



also growing: **Electrochemical**



The Electrochemical department moved operations this month to its newly completed building, located on Karl Braun Drive between Facilities and CRT.

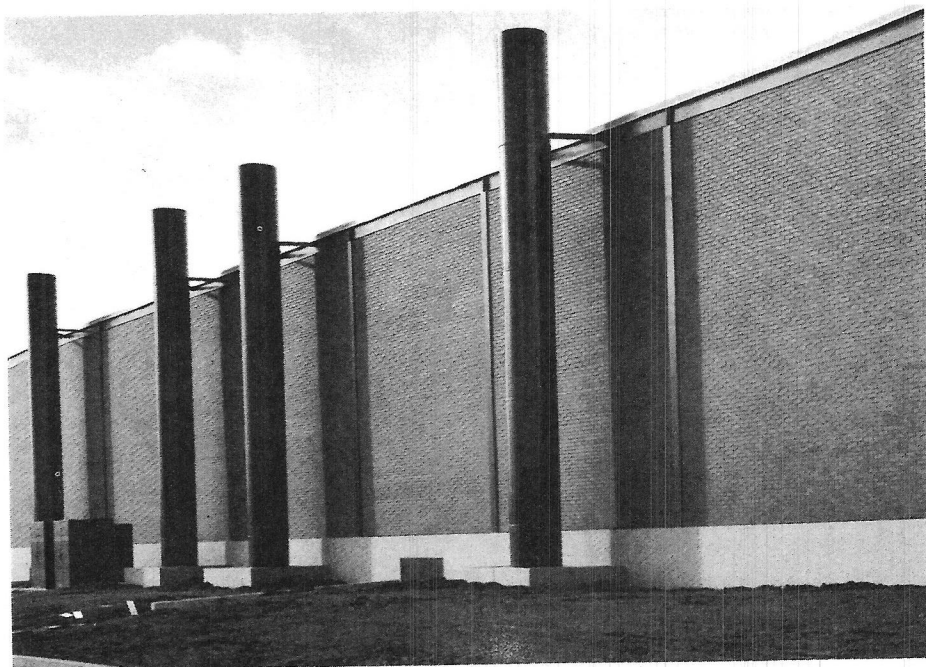
The building provides approximately 35,000 square feet of usable floor space. The chemical process area floor is a modular design concept to make rearrangement of plating tanks and process units easy.

Six designs were considered for the building, each evaluated from functional and monetary aspects. The present design was accepted as the one most adaptable to our present and future electrochemical needs, and giving us the greatest useful value for our dollars invested.

The building is a two-story structure. Offices and process labs occupy the second floor. The ground floor section houses image, paint, mechanical and chemical processing areas.

Ventilation air for the chemical processing area is introduced through ducts in the sloped, laminated-beam-supported ceiling. It is exhausted downward through ducts adjacent to process tanks, transported horizontally below the floor, then released into the atmosphere through tall exhaust stacks on the southeast outer side of the building. This ventilation system prevents building up harmful concentrations of fumes.

Other areas within the building are



WASTE CHEMICAL DISPOSAL PLANT pumps neutralized liquids into three lagoons; liquids stand for about two days before release into creek (top). Electrochem employees prepare panels for automatic anodizing machine, first such machine on the West Coast (left). Exhaust stacks release fumes into atmosphere at 60 mph velocity (right).

Electrochemical...



PANELS ARE SPOTTED to cover defects in the photo resist coating; from here they go to detail etching area (left). Control panel for automatic anodizing machine gets final check before production starts (right).



equipped with standard air-conditioning equipment.

Waste Chemicals Treated

Waste chemicals are transported through underground pipes to the chemical disposal plant, where they are treated to neutralize their acid or alkaline content. After treatment they are released into open-air lagoons next to the treatment plant. The harmless fluid stands in the lagoons for approximately two days; the clear water then is dumped into Beaver creek, which flows through Tektronix property.

Process equipment in the new building was designed and constructed by the Electrochemical Production Support group, with assistance from other areas of the company.

Because Tek's electrochemical processes are so diversified, it was not possible to design the structure so a single contractor could be awarded the construction contract. Six Portland-area prime contractors were used. Ross B. Hammond Co. was general contractor for actual building construction. Two electrical contractors installed wiring: Jaggar-Sroufe Co. for the building and Tice Electric Co.

for special processes. Three mechanical contractors were required: Temp-Control Corp. installed general mechanical equipment; Lynch Co., process ducts; and A. J. Zinda Co., process plumbing.

Knowledgeable people in the plating industry have evaluated the new electrochemical operation as the largest specialized precision electrochemical unit in the western US. The operation is especially recognized for the close tolerances on specifications, the high repeatability of processes and the low reject rate.

Electrochemistry at Tektronix includes such processes as electroplating, photo etching, photo anodizing, photo lithography and electrochemical etching. It requires specialized knowledge in mechanical, electrical and chemical fields.

Photo etching is a photochemical process by which a pattern is etched into metal. Photo anodizing incorporates techniques similar to photo etching, but the pattern is imposed on the base metal through a dye process. Electroplating provides functional, decorative or corrosion-resistant surfaces by electronically depositing single or multiple layers on a base material. Photo lithography encompasses the photo-mechanical aspects

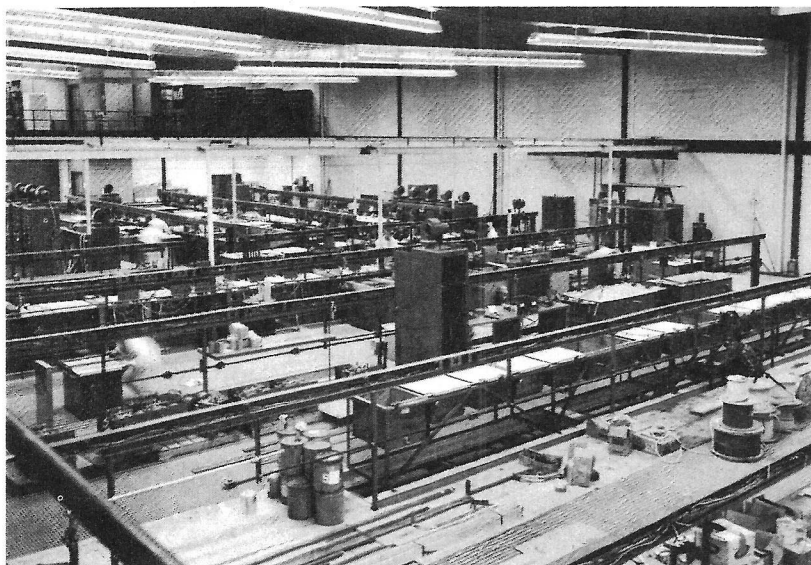
of all photochemical work, including preparing negative and positive filmwork, preparation of base materials, coating and developing light sensitive materials. All these processes are used in etched-circuit, chemical milling and selective anodizing preparation.

Gold, Silver, Platinum used

The Electrochemical department uses these techniques in its continuing effort to develop and maintain specialized processes specifically tailored for the proprietary components used in Tektronix scopes. They use not only ordinary metals — brass, aluminum, copper — but also such precious metals as gold, silver, rhodium and platinum in electrochemical production.

Bill Parker, Electrochemical department manager, came to Tektronix in August 1959, from Goodyear Aircraft in Phoenix, where he was electronic production manager.

Although he was initially in Tek's Engineering department, he was called on to do special-order plating for other areas of the company because of his plating and electrochemical background. This



CHEMICAL PROCESSING FLOOR of new building holds all plating and anodizing tanks (upper left). Network of special resin-treated plumbing and ventilation pipes interlace under the chemical process area grids (lower left). Machine operator reproduces 24 panels at one time, using pantograph (right).

special-order work grew until it was consuming most of his time.

In July 1960, Tektronix decided to form an electrochemical unit, and Bill transferred to F&M to organize that department.

The Panel unit, which has supplied scope and plug-in panels since 1952, became part of Electrochem in 1962. Last month the unit moved into the Electrochem building and its operations merged with other Electrochemical activities.

Four Units In Electrochem

The department includes four major units: Production, Production Support, Quality Control and Process Development & Control. It has about 100 employees.

The Production unit is headed by Chuck Lusardi. All electrochemical production, including mechanical, chemical and image processing, is done by this group.

Production Support (Jack Peasley, manager) designs and builds most of the equipment and tools for electrochemical processes. They also maintain all process equipment in the building.

Quality Control assures constant qual-

ity by a continuous monitoring system of all parts processed through Electrochem. Dwain Hall is manager.

Ray Davis heads Process Development & Control. His group must stay abreast of the art, thereby providing continuous tools for incorporation by design engineers into our new instrumentation. They provide engineering, prototype and pilot quantities of new electrochemical processes to agencies throughout Tektronix. They initiate and formalize all electrochem processes required to support new instrument and/or component releases. The second half of their job is to provide the vital function of chemical process control for some 100 different processes in these facilities.

Why Build?

Why did we build this building?

Bill listed several reasons. Perhaps the foremost was the prohibitive maintenance cost on the old facilities: At the Sunset plant, the Sellwood-area Panel unit, and the Cedar Hills shopping center rented facilities. Acid processes used in electrochemistry were particularly destructive to buildings and equipment not specifically designed to withstand their effect.

Electrochemical requirements at Tektronix are increasing rapidly, making necessary more space and more equipment than we had.

Electrochemical Production To Increase

The specialized electrochemical processes employed at Tektronix are not available from outside vendors; some are proprietary processes that we do not wish to divulge to other concerns. Processes available outside the company were expensive and often unsatisfactory.

Construction of the new building, in which all electrochemical processes can be consolidated, was the most economical way to satisfy Tektronix' production requirements. It has the added advantage of allowing us to gain fast reaction time, to maintain stocks of electrochemical finished component inventories and to react to new production and/or modification requirements.

Use of electrochemistry in Tektronix oscilloscope production will increase as the art advances, Bill said. We have just scratched the surface of providing components in electronic manufacturing through electrochemistry.