

EMPIRE

EMS Annual Report

Fiscal Year 2017-2018



Printing with Purpose

EMPIRE

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Fiscal Year 2017-2018

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Printing with Purpose

EMPIRE

EMS Annual Report

Fiscal Year October 2017 to September 2018

Our Company Mission

At Empire, we are dedicated to being a cutting-edge print supplier. We create custom products that enrich our customers' brand and identity by providing a friendly, knowledgeable customer experience every time.

Our Company Vision

Empire is customer focused. We listen to both our internal and external customers and look to improve based upon their input. Through relentless pursuit of customer satisfaction, we work to grow our customer base and make our company strong. We develop our people by investing in education and training to empower them to make improvements to the products, services, processes and themselves. We concentrate on implementing sustainable production methods that are environmentally safe to protect our planet for future generations.

Our Core Values

Respect • Integrity • Responsibility •
Continual Improvement • Knowledge • Excellence

Empire EMS Annual Report_2016-2017.pdf

QMS | POLICIES | EMPIRE SUSTAINABILITY | EMPIRE EMS ANNUAL REPORTS

Printing with Purpose

Our Environmental Vision

(Sustainability Policy)

FOCUS

Empire's focus is providing our customers with products and services that produce sustainable results and business practices. Through our relentless pursuit of customer satisfaction, we will grow Empire's customer base and strengthen our company. We will strive to improve our process by listening to our customers, collaborating with our business partners and developing our people through education and training. Our employees will be empowered to continually make improvements to the process, their work environment and themselves. We will develop production methods that implement sustainable environmental, health and safety (EHS) practices into all aspects of our operations.

COMMIT

We commit to being compliant with all applicable EHS and labor regulations (federal and state). We will continue to implement programs and procedures in accordance with these requirements.

PLEDGE

We pledge to look for new opportunities and innovations that will help enhance and improve our sustainability program beyond regulatory compliance. We will strive to incorporate activities and procedures that will reduce our impact on the environment as well as improving the quality of health and wellness of the employees. We will measure our progress through regular audits and annual reviews.

STRIVE

Empire will strive to implement procedures to target prevention of activities, services or products that may cause harm to human health, safety, or the environment. These procedures will be designed to affect Empire and/ or the surrounding community.

COMMUNICATE

We will communicate our sustainability commitment to our employees, vendors, customers and community through educational training and marketing. We will encourage their input on meeting our goals and improving our procedures.



Executive Summary

(President Statement)

It has been 6 years and counting since employees established our Green Team, joined Green Tier and created the current framework for sustainability at Empire. The realization has sunk in that building a sustainable culture within Empire must always be a process of continuous improvement. We have made several false starts, learned from our mistakes and enjoyed many successes. However, it is a pivotal time for us to plan for the future, avoiding complacency and stagnation.

In order to make an impact on our industry we must promote sustainable technologies and practices which encourage transparency in our processes and products. Our 2018 National Sales Meeting (NSM) was committed to industry education and sharing of knowledge. We invited our outside sales reps, customers, competition, vendors and print professionals to tour our facilities to learn about our sustainable path to success. This sharing of information did not end with our 2018 NSM, but became a springboard for further collaborations with all of these partners in printing.

Strategic partnerships with Green Tier, Western's Sustainability Institute, SGIA, GPI and others will generate insights and, innovations that advance UV LED technology, promote lean business practices and foster a positive employee culture. Our challenge is finding the right balance between people, planet and profit, maintaining momentum, and focusing on our core values. Together we will elevate our industries to sustainable excellence and mutual prosperity.

Internal EMS Audit

(Continuous Improvement)

An internal audit was performed on May 10, 2018. Previous non-conformance issues have been addressed and resolved. Only minor non-conformances were found.

The List of Legal Requirements is a huge improvement to the EMS from the previous audit's findings in regards to creating a visual document, but it was discovered that some of the records are not being maintained in the location as indicated on the document. Documentation is not being followed in some areas of the company, including training records and procedures.

There were opportunities for improvement when reviewing the Aspects and Impacts sheet (GT_2.1 Aspect Recording sheet). Since members of the Green Committee have additional responsibilities within the company, it was recommended that impact resolutions and documentation be made into future objectives in a way that would not require significant time and expense but would still comply with our EMS.

It was also suggested that the Green Committee do a review of the stakeholders since there have been issues with communicating to some current members. This review would ensure Empire has the right people in place, especially regarding external stakeholders.



John Freismuth at Empire's National Sales Meeting

Accomplishments

(I Am Not Afraid Award)



Employees of Empire Screen Printing expressed their concern when Empire President, John Freismuth invited competitors to tour our facilities. As a champion of business transparency John addressed his employees' concerns, "They [our competitors] have screen presses, laminators and die presses too, so the only difference is our people. **I am not afraid.**"

John's confidence in his people, their collective knowledge and respective abilities keeps Empire at the forefront of the screen printing industry. The **people** are the drivers of change and prosperity at Empire.

On May 3, 2018 in Madison, Wisconsin, Empire Screen Printing was honored with a special recognition from the Wisconsin Family Business Awards. Judges were awed by Empire's relentless pursuit

of environmental sustainability and its generosity of sharing its UV LED technology with peers. This special award titled, *I Am Not Afraid* recognizes Empire's forthright transparency, innovative spirit and green initiatives pioneering print methods that reduce energy consumption and pollution. Empire is innovating and elevating their entire industry with UV LED technology.



Accepting the award (L-R): John Freismuth (President), Autum Jacobs (Vice-President), Amy Bettis (HR)



Accomplishments

(Inspiring Sustainability Award)



Empire Screen Printing was chosen as a winner of the "Inspiring Sustainability" award from the Sustainability Institute due to our innovative and sustainable advances in LED screen printing. This is the Institute's first year presenting the award. In addition to Empire, the Dahl Family YMCA Community Food Forest was also recognized.

According to the Institute, "Their inspiring action to invent and implement change within their industry has brought cleaner outcomes for the environment, safer practices for their employees and significant cost savings. It is also important to note that Empire chose not to patent this technology but to share their information and experience with competitors in hopes that more within their sector will adopt these sustainable practices. Empire is also a three-year MPower Champions program alum. Their continued commitment towards sustainability within their business and community makes them a perfect recipient for this year's Inspiring Sustainability Award."

The walking stick was presented to Jim and Cindy Brush, along with a group of Empire employees at the Western Technical College's Lunda Center on September 25th, 2018.



Creating Awareness

(National Sales Meeting)



Partners in Printing July 18-19, 2018

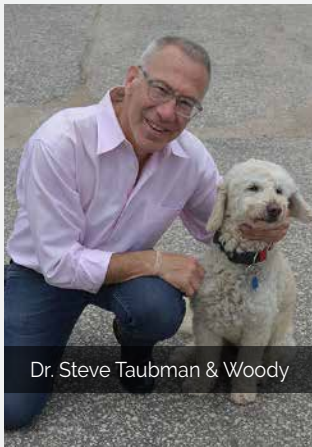
The 2018 Biennial National Sales Meeting “Partners in Printing” emphasized the need to work together, building strategic partnerships to help ensure a strong and sustainable industry for future generations.

Day 1 (July 18th)

Empire’s National Sales Meeting started with Sales training at the La Crosse Country Club. From stress relief to the economy to a brewing company’s history, each speaker brought a new perspective and encouraged attendee engagement.



Marci Kinter (training session: Printing)



Dr. Steve Taubman & Woody

Dr. Steve Taubman began with magic, comedy, and motivational talks. His highlighting point was reaching the best form of “you,” bringing out the best way to conduct business.

Marci Kinter of SGIA spoke about the state of the industry. She touched on the environment, safety, and developing the workplace. Each small step leads to a better industry.

William Strauss came to explain past economical trends,

the current state of our economy, and what the future might hold. He made his information easy to understand and left us with a bright outlook.

Richard Leinenkugel gave a vivid history of The Jacob Leinenkugel Brewing Company. His company was founded in 1867 by his ancestors, teaching the next generation about the business. Dick’s story showed how companies need to be flexible in order to face changes, such as making soft drinks during Prohibition.

The **2018 Empire BBQ and Late-Night Networking After-Party** was a jam-packed evening for NSM attendees and guests. The event was held at the La Crosse Country Club, and sponsored by Wisconsin favorite Leinenkugel’s. Attendees sampled four of Leinenkugel’s best offerings.



Richard Leinenkugel (training session: Sales)



Enjoying fun, music and conversation at the Wisconsin BBQ

Creating Awareness *(National Sales Meeting, continued)*

Dana Starkell strummed on guitar while Dr. Steve kept people on their toes with street magic. Our late-night concert was wonderful, featuring **Jared Blake** and his band. Excellent food, drinks, and entertainment—a great way to spend a summer evening in Wisconsin.

The purpose of this event was to bring together Empire's sales people, vendors, print partners, and other guests for an evening of networking, creating relationships which help strengthen the print industry.

Day 2 (July 19th)

The National Sales Meeting: Printing with Purpose 2018 Vendor Fair

was a whirlwind of an experience. Vendors decorated their tables, eager to speak with sales reps, other printers, customers, Empire employees, and special guests. It went from 9:00 am to 4:00 pm on Thursday, July 19. Speakers **Dan Black** and **Dana Starkell** hosted breakout sessions throughout the day, alongside one-hour plant tours.

This event allowed exhibitors to show environmentally-friendly products, as well as encouraging manufacturers and customers to expand into a more sustainable field of printing.

After the vendor fair, there was a Networking After-Party at the La Crosse Country Club, where **Jared Blake**, **Jared Weeks**, **Bigg Vinny**, and **Ira Dean** performed. It was a hilarious night of entertaining jokes and music.



Jared Blake: Late Night Networkers Afterparty



Vendor Fair



Breakout Sessions



Plant Tours



2017-2018 Objectives Results

Objective 1 Results

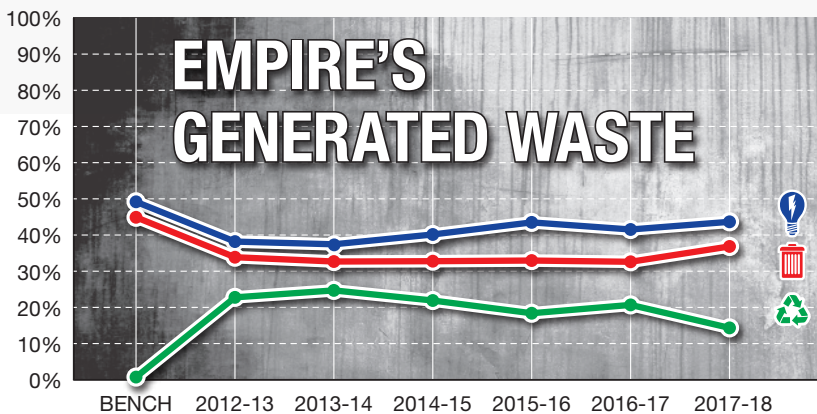
Reduce our annual landfill waste to 23.85% by 2022

Empire Screen identified 2012 as the baseline year for setting a waste reduction goal. In 2012, 47.69% of waste generated was sent to the landfill. By 2022, Empire Screen will reduce the waste sent to the landfill by 50%, with an annual reduction of 2.39%, resulting in no more than 23.85% of all the waste generated being sent to the landfill.

This was the first year we saw a decrease in recycling materials and an increase in landfill waste. Factors that attributed to this increase are:

- » More product produced - Empire's had a \$2 million increase in sales.
- » One of our most common materials - polycarbonate, was not recyclable for the majority of the year*.
*As of 08/01/2018, polycarbonate became approved material at D&M Recycling, requesting separation of polycarbonate with adhesive and without adhesive.
- » Our new Graphium press uses material and ink that are currently not recyclable. We were also in the early stages of Research and Development on this machine, which caused additional material waste.

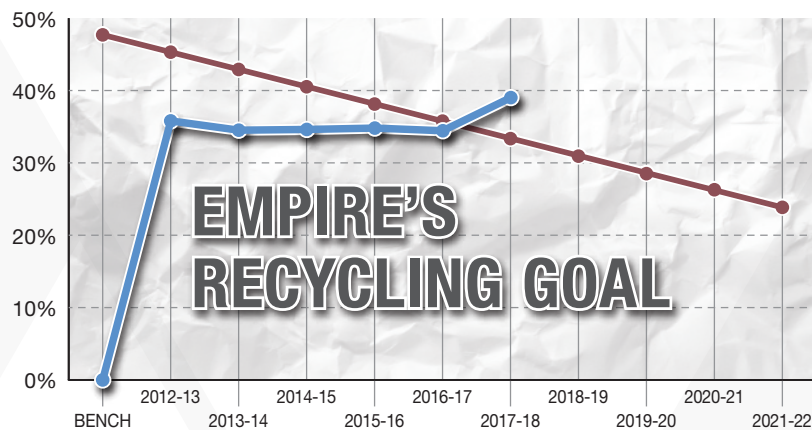
To resolve some of these issues, polycarbonate recycling labels will be reinstated and used on the bid sheet when a job is going through production and will be setting up separate recyclable bins indicating polycarbonate material with and without adhesive. We will also evaluate ways we can alleviate the landfill waste caused by the Graphium press.



FISCAL YEAR	Total Waste (tons)	Landfill %	Energy %	Recycle %	Cost Savings [‡]
2011-12*	369.64	47.69%	52.31%	0.00%	-----
2012-13	370.96	35.77%	40.44%	23.79%	\$6,618.85
2013-14	351.24	34.49%	39.63%	25.87%	\$6,814.93
2014-15	372.28	34.59%	42.56%	22.85%	\$6,379.95
2015-16	347.28	34.78%	46.17%	19.05%	\$4,961.76
2016-17	408.66	34.41%	44.05%	21.54%	\$4,250.70
2017-18	409.64	38.99%	46.34%	14.68%	\$4,404.52

* Recycling program was implemented in April 2012. This is the benchmark for our long-term goal.
‡ Recycling savings is based on current cost for waste disposal.

● = Landfill Waste ● = Waste to Energy ● = Recycled



YEAR	TARGET	ACTUAL
2011-12	47.69%	Benchmark
2012-13	45.30%	35.77%
2013-14	42.91%	34.49%
2014-15	40.52%	34.59%
2015-16	38.13%	34.78%
2016-17	35.74%	34.41%
2017-18	33.35%	38.99%
2018-19	30.96%	
2019-20	28.57%	
2020-21	26.18%	
2021-22	23.85%	

● = Target ● = Actual

2017-2018 Objectives Results

Objective 2A Results

Implement sustainable print methods with equipment using UV LED Technology

Achieve a 70% reduction in energy use on the new 12-color UV LED curing press vs. traditional printing methods.

This is the final stage of our 2015-16 objective. Print testing and a validation process will be done in the 2018-2019 fiscal year along with metric comparisons between the previous 6-color 38x50 UV mercury press and the new 12-color 25x38 UV LED press. As stated in the original objective, we aim to have a 70% reduction in energy use when comparing the two and increasing capacity by 25%.



6-COLOR PRESS BEFORE



12-COLOR PRESS AFTER

Previous to this project, high-dollar overlays were being printed on a 38x50 conquest 6-color press which was purchased new in 2006. The press was a full UV Mercury 40" arc length press with six bulbs at 400 watts an inch. This light would turn on and stay on for the whole day, and shift from 160 watts per inch to 400 watts per inch as the product ran through. There was also a 5 HP motor on the roof taking out 1,500 cfm high-static pressure out of the building at all times. This was not very efficient or environmentally friendly. A better solution needed to be found. Empire needed a 12-color press, but one that used LED curing technology. Since one didn't exist, we decided to build one instead.

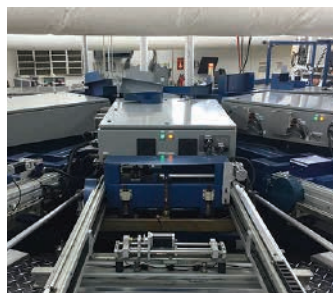
This project started in June 2016. Empire found a used machine that was at the end of its life, similar to the existing press. We refurbished the print heads and started working on the mechanics and electrical parts of the press. In December of 2016, we decommissioned the 38x50 conquest press and tore out the electronics, UV lights, and the main computer.

Over the course of 18 months, our internal engineers, machinists, electricians and industrial designers worked diligently to combine and convert these two 6-color UV Mercury curing screen printing presses into a new 12-color press using UV LED curing technology.

By 2018, these presses were combined into a 14-station, 12-color LED curing press with six-axis electronic registration per print head (72 axes total), a new table registration for 13 stations (includes a load and unload station), a clean machine to help eliminate



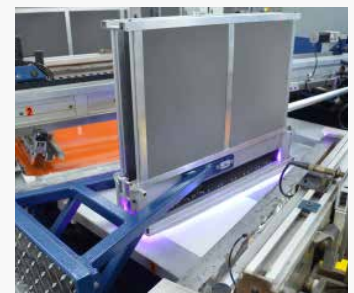
Ink Station BEFORE



Ink Station AFTER



UV Mercury Curing



LED curing

2017-2018 Objectives Results

84.32%

dirt, and a cat walk for ease of maintenance. It has 650 working input and output switches, two functioning 12" permanent touch screens and 2 mobile touch screens that can change registration at a moment's notice. It also has a state-of-the-art Main CPU and 13 Slave CPUs. In regards to physical space, this press takes up the same floor space as the 6-color press, so there was no need to add on to the building. This saved on energy and construction costs.

Before this project, we were using four 6-color presses (each accounting for 25% of the workload). By combining one of these presses with the 12-color, **we have increased our capabilities by 25%** (the equivalent of five 6-color presses), **while seeing an 84.32% energy savings** (see table 2.1). In addition, we do not need to reset the press for 2-pass jobs, as was previously required. This has greatly reduced the time needed between jobs, allowing for more production.

This was by far the most time-consuming and expensive project Empire has done to date, but the innovations and efficiency this press offers are both technical and environmentally sustainable. With the onset of the 12-color Legacy press, 100% of screen print production uses UV INK, with 75% of our presses using UV LED curing technology.

Table 2.1: POWER CONSUMPTION COMPARISON
(Based on 5,000 maximum production work hours/year)

Description	UV Mercury 6-Color Press	UV LED 12-Color Press
Voltage (3 phase)	480 Volts	480 Volts
Average RUN Amps (per phase)	93 Amps	16 Amps
Average IDLE Amps (per phase)	73 Amps	8.1 Amps
Kilowatts/Hour - RUN time (70%)	77.3 kWh	13.3 kWh
Kilowatts/Hour - IDLE time (30%)	60.3 kWh	6.7 kWh
TOTAL KILOWATTS/HOUR (average)	72.2 kWh	11.32 kWh
TOTAL KILOWATTS/5,000 work hours	361,000 kWh	56,600 kWh
Price per Kilowatt (average)	\$.073	\$.073
Total cost to run per year	\$26,353	\$4,132
CFM Exhaust for press (22.8 kWh)	1,500 CFM	0 CFM
Cost of CFM Exhaust (.073 average)	\$4,161	\$0.00
TOTAL COST/YR TO RUN	\$30,514	\$4,132

Objective 2B Results

Implement sustainable print methods with equipment using UV LED Technology

Baseline metrics for new Graphium press.

The Graphium is a hybrid digital/flexo printer that was purchased by Empire. This printer is equipped with LED curing technology in the four Flexo print stations and UV Mercury curing in the digital inks. Delivery of the Graphium will take place on February 19th, 2018. Assembly, installation, work flow and training will occur through the month of March 2018. The press should be ready for production April 2018.

Action Items:

- » Create the baseline for energy use
- » Add the Graphium press to our Aspects/Impacts report
- » Develop proper procedures for safety and storage, as well as procedures for maintenance and waste stream.

This was not met, and will be carried over into 2018-2019.

We originally purchased this press to use for polycarbonate materials. Once the press was brought to Empire and training was completed, our Research and Development department ran into numerous issues in both printing and cutting on the press. During this R&D stage, we were only running one shift so it was not fully operational.

Once we determined we could run vinyl and polyester, we started running more jobs, but due to the issues we have been experiencing, our 90-day grace period has not been established yet. A semi-rotary die and new laminating section is scheduled to be installed in January 2019, at which point our 90-day contract will begin, and metrics can be established.



2017-2018 Objectives Results

Objective 3A Results

Update/replace equipment as needed for better efficiency and/or per legal and other requirements

Lighting conversion

404 fluorescent T12 bulbs will be replaced with 404 LED T8 bulbs in the 1998 building edition by March 2018. This will result in a 30% reduction in bulb kWh usage.

This was completed in January 2018. T8 18-watt LED bulbs were used. Based on measuring the ballasts before and after, we accomplished a 41.64% decrease in kW usage (see table 3.1).



Table 3.1: ANNUAL kW usage COMPARISON
(Based on 6,000 maximum production work hours/year)

Description	T12 Fluorescent	T8 LED
Voltage (per ballast)	276 Volts	120.4 Volts
Amps (per 4 bulbs)	.524 Amps	.701 Amps
Watts per bulb (Voltage x Amps / 4)	36.156 W	21.10 W
Total watts for 404 bulbs	14,607.024 W	8,524.40 W
Total annual watts for 404 bulbs	87,642,144 W	51,146,400 W
TOTAL ANNUAL KILOWATTS/YR	87,642 kW	51,146 kW

Objective 3B Results

Update/replace equipment as needed for better efficiency and/or per legal and other requirements

Convert areas to motion sensor lighting

Empire built a new conference room in the fall of 2017. This room was equipped with 4-2x2 and 4-2x4 LED lighting fixtures. During the first few months of use, we noticed lights had been left on for an extended period of time and in many cases, over 24 hours. This is due to the inconvenient location of the switches. This room is only utilized for meetings and/or training sessions. Due to the minimal use, we will be installing motion sensors. With an average use of 6 hours per day, we will reduce our energy usage by 75%. This will be completed in conjunction with the lighting conversion.

Management canceled the Motion Sensors project in 2018 due to higher priority projects in production. The conference room is currently using LED lighting. It isn't used very often and the energy use was not significant. People were trained to turn the lights off upon leaving the room.

Objective 4 Results

Make improvements based on our 2016 external audit: Reevaluate and re-score Aspects & Impacts form

Based on our evaluation, we will re-score our Aspects & Impacts report and update our EMS to reflect the revisions. Completion will be March 2018. This is based on the EMS External Auditor's report (Clause 4.3.3, Objective, Targets and Programs) *Note: this is a continuation from the previous year's objective.

The reevaluation and re-scoring of our Aspects and Impacts form was completed in April 2018. Through our internal audit, we have determined that impact resolutions and documentation within individual departments/areas be made into future objectives in a way that would not require dramatic time and expense to Empire's resources, but would still comply with our EMS.

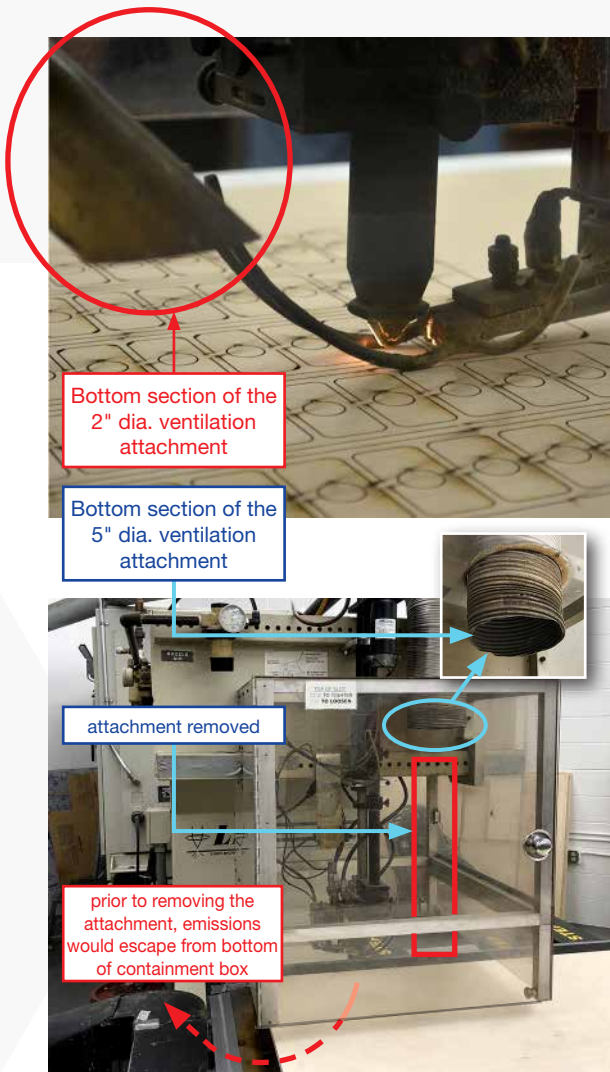
2017-2018 Objectives Results

Objective 5 Results

Reduce and/or contain air emissions in die-making department

On August 16, 2017, an occupational health consultation was provided by the WisCon Program. The evaluation determined that employees in our die-making department were exposed to formaldehyde 2.4-2.5 times above the NIOSH time weighted average exposure limit of .016 ppm during plywood laser activities. Controlled testing will be conducted to identify the source. Once identified, we will either create a contained area to reduce full-shift exposure or adjust equipment/ventilation to get levels within acceptable limits. This will be completed by September 2018.

An attachment to the local exhaust ventilation system was not strong or large enough to accommodate the amount of emission being released from the laser. This caused some of the emissions to be pushed out of the bottom of the containment area instead of through the exhaust. By removing that section, the opening was enlarged from a 2-inch to a 5-inch diameter area. In addition, the vacuum level was increased. In February 2018, WisCon re-tested the formaldehyde levels, which showed an improvement. Below are excerpts from letters and emails documenting the results.



02/13/18 Letter from Danica Harrier, Industrial Hygiene Consultant, Wisconsin State Laboratory of Hygiene

(2018-02-14_Empire Screen_Final Report_REVIEWED.pdf
QMS/Polices/Audits/WisCon Audit May 10 2017)

"The primary objective of the visit was to re-evaluate employee exposure to formaldehyde during laser activities performed in die making since the local exhaust ventilation system was modified to improve its effectiveness. The results indicate that all employee exposures to formaldehyde were below OSHA's regulatory limits and NIOSH's and the ACGIH's recommended limits."

"Employee full-shift exposures did NOT exceed legal or recommended thresholds. Exposures were approximately 81-94% of the NIOSH REL. Previously, exposures were 2.4-2.5X the NIOSH REL. This suggests that the company's actions were effective in reducing formaldehyde exposures."

02/16/18 Email from Danica Harrier, Industrial Hygiene Consultant, Wisconsin State Laboratory of Hygiene

(2018-02-16_Final Report - WisCon Formaldehyde Study.pdf
QMS/Polices/Audits/WisCon Audit May 10 2017)

"The overall formaldehyde levels measured on the employees and within the space (area sampler) were quite low, despite the two sources causing release during laser [activity], indicating that your company's controls are working."

"Your company has done an outstanding job in Die Making. Taking exposures from 2.4-2.5X the recommended limit to less than the recommended limit is a phenomenal accomplishment."

See next page for Formaldehyde Charts

2017-2018 Objectives: Formaldehyde Results

Original Results: 08/16/2017

Table 2-a. Formaldehyde and Other Aldehydes Full Shift Exposure Results					
Empire Screen Printing, Inc. N5206 Marco Road Onalaska, WI 54650 Case No. W117-0085 Visit No. 170927 Monitoring on August 16, 2017 by WisCon Occupational Health Consultant Danica Lee					

Employee & Location: Randy Smith & Die Making – Vicinity of Plywood Lasering
Sample Numbers: 0085-3 and 0085-5
Sampling Duration: 6:57AM-10:53AM and 10:53AM-2:19PM = 442 minutes

Analyzed for	Measured Exposure (ppm)	OSHA 8-hour TWA PEL (ppm)	PEL Over-exposure?	ACGIH 8-hour TWA TLV (ppm)	TLV Over-exposure?
2,5-Dimethylbenzaldehyde	<0.0027	NE	No	NE	No
Acetaldehyde	0.17	200	No	NE	No
Acetone	0.034	1000	No	250	No
Benzaldehyde	<0.0017	NE	No	NE	No
Butyraldehyde	<0.0049	NE	No	NE	No
Formaldehyde	0.038	0.75	No	0.1	No
Hexanaldehyde	0.0040	NE	No	NE	No
Isovaleraldehyde	<0.0042	NE	No	NE	No
Methyl Ethyl Ketone (MEK)	0.011	200	No	200	No
Propionaldehyde	<0.0062	NE	No	20	No
Valeraldehyde	<0.0042	NE	No	50	No
M&P-Toluene	<0.0030	NE	No	NE	No
o-Tolualdehyde	<0.0030	NE	No	NE	No

Notes: Samples were collected from employee breathing zones.
 During the monitored period, the employee worked in the vicinity of plywood lasering. Plywood lasering occurred for approximately ¼ of the shift. Formaldehyde, a component of the **plywood glue, was the contaminant "of interest."**
 The ACGIH recommended limits are referenced above. The NIOSH 8 hour TWA REL (Recommended Exposure Limit) for formaldehyde is 0.016ppm.
The "<" symbol indicates that, if the contaminant was present, it was present below the reporting limit. The actual exposure concentration was zero up to the reported concentration.
 Retain this exposure record in an accessible location and format for a minimum of 30 years, as required by 29 CFR 1910.1020. Employees in comparable positions with similar exposures are also entitled to access to this information. Exposure records are not medical records.

2017-10-09_W117-0085-1(FU)_2017-10-09_Empire-FU-Final-Rpt_Reviewed.pdf
 QMS/Policies/Audits/WisCon Audit May 10 2017

Table 2-b. Formaldehyde and Other Aldehydes Full Shift Exposure Results					
Empire Screen Printing, Inc. N5206 Marco Road Onalaska, WI 54650 Case No. W117-0085 Visit No. 170927 Monitoring on August 16, 2017 by WisCon Occupational Health Consultant Danica Lee					

Employee & Location: Steve Nelson & Die Making –Plywood Lasering
Sample Numbers: 0085-1, 0085-2 and 0085-6
Sampling Duration: 7:00AM-7:48AM, 7:48AM-8:03AM and 8:03AM-2:20PM = 440 minutes

Analyzed for	Measured Exposure (ppm)	OSHA 8-hour TWA PEL (ppm)	PEL Over-exposure?	ACGIH 8-hour TWA TLV (ppm)	TLV Over-exposure?
2,5-Dimethylbenzaldehyde	<0.0040	NE	No	NE	No
Acetaldehyde	0.17	200	No	NE	No
Acetone	0.034	1000	No	250	No
Benzaldehyde	<0.0026	NE	No	NE	No
Butyraldehyde	<0.0075	NE	No	NE	No
Formaldehyde	0.040	0.75	No	0.1	No
Hexanaldehyde	0.0068	NE	No	NE	No
Isovaleraldehyde	<0.0062	NE	No	NE	No
Methyl Ethyl Ketone (MEK)	0.014	200	No	200	No
Propionaldehyde	<0.0092	NE	No	20	No
Valeraldehyde	<0.0062	NE	No	50	No
M&P-Toluene	<0.0045	NE	No	NE	No
o-Tolualdehyde	<0.0045	NE	No	NE	No

Notes: Samples were collected from employee breathing zones.
 During the monitored period, the employee performed plywood lasering activities for ¼ of the shift. Formaldehyde, a component of the **plywood glue, was the contaminant "of interest."**
 The ACGIH recommended limits are referenced above. The NIOSH 8hour TWA REL (Recommended Exposure Limit) for formaldehyde is 0.016ppm.
The "<" symbol indicates that, if the contaminant was present, it was present below the reporting limit. The actual exposure concentration was zero up to the reported concentration.
 Retain this exposure record in an accessible location and format for a minimum of 30 years, as required by 29 CFR 1910.1020. Employees in comparable positions with similar exposures are also entitled to access to this information. Exposure records are not medical records.

2017-10-09_W117-0085-1(FU)_2017-10-09_Empire-FU-Final-Rpt_Reviewed.pdf
 QMS/Policies/Audits/WisCon Audit May 10 2017

Results after modifications: 01/04/2018

Table 1-b. Formaldehyde and Other Aldehydes Full Shift Exposure Results					
Empire Screen Printing, Inc. N5206 Marco Road Onalaska, WI 54650 Case No. W117-0085-2 Visit No. 190862 Monitoring on January 4, 2018 by WisCon Occupational Health Consultant Danica Harrier					

Employee & Location: Randy Smith & Die Making – Vicinity of Plywood Lasering
Sample Numbers: 0085-6
Sampling Duration: 6:30AM-2:26PM = 476 minutes

Analyzed for	Measured Exposure (ppm)	OSHA 8-hour TWA PEL (ppm)	PEL Over-exposure?	ACGIH 8-hour TWA TLV (ppm)	TLV Over-exposure?
2,5-Dimethylbenzaldehyde	<0.0012	NE	No	NE	No
Acetaldehyde	0.10	200	No	NE	No
Acetone	0.018	1000	No	250	No
Benzaldehyde	<0.00077	NE	No	NE	No
Butyraldehyde	<0.0023	NE	No	NE	No
Formaldehyde	0.013	0.75	No	0.1	No
Hexanaldehyde	<0.0016	NE	No	NE	No
Isovaleraldehyde	<0.0019	NE	No	NE	No
Methyl Ethyl Ketone (MEK)	0.0026	200	No	200	No
Propionaldehyde	<0.0028	NE	No	20	No
Valeraldehyde	<0.0019	NE	No	50	No
M&P-Toluene	<0.0014	NE	No	NE	No
o-Tolualdehyde	<0.0014	NE	No	NE	No

Notes: Samples were collected from employee breathing zones.
 During the monitored period, the employee worked in the vicinity of plywood lasering. Plywood lasering occurred for approximately ¼ of the shift. Formaldehyde, a component of the **plywood glue, was the contaminant "of interest."**
 The ACGIH recommended limits are referenced above. The NIOSH 8 hour TWA REL (Recommended Exposure Limit) for formaldehyde is 0.016ppm.
The "<" symbol indicates that, if the contaminant was present, it was present below the reporting limit. The actual exposure concentration was zero up to the reported concentration.
 Retain this exposure record in an accessible location and format for a minimum of 30 years, as required by 29 CFR 1910.1020. Employees in comparable positions with similar exposures are also entitled to access to this information. Exposure records are not medical records.

2018-02-14_Empire Screen_Final Report_REVIEWED.pdf
 QMS/Policies/Audits/WisCon Audit May 10 2017

Table 2. Formaldehyde and Other Aldehydes SHORT TERM Exposure Results					
Empire Screen Printing, Inc. N5206 Marco Road Onalaska, WI 54650 Case No. W117-0085-2 Visit No. 190862 Monitoring on January 4, 2018 by WisCon Occupational Health Consultant Danica Harrier					

Employee & Location: Steve Nelson & Die Making –Plywood Lasering, 10 jobs
Sample Number: 0085-3
Sampling Duration: 10:40AM-10:55AM = 15 minutes

Analyzed for	Measured Exposure (ppm)	OSHA 8-hour TWA PEL (ppm)	PEL Over-exposure?	ACGIH 8-hour TWA TLV (ppm)	TLV Over-exposure?
2,5-Dimethylbenzaldehyde	<0.039	NE	No	NE	No
Acetaldehyde	0.10	NE	No	25	No
Acetone	<0.090	NE	No	500	No
Benzaldehyde	<0.025	NE	No	NE	No
Butyraldehyde	<0.073	NE	No	NE	No
Formaldehyde	<0.087	NE	No	0.3	No
Hexanaldehyde	<0.052	NE	No	NE	No
Isovaleraldehyde	<0.061	NE	No	NE	No
Methyl Ethyl Ketone (MEK)	<0.073	NE	No	300	No
Propionaldehyde	<0.090	NE	No	NE	No
Valeraldehyde	<0.061	NE	No	NE	No
M&P-Toluene	<0.044	NE	No	NE	No
o-Tolualdehyde	<0.044	NE	No	NE	No

Notes: Samples were collected from employee breathing zones.
 During the monitored period, the employee performed plywood lasering activities. Formaldehyde was the **contaminant "of interest."** Ten jobs were processed during the monitored event.
 The ACGIH recommended limits are listed above. The NIOSH recommended Ceiling for formaldehyde is 0.1ppm.
The "<" symbol indicates that, if the contaminant was present, it was present below the reporting limit. The actual exposure concentration was zero up to the reported concentration.
 Retain this exposure record in an accessible location and format for a minimum of 30 years, as required by 29 CFR 1910.1020. Employees in comparable positions with similar exposures are also entitled to access to this information. Exposure records are not medical records.

2018-02-14_Empire Screen_Final Report_REVIEWED.pdf
 QMS/Policies/Audits/WisCon Audit May 10 2017

2017-2018 Environmental Performance

Fiscal Year
10/2017 – 09/2018

Empire Screen Printing is located in Onalaska, Wisconsin, on a spacious 140.58 acre property. The commercial area covers 12.37 acres with a large 150,000 square foot facility, employing 274 full-time and 31 part-time people.



demographics

Total Sales.....	\$26,400,885
Savings from material/process improvements.....	\$500,000
Profit of.....	\$951,346
Total purchases.....	\$25,545,934
Total in-state purchases (approx.)	<i>Info not available</i>
% of purchases from Green Tier companies	<i>Info not available</i>



waste

Hazardous waste (still bottoms)	7 drums (3,500 lb/yr)
Increase from previous year	11.11%
Non-hazardous waste (ink).....	20 drums (9,174 lb/yr)
Reduction from previous year	0.90%
Material recycled/reused.....	60.12 tons/yr
Material sent for energy conversion.....	189.82 tons/yr
Total amount diverted from landfill.....	60.12% of product



energy

Total Electricity used	3,600,080 kWh
Total Natural Gas used.....	66,049 Therms
Renewable energy	N/A



air

Total air emissions from 01/2017-01/2018	17,702 lbs/yr
Increase from previous year	23.95%
Ozone-depleting substances (refrigerant added every fiscal year).....	100 lbs/yr
Reduction from previous year	00.00%
Greenhouse gas emissions	N/A

Air emissions are recorded annually



water

Empire has 2 water wells, which are not regulated by the city. The amount of recycled/reused and pollutants discharged is not recorded.



transportation

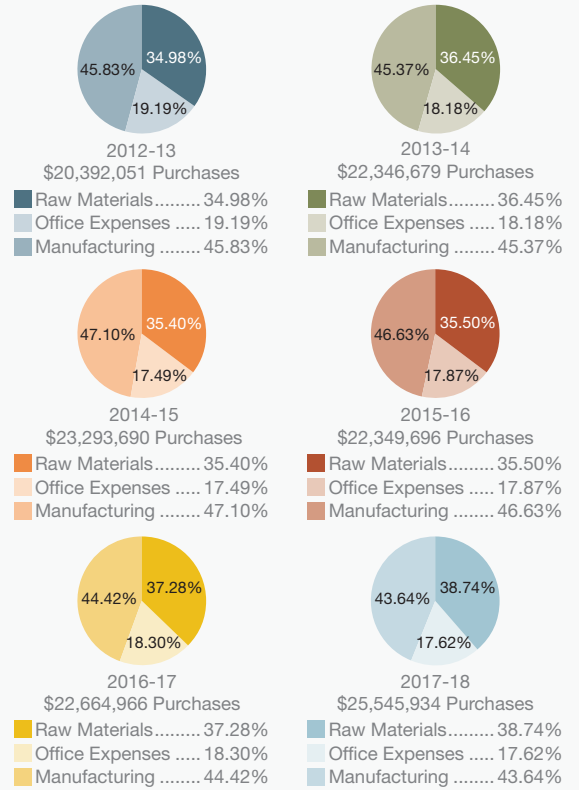
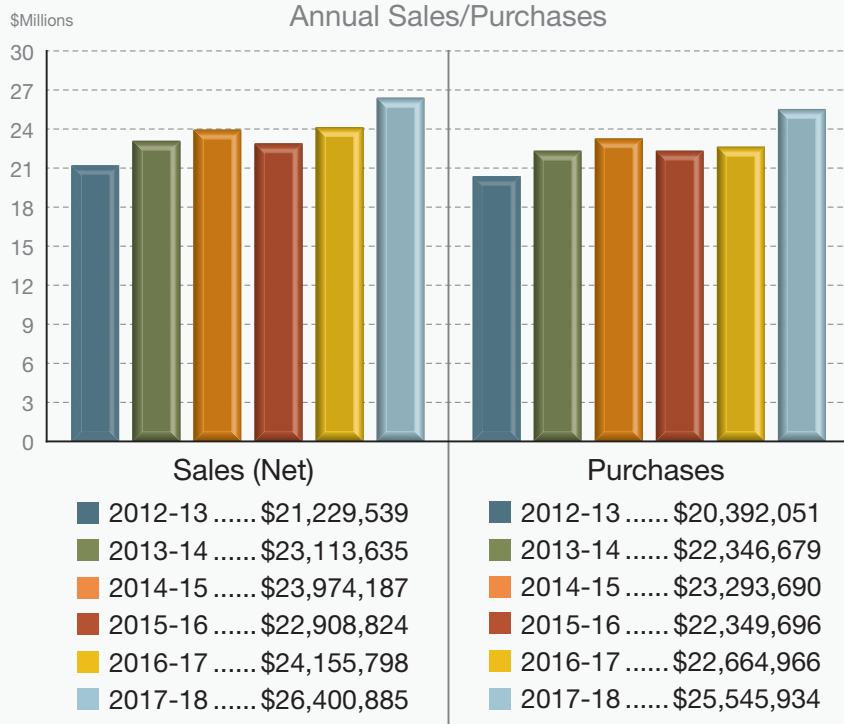
Hybrid vehicles.....	2
Gas vehicles (includes 1 tractor for mowing)	3
Diesel tractor used for mowing/snow removal.....	1
Vehicle maintenance expenses	\$3,500

(Vehicle expense includes gas, oil, tires & misc. maintenance - not itemized)



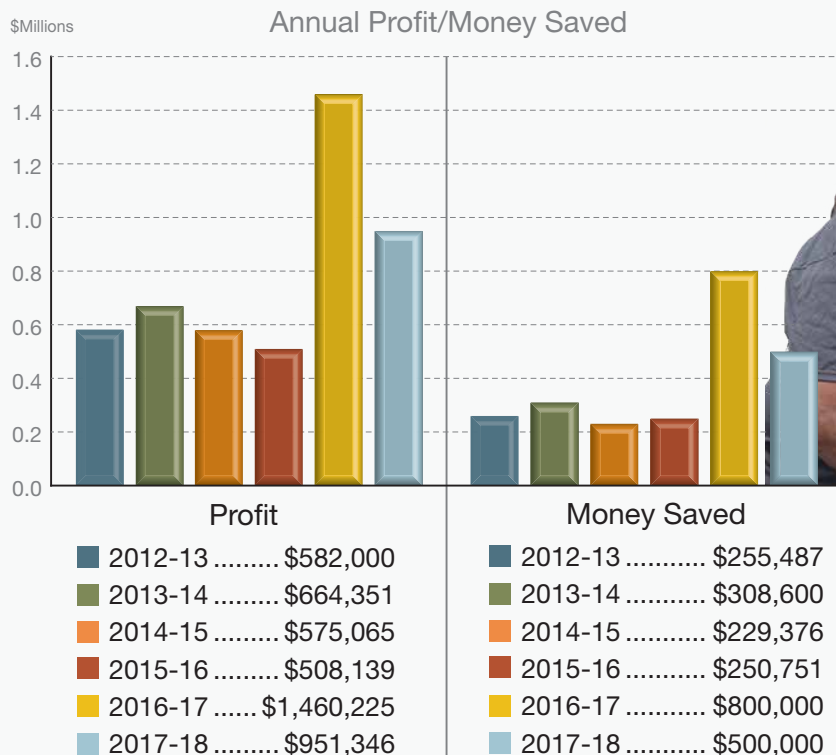
demographics

Purchase Breakdowns

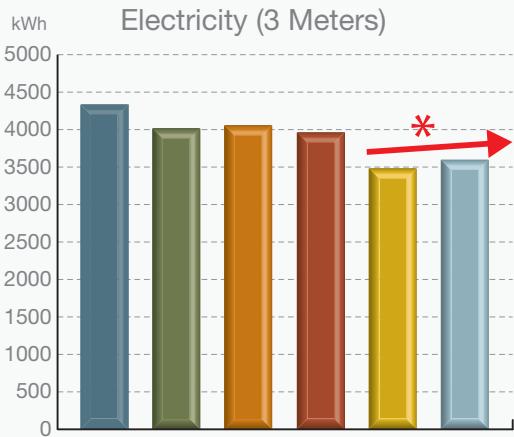


"The difference is our people."

-John Freismuth

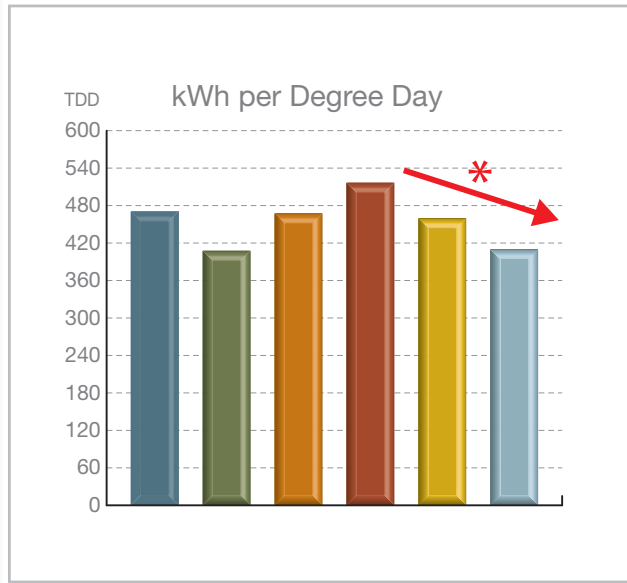


*Money saved due to material or process improvements



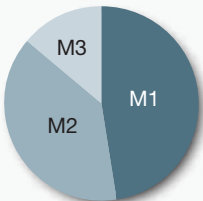
Electricity (3 meters)

2012-13	4,338,160 kWh
2013-14	4,020,480 kWh
2014-15	4,060,680 kWh
2015-16	3,965,344 kWh
2016-17	3,485,640 kWh
2017-18	3,600,080 kWh



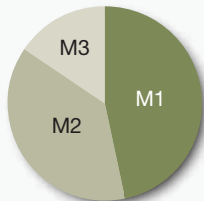
* Although actual electricity went up slightly, the kWh usage after adjusting for total degree days shows a 10.87% decrease.

kWh Per Meters



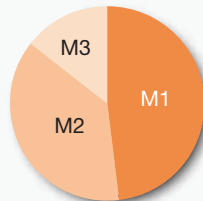
2012-13
kWh per Meter

M1	2,056,080 kWh
M2	1,584,080 kWh
M3	698,000 kWh



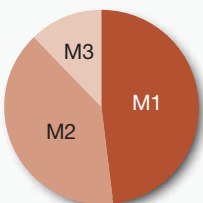
2013-14
kWh per Meter

M1	1,876,200 kWh
M2	1,522,920 kWh
M3	621,360 kWh



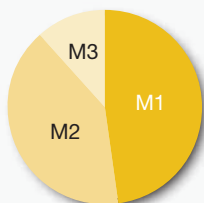
2014-15
kWh per Meter

M1	1,968,960 kWh
M2	1,530,960 kWh
M3	583,760 kWh



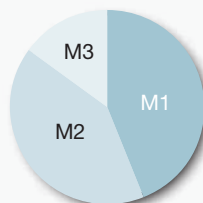
2015-16
kWh per Meter

M1	1,927,320 kWh
M2	*1,551,360 kWh
M3	486,664 kWh



2016-17
kWh per Meter

M1	1,671,000 kWh
M2	1,416,240 kWh
M3	398,400 kWh



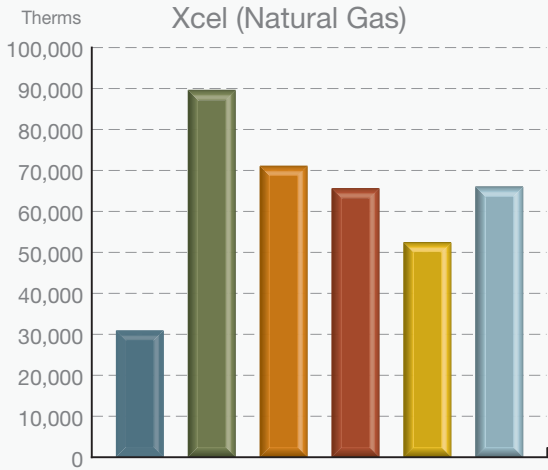
2017-18
kWh per Meter

M1	1,583,280 kWh
M2	1,479,520 kWh
M3	537,280 kWh

Since 2012, there has been a **27% increase** in the number of presses* added to production, with an overall **2% decrease** in electricity usage**

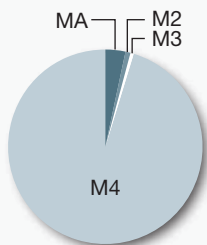
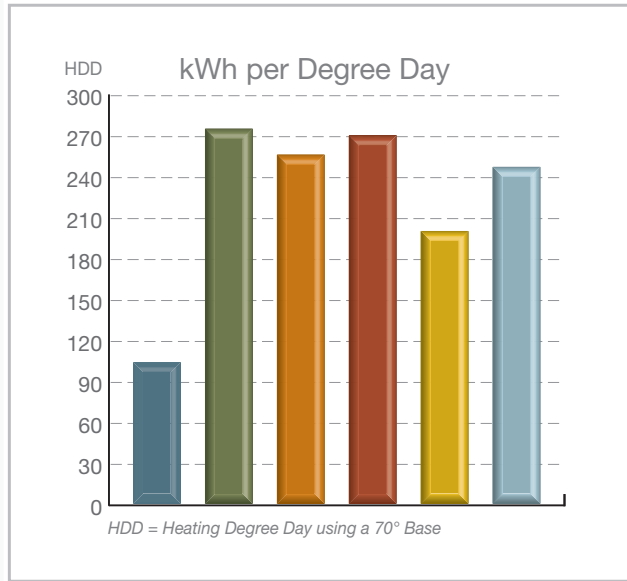
* Percentage reflects printing presses only and does not include support equipment.

** Overall average since 2012.



Natural Gas (4 meters)

- 2012-13 30,988 Therms
- 2013-14 89,662 Therms
- 2014-15 71,123 Therms
- 2015-16 65,705 Therms
- 2016-17 52,475 Therms
- 2017-18 66,049 Therms

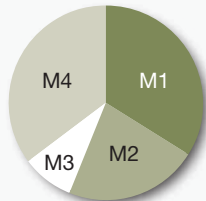


2012-13

Therms per Meter

- MA 1,057 Therms
- M2 243 Therms
- M3 205 Therms
- M4 29,483 Therms

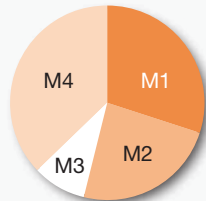
Therms Per Meters



2013-14

Therms per Meter

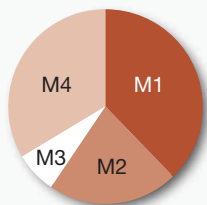
- M1 30,621 Therms
- M2 19,874 Therms
- M3 7,578 Therms
- M4 31,589 Therms



2014-15

Therms per Meter

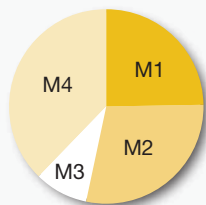
- M1 21,355 Therms
- M2 17,030 Therms
- M3 6,430 Therms
- M4 26,308 Therms



2015-16

Therms per Meter

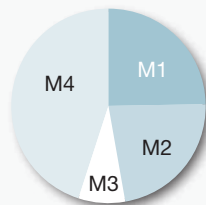
- M1 24,951 Therms
- M2 14,162 Therms
- M3 4,643 Therms
- M4 21,949 Therms



2016-17

Therms per Meter

- M1 13,019 Therms
- M2 14,985 Therms
- M3 4,713 Therms
- M4 19,758 Therms



2017-18

Therms per Meter

- M1 16,408 Therms
- M2 14,934 Therms
- M3 4,993 Therms
- M4 29,714 Therms

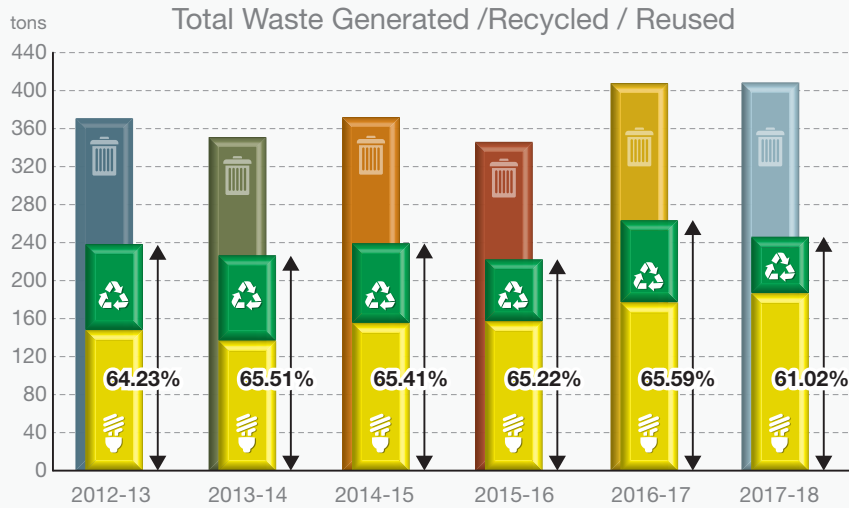
Since 2014, there has been a **27% increase** in the number of presses* added to production, with an overall **1% decrease** in natural gas usage**

* Percentage reflects printing presses only and does not include support equipment.

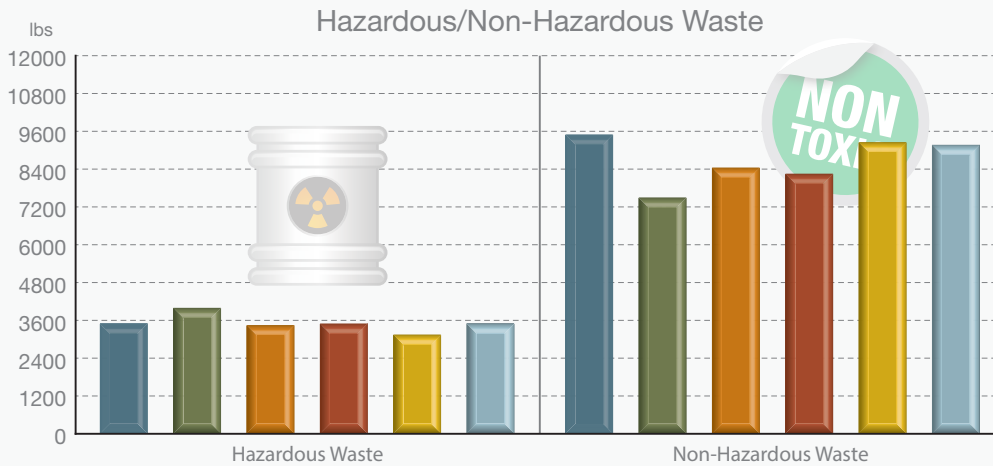
** Due to a meter malfunction from 2012-2013, overall average is since 2014.



waste



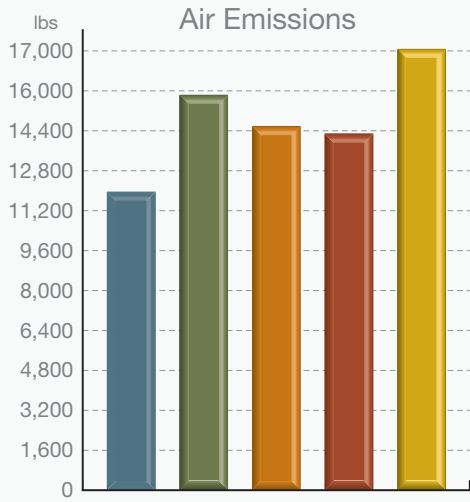
Total Tons	Sent for Energy	Recycled/Reused	% Diverted from Landfill
2012-13370.96 tons	2012-13 150.03 tons	2012-1388.24 tons	2012-13 64.23%
2013-14351.21 tons	2013-14 139.21 tons	2013-1490.84 tons	2013-14 65.51%
2014-15372.28 tons	2014-15 158.45 tons	2014-1585.06 tons	2014-15 65.41%
2015-16347.28 tons	2015-16 160.35 tons	2015-1666.16 tons	2015-16 65.22%
2016-17408.66 tons	2016-17 180.02 tons	2016-1788.03 tons	2016-17 65.59%
2017-18409.64 tons	2017-18 189.82 tons	2017-1860.12 tons	2017-18 61.02%



2012-13 Hazardous Waste 3,500 lbs (7 Drums) Non-Hazardous 9,500 lbs (19 Drums)	2015-16 Hazardous Waste 3,500 lbs (7 Drums) Non-Hazardous 8,257 lbs (18 Drums)
2013-14 Hazardous Waste 4,000 lbs (8 Drums) Non-Hazardous 7,500 lbs (15 Drums)	2016-17 Hazardous Waste 3,150 lbs (6 Drums) Non-Hazardous 9,257 lbs (20.18 Drums)
2014-15 Hazardous Waste 3,450 lbs (7 Drums) Non-Hazardous 8,450 lbs (17 Drums)	2017-18 Hazardous Waste 3,500 lbs (7 Drums) Non-Hazardous 9,174 lbs (20 Drums)

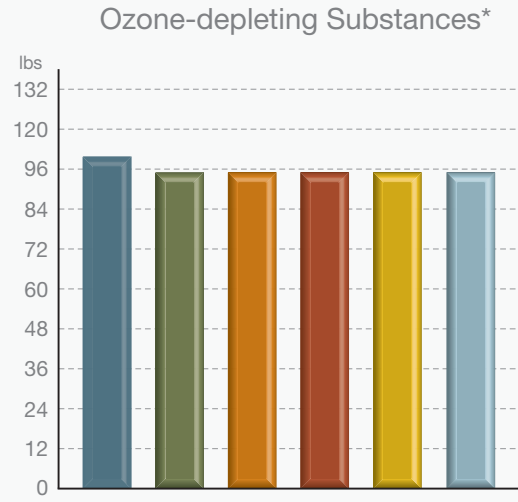


air



Air Emissions are recorded annually

■ 01/2012-01/2013.....	11,965 lbs/yr
■ 01/2013-01/2014.....	5,847 lbs/yr
■ 01/2014-01/2015.....	14,595 lbs/yr
■ 01/2015-01/2016.....	14,282 lbs/yr
■ 01/2016-01/2017.....	17,702 lbs/yr



**Amount added*

■ 2012-13	105 lbs/yr
■ 2013-14	100 lbs/yr
■ 2014-15	100 lbs/yr
■ 2015-16	100 lbs/yr
■ 2016-17	100 lbs/yr
■ 2017-18	100 lbs/yr



transportation/equipment

In an effort to reduce our carbon footprint, Empire uses hybrid automobiles for outside sales and other transportation needs. The maintenance expenses for the year were \$3,500.** Information on our transportation and vehicle equipment is as follows:

- 2 Prius hybrid automobiles (yr. 2000)used for outside sales/transportation
- 2 Chevrolet Silverado trucks (yr. 1998, 2000)used primarily for maintenance needs
- 1 John Deere 4310 diesel tractorused for mowing and snow removal
- 1 John Deere 425 Rider.....used for mowing

** The maintenance expense includes gas, oil, tires and miscellaneous maintenance. Expenses are not itemized.



2018-2019 Environmental Improvement Goals

Fiscal Year
10/2018 – 09/2019

Our objectives and targets for the upcoming 2018-2019 year were established during our annual management review.

Objective 1

Reduce our annual landfill waste to 23.85% by 2022

Empire Screen identified 2012 as the baseline year for setting a waste reduction goal. In 2012, 47.69% of waste generated was sent to the landfill. By 2022, Empire Screen will reduce the waste sent to the landfill by 50%, with an annual reduction of 2.39%, resulting in no more than 23.85% of all the waste generated being sent to the landfill.

Action Items:

- » Graphium Ink Boxes are currently going to the landfill. Procedure will be changed - the ink bags will be pulled out of its cardboard box. The cardboard will be sent to recycling, with just the bag going to the landfill.
- » Since re-implementing polycarbonate recycling, we will monitor the usage and disposability of polycarbonate material, to make sure employees are following procedure.

Objective 2

Implement sustainable print methods with equipment using UV LED technology

Develop a Roll-to-Roll screen print unit using UV LED technology (press design phase only).

Design phase of the program and prototype of the touch screen technology and motion systems has been completed. Our objective for 2018-19 will be design phase of the actual press.

**Note: This was originally an objective in 2015-2016, but management decided to put this on hold until the completion of the 12-color press.*

Baseline Metrics for new Graphium Press

The Graphium is a hybrid digital/flexo printer that was purchased by Empire. This printer is equipped with LED curing technology in the four Flexo print stations and UV Mercury curing in the digital inks.

**Note: This is a continuation from the previous year's objective.*

Action Items:

- » Create baseline for energy use.
- » Add the Graphium press to our Aspects/Impacts report.
- » Develop proper procedures for safety and storage, as well as procedures for maintenance and waste stream.

Objective 3

Update/replace equipment as needed for better efficiency and/or per legal and other requirements

Lighting Conversion

Empire Screen will be converting T8 fluorescent bulbs to **T8 LED bulbs** (15 watt or 18 watt bulbs will be installed) in the following departments/areas:

- Art
- Customer Service
- Digital
- Doming
- Flexo
- Graphium
- Lunchrooms (New & Old)
- LVS (Large Value Stream)
- Machine Shop
- Polycarbonate storage room
- Stock Cutting
- SVS (Small Value Stream)

This conversion will yield a 20-35% decrease in watt usage and is set to be complete by Sept. 30th, 2019.

2018-2019 Environmental Improvement Goals

Fiscal Year
10/2018 – 09/2019

Our objectives and targets for the upcoming 2018-2019 year were established during our annual management review.

Objective 4

Re-establish External Stakeholders

EMS Section 7.0 (Communication), Line 6:

"Stakeholders meetings will be held annually, either onsite or through a webinar. Updates will be given to both internal and external stakeholders at that time."

During our internal audit, it was suggested that the Green Committee do a review of the stakeholders due to issues with communicating and one member moving out of the area. We will re-establish our external stakeholders, ensuring Empire has the right people in place. This review will take place by April, 2019 with a stakeholders meeting scheduled by the end of the fiscal year.

Objective 5

Make improvements based on our 2018 internal audit: Reevaluate and rate the aspects and impact resolutions based on the new scoring system, as well as updating all documentation. This will be done within individual departments/areas and be completed by end of 2020 fiscal year.

EMS Section 2.0 (Identifying Environmental Aspects and Impacts), Line 3:

"A list of Environmental Aspects and Impacts (Cause & Effects) will be developed and recorded on an Environmental Aspects Recording Sheet (Form GT_2.1). The list will be sorted by procedures and/or departments. When making the list, address issues for normal as well as abnormal and emergency conditions."

EMS Section 2.0 (Identifying Environmental Aspects and Impacts), Line 4:

"The Green Committee (with input from supervisors) will rate each Environmental Impact using the criteria found at the end of this procedure and on Form GT_2.1 (Environmental Aspects Recording Sheet)."

Our previous year's objective of re-scoring our Aspects and Impacts sheet was completed in 2018.

We will now proceed to reevaluate and rate the aspects and impact resolutions. We initially designed our electronic Aspect/Impact sheet to include links to documents and procedures that directly relate to our EMS requirements. This provides a single document that employees can use to locate EMS documentation.

Empire does not have a full-time Green Committee - it is made up of employees who have additional responsibilities. Because of this, we realized how difficult it was to take on a large project, such as updating procedures and documentation throughout the entire company. We are now seeing this as an opportunity to improve and to have a more meaningful outcome that will better identify areas that need to be looked at closer for setting objectives and goals.

In order to do this correctly and efficiently, we will create a 2-year timeline, working with individual departmental supervisors directly. Procedures will be created and implemented to update the Aspects and Impacts sheet when new equipment has been added or removed. Supervisors will be trained to these new procedures.



Printing with Purpose

Sustainable development is the masterful balance of meeting our own needs without jeopardizing future generations' ability to do the same.

-unknown

