

NEWS From



Lead Industries Association, Inc.

292 Madison Avenue

Look Ahead with Lead New York, N. Y. 10017 - OR 9-6030

RELEASE

Immediate
169 (1)

Further Information

Bruce Fader

Feature stories from LEAD, Winter issue

RX FOR HOSPITAL: LEAD PLUMBING

POURING POWER INTO A STEEL MILL

SILENCE GOES TO SEA

THEY GIVE PAINT THE RADIATION CURE

BATTERIES BRING MILK FROM DAIRY TO DOORSTEP

FALLING CAN CURE CABLE GLASSMAN

HOW THEY SILENCED THE PRESSES IN NEWARK

ART CENTER WITH A SCULPTED ROOF

COOL DEVELOPMENTS IN SOLDERING

LEAD PUTS MUSCLE IN A STEEL MILL, QUIETS A YACHT

HELPS CURE PAINT, AND DELIVERS THE MILK

The Winter issue of LEAD, quarterly of the Lead Industries Assn., Inc. 292 Madison Ave., New York, N. Y. 10017, pictures lead at work in a diversity of jobs. One story describes the plumbing and waterproofing for the new Doctor's Hospital in Tulsa. The 100-bed facility makes use of lead waste pipe, shower pans, vent pipe flashings, and even traps for eight out-sized bathtubs for hydro-therapy.

-more-

LEAD INDUSTRIES, INC.

-2-

Curing paints and plastics in just seconds is no trick with a new electron irradiator going into plants across the country. Also, the new process does not require heat or solvents. Heart of the equipment is a small particle accelerator, shielded with sheet lead, that produces a 25 to 90 me electron beam. The one-half in. thick lead shielding does not confine the electron beam itself but rather blocks the X-rays produced when the electron beam strikes a solid object.

One perennial pleasure boating argument between power boat people and by-the-wind sailors concerns noise. The beautiful 46-foot La Maria III is a power boat, and no doubt that with two 205-hp diesels ... but she is quiet, too, thanks to thin sheet lead used as soundproofing. LEAD's article describes how it was done.

An admirable service record has been chalked up by the underground power cable network at a U. S. Steel mill. For over twenty years those lead sheathed cables withstood normal underground hazards and high water as well. Recent plant expansion caused company engineers to revamp the power system and remove or reroute the existing cables. New cables were laid too, and lead sheathing has been specified again. Over nine miles of cable have recently been installed to serve one cold reduction mill. This amounts to an estimated 86 tons of lead in the installation.

"Neither rain nor snow . . ." had better stay the milkman from his appointed rounds, either. Milkmen are of a hardy breed. So are the trucks they use. That's why the competitive performance of a lead-acid battery

-more-

LEAD INDUSTRIES, INC.

-3-

powered milk truck of the Maplemurst Dairy in Lincoln, Rhode Island is so interesting. In two years of typical service it has "substantially" lower operating and maintenance costs, a better-than-average reliability record, and a remarkably small appetite for tires and replacement parts.

Short sections of moderately large diameter lead pipe are used for joining lead sheathed cable. A typical length for this joint sleeve might be 18 inches. The press which produces the pipe is capable of producing at least hundreds of feet at a time. Until recently, the sum of all these facts has been a hard job of manhandling to cut the wire into sleeves. Now, Northern Electric Company of Quebec has automated the operation and a flying saw neatly cuts sleeves to the desired length while the pipe is moving out of the press.

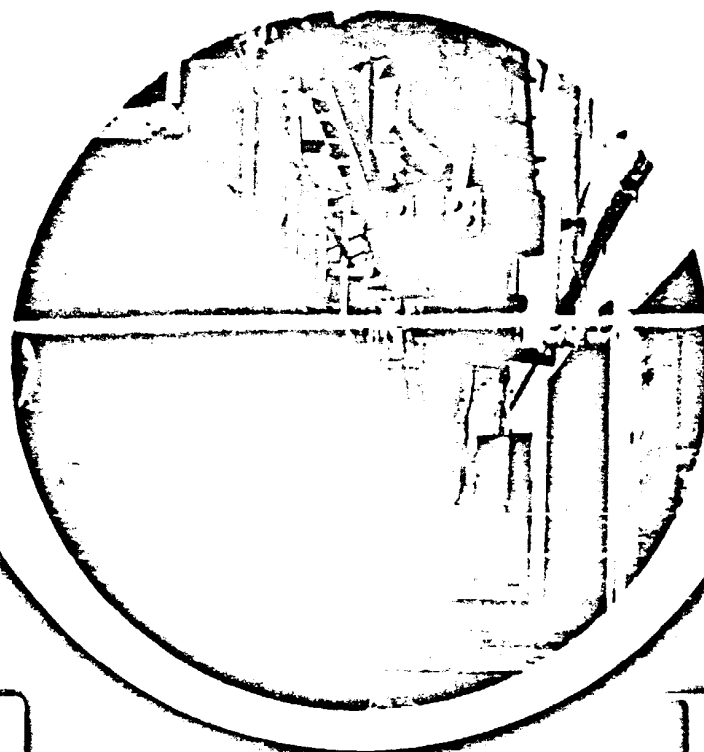
The Newark Star-Ledger's new plant has a brand-new high speed newspaper press, but it uses the same proven lead-asbestos anti-vibration pads that presses for the last 35 years have used. LEAD's story shows how and where pads fit into the modern newspaper plant.

A showplace of art should be a showplace itself. So reasoned the architectural firm of Giffels and Rosetti, designers of the new Arts Center of Nazareth College in Rochester, N. Y. Thus they chose seamless terne roofing, a lead alloy coated steel material, which has added a distinguishing bold, sculptural sweep to the lines and become a dominating feature of the complex.

Cool is the word for some of the newer soldering equipment appearing on the industrial scene currently. A roundup story looks at a soldering laser capable of joining hair-size wires, a resistance soldering unit with a TV-like microscope for work on pinhead-size assemblies, and a fast soldering transformer -- all designed to produce just enough heat for optimum joining, never too much.

-30-

NOTE TO THE EDITOR: All or any part of the material in this issue of LEAD may be reproduced for publication. Glossy photographs of the illustrations are available on request.



lead

LEAD INDUSTRIES ASSOCIATION, INC.

Aerial view of Doctor's Hospital.



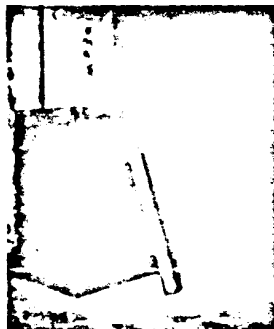
Pb for Md

Modern hospitals are an accurate reflection of the great advances made in medicine and surgery, sanitary science, and in public health care. They occupy a place of vital importance to the community. The best hospitals are clean, airy, well planned, and are managed like business corporations. Probably a culmination in all these respects, and the only one of its kind in another, is the recently completed Doctor's Hospital in Tulsa, Oklahoma. Built for a nonprofit corporation on a ten acre site in a residential area of Tulsa, it is in the 100 bed class.

Since sanitary facilities are certainly of major importance in a hospital, it is significant that lead was used as a major component in the plumbing system. Each guest room has a shower bath adjacent. All 59 shower compartments have 4-lb. (11/16 inch thick) lead safe pans as waterproofing. Pans vary in size but all are made with 6 inch upstands. Top edges of folded, pig eared corners are lead burned (welded) to prevent capillary action of moisture between the folds damaging the structure.

All pans are protected with a brush coat of asphaltum against the corrosive attack of free lime in mortar beds laid inside them to receive finish tile. More than 5,300 pounds of sheet lead were used for the pans and for vent pipe flashings on the roofs. Such flashings are also of 4-lb. per square foot sheet lead. Base flashings vary in size but all have boot sleeves one foot high dressed down into the vent one inch.

4 lb. sheet lead shower pans.



Innumerable examples of flexible lead connections may be found throughout the project. To name a few:

- lead waste pipe on 70 lavatories and 10 drinking fountain fixtures.
- lead drum traps on 8 bath tubs equipped for hydro-therapy.
- lead waste pipe connections on all surgeons' washup sinks.
- lead connections on floor-set water closets and wall-hung urinals.

All lead bends and traps are "X.H." classification. Connections between lead pipe or between lead pipe and brass fittings are full solder wiped. Over 500 lb. of plumbers wiping solder was used in these installations.

Joints in cast iron soil pipe are made with firmly packed oakum and filled with lead and calked tight. Seven tons of calking lead was needed for this part of the project.

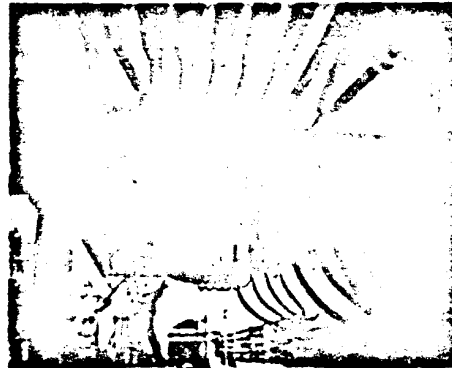
Architects for the building were Hudgins, Thompson, Hall and Associates and the plumbing contract was handled by the Otter Heating Company, both of Tulsa and Oklahoma City.

SURE-FIRE POWER FOR A STEEL MILL

... twenty years to be exact!



Main feed lines that carry 13.8 kv power from the substation to the motor switches of the cold reduction mill. The technician is wrapping fireproofing tape on one of the cables.



A cable termination beneath one of the mill's drive motors, partially visible at top. The four 15 kv cables being connected carry 13.8 kv power to the motor.



Four 15 kv cables being terminated beneath one of the motors of the new mill. Note the large porcheads where each power cable is connected to its terminations.



Lead sheathing has been providing maximum protection for underground electrical power cables at a mill of U.S. Steel Corporation for over 20 years.

During this service the lead sheathing has had to overcome some natural obstacles. For example, the ducts are normally below ground water level.

When recently faced with new major construction projects, U.S. Steel again turned to lead sheathed paper insulated power cable.

The recent installation of a six-stand cold reduction mill required that company engineers completely revamp the electrical power distribution system. Existing electrical power cables had to be replaced and rerouted around the construction site to keep other facilities in operation.

In addition, supplying power to the new mill meant the construction of new ducts and the laying of cables.

Over nine miles of lead-sheathed, paper-insulated cable were manufactured and supplied by the Wire Operations of U.S. Steel for the cold reduction mill job. Approximately 37,000 ft. of 3-conductor, 350 MCM, or 10 AWG compact sector cable was used to replace the existing lead-sheathed cables that had to be moved. Three 8 kv rated cables carry 6,900 v

to other mill facilities.

Power at 13,800 v is carried to the new cold reduction mill by 12,000 ft. of 15 kv, 500 MCM, compact sector, lead-sheathed, paper-insulated cable. All of the 8 and 15 kv is run through underground ducts so that none of it is buried directly in the soil. The 8 kv cable is about 2.30 in. in diameter and the 15 kv is 2.81 in. It is estimated that a total of about 86 tons of lead are used on the cables.

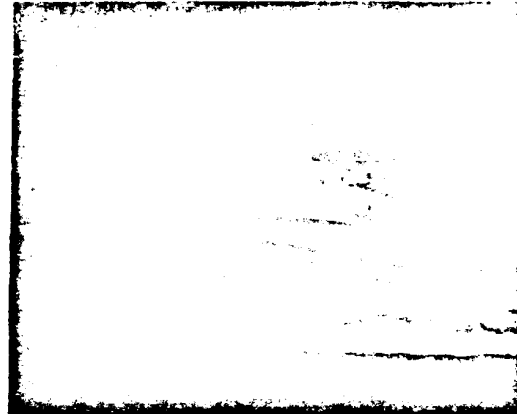
The network of cables supplying power to the two 19,000 hp motors that drive the rolling mill is complex. Six cables carrying 13,800 v run from a primary transformer in a substation (that steps down power from 69 kv to 13.8 kv) to the switchgear for motor 1. The motor starting switchgear is about 1100 ft. from the transformer. Four 100 ft. cables connect the motor starting switchgear to the motor. Motor 2 is served the same way except that it is about 175 ft. from its switchgear.

To control stray ground current corrosion often found near high powered electric motors and power cables, U.S. Steel power engineers specified that all cables be neoprene jacketed. Possible fire damage to cables exposed in buildings is minimized by wrapping cables in these inside runs with fireproofing tape.



LIA14138

La Merle III underway. Despite its 200
power diesel, conversation is comfortable.



... And Quiet, Too

Sleek, fast, seaworthy... and quiet, too. Not many power boats live up to that list of specifications. The noise from a high powered V8 or light-weight marine diesel becomes more than a nuisance in most boats. *La Merle III*, an elegant 36 foot twin diesel yacht, custom designed and built by John Holmes, Inc., of Osprey, Florida, is a remarkable exception because it is quiet as well as fast and sure footed.

Boats like this are unusually difficult to soundproof. Transmission of noise and vibration through the frames and planking is one reason. Noise from the exhaust is another. And, of course, a major problem exists when light weight decks and bulkheads are asked to stop sound which would be blocked by a masonry or plaster wall if the same power plants were used on dry land.

To minimize the structural transmission, the engines were mounted on stringers isolated with resilient material. To muffle the exhaust roar, the mufflers were equipped with resonant cavities. This left one major area for improvement — achieving tough, lightweight decking and bulkhead construction with real sound-dampening power.

Designer Don Carter of the Holmes

organization turned to Lead Industries for help and, working with data supplied by them, developed a structural system weighing less than 3 lb. sq. ft. which achieved 50 db (decibels) attenuation at 1000 cps. (cycles per second). And this performance was turned in by the finished job — as established by actual testing of the finished boat.

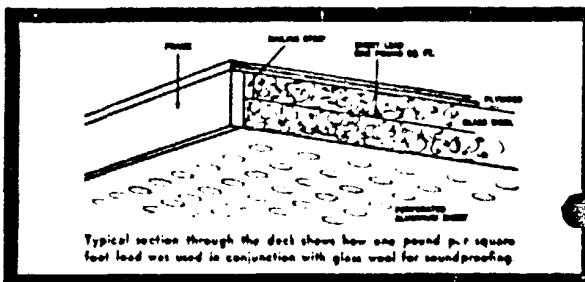
To achieve this performance, the designer settled on a double sandwich construction. A nailing strip was mounted along the inside of all frames and interframe members forming the deck surfaces over the engine room, as well as the forward bulkhead. Standard glass wool batting was compressed into these areas and lead sheet

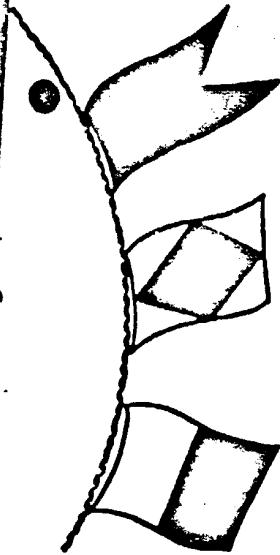
weighing one pound per square foot was fastened in place over the lead by the nailing strips. A second layer of glass wool bat was then inserted over this, stapled in place with fiberglass screening, and a sheet of perforated aluminum with 25 per cent open area fastened over the whole.

Lead Sandwich

This sandwich plus the plywood structure forms the whole floor covering the engine room as well as the forward bulkhead. The after bulkhead faces the area under the open cockpit. This gives it a low priority in noise reduction.

All openings were entirely closed





with plastic pipes or boxes except for a major ventilator up to the flying bridge. This long leather duct is shielded by a control panel and contains on its way through the salon and therefore is not troublesome as it could have been treated with lead-lined vinyl. Underway, the engine room noise sounds like a huge waterfall as you pass this duct. On the flying bridge when a panel is removed, the same noise is heard; however it forms more of a novelty than a nuisance and therefore has been left there deliberately.

The interior of the deckhouse salon had moderate contributions to acoustic ideals. A heavy rug was most effective, but large areas of glass provide heavy reflections. However the overall results are extremely gratifying. At cruising speed conversation can be carried out at normal levels which with two lightweight two cycle 265 HP diesels is quite unusual to say the least. Opening the very small hatch into the engine room produces a noise which is just beginning to be slightly painful. Forward, in either of the two private staterooms engine noise is even lower than in the salon. On the flying bridge it requires quiet surroundings and concentration to hear the engines start.

Technician examines coated cylinder block under the irradiation horn after treatment.

RADIATION CURED COATINGS

Paints and plastics can now be cured without solvents or heat with a new electron irradiator designed for production line use.

The irradiator, developed and manufactured by Radiation Dynamics, Inc., is designed to cure a wide variety of coated materials—metals, plastics, wood, paper, textiles or ceramics. The result: it is possible to dispense with ordinary solvent and solids systems and to use resin monomers directly, polymerizing them *in situ* by radiation. That means lower cost starting materials and denser coatings.

Besides reducing coating cure times to less than one second, radiation eliminates heating, thus eliminating expenses for gas, electricity, oil or heat lamps, not to mention elimination of possible heat damage. Conventional curing ovens often take 48 hours to reach operating temperature.

The irradiation process also makes

entirely new coatings possible. Examples are "structured and patterned" coatings in a whip cream-like consistency, and coatings with thick embossed surfaces that are highly decorative and provide amazingly increased

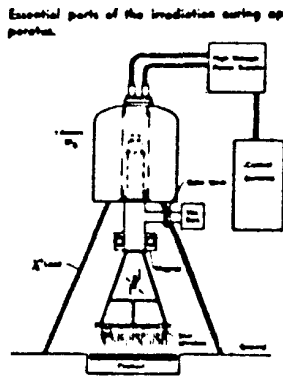
says Dr. K. H. Morganstern, president of Radiation Dynamics, Inc.

Heart of the new process is a small, relatively inexpensive particle accelerator of 300 kv, 25 ma. to 50 ma. beam strength, named the Dynacore. Power is drawn from a 220 v. single phase 60 Hz line.

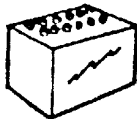
Operation of the accelerator is quite simple in principle. High voltage, brought to the head energizes a thoriated tungsten filament which emits a stream of electrons. The beam is focused, accelerated to 300 kv and magnetically deflected (similar to beam deflection in TV picture tubes) and brought out through a thin titanium window at the bottom of the fan-shape scan horn. The work to be irradiated is conveyed directly under the horn.

Shielding for the Dynacore is simple. Since the beam consists of 300 kv electrons it is necessary to shield against the Bremsstrahlung or X-rays produced when the electrons are stopped by the work or other material.

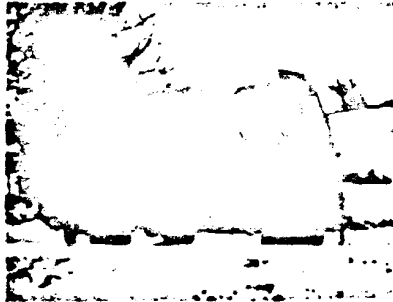
RDI engineers determined that if shielding is localized around the irradiation area (feasible with a unit as compact as this) lead is the most practical shield material at the 300 kv level. One half inch thick sheet lead does the job (see diagram for typical installation).



Maplehurst Dairy's Raymond Lomacron makes first stop of the day with battery powered delivery truck.



London's snow and winter weather does not deter the battery powered milk truck from its regular rounds.



Roger Martin of Maplehurst Dairy shows men with which battery vehicle is "refueled." Just 6 hours on charger puts vehicle in "go" condition.



In London, an articulated vehicle, battery powered, carries 110 cases of milk, travels up to 32 miles per day on one charge. Empire Dairy uses these for delivery to customers as well as to distribution points.



Once upon a time, just three or four decades ago, hundreds of electric trucks glided silently over the streets of American towns and cities delivering milk, baked goods, laundry and the like.

George Raymond believes it could happen again!

In fact, Maplehurst Dairy, which George and his family operate in Lincoln, Rhode Island, are so convinced that it will happen that they bought a battery powered van over two years ago and incorporated it into their fleet of 22 trucks. They have

operation the truck has been towed in for repairs just 5 times . . . and that is less than average for his entire fleet!

Oh, yes! There is snow and ice in Lincoln in the winter time; but the battery powered delivery truck goes right on, covering the same terrain as in summer, hills and all. The only addition is a small comfort heater, gasoline powered, installed in the driver's compartment and traction chains when needed.

We asked George about costs and he said that their records show that operating and maintenance total up to just 16½ cents per mile. Sure that this is substantially less than for the rest of the fleet, although there are so many variables to be considered in the other trucks that he hasn't been able to make an exact comparison. While we were discussing this, brother Leo, the controller, came out with a short adding machine tape containing just five sets of digits which totalled up to \$86.69. "This," said Leo, "is our entire outlay for maintenance parts on the electric since we have owned it!"

What are the disadvantages? we asked. They are few, according to George. "We would like," he said, "a little better speed, perhaps up to 35 from the top 25 mph now available. The truck would then be better able to compete in high-speed traffic. Of course, we just avoid that kind of traffic now, so we get along alright." Also, the Raymonds look forward to the new electronic controls now becoming available and a few minor improvements in the braking system, but they feel that their experience will make a contribution to these developments and hurry them along.

Our George doesn't know him, but there is another one in another

not been sorry. As George put it, the only thing he regrets is that these trucks are not yet available in quantity in this country, though he is sure they will be soon.

The electric at Maplehurst was assigned a regular route over the varied terrain in the Lincoln area: some flat, some quite hilly. A few of the grades are severe. The distance it travels is about 20 miles per day, 6 days per week, with 222 daily stops and starts. The time required from loading dock out and return is 8½ hours; George says that in more than 2 years of

Electric
By George

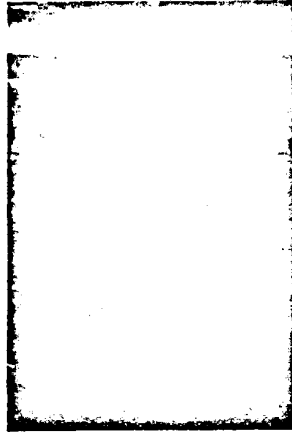
Trucks, ge!

country that operates more than 3,000 battery powered dairy trucks every day! George Pearson, Director of Retail Transport, Express Dairy Company, Ltd., London, England, was enthusiastic about his fleet of electric at the slightest opportunity. In fact, he is considered an international expert on the subject, and it's easy to see why after a few minutes in his office. There you will see an elaborate wall chart showing each vehicle by type and number, area assigned, length of route, number of customers, driver, service record, and all pertinent facts pertaining to the fleet.

Significantly, as the size of the fleet increased over the past nine years the costs of delivery decreased, on a unit basis. The major reasons for this are the pioneering that George Pearson has done in modifying the design of the vehicles (most of which he implemented in his own machine shop), and the system of routing he uses—one facet of which is to insure that no more than three miles is wasted in getting to the first stop, and back from the last stop. His shortest route is three miles out and three miles back (a man walks this one, guiding a battery powered delivery cart); his longest—51 miles and has 380 stops.

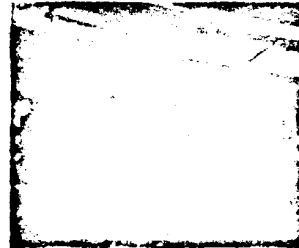
Incidentally, the other two major dairies in the London Metro area use battery powered vehicles, too, bringing the total population of such trucks to more than 13,000. Lead-acid batteries are used exclusively.

We don't know whether these two Georges will ever meet, but they have one thing in common: enthusiasm for a better way to serve their customers. And we suspect that the Walthamstow fleet, while it may not approach the size of the Express Dairy, will one day be as thoroughly saturated with electric!



Old method of cutting sleeves required hand sawing by man using hand. Press operator had to receive sleeves from the press.

New method automates entire cutting process at the press but and automatically delivers sleeves to ship floor. Press operator is fitted with hand saw.



Flying Saw Cuts Cable Sleeves

New automatic cutting and handling equipment has eliminated heavy manual labor in the production of lead cable sleeves at the plant of Northern Electric Company, Ltd., Lachine, Quebec.

Northern Electric's lead sleeves are used in the field to encase the splices in lead sheathed paper insulated cables.

The sleeves are extruded vertically in a ram type lead press. Extrusion is continuous; the press is stopped only for recharging.

In the past, the sleeves were cut manually. A workman on the top of the press cut the emerging lead pipe with a hand saw. In that fashion 80-in. lengths were cut as they came from the press. Then they were lowered to the floor on a rope. There the press operator bundled three stock sections together and they were taken to a power saw, trimmed, cut to length and individually packed into hard cardboard shipping tubes.

Northern Electric's engineers successfully automated the process using three synchronized and interdependent patented units: a flying saw, a transfer mechanism and an elevator.

To begin the automatic cycle, the press operator sets the desired length on the controls then air-actuated clamps grip the sleeve after it has reached that length. The saw is forced to travel at the same speed as the sleeve.

After cutting, the saw drops, and the sleeve is given to the transfer mechanism. When the saw retracts, the sleeve moves away from the press and ejects into the elevator conveyor.

The sleeve descends from the ram top to the floor (about 12 ft.) and stops at the press operator's work position. He then slides the sleeve into a cardboard shipping tube and stacks it onto a shipping pallet thus completing the cutting and packaging in one continuous step.

New home of the Newark Star-Ledger—one of the most modern newspaper plants in the nation.



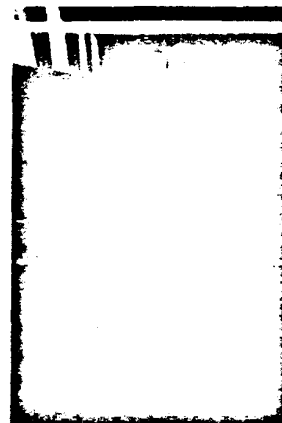
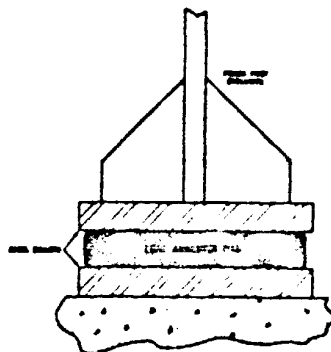
THE STORY BEHIND THE HEADLINE

how lead-asbestos pads quiet giant newspaper

The daily newspaper we all take for granted is the product of a remarkable manufacturing process. Consider that hundreds of thousands of copies are distributed to newsstands and carriers within an hour or so of a late-breaking story. Reporters win Pulitzer prizes, but the press room crew and the machinery behind the production of the paper deserve some plaudits, too.

Modern newspaper presses like those in the new home of the Newark Star-Ledger in Newark, N.J., can pour out a stream of 1,000 copies of a 56-page edition every minute. The sheet

Section through the foot of a typical press post.



Pads are visible on the floor with more being installed for the 44 press posts of the Newark Star-Ledger's new press room.

physical power of the equipment to imprint, collate and trim such a mountain of paper is awesome.

But in operation such a press would thunder out more than news were it not for the careful work of the engineers who design the foundation and structure of the machinery. William Ginsberg Associates of New York City, designers of the Newark Star-Ledger's facility has been making a science of this work since 1930 when

they did the old World-Telegram press

room. Lead-asbestos anti-vibration pads were one of the tools used by William Ginsberg Associates in the Newark job. "There's no one secret ingredient or magic formula in doing a good job of quieting a press," they say. "Lead-asbestos pads are not the whole answer but they can do a good job and they represent so little expense that we never leave them out unless we really have to." They explained that in some cases presses have to be squeezed into such tight quarters that there isn't an inch to spare.

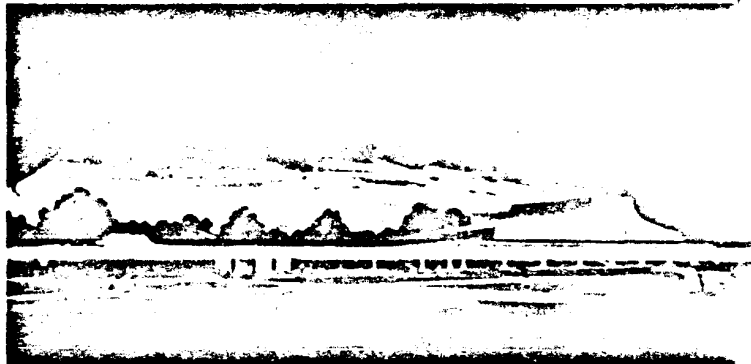
An inch, or more exactly an inch and a quarter, is the space taken up by the pad. It fits between two steel billet plates as shown in the detail drawing. Forty-four of these support the press posts of the Newark equipment. They are each about 24 x 30 inches and bear about 150 psi. The steel plate beneath the lead pad allows the rough work of driving shims (for

Lead-asbestos pads.



A SCULPTED ROOF

Nazareth College Arts Center



FOR THE ARTS CENTER

Construction put in place of more than 150 million dollars in 1965 makes Giffels and Rossetti of Detroit the largest architect-engineer firm in the United States. Does such enormous size cause a lack of attention to those details which make up successful architecture? Not so with Giffels and Rossetti. The United States Department of Health, Education and Welfare just recently bestowed an honor award for an Arts Center done by this firm in Rochester, New York. The award competition was jointly sponsored by the A.I.A. and an affiliate of the Ford Foundation: the Educational Facilities Laboratories, Inc.

The Arts Center is for Nazareth College, a suburban liberal arts college of about 1,200 students. Three related units comprise the group—an art wing, a music section and an auditorium. The auditorium dominates the ensemble. Its distinguishing characteristic is the bold, sculptural sweep

of its roof lines.

The roof here, as in all three buildings, is standing seam terne metal. Mr. Gino Rossetti, its designer, says he selected this roof material for visual effect. Its lightness created fewer problems when used on extreme slopes and short radius curves. Its paintability allowed him to make the roof a part of the color scheme. A further bonus, of course, is the fact the choice of white for more than a third of the total roof surface (thereby reflecting heat) will return significant savings in air conditioning costs.

A total of about 45,000 square feet of terne roofing was used. Flat seams were utilized on tight curves and standing seams on 30 inch centers elsewhere. Substrate was $\frac{3}{8}$ inch exterior grade plywood on furring strips. Robin sized paper was the immediate underlayment for the terne. General Contractor for the work was John Luther and Sons of Rochester, N. Y.

presses



View of press room after press was installed.

leveling) to be done without injury to the pads.

In addition, the second deck—where the pressmen work—is supported by smaller pads $\frac{1}{2}$ inch thick. There may be as many as 150 in a typical installation of this size.

The power and inertia of these big presses is such that William Ginsberg Associates always recommend that their foundation be separate from that of the building. One important function of the pads is evident in the case where both of these foundations go down to the same bedrock. In this case, the pads are the sole effective break in the vibration path.

Powerful metalworking tool, Model 6200 Microbeam Laser by Perkin-Elmer. It produces 40 watts of continuous coherent infrared light for accurate soldering.



COOL Soldering Developments

It doesn't take much heat to make a lead-alloy solder joint. Nearly any heat source will do. But when it comes to soldering tiny electronic leads (some no larger than a human hair), what do you use?

The ordinary torch or soldering iron is just too big—the equivalent of using a blowtorch to light a birthday candle. Of course, literally billions of

—both by hand and with elaborate machinery (see recent issue of LEAD). In every case the object is to bring the solder to its melting point as rapidly as possible with minimum heat loss to surrounding components.

One device that could fulfill these requirements admirably is a machine recently introduced by Perkin-Elmer Corp., Norwalk, Conn. Called the Model 6200, it is a continuous wave

gas laser. It has a minimum 40 watt output. Continuous output may be maintained at a minimum 40 watt level; however, the operator can select an intermittent energy level from a few milliwatts on up. Present output energy is many times that previously available—the equivalent of four million watts per square centimeter. Enormous energy such as this can be

accounts for its great potential in soldering, cutting, fusing, and other heating applications.

The Model 6200 laser's high-energy light beam is very narrow, thus extremely small areas can be soldered easily. With an additional lens the beam at the workpiece may be focused to a diameter of 1 mm—and mirror attachments may be used to bend the light around corners for joining in

otherwise inaccessible areas.

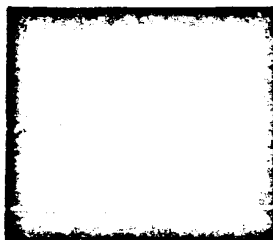
Wavelength of the Model 6200 laser's beam is 10.6 microns—in the infrared area of the light spectrum. "Of course this is a very useful area of the spectrum," notes Douglas Worth, Laser Product Sales Manager at Perkin-Elmer, "and due to an 'atmospheric window' at this wavelength the laser's power is not notably attenuated by atmospheric absorption."

The laser, including its self-contained power supply, measures 12" high by 12" wide by 60" long and weighs 175 lb. It operates on 115 Volts ac, 60 Hz (cps). For safety and operator convenience, Perkin-Elmer's Model 6200 folds the beam down onto an asbestos sample platform which can be equipped with a micropositioner accessory that permits accurate placement for fine work.

Pull Color Viewing—Controlled resistance heating provides accurate selection and repeatability of soldering temperature with this Brown Model 1900 Production Microsoldering System. Produced by Brown Engineering Co., Santa Barbara, Calif., the unit requires little training for operation, and after initial programming, all operations are automatically controlled.



Finger Grip Control—Instant finger grip heat control is a feature of this new resistance soldering tool by Triton Manufacturing Co., East Haddam, Conn. Choice of low heat output transformers permits application of accurate heat dosage without damaging delicate parts or assemblies.



Interesting Odds 'N' Ends about Lead

Mini Skirt on a Mini Bike! The Winn City Battery Bike, a British innovation, is somewhat smaller than the conventional motor bike, but is intended for the short errand trip, or for commuting, and will fit in tight traffic and parking conditions. Inventor Russell Winn claims a top speed of 30 mph and a range of 25



miles before needing a recharge of the 12 volt lead-acid battery. Recently, Mr. Winn has been in the U.S. seeking market outlets, so you may see these on our streets soon.

Old dog/new tricks. Most any freshman chemical text written before World War I has a picture and a description of making pyrophoric lead - lead powder so fine that it spontaneously bursts into a shower of sparks when tossed in the air. A report published in the *New Scientist* (London) now points out that the stunt has been dusted off and is being used in purifying gases by removing oxygen traces from them. It seems the lead is faster and easier to handle than other materials used until recently.

A lead telluride power source

A microphone relay is being developed for the Air Force. The unit will be a 100-w, 25-v source with a life of over 1000 hr. and yet will be a 12-in. cube weighing about 20 lb. same fuel and fuel tank. It will be a direct conversion device in which heat from burning butane, propane or other liquid hydrocarbon will be applied to a thermocouple junction to produce electricity. Advantages: silent operation, easy startup, foolproof manual control and no rotating parts.

Lead sheathed cables don't have to have conductors to be useful! Shown here is one end of a tube made by *Süddeutsche Kabelwerke* (Germany) using conventional cable



has all the advantages of a lead sheath - it is flexible and can be produced in long, joint-free lengths - and has been incorporated in gas distribution systems where a rigid pipe would be difficult to lay, for example across rivers. The impermeable lead keeps the gas in and the water out.

The tube is 4 mm. thick with an internal diameter of 75 mm. It is made from a 0.04% tellurium-lead alloy and the various protective layers include galvanized steel strips and jute.

CHANGE
OF
ADDRESS
OR
NEW
READER

Use this side of
the coupon if you
have recently changed
your address or if
you would like to be
added to the mailing
list for LEAD

CHANGE OF ADDRESS

ADD ME TO YOUR MAILING LIST

(please circle one)

PLEASE
CIRCLE
INTEREST

From

Name, title

Company

Street

City, state, zip code

To

Name, title

Company

Street

City, state, zip code

☐ Architectural
& building

☐ Design
Engineer

☐ Corrosion

☐ Radiation

☐ Other
(please specify)

lead



The following publications are available free of charge unless otherwise noted. Send request to the
LEAD INDUSTRIES ASSOCIATION, 292 MADISON AVENUE, NEW YORK, N. Y. 10017

NEW LISTINGS

The lead matrix

A 26-mm color film describing the diverse uses for lead. Available for group showings.

Sound tests tabulated

Eight page reprint details use of lead for noise control. Reviews common problems and the solutions that have worked.

New developments in organolead chemistry

Latest trends in using organoleads for variety of purposes. Eight page reprint gives data and reactions.

GENERAL

Lead & zinc supply and demand

Interim report (1960-1961) on the short and intermediate supply and demand prospects for lead and zinc. Thirty five pages.

Design engineering data

BATTERIES

Something new to know about battery power

New developments increase capabilities of battery trucks and truck programs.

Picture book of power batteries

Industrial truck costs in a jiffy

CONSTRUCTION

Lead to control sound and vibration

Isolation of buildings from vibration. Three reprints discuss a number of case histories of the use of lead asbestos pads to control ground borne vibration.

Ways to reduce press vibration

Practical lead sound barriers

Twelve page manual gives specific wall constructions and performances.

Lead roofing and flashing

Sixteen-page handbook gives all standard lead roofing systems.

High-temperature lead joints

Waterproofing with sheet lead

Lead work for modern plumbing

\$2 per copy; \$1.50 for 10 or more.

ENGINEERING

Soldering alloys

New developments in soldering equipment and methods

Five new soldering techniques are described and shown. Best features of each are indicated. Four pages.

Where to useterne coated steel

Four page reprint summarizes new industrial uses forterne, a lead coated steel.

Modern chemical construction

Method of lining lead tanks

Use epoxies to line tanks with lead

Cleaning "hot" parts ultrasonically

Piezoelectric transducers

Importance of lead in glass

New electroceramic data

Lead sheathing for power cable

Materials of construction review

Corrosion data—lead & alloys

Nuclear materials

Radiation protection

Anodes for cathodic protection

FINISHES

Classification of inorganic enamels

Two part description of inorganic glass enamels and application techniques. Three tables, six pages.

Follow the safety line with chrome yellow

Formulations and suggested applications for chrome yellow safety paints. Eight pages.

Lead paint systems for bridges

Two reprints.

Decorative finishes for lead

Red lead based paint systems

Porcelain enamels:

For aluminum

Low temperature steel

Glares for brick

UPON REQUEST, THE LEAD INDUSTRIES ASSOCIATION WILL BE GLAD TO MAIL "LEAD" REGULARLY, FREE OF CHARGE, TO THOSE INTERESTED, AND WILL COOPERATE WITHOUT OBLIGATION IN THE SOLUTION OF YOUR LEAD PROBLEMS.

Reproduced by Interpress from lead type.

PRINTED IN U.S.A.
COPYRIGHT © 1961-1962, LIA
NEW YORK, N. Y.

Mail to: Lead Industries Assn., Inc., 292 Madison Ave., New York, N.Y. 10017

Name, Title

Company

Street

City, State, Zip Code

Please send

TO
REQUEST
LITERATURE