

MULTI-LEVEL WORK STANDARD

1.0 Purpose

The multi-level work procedure establishes minimum requirements for providing reasonable safety for those engaged in activities requiring the use of scaffolding.

2.0 Scope

2.1 This procedure is applicable to all International Paper – Franklin Mill employees (except for CIC) and employees of contractors performing work at this location.

2.2 It is applicable to the construction, operation, maintenance, and use of any temporary elevated or suspended platform and its supporting structure which is used for supporting workers and/or materials.

2.3 In cases of practical difficulties or unnecessary hardships, exceptions to the literal requirements of this procedure may be granted by the supervisor, but only when it is clearly indicated that equivalent protection is thereby provided.

3.0 Responsibilities

3.1 It is the responsibility of the supervisor of employee(s) performing activities covered by this procedure to ensure that all involved employees are familiar with and understand this procedure and its application and are aware of the hazards involved.

3.2 It is the responsibility of the employee(s) performing activities covered by this procedure to ensure that the requirements are met.

4.0 Definitions

4.1 **Access Ladder (Climbing Ladder)** - A separate, attachable or built-in means of access to and from a scaffold work platform, with regularly spaced steps or rungs, having a maximum variation between adjacent rungs of 2 inches.

4.2 **Bearer** - A horizontal member of a scaffold upon which the platform rests and which may be supported by ledgers.

4.3 **Brace** - A tie that holds one scaffold member in a fixed position with respect to another member.

4.4 **Coupler** - A device for locking together component parts of tube and coupler scaffold.

4.5 **Guardrail** - A rail secured to uprights and erected along the exposed sides and ends of platforms.

4.6 **Ledger (Stringer)** - A horizontal scaffold member which extends from post to post and which supports the putlogs or bearer forming a tie between the posts.

4.7 **Maximum Intended Load** - The total of all loads, including the working load, the weight of the scaffold, and such other loads as may be reasonably anticipated.

4.8 **Putlog** - A scaffold member upon which the platform rests.

4.9 **Runner** - The lengthwise horizontal bracing or bearing members, or both.

4.10 **Scaffold** - Any temporary elevated or suspended platform and its supporting structure used for supporting workmen or materials, or both.

4.11 **Toeboard** - A barrier secured along the sides and ends of a platform, to guard against the falling of material, tools, and other loose objects.

5.0 References

5.1 OSHA 29 CFR 1910.28 "Safety Requirements for Scaffolding"

5.2 OSHA 29 CFR 1910.29 "Manually Propelled Mobile Ladder Stands & Scaffolds"

5.3 OSHA 29 CFR 1926.450-454 Subpart "L" "Scaffolding"

6.0 Specifications

6.1 General Requirements

6.1.1 Footings shall be rigid, sound, and capable of supporting the maximum intended load. Unstable objects such as boxes, bricks, or concrete blocks shall not be used to support scaffold or planks.

6.1.2 Guardrails and toeboards shall be installed on all open sides and ends of platforms more than 10 feet off the ground or floor.

6.1.3 Guardrails shall be 2 x 4 inch or the equivalent, approximately 42 inches high, with a midrail. Toeboards shall be a minimum of 4 inches in height.

6.1.4 Where persons are required to work or pass under the scaffold, scaffolds shall be provided with a screen between the toeboard and the guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. Standard wire 1/2 inch mesh or equivalent.

6.1.5 All load carrying timber members of scaffold framing shall be a minimum of 1500 fiber (stress grade) construction grade lumber (#1 grade lumber we get from our sawmill meets this requirement). All dimensions are nominal sizes (rough cut size minus any finishing steps), except that where rough sizes are noted, only rough or undressed lumber of the size specified will satisfy minimum requirements.

6.1.6 All planking shall be scaffold grade 2" x 10" or 2" X 12" (this material can be obtained from the sawmill.) Micro laminated beams manufactured for use on scaffolding is acceptable. The maximum permissible spans are shown in the following table.

	MATERIAL 2" Full Thickness Undressed Lumber		
Working Load (p. S. F)	25	50	75
Permissible span(ft)	10	8	6

6.1.7 All planking or platforms shall be overlapped a minimum of 12 inches or secured from movement.

6.1.8 An access ladder or equivalent safe access shall be provided.

6.1.9 Scaffold planks shall extend over their end supports not less than 6 inches nor more than 18 inches.

6.1.10 Materials being hoisted onto a scaffold shall have a tag line.

6.1.11 Overhead protection shall be provided for men on a scaffold exposed to overhead hazards.

6.1.12 Employees shall not work on scaffolding which is covered with ice or snow, unless all ice or snow is removed.

6.1.13 Double or side by side ladders shall not exceed 24 feet platform to platform.

6.1.14 Single ladders shall not exceed 30 feet platform to platform. If ladders are to connect different landings or if the length required exceeds 30 feet, two or more separate ladders shall be used, offset with a platform between each ladder.

6.1.15 Guardrails and toeboards shall be erected on the exposed sides of the ladder platforms. At the top of the ladders the width of the ladder opening shall be at least 15 inches but no more than 20 inches between rails.

6.1.16 Tools, materials, and debris shall not be allowed to accumulate in quantities to cause a hazard.

6.1.17 Scaffolds shall not be altered or moved horizontally while they are in use or occupied.

6.1.18 Any scaffold damaged or weakened from any cause shall be immediately repaired and shall not be used until repairs have been completed.

6.1.19 Employees using scaffolding as work platforms will inspect them for condition and integrity prior to their use.

6.2 Wood Scaffolding

6.2.1 Where wood poles are spliced, the ends shall be squared and the upper section rest squarely on the lower section. Wood splice plates shall be provided on at least two adjacent sides and shall not be less than 4 feet in length, overlapping the abutted ends equally, and have the same width and not less than the cross sectional area of the pole.

6.2.2 Where the height or length exceed 25 feet the scaffolding shall be secured at intervals not greater than 25 feet vertically and horizontally.

6.2.3 Bearers shall be set with their greater dimension vertical, long enough to project over the ledgers of the inner and outer rows of the poles at least 3 inches for proper support.

6.2.4 Ledgers shall be long enough to extend over two pole spaces. Ledgers shall not be spliced between the poles. Ledgers shall be reinforced by bearing blocks securely nailed to the posts to form a support for the ledger.

6.2.5 Diagonal bracing shall be provided to prevent the poles from moving in a direction parallel with the wall of the structure.

6.2.6 Cross bracing shall be provided between the inner and outer sets of poles. The free ends of pole scaffolds shall be crossed braced.

6.2.7 Platform planks shall be laid with their edges close together so the platform will be tight with no spaces which tools or fragments can fall.

6.2.8 Where planking is lapped, each plank shall lap its end supports at least 12 inches. Where the ends of planks abut each other to form a flush floor, the butt joints shall be at the centerline of the pole. The abutted ends shall rest on separate bearers. Intermediate beams shall be provided where necessary to prevent dislodgement of planks due to deflection, and the ends shall be nailed or cleated to prevent their dislodgement.

6.2.9 When moving platforms to the next level, the old platform shall be left undisturbed until the new bearers have been set in place.

6.2.10 Handrails, toeboards, and midrails are required on all platforms 10' or more above the floor or ground.

6.2.11 All applicable items listed in the general requirements shall be enforced.

6.2.12 All wood pole scaffolds 60 feet or less in height shall be constructed to the following table:

MAXIMUM HEIGHT OF SCAFFOLD		
	20 ft	60 ft
Uniformly Distributed Load	Not to exceed	Not to exceed
	25 p.S. F	25 p. S. F.
Poles or Uprights	2x4 in	4x4 in
Poles Spacing (longitudinal)	6 ft	10 ft
Max Width of Scaffold	5 ft	5 ft
Bearer to 3 ft in Width	2x4 in	2x4 in
Bearer to 5 ft in Width	2x6 in	2x6 in
Ledgers	1x4 in	1 1/2 x 9 in
Planking	1 1/4 x 9 in	2x10 in
Vertical Spacing of	7 ft	9 ft
Horizontal Members		
Bracing, Horizontal and Vertical	1x4 in	1x4 in

If wood scaffolding is over 60 feet in height, they shall be designed by a qualified engineer competent in his field, and it shall be constructed and erected in accordance with such design.

6.3 Tube and Coupler Scaffolds

A tube and coupler scaffold is an assembly consisting of tubing which serves as posts, bearers, braces, ties, and runners, a base supporting the posts, and special couplers which serve to connect the uprights and to join the various members.

6.3.1 Light duty scaffolding is defined as 25 lbs/sq ft. Medium duty scaffolding is 50 lbs/sq ft. Heavy duty scaffolding is 75 lbs/sq ft.

6.3.2 Light duty tube and coupler scaffolding shall have as post, bearers, runners, and bracing, 2 inch od steel tubing. The posts shall be no more than 6 feet apart by 10 feet along the length of the scaffold.

6.3.3 Medium duty tube and coupler scaffolding shall have posts, runners, and bracing of 2 inch od steel tubing. Bearers shall be 2 1/2 inch od steel tubing. Posts shall be no more than 6 feet apart by 8 feet along the length of the scaffold.

6.3.4 Heavy duty tube and coupler scaffolding is the same as medium duty except the posts shall be no more than 6 feet wide by 6 feet 6 inches along the length of the scaffold.

6.3.5 Tube and coupler scaffolding shall be limited in height and working levels to the following table:

	Working Levels	Maximum Height
Light Duty	1	125 ft
	2	125 ft
	3	91 ft
Medium Duty	1	125 ft
	2	78 ft
Heavy Duty	1	125 ft

Drawing and specifications of all tube and coupler scaffolds above the limitations in the above table shall be designed by a registered professional engineer with copies made available to the employer for inspection purposes.

6.3.6 Runners shall be erected along the length of the scaffold located on both the inside and outside posts at even heights.

6.3.7 Bearers shall be installed transversely between posts and shall be securely coupled to the posts bearing on the runner.

6.3.8 Bearers shall be a least 4 inches but not more than 12 inches longer than the post spacing or runner spacing.

6.3.9 Cross bracing shall be installed across the width of the scaffold at least every third set of posts horizontally and every fourth runner vertically. Such bracing shall extend diagonally from the inner and outer runners upward to the next inner and outer runners.

6.3.10 Longitudinal diagonal bracing shall be installed at approximately a 45 degree angle from near the base of the first outer post upward to the extreme top of the scaffold.

6.3.11 Handrails, toeboards, and midrails are required on all platforms 10' or more above the floor or ground.

6.3.12 All applicable items listed in the general requirements shall be enforced.

6.4 Manually Propelled Mobile Scaffolds

A manually propelled mobile scaffold is a portable rolling scaffold supported by casters.

6.4.1 When free standing mobile towers are used, the height shall not exceed four times the minimum base dimension (usually the width). Where the basic mobile unit does not meet this requirement, suitable outrigger frames shall be employed to achieve this least base dimension, or provisions shall be made to gut or brace the unit against tipping.

6.4.2 A ladder or stairway shall be provided for proper access and exit and shall be affixed or built into the scaffold.

6.4.3 Only the manufacturer of the scaffold or his qualified designated agent shall be permitted to erect or supervise the erection of scaffolds exceeding 50 feet in height above the base, unless such structure is approved in writing by a licensed professional engineer, or erected in accordance with instructions furnished by the manufacturer.

6.4.4 Handrails, toeboards, and midrails are required on all platforms 10' or more above the floor or ground.

6.4.5 All applicable items listed in the general requirements shall be enforced.

6.5 Swinging/Suspension Scaffolds

A two-point suspension scaffold (swing scaffold) is a scaffold, the platform of which is supported by hangers (stirrups) at two points, suspended from overhead supports so as to permit the raising or lowering of the platform to the desired working position by tackle or hoisting machines.

6.5.1 Swinging Scaffolds or Two-Point Scaffolds

6.5.1.1 Two-point suspension scaffold platforms designed to carry 2 men shall be not less than 20" inches wide nor more than 36 inches wide overall.

6.5.1.2 The hangers of two-point suspension scaffolds shall be made of mild steel, or equivalent materials, have a cross sectional area capable of sustaining 4 times the maximum rated load, and shall be designed with a support for guardrail, intermediate rail, and toeboard.

6.5.1.3 Hoisting machines shall be of a design approved by Underwriters Laboratory or Factory Mutual Engineering Corporation. Air tuggers, hand powered winches, come alongs, or chain falls are not approved lifting devices.

6.5.1.4 Two-point suspension scaffolds shall be suspended by wire, synthetic, or fiber ropes capable of supporting at least 6 times the rated load.

6.5.1.5 On suspension scaffolds designed for working load of 500 pounds, no more than two men shall be permitted to work at one time. For 750 pound design, no more than three men shall be permitted to work at any one time. Each employee shall be protected by an approved safety harness attached to a lifeline. The life line shall be securely attached to substantial members of the structure, not the scaffold, or to securely rigged lines.

6.5.1.6 When working off a mobile crane unit each employee shall be protected by an approved safety harness attached to a lifeline. The lifeline shall be attached to the lower load block or overhaul ball or to a structural member within the platform capable of supporting a fall impact for employees using the anchorage.

6.5.1.7 Handrails, toeboards, and midrails are required on all platforms 10' or more above the floor or ground.

6.5.1.8 All applicable items listed in the general requirements shall be enforced.

6.5.2 Single Point Adjustable Suspension Scaffolds |

This scaffold is the same as two-point suspension scaffolding with the additional requirement that the supporting cable shall be vertical for its entire length, and the basket shall not be swayed nor the cable fixed to any intermediate points to change the original path of travel.

6.6 Boatswain's Chair

A boatswain chair is a suspended seat designed to accommodate one workman in a sitting position.

6.6.1 The chair seat shall not be less than 12 x 24 inches, and 1 inch thick. The seat shall be reinforced on the underside by cleats securely fastened to prevent the board from splitting.

6.6.2 The two fiber rope seat slings shall be of 5/8 inch diameter, reeved through the four seat holes so as to cross each other on the underside of the seat.

6.6.3 Seat slings shall be of at least 3/8 inch wire rope when an employee is conducting a heat producing process.

6.6.4 The employee shall be protected by a safety harness and lifeline.

6.6.5 Hoisting machines shall be of a design approved by Underwriters Laboratory or Factory Mutual Engineering Corporation.

6.6.6 All applicable items listed in the general requirements shall be enforced.

6.7 Horse Scaffolds

A scaffold for light or medium duty composed of horses supporting a work platform.

6.7.1 Horse scaffolds shall not be constructed or arranged more than two tiers or 10 feet in height.

6.7.2 The members of the horse shall not be less than the following:

Horizontal members or bearers 3 x 4 inch

Legs 1 1/4 x 4 1/2 inch

Longitudinal brace between legs 1 x 6 inch

Gusset brace at top of legs 1 x 8 inch

Half diagonal brace 1 1/4 x 4 1/2 inch

6.7.3 Horses shall be spaced not more than 5 feet for medium duty and not more than 8 feet for light duty.

6.7.4 Guardrails, midrails, and toeboards are required on scaffolds that are 10 feet off the ground or floor.

6.7.5 All applicable items listed in the general requirements shall be enforced.

6.8 Carpenters' Bracket Scaffolds

A carpenters' bracket scaffold is a scaffold consisting of wood or metal brackets supporting a platform.

6.8.1 The brackets shall consist of a triangular wood frame not less than 2 x 3 inches in cross section, or of metal of equivalent strength.

6.8.2 Each bracket shall be attached to the structure by means of one of the following:

6.8.2.1 A bolt, no less than 5/8 inch in diameter, which shall extend through to the inside of the building wall.

6.8.2.2 A metal stud attachment device.

6.8.2.3 Welding to steel tanks.

6.8.2.4 Hooking over a well secured and adequately strong supporting member.

6.8.3 The brackets shall be spaced no more than 8 ft apart.

6.8.4 No more than two employees shall occupy any given 8 feet of a bracket scaffold at any one time. Tools and materials shall not exceed 75 pounds in addition to the occupancy.

6.8.5 The platform shall consist of not less than two 2x10 planks extending not more than 12 inches or less than 6 inches beyond each support bracket.

6.8.6 All applicable items listed in the general requirements shall be enforced.

6.9 Additional Requirements for Boilers

6.9.1 Handrails, midrails, and toeboards shall be installed at the high and low ends of the screen tubes.

6.9.2 When persons are required to work or pass under the screen tubes, the scaffolding shall be provided with a screen between the toeboard and the handrail or higher if required to prevent tools or materials from bouncing over the screen. The screen will extend along the entire opening and consist of No. 18 gauge U.S. Standard wire 1/2 inch mesh or equivalent.

6.9.3 Scaffold boards in the superheater, economizer, and generating tubes shall be 8' in length and each board shall be supported by two tube clamps. Scaffold boards shall extend over their supports not less than 6" no more than 18" and secured from movement. Handrails, midrails, and toeboards are not required.

6.10 Training

All employees involved in scaffolding activities addressed by this procedure will receive training prior to beginning that activity. This training will include the content of this procedure as a minimum. Refresher training on this procedure will be provided on an annual basis.

6.11 Auditing

Activities covered by this procedure will be audited for compliance through the mill audit program. This will include audits by departments, the management audit teams, the Safety Department, and activity managers regarding contractor activities.

7.0 Documentation

N/A