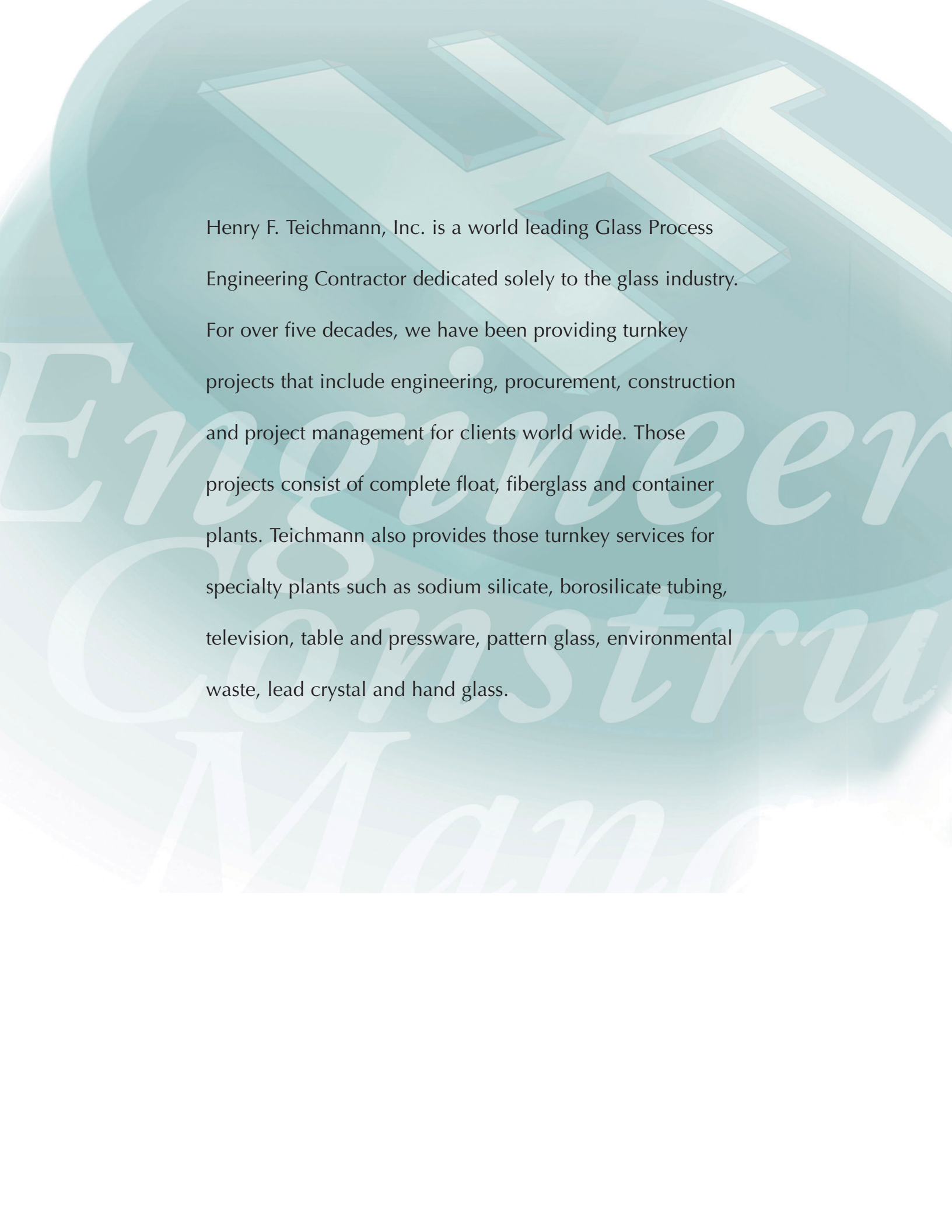


# YOU HAVE A BRIGHT FUTURE



**Henry F. Teichmann, Inc.**  
*Engineers and Contractors to the Glass Industry*





Henry F. Teichmann, Inc. is a world leading Glass Process Engineering Contractor dedicated solely to the glass industry.

For over five decades, we have been providing turnkey projects that include engineering, procurement, construction and project management for clients world wide. Those projects consist of complete float, fiberglass and container plants. Teichmann also provides those turnkey services for specialty plants such as sodium silicate, borosilicate tubing, television, table and pressware, pattern glass, environmental waste, lead crystal and hand glass.



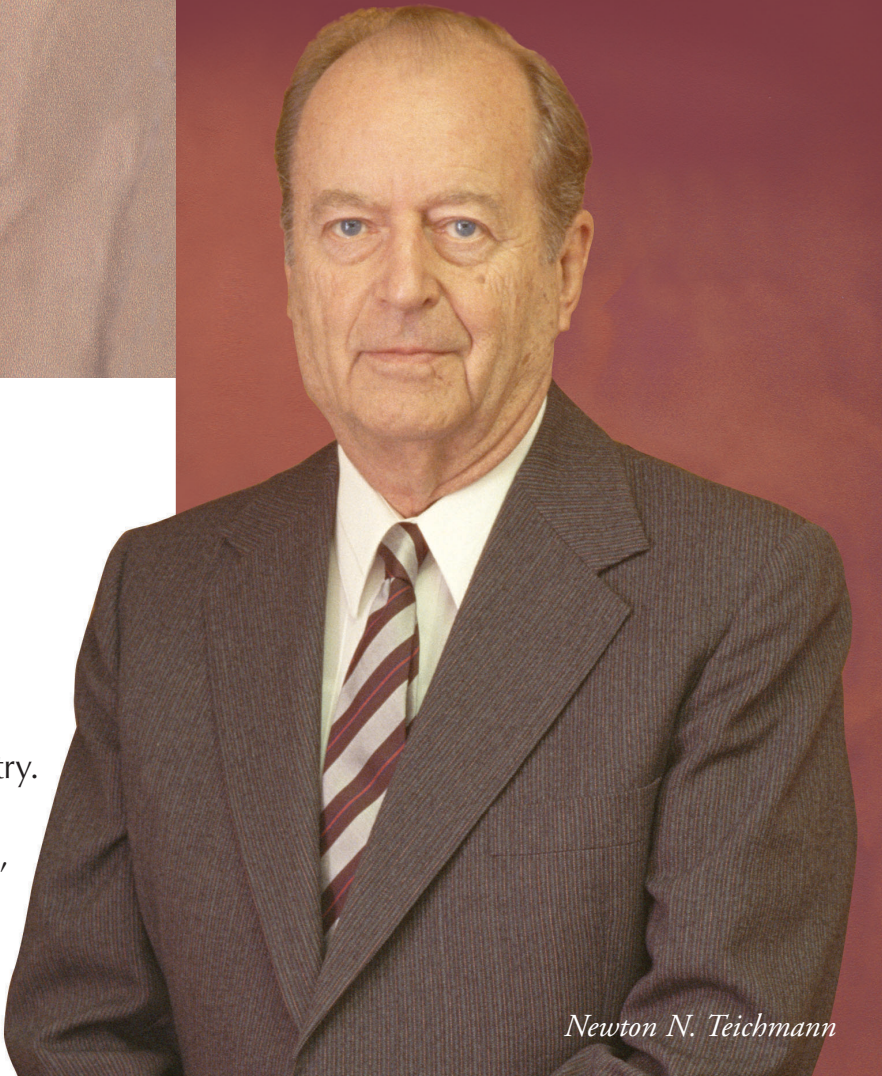


*Henry F. Teichmann*

Since 1947, Henry F. Teichmann, Inc. has grown and progressed on the principle . . . "Satisfied clients are our most important asset."

We take great pride in our reputation and expect to continue to improve and innovate as contractors and engineering specialists. We promise to be worthy of the position we have earned and achieved within the glass industry.

We guarantee you will be completely satisfied because you, the customer, are our most important asset



*Newton N. Teichmann*

Our employees are practical, conscientious, and experienced in every phase of the glass industry.

As a result of our client's success, we have become recognized worldwide as one of the largest

independent . . . ***Engineers and Contractors to the Glass Industry.***



**HENRY F. TEICHMANN, INC.**



# TURNKEY SERVICES

## Engineering and Technical Services



The Engineering Division of Henry F. Teichmann, Inc. is known as the "Problem Solvers of the Glass Industry." By employing state-of-the-art computer software programs, the latest AutoCAD release and high speed internet connections, our clients realize the benefits of today's most recent technological and communication advances.

Most of the engineering staff has over a decade of experience in the glass industry. Each engineer specializes in one area of the complete project:

- Batch
- Refractory
- Civil/Structural
- Combustion
- Instrumentation
- Electrical
- Mechanical
- Piping / Ductwork



The Technical Services Division is responsible for new technology analysis, operator training, start-up and heat-up assistance and periodic furnace operation analysis. Whether the job involves a 250Lb./day hand glass furnace or a 750TPD float furnace, this groups' broad range of experience can solve even the most difficult of problems.



Clients have the option of working under a yearly Technical Service Agreement or on an as needed basis. Our clients who choose to enter into the Technical Service Agreement receive a yearly furnace inspection and full report. This agreement also locks in the travel, onsite and office rates for the year. Either way, experienced Teichmann employees are always available when the client calls.



# Procurement

The Henry F. Teichmann, Inc. Purchasing Division has many years of unparalleled experience in worldwide sourcing. Our purchasing team knows where to find the best source of supply that fits the budget. We have implemented vigorous programs in quality assurance and vendor price/performance verifications. Over the years Teichmann has purchased many millions of dollars of goods for the glass industry, almost half of that being refractories. This gives us tremendous purchasing power since we have positioned ourselves to be a complete turnkey (design, supply, build) provider in our industry.

Equipment ordered undergoes stringent inspection for both quality and safety standards. Quality control is done by a team of experienced inspectors familiar with the performance requirements and the latest techniques for ensuring delivery in perfect conditions.

The Purchasing Division has worked with international freight forwarders for decades and developed excellent contacts. We use only the most cost effective freight forwarders who deliver the cargoes to the sites on time and safely.





# TURNKEY SERVICES

## Construction



The Henry F. Teichmann, Inc. Construction and Field Services Division is recognized throughout the world for its outstanding record of on-time and under budget performance for the construction of glass manufacturing plants and furnaces.

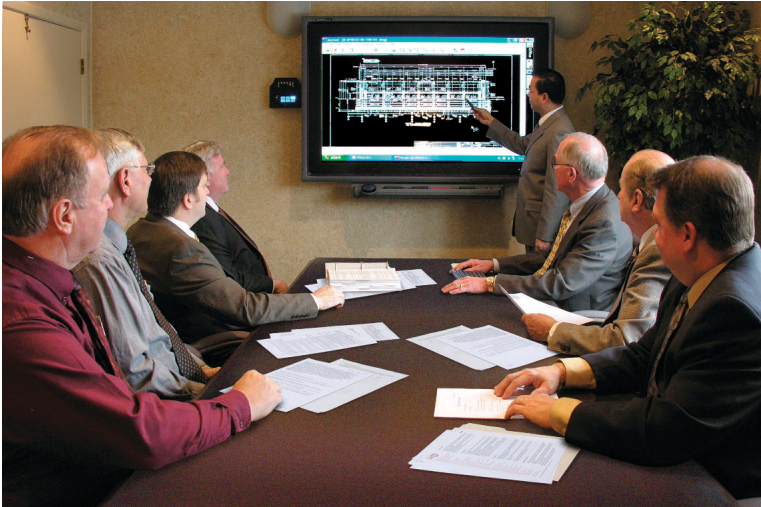
Our highly trained and experienced project managers and supervisors are among the most respected in the industry. They are able to attract the most experienced and reliable craftsmen available. The leadership, initiative and attention to detail provided by these people, together with thorough planning and engineering practices, has enabled Teichmann to achieve this reputation in over 40 countries worldwide.

The Construction Division has also distinguished itself as experts in Hot Work repair in areas such as hot checker changes / repairs, doghouse repairs, throat repairs, sidewall overcoats and breastwall replacement. Our construction personnel are always ready to respond immediately to our clients' needs.





# Project Management



The strength of Henry F. Teichmann, Inc. is its ability to provide a total “Turnkey Systems Approach to Project Management.” Whether in South America, Asia, the Middle East, Europe or the United States, our ability has been proven from greenfield site development through final plant start-up and production. For a plant expansion or totally new plant, Teichmann has been the general process contractor on plants that range from 30 to 750 TPD.



In carrying out a project, HFT deploys its technical resources by forming a project team to handle all necessary activities to complete a project. Those tasks are listed below.

- Quality Control
- Schedule Control
- Subcontractors Management
- Pre-Operation Checkout
- Safety Control
- Materials Control
- Labor Management





# FLOAT GLASS PROCESS



For over a half a century, Henry F. Teichmann, Inc. has participated with many different companies in the transition from the vertical draw to the float process.

The continual re-engineering of the float glass process over the years has revolutionized the flat glass industry, achieving a consistently higher quality product. Today we take for granted the design and process requirements that have produced the increase in quality and production rate.

HFT has teamed up with PPG to provide clients with a turnkey solution to high quality float glass production.

## **HFT provides:**

- *Engineering*
- *Procurement*
- *Construction*
- *Project Management*

## **While PPG provides:**

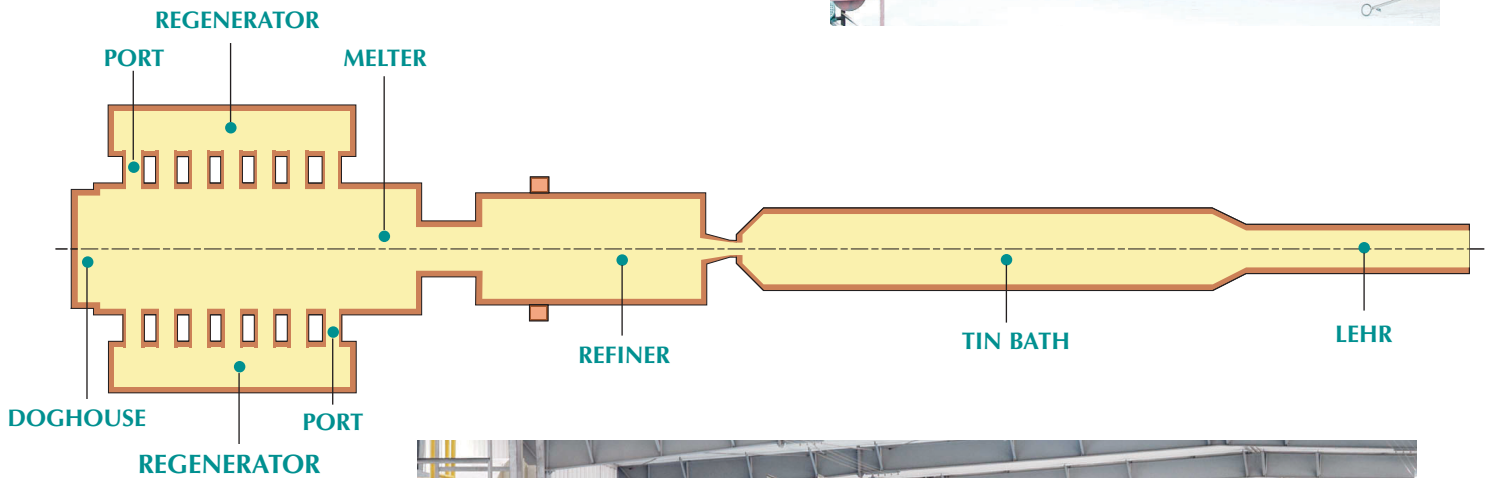
- *Design Consultation*
- *Modeling*
- *Heat-Up Consultation*
- *Start-Up and Training*
- *Technical Follow-Up Support*
- *Product Development and Product Licensing*







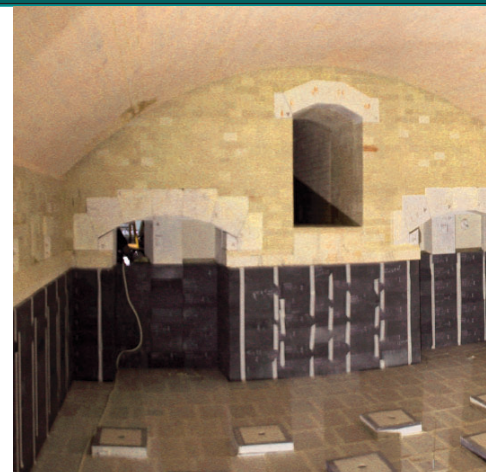
If your requirement is for the rebuild of an existing furnace or a turnkey project for a new facility, Henry F. Teichmann, Inc. has the resources and technical expertise to help you achieve the next level of quality and environmental improvements that the future will demand.



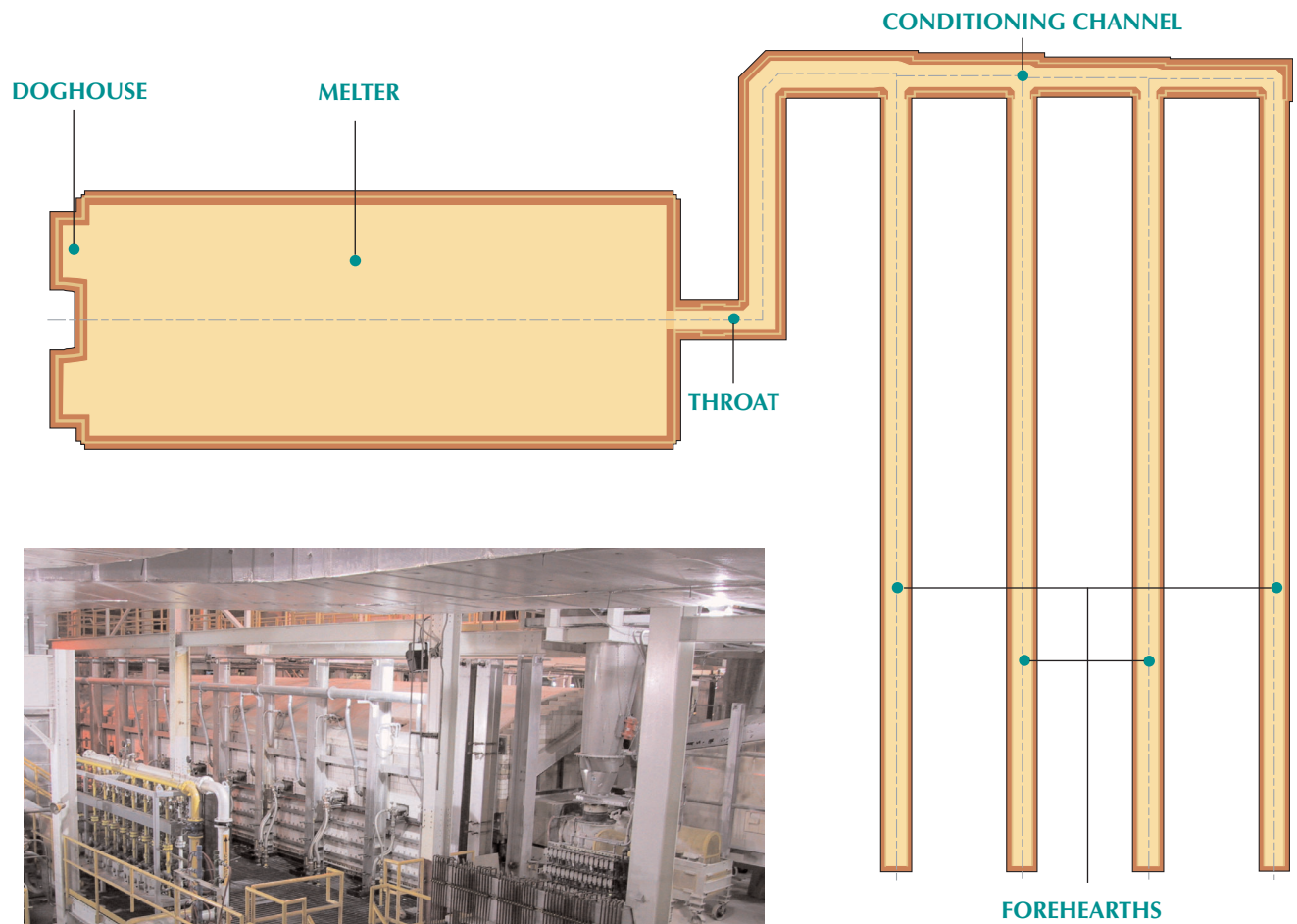


# FIBERGLASS PROCESS

Henry F. Teichmann, Inc. continues to meet the needs of the ever-changing fiberglass industry by providing fossil-fuel melters, electric melters, direct fired melters and oxy-fuel technologies. Re-design of existing process technology has become a specialty of Teichmann as increased production, higher yields and environmental regulations are now the driving force behind the changes in process design.







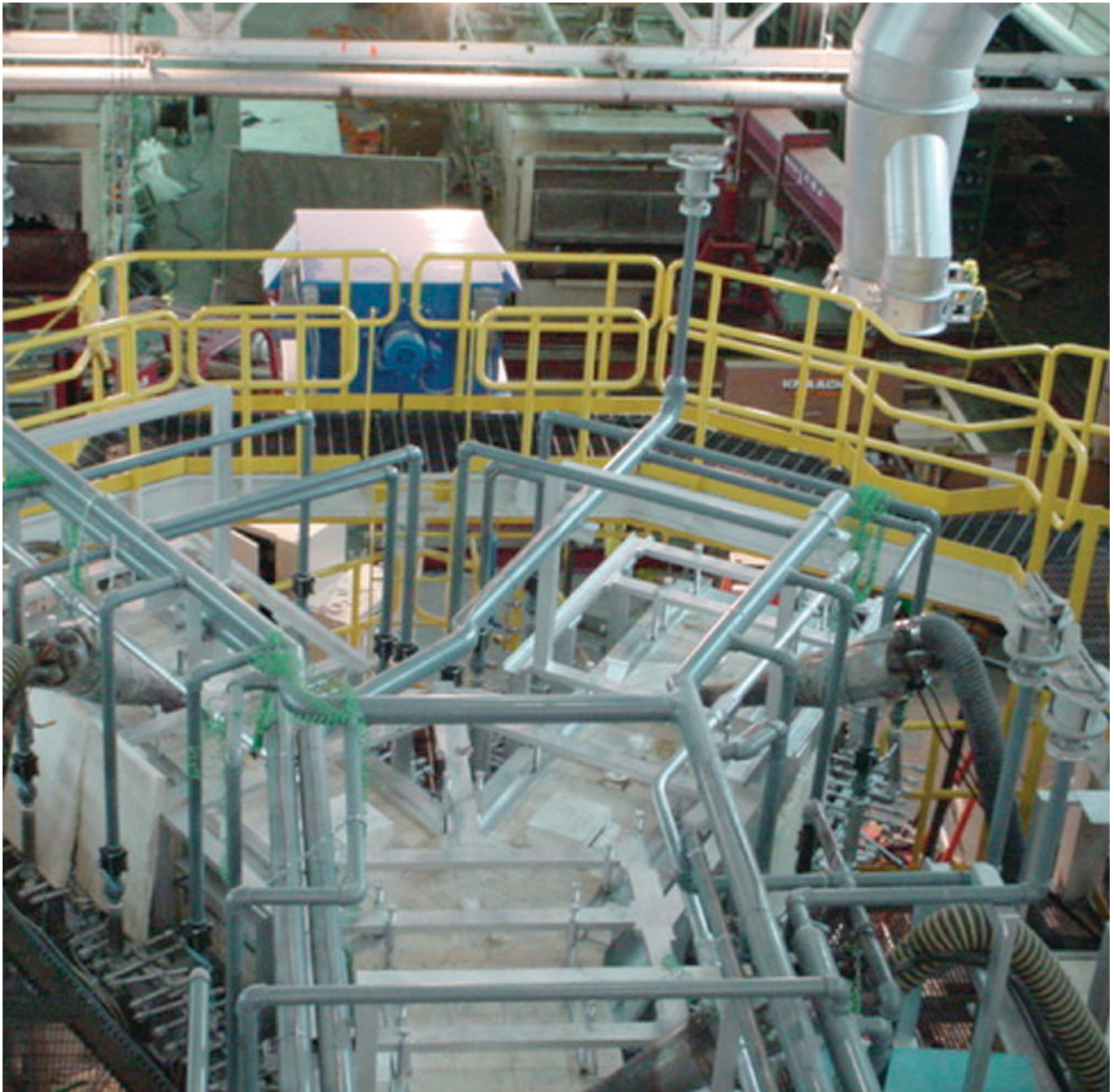
We have provided furnaces that range in size from 35 to 250 TPD in production of fiberglass applications for wool, continuous strands, chopped strands and other type operations.



# CONTAINER GLASS PROCESS

Henry F. Teichmann, Inc. has designed, built and commissioned complete process facilities for high quality container glass operations. In doing so, we have established a worldwide reputation for technical excellence, safety, environmental concern, outstanding customer service and effective cost control.

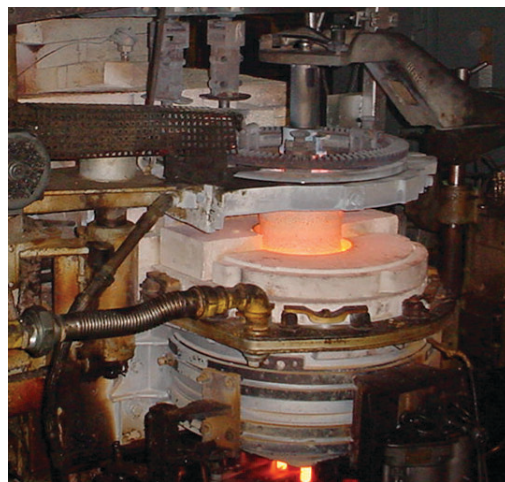
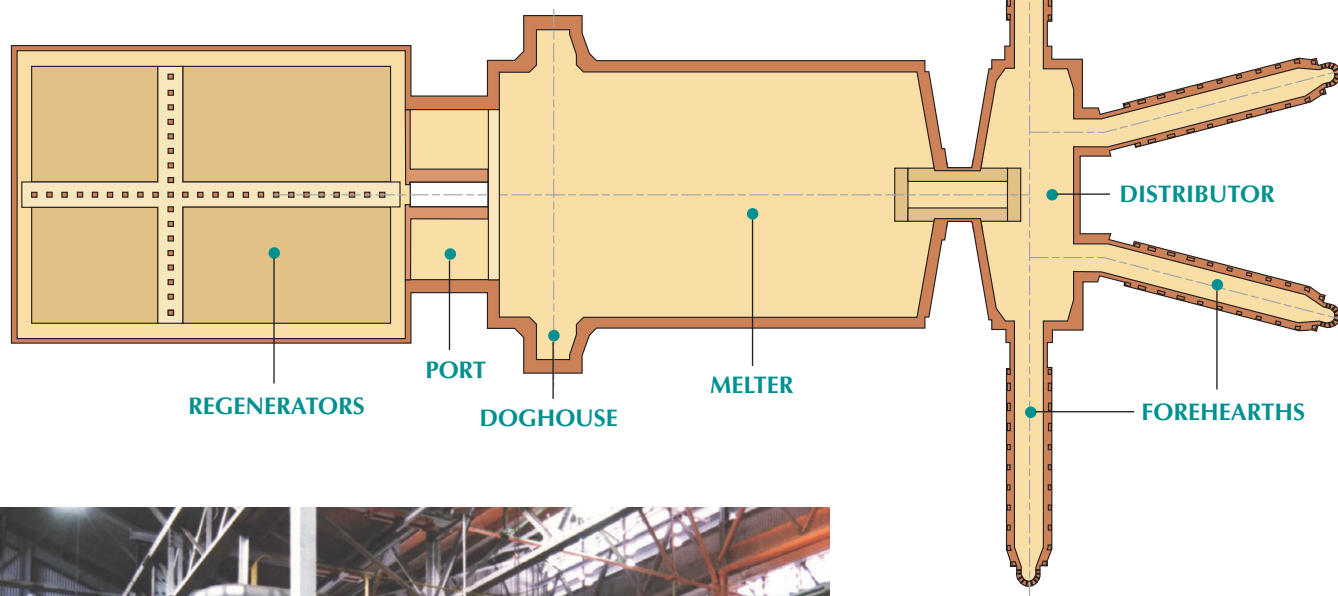
Our commitment to total quality performance is evidenced in the design and construction of plants and furnaces that meet the individual clients needs in industrialized and developing countries.







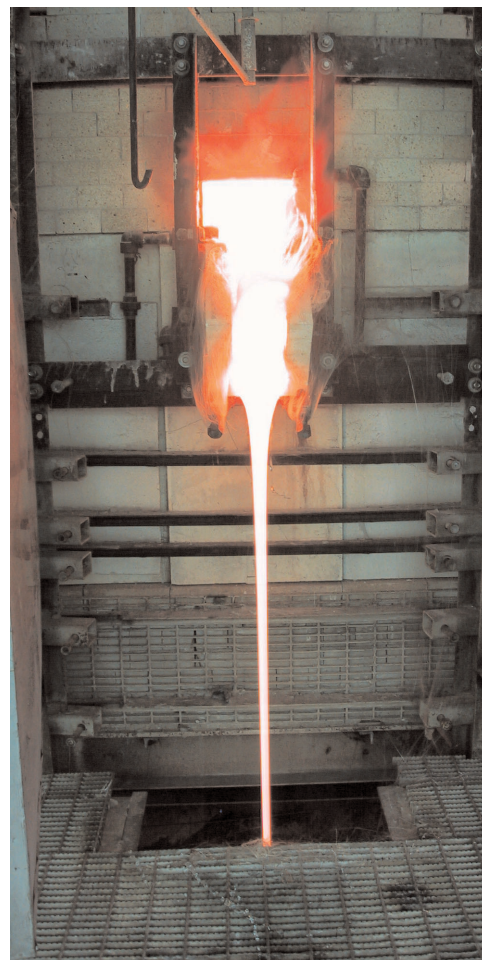
Henry F. Teichmann, Inc. has also updated furnaces, supplied complete decorating lines and modernized annealing and quality control operations to help our clients maintain a strong competitive position in the market place. We also provide our clients with replacement parts or equipment for any area of their facility.





# SPECIALTY PLANTS

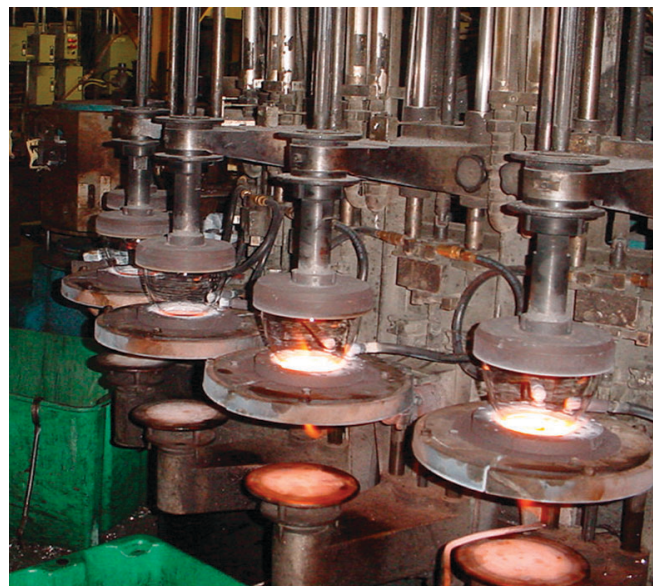
Since its inception, Henry F. Teichmann, Inc. has engineered and constructed virtually every type of glass furnace. Our expertise ranges from small day tanks to large float glass melters and from lead crystal to the increasingly more important environmental waste recycling furnaces. Teichmann personnel have the widest experience in specialty and pressed ware production of any private glass engineering firm.





Our employees are experienced professionals who are capable of designing, engineering and constructing any type of glass manufacturing plant that our clients require. We are extremely knowledgeable about plant layout criteria and design concepts that are essential for a fully integrated glass manufacturing facility.

- Sodium Silicate
- Borosilicate
- Tubing
- Television
- Lead Crystal
- Environmental Waste
- Hand Glass
- Pattern Glass
- Tableware
- Pressware





# BATCH PLANTS

The production of quality glass products begins with the selection, processing, storage, blending and delivery of quality raw materials to the glass melting furnace. Our batch plant systems are designed to deliver a batch quality that meets each individual client's specific requirements in an efficient and cost effective manner.







Henry F. Teichmann, Inc. has designed and installed all types of batch plants, cullet systems and batch handling systems. These systems range from low volume manual operations to fully automatic high capacity facilities. We consider the physical and chemical characteristics of all the batch materials when designing each component of the batch system.

As an example of the versatility of our firm in this field, our engineers and construction team have on several occasions built completely new automatic glass plants around obsolete batch plants without interrupting glass production.



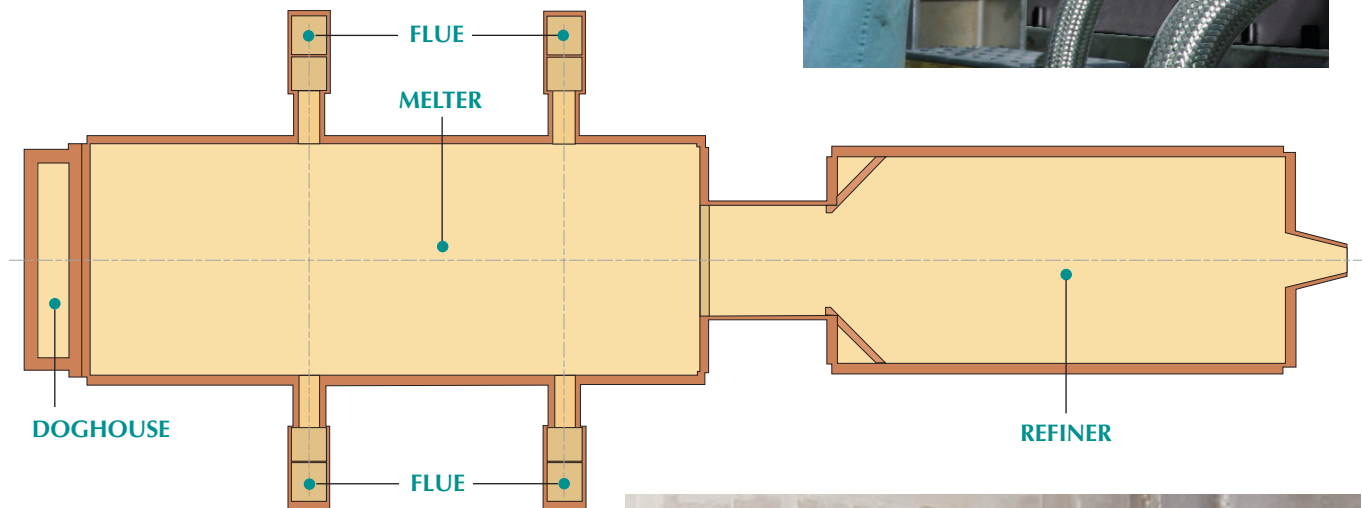


# OXY-FUEL FURNACES

Henry F. Teichmann, Inc. has been developing oxy-fuel technology since 1986 with several major float and fiberglass manufacturers. We have designed and built many oxy-fuel furnaces for fiberglass, TV glass, container glass and specialty glass applications. HFT and PPG converted the first conventional float furnace to oxy-fuel for PPG Industries in 2000. Teichmann's engineers continue to improve the oxy-fuel furnace designs by utilizing the latest advances in technology.



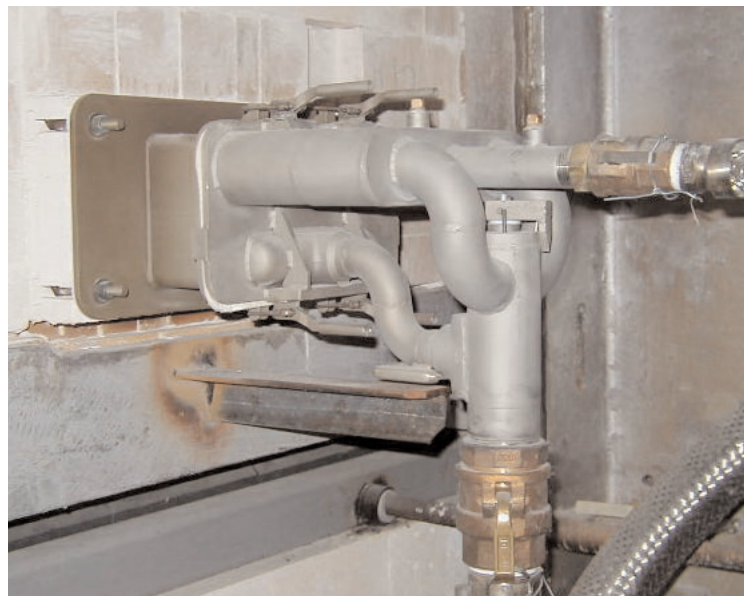




Oxy-fuel firing has many advantages over conventional firing. Here is a list of those advantages.

- Reduces  $\text{NO}_x$  and  $\text{CO}_2$  emissions
- Reduces fuel consumption
- Reduces initial capital investment
- No reversal system
- No checkers or regenerators to maintain
- Improves glass quality
- Facilitates operation
- Stabilizes process

As pollution requirements become more stringent and energy costs rise, oxy-fuel firing is becoming more widely accepted solution.







**Henry F. Teichmann, Inc.**

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