



Henry F. Teichmann, Inc.

Company Profile





The company of Henry F. Teichmann, Inc. has a mission to provide Turnkey Services of Project Development, Engineering and Design, Construction, Procurement and Technical Services, exclusively to the glass industry.

With the full dedication and integrity one should expect from a man who gives his name to the company, the tradition of providing consistent quality workmanship has established Henry F. Teichmann, Inc. as a worldwide leader since 1947.

The longevity of Teichmann has been built on customer satisfaction and client trust. This trust is illustrated by the fact that 80-90% of total company revenue is generated through repeat business with clients of long-standing. A great deal of trust has been placed upon us as the majority of our engineering and design work is done under confidentiality agreements.

Teichmann's "Partners-in-Business" approach to developing a client for the long-term is built upon satisfying the true needs of a client, and using the nearly 650 years of Glass Industry Experience at Teichmann to take the best approach to solving problems. Because we have a wealth of experience to pull from, our strongest technical asset is the ability to assist the client in developing the "specification" or "scope of work" that accomplishes what the client wants to achieve.

HFT's Project Management Concept

At Teichmann, we pride ourselves in operating by Project Management Control and Systems Analysis Techniques. This mode of management operation allows us to operate in the most cost-effective method possible, thus benefiting our clients. By utilizing our modern computer and engineering systems, we are able to access an extensive data base, parts of which are over 35 years old, to assist Teichmann in defining the critical project parameters. The project management team concept fully integrates all operational divisions of Teichmann. This enables the project manager to function horizontally across the corporate structure, to expedite activities critical to technical performance, project schedule, and budget control. An example of how Teichmann would handle an inquiry for budget estimating is as follows:

1. Assign project number.
2. Assign project designation (Engineering, Construction, and Technical Services).
3. Assign project manager.
4. Site visits to determine clients' needs.
5. Specification writing to clearly identify scope of work.
6. Develop project team from Engineering, Procurement, or Construction.
7. Target completion dates for the estimate figures.
 - a) Engineering utilizes a 30-year-old database for estimating manhours.
 - b) Procurement utilizes a 30-year-old database for standard price estimating of materials and equipment.



- c) Construction utilizes a 35-year-old database that provides manhour, calendar day and dollar estimating information. The manhour estimating program evaluates variables such as Geographic Area; Shift work efficiencies; New vs. Retrofit work; etc.
8. Collate division estimates for review by Management Team.
9. Final price review by President.

HFT's Turnkey Services

The nearly 650 year base of experience in the glass industry has made Henry F. Teichmann, Inc. a worldwide leader in providing turnkey services for Project Development, Engineering and Design, Construction, Procurement, and Technical Services. Some of our turnkey experience that may interest you is in:

- Container
- Float Glass
- Fiber Glass
- Hand Glass
- Flat Glass
- TV Glass
- Tableware (Borosilicate)
- Tubing and Bulb Glass
- Specialty Glass (Sodium Silicate)

HFT's Engineering Staff

The Engineering and Design staff is comprised of many diverse backgrounds that provide over 255 years of expertise required to service the entire glass industry. On top of this valuable experience is the employment of state-of-the-art equipment and technology that provide a cost-effective means for doing project development, design, and engineering work. This equipment and technology include:

1. Fully integrated state-of-art Computer Aided Design and Drafting System (CADD). This system utilizes the latest Intel based Workstations with Windows NT operating system driving the latest CAD application software including AutoCAD 2000, R14, Bentley Microstation and Parametric Technology Corps MEDUSA. These capabilities are used 100% for all new design work and also to scan drawings to generate Bills of Material, isolating volumes and cost of refractories. This system can output to DAT tapes, CD-ROM, optical disks and supper floppy disks. Hardcopy output is handled by large format Hewlett Packard laser printers and Calcomp large format laser plotters.
2. Mathematical Modeling
3. Dynamic Modeling
4. A Salt Bath for doing static modeling of electric boost and all electric furnaces
5. Computer Analysis Programs to determine:



- a) Heat loss and cost analysis for determination of proper refractory selection in furnace design.
- b) Checker Configuration Efficiency Program for determining the most efficient setting configuration and material selection for the regenerator.
- c) Electric Melt or Electric Boost Power Requirements
- d) Hot-Face Temperatures when a Cold-Face Temperature is known.

A major strength of the Teichmann engineering and design department is our capability to develop the entire system around the furnace. This includes the capability to design and integrate:

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| ➤ Batch House/Charging Systems | ➤ Piping and Electrical |
| ➤ All Types of Firing Systems including Oxygen | ➤ Instrumentation |
| ➤ Process Control Systems | ➤ Forming and Cold End Equipment |

This total integration is very beneficial and cost effective to our clients.

HFT's Construction Services

The Construction and Field Service Division certainly distinguishes itself from the rest of the competition, as Teichmann is in total control of every job-site we manage. Teichmann maintains on a full-time basis our own highly trained and experienced project managers and supervisors. The field Service Management staff combines well over 150 years of direct glass industry experience. Sub-contracting field service supervision adds great expense to the total cost of any project. For this reason, we are more cost-effective for the client, and are able to be in complete control of all phases of construction. This includes turnkey factory construction projects in over fifty (50) countries throughout the world. Another reason for the longevity of Henry F. Teichmann, Inc. is our use of professional management methods such as:

1. CPM or Gantt Chart Scheduling;
2. Computer cost and manpower analysis
3. Systems Analysis for Project Management.

We are able to consistently and accurately project construction schedules and project budget costs. Teichmann builds client trust through honest evaluation of how fast a job can safely be done, at the least expense to the client, and without sacrificing the quality of a job.

Other Features of Teichmann Construction Division include:

1. Turnkey Capability includes: Building, Foundation, Steel, Brick, Carpentry, Piping, Electrical, Ductwork, Conveying, Setting Forming Machine, Setting Cold End Equipment, etc.
2. Perform work as an "Open Shop" or "Union Shop"
3. Ability to provide tools and equipment for all crafts



4. Job-site cost and manpower computer control center
5. Ability to respond to emergency situations with full crews on site within one to two days

HFT's Procurement Department

An integral part of all project management teams is the Procurement Department. Procurement is a critical element in determining the success of Teichmann on every project. Because glass is our only business, procurement of large quantities of equipment and materials affords Teichmann a low purchase cost and prompt service and delivery for our clients. However, procurement's role at Teichmann goes well beyond procurement. Its role is extended to continually monitor vendor company and material performance. Teichmann procurement realizes that vendor selection is not based on price alone, but on quality of material specified to insure long life, service and reliability, and past performance. Our turnkey procurement experience has also helped Teichmann to develop a successful Direct Sales Program for our foreign clients. Procurement equipment and materials for a glass plant can be very difficult in some geographic areas. At Teichmann, we have over 45 years of Domestic and International experience in procurement, traffic control and expediting, material inspection, foreign documentation, banking/financing and administration.

HFT's Technical Services

Teichmann's Technical Services has the most comprehensive capability of assisting our client's glassmaking operation of any company serving the glass industry. We cover a broad range of consulting services; whether it is inspection or operating assistance to a large broad-based U.S. manufacturer, or start-up and training assistance for developing countries' glass manufacturer with limited technical base or operating experience. Our technical service experience goes well beyond the nearly 600 years of combined experience that our present full-time employees have. We also have available part-time consultants, with over 500 additional years of glass plant experience, who can assist our clients with special needs. Depending on the type of job, Teichmann's technical services are quoted either on an hourly rate or by daily fee. Our technical assistance includes:

- Writing Specifications
- Batch Material/Formulation
- Commissioning Equipment
- Batch/Cullet Handling
- Equipment & Operation Training
- Furnace Operation
- Hot Repairs
- Combustion Control & Efficiency
- Furnace Audits
- Energy Management
- Trouble Shooting
- Waste Gas Control
- Drain & Cool Down
- Glass Defect Analysis
- Heat-up & Fill
- Cold-End Equipment
- Computer Services/Analysis
- Preventative Maintenance



Here at Henry F. Teichmann, Inc., we consider ourselves the "Problem Solvers" of the glass industry. We don't walk away from problems! Great pride is taken in our ability to assemble and coordinate the appropriate resources to solve industry's problems.

In 1986, the company of Henry F. Teichmann, Inc. expanded its technical depth, experience base, facilities and proprietary technology through a joint venture with Sorg Engineering of Lohr, West Germany. Sorg, dedicated to the glass industry since 1873, lends over 2,000 years experience to Henry F. Teichmann, Inc. in the form of advanced technology, technical assistance and research and development for our clients in North America and Canada. Sorg is internationally recognized for its superior knowledge of electric melting and furnace design for specialty glasses. Sorg also maintains an internally financed R&D program, which has contributed to several technology improvements that the glass industry has adopted over the past 25 years. Some of these technologies include:

1. Vertical melting for lead and borosilicate glasses (VSM)
2. Physical modeling techniques for furnace design
3. Deep refining for greater quality control
4. Low NOx melting technology
5. Modular forehearth and distributor designs
6. Top-Fired electrodes (hot & cold-top furnaces)

Laboratory services include batch chemistry analysis, test melting, and dynamic modeling studies directed at operational problems. The Teichmann/Sorg Group, Ltd. is proving beneficial to the majority of our clients as we assist them in advancing technically into the future.

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