

**North Carolina Department of Labor  
Division of Occupational Safety and Health**

**Raleigh, North Carolina**

Field Information System

Operational Procedure Notice 133E

**Subject:** Sawmills, Veneer, Manufactured Home (Mobile Home) and Other Wood Products  
Manufacturing Injury and Illness Reduction

**A. Purpose.**

This Operational Procedure Notice (OPN) establishes and implements a special emphasis inspection program that provides guidance to Compliance Safety and Health Officers (CSHOs) for conducting inspections targeted by this OPN. This OPN applies to employers within industries in the North American Industry Classification System (NAICS) Subsector 321.

This OPN also enables the CSHOs, in some instances, to limit the scope of inspections to those hazards that have been identified in recent compliance inspections. This document provides supplementary procedures beyond standard inspection protocol set forth in the N. C. Field Operations Manual (NCFOM).

**B. Scope.**

This OPN applies to all assignments included in this special emphasis inspection program and is effective until canceled by the director.

**C. Discussion.**

The targeting schedule utilizes industry- and establishment-specific employer based on data collected annually by the Bureau of Labor Statistics (BLS) and other available data sources. Those employers in NAICS Subsector 321 with high Days Away, Restricted, or Transferred (DART) rates are those that may be targeted for inspection.

**D. Objectives.**

This special emphasis inspection program sets the targeting priority of inspections of industries in NAICS Subsector 321. The most recently published BLS data for North Carolina, obtained from Table 6 of BLS North Carolina, indicates that the current (2008) Total Case (DART) rate for all industries, including State and local government, is 1.7. The DART rate in NC for NAICS Subsector 321 is 2.8. Employers with DART rates higher than the NC Total DART rate of 1.7 are considered high rate industries, and a reduction in injury and illness rates within the targeted NAICS Subsector will likely contribute to a reduction in the overall DART rate for the state of North Carolina.

Employers controlling 10 or fewer employees will not be included in this targeting schedule, but could still be assigned for inspection as a result of an accident, complaint or referral.

E. **Inspection Procedures and Guidelines.**

1. Inspections conducted under this schedule will be comprehensive programmed safety and health inspections as defined by the NCFOM and conducted in accordance with the procedures described there and in other guidance documents. Targeted inspections under this inspection program will receive the same inspection priority as Programmed Inspections under other OSH Division Special Emphasis Programs (SEP) and initiatives including: Exposures for Health Hazards, Long Term Care Injury Reduction, Logging and Arborist Fatality Reduction, Construction Industry Fatality Reduction, Fatality re-inspections, Food Manufacturing and SST inspections. Consultation deferrals will apply to sites selected for inspection under this OPN.
2. Once an inspection is planned, the Supervisor should insure the development of an intervention strategy to address those safety and health problem areas identified through review of employer or industry specific data. Included in the appendices of this OPN are Industrial Data Reports (IDRs) for several of the industry groups in the targeted NAICS Subsector. CSHOs should use the information in the appendices of this OPN to assist with the identification of hazards in the relevant NAICS Subsector.
3. When a site is targeted for either a safety only or health only inspection and the CSHO determines that both safety and health hazards are present, a joint inspection is preferred, but referrals may be considered when a joint inspection is not possible. Inspections under this schedule may also be conducted either as one combined safety and health inspection by a cross-trained CSHO (as established through specific training or demonstrated ability), or as separate safety and health inspections.

4. **Focused Inspection Exemption.**

- a. A focused inspection may be conducted if a site is determined to have an effective safety and health program (as defined below, in Paragraph 4.b.), including a designated person/committee responsible for and capable of implementing the program/plan **AND** the site's DART rate is less than or equal to the state total DART rate (1.7 for 2008) as determined by the CSHO's review and calculation of data found on the **2008** OSHA 300 log (see Paragraph 4.d.).

If a focused inspection is to proceed, a partial walkthrough will be conducted and employees will be interviewed in order to confirm and verify the effectiveness of the safety and health program. Any serious violations that are observed in the vicinity or brought to the attention of the CSHO will be investigated and cited as appropriate. If all of these conditions are met, the CSHO will initiate a focused inspection pursuant to the following guidelines. If all of the above conditions are not met or records are not available for CSHOs to make this determination, the comprehensive workplace safety and health inspection will proceed and appropriate citations will be considered.

- b. **Evaluation of the Safety and Health Program.** The CSHO will evaluate and document the safety and health program in effect at the site using the following criteria and minimum requirements:

- i. Comprehensiveness. Confirmation that the program is comprehensive in scope entails an overall evaluation of the features of the program and the physical characteristics of the site. The site's safety and health program/plan must address the full range of hazards normally encountered at sites of the type being inspected (review applicable Industrial Data Reports, if available).
- ii. Safety and Health Training Program. Evaluate the need for and effectiveness of any specialized or trade-specific safety and health training programs applicable to conditions at the site. Factors to be considered include the need for special training in view of unique conditions/hazards likely to be encountered at the site as well as specific requirements for such ongoing or periodic training/retraining of employees.
- iii. Communication. Employees must be aware of and have access to the services alleged to be provided through the site's safety and health program/plan. The employer must provide evidence showing how the program is communicated to employees and contractors (e.g., oral instruction, booklets, memoranda, posters, safety meeting minutes/attendance rosters, etc.). The CSHO should consider whether the employer holds safety meetings, their frequency, and who conducts them (e.g., plant manager, line supervisors, safety director, etc.). The CSHO should evaluate the effectiveness of the safety and health program/plan through employee interviews.
- iv. Investigations. Evaluate the employer's efforts to make accident/injury/illness investigations and determine if corrective actions are taken as a result.
- v. Enforcement. Safety and health rules must be enforced. Identify the principal enforcement methods used (e.g., warnings, written reprimands, disciplinary action, discharge, etc.), and the effectiveness of these methods as applied at the site.

c. Conduct of the Focused Inspections.

- i. The focused inspection, for programmed inspections, will begin after a determination is made that the site qualifies as set forth in Paragraph 4.a. of this OPN. The walk around will include the site's safety representative and employee representative according to existing policies for conduct of inspections. The site will be evaluated, concentrating on: 1) the applicable hazards, as referenced in Appendix A; 2) the site's safety and health program/plan; and 3) serious hazards observed by the CSHO(s). If conditions observed at the site indicate that the site's safety and health program/plan is not effective as initially determined, the CSHO may immediately terminate the focused inspection and conduct a comprehensive inspection. The discovery of serious violations during a Focused Inspection does not automatically convert the Focused Inspection into a comprehensive inspection - the CSHO(s) conducting a

focused inspection is not required to inspect the entire site. Only a representative portion of the project need be inspected.

- ii. On sites where unprogrammed inspections are conducted (complaints, referrals or accidents), focused inspections will be conducted where expanding the scope of the inspection is allowed and conditions at the assigned site meet the criteria in this OPN and after the complaint, referral or accident has first been addressed and with supervisory approval.
- iii. Focused inspections will concentrate primarily on the site's safety and health program/plan, and the applicable industry hazards, as noted in Appendix A. However, during the course of the Focused Inspection, violations will also be proposed for any serious violations observed and for any other-than-serious violations which are not immediately abated during the walk around. Other-than-serious violations which are immediately abated will not be cited, but will be noted in the case file (narrative) by the CSHO.
- iv. A brief justification will be included in each case file as to why a focused inspection was or was not conducted.

d. The DART rate (includes Lost Workdays and Days of Restricted Work Activity and Transfer to another job) will be calculated as follows:

**Total DART Rate:**

DART Rate = [N / EH] x 200,000

N = total of columns H and I on the OSHA 300 log,

EH = total number of employee hours worked for a calendar year, and

200,000 = base of working hours for 100 full-time equivalent employees.

**G. Recording and Tracking.**

1. For all SEP inspections assigned via the OSH Targeting System web page, the OSHA-1 forms must be marked as "programmed planned" (NCR Item 24). For all unprogrammed inspections conducted in conjunction with this SEP, the OSHA-1 forms must be marked as "unprogrammed" (NCR Item 24) with the appropriate unprogrammed activity identified.
2. In addition, OSHNC will code the OSHA-1 Strategic Plan Activity (NCR Item 25f) with the value "WOOD".

**H. Managing the Inspection Targeting Schedule.**

1. The Planning, Statistics and Information Management Bureau (PSIM) will provide each district office with an inspection targeting schedule for this SEP via the OSH Targeting System webpage of eligible sites.
2. The assignment cycle size (number of assignments on this SEP targeting schedule) will be based on consideration of available resources, competing strategic priorities,

geographic range of the office, and the number of employers in this SEP database. Within a list, the establishments may be scheduled and inspected and in an order that makes efficient use of available resources. When the assignments on the schedule are completed, the district office may request a new list through their respective bureau chief. All of the establishments in a cycle must either be inspected or removed from the list by the staff in the PSIM before any establishments on a new list may be inspected.

3. Compliance Bureau management will determine the appropriate strategy for meeting inspection activity levels in each area of strategic focus.
4. Compliance supervisors along with the bureau chiefs will be responsible for making recommendations regarding establishments on this targeting schedule that should be skipped or deleted from the current list of sites planned for inspection. For example, establishments that have received a recent comprehensive inspection of the same type (safety or health) within the past three years (opening conference date to date assigned by supervisor for inspection) may be skipped or deleted from the current inspection targeting schedule. Supervisors will document in the comments column of the targeting page the reason why an establishment was skipped or deleted. All requested changes to this targeting schedule must be in writing to the PSIM Bureau.

I. **Administration.**

The targeting schedule set forth in this operational procedure notice will be administered through the PSIM Bureau.

J. **Effective Date.**

OPN 133D is canceled. This OPN is effective on the date of signature. It will remain in effect until revised or canceled by the director.

Signed on Original  
Ed Lewis  
SEP Team Leader

Signed on Original  
Allen McNeely  
Director

4/27/2010  
Date of Signature

**Appendix A: Areas of concern to address during focused compliance inspections of industries in NAICS subsector 321**

The following areas of concern have been identified based upon hazards identified by affected industries (e.g., combustible dust, ergonomics), and data from inspections conducted during the period 10/99 – 9/04. Lists of the most frequently cited standards for that period were generated. The top ten standards cited for these five years included violations in most of the following areas. Therefore, based upon the CSHOs professional judgment, these areas should be addressed during the course of a Focused Inspection.

- Electrical (including classified locations)
- Toxic and hazardous substances (including hazard communication)
- Machinery and machine guarding (including abrasive wheels, woodworking machinery, mechanical power-transmission)
- Hand and portable powered tools and other hand-held equipment
- Hazardous materials (including flammables/combustibles, spray finishing, dipping/coating)
- Materials handling and storage (including powered industrial trucks)
- Fire protection and emergency action
- Personal protective equipment
- Occupational health and environmental controls (including combustible dust, noise, PRCS, ventilation, LO/TO)
- Walking-working surfaces
- Recordkeeping
- Special industries (including sawmills)
- Ergonomics (CSHOs should reference FOM Ch. XVII)

***Appendix B: Related Industrial Data Reports***

The following data reports are attached below:

**1. NC-OSHA INDUSTRIAL DATA REPORT No. 24-1.  
NAICS Subsector 321 – Wood Product Manufacturing**

3211 & 3219 - Sawmills and Millwork Industries

- 321113 - Sawmills
- 321912 - Cut Stock, Resawing Lumber, and Planing
- 321918 - Other Millwork (including Flooring )
- 321920 - Wood Container and Pallet Manufacturing
- 321999 - All Other Miscellaneous Wood Product Manufacturing

**2. NC-OSHA INDUSTRIAL DATA REPORT No. 24-2.  
NAICS Subsector 321 – Wood Product Manufacturing**

3212 – Veneer, Plywood, and Engineered Wood Product Manufacturing

- 321211 - Hardwood Veneer and Plywood Manufacturing
- 321212 - Softwood Veneer and Plywood Manufacturing



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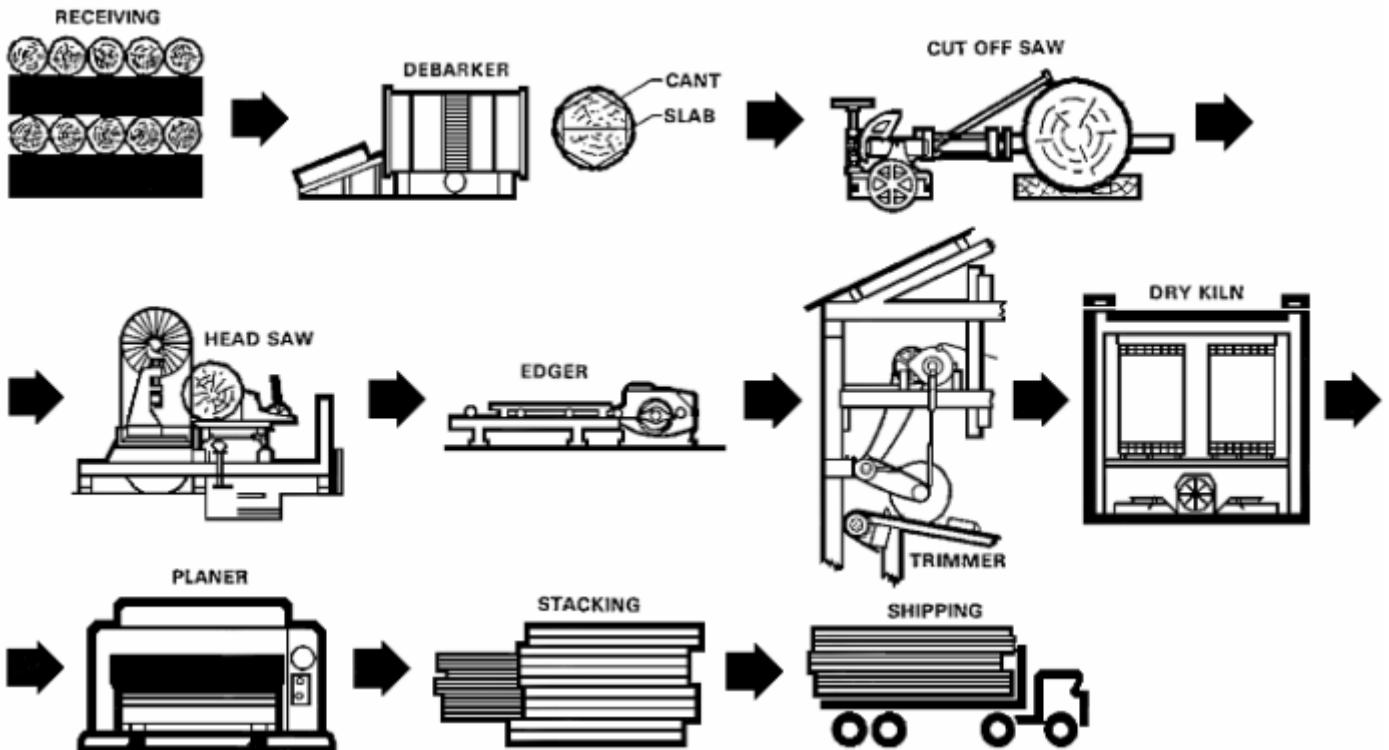
Date: 15Oct05

OSHNC INDUSTRIAL DATA REPORT

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Industry: Lumber and Wood ProductsSub-Group: Saw Mills and Planing MillsSIC: 2421NAICS: 321113, 321912, 321918, 321920 and 321999

**PROCESS DESCRIPTION:** After the logs have been received on the storage yard they are transported to the mill and debarked. Following the removal of slabs, the head saw cuts the remainder into cants. The cants may then go to a resaw for further cutting or go directly to the edger. The purpose of the edger is to rough cut to the desired size (later the lumber may be dressed). After being edged the lumber continues via chain or belt conveyor to the trimmer where it is cut to the most usable lengths (usually 6', 8', 10', 12', 16' and 18'). From the trimmer or trim saw the lumber may be dipped into a chemical solution to prevent it from turning blue (keeping logs wet by water spray in log storage yard also accomplishes this purpose). The lumber is graded before being dipped and then sorted into piles by length and grade. If lumber is to be kiln dried, it is stacked and placed in a kiln. If air dried, it is stacked and placed on the yard. The drying process may take from twelve to sixty hours, depending on the desired moisture content. The lumber is still rough at this point and, if it is to be dressed on one or both sides, it is sent to the planer. With this accomplished, the finished lumber is again graded, cut to desired length, stacked, packaged and shipped or stored.

**PROCESS FLOW:**



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### **Hazards Analysis**

<b>Major Hazards</b>			<b>Other Hazards</b>		
<b>Location</b>	<b>Item</b>	<b>Hazard</b>	<b>Location</b>	<b>Item</b>	<b>Hazard</b>
Log storage	Logs in piles and stacks	Crushed limbs and/or body	Resaw	Resaw, infeed rolls and guides, roll cases, chain conveyor, cants and lumber	Amputations, lacerations, crushed and bruised limbs, eye injuries, slips and falls
Debarker	Log deck chain conveyors, log flipper, pike pole, peavey, barker, head, log hold down, bark, walkways and steps	Amputations, lacerations, crushed limbs, eye injuries, slips trips, falls, bruises, sprains and strains	Edger	Edger blades, infeed rolls, lumber, chains, sprockets, v-belt drives, roll cases and conveyors, live rolls	Crushed limbs, eye injuries
Head rig	Head saw log carriage track, log deck, cants and slabs, chair conveyors, roll cases, logs, open motors and power	Amputations, lacerations, crushed and bruised limbs, eye injuries, electric shock, slips trips and falls	Planer	Planer, conveyors, live rolls, pineapple and pressure rolls, planer knives, power transmission gear	Amputations, lacerations, slips and falls
Trim saw	Trim saw blades and chain conveyor	Amputations, bruises, lacerations, eye injuries, slips, trips, falls, sprains and strains	Kiln	Control room, steam lines, power transmission gear, floors, stair rails Entry doors	Burns, crushed limbs, slips and falls, bruises, sprains and strains Entrapment
Chipper	Chipper knives, conveyors, roll conveyors, slabs, cants, waste	Lacerations, punctures, bruises, slips, trips falls, eye injuries, strains and sprains	Shipping and receiving	Forklifts Hoists	Carbon monoxide and crushed and bruised limbs and body Bruises, lacerations and accidents

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Planer infeed	Planer conveyors, unstacked infeed and pineapple roll, cutting knives and heads, and live rolls	Crushed, cut and bruised limbs, eye injuries, slips, trips and falls		
Throughout	Noise Wood dust	Hearing loss Respiratory problems		

### Key OSHNC Standards

Reference	29 CFR 1910 — General Industry Standards
ANSI B30.6	Overhead underhung hoists
NCGS 95-129	General duty clause – ergonomics
Subpart D	Walking and working surfaces – where 1910.265 does not apply
Subpart E	Exit Routes, Emergency Action Plans, and Fire Prevention Plans – where .265 does not apply
Subpart I and 13 NCAC 7F.0101	Personal protective equipment (PPE) – federal and state-specific requirements (for 1910.132)
Subpart O	Machinery and machine guarding – where 1910.265 does not apply
Subpart S	Electrical – where 1910.265 does not apply
1910.95	Occupational Noise Exposure
1910.141	Sanitation
1910.146	Permit-required confined space entry
1910.147	Control of hazardous energy (lockout/tagout)
1910.176	Material handling – general requirements
1910.178	Powered industrial trucks
1910.265	Sawmills
1910.1000 13 NCAC 7F.0101	Air contaminants (federal and state specific PELs)
1910.1200	Hazard communication

### Inspection Analysis

The inspection should begin with the log storage yard. Ensure that logs are properly stacked with no tilting of piles and that base logs are secure. Proceed to the log handling process and equipment. Inspect log handling equipment to ensure the use of positive devices to prevent uncontrolled lowering: limit switches to prevent lift arms from traveling too far, operator protection, audible signaling devices and lights. In the debarker area, observe the operator for protection from flying bark, chips, etc. and for unguarded foot treads in cab. Look for

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unguarded power transmission equipment around the log deck, stair rails to cab and standard rails around log deck and platform, if required. Observe conveyors, chains, log deck and log haul. Ensure that the log haul has a standard rail if it has a walkway and ensure that the chain drive mechanism is guarded. Observe the barker; check type and note whether hold down rolls and baffles are installed, if required.

In the saw mill, begin with the head-rig (sawyer). Check for log stops on deck to prevent logs from going into carriage or runway, and ensure carriage way is provided with bumpers. Check safety guides on circular saws and enclosures if band head saw is used. Chain conveyors, mechanical power transmission equipment, safe access to sawyer position, open motors, floor holes, uneven floors, walkways over conveyors, etc., must also be observed. Observe sawyer and slab puller operators for use of personal protective equipment.

From head rig, go to resaw position, then to the edger and trim saw area. In each section, observe the operator at each position. Note the equipment and how the operator gets to machine; i.e., over/under conveyors, roll cases, live rolls, bind corners, etc. Observe equipment guards and anti-kickback devices. In trim saw area, check for guards on end saws and across back of unit, and for baffle in front.

Determine the noise level at each operator position within the mill.

In the planer mill an enclosed planer will be less of a noise hazard. In general, observe employees for exposure to unguarded conveyors, chains and sprockets, live rolls, hold down rolls and pineapple. For the trim saw in the planer mill, the inspection is the same as the saw mill.

If the mill has a kiln, check for proper egress from the kiln, and, in the control room, inspect for live steam pipes. Check for proper guarding on exposed v-belt drives and fly wheels for compressors. As most control rooms are upstairs and at the rear of the kiln, note stair rails and condition of floor (usually wet and damp and sometimes rotten).

Other positions in the saw mill and planer mill that require checking include the kiln loader, mechanic, millwright, electrician, welder and shop.

In all machine centers throughout mill, check for lockout/tagout procedures.

**Other Pertinent Comments:**



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**Industry: Lumber and Wood Products**

**Sub-Group: Plywood and Veneer**

**SIC: 2435 and 2436**

**NAICS: 321211 and 321212**

**PROCESS DESCRIPTION:** The first few phases of plywood or veneer production are essentially the same as that from almost any other sawmill. The logs are received, debarked and cut on headsaws in the same manner. In most cases, however, cants or lumber are not cut. For veneer (fine or high grade hardwood), if the log is 32 inches or less in diameter it is cut into halves; if over 32 inches it is generally cut into quarters. If logs are small and intended for plywood only, they will not be cut by headsaw but bucked into length and go directly to a steam or hot water vat or tank for cooking.

In veneer production the logs are placed in a cooking vat which is approximately ten feet deep and eight feet by 20 feet. The temperature is raised 5-10 °F per hour until it reaches approximately 140 °F where it is held for 24 hours, then up to 200-220 °F where it remains for from one to five days depending on color desired. The "flitch", as it is now called, is removed from the cooking vat, cleaned, planed and ends trimmed or cut off. Then a backing board is applied by glue. (This operation allows more veneer to be cut from a single flitch). Once backing board is applied with glue or cement it is placed in a flitch press to secure a proper bond. The flitch is placed in a holding tank of splashing hot water. The tank is approximately 25½ inches deep. When ready to be cut, the flitch is placed on a "Stay-Log Table". The cutting knife is set in position in a frame approximately 45 inches above the work platform. The knife is stationary and the Stay-Log table moves up and down to cut or slice veneer. The tables make approximately 70 strokes per minute and cut a 12 foot slice. From here the veneer is moved to the sweat or holding room where it remains until the desired color is reached. Forklift trucks move veneer out of the sweat room to the dryer where it is hand fed into the jet or fan dryer. A conveyor carries the veneer through at a speed of 8-15 feet per minute and at a temperature of from 90 to 120 °F. After drying it goes to the clipper, then it is packaged and stored or shipped.

If plywood is to be made, the logs are debarked and cut into 8-10 foot lengths referred to as blocks. The blocks are steamed to soften the wood fibers. The time and temperature requirements will vary according to wood species and desired depth of heat penetration. This process is generally of a shorter duration than with pure veneer production. When this softening process is properly performed, the resultant benefits can be smoother veneer with a reduction of checking or fracturing of wood fibers, all of which are assets in the latter stages of plywood manufacturing. The most common method of producing veneers (or plies) is by rotary cutting on a lathe. Rotary lathes are equipped with chucks attached to spindles and are capable of revolving. Large blocks are moved to the lathe charges. Their purpose is to position blocks to receive the lathe chucks. The blocks are chucked either in their geometric center or the heart center of the block. After the block is in place the chuck revolves the block against the knife and the veneer "peeling" begins. The thickness of the veneers will range from 1/16 to ¼ inch and the mill will usually seek to produce a standard thickness for the plywood they are producing. Softwood blocks are cut at high speed and veneer coming from the lathe is fed into a belt conveyor. The number and length will vary from mill to mill. Positioned along the belt conveyor are rotary clippers that cut the veneer to desired size. This operation takes place along the "Green chain."

From the "green-end" the veneer goes to dryers much as in the pure veneer production. Some direct-fired dryers have temperatures up to 500 °F. Most common maximum temperature is less than 400 °F. The dry veneer is graded and stored according to the width and grade. After drying, the plywood is built by placing each layer, or ply, at right angles to the grain of the core. This cross-lamination produces strength and rigidity. Plywood is constructed with an odd number of plies such as 3, 5, 7, 9, 11, etc. Prior to laying up of the layers, each ply is run through a glue or adhesive spreader. After the glue is applied and the layers stacked, the plywood is placed



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into presses. Here, pressure (170-2,000 psi) and high temperature are applied for 12-15 minutes. The wood panels are then removed, cut to size (usually four feet by eight feet) and then sanded and stored or shipped.

**PROCESS FLOW:**

**Veneer Mill**

**Log Storage Yard**  
↓  
**Debarker**  
↓  
**Head Saw**  
↓  
**Cooking Vat**  
↓  
**Flitch Backing, Cleaning and Trim**  
↓  
**Veneer Cutter**  
↓  
**Sweat Room**  
↓  
**Dryer**  
↓  
**Clipper**  
↓  
**Package and Ties**  
↓  
**Store or Ship**

**Plywood Mill**

**Log Storage Yard**  
↓  
**Debarker**  
↓  
**Log Bucking  
(Cut to Blocks)**  
↓  
**Steam Room**  
↓  
**Lathe  
(Rotary Cutting)**  
↓  
**Clipper**  
↓  
**Dryer**  
↓  
**Glue Spreader**  
↓  
**Lay-Up**  
↓  
**Press  
(Temperature and Pressure)**  
↓  
**Cut to Size**  
↓  
**Sander  
(Belt or Drum)**  
↓  
**Store or Ship**



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## **Hazards Analysis**

<b>Major Hazards</b>			<b>Other Hazards</b>		
<b>Location</b>	<b>Item</b>	<b>Hazard</b>	<b>Location</b>	<b>Item</b>	<b>Hazard</b>
Log storage yard	Logs in piles and stacks, forklifts, mechanical lifting devices, cables, binders and unloading trucks; vehicular accidents	Crushed limbs and body; carbon monoxide	Debarker	Log deck, chain conveyor, log flippers, pike pole peavey, barker head, log hold down rolls, flying bark, noise, steps, walkways and foot treadles	Amputations, lacerations and crushed limbs; eyes injuries; slips, trips and falls; sprains and strains
Head rig	Head saw, log carriage track, log deck roll cases, conveyors  Open motors and electrical equipment, chips and dust; electric shock, fire and explosion	Amputations, lacerations, bruises, slips, trips, falls, strains and sprains  Burns, smoke inhalation and exposure to toxic air contaminants	Veneer slicers and rotary cutters (stay-log table and lathes)	Veneer slicers, blades, carriage, power drive gears, chains, belts and rotary cutter	Amputations, lacerations, bruises, sprains and strains, and crushed limbs
Log bucking or block cutting	Open vats and tanks, live steam lines and outlets, falling "flitches" or "blocks," walkways, buck boards hoist, slings and cables	Burns to eyes and body; slips, trips and falls; crushed and bruised limbs and body	Clipper	Clipper, knife, power drives, belts and chains, etc.	Amputation, lacerations, bruises, crushed limbs and body
Flitch cleaner/planer and board	Flammable glue, chain saws, flitch	Lacerations and bruises, slips and falls sprains and	Dryer	Heat, open chains, belts and power drives,	Burns, bruises, crushed limbs and body

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backing area	planer, hoist, cables, slings or wire rope, buckboards, walkways, hot water and steam floors, fire	strains, burns and smoke inhalation		conveyors; pinch and nip points	
Hot press	Hydraulic hot press, high temperature and pressure (temps. up to 700 °F and pressure up to 2000 pounds), in-running nip and pinch points	Burns and crushed fingers and hands	Glue spreader	Spreader roll, belts, chains, power drives, doctor roll, conveyor; in-running nip and pinch points  Glue vapors and liquid chemicals (formaldehyde)	Crushed fingers and hands  Eye and throat irritation, dermatitis and inhalation
Sanding area	Drum sanders and wide belt sanders, belts; in-running nip and pinch points	Eye injuries and crushed fingers and hands	Trim area	Band saws, circular saws	Lacerations, amputations and eye injuries
Throughout	Noise  Wood dust	Hearing loss  Respiratory problems			
Reference		29 CFR 1910 — General Industry Standards			
ANSI B30.6		Overhead underhung hoists			
NCGS 95-129		General duty clause - ergonomics			
Subpart D		Walking and working surfaces (especially 1910.30 – veneer machinery)			
Subpart E		Exit Routes, Emergency Action Plans, and Fire Prevention Plans			
Subpart I and 13 NCAC		Personal protective equipment (PPE) – federal and state-specific requirements (for 1910.132)			
Subpart O		Machinery and machine guarding			
Subpart S		Electrical			
1910.95		Occupational noise exposure			
1910.106		Flammable and combustible liquid handling and storage			
1910.141		Sanitation			

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1910.147	Control of hazardous energy (lockout/tagout)	
1910.151	Medical services and first aid (especially eye wash and emergency shower stations)	
1910.176	Material handling – general requirements	
1910.178	Powered industrial trucks	
1910.242	Hand and portable powered tools and equipment – general requirements	
1910.1000 and 13 NCAC 7F.0101	Air contaminants (federal and state specific PELs)	
1910.1048	Formaldehyde	
1910.1200	Hazard communication	
<h3>Inspection Analysis</h3>		
<p>This inspection will be very similar to that of a saw mill. Start with the storage yard and Ensure that logs are properly stacked with no tilting of piles, and that base logs are secure. Check proper log handling procedure and equipment. In the debarker area, observe the operator for protection from flying bark and chips, and check for unguarded mechanical power transmission equipment, walkways, stair rails and log deck. Also look at the drag saw or chain saw. In plywood mills chain saws are often used after debarking to cut logs into blocks. If head rig (head saw) is used, check as you would in a saw mill, with particular emphases on open electrical junction boxes and motors, walkways, guard rails, conveyors, protection against flying particles and log deck guarding. (Note: Remember that even though the equipment and procedures are the same, 29 CFR 1910.265 does not apply to plywood and veneer plants.)</p> <p>Continue on to the cooking vats or steaming area. Note the manner of handling logs, blocks and flitches (by hoist and sling or forklift). Check depth of vat or tank, cover and walkway height above working level, water temperature, noise and personal protection.</p> <p>In veneer plants, check the flitch backing area. Check flammable chemical use and storage. Check saws, planers (hand held), holding tanks, water temperature and tank heights. The next area of concern in the veneer plant is the veneer cutter. Ensure that employees are protected from the cutting knife, stay-log table, power drives, belts and chains. In a plywood mill, the lathe is important. There will probably be a pit where the knife is located. Check lockout procedures when changing knives or during maintenance.</p> <p>In both types of mills observe the chipper operation. Check for in-feed and out-feed guarding, employee protection and proper guards.</p> <p>The remainder of both plants requires inspection techniques similar to any plant operating equipment with power drives, in-running nip points, gears, presses, belts, saws sanders, rolls and other miscellaneous equipment.</p>		
<p><b>Other Pertinent Comments:</b></p>		