Instructor's Notes Sawmill Safety Module 3 – Trim Saws, Sorting, Bins, Stacking and Handling

Timber Products Safety

- There is a high incidence of serious and fatal injuries in our industry.
- The Timber Products Manufacturers Association along with your employer recognizes the need for improved safety training for the industry.
- With a grant from OSHA, TPMA has developed the following training module to contribute toward the need for improved safety training and hazard recognition skills for those employed in America's timber industry.

This Training Module

- Uses adult learning techniques
- Photos and video of actual practices at a sawmill
- Interviews with experienced timber industry workers
- Short interactive exercises
- New techniques for recognizing hazards

Training Module Worksheet

Hand out the worksheet and pens

- Since adults learn the most by doing, a worksheet has been prepared to help you retain the most important information.
- You will complete the worksheet as we move through the material. This means that you will fill in the blanks or complete lists.
- You keep the worksheet as a reference to the key points presented in this module.

Safety

(Whenever you see the words highlighted in red and black like these words, it means it is time to fill in the worksheet)

Let's get started with a functional definition of safety. It is called a functional definition because it is easy to remember; it is fundamental to incident prevention and it is something that you can use. "Safety is a process for reducing risk and preventing incidents by effectively managing the movement of people, equipment, material and energy". There are some key words in this definition. The first one is **movement**. No injury or incident has ever occurred without some form of movement. The other key words are **people, equipment, material and energy.** They are key because they are the only four things that can move. Think about it, if we were able to effectively control

the movement of people, equipment, material and energy in our process, we would have no injuries or incidents.

Incident

An incident is an **unplanned event** that happens after an **unsafe behavior or unsafe condition** or both that interrupts the normal progress of an activity and may result in injury or damage. Three bad things can happen when incidents occur. Someone may be injured, equipment may be damaged or the process may be interrupted. All three are unnecessary, expensive and in one way or another painful. The most important thing to remember is that before every incident there is an unsafe behavior or unsafe condition or a combination of the two. If you wanted to be proactive and prevent incidents, What would you do? I think we can all agree that we would focus on the elimination of unsafe behaviors and unsafe conditions because they always happen before an incident

Hazard.

A hazard may be defined as – **any source of danger**. There are two major types of hazard. The first type is an **unsafe condition**. The second type is an **unsafe behavior**. It should be pointed out that the term behavior is used in the scientific sense. That is, behavior is defined as an observable action. Therefore, by itself behavior is neither good nor bad – it is merely an observable action. On the other hand, an unsafe behavior, by definition, is an observable action that is a source of danger.

Here are several examples of unsafe conditions:

- Unguarded floor opening
- Board laying on a walkway
- Extension ladder on an unsecure base
- Unguarded sprocket and chain

There can be a direct relationship between unsafe conditions and unsafe behaviors. For Instance-
While an unguarded floor opening is an unsafe condition - Failing to look in the direction of travel is an unsafe behavior.

A board laying on a walkway is an unsafe condition but putting an obstruction on a walkway is an unsafe behavior.

An extension ladder on an unsecure base is an unsafe condition but climbing on a ladder on an unsecure base is an unsafe behavior.

An unguarded sprocket and chain is an unsafe condition but working next to an unguarded sprocket and chain is an unsafe behavior.

A Sequence That Leads to Incidents

Hazards must first occur in the work place. Either unsafe conditions or unsafe behaviors or a combination of unsafe conditions and behaviors must be allowed to occur and remain uncontrolled. If this happens, sooner or later there will be an event involving the movement of people, equipment, material or energy that will lead an incident. All incidents result from an

event that was generated by hazards. Events will happen whenever hazards are allowed to exist. This is why hazard control or hazard elimination is so important.

What is the Best Way to Prevent Incidents?

First of all recognize the hazards. Once hazards are recognized there is an opportunity to manage the movement of people, equipment, material and energy. The objective is to separate people from the hazards in an organized and controlled manner.

Manage the Movement

Remember that all incidents begin with some form of movement. Either the person moves to the hazard or the hazard moves to the person in an uncontrolled or disorganized environment.

In Less Than 1 Second –

Incidents begin with some form of movement. In this example, the person moves into the path of the hazard.

This Hazard Arrived in .41 Seconds

Obviously, there is movement in this example. This time a baseball traveling at 100mph moves from the hand of the pitcher to the face of the batter in less than a half second.

What is the Best Way to Protect Yourself?

Read and discuss

Failing to Manage Your Movement Has Consequences !

PPE

Read and discuss

Sawmill Flow Chart

This chart represents the typical flow of lumber and product at the exit end of the sawmill.

A Melody of Sorts*

A video of the flow chart

#1 Potential for Serious Injury

The number one potential for serious injury in terms of severity involving Trim Saws, Sorting, Bins, Stacking and Handling is **falling to a lower level.**

Event Classification - *Falls* - Fall lower level

The American National standard for Information Management for Occupational Safety and Health provides a classification structure for 46 different events and exposures. We are going to take a look at 5 of those events and exposures that occur most frequently at sawmills during trimming, sorting, stacking and

handling lumber. Remember the key words in the definition of safety – well the key word movement is demonstrated well in each event classification that we will discuss. As a matter of fact, I want you to begin thinking of every event classification as some form of movement.

What is the movement in a fall to a lower level. The answer is pretty obvious, it is you. Nothing good can come out of the event of falling to a lower level and a lot of bad can result. The higher the fall, the more energy upon impact.

Stairways, Platforms and Floor Openings

In this photo, examples of stairways, platforms and floor openings are shown. The stairways provide engineered access to various levels of the operation. The platforms provide secure walking working surfaces. The floor openings are well guarded and protected with toe plates.

What If?

But what if floor openings are not guarded? What if walkways are not free of materials and debris? What if engineered access to other levels is not provided? Those are very good questions and the following examples will show you exactly what can happen.

What If #1

A worker was seriously injured at a sawmill when he stepped into a 19 in. deep unprotected floor trough. He suffered a fracture to his right leg near the ankle when he stepped into the open trough while in route to assist a second worker who was clearing a jam.

What If #2

Two coworkers had raised the cover on a floor opening to lower a motor to the ground floor. While they were busy fastening the motor to the hoist, another fellow employee approached the opening and stepped into it. He fell 9 ft to the level below and fractured his back.

What If #3

Employee #1 was walking on the frame work of the planer chain, he tripped on a board laying on the frame of the planer chain support and fell approximately 47 inches to the concrete floor. Employee #1 suffered a compression fracture to his back.

What If #4

Employee #1 was kneeling on an elevated walkway along a conveyor belt helping to clear a plugged conveyor below the elevated conveyor. A coworker on the lower conveyor pulled on a board that was plugging the two conveyors. The board

broke and slipped sideways, striking Employee #1 and pushing her to the side and off the walkway. She fell 15 ft to the ground and was hospitalized with a fractured pelvis.

What If #5

A wooden box containing saw blades was elevated 14 feet to the first level of the mill. An employee on the first level stepped into the wooden box on the elevated forks to remove the last saw and the box slipped off the forks. The employee, box and saw fell to the floor below.

What If #6

A Bin Chaser on a sorting machine left the walkway and climbed into the bin sorter area to un-jam a board. He fell approximately 12 ft to the floor and fractured bones in his back. He was hospitalized. He did not wear the required fall protection, when he left the walkway.

What If #7

Employee #1 was standing on a ladder using a pike pole to clear a jam in the conveyor system. The ladder slipped as the employee performed the task and he fell, breaking his left ankle.

What If #8

Employee #1 collected extra spacers from the deck of a flatbed trailer and stepped onto the elevated forks of a forklift to stack them for removal. Employee #1 was trying to shift from the

right fork to the left when he misstepped and fell between 7 and 8 ft to the ground. His left shoulder was dislocated and four ribs were fractured.

So What's The Problem?

There will always be a problem whenever

Floor openings are not guarded!

Walkways are not free of materials and debris!

The problem is when you leave an engineered platform or walkway to gain access to anything by climbing without using fall protection equipment.

Small Group Exercise

Hand out the assignment and discuss – should be completed within 12 minutes

Your assignment is to identify three situations where someone has put themselves in danger of falling to a lower level at your facility while performing tasks involving trim saws, sorting, bins, stacking and handling. Your examples may include something you have done personally or something you have observed others doing. Do not include names or other identifying information in your examples.

Review and discuss the results

What you can do to avoid falling to a lower level

This is not an all inclusive list of things to do or not do to avoid falling to a lower level. It is a list of repetitive conditions and behaviors that frequently are identified in serious injury or fatality reports published by OSHA.

Read and discuss

- **Stay on** engineered stairs, walkways and platforms.
- **Wear fall protection** equipment when it is required.
- **Guard** floor openings
- **Keep walkways free** of material and debris

#2 Potential for Serious Injury

The number two potential for serious injury in terms of severity that involves Trim Saws, Sorting, Bins, Stacking and Handling is **being caught in on or between** equipment or materials.

Event Classification – Contact with Objects and Equipment – CAUGHT IN – ON – OR BETWEEN

In this event classification the person moves into the line of fire of some mechanical motion. Obviously, the energy of being caught in, on or between some mechanical motion is very great. Consequently, the severity of injuries in Caught In On or Between events is usually severe. Caught in, on or between

events produce injuries such as amputations, fractures, crushing injuries, etc.

Hazardous Mechanical Movement

There are four major types of mechanical motion and they are demonstrated on this slide. Reciprocating is up and down, back and forth or side to side. Rotation may be in the form of revolving high speed shafts. In running nip points are very common in the industry and if left unguarded may produce very serious injuries. Transverse motion is continuous or in a straight line.

Caught In, On, or Between Incident #1

Employee #1 was working at the stacker out feed deck at a sawmill. The employee for some reason placed himself between a bundle of lumber and a steel plate used to square up the end of the bundle. This employee sustained fatal injuries from being pinned between the bundle and the steel plate. The following video demonstrates the mechanical movement involved in this incident and the potential for getting caught in, on or between.

Caught *

Video

Caught In, On, or Between Incident #2

Employee #1 was operating a forklift stacking bundles of lumber. He dismounted the forklift and moved in front of his

load to prepare the landing area for the bundle. While he was preparing the area, the forklift rolled forward and pinned him between the load on his forklift and a bundle of lumber in storage. He sustained fatal injuries.

Caught In, On, or Between Incident -Prevention*

Video

Testimonial Video *

What you can do to avoid being caught between

This too is not an all inclusive list of things to do or not do to avoid being caught in on or between. It is a list of repetitive conditions and behaviors that frequently are identified in serious injury or fatality reports published by OSHA.

Do not **climb** over guard rails.

Do not wear **loose** fitting clothing.

Set the **parking brake** when dismounting a forklift.

Don't climb on or over **conveyors**.

Stay out of restricted areas

Follow specific procedures when **clearing jams**.

#3 Potential for Serious Injury

The number three potential for serious injury in a sawmill in terms of severity is being **struck by**.

Event Classification – Contact with Objects and Equipment – STRUCK BY

This is the #3 Potential for injury for Trim Saws, Sorting, Bins, Stacking and Handling in a Sawmill

Read and discuss.

Struck By Incident #1

Employee #1 was walking in an area designated for pedestrian traffic. He was using a crosswalk located in an area where there is forklift traffic. The area was lighted but it was raining. While Employee #1 was in the crosswalk, he was struck by a forklift attempting to enter the sawmill to pick up a load of lumber. He sustained injuries requiring hospitalization.

Struck By Incident #2

As Employee #1 stepped into the driveway, he was struck by a forklift carrying a scrap lumber dump box. He sustained multiple fractures and was hospitalized.

Struck by Incident #3

Employee #1 was pushing a unit of fence boards out to be picked up by a forklift. A forklift was parked across the aisle. Employee #1's back and the rear of the forklift were facing each

other. The forklift operator backed the forklift far enough that the counter weight struck Employee #1's left foot fracturing his ankle. He was hospitalized for his injuries.

Forklift Movement *

Based on the last three examples, crosswalks, work areas and driveways are not sanctuaries from forklift traffic. You must manage your movement when it comes to being on foot where there are forklifts. Whenever there is a confrontation between man and forklift – the forklift wins. Be alert for and cautions of forklift traffic. This video shows common forklift movement at sawmills.

Video

Walk the Talk *

Video

What YOU can do to avoid serious struck by incidents

- Wear the required **PPE.**
- **Follow** the rules.
- **Stay behind** barriers.
- Stay out of the **line of fire.**
- Make sure **guards** are **in place** before operating equipment.

- Be **alert** for and **cautious** of forklift traffic.

Event Classification - *Falls* - Fall same level

Falling to the same level is also an event classification. What movement is involved in this event classification? (The person falls to the ground) Obviously, the energy involved in a fall to the same level is much less than the energy involved in falling to a lower level. However, the consequences may be serious.

What you can do to avoid falling at the same level #1

Doing the same thing as you would to avoid striking against something will help prevent falling to the same level. Be aware of your surroundings, select secure walking working surfaces and remember conditions change. Always look before you step when making the final dismount from a ladder or stairway. A tool, chunk of log or hard clump of debris could be enough to turn your ankle and cause you to fall to the ground when you are stepping down.

What you can do to avoid falling at the same level #2

Return pike poles and other tools to their proper storage areas. Keep walkways clear of material and debris.

Event Classification – Contact with Objects and Equipment – STRUCK AGAINST

The next event classification that we will discuss is STRUCK AGAINST. What movement is involved in this event classification? (The person moves into an object). Generally, the energy involved in struck against events is limited to what the person can generate in movement. Struck Against events produce injuries such as cuts, bruises, fractures, punctures and splinters. Although splinters are not the most serious injury to be experienced in this area of the mill, they are very common with people who handle the product.

Splinters *

Video

Summary #1

All incidents are initiated with movement.

Either the hazard moves to the person or the person moves to the hazard.

You must manage your own movement.

Summary #2

The number one potential for serious injury involves

falling to a lower level

The number two potential for serious injury involves

caught in, on or between

The number three potential for serious injury involves

struck by

Hazard Recognition Skills

- Do you remember at the beginning of this training module, I said you would be given new techniques for recognizing hazards? Well, now is the time and you have already done one. The small group exercise asked you to identify three situations where people could fall to a lower level. In that exercise, you focused on only one incident classification – falling to a lower level and you identified multiple exposures.
- The same process is very effective in the work environment. If you **focus only** on one incident classification at a time and **observe only** for that type of movement, you will surprise yourself at how good you are at recognizing hazards. For instance, focus on the potential for getting caught in, on or between. Observe only for that type of movement. Your hazard recognition skills will be

improved just by narrowing **your focus**. By looking for specific movements each of you has the potential to produce **great** results. It is that simple!

- Do the same thing for the incident classifications, struck by, struck against and fall to the same level. But only do one at a time.

Review completed worksheets with the group

Quiz

This material was produced under grant number SH-22245-11 from the Occupational Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.