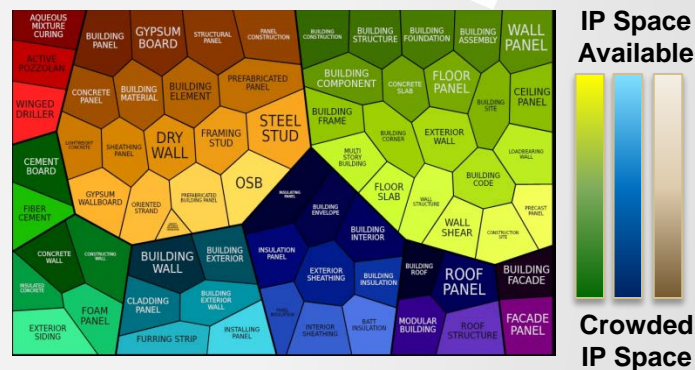
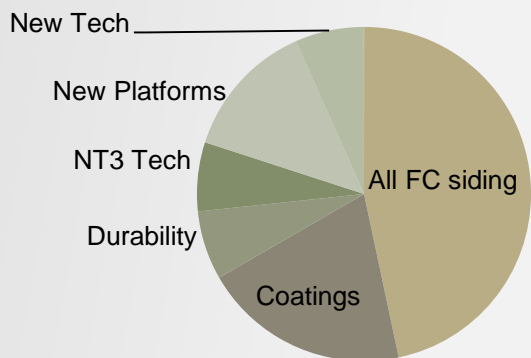
- 3D printing prototypes (Faster concepts)
- Pilot processes (Concept investment)

Intellectual property

- Idea generation process
- Focused approach on opportunities



FY15 IP Concepts YTD



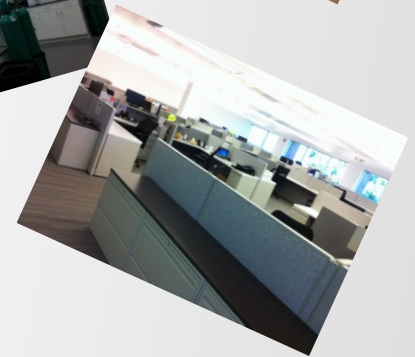
IP Tools (IP Space Availability)

NON-FC CAPABILITY

Chicago R&D is operational from Q4 FY13, focusing mainly on non-FC development

- Product Development
- Non-FC materials characterization
- Product and system testing
- Pilot lines

Currently capable to develop and implement non-FC technology initiatives aligned with business needs

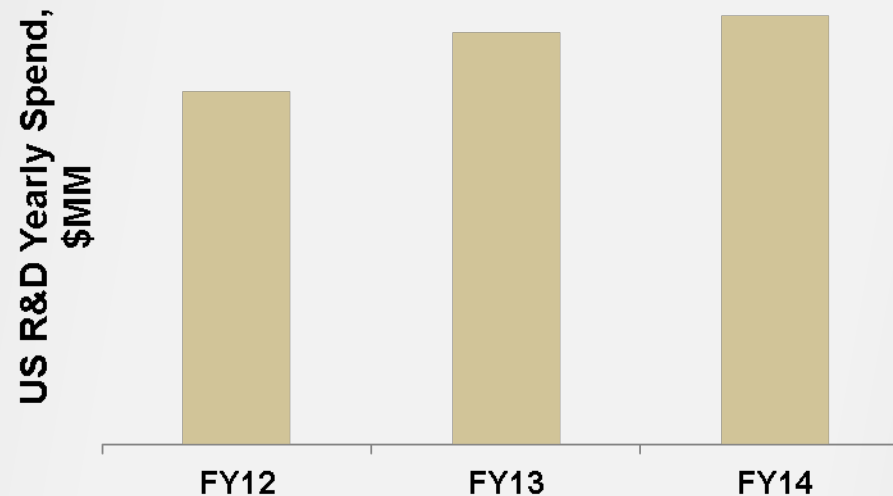


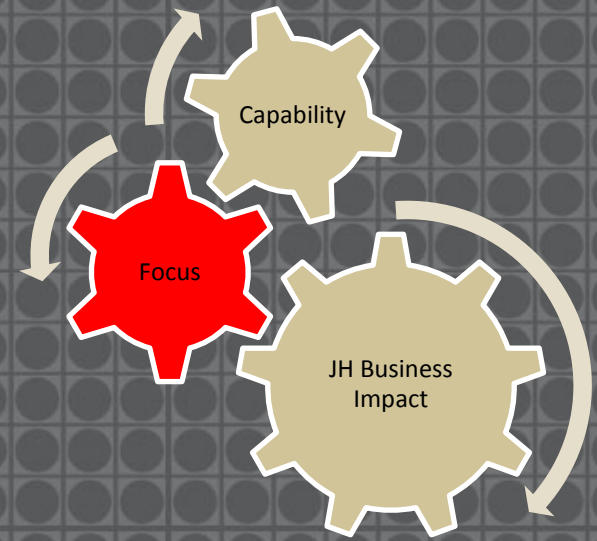
R&D SPEND

R&D yearly spend is divided between research and development projects

Research – Core understanding of technologies and science behind them

Development – Focus around implementing new technology and new products





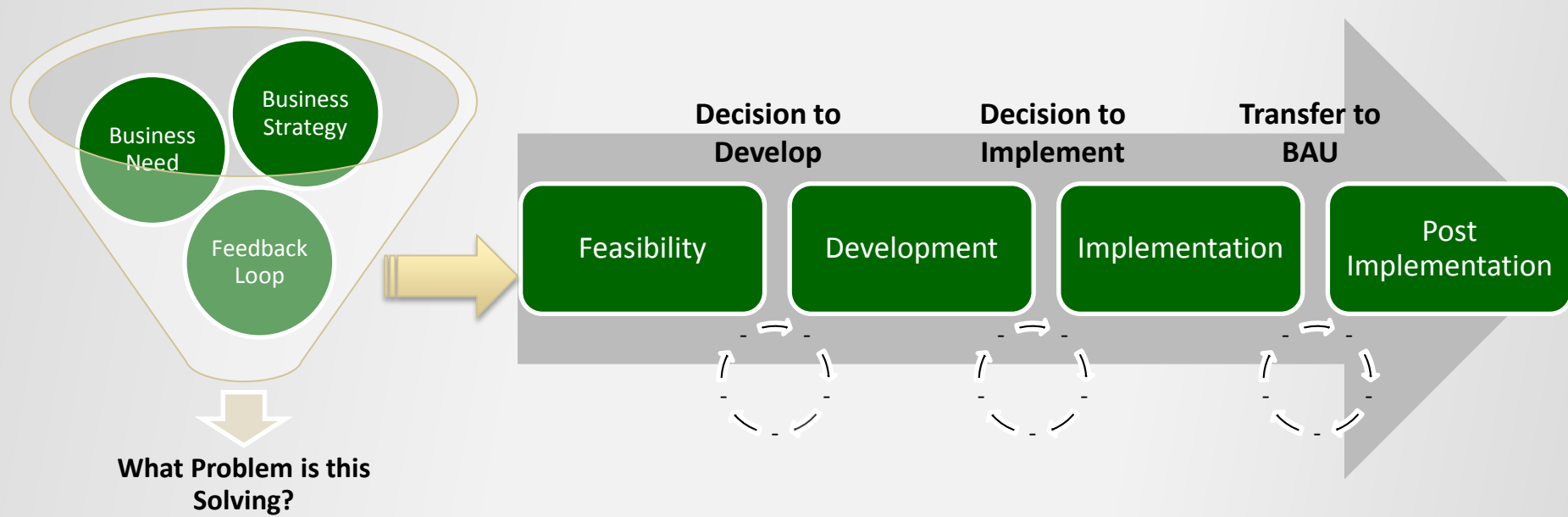
R&D Overview

FC CENTRIC FOCUS

JH INNOVATION PROCESS

Enable effective development and implementation of key initiatives

Ensure continuous pipeline of new concepts and ideas



FC STRATEGIC PRIORITIES

Product Performance

- Substrate Development
- Coatings Development
- Raw Materials Formulation
- Test Method Development

Technical Support

- Best Practices/Install
- Raw Material Sourcing
- Manufacturing Process Optimization
- Yield Improvements

Platform Development

- Product Form
- Product Aesthetics
- Advanced Finishing
- Concealed Fastening

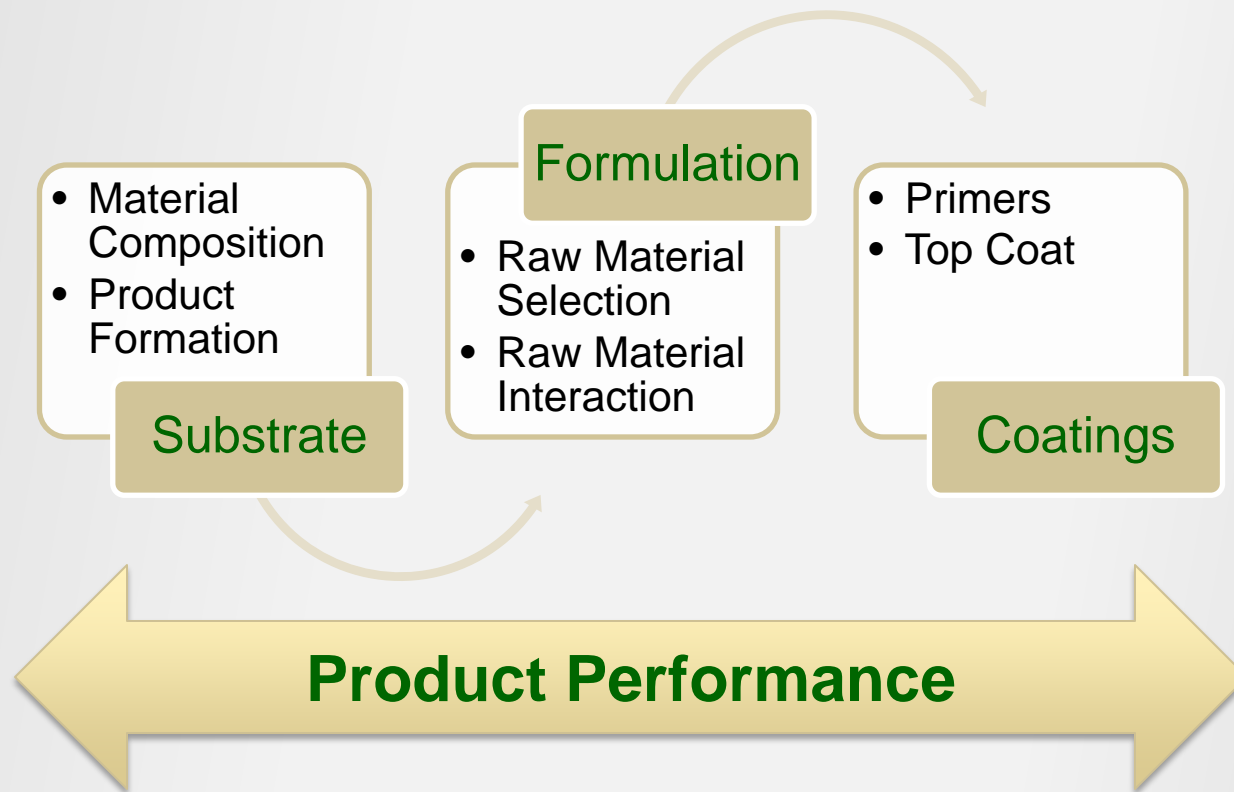
ENABLERS

New Product Development

- Trim/Shapes
- ColorPlus® Development
- Reveal®
- Top of the Market Products
- Foam-back Plank

PRODUCT PERFORMANCE APPROACH

Multi-faceted approach to product performance





RAW MATERIAL FOCUS

Raw material research is an important aspect of product performance and technical support strategies

Enhance product performance

- Raw material selection
- Formulations

Technical support

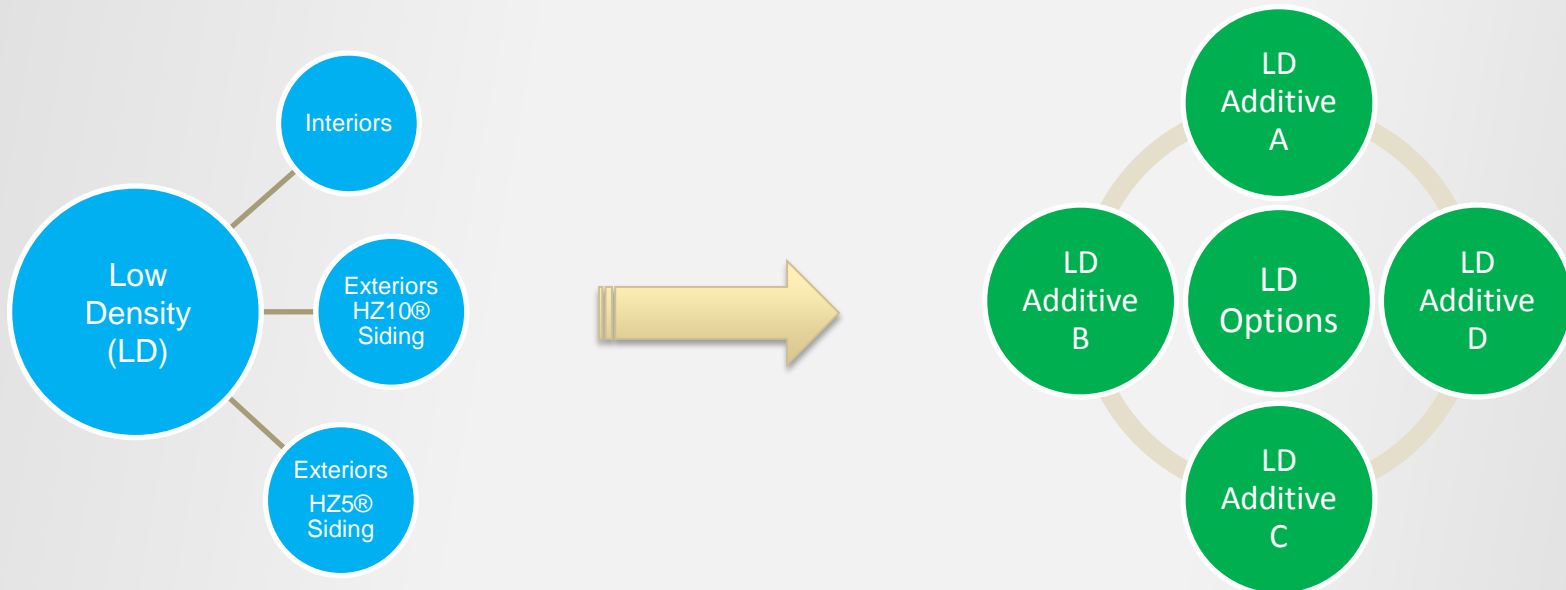
- Secure supply – pulp, cement, silica et al.,
 - Raw material sourcing / New formulations
- Ensure quality
 - Consistent supply / Universal specifications
- Improve utilization

LOW DENSITY ADDITIVES

James Hardie uses low density functional additives for:

- Lighter / Thicker products
- Ease of use
- Performance

Our strategy is to reduce dependency on commercial additives to in-house technology substitutes





PLATFORM DEVELOPMENT FOCUS

Invest in new manufacturing platforms to enable step-change products in current or new category

Platform A (Current)

- Plank / Panel
- Flat sheets
- Higher throughput

Platform B (Current)

- Thicker products
- Functional

Platform C (New)

- Aesthetics
- Product Form
- High-end products

Platform D (New)

- Shapes
- Extreme applications
- Functional



PRODUCT DEVELOPMENT FOCUS

Balanced mix of step change products and product line extensions to drive JH category and market share growth

Form

- Aesthetics
- Texture
- Shape
- Weight
- Color

Function

- Water management
- Durability
- Energy efficiency

Features

- Concealed fastening
- Nail line
- Ease of install

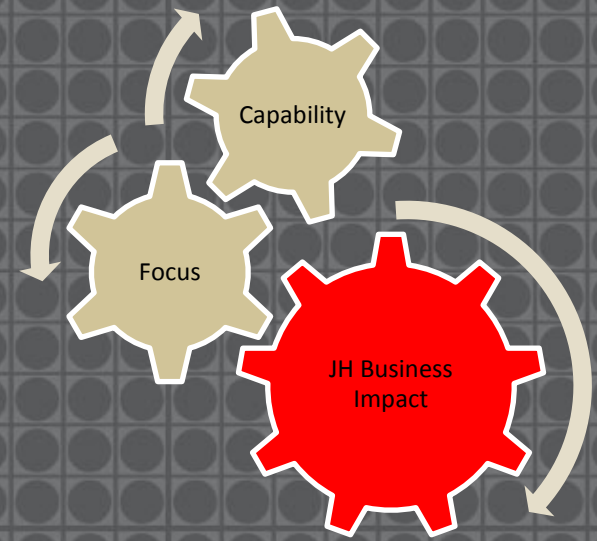
NON-FC STRATEGIC PRIORITIES

Evaluate and develop non-FC technologies for fit with current and future JH business

Mouldings – Provide shapes to complement JH FC trim portfolio

Windows – Develop non-FC technology as an entry vehicle into fiber glass windows





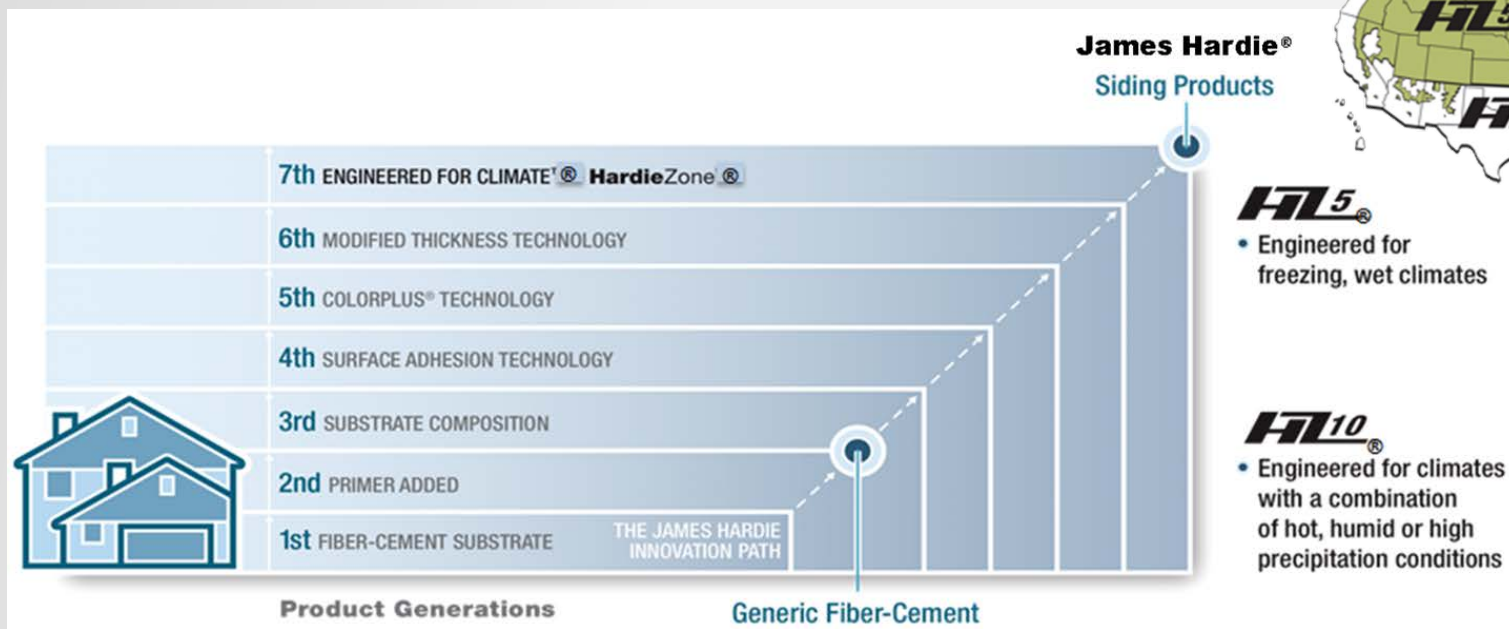
R&D Overview

JH BUSINESS IMPACT

HARDIEZONE® – ENGINEERED FOR CLIMATE®

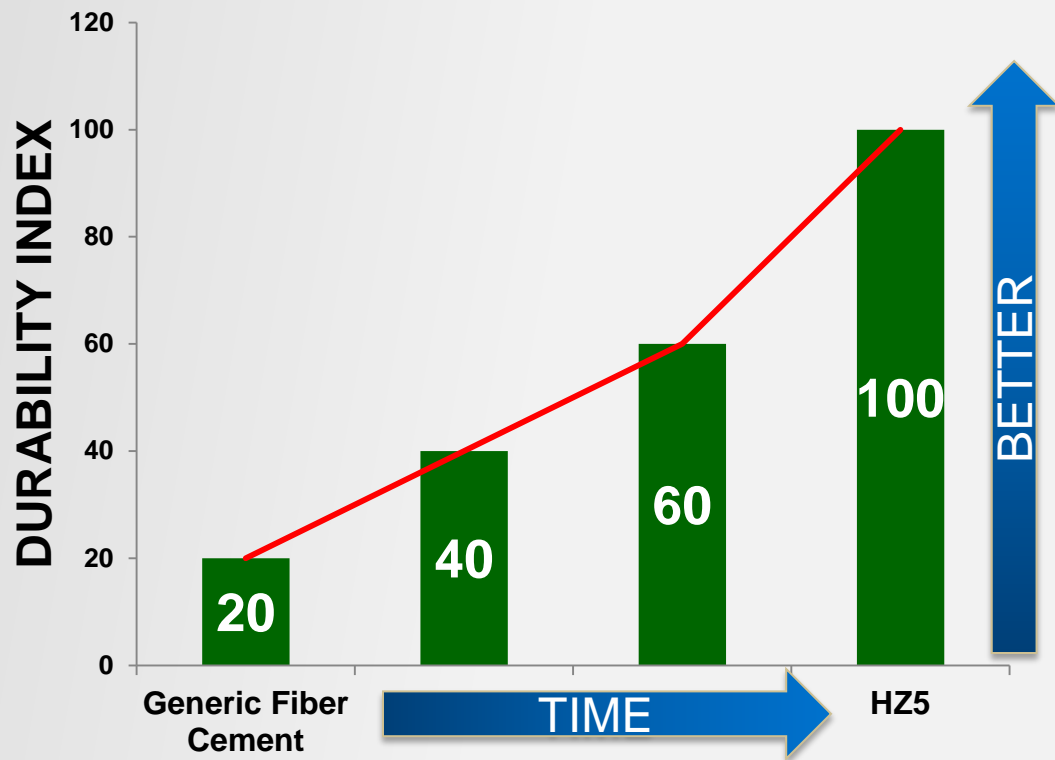
Delivered HardieZone® Engineered for Climate® Products

7th Generation of FC products

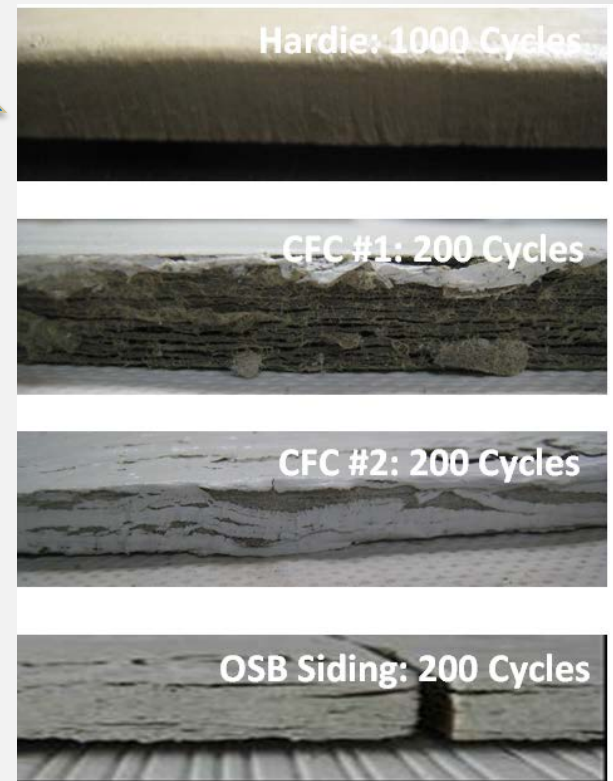


PRODUCT PERFORMANCE

HZ5® siding performs 5x better than generic FC in system testing



Source: James Hardie Internal Research and Testing



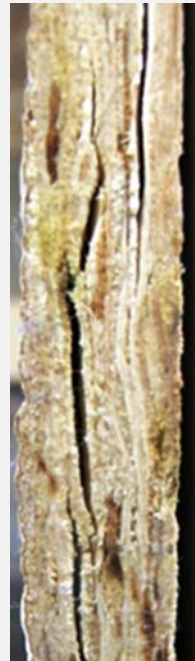
JH vs. COMPETITORS (OSB / Hardboard)

Like Hardboard, OSB siding is a wood based, manufactured product that can experience similar issues when exposed in external applications :

- **Fire**
- **Splitting**
- **Mold Growth**
- **Termites**
- **Significant Moisture Movement**
- **Swelling**



Fire



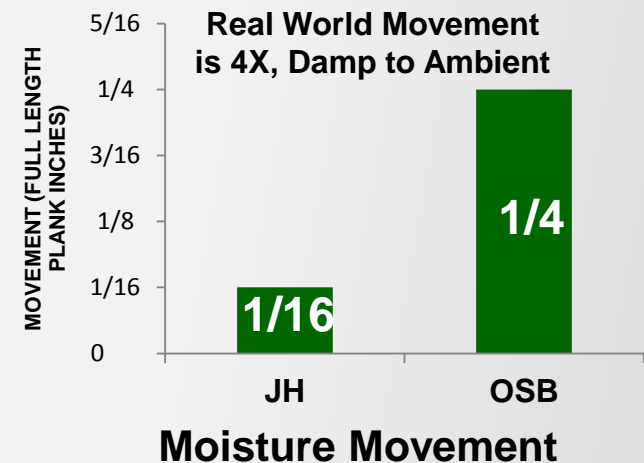
Splitting



Mold Growth



Termite Activity

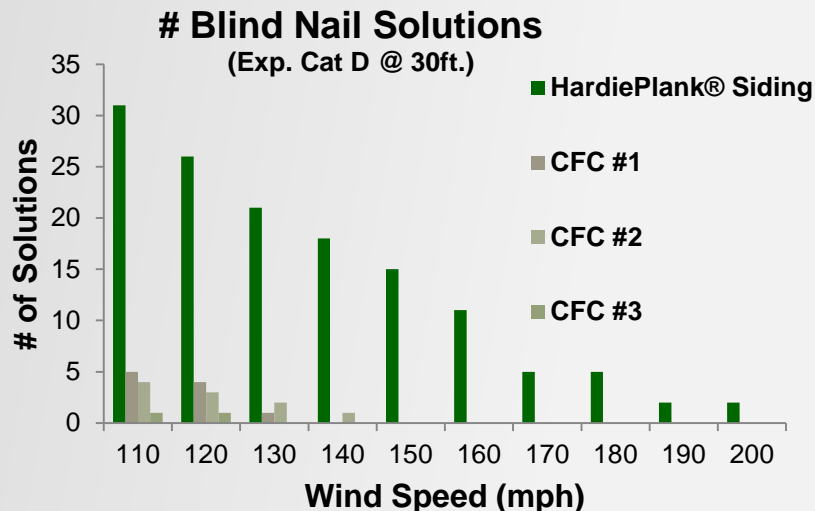


Source: James Hardie Internal Research and Testing

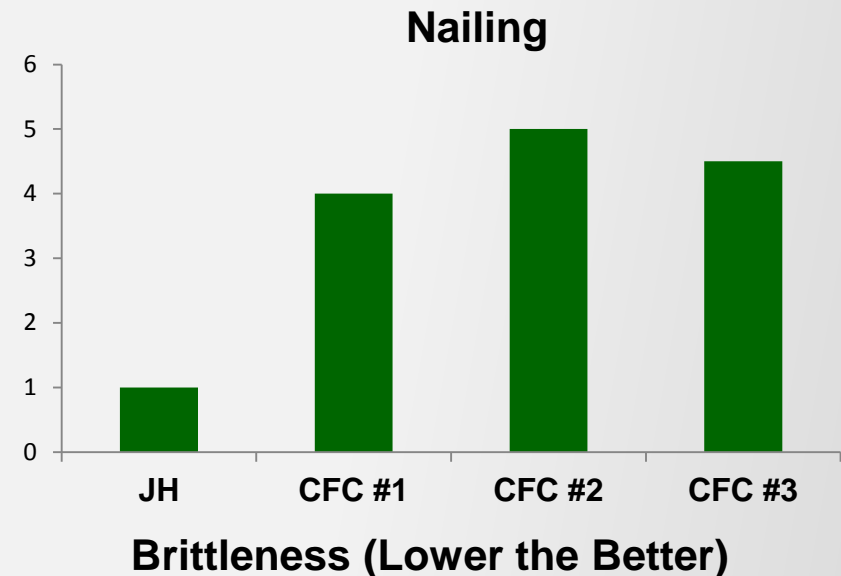
JH vs. COMPETITORS (CFC)

Competitive Fiber Cement Siding

- Low quality raw materials
- More brittle, nailing damage
- Few approved wind load solutions
- High movement (moisture)
- Poor paint and primer adhesion



Source: External Code Compliance Reports (ICC-ES)

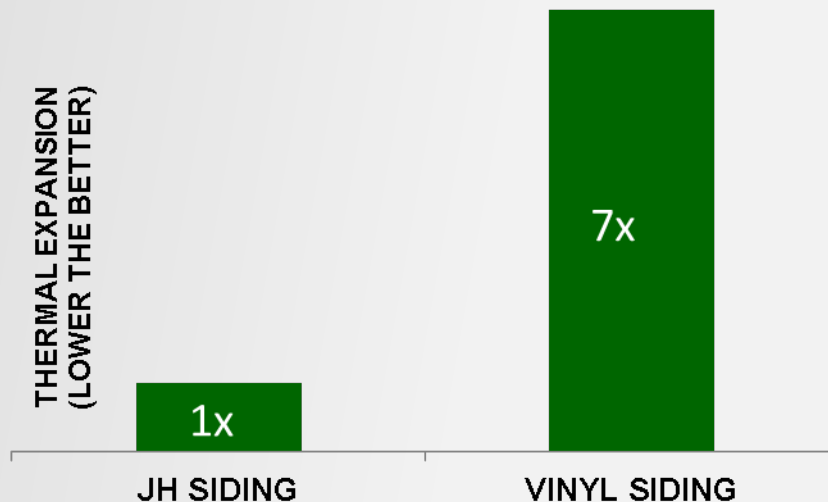


Source: James Hardie Internal Research and Testing

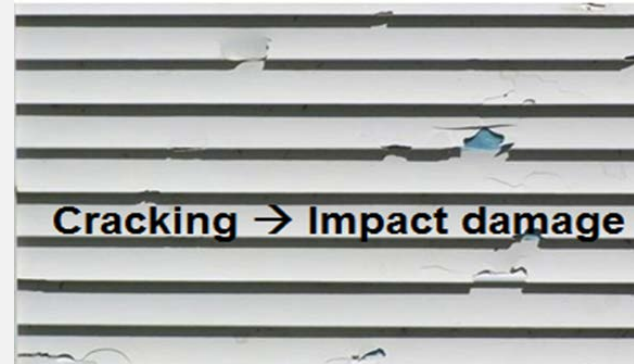
JH vs. COMPETITORS (Vinyl)

Vinyl / PVC Siding

- Looks cheap
- Relatively durable but can melt even from reflected light (low-e window)
- Very high thermal movement → 7x compared to JH
- Poor impact resistance



Source: James Hardie Internal Research and Testing



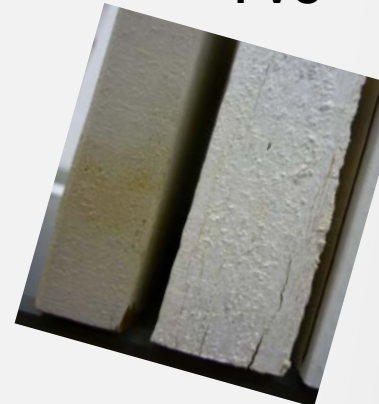
JH vs. COMPETITORS (Trim)

- **OSB / Hardboard trim**
 - Poor paint adhesion
 - Low resistance to mold
 - High water absorption and swelling
- **PVC trim**
 - High thermal expansion (7x)
 - High movement / High gapping
 - Low thermal stability / Yellowing
- **Polyurethane composite trim**
 - High thermal expansion (3x)
 - Low UV resistance (PU)
 - Poor paint adhesion



**Paint Adhesion –
OSB / Hardboard**

**Gapping -
PVC**

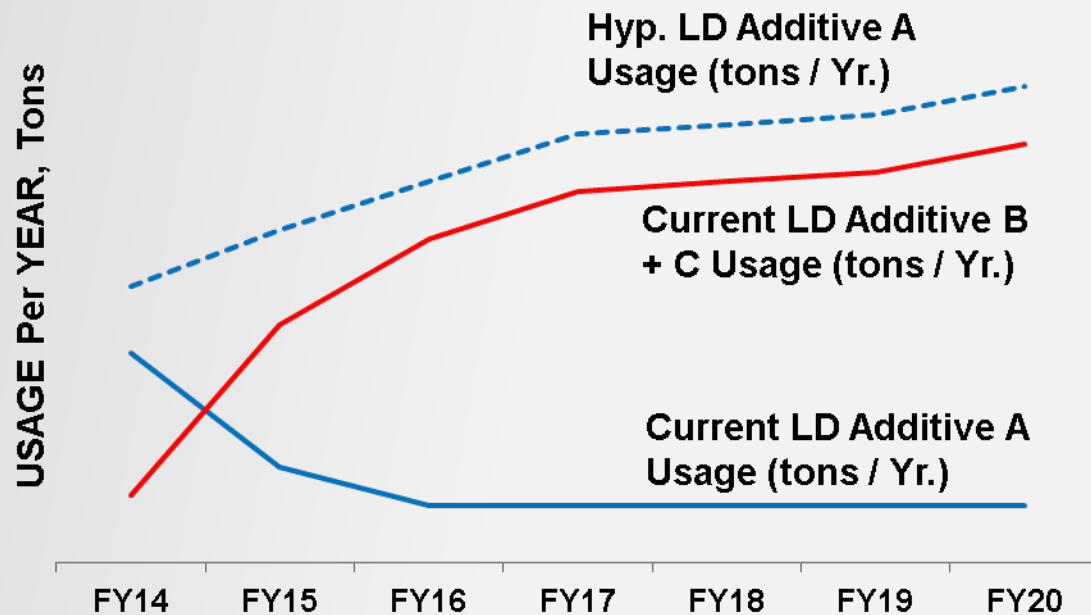


**Swelling – OSB /
Hardboard**

Source: James Hardie Internal Research and Testing

LOW DENSITY ADDITIVES

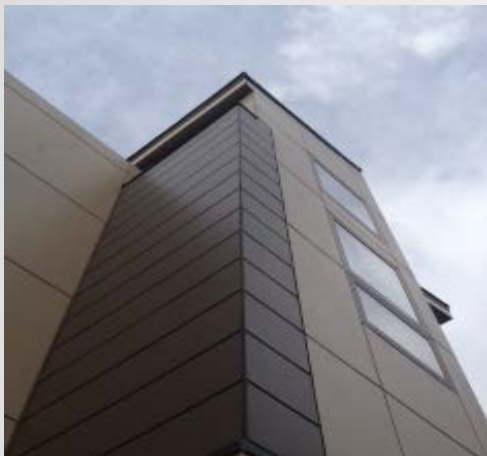
By focusing on low density research, JH was able to reduce the dependency on commercial additives to in-house technology substitutes



This Enables:

- Lighter / Thicker products
- Cost – effective, Durable products
- Reliable supply of raw material

PRODUCT DEVELOPMENT



HardieReveal2.0™ Panel System



HardiePlank® Lap Siding with Insulation



HardieTrim™ Mouldings



Artisan® V-Rustic Siding

Other Products

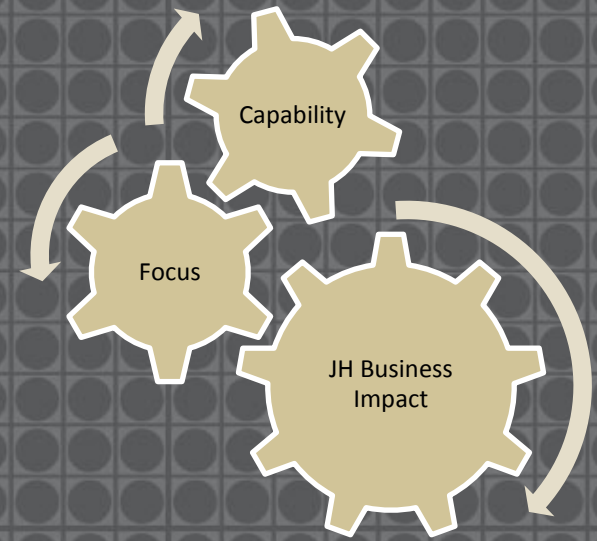
- Trim extensions
- Shingle extensions
- High-end panel extensions



STRONG JH BUSINESS IMPACT

In summary, JH R&D has enabled

- Impact on product performance
- Product leadership compared to competitors
- Impact on raw materials and low density materials
- Product and platform development
- Better innovation



R&D Overview

SUMMARY



KEY TAKEAWAYS

James Hardie R&D invests and functions towards:

Ensuring Product Performance

- JH products demonstrate superior durability compared to the competition

Maintaining Product Leadership

- Differentiated products are being created to enable future PDG vs. wood and vinyl options

Enabling Platforms

- New platforms are being developed to enable future business growth



R&D FUTURE DELIVERABLES

Continue Research and Development of Key Technology Strategies

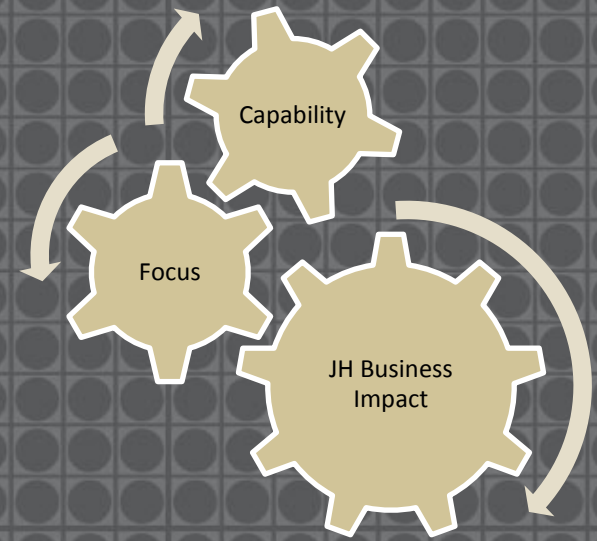
- Product Performance
- Raw Materials
- Low Density

Continue Investments of Key Platform Strategies

Continue to Deliver New Products

Aligned with Corporate Strategy

- Act as the technology pipeline for JH and **deliver key results towards JH's overall category and market share growth strategy**



R&D Overview

QUESTIONS