



## **JIPM – ID 00085 – COMPANY PROFILE and ACHIEVEMENT SHEET**

### **1. Company, Plant / Factory Profile**

#### **1.1 Company**

The story of Owens Corning began in the 1930s when a failed experiment with glass building blocks produced a surprising result – it revealed a way to make glass fibers in commercial quantities. That discovery launched more than a new product. It set in motion a remarkable series of events that included the birth of Owens Corning and the spawning of new industries related to the production of fiber glass materials.

Based in Toledo, Ohio, United States of America (USA), Owens Corning (OC) is a global building and industrial materials leader. The company's three integrated businesses are dedicated to the manufacture and advancement of a broad range of insulation, roofing and fiberglass composite materials.

Leveraging the talents of 20,000 employees in 33 countries, OC provides innovative products and sustainable solutions that address energy efficiency, product safety, renewable energy, durable infrastructure, and labor productivity. These solutions provide customers a material difference and make the world a better place.

#### **1.2 Plant**

The Charleston (CHS), South Carolina (SC), plant had a unique path to joining OC's Team. In 2005, a CHS-crew of eight began operations as the only USA distribution center for Canadian-owned Interwrap (IW). By 2011, we'd expanded to include production capabilities. In 2016, OC acquired IW, with CHS joining the roofing and asphalt components division; relocation to the current facility occurred shortly thereafter.

Our facility-focus is:

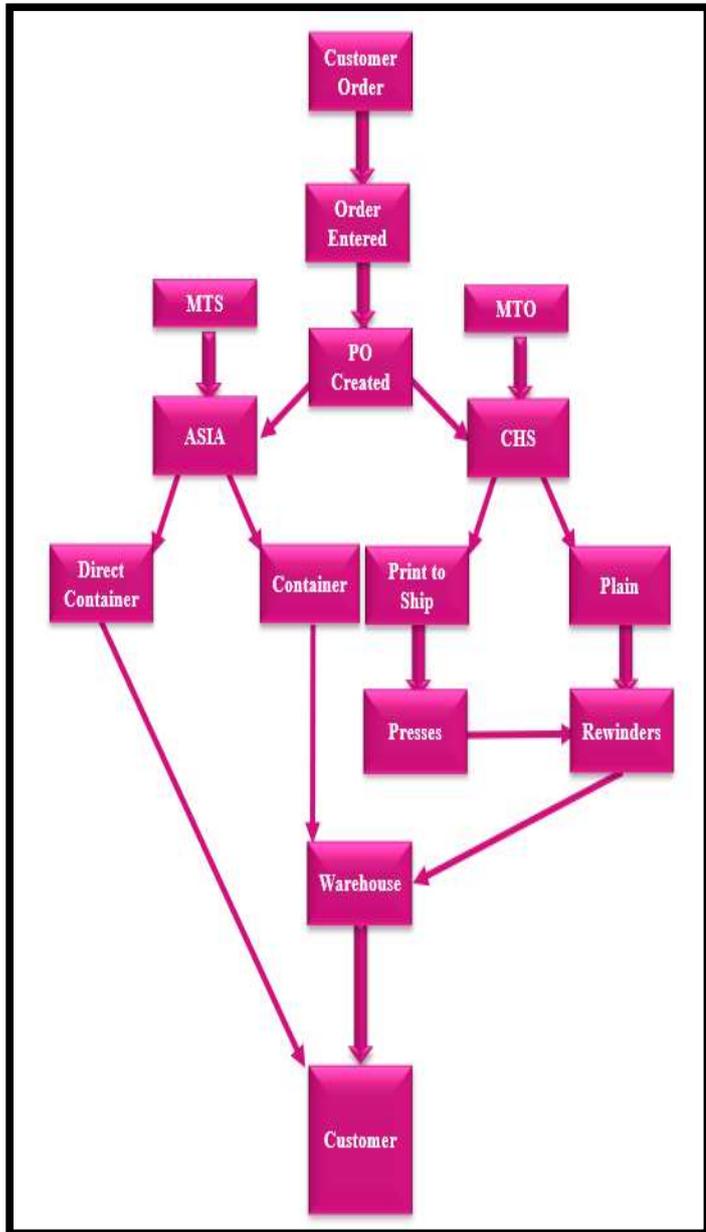
- Operational functionality is primarily printing and rewinding (customizing) of synthetic industrial fabrics for multiple uses, as well as warehousing and distribution of same.
- Products include roofing underlayment and protective packaging for wood and metals materials.
- Facility size is 156,000 square feet; assets include two printers, three rewinders, warehousing / distribution equipment.
- Plant population = 32 employees, one shift.
  - Onsite Leaders = 9; Production = 10; Warehouse / Distribution = 9; Maintenance = 2; Utility = 1; Purchasing = 1

A visual overview of our order flow, production process and product / customer breakdown are shown below.

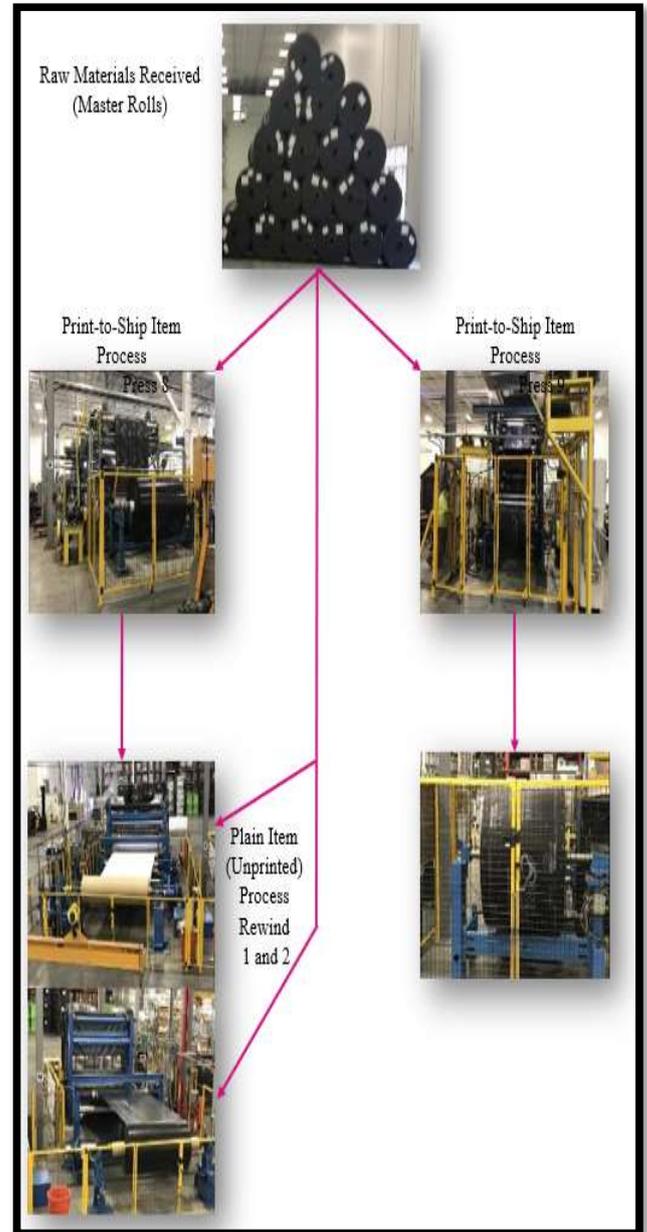




### ORDER FLOW



### PRODUCTION PROCESS

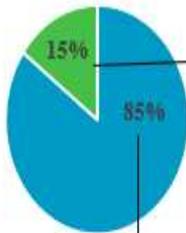




**PRODUCT / CUSTOMER BREAKDOWN**

- Roofing: Synthetic Roof Underlayment
- ProPack: Protective Packaging for Metals
- Print-to-Ship
- Plain Material (Unprinted)

Product Ratio (%)  
 ■ Roofing ■ ProPack



**ROOFING**

**BRANDED**

THE HOME DEPOT | ABC Supply Co. inc. | Lowe's

**PRIVATE LABEL**

BEACON | TAMKO BUILDING PRODUCTS LLC | CertainTeed

**PROTECTIVE PACKAGING (ProPack)**

**METALS**

USS United States Steel | FLEETWOOD Industrial Supply

**WOODS**

LP BUILDING PRODUCTS | Weyerhaeuser | CANFOR





OC-CHS's philosophy is captured by our Vision and Mission Statements:

**VISION: One Facility – One Team – One Commitment**

Coming together, striving for better, delivering excellence ... this is the Charleston Team.  
 Always making tomorrow more productive than today ... 100% accountable ... 0% excuses.

**MISSION STATEMENT** ... The means by which we will support and achieve our Vision Statement include the following key focus areas:

**SAFETY**

- Advance a Zero-Injury Philosophy through Team Participation and Shared Knowledge
- Continued Cultivation of Plant and Personal Safety Awareness

**QUALITY**

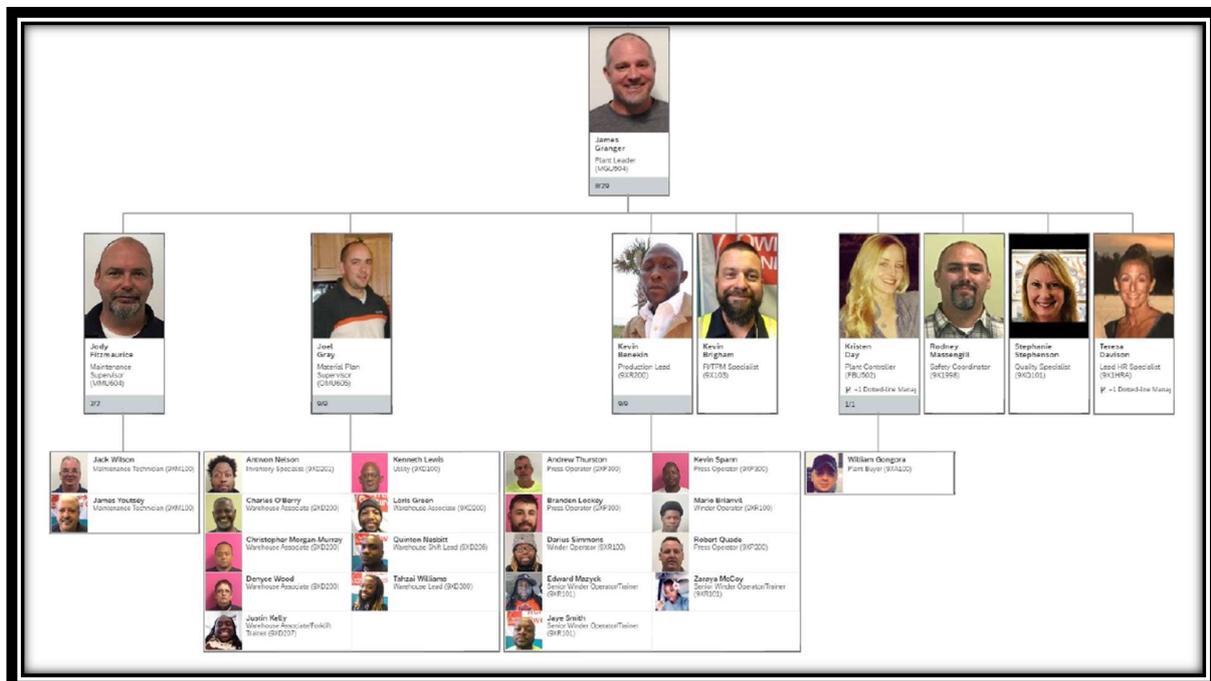
- Identify and Continuously Strive to Exceed Customer Expectations
- Continued Enhancement of Quality Management System (QMS), Processes and Protocol

**OPERATIONS**

- Enhance Continuous Improvement to Facilitate Zero Downtime
- Foster Team Input, Creative Contribution and Open Communication

**PEOPLE**

- Optimize Human Potential, Maximize Engagement of People by Providing Training and Retaining Talent
- Encourage, Empower and Embrace Team Member Strengths and Continued Growth





## 2. Milestone on the Journey of Manufacturing Excellence

### 2.1 Reasons for Adopting TPM

In order to meet Owens Corning's goal of the journey to zero (0 accidents, 0 defects, 0 losses), their plants adopted the systematic management approach of Total Productive Maintenance (TPM).

Total Productive Maintenance (TPM) strengthens Charleston's philosophy and practice of maximizing efficiencies. While our formal TPM journey began November of 2019 - in reflection, we started on this path during a facility relocation in 2016.

- Relocation issues faced included: Limited space (utilization), legacy equipment considerations, lean workforce.
- Solutions utilized included: Systematic / orderly process, organized and fluid flow, repeatable standards delivering positive outcomes.

We may not have called it 5S or linked it to TPM – but – today, we recognize that was the approach taken.

In late 2019 (November), we began our TPM journey, with official launch in January 2020. It's been a powerful process, introducing us to new ways to:

- Empower employees, enhance safety, streamline efforts, reduce unplanned maintenance, and increase quality production.

TPM fosters and focuses a combined and strategic approach to zero - zero accidents, zero defects and zero losses. Leaning-in with this methodology allows Owens Corning-Charleston to utilize its most valued assets – people and equipment – wisely.

The TPM journey has introduced a multitude of new tools, means and methods. A brief list of direct-benefits include: enhanced safety, employee empowerment, streamlined efforts, reduced unplanned maintenance, increased quality production, improved operator ownership. Charleston's leadership team is able to navigate common waters, through use of team-tools such as policy deployment (tracking key metrics – KMI, KPI, KAIs), cost deployment, bit matrix, masterplan, problem-solving tools (such as one-point-lessons, red/blue tags, case-studies, fishbone, 5W/2H), training focus (skills matrices, training needs analysis). The list goes on and on – and is captured more appropriately in the Charleston JIPM chapters.





### **3. Benefits Achieved**

Proper directional trending of metrics is a key indicator by which we can see both tangible and intangible business results attained via TPM.

#### **3.1 Tangible Business Results**

Tangible results are monitored daily (via daily management meetings/systems), monthly (via policy deployment review) both as a leadership team and individually in various one-on-one sessions with Plant Leader. Variables Charleston has in scope include: Recordable Injury Rate, Near Miss / First Aide Injuries, Cost of Non-Quality, Claims, Credits, Scrap, Plant OEE, Press OEE, Rewind OEE, On Time Delivery (OTD), Press and Rewind Mean Time to Repair (MTTR) and Mean Time Between Failure (MTBF), Press and Rewinder Breakdowns, Period and Productivity Cost Savings.

#### **3.2 Employee Involvement, Motivation and Other Intangible Improvements**

Intangible, yet vitally important, benefits include Morale (as seen in tenure / retention), Unplanned Absenteeism, and Turnover. Other benefits can be felt with the sense of empowerment employees feel, increased engagement and collaboration, greater understanding of the machine function and structure, sense of ownership to the process, increased problem-solving skills – and the camaraderie shared by all team members as we strive to achieve TPM goals, together.

### **4. Key of our Manufacturing Excellence**

#### **4.1 Key Items**

To build upon the lessons we've learned and growth we have attained through Total Productive Management, Charleston plans include:

- Continue to support AM with evolution and growth of all Pillar teams and all individual employees.
- Maintain our detailed masterplan and follow it strictly.
- Ensure total employee engagement from day-one.
- Collaborate with sister-plants to ensure best practice.
- Solidify support systems for process and document development.

We will utilize all TPM tools to remain focused on our strategic approach to zero - zero accidents, zero defects and zero losses. The TPM methodology ensures Owens Corning-Charleston is able to expand our skills, increase our knowledge-base through training, empower our people, enhance efficiencies, maximize opportunities, and overcome challenges through problem-solving methods.... all of which ensures we are able to achieve and maintain world-class-status as a production and distribution team.





## 5. Achievement Record

### 5.1 Objective Measures

Productivity (P)		Cost (C)		Safety (S)		
Quality (Q)		Delivery (D)		Moral (M)		
Category	Index (Calculation Formula)	Unit	Kick off/ TPM Started (or last time awarded)	Actual Status 2022	Target 2023	
S	Number of work-related accidents requiring days off work	Cases/ year	0	0	0	
S	Number of work-related accidents <b>not</b> requiring days off work	Cases/ year	2	0	0	
P	Productivity for main products	Parts / Operator hours	N/A	N/A	N/A	
P	OEE (or Overall Plant Efficiency)	%	40.84	49.12	50	
	Availability	%	63.27	70.54	71.12	
	Performance Rate	%	68.18	71.89	72.48	
	Quality Products Rate	%	94.680	96.863	97.000	
P	Number of breakdowns	Breakdowns/ year	N/A	81	76	
P	MTBF	Hour	N/A	260.9	202.0	
P	MTTR	Hour	N/A	1.40	1.27	
Q	Number of customer complaints	Number/year	0	1	0	
Q	In-line defect rate	Scrap	%	5.320	3.137	3.000
		Scrap and rework	%			
C	Cost index	Cost/ Unit	140.09	266.50	457.10	
		Cost/ Kilogram				<i>Increase Due to Inflation and Volume Reduction</i>
D	Production Lead time	Days	Corporate Owned			
D	Delivery performance	%	101.3	100.6	100.5	
S	Safety index (ex Lost Time Incident Rate)	(Accidents per 1,000,000 operator hours)	0	0	0	
M	Number of Employee Suggestions	Number/year	3	15	24	





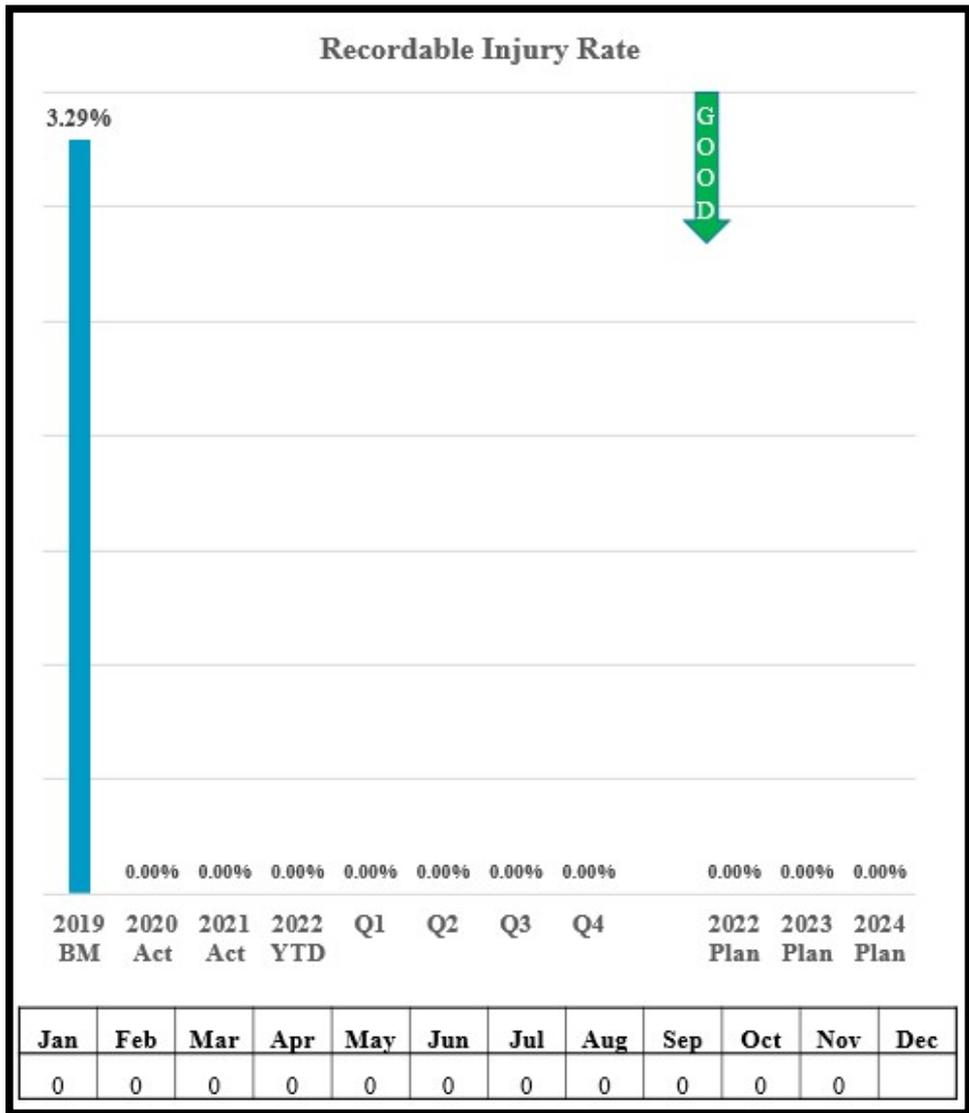
<b>Other</b>	<p><b>&lt;Specify achievements not expressible in numerical terms&gt;</b></p> <p><b>1. Do you have a program where all employees can participate in TPM?</b>          YES          Charleston’s TPM journey began by introduction and education of the entire plant. It was as if we were teaching our team to speak a new language – we felt it best to start young – begin at the beginning, with all employees. We used fun games, newsletters, promotional items, and contests to engage and involve all teammates. We incorporated TPM with new hire orientation / onboarding – and continue the OC-CHS evolution through participation and progression.</p> <p><b>2. Do you have a program allowing employees to be recognized their achievements?</b>          YES          Various means / methods are utilized to spotlight employee and team achievements. Some include: site newsletter, pride wall, corporate website communications, customized swag / promotional items, events / outings. Additionally, monetary recognition is available through attainment of TPM key metrics by virtue of our quarterly bonus program.</p> <p><b>3. Are top management involved in the audit/verification of completion of TPM pillar steps?</b>          YES          Charleston leadership (both individually and as a collective group) are participatory in TPM audit / verification of pillar steps. In addition, our shared site masterplan facilitates collaborative efforts and accountability.</p> <p><b>4. Are all pillar activity boards displayed and reviewed by top management?</b>          YES          Pillar activity board review is part of the Daily Management System utilized in Charleston. General review is conducted daily, with in-depth and one-on-one reviews on an established cadence based upon need / activity / status.</p>
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## 5.2 Serious Accident Index

The chart below illustrates Charleston’s Recordable Injury Rate since 2019. As you can see – we have maintained zero accidents for several years. TPM efforts greatly assist in ensuring we continue on our intended path.



## 2023 TPM Award - Achievement Sheet

Owens Corning						
Charleston Roofing (Components)						
TPM SLOGAN: CHS Connecting Through TPM						
SITE VISION STATEMENT: One Facility - One Team - One Commitment ...100% Accountable - 0% Excuses						
2019						
2023						
Category	Index (Calculation Formula)	Unit	Kick off/TPM Started (or last time awarded)	Actual Status 2022	TARGET 2023	ACTUAL 2023
S	Number of work-related accidents requiring days off work	Cases/ year	0	0	0	0
S	Number of work-related accidents not requiring days off work	Cases/ year	2	0	0	0
P	Productivity for main products	Parts/Operator hours	N/A	N/A	N/A	N/A
P	OEE (or Overall Plant Efficiency)	%	40.84	49.12	50	54.81
P	Availability	%	63.27	70.54	71.12	72.12
P	Performance Rate	%	68.18	71.89	72.48	77.45
P	Quality Products Rate	%	94.68	96.863	97	98.13
P	Number of breakdowns	Breakdowns/ year	N/A	81	76	48
P	MTBF Press	Hour	N/A	78	68	160
P	MTBF Rewind	Hour	N/A	186.6	134	283.6
P	MTTR Press	Minutes	N/A	36.7	40	21.2
P	MTTR Rewind	Minutes	N/A	40.7	36	34.8
Q	Number of customer complaints	Number/year	0	1	0	0
Q	In-line defect rate, scrap	%	5.32	3.137	3	1.87
Q	In-line defect rate, scrap and rework	%				
C	Cost index	Cost/Unit Cost/Kilogram	140.09	266.5	457.1	165.5
				Increase Due to Inflation and		
D	Production Lead time	Days	Corporate Owned			
D	Delivery performance	%	101.3	100.6	100.5	100.3
S	Safety index	Accidents per 1,000,000 operator hours	0	0	0	0
M	Number of Employee Suggestions	Number/year	3	15	24	87