



PROTECTING YOUR EQUIPMENT FOR LONG-TERM SUCCESS

Tips for Building a Preventative
Maintenance Plan that Fits Your Facility

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ELIMINATE THE UNKNOWNNS

A Foreword By Terry Hessom

In this economy, it's more important than ever to ensure that your equipment stays running at peak performance.

Equipment problems can cause major production delays. Fabricators across the country experience lengthy waiting times for new machinery or overseas technicians. The longer your machine is out of production, the more time and money you lose.

These realities show why it is critical to implement preventative maintenance plans. With a solid strategy in place, your facility can ensure minimal downtime and optimal equipment life.

Making a plan is worth the return. In this book, we walk through the concept of preventative maintenance, benefits for your business and how to build a personalized plan for your needs. Fabricators who learn from this expertise will be empowered to secure long-term success.

Sincerely,

**Terry Hessom, Vice President of Operations
HHH Equipment Resources**



Terry Hessom possesses over 32 years of experience in the glass fabrication industry, including: facility operations management, project engineering, strategic planning and new machinery product and process expansion.





WHAT IS PREVENTATIVE MAINTENANCE?

Protecting your equipment is essential to effective business. A preventative maintenance plan can help you stay ahead of time-consuming repairs, downtime or injuries that can derail productivity. Keeping your equipment in good shape will improve your bottom line.

Regularly scheduled service checks, including for fluid and oil levels, should be part of your plan. Preventative maintenance includes other steps to further futureproof your equipment.

Regular service checks should include:



Safety protocols



Lighting inspections



Machine operations



Facility conditions



Fluid and oil levels

GO BEYOND REGULAR SERVICE CHECKS

1. Equipment selection

Equipment selection is a key part of the preventative maintenance process. Make sure you purchase equipment that will most effectively accomplish your end-use goal. Equipment that can handle your tasks will fend off unnecessary wear and strain over time.

2. Operator training

Once you have equipment in place, it is integral that your team receives proper operator and maintenance training. This will reduce equipment repair needs and team injuries.



TIP: Replace or repair machines at the first sign of problems to prevent further damage.

3. Compatible tooling and accessories

Your equipment will need compatible tooling and accessories. Make sure you have the correct complementary items in place to ensure your machine runs at its maximum effectiveness. Plus, the right pieces can prevent machine damage.

4. Parts and repairs

If you do notice fatigue on your machines, you should act fast for the best return. Replacing parts and completing repairs at the first sign of problems prevents further equipment damage. Plus, repairs left to worsen can become more costly and time-consuming.



5. Additional equipment

Consider adding equipment to your team's lineup. As production needs continue to grow, more machines can prevent over-use and wearing out of existing appliances.



REDUCE UNPLANNED DOWNTIME & LIABILITY

Worn or broken machines can lose you time and money. A strategic plan to reduce downtime from these problems will pay off in the long run.

Direct costs associated with unplanned downtime include **equipment** and **labor**. Indirect costs include **maintenance**, **lost productivity** and **reallocated management time**.

THE COST OF DOWNTIME

DIRECT COSTS	INDIRECT COSTS
Equipment	Maintenance
Labor	Lost Productivity
	Reallocated Management Time

Your production supervisor and quality control manager are impacted by the inefficiency. Not only that, but your customers lose trust during product delays. That can have hidden costs that affect your bottom line.

KEY TAKEAWAY 

The true cost of downtime adds up quickly and is much higher than you may realize.

THE TRUE COST OF DOWNTIME

How much does downtime really cost? If your tempering machine is down, you're losing \$32,648 per shift. A cutting machine would lose \$24,755 per shift. You'll lose money if your IG, fabrication or laminated machines are down, too. Take steps to prevent these losses.

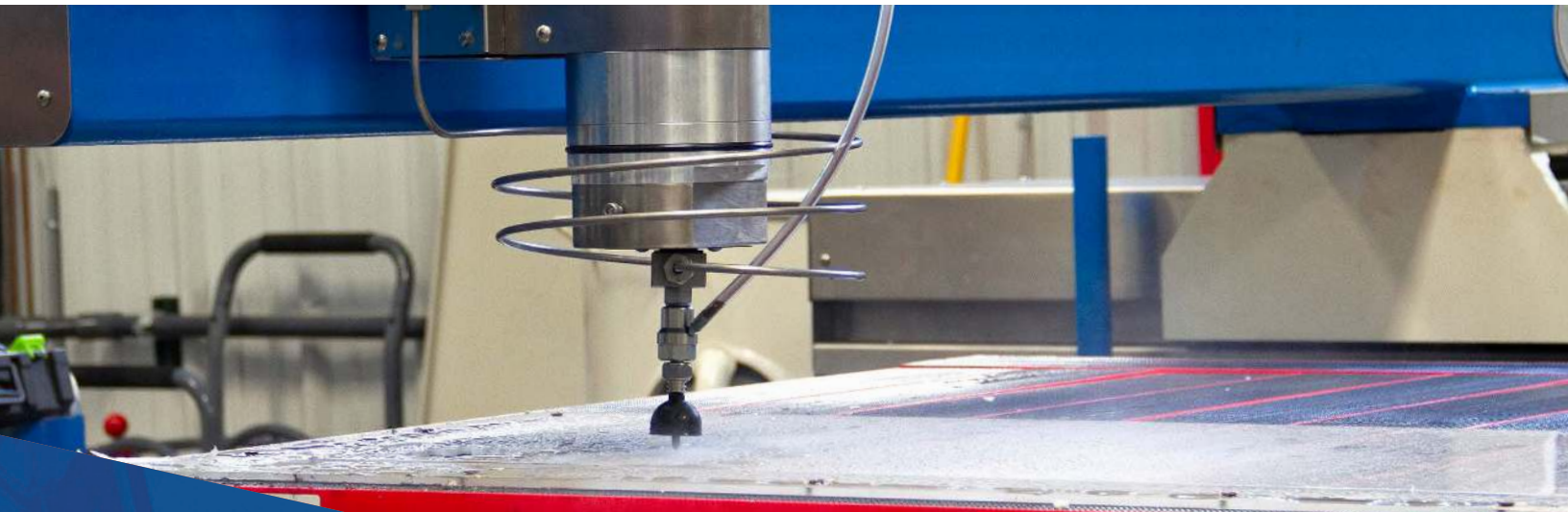
$$\begin{array}{r} \$4,081 \text{ PER HOUR OF FURNACE DOWNTIME} \\ \times 8 \text{ HOURS} \\ \hline \$32,648 \text{ LOST PER SHIFT} \end{array}$$

SAMPLE DOWNTIME COSTS BY EQUIPMENT

EQUIPMENT TYPE	PER HOUR	PER SHIFT
Tempering	\$4,081	\$32,648
Cutting	\$3,094	\$24,755
IG	\$1,294	\$10,354
Fabrication	\$1,879	\$15,032
Laminated	\$150	\$1,198

KEY TAKEAWAY 

Eliminating just one shift of furnace downtime more than pays for your annual maintenance plan.



AVOID RISKS WITH PREVENTATIVE MAINTENANCE PLANS

Your facility and investments could be susceptible to many risks without preventative maintenance. Typically, fabricators spend about \$5 million to completely upgrade their facilities' equipment and technology. Protecting those assets from potential risks is vital to success.

Preventative maintenance can ward off glass defects or poor quality from worn-down machines. That increases customer trust and satisfaction, ultimately improving your bottom line.



\$5 MILLION

The cost for fabricators to completely upgrade their facilities with new equipment and technology.

Plus, defective machines can foster unsafe working conditions. A dangerous environment can lead to worker injuries, downtime and liabilities.

Unforeseen equipment expenses can be another obstacle without a preventative maintenance plan. Rather than being prepared for upcoming costs, you may be blindsided without ample ability to repair or replace machines as needed. The costs may be outside of your approved budget. It's best practice to prepare in advance rather than reacting to issues as they arise.



KEY TAKEAWAY

Preventative maintenance reduces your risk of: glass defects and poor quality, unsafe working conditions and unplanned equipment expenses

FUTUREPROOFING YOUR EQUIPMENT TO PREPARE FOR SUPPLY CHAIN UNKNOWNNS

Factors like coronavirus, staffing shortages and the economy continue to impact business operations. Preventative maintenance plans can make sure your equipment meets the growing demand for flat glass. The glass industry is especially seeing an uptick in needs for residential and commercial building projects.

Delays in production time cause customer frustration and construction delays. Futureproofing equipment against unknowns can avert those problems.¹



Delays in production

=

Customer frustration



Plus, it's important to remember that travel restrictions during Coronavirus surges can make it difficult to get maintenance techs on-site. That is especially true when maintenance teams are not local.

There are many factors that can impact your equipment and production, including:



Supply chain backlogs



Labor shortages



Shipping delays



Travel restrictions



Inflationary pressures

¹ <https://www.researchandmarkets.com/reports/5318813/tempered-glass-market-growth-trends-covid-19>



**Small maintenance team?
Make sure you provide
support and training.**

HOW TO BUILD YOUR PREVENTATIVE MAINTENANCE PLAN

Building a preventative maintenance plan is a simple process with several steps. There is no one-size-fits-all strategy. Instead, you should tailor your plan to your individual business goals, facility size, machinery and workforce.

- 1 First, you should examine your facility needs.**
More equipment and facilities mean more maintenance time. If you rely on a single machine for much of your production, make sure you have a solid plan in place to keep the machine running effectively.
- 2 You should consider the age and condition of your equipment.**
Older machines will need more frequent inspections to prevent severe problems. New equipment will need less maintenance.
- 3 Machines used regularly will need more maintenance than other machines.**
Make sure cleaning, lubrication and other needs are part of your plan.
- 4 The size and expertise of your maintenance team will impact your strategy.**
If your team is small or lacks training, plan to provide support for your workforce. More active, experienced maintenance teams might be more adept to handle all maintenance needs.
- 5 Then, you can identify maintenance needs.**
You should follow manufacturer recommendations for maintenance.

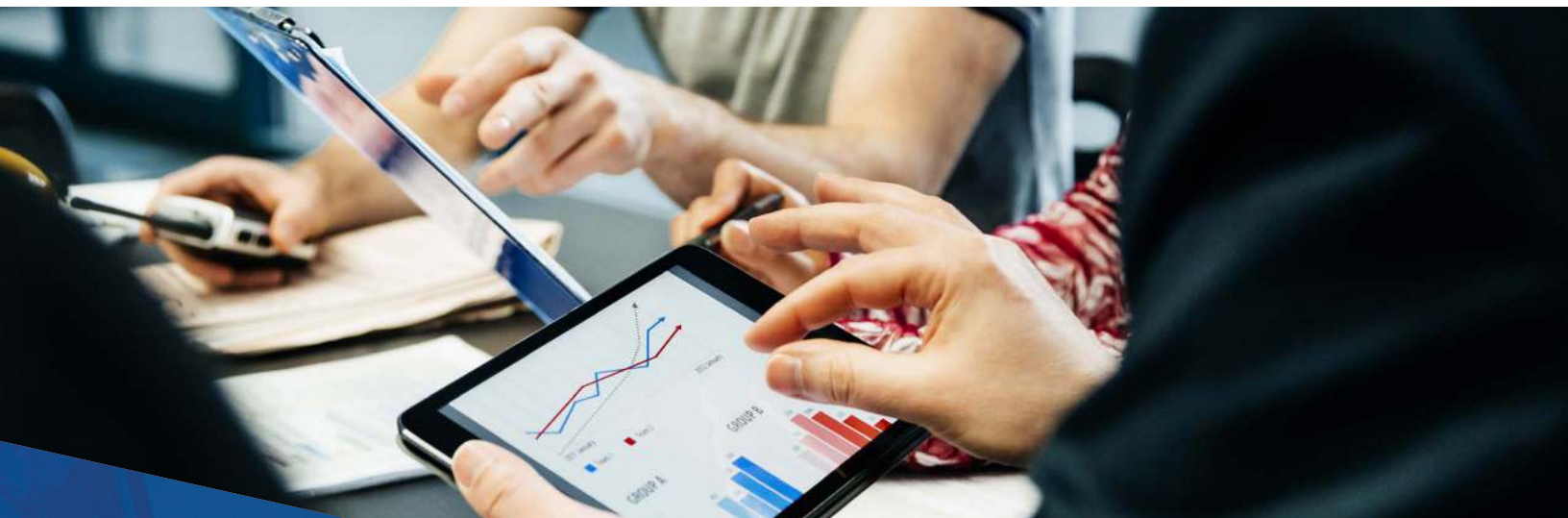
DEVELOPING A RITUAL FOR ROUTINE MAINTENANCE

It's best to institute a daily housekeeping ritual to keep equipment looking new. You should regularly conduct visual inspections to spot any broken or missing parts, wear and movements of the machine — including conveyors, track movements, nozzles and more.

Other preventative maintenance checks include:

- ✓ Developing and following a comprehensive lubrication schedule
- ✓ Cleaning or replacing all air filters
- ✓ Keeping electrical cabs clean
- ✓ Keeping all measuring devices (gauges, meters, etc.) and switches in working order
- ✓ Machine calibration procedures (testing and re-calibration)
- ✓ Checking safety covers and safety switches for proper installation and function
- ✓ Performing thorough operator and maintenance training

After identifying maintenance needs, you can plan a maintenance schedule and determine who is responsible for which tasks. This can include someone from your in-house maintenance team or a third-party technical team, depending on the frequency or kinds of tasks. You can collect and analyze downtime data to help create your maintenance schedule.



GET EXPERT HELP WITH PREVENTATIVE MAINTENANCE NEEDS

HHH Offers First-Rate Service to Craft Your Plan

Partner with a trusted technical expert to create your futureproofing plan. HHH Equipment Resources provides maintenance and continued support for your machines.

Contact our team at **336-201-5396** or **info@hhhglassequipment.com** for help with your preventative maintenance strategy.



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