

Safety Bulletin

Volume One
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BESSER

Safety Basics

by
Amy E. Essex
Tax & Risk Manager

The importance of safety in the design, operation, maintenance and repair of equipment is in the public eye now more than ever before. In the last decade Federal, State and International Safety and Health Standards have become increasingly stringent. For instance, during this time the adoption of the Occupational Safety and Health Administration (OSHA) Lockout/Tagout Standard, the ANSI-Z535.4 Standard for safety signs and decals, and European Union requirements for equipment sold in Europe and the United Kingdom have been instituted.

Safety is important not only because governmental agencies are imposing harsher requirements and stricter penalties for failure to meet those requirements, but because employees are a company's most important asset and deserve to be protected from hazards. There are numerous ways to protect employees. This article will address the following necessary components of a plant safety program:

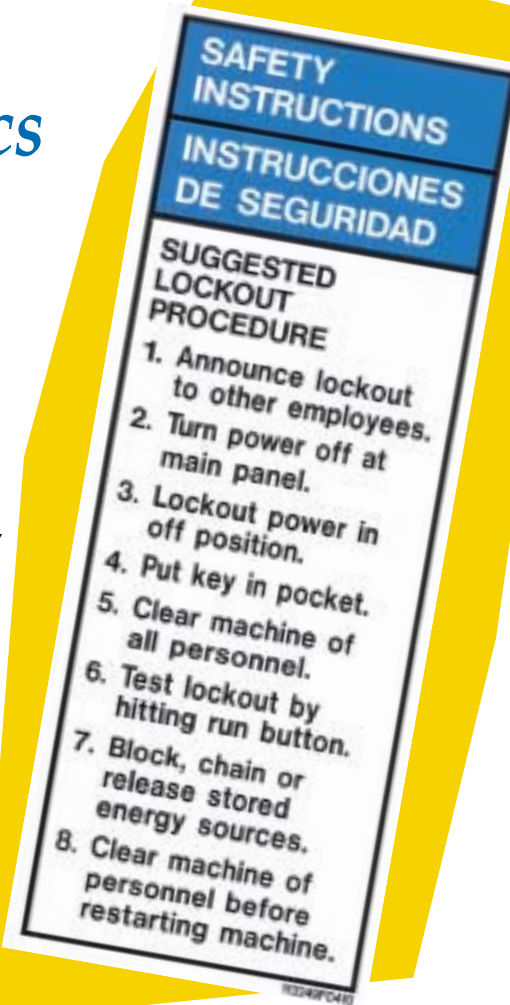
- 1) The Safe Work Environment;
- 2) The OSHA Lockout/Tagout Standard; and
- 3) Pictorial Warnings.

The Safe Work Environment

The most important benefit an employer can provide to employees is a safe work environment, which, in fact, is required by law. The most important measure that employees can do for themselves and for the company is to follow the safe work practices and procedures each plant develops.

ELEMENTS OF A SAFE WORK ENVIRONMENT:

- Proper guarding is in place for all pinch, shear, crush and nip points.
- A written lockout/tagout procedure is in place.
- Employees are trained in safety.
- The work area is free from slipping and tripping hazards.



- Never climb or stand on any equipment while it is operational.
- Never exceed the rated capacity of a machine or tool.
- Never operate any equipment if unusual or excessive noise or vibration occurs.

OSHA Lockout/Tagout Standard (29 CFR 1910.147)

Lockout/tagout is one of the least expensive and least complicated OSHA standards with which to comply, yet in many industries it is the most cited OSHA violation. Violation of the lockout/tagout standard usually involves the employer not having a formal written lockout/tagout program in place or not conducting training for employees. Recently, a Besser customer was visited by the OSHA department in their state, resulting in the assessment of several fines, one of which related to failure to "develop, document, and utilize procedures for the control of potentially hazardous energy when employees are engaged in service or maintenance of machines or equipment where unexpected energization, start-up or release of stored energy could occur and cause injury." This particular company was fined US \$600 for this violation, but the fines can be as high as US \$10,000.

The OSHA Lockout/Tagout Standard was developed in 1990 to prevent the accidental release of energy from equipment. The OSHA standard establishes the minimum requirements for lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. The procedure should be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury. If the lockout procedure is not followed, severe injury or death can result. Representatives of OSHA have stated that compliance with the standard could prevent as many as 120 deaths and 60,000 accidents yearly.

Shown above is a suggested lockout procedure decal available

- Equipment is not modified without written approval of the manufacturer.
- Proper maintenance is performed on the equipment.
- The operation or repair of equipment by untrained personnel is never allowed.

SAFE WORK PRACTICES AND PROCEDURES:

- Follow the written lockout / tagout procedure.
- Make sure your fellow workers are clear of equipment before starting it.
- Be sure you use the appropriate safety devices when providing maintenance and repairs to any piece of equipment.
- Always be sure equipment is properly grounded.
- Always wear appropriate protective equipment like safety glasses, safety shoes, hearing protection, hard hats, etc.
- Never operate any equipment while any part of your body is in the proximity of potentially hazardous areas.

from Besser Company. This decal should be placed on all machines and electrical panels. The decal will enable employees to refer to the lockout procedure rather than having to memorize the procedure. *However*, do not substitute the decal for a written lockout/tagout procedure and training program. The decal is meant to be an aid to a formal procedure,

did not have a uniform standard or guideline for designing product safety signs and decals. Most manufacturers either developed their own warning designs, borrowed the OSHA designs for environmental and facility safety signs, or purchased generic warning signs from safety sign companies. The result was a multitude of

mailing, Besser customers were urged to retrofit their equipment with these labels. These pictorial warning decals are designed in accordance with the ANSI Z535.4 Standard. The decals are shown on pages five through eight of the 2000 Besser Parts and Accessories Catalog, and can be ordered from the Besser Central Order department or through your local Besser representative. Prints are also available showing the suggested placement of the decals.

Besser had a good response to the 1990 mailing, but that was a long time ago. Please check the status of the pictorial warnings on your equipment. If they are missing or unreadable, now is the time to replace them.

Developing A Plant Safety Program

Use of the safety practices and procedures detailed above are minimum guidelines for the development of a plant safety program. These guidelines should be tailored to fit the specifics of each plant, including the types of equipment used, the types of operations which will be performed on each piece of equipment, and any specific guidelines issued by the OSHA department in each state. Remember, ultimately it is the responsibility of the employer to ensure that employees have safe work conditions. ■

References:

1. OSHA Compliance Manual for General Industry, Appendix A to 1910.147 – Typical Minimum Lockout Procedure, 1995, The Merritt Company.
2. 29 CFR §1910.147, The Control of Hazardous Energy (Lockout/Tagout).
3. The ANSI Z535.4 Standard and the Product Safety Design Process, 1996, Geoffrey Peckham, Hazard Communications Systems, Inc.



In 1990 Besser Company instituted a pictorial warning program. All Besser customers were mailed notification of the availability of pictorial type warning decals for all Besser machines, conveyors, motors and electrical panels. These pictorial warning decals are designed in accordance with the ANSI Z535.4 Standard.

and a reminder to employees of the steps which should be followed.

When you review these resources please keep in mind that ultimately it is the responsibility of the employer to ensure that a formal written lockout/tagout procedure is in place and that employees are trained in the application of the lockout/tagout procedure. The OSHA Lockout/Tagout Standard is not only required by law, but following it makes good sense.

Pictorial Warnings

Prior to the approval of the American National Standards Institute (ANSI) Z535 Standards in June 1991, product manufacturers

product safety sign designs, colors, and messages in use.

The ANSI Z535.4 Standard was specifically designed to correct this problem. It establishes definitions for the layout, content, and color of a product safety sign. The result for plant owners and employees is a system of safety signs and decals that are easily recognizable and understandable, resulting in fewer product-related injuries and deaths.

In 1990 Besser Company instituted a pictorial warning program. All Besser customers were mailed notification of the availability of pictorial type warning decals for all Besser machines, conveyors, motors and electrical panels. In our

The Importance of Pictorial Warnings

by Amy E. Essex
Besser Company Tax & Risk Manager



Have you ever wondered why there are pictorial labels on Besser capital equipment? The labels are there to communicate valuable information regarding safe operation of

the equipment. If these warnings are followed by everyone who operates, maintains or repairs the equipment, the labels may prevent a serious injury, or even save a life.

Pictorial warning labels are carefully designed and worded to be easily understood, even by people who speak other languages. A plant owner, manager or supervisor can benefit from understanding the importance of these labels and the process behind their formulation and design.

The Construction of Pictorial Warning Labels:

There are strict guidelines (ANSI Z535.4) which address the design of safety signs. A good safety sign contains all of the following elements:

Signal Words: CAUTION, WARNING or DANGER

It is important that the warning label begins with the correct signal word.

CAUTION indicates a potentially hazardous situation which, if not avoided, **MAY** result in **minor or moderate injury**.

WARNING indicates a potentially hazardous situation which, if not avoided, **COULD** result in **death or serious injury**.

DANGER indicates an imminently hazardous situation which, if not avoided **WILL** result in **death or serious injury**. This signal word is to be limited to the most extreme situations.

You may wonder, why not be “safe” and use the DANGER signal word for all potentially hazardous situations? The answer is simple: because people tend to become “immune” to warnings when overused. If all the equipment in

your plant was plastered with **DANGER** signs workers could become used to the signs and begin to ignore the signals, or they may not recognize situations where true **DANGER** is present.

Safety Alert Symbol.

The safety alert symbol indicates a potential **personal safety hazard**. It is made up of a triangle surrounding an exclamation point. If the hazard *could* result in personal injury the safety alert symbol should be present on the pictorial warning label.



Colors - Yellow, Orange and Red

CAUTION

Caution- should be in black letters on a **yellow** background

WARNING

Warning- should be in black letters on an **orange** background

DANGER

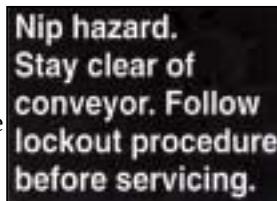
Danger- should be in white letters on a **red** background

These colors were carefully selected by the ANSI committee and are intended to serve as visual codes to reinforce the meaning of the signal words. By using these colors consistently, workers will recognize the level of hazard seriousness at a glance.

The Word Message

The signal word and the color as described above unite to communicate the seriousness of the hazard.

The word message and the pictorial itself combine to communicate the three other



Nip hazard.
Stay clear of
conveyor. Follow
lockout procedure
before servicing.

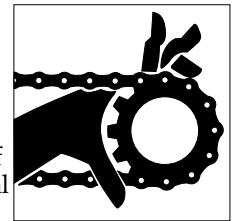
elements of the sign:

- * the nature of the hazard,
- * how to avoid the hazard, and
- * the consequence of involvement with the hazard.

The word message should be concise and readily understood. However, when detailed instructions, precautions or consequences become lengthy, the pictorial sign may refer the user to the proper instruction manual.

The Pictorial

The pictorial is a graphic representation intended to convey a message without the use of words. The pictorial can represent a hazard, a hazardous situation, a precaution to avoid a hazard, a result of not avoiding a hazard, or any combination of these messages. Pictorials can be used as a supplement to or in place of a worded message on a safety sign or label.



Foreign Languages

The ANSI Z535.4 standard does not address the issue of bilingual formats for product safety labels. However, Besser has designed labels to show the signal word in both English and Spanish. Also, because many Besser customers have employees with various language backgrounds, safety labels have recently been introduced which show both the signal word and the word message in one of five languages: Spanish, French, Italian, Russian and Chinese (see Besser Block, Third Quarter 1997, Vol. 22, No.3).



Pulling it Together

When all of these elements (signal word, color code, word message and pictorial) are combined, the result is a pictorial warning label that is intended to show staff at a glance what hazard is present, how to avoid the hazard and what the consequences are if the hazard is not avoided.

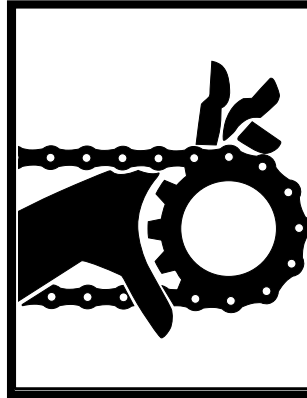
In 1990 Besser enhanced its warning labels by adding pictorials. At that time, customers were notified of the availability of these labels. For the safety of your staff, if labels for your pre-1990 equipment have not been obtained or if any of your equipment has missing or damaged labels, please take the time to order TODAY.

These labels can be ordered from pages three through eight of the 2000 Besser Parts and Accessories catalog. If you do not know which labels you

need, please contact a Besser representative for assistance.

References: ANSI Z535.4 Standard

The ANSI Z535.4 Standard and the Product Safety Design Process, Geoffrey Peckham, Hazard Communications Systems, Inc., September 1996



⚠ WARNING

⚠ MUCHO CUIDADO

Nip hazard. stay clear of conveyor. Follow lockout procedure before servicing.

SAFETY BULLETIN

This notice is issued to advise you that some previously accepted shop practices may not be keeping up with changing Federal and State Safety and Health Standards. Your current shop practices may not emphasize the need for proper precautions to insure safe operation and use of machines, tools, automatic loaders and allied equipment and/or warn against the use of certain solvents or other cleaning substances that are now considered unsafe or prohibited by law. Since many of your shop practices may not reflect current safety practices and procedures, particularly with regard to the safe operation of equipment, it is important that you review your practices to ensure compliance with Federal and State Safety and Health Standards.

IMPORTANT

The operation of any machine or power-operated device can be extremely hazardous unless proper safety precautions are strictly observed. Observe the following safety precautions.

- Always be sure proper guarding is in place for all pinch, catch, shear, crush and nip points.
- Always make sure that all personnel are clear of the equipment before starting it.
- Always be sure the equipment is properly grounded.
- Always turn the main electrical panel off and lock it out in accordance with published lockout/tagout procedures prior to making adjustments, repair, and maintenance.
- Always wear appropriate protective equipment like safety glasses, safety shoes, hearing protection and hard hats.
- Always keep chemical and flammable material away from electrical or operating equipment.
- Always maintain a safe work area that is free from slipping and tripping hazards.
- Always be sure appropriate safety devices are used when providing maintenance and repairs to all equipment.
- Never exceed the rated capacity of a machine or tool.
- Never operate equipment if unusual or excessive noise or vibration occurs.
- Never use any toxic flammable substance as a solvent cleaner.
- Never allow the operation or repair of equipment by untrained personnel.
- Never climb or stand on equipment when it is operational.

It is important that you review Federal and State Safety and Health Standards on a continual basis. All shop supervisors, maintenance personnel, machine operators, tool operators, and any other persons involved in the setup, operation, maintenance, repair or adjustment of Besser-built equipment should read and understand this bulletin and all Federal and State Safety and Health Standards on which this bulletin is based. For additional copies of this bulletin see page three of the 2000 Besser Parts and Accessories Catalog or contact Julie DeYoung at 517-354-1170.

Confined Spaces

by Amy E. Essex
Besser Company Tax & Risk Manager

Background

In October 1993, OSHA issued general industry safety standards relating to confined space entry. OSHA initially directed its efforts at certain high-risk industries where every entry into a confined space was potentially fatal. Through informational articles and crack downs by state OSHA departments, employers in other industries are gradually becoming aware of the responsibility to protect and educate their employees about confined spaces and the potential hazards. This article is intended to make you aware of the OSHA Confined Space Safety Standard by providing background information. Contact your OSHA area representative to get more specific guidance on the standards in your state.

What is a Confined Space?

A confined space has ALL of the following characteristics:

- The size and shape of the space allows a person to enter it;
- The space has limited openings for workers to enter and exit; and
- The space is not designed for continuous occupancy.

Look around your plant: which pieces of equipment and areas in your facility exhibit the characteristics described above? What about bins, hoppers, kilns, mixers, or pits? There is a good chance that your state OSHA department will consider some or all of these to be confined spaces. There may be other areas in your plant which are also considered confined spaces. So you should never let your employees enter these spaces, right? WRONG!! Mixers, bins, kilns, pits and other potential confined spaces unique to the concrete industry need to be cleaned and maintained on a regular basis. These activities

usually require that employees access these spaces. What can you do to protect your workers from potential hazards? Just as you need a written policy for the OSHA Lockout/Tagout Standard, you must also develop a written policy for entering and working in confined spaces and you must educate your employees about what could constitute a confined space.

Permit-Required Confined Spaces

Certain confined spaces are further characterized as "Permit-Required Confined Spaces." Such spaces require a permit before entry to the space can be allowed. The permit is issued by a supervisor or other company official and allows an employee entry into the confined space. The permit tells what hazards are present in the permit space and how to

movement of machinery

- Electrocution
- Heat stress
- Becoming wedged into a narrow part of the space and suffocating
- Physical dangers such as falls, debris, slipping ladders.

All confined spaces should be considered permit-required unless they are exempted by OSHA, or unless you can prove to OSHA, upon inspection, that the space is not permit-required. This permit requirement may be waived by your area OSHA office for mixers, pits and other pieces of equipment. However, exemption from the permit requirement **does not** free you from the obligation to institute procedures to keep employees safe when entering

these spaces. In fact, the OSHA office will not waive the permit requirement unless you can show that you have safety measures in place such as atmospheric monitoring data, lockout/tagout programs and additional training programs which show that the space should not be a permit-required confined space.



control them. Also included is a checklist of necessary safety measures. Access to permit-required confined spaces should be limited by a barrier where feasible, or clearly marked. Permit-required confined spaces include those which could pose the following hazards to your employees:

- Hazardous atmosphere
- Not enough oxygen
- Flammable or toxic air
- Engulfment – being trapped in liquid or solid material
- Danger from unexpected

Establishing a Confined Space Program

What steps do you, as an employer, need to take to establish a Confined Space Program? The first step is to get information on the applicable Confined Space Standards in your state. The general steps in establishing a program are:

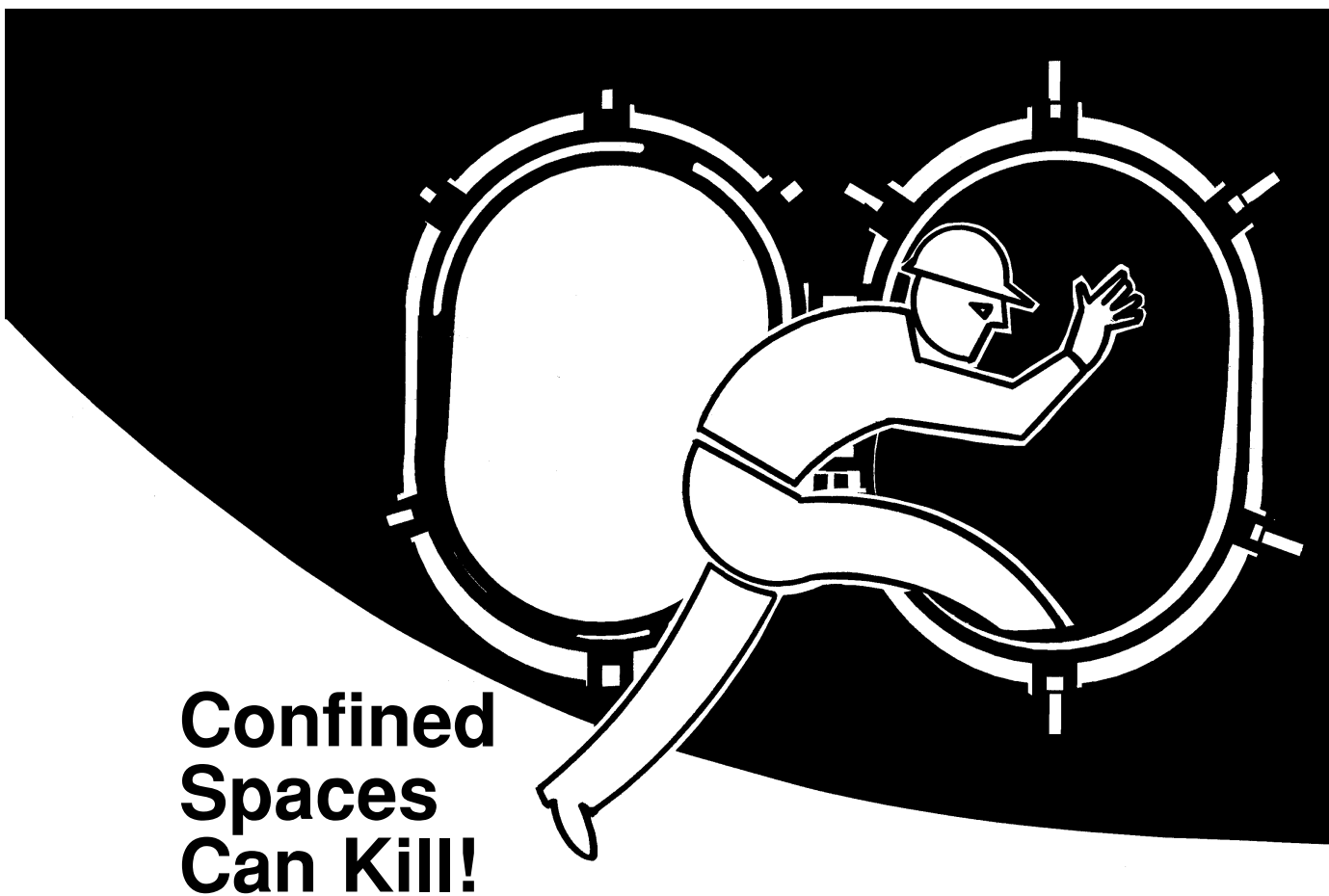
- Identify all permit spaces in your facility.
- Reduce employee risk around permit spaces with signs like the one pictured on this page and with training.

- Prevent unauthorized employee entry in permit spaces.
 - Develop and implement a written permit space program.
 - Document procedures establishing a non-permit space.
 - Re-evaluate spaces when conditions change.
 - Make special arrangements with contractors who may enter permit spaces.
 - Supply safety and personal protective equipment, if needed.
 - Establish emergency/rescue procedures in case someone becomes trapped in a confined space.
- Remember, it is your duty to keep your plant safe for your employees. This can only be achieved through awareness, education, training and cooperation of both the plant owner and the employees. ■

Please contact your area OSHA representative for specific guidance on confined space guidelines in your state.

References:

1. "Common Confined Spaces," Bob Eckhardt, *Concrete Products*, January 1997.
2. "A Guide to Safety in... Confined Spaces," National Institute for Occupational Safety and Health, published by Praxair, Inc., July 1987.
3. Department of Labor, General Industry Safety Standards Commission, Safety Standards, part 90: Confined Space Entry.



Confined Spaces Can Kill!

Make sure you know all of the appropriate procedures and precautions to take for entry into and exit from confined spaces. If there are hazardous confined spaces where you must work, your employer is required by law to have a permit-required confined space program, permit system, emergency procedures, appropriate engineering and work practice controls and to provide you with training and appropriate personal protective equipment. See OSHA's standard on confined spaces

in Title 29 of the *Code of Federal Regulations*, Part 1910.146. For related OSHA publications, contact your regional or area office, or call (202) 219-4667, FAX (202) 219-9266.

U.S. Department of Labor
 Robert B. Reich, Secretary
 Occupational Safety and Health Administration
 OSHA 3140
 1993



24-Hour OSHA Hotline: 1-800-321-OSHA
 (To report suspected fire hazards, imminent danger safety and health hazards in the workplace, or other job safety and health emergencies.)

Region I - Boston, MA (617) 565-7164
 Region II - New York, NY (212) 337-2378
 Region III - Philadelphia, PA (215) 596-1201
 Region IV - Atlanta, GA (404) 347-3573
 Region V - Chicago, IL (312) 353-2220

Region VI - Dallas, TX (214) 767-4731
 Region VII - Kansas City, MO (816) 426-5861
 Region VIII - Denver, CO (303) 844-3061
 Region IX - San Francisco, CA (415) 744-6670
 Region X - Seattle, WA (206) 553-5930

Reducing Lost Time Accidents

by Amy E. Essex
Besser Company Tax & Risk Manager



How long has it been since your plant experienced a lost-time accident? 1 year? 8 years? Chances are you have had several lost-time accidents within

these time frames. A lost-time accident is one that results in occupational injury or disease which disables the worker beyond the day of injury; i.e. the worker is unable to return to work for their next regularly scheduled shift. According to statistics published by the Bureau of Labor Statistics, U.S. Department of Labor, the 1997 lost-time incident rate for concrete block and brick manufacturers was 6.3 days per 100 workers. For equipment manufacturers (such as

Besser Company), the lost time incident rate was 2.9 days per 100 workers in 1997.

This article focuses on two companies: one just completed one year without a lost-time accident and remarkably, the other has been without a lost-time accident for over eight years. By comparing and contrasting the safety programs of these two companies you will see that these programs are not "one size fits all." A program that works well for one company may not be appropriate for another. The key is to find what works for you and your employees and set a program in action.

A Study of Conditions and People

Featherlite Building Products Corporation, with locations throughout Texas, recently completed a year without a lost-time accident. How was this accomplished? According to

Eddie Pina, Safety Director for Featherlite, the key was the *Safety Training and Observation Program (STOP)* by DuPont. "The main

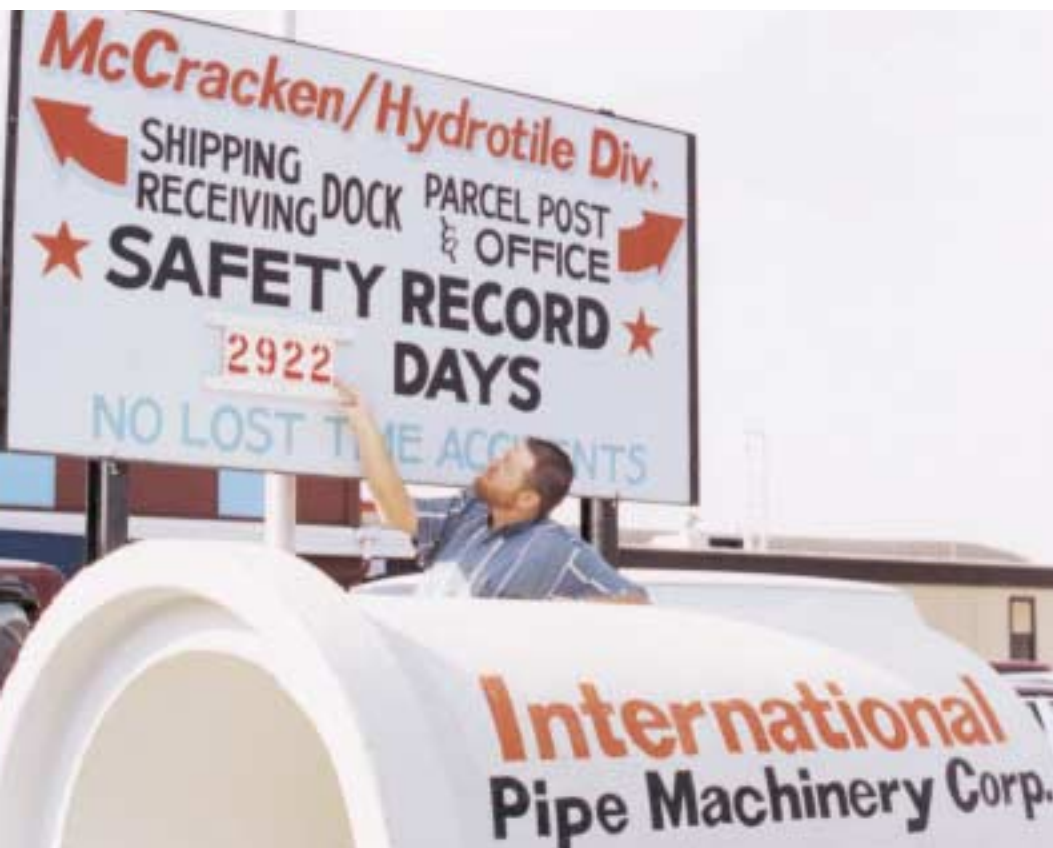
According to statistics published by the Bureau of Labor Statistics, U.S. Department of Labor, the 1997 lost-time incident rate for concrete block and brick manufacturers was 6.3 days per 100 workers.

objective of DuPont's program is to eliminate incidents and injuries. This is done by modifying behavior by observing people as they work and talking with them to encourage safe work practices and eliminate at-risk behavior."

STOP is based on the following principles:

- ✓ All injuries and occupational illnesses can be prevented.
- ✓ Safety is everyone's responsibility.
- ✓ Management is directly accountable for preventing injuries and occupational illnesses.
- ✓ Safety is a condition of employment.
- ✓ Training is an essential element for safe work practices.
- ✓ Safety audits must be conducted.
- ✓ Safe work practices should be reinforced and all unsafe acts and unsafe conditions must be corrected promptly.
- ✓ It is essential to investigate injuries and occupational illnesses as well as incidents with the potential for injury.
- ✓ Safety off the job is an important element of your overall safety effort.
- ✓ Preventing injuries

Mike Krom from the Besser International Pipe Machinery purchasing department updates the safety record sign.



and occupational illnesses is good business.

- ✓ People are the most critical element in the success of a safety and health program.

STOP utilizes videos and workbooks for training managers, safety coordinators, line supervisors and key lead people in the principles of the program.

Why has this program worked for Featherlite? "Featherlite has been successful with this program because it has taught our supervisors how to recognize unsafe actions of our employees. It has taught our supervisors how to talk with our employees and how to prevent recurrence of an unsafe act. STOP has also taught our supervisors how to reinforce positive behavior when an employee is working safe," stated Eddie.

For further information on STOP, contact DuPont at 1-800-532-SAFE or access their website at www.dupont.com/safety.

A Safety Record to Emulate

Incredibly, Besser International Pipe Machinery in Sioux City, Iowa, has completed eight years without a lost-time accident. This safety record was accomplished under the guidance of a six-person safety committee led by Don Groves,



production manager and safety manager at Besser International Pipe Machinery.

The safety committee at Besser International Pipe Machinery conducts random plant inspections on a monthly basis, looking for unsafe working conditions. Once an inspection has been completed, all shop employees meet to discuss the findings. These meetings can take as long as an hour and a half. The committee then works to change the unsafe conditions. Besser International Pipe Machinery strives to meet or exceed OSHA standards on all safety issues in the plant.

Do all employees need to meet for an hour and a half each month? Is this excessive? You might say "Yes",

but the safety record of Besser International Pipe Machinery says "No." The cost of one lost-time accident can easily off-set the cost of halting production for one hour every month or quarter so employees can discuss unsafe conditions and practices in the work environment.

According to Don, training and communication are the keys to the safe working conditions at Besser International Pipe Machinery. "Employee involvement is critical, and to be committed to safety. We are fortunate that our employees are sold on safety."

Comparison and Contrast

Featherlite uses a structured, commercial program purchased from a safety vendor while Besser International Pipe Machinery uses a less formal program consisting of regular plant inspections and all-employee meetings.

The similarity between the two programs is **SUCCESS**. Both programs include a strong component of communication and employee involvement. Employees do not want to be injured on the job. Insight and input from employees about how to do their jobs safely is an invaluable resource in formulating a safety program.

The key to safety:

Do what works for your company. Investigate resources and study what other companies are doing, then develop and administer a customized program suited to your employees.



Lockout/Tagout Revisited

by Amy E. Essex
Besser Company Tax and Risk Manager

An article titled "Safety Basics" in a previous Besser Block issue (Volume 22, Number 1) touched on the importance of a Lockout/Tagout Program. The following article takes a more in-depth look at lockout/tagout and discusses where to go for additional resources and assistance in setting up a program and procedures.

Employees performing service or maintenance on equipment can be exposed to injuries from the unexpected energization or start-up of the equipment or from the release of stored energy in the equipment. Many injuries can be prevented by following a proper Lockout/Tagout Program.

In January 1990, OSHA issued Standard 29 CFR 1910.147, Control of Hazardous Energy. The standard is known as the OSHA "Lockout/Tagout Standard" and compliance is **mandatory** for producers in the United States. The standard requires implementing procedures to shut down the equipment, isolating it from the energy source(s) and preventing the release of potentially hazardous energy while maintenance and servicing activities are being performed.

Lockout vs. Tagout

Lockout: A method of keeping equipment from being set in motion. It involves:

1. Putting a disconnect switch, circuit breaker, valve or other energy isolating mechanism in the safe or off position.
2. Placing a device over the energy isolating mechanism to hold it in place.
3. Attaching a lock so that the equipment can't be energized.

Tagout: A written **warning** attached to an energy isolating device which has been placed in the safe or off position.

NOTE - Locks and tags alone do not de-energize equipment. Attach them only after the equipment has been isolated from its energy source.

Other Important Definitions

Affected Employee: An employee who is required to use equipment on which servicing or maintenance is being performed under lockout or tagout, or who performs other job responsibilities in an area where such servicing or maintenance is being performed.

Authorized Employee: A person who locks or tags equipment in order to perform service or maintenance.

Energized: Connected to an energy source or containing residual or stored energy.

Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy.

Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy.

What if equipment is not locked or tagged out?

- A person could be **cut** by a sharp part that starts moving suddenly.
- A person could be **struck** by a part that hasn't stopped moving or starts moving accidentally.
- A person's limbs could be **crushed** between moving parts.
- An equipment part that isn't secured could **push** a person away with force.
- A person or his/her clothing could become **entangled** in a moving part.
- A moving part could **clamp down** on a person from above.

When should equipment be locked or tagged out?

- During set-ups
- Before performing maintenance
- During troubleshooting
- Before making repairs

In short - an employee should lock or tag any time a guard or other

safety device is removed or when an employee must place any part of his/her body where it could be caught by moving equipment. **All** mechanical equipment which is capable of sudden, unexpected movement should be locked or tagged out.

Employers' Responsibility for Lockout/Tagout

Employers must:

Develop an energy control program.

Use locks when equipment can be locked out.

Ensure that new equipment or overhauled equipment can accommodate locks.

Use an effective tagout program to ensure safety when tags rather than locks are used.

Identify and implement specific procedures (IN WRITING) for the control of hazardous energy including preparation for shutdown, equipment isolation, lockout/tagout application, release of stored energy and verification of isolation.

Institute procedures for release of lockout/tagout to include equipment inspection, notification and safe positioning of affected employees and removal of lockout/tagout devices.

Obtain standardized locks and tags which are of sufficient quality and durability to ensure effectiveness. The locks and tags should also identify the employees using them.

Train employees in specific energy control procedures.

Use training reminders.

Schedule annual inspections of the control procedures.

Adopt procedures to ensure safety when equipment must be tested during servicing, when outside contractors are working at the site, when a multiple lockout is needed for a crew servicing equipment and when shifts or personnel change.

Summary of Lockout/Tagout Procedures

1. **Notify** others - authorized employees should notify affected employees.
2. **Review** the entire Lockout/Tagout Procedure before beginning.
3. **Identify** all energy sources, understand the hazards and know how to control the energy sources.
4. **Shut down** the machine or equipment.
5. **Disconnect** the power - isolate the equipment from the energy sources.
6. **Lockout** or tagout the equipment to prevent an accidental start.

Each member of a work crew should apply his/her own lock (can be done using a multiple-lock hasp). It is the employer's choice whether to use lockout or tagout.

7. **Neutralize** stored or potential energy.
8. **Verify** isolation - test to make sure the equipment can't start.
9. **Begin** work activity.

Release from Lockout/Tagout Status

1. **Ensure** that the equipment is safe to operate.
2. **Safeguard** all employees and remove any tools from the area.
3. **Notify** affected employees that the equipment is being put back into service.
4. **Re-install** guards and other safety devices and ensure operability.
5. **Remove** the lockout/tagout device. Except in emergencies each device must be removed by the person who put it on.
6. **Re-energize** the equipment following a checklist.

Conclusion

Employers are responsible for developing and implementing a Lockout/Tagout Program and for training employees in the proper use of Lockout/Tagout Procedures. Employees are responsible for adhering to the program to keep themselves and co-workers safe.

As with other OSHA Standards, many state OSHA departments have developed their own standards and those should be taken into consideration when developing a program.

Quiz

Now that you understand the basics - take the following quiz to see how much you've learned (answers can be found on page 12).

Indicate whether each of these statements is true or false:	T	F
1. In a lockout, an energy isolating device is locked in the safe or off position.		
2. In a tagout, the energy isolating device is placed in a safe position and a written warning is attached to it.		
3. A worker may use any sturdy lock to apply a lockout.		
4. Lockout/tagout should be used whenever you are performing service or maintenance around any machine where you could be injured by unexpected start-up or release of stored energy.		
5. Each individual employee can decide whether to use lockout, tagout or both.		
6. Applying locks or tags in the right places de-energizes the equipment.		
7. Turning off the power switch removes all energy from powered equipment.		
8. Before lockout/tagout is applied, all workers in the affected area must be notified.		
9. Before you turn off equipment in order to lock or tag it out, you must know the type of energy it uses, the hazards of that energy and how to control the energy.		
10. Once you isolate a system from its main power source, you can be sure no energy will reach the equipment.		
11. In a lockout, one person is allowed to attach a single lock for an entire work crew.		
12. After equipment has been isolated from its power sources, it's still necessary to control any energy stored in the system.		
13. Before removing lockout/tagout devices, you must make sure the danger area is clear of tools and workers.		
14. If a worker is not present to remove his/her own lock, any co-worker can remove it as long as he/she first makes sure it's safe.		

Resources

Following are resources that may assist you in developing and implementing a Lockout/Tagout Program.

OSHA website - www.osha.gov

Contains a lockout/tagout tutorial that explains the OSHA Standard in "plain terms" and also contains a list of states which have adopted their own OSHA approved state plans.

National Concrete Masonry Association - (703) 713-1900

NIOSH website -

www.cdc.gov/niosh/homepage/html

Lists resources for ordering lockout/tagout videos which can be used for training purposes. The phone number for NIOSH is 1-800-35-NIOSH.

State or regional OSHA offices - contact OSHA at (202) 693-1999 for help finding the correct office to contact.

References

OSHA Standard 20 CFR 1910.147, Control of Hazardous Energy (Lockout/Tagout)

OSHA Lockout/Tagout (Loto) Tutorial, found at www.osha.gov

Corporate Safety Programs:

If You Can't Afford Safety, You Can't Afford To Be In Business

by Amy E. Essex

Besser Company Tax and Risk Manager

Does my company need a corporate safety program?

As a plant owner or supervisor/manager, you are no doubt extremely busy with the day-to-day pressures of running a successful business. How can you also devote time to ensure a safe work environment... because as an employer **you must**. It is a requirement that you protect workers from harm. But, equally important, it is to your benefit to institute a complete safety and risk control program in your facility.

FACT – 98% of all accidents and injuries are caused by unsafe working conditions, unsafe acts of personnel or a combination of both.

FACT – Employers that demonstrate to employees that they really do care about safety are likely to have fewer workplace accidents.

I carry worker's compensation insurance in case of an accident – isn't that enough?

The cost of accidents fall into two categories:

- **Insured Costs** – Worker's Compensation will cover:
 - Medical costs
 - Compensation costs
- **Uninsured Costs** – Not covered by Worker's Compensation:
 - Lost production time of injured worker getting first aid or medical attention
 - Costs of time spent investigating and reporting injuries, handling injured worker
 - Costs of hiring and training replacements for injured workers

- Interruptions and delays caused by accidents
- Damage to machines and materials caused by accidents
- Other indirect inefficiencies and hindrances

It has been estimated that uninsured costs are usually several times the insured costs. The amount paid for worker's compensation insurance is only a small part of the total cost of accidents, even though this is the most obvious direct outlay of money. *Preventing accidents pays doubly by reducing worker's compensation premiums and by reducing uninsured costs as well.*

Even if insurance paid all costs, you still have a responsibility to keep employees safe from harm. If a worker suffers a fatal injury in your plant, all the insurance in the world won't bring him/her back. An effective safety and risk control program includes safety and injury prevention activities as well as post-accident loss control measures. Every effort should be made to identify and eliminate physical hazards and educate employees as to the most cautious and efficient method of performing required tasks. If an injury does occur, despite safety and injury prevention measures, the risk control program must have appropriate post-incident follow-up activities in place to minimize the severity of the incident.

Whose responsibility is safety?

Each employee in your facility is responsible for certain aspects of safety. Safety responsibilities should be placed and accepted as follows:

- **Management:**
 - State and enforce a policy on safety

- Provide a safe workplace
- Prescribe safe work practices and procedures
- Provide adequate training and competent supervision
- Designate responsibility and delegate authority to supervisors

■ Supervisors:

- Train personnel in proper and safe work practices
- See that proper practices are followed
- Investigate all injuries for causes
- Take corrective action when unsafe conditions or work methods are observed
- Maintain safe equipment, tools, environment

■ Employees:

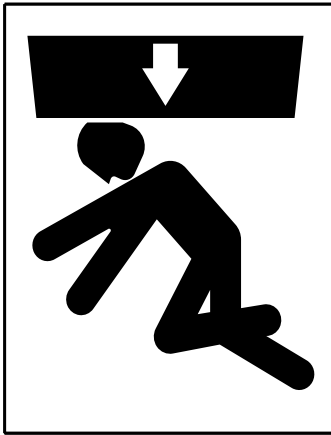
- Observe prescribed work practices
- Report to supervisor any hazards that exist
- Report all injuries immediately
- Use protective devices and safety equipment

What are the elements of a complete corporate safety and risk control program?

- A Company Safety Policy
- A Safe Work Environment
 - Eliminate Mechanical and Physical Hazards
 - Keep guards on machinery
 - Maintain good housekeeping
 - Promote safe materials handling methods
 - Properly maintain tools and equipment
 - Ground and control electricity

FACT – 98% of all accidents and injuries are caused by unsafe working conditions, unsafe acts of personnel or a combination of both.

FACT – Employers that demonstrate to employees that they really do care about safety are likely to have fewer workplace accidents.



⚠ DANGER
⚠ PELIGRO
Crush hazard. Follow lockout procedure and secure elevator before servicing.

opinions and making safety recommendations.

How often should the committee meet and for how long?

- Will vary from plant to plant.
- Will need to meet more often if you are just starting up a safety

program, then less often when maintaining the program.

- If you have more than one shift or work crew – hold very short “safety briefings” each week – conducted by the supervisor or shift foreman. The meeting should cover one safety topic or subject and take no longer than 10-15 minutes.

Raising the level of safety awareness among workers through frequent but short safety messages is critical.

What are good topics for the safety committee or briefings to address?

- Past injuries that have happened in the plant.
- Proper lifting and material handling techniques.
- How to safely use a specific piece of equipment. Discuss how to use it and why, including a discussion of what could happen if the equipment is misused.
- Company Safety Rules. Pick one specific rule for each meeting. Describe injuries that could happen if the rule is broken.
- When, where and how to wear personal protective equipment. Explain why the equipment is necessary and give examples of injuries which occurred because the equipment was not worn.

How can I ensure that the company safety program will work?

- Be personally “sold” on the safety program and the risk control activities of the company. **Emphasize the importance of plant safety.**
- Enforce the company safety rules.
- As a plant owner or supervisor, give constructive suggestions and feedback to the safety committee.
- Take seriously the responsibility of

conducting scheduled and unscheduled safety inspections.

- Use visual aids as part of the program: posters, bulletin boards, safety signs, videos/films.
- Commend employees who are safety conscious. *Let them know you noticed!*

Where can I go for sources to establish a safety program?

- Your insurance carrier
- National Concrete Masonry Association (NCMA) Recourse Guide – Phone: (703) 713-1900
- Other Trade Organizations
- Your State OSHA Department. However, if you call them for assistance, be prepared to make all changes they require or possibly be subject to fines. This source is not recommended if you are just beginning a Safety Program – check other sources first.
- Other Concrete Products Plant Owners.

- Eliminate Environmental and Chemical Hazards
 - Provide personal protective clothing and equipment
 - Control air contaminants
 - Control temperature and humidity (where feasible)
 - Control toxic substances and chemicals
 - Provide adequate illumination
 - Provide noise control or hearing protection
 - Provide radiation control
- Competent Supervision of Employees
 - Delegate authority for safety decisions to supervisors
 - Train and educate supervisors and employees
 - Lockout/Tagout program
 - Confined spaces
 - Safe and proper use of machines
 - Perform safety inspections
 - Measure safety performance
 - Maintain safety records
 - Form a safety committee

Why does my company need a safety committee?

Workers are more likely to be responsive to a Safety Program if they help develop the program and are able to make suggestions and recommendations regarding safe practices in their work environment.

Who should serve on the committee?

- Supervisors
- Machine operators
- Maintenance workers
- Plant owners? If practical – and if their presence does not prevent workers from stating

References:

Elements of a Safety Program, Bureau of Safety and Regulation, Michigan Department of Labor, Safety Education & Training Division.

Business Insurance, 4 May 1998, Vol. 32, No. 18, Crain Communication, Inc. ■

Answers to Quiz (from page 10):

- | | |
|---|--|
| 1. True | energy of some sort is always present. |
| 2. True | |
| 3. False. Only standardized locks supplied by the employer are to be used. | 8. True |
| 4. True | 9. True |
| 5. False. The employer decides whether to use lockout, tagout or both; individual workers must follow the company policy. | 10. False. You must also isolate the equipment from any secondary power sources. |
| 6. False. The equipment must first be isolated from its energy sources using energy isolating devices. | 11. False. Every worker in the crew must attach his/her own personal lock. |
| 7. False. Whether the switch is on or off, | 12. True |
| | 13. True |
| | 14. False. An absent worker's lock can be removed only in an emergency, and only under the employer's direction. |



Improve Plant Safety

by Amy E. Essex
Besser Company Tax & Risk Manager

Safety decals with text in Spanish, French, Italian, Russian, and Chinese languages are now available from Besser Company. These new safety decals compliment the English language safety decals which have been available since 1990.

If the operators of your equipment speak one of the languages listed above as a first language, you should strongly consider investing in these new decals. Providing more information to your employees about the potential hazards of working with machinery will improve the safety of your employees.

The new safety decals consist of both a signal word (caution, warning or danger) and text in one of the five languages. The signal word indicates the potential severity of the hazard while the text describes the hazard and how to avoid it.

The Spanish, French, Italian,

Russian, and Chinese safety decals contain only text and *must* be placed next to the English decal which carries the corresponding pictorial. Following this advice is critical since only the English decals carry the pictorials.

Ordering the decals is simple. First, locate the correct part number(s) in the column labeled English. Then, determine which additional part number(s) is/are necessary by scanning across the table to the right until the column label matches the additional language(s) you require.

Warning: Under no circumstance should Spanish, French, Italian, Russian or Chinese decals be used without the English decal carrying the pictorial.

Contact your Besser sales representative or the Besser service parts center at (800) 530-9991 or (517) 354-3166 to order safety decals. ■



Safety Decals

NOTE:

All foreign language safety decals are intended for use in conjunction with an English safety decal with pictorial.

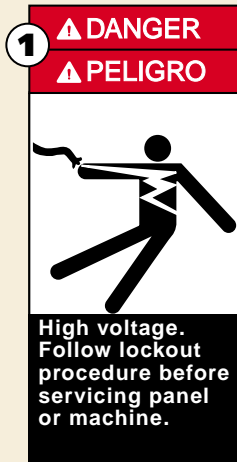
Please determine the correct decal for your needs using the following directions.

Directions

1. Determine which English safety decals are required for each piece of equipment.
2. Locate the correct part number(s) in the column labeled English Part #.
3. Determine which additional language decal is needed.
4. After locating the English part number for the decal you need, scan across the table and locate the corresponding part number for the language that you need.

Decal Number	Equipment That Decals Should Be Adhered To:	English Part #	Corresponding Spanish Part #
1	1 per Panel	113236F0409	113236F0404ES
2	4 per Mixer	113237F0410	113237F0405ES
3	1 per Concrete Products Machine 2 per Depalleter	113240F0307	113240F0303ES
4	2 per Mixer	114692F1006	114692F0404ES
5	4 per Skiploader	114688F0906	114688F0404ES
6	8 per Skiploader/Mixer Platform	114689F0804	114689F0303ES
7	8 per Skiploader/Mixer Platform	114690F0805	114690F0303ES
8	2 per Vertical: Pallet Transport System 6 per Horizontal: LSC-40A/LSC-100 4 per Pallet Transport System	113244F0410	113244F0404ES
9	4 per Besser-Matic	113242F0409	113242F0404ES
10	4 per Besser-Matic	113243F0410	113243F0404ES
11	4 per Skiploader	114691F1006	114691F0404ES
12	1 per Electrical Panel	113249F0410	113249F0409ES
13	4 per Overhead Block Transfer	113238F1005	113238F0405ES
14	1 per Concrete Products Machine	113248F1006	113248F0405ES
15	2 per Concrete Products Machine	113241F0605	113241F0303ES
16	12 per Conveyor	113246F0704	113246F0303ES
17	8 per Cuber	113247F1006	113247F0405ES
18	3 per Cuber 2 per Block Turnover 2 per Slat Conveyor	113250F1006	113250F0405ES

In addition to English and Spanish, the safety decals are also available in French, Chinese, Italian and Russian languages. These safety decals compliment the English language safety decals, and must be used in conjunction with English decals which carry the pictorial. Refer to page eight of the 2000 Besser Parts and Accessories catalog to order, or contact the Besser Company service parts center at 800-530-9991 or at 517-354-3166.



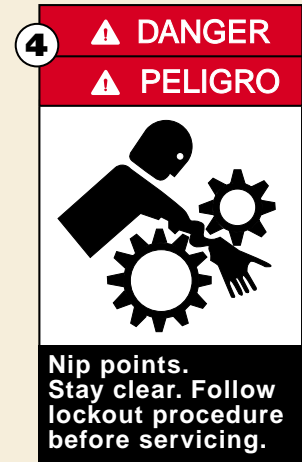
Large: 113236F0409
High Voltage
Width 4 1/2" Height 9 5/8"
Small: 113236F0204
High Voltage
Width 2" Height 4 1/8"



113237F0410
Mixer Blade Hazard
Width 4 1/2"
Height 10 1/4"



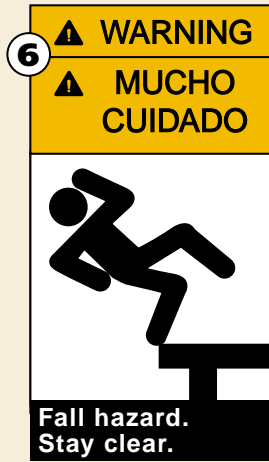
Vertical: 113240F0307
Crush Hazard
Width 3 1/2" Height 7 1/2"
Horizontal: 113239F0604
Crush Hazard
Width 6 5/8" Height 4"



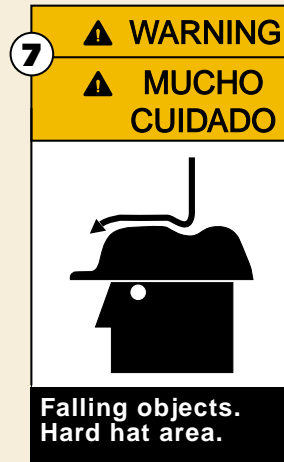
114692F1006
Nip Points
Width 5 3/4"
Height 9 1/2"



114688F0906
Crush Hazard
Width 6 1/4"
Height 9 1/2"



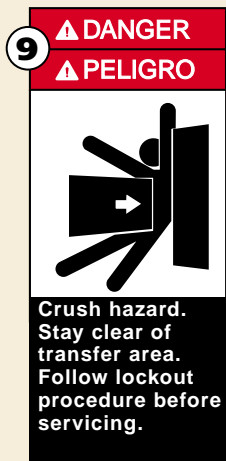
114689F0804
Fall Hazard
Width 4 1/2"
Height 7 3/4"



114690F0805
Falling Objects
Width 4 3/4"
Height 8"



Vertical: 113244F0410
Crush Hazard
Width 4 1/2" Height 10"
Horizontal: 113245F1005
Crush Hazard
Width 10" Height 5 3/4"



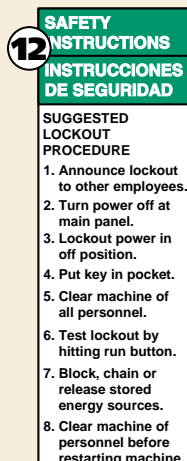
113242F0409
Crush Hazard
Width 4 1/2"
Height 9 5/8"



113243F0410
Falling Objects
Width 4 1/2"
Height 10"



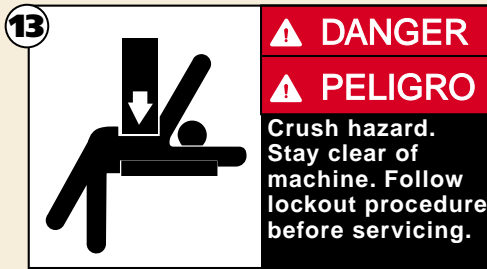
114691F1006
Shear and Fall Hazards
Width 5 3/4"
Height 9 3/4"



113249F0410
Safety Instructions Decal –
Suggested Lock-out Procedure
Width 4" Height 10"

Improve Plant Safety continued . . .

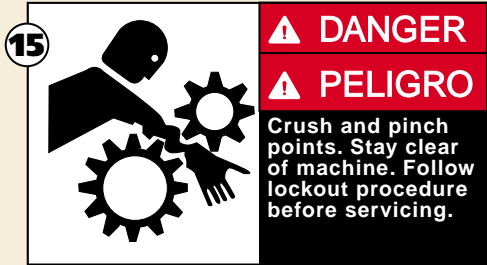
To order safety decals, contact your local Besser representative
or the Besser Service Parts Center at 800-530-9991



113238F1005
Crush Hazard
Width 10 inch
Height 5 3/4 inch



113248F1006
Crush Hazard
Width 10 inch
Height 6 inch



113241F0605
Crush and Pinch Points
Width 6 5/8 inch
Height 4 inch



113246F0704
Nip Hazard
Width 7 inch
Height 4 1/2 inch



113247F1006
Crush Hazard
Width 10 inch
Height 6 inch



113250F1006
Crush and Pinch Hazard
Width 10 inch
Height 6 inch

WARNING

The operation of any machine or power-operated device can be extremely hazardous unless you strictly observe the correct safety precautions. Make sure you observe all safety precautions for operation of any machinery.



Family of Companies

Visit the Besser web site at www.besser.com

Besser Alpena
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Alpena, Michigan 49707
800-530-9980

Besser Appco
442 N. W.W. White Road
San Antonio, Texas 78219
800-330-5590

Besser Baker
3380 US-23 North
Alpena, Michigan 49707
517-354-2189

Besser CMC
2121 Del Amo Boulevard
Compton, California 90220
310-537-5171

Besser IPMC
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Sioux City, Iowa 51103
800-621-7768

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13521 Quailty Drive
Holland, Michigan 49424
800-626-0415

Besser OEM
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Oscoda, Michigan 48750
517-739-7105

Besser Proneq
765 Bombardier
Mascouche, Quebec,
Canada J7K 3L7
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Boone, Iowa 50036
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