# **01-001 DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY**

 **DIVISION OF REGULATIONS**

**Chapter 382: MEASUREMENT OF WOOD AND DECLARATION OF QUANTITY**

**SUMMARY**: This chapter of the *Wood Measurement Rules* establishes the standards for the measurement of wood and the declaration of quantity, including the handling of culled wood. It also includes the requirements for the construction and accuracy instruments for measuring wood.

**SECTION 1: MEASURING INSTRUMENTS AND GENERAL RULES OF MEASUREMENT** 1

 A. Measuring Instruments - Construction and Accuracy 1

 B. Length Measurements 2

 C. General Rule for Rounding Off 2

**SECTION 2. PROHIBITION AGAINST CONVERSION BETWEEN SYSTEMS OF**

 **MEASUREMENT AND THE DECLARATION OF QUANTITY FOR**

 **PAYMENT OR PRICE** 2

 A. Declaration of quantity for payment or price. 2

 B. Prohibition against conversions between measurement systems. 2

**SECTION 3: MIXED LOADS IN PAYMENT FOR SERVICES IN HARVESTING** 2

**SECTION 4: MULTIPLE PRODUCTION FORMS IN PAYMENT**

 **FOR SERVICES IN HARVESTING** 3

**SECTION 5: WOOD PRODUCTION FORM AND CORRESPONDING AUTHORIZED SYSTEMS OF MEASUREMENT** 3

 A. Tree Length Wood 3

 B. Log Length Wood (Sawlogs and Individually Measured Boltwood) 3

 C. Stacked Wood 5

 D. Chipped Wood 5

 E. Polewood 4

 F. Unstacked Fuelwood-Length Wood 5

 G. Semi-Tree Length and Chunkwood 5

**SECTION 6: SYSTEMS OF WOOD MEASUREMENT** 6

 A. Butt Measure 6

 B. Count 8

 C. Butt Scale 9

 D. Stick Cord Scale 12

 E. Log Scale 15

 F. Linear Measure 20

 G. Cubic Foot Measure 21

 H. Chip Volume Scale 24

 I. Thrown Cord Scale 25

 J. Weight Scale 26

 K. Sample Scaling 31

**SECTION 1. MEASURING INSTRUMENTS AND GENERAL RULES OF MEASUREMENT**

 A. **Measuring instruments - construction**

 1. Sticks for scaling wood. All sticks for scaling wood shall conform to the following requirements:

 (a) The zero end of each stick shall have metal securely attached to it.

 (b) Markings indicating graduations and numbers shall be permanent and easily read.

 (c) The finish shall be smooth and painted with a durable clear coating.

 (d) The allowable error in graduations shall be determined according to the following table:

 **Nominal Interval Tolerance in Excess or**

 **from Zero Deficiency No Greater**

 **(Feet) than (Inches)**

 3 or less 0.1

 4 0.13

 5 0.16

 6 0.19

 7 0.21

 8 0.24

 2. Flexible measuring tape Flexible measuring tapes shall conform to the following requirements:

 (a) Tapes shall be made of steel, fiberglass, or other material equal in durability to steel or fiberglass.

 (b) Markings indicating graduations and numbers shall be permanent and easily read.

 (c) The tolerance in excess and deficiency for graduations on flexible measuring tapes shall be for 5 feet or less, 0.1 inches, and for each additional 5 feet, 0.1 inches.

 **NOTE**: Construction and accuracy specifications. Construction and accuracy specifications for all measuring instruments are available upon written request to the State Sealer.

 B. **Length measurements**. Linear, lineal or length measurements consist of determining the length of a line from one point to another. Linear refers to the length of the piece of wood along the vertical growing axis of the tree. Lineal refers to the measurement of the diameter of a cross section of the tree which is assumed to be circular in shape.

 C. **General rule for rounding off**. Where not otherwise provided in these rules, decimals may De rounded off to the nearest whole interval. When the measurement is on the midpoint between two intervals, round down.

**SECTION 2. PROHIBITION AGAINST CONVERSION BETWEEN SYSTEMS OF MEASUREMENT AND THE DECLARATION OF QUANTITY FOR PAYMENT OR PRICE**

 A. **Declaration of quantity for payment or price**. The quantity of wood and the related payment or price shall in all cases be represented in the standard unit for the measurement system used. The standard unit for each measurement system is provided in the appendix, page A-1.

 B. **Prohibition against conversions between measurement systems**. Conversion between measurement systems is prohibited except under the following circumstances:

 1. There is an absolute conversion factor between the two measurement systems and the conversion factor is stated. For example, conversion from cubic volume to metric volume is permitted; or,

 2. The quantity is described in a term that corresponds directly to the total quantity measured, and the relationship between the descriptive term and the standard unit of measurement is provided. For example, the price of chips may additionally be expressed per truckload, where one truckload is specified as a particular number of chipcords; or,

 3. The conversion is for inventory purposes only unrelated to payment for the wood.

**SECTION 3: MIXED LOADS IN PAYMENT FOR SERVICES IN HARVESTING**

 Where more than one person or crew harvests wood which will not be measured until after it is hauled from the harvesting area, the wood shall be separately measured. This requirement does not apply under the following circumstances:

 A. Where the persons providing the services agree in advance how the mixed load is to be allocated among them.

 B. In the case of chipped wood, the persons providing the services may agree as to how the volume of the contents of the container is to be allocated among them. In the absence of an agreement, the person requiring services shall keep the piles of wood separate and shall allocate the quantity of chips based on the measurement of the separate piles.

**SECTION 4. MULTIPLE PRODUCTION FORMS IN PAYMENT FOR SERVICES IN HARVESTING**

 Whenever wood is required to be harvested in one production form, such as tree length, but is not measured until the stems are prepared into another production form or forms according to the preparation directions in the cutting specifications, each portion of the prepared stem shall be separately identified and measured according to the requirements for its production form.

 **NOTE**: An example of multiple production forms is stems that are required to be harvested and yarded tree length, and then are required to be bucked into log lengths and the remaining semi-tree length portion piled, or bucked into 4 foot lengths, or chipped, or otherwise prepared.

**SECTION 5. WOOD PRODUCTION FORM AND CORRESPONDING AUTHORIZED SYSTEM OF MEASUREMENT**

 The production form of harvested wood is the form in which it is tendered for measurement. In the absence of a written agreement of the parties, the state standard system of measurement for a given production form shall be used. Where the parties make a written agreement, they may agree to use any authorized system of measurement which is permitted by this section for a given production form.

 A. **Tree length wood**. Tree length wood means harvested trees that may have been topped, limbed, or butted back.

 1. **State standard - butt measure**. Butt Measure is the state standard for the measurement of tree length stems in all transactions involving payment for services, and in all sales of wood where gross scale is the basis for payment. In the sale of wood where net scale is the basis for payment, butt measure is not permitted.

 2. **Other authorized systems of measurement**. Where agreed upon, the parties may use any of the following authorized systems of measurement for tree length wood:

 (a) Cubic measure;

 (b) Butt scale: In the sale of wood, butt scale is permitted. In the case of payment for services, the use of butt scale is prohibited;

 (c) Count; and

 (d) Weight scale.

 B. **Log length wood (sawlogs and individually measured boltwood)**. Log length wood means stems or pieces of harvested trees that were topped, limbed, and bucked into specified lengths.

 1. **State standard**. The state standard for the measurement of log length wood is log scale, using the International 1/4 Inch Rule.

 2. **Other authorized systems**. Where agreed upon, the parties may also use any of the following authorized systems of measurement for log length wood:

 (a) Any of the following log rules: Bangor Rule; Maine Rule (also called the Holland Rule); International 1/8 Inch Rule:

 (b) Cubic measure;

 (c) Butt measure;

 (d) Count scale, and

 (e) Weight scale.

 C. **Stacked wood**. Stacked wood means stems of pieces of harvested trees that were topped, limbed, and bucked into uniform length, up to 9 feet long, and that were ranked and well stowed, and which are measured as a stack and not individually.

 1. **State standard**. The state standard for stacked wood is stick cord scale and the quantity is represented in either standard cords or face cords.

 2. **Other authorized systems**. Where agreed upon, the parties may also use weight scale to measure stacked wood.

 D. **Chipped wood**. Chipped wood means any portion of a harvested tree that is processed into chips, shavings, or any other particulate form of wood.

 1. **State standard**. The standard state method for the measurement of chipped wood is chip volume scale. The standard measurement unit is the chipcord, that is, the volume of chipped material contained in 128 cubic feet, measured at the time of the transaction.

 2. **Weight Scale**. Where agreed upon, the parties may use weight scale. Where they agree to use weight scale, they may use oven-dried weight.

 E. **Polewood**. Polewood means long segments of stems that were topped, limbed, and may have been butted back.

 1. **State standard**. The state standard for the measurement of polewood is linear measure.

 2. **Other authorized systems**. Where agreed upon, the parties may use any of the following authorized systems of measurement for polewood:

 (a) Count;

 (b) Cubic measure;

 (c) Butt measure; and

 (d) Weight scale.

 F. **Unstacked fuelwood-length wood**. Unstacked fuelwood-length wood means harvested trees that have been topped, limbed, and bucked into uniform lengths averaging 12, 16, or 24 inches, which may have been split, and which are loose and not ranked and well stowed.

 1. **State standard**. The state standard for the measurement of unstacked fuelwood-length wood is thrown cord scale.

 2. **Other authorized systems**. Where agreed upon, the parties may also use either of the following methods of measurement for unstacked fuelwood-length wood:

 (a) Count; and

 (b) Weight scale.

 G. **Semi-tree length and chunkwood**. Semi-tree length and chunkwood means the remaining portions of harvested trees that were required to be yarded tree-length and, in part, bucked into other production forms. Semi-tree length and chunkwood includes pieces of any length and size but does not include negligible wood. Negligible wood means segments of trees that were not piled for further processing and the disposition of which is disregarded by the person requiring the services.

 1. **State standard**. Butt measure is the state standard for the measurement of semi-tree length wood and chunkwood.

 2. **Other authorized systems**, Where agreed upon, the parties may use either of the following authorized systems of measurement for semi-tree length wood and chunkwood:

 (a) Count;

 (b) Cubic measure;

 (c) Weight scale.

**SECTION 6. SYSTEMS OF WOOD MEASUREMENT**

 There are eleven authorized systems of wood measurement: Butt measure, count, butt scale, stick cord scale, log scale, linear scale, cubic foot measure, chip volume scale, thrown cord scale, and weight scale. Included in the Appendix at page A-2 is a table summarizing the different systems.

 A. **Butt measure**

 1. **General description**. Butt measure is the lineal measurement of the butt-end diameter of a severed stem. In contrast to cubic measure and butt scale, the volume of the stem is not relevant to the measurement.

 2. **Authorized use**

 (a) **State standard**. Butt measure is the state standard system for the measurement of tree length wood and semi-tree length and chunkwood.

 (b) **Log length wood**. Where agreed upon, the parties may also use butt measure in the case of log length wood and polewood.

 (c) **Prohibited use**. Where net scale is the basis for payment, the use of butt measure is prohibited.

 3. **Measurement procedure for gross scale**

 (a) **Butt measure requires:**

 (i) Determination of the diameter of the butt end of the stem or piece, expressed in inches or in diameter class, and

 (ii) Computation of the measurement unit using either the diameter count method or the cumulative sum method.

 (b) **Measurement of the butt diameter**

 (i) The measurement of the butt diameter shall be accomplished by measuring the diameter of the butt end (large end) of the stem or piece. The diameter measurement shall be made:

 AA. The short way through the geometric center of the butt end;

 BB. From the outside surface of the bark to the opposite outside surface of the bark;

 CC. Disregarding crevices and cracks;

 DD. Perpendicular to the vertical axis of the tree.

 (ii) "Crevices and cracks" means any indentations in the stem regardless of how they are labeled or how they were caused. "Crevices and cracks" are distinguished from rounded depressions. Directions for distinguishing between "crevices and cracks" and "rounded depressions" under various circumstances are provided in the appendix, pages A-8 through A-13.

 (iii) The "geometric center of the stem" is the point where a slice of the severed end would balance atop a marking pencil.

 (iv) Round off the diameter measurements to the nearest inch. When the measurement falls exactly on the .50 (1/2) inch mark, round down.

 (c) **Computation of units**. Butt diameter units shall be computed using one of the following methods:

 (i) **Diameter count**. Using this method, the quantity is totaled by counting the number of stems for each diameter class. The total is then represented in the numerical count for each diameter class.

 (ii) **Cumulative sum**. Using this method, the quantity is totaled by adding together the inch measurements of all diameters measured without regard to the diameter class. The total is then represented in stem units, where one stem unit equals 100 inches. Under this method, four 5-inch diameter stems have the same value as one 20-inch stem.

 4. **Net scale - discounting**. In all wood transactions in which butt measure is used, taking deductions from gross scale is prohibited.

 5. **Marking**. When butt measure is used, all wood shall be marked as follows:

 (a) Mark the measured diameter or diameter class of each piece on the sawn surface, and

 (b) Mark culled wood in an easily visible and distinct manner.

 6. **Culled Wood**. Any stem or piece that is culled shall be handled as provided for in Chapter 381.

 7. **Declaration of quantity**. Where butt measure is used, the standard unit or measurement depends on whether the diameter count or the cumulative sum method was used.

 (a) **Stems**. Where the diameter count method is used to total the measured inches, the quantity is expressed in stems by diameter inch class. Payment or price per stem by diameter class may be furnished in a stem rate table. For example, there might be one stem rate table in one inch class intervals for unlimbed spruce and fir, and another table for limbed spruce and fir.

 (b) **Stem units**. Where the cumulative sum method is used to total the measured inches, the quantity is expressed in stem units, where 100 inches equals one stem unit.

 8. **Tally**. Measurement tally sheet requirements for butt measure are set forth in Chapter 383.

 B. **Count**

 1. **General description**. When trees, stems or pieces are measured by count, the number of trees, stems, or pieces are tallied by species or other groupings.

 2. **Authorized use**. Where agreed upon, count may be used for tree length wood, log length wood, polewood, unstacked fuelwood length wood, and semi-tree length and chunkwood.

 3. **Measurement or procedure for gross scale**. Count the number of stems or pieces by species or other groupings.

 4. **Net scale - discounting**. In all wood transactions where stems or pieces are measured using count, taking deductions from gross scale is prohibited.

 5. **Marking**. Mark culled wood in an easily visible and distinct manner.

 6. **Culled Wood**. Any stem or piece that is culled shall be handled as provided for in Chapter 381.

 7. **Declaration of quantity**. Where count is used, the quantity is expressed in pieces.

 8. **Tally**. Measurement tally sheet requirements for count are set forth in Chapter 383.

 C. **Butt scale**

 1. **General description**. Butt scale is the lineal measurement of the butt diameter converted to cubic foot volume by formula or otherwise. The volume is expressed in cunits or in standard cord units. The butt diameter measurement is made in the same manner as in butt measure.

 2. **Authorized use**. In the sale of wood, butt scale is authorized for use on tree-length wood where agreed upon by the parties. Butt scale is prohibited in the case of payment for services.

 3. **Measurement procedure for gross scale**

 (a) **Butt scale requires:**

 (i) Determination of the diameter of the butt end of the stem expressed in inches; and

 (ii) Computation of the cubic foot volume by way of a formula or other procedure designed for that purpose, and representation of the quantity in cunits; or

 (iii) Computation of the cubic foot volume and conversion to equivalent standard cord units; and

 (iv) Preparation of a table which represents the computed correlation between diameter size and volume, expressed in cunits or equivalent standard cord units.

 (b) **Measurement of the butt diameter**

 (i) The measurement of the butt diameter shall be accomplished by measuring the diameter of the butt end (large end) of the stem or piece. The diameter measurement shall be made:

 AA. The short way through the geometric center of the butt end;

 BB. From the outside surface of the bark to the opposite outside surface of the bark;

 CC. Disregarding crevices and cracks; and

 DD. Perpendicular to the vertical axis of the tree.

 (ii) "Crevices and cracks" means any indentations in the stem regardless of how they are labeled or how they were caused. "Crevices and cracks" are distinguished from rounded depressions. Directions for distinguishing between "crevices and cracks" or "rounded depressions" under various circumstances are provided in the appendix at pages A-8 through A-13.

 (iii) The "geometric center of the stem" is the point where a slice of the severed end would balance atop a marking pencil.

 (iv) Round off the diameter measurements to the nearest inch. When the measurement falls exactly on the .50 (1/2) inch mark, round down.

 (c) **Computation of cunits or standard cord units**

 (i) The volume of wood in a stem of a given diameter size shall be derived from a volume table developed for that purpose where the volume is represented in either cunits or standard cord units.

 (ii) Where the volume is represented in standard cords, the parties may designate a reasonable and appropriate factor to be used to convert cubic feet to standard cords. That conversion factor to be set forth in the wood quality specifications. In the absence of a designation of a reasonable and appropriate conversion factor stated in the wood quality specifications, the following factors shall be imputed:

 **Softwood** - 85 cubic feet of wood including bark equals one standard cord, and

 **Hardwood** - 80 cubic feet of wood including bark equals one standard cord.

 In the case of measuring mixed species which have different conversion factors, the wood quality specifications shall state the conversion factor for each of the species and the applicable combined conversion factor that will be used for measuring the wood. In all cases the combined conversion factor shall be reasonable.

 (iii) **Bark in the conversion from cubic feet to standard cords**

 AA. **Inside bark**. The conversion factor used to calculate the number of standard cords may be based on inside bark measurements or volumes provided the wood quality specifications state the manner in which the conversion to standard cords is made. in the event that outside bark measurements are taken but the conversion to standard cords is calculated based on inside bark volumes, the method of calculating the amount of bark shall also be stated.

 BB. **Outside bark**. In all other cases, the conversion factor used to determine the number of standard cords, including bark, shall be based on outside bark measurements and volumes.

 (d) **Construction of the volume table**

 (i) The volume table shall be set up by one inch diameter classes.

 (ii) The volume table shall be labeled to:

 AA. Designate the harvesting area, or areas, to which it applies; and

 BB. Indicate whether the volume is expressed in cunits, net cunits, standard cord or net standard cord unit.

 (iii) Calculation of the cubic volume of wood shall be based on the measurement procedures set forth in this chapter, section 5(G), "Cubic foot measure".

 (e) **Required furnishing of volume table**. The applicable volume table shall be furnished with the wood quality specifications.

 4. **Net scale - discounting**. In the sale of wood, when butt scale is used, reasonable deductions may be made for merchantability factors, provided:

 (a) All merchantability factors for which deductions will be taken shall be specified in the wood quality specifications.

 (b) In calculating the number of standard cords, bark may not be treated as a merchantability factor.

 (c) Deductions for interior defects may be computed using the formula:

 (H x W) x L =

 144

 volume of defect in cubic feet, where the height H and width W of the defective area are expressed in inches, and the length L is expressed in feet and tenths of feet alternatively. Where permitted in subparagraph (v), the parties may use the "Grosenbaugh" method of calculating interior defects.

 (d) In the case of deductions, other than for interior defect the standard procedure contained in the *National Forest Log Scaling Handbook*, Code 82.3 (Cubic Foot Measurement defect deduction) shall be used except as permitted in subparagraph (e), below. The relevant portion of the National Forest Log Scaling Handbook is set forth in the Appendix A-14.

 (e) Alternatively, the parties may use the "Grosenbaugh" method of calculating deductions provided the State Sealer is furnished, in advance, with a copy of the corresponding wood quality specifications and measurement procedures.

 **NOTE**: Upon written request an application of the "Grosenbaugh" methodology may be obtained from the State Sealer.

 5. **Marking**. When butt scale is used, mark all wood as follows:

 (a) Mark the diameter of each stem on the butt end; and

 (b) Mark any culled wood in an easily visible and distinct manner.

 6. **Culled Wood**. Any stem or piece that is culled shall be handled as provided for in Chapter 381.

 7. **Declaration of quantity**. Where butt scale is used, the standard units of measurement are:

 (a) **Gross scale** Cunits or standard cords

 (b) **Net scale** Net cunits or net standard cords

 8. **Tally**. The measurement tally sheet requirements for butt scale are set forth in Chapter 383.

 D. **Stick cord scale**

 1. **General description**. Stick cord scale is the measurement of a stack of uniform length bolts which measure up to 9 feet in length. The quantity is expressed in standard cords or face cords.

 2. **Authorized use**

 (a) **State standard**. Stick cord scale is the state standard system of measurement for stacked wood where the sticks measure no more than 9 feet in length.

 (b) **Prohibited use**. The use of stick cord scale is prohibited for any wood production form other than stacked wood, or for sticks that exceed 9 feet in length.

 3. **Measurement procedure for gross scale**

 (a) **Stick cord scale requires:**

 (i) Determination of the height and length of the pile, where the measurements are expressed in inches or feet and tenths of feet; and

 (ii) Calculation of the quantity in standard cords or face cords.

 (b) **Width of pile (length of bolts)**

 (i) The width of the pile is the average length of the individual bolts, measured from saw cut to saw cut.

 (ii) Unless otherwise specified, the allowance for variance in the length of the bolts shall be + 1/2 inch per foot. Any specified variance shall be expressed in plus or minus the same interval.

 (c) **Height of the pile**

 (i) The height of the pile is the measurement from its top surface to its bottom surface.

 (ii) The standard interval for measurement is two feet on the ends of the pile, and every four feet along the level height of the pile. When the top surface of the pile is not level, height measurements shall be taken at two foot intervals. When the wood is stacked in a truck, railroad car, or other contained structure a reasonable interval for measurement shall be used to accurately determine the height of the stacked wood.

 (iii) When the bolts are piled on an incline, the height measurements shall be taken at right angle to the slope.

 (iv) To compute the average height of the pile, add all the height measurements together and divide by the number of measurements taken.

 (d) **Length of the pile**

 (i) The length of the pile shall be measured from the outside edge of the pile or tier, except where a pile drops off in height forming a slope; then, the length measurement is taken from the point where half of the first height measurement intersects with the line of the slope.

 (ii) When the bolts are stacked on an incline, the length measurements shall be taken parallel to the slope.

 (iii) When the lengths measured at the front and the back of the pile are not the same, the lengths shall be added together and then averaged.

 (e) **Computation of standard cords and face cords**

 (i) When the specified length of the bolts is 4 feet, the quantity of wood shall be computed in standard cords. When the specified length is other than 4 feet, the quantity of wood may be computed in either standard cords or face cords.

 (ii) Standard cord computation. To compute the standard cord volume of a pile of 4 foot long bolts stacked 4 feet high and 8 feet long, or the equivalent, use the formula:

 H x L x W =

 128

 number of standard cords, where H is the height of the pile, L is the length of the pile, and W is the width of the pile (length of bolts), and where the measurements are stated in feet and tenths of feet.

 (iii) Face cord computation. To compute the square foot area of the face of the pile, use the following formula:

 H x L = number of

 32

 face cords, where H is the height of the pile, L is the length of the pile, and where all measurements are stated in feet and tenths of feet.

 (f) **Permitted gross scale reductions**. Where stick cord scale is used, reasonable reductions may be made for:

 (i) Voids that will accommodate a bolt of the average diameter of the bolts in the pile. Where the bolts vary in diameter, the average diameter bolt shall be calculated as the average diameter of the bolts surrounding the void.

 (ii) Bolts that were marked and handled as culled wood.

 4. **Net scale - discounting**

 (a) Where payment is made for services, taking deductions from gross scale is prohibited.

 (b) in the sale of wood, when stick cord scale is used, reasonable deductions for merchantability factors may be taken on bolts that were not culled, provided:

 (i) The merchantability factors were included in the wood quality specifications;

 (ii) Bark is not included as a merchantability factor; and

 (iii) Unless otherwise provided in the wood quality specifications, deductions for defects shall be computed based on height and width of visible defects on the sawn surface of bolts on the side of the pile being measured. It shall be assumed that any visible defect extends through the full length of the bolt.

 5. **Marking**. When payment is made for services, and in a sale unless otherwise agreed upon by the parties, and where the pile is measured prior to hauling from the harvesting area, the wood shall be marked as follows:

 (a) Stakes or a heavy vertical crayon mark shall be used to make a "break" in a pile to separate one measured pile from another.

 (b) A notation shall be made on a sizable bolt near the top of the measured pile identifying the pile by number or otherwise, and noting the measurement of the pile in standard cords or by dimensions.

 (c) Mark culled wood in an easily visible and distinct manner.

 6. **Culled Wood**. Any stem or piece that is culled shall be handled as provided for in Chapter 381.

 7. **Declaration of quantity**. Where stick cord scale is used, the standard units of measurement are:

 (a) **Gross scale** Standard cords or face cords

 (b) **Net scale** Net standard cords or net face cords

 8. **Tally**. The measurement tally sheet requirements for stick cord scale are set forth in Chapter 383.

 E. **Log scale**

 1. **General description**. Log scale is the measurement of logs using a log rule. A log rule is a standard table that states in board feet the apparent amount of lumber that can be sawn from logs of different size classes under assumed conditions. The International 1/4 Inch Log rule, for example, assumes a saw kerf of 1/4 inch, taper of 1/2 inch in each 4 foot length, and an average of 1/2 inch of sweep or crook in each 4 foot length. No log rule gives the actual measure of the number of board feet that will be sawn from a given size log. Instead, the log rule is simply a uniform system of measurement. Gross scale is the dimensional measurement of the log without regard to any scaling defects. Net scale is the gross scale less length, diameter, or volume deductions taken to discount for scaling defects in the log. The authorized log rules are included at pages A-4 through A-7 of the Appendix.

 2. **Authorized use**

 (a) **State standard**. Log scale using the International 1/4 Inch Rule (I.R.) is the state standard for the measurement of log length wood.

 (b) Where agreed upon by the parties, log scale using any of the following rules is authorized; Bangor Rule (B.R.), Maine (Holland) Rule (M.R.), and the International 1/8 Inch Rule (I.R. 1/8).

 (c) The use of log scale is prohibited for production forms other than log length wood.

 3. **Measurement procedure for gross scale**

 (a) **Log scale requires:**

 (i) Use of the correct log rule stick for the log rule specified,

 (ii) Determination of the top end diameter and the length of the log; and

 (iii) Computation of the board foot measurement, using the log rule table printed on the scale stick.

 (b) **Top diameter measurements**

 (i) Top diameter measurements shall be taken at the small end from inside the bark, through the geometric center, avoiding abnormal bulges, crevices and cracks and other depressions, and to the extent possible, shall be made as though these conditions do not exist.

 (ii) Where the top end is evenly rounded, and not oval or irregularly shaped, only one diameter measurement is required. Where the top end is not rounded in shape, measure the short diameter first, and then take a second measurement at a right angle to the first and average the diameter measurements.

 (iii) Make all measurements perpendicular to the vertical axis of the tree.

 (iv) All measurements shall be taken to the nearest inch.

 AA. Round exact 1/2 inch measurements before averaging. Round up when it is one of a pair to be averaged. When both of a pair to be averaged fall on 1/2 inch marks, round one up and one down.

 BB. If the averaged diameter is on a 1/2 inch, then round down for the final scaling diameter.

 (c) **Length measurement**

 (i) For **stump cuts**, measure length from the point at which the scaling cylinder emerges. For other cuts, make length measurements from the short side.

 **NOTE**: An illustration of the proper method of making length measurements, when using the International 1/4 Log Rule is furnished in the Appendix at A-15.

 (ii) Trim allowance. In the cutting specifications or the wood quality specifications:

 AA. **General rule**. A trim allowance of up to 6 inches may be specified without affecting the scaling length.

 Where trim allowance greater than 6.0 inches is specified, the length measurement shall be rounded up to the next whole foot.

 BB. **Exception to general rule**. Where the written specifications provide for acceptable lengths in multiples of a certain length, a trim allowance of up to 2 inches per multiple is permissible without rounding up to the next whole foot.

 (iii) **Insufficient trim**

 AA. Except as otherwise agreed upon by the parties, logs lacking sufficient trim allowance will be reduced in scaling length to the next lower standard log length

 BB. Where no trim allowance was specified, no reduction in scaling length may be made for lack of trim.

 (iv) **Logs longer than 20 feet**. Unless otherwise agreed upon in writing, logs longer than 20 feet shall be scaled as two logs of approximately equal length and the scaling diameter of the bottom log shall be assumed to be two inches larger than the measured top end diameter.

 (d) **End breaks and splits**. A reduction for end breaks and splits is prohibited in the case of payment for services, except where the end break or split results from the improper harvesting or hauling methods of the person providing the services. Where permissible, a reduction for end breaks and splits shall be made according to the procedure provided in the *National Forest Log Scaling Handbook*, Code 33 (Breaks and splits). The relevant provisions or the National Forest Log Scaling Handbook are set forth in the appendix, page A-16.

 4. **Net scale - discounting**

 (a) In the case of payment for services, taking deductions from gross scale is prohibited.

 (b) in the case of the sale of wood, reasonable diameter, length, and volume deductions may be taken for merchantability factors, provided the merchantability factors were included in the wood quality specifications.

 (c) **Computations of Deductions**

 (i) **Interior deductions**. Deductions for computing interior defects are computed by enclosing the defective area with a measured square or rectangle, and then computing the volume within the square or rectangle area. Tables are available to make this computation. The formula used in constructing the table, when the International 1/4 Inch Rule is used,

 is D = (W+1) x (T+1) x L where D

 16

 is the defect or discount in board feet. W is the width of defect in inches, T is the thickness of defect in inches, and L is the length of defect in feet. When a log shows defect at both ends, then the defect at each end shall be assumed to run at its measured dimensions to the mid-point of the log.

 (ii) **Deductions for seams and cracks**. In making deductions for seams and cracks the pie-cut method shall be used. The deduction shall bear the same relation to the total scale as the sector bears to the circle, i.e. a straight seam or crack running from pith to bark the full length of the log would be deducted at 1/8 of the gross scale; a seam or crack from pith to bark which spirals through from butt to top would be deducted as:

 45 degrees = 1/8 of gross scale deduction

 90 degrees = 1/4 of gross scale deduction

 120 degrees = 1/3 of gross scale deduction

 180 degrees = 1/2 of gross scale deduction

 (iii) **Deductions for end breaks and splits**. Deductions for end breaks and splits shall be made according to the procedure provided in the *National Forest Log Scaling Handbook*, Code 33 (Breaks and Splits), the relevant provisions of which are set forth in the appendix, page A-16.

 (iv) **Diameter deductions**. Diameter deductions may be made for sap rot, catfaces, and knots and similar surface defects.

 (v) **Length deductions**. Length deductions may be made for butt rot, crook or sweep beyond a specified amount, crotch, burls, and voids.

 (vi) **Deductions for sweep and crook**. A reasonable deduction may be made for excessive sweep and crook, provided that when the International 1/4 Inch Log Rule is used no deduction may be made except where the amount of sweep or crook exceeds 1/2 inch for each 4 foot length.

 (vii) **Computation of permissible deductions**. Except as otherwise provided in this subsection, all deductions shall be made according to the applicable standards in the National Forest Log Scaling Handbook, Chapter 20, or alternatively, the parties may use the "Grosenbaugh" method of calculating deductions, provided the State Sealer is furnished in advance with a copy of the corresponding wood quality specifications and measurement procedures.

 **NOTE**: Upon written request a copy of the relevant provisions of Chapter 20 of the *National Forest Log Scaling Handbook* or application of the "Grosenbaugh" methodology may be obtained from the State Sealer.

 5. **Marking**. All logs shall be marked where payment is made for services; and, unless otherwise agreed upon by the parties in a sale transaction:

 (a) mark the gross scale or the small end diameter on each measured log. The measurement shall be marked on the measured top end. Where that mark is not easily visible, the butt end shall also be marked.

 (b) Mark any culled logs in an easily visible and distinct manner.

 6. **Culled Wood**. Culled logs shall be handled as provided for in Chapter 381.

 7. **Declaration of quantity**. Where log scale is used, the quantity of wood shall be represented as follows:

 (a) **Gross scale**: Board feet, identifying log rule used (for example, bd. ft. I.R.).

 (b) **Net scale**: Net board feet, identifying log rule used (for example, bd. ft. I.R.)

 8. **Tally**. The measurement tally sheet requirements for log scale are set forth in Chapter 383.

 F. **Linear measure**

 1. **General description**. Linear measure involves the measurement of a stem or piece by length only, up to a specified top diameter size. For measurement purposes, the volume of wood is not relevant. Trees harvested for use as pilings, or for power and telephone poles, are often measured using linear measure.

 2. **Authorized use**

 (a) **State standard**. Linear measure is the state standard system of measure for polewood.

 (b) **Prohibited use**. The use of linear measure is prohibited for any production form other than polewood.

 3. **Measurement procedure for gross scale**

 (a) Linear measure requires determination of the length of the stem, where the length is expressed in feet and tenths of feet or inches.

 (b) The length of the stem is measured from saw cut to saw cut, on the short side.

 (i) When the stem is cut above the minimum top diameter, take the length measurement from the point where the specified diameter is reached.

 (ii) The length shall be expressed in feet and tenths of feet or inches. Any trim must be included within the minimum length and may not be specified as a separate allowance.

 4. **Net scale - discounting**

 (a) Where payment is made for services, taking deductions from gross scale is prohibited.

 (b) In the sale of wood, reasonable length deductions for merchantability factors may be taken, provided the merchantability factors were included in the wood quality specifications.

 5. **Marking**. All logs shall be marked where payment is made for services, or unless otherwise agreed by the parties in a sale transaction:

 (a) Mark the scaling length of each measured stem or piece on the sawn surface of the butt end.

 (b) Mark culled wood in an easily visible and distinct manner.

 6. **Culled Wood**. Any stem or piece that is culled shall be handled as provided for in Chapter 381.

 7. **Declaration of quantity**. Where linear measure is used, the quantity of wood shall be expressed as follows:

 (a) **Gross scale** Linear feet

 (b) **Net scale** Net linear feet

 8. **Tally**. The measurement tally sheet requirements for linear measure are set forth in Chapter 383.

 G. **Cubic foot measure**

 1. **General description**. Cubic foot measure is the measurement of solid volume expressed in cubic feet, where 100 cubic feet equals one cunit. In contrast to stick cord scale, individual stems or pieces are measured, not a stacked unit. In contrast to log scale, this system does not exclude the measurement of the exterior slabs, edging, and saw kerf.

 2. **Authorized use**. Cubic foot measure may be used to measure tree length wood, log length wood, polewood, and semi-tree length and chunkwood.

 3. **Measurement procedure for gross scale**. Unless otherwise authorized by the State Sealer as provided for below, the cubic content of each measured stem or piece shall be computed by means of the formula:

 V = (A + a) L, where V is the volume

 2

 in cubic feet, A is the area in square feet of the large end of the measured stem, a is the area in square feet of the small end of the stem or piece, and L is the length of the stem or piece in feet and tenths of feet. Use of an alternative formula is permitted only by approval of the State Sealer. The State Sealer may require submission of documentation to support a request for an alternative formula. The approval for the use of the alternative formula shall be based on a determination that the alternative formula is included in the sales contract or applicable wood quality specifications, the formula is reasonable and appropriate for its intended use, and the method of making the measurement is consistent with the measurement procedures set forth below. In all cases length and diameter measurements shall be made as follows:

 (a) **Length measurement**

 (i) Measure the length of the stem or piece from saw cut to saw cut, on the short side.

 (ii) Where a specific length is required, measure the stem or piece according to the maximum length that conforms to the specifications. Where the specifications provide for a "trim allowance," it shall be included in the measured length.

 (iii) Express the length in feet and tenths of feet.

 (b) **Top and bottom end diameters**

 (i) Measure the diameter of each end the short way across, through the geometric center of the stem, disregarding crevices and cracks, and perpendicular to the vertical growing axis of the tree.

 AA. "Crevices and cracks" means any indentations in the stem regardless of how they are labeled or how they were caused. "Crevices and cracks" are distinguished from rounded depressions.

 BB. The "geometric center of the stem" is the point where a slice of the severed end would balance atop a marking pencil.

 (ii) **Bark**. For purposes of calculating the number of cunits:

 AA. Inside bark measurements are permitted where specified in the written specifications.

 BB. Absent written specification, all measurements shall be made from outside the bark.

 (iii) Express the diameter measurements in inches.

 4. **Net scale - discounting**

 (a) Where payment is made for services, taking deductions from gross scale is prohibited.

 (b) In the sale of wood, reasonable deductions may be made for merchantability factors, provided the merchantability factors were included in the wood quality specifications.

 (c) **Computation of permissible deductions**

 (i) Deductions for interior defects are computed using the formula

 (H x W) x L =

 144

 cubic volume of interior defect, where the height H and width W are in inches, and length L is in feet-and tenths of feet;

 (ii) Bark may be included as a merchantability factor for which a deduction may be taken in computing net scale.

 (iii) The standard procedures contained in the *National Forest Log Scaling Handbook,* Code 82.3 (Cubic Foot Measurement - Defect Deduction) shall be used to compute defect deductions. Alternatively, the parties may use the "Grosenbaugh" method of calculating deductions, provided the State Sealer is furnished in advance with a copy of the corresponding wood quality specifications and the relevant measurement procedures.

 **NOTE**: The relevant provisions of the *National Forest Log Scaling Handbook* are set forth in appendix, page A-14. upon written request an application of the "Grosenbaugh" methodology may be obtained from the State Sealer.

 5. **Marking**. When cubic foot measure is used, all stems and pieces shall be marked;

 (a) Mark in an easily visible and uniform manner each stem or piece that is measured, showing the length and diameter measurements.

 (b) Mark any culled stem or piece in an easily visible and distinct manner.

 6. **Culled Wood**. Any stem or piece that is culled shall be handled as provided for in Chapter 381.

 7. **Declaration of quantity**. Where cubic measure is used, the standard units of measurement are:

 (a) **Gross scale** Cunits

 (b) **Net scale** Net cunits

 8. **Tally**. The measurement tally sheet requirements for cubic foot measure are set forth in Chapter 383.

 H. **Chip volume scale**

 1. **General description**. Chip volume scale is the volumetric measurement of any portion of a tree that is in the form of chips, shavings, sawdust, or other particulate forms of wood. The quantity of wood is measured in cubic feet and expressed in either one hundred cubic foot units or in chipcords, where one chipcord equals 128 cubic feet of chipped material.

 2. **Authorized use**

 (a) **State standard**. Chip volume scale is the state standard for the measurement of chipped or other particulate form of wood.

 (b) **Prohibited use**. Chip volume scale may not be used where wood is tendered for measurement in other than particulate form.

 3. **Measurement procedure for gross scale**. The measurement of chipped wood using chip volume shall be accomplished by determining the volume in cubic feet of the space occupied by the chipped material. The total cubic volume is then divided by 128 to determine the number of chipcords.

 (a) **Container unit**

 (i) A container in which chipped wood is measured shall be marked in an easily visible manner to indicate the total volume capacity. The capacity shall be expressed in cubic feet.

 (ii) A container in which chipped wood is measured shall also be marked in an easily visible manner in reasonable intervals. The capacity at each interval shall be expressed in cubic feet.

 **NOTE**: The State Sealer is available to recommend an appropriate manner to mark a container.

 (b) **Intermediate volume**. Where there are insufficient chips to be measured to fill the container and the quantity of chips is between marked intervals, the scaler shall interpolate to determine the quantity.

 (c) **Time and place of measurement**. The volume shall be measured at the time and place possession of the chipped wood is transferred between the parties to the transaction, unless the parties have agreed in writing to an alternative time and place.

 (d) **Permissible gross scale measurement reductions**

 (i) In all wood transactions where foreign matter, such as dirt or foreign objects, are separately identified, the volume of chipped wood shall be reduced by the measured volume of the foreign material.

 (ii) No portion of a tree, stem, or piece that was designated to be chipped shall be treated as foreign material.

 4. **Net scale** - discounting. In all wood transactions in which chip volume scale is used, taking deductions from gross scale is prohibited.

 5. **Marking**. Culled wood that is not to be chipped shall be separated in advance of chipping and marked in an easily visible and distinct manner.

 6. **Culled Wood**. Any stem or piece that is culled shall be handled as provided for in Chapter 381.

 7. **Declaration of quantity**. Where chip volume scale is used the quantity of wood measured shall be expressed in chipcords, where one chipcord equals 128 cubic feet of chipped material.

 8. **Tally**. The measurement tally sheet for chip volume scale are set forth in Chapter 383.

 I. **Thrown cord scale**

 1. **General description**. Thrown cord scale is the measurement of round or split fuelwood-length wood measured in a container. Fuelwood-length wood is bolts that average 12, 16, or 24 inches in length. In contrast to stick cord scale, the bolts are tossed loose into a container and are not ranked and well stowed.

 2. **Authorized use**

 (a) **State standard**. Thrown cord scale is the state standard method for the measurement of unstacked fuelwood-length bolts, split or unsplit, which are not ranked and well stowed.

 (b) **Prohibited use**. Thrown cord scale may not be used to measure production forms other than unstacked fuelwood-length wood.

 3. **Measurement procedures for gross scale**. The measurement of fuel-length wood, using thrown cord scale, shall be accomplished by computing the cubic volume of space in the container that is occupied by the thrown wood.

 (a) The thrown wood shall be measured in a square or rectangular container, such as an enclosed vehicle bed.

 (b) If the top surface of the wood is not level, height measurements shall be taken at regular intervals perpendicular to the bottom of the container.

 (c) **Container capacity**

 (i) The container in which the wood will be measured shall be marked in an easily visible manner to indicate total capacity and the marking shall be expressed in cubic feet.

 (ii) Where the container will be used to measure partial capacity, the container shall, at minimum, be marked in intervals of one hundred cubic feet.

 (d) The computation of volume in thrown cords shall be accomplished as follows:

 (i) Determine the cubic volume of the container or, by interpolation, determine the partial volume of the container.

 (ii) once the cubic volume of a container space is known, the computation of volume in standard cords shall be based on the following equivalent values:

 AA. In the case of bolts that average 12 or 16 inches in length, one standard cord equals the amount of wood, bark and air in a space of 180 cubic feet.

 BB. In the case of bolts that average 24 inches in length, one standard cord equals the amount of wood, bark, and air in a space of 195 cubic feet.

 4. **Net scale - discounting**. In all wood transactions in which thrown cord scale is used, the taking of deductions from gross scale is prohibited.

 5. **Marking**. Culled wood shall be separated and marked in an easily visible and distinct manner.

 6. **Culled wood**. Any stem or piece that is culled shall be handled as provided for in Chapter 381.

 7. **Declaration of quantity**. Where thrown cord scale is used, he quantity shall be represented in standard cords.

 8. Tally. The measurement tally sheet requirements for thrown cord scale are set forth in Chapter 383, Section 4.

 J. **Weight scale**

 1. **General description**: Weight scale is the measurement of wood in any production form by its weight. The weight may be represented according to actual weight at the time of measurement or according to the calculated dry weight. Dry weight is the weight of wood after subtracting the weight of its moisture content as determined by the oven-dried weight method, the infra-red moisture determination method, or by an alternative method of equal or greater accuracy.

 (a) Oven-dried weight means the weight of wood that has been processed to dry until no further moisture loss occurs and a stable weight is reached. The computation of the weight of oven-dried wood may be based on the oven-dried weight of a sample of the wood.

 (b) The infra-red moisture determination method is the determination of moisture content in wood using an infra-red analyzer. In this process the load of wood is weighed and then passes a point on a belt conveyer where a light beam is focused to illuminate the sample being measured. The microprocessor averages the numerous individual percent moisture determinations as the load passes the instrument and records the average moisture content for the load.

 2. **Authorized Use**: Where agreed upon by the parties, weight scale may be used to measure wood in any production form. Representation of the weight shall be the actual load weight, except that representation of dry weight is permitted, provided that:

 (a) representation of quantity on the measurement tally sheet indicates that the weight represented is the dry weight, and

 (b) when any method other than the oven-dried method is used:

 (i) Any person proposing to use infra-red moisture analyzing equipment, other moisture analyzing equipment, or any other alternative way of measuring the moisture content of wood shall send a written request to the State Sealer requesting permission to do so, supplying all information necessary for the State Sealer to 1 determine whether to issue the authorization.

 (ii) Infra-red moisture analysis or an alternative method of moisture determination may be used only when authorized in writing by the State Sealer after the State Sealer has verified that the equipment in use and the installation result in accurate moisture determinations.

 (iii) The State Sealer may attach reasonable conditions to any authorization, including but not limited to, the term of the authorization the type of equipment and the method of use as well as any required studies, record keeping and reporting.

 (iv) The equipment must be sealed with a lead and wire security seal by the State Sealer and opened only after his notification and permission.

 (v) During that period of time when the chips are partially or completely frozen, grab samples will be taken on each load measured by the Quadra-Beam in the normal manner at the time load is passing on the conveyor. These samples will be taken to the lab and a moisture determination will be made immediately (before the sample has thawed) with the Quadra-Beam analyzer located there. Subsequent to this reading, the sample will be sealed so no moisture gain or loss will take place then allowed to set overnight. The following day (after the sample is completely thawed) the sample will be unsealed, stirred and a second analyzer reading be taken. A ratio of these two readings will then become a factor to be applied to the regular moisture determination taken at the time the chips were being unloaded, thus;

 Frozen Chip Quadra-Beam Reading x Load Reading at time

 Thawed Chip Quadra-Beam Reading of unloading

 Wood Moisture Determination Adjusted

 = for Any Variation Caused by

 Frozen Chips

 2-A **The "Green Wood" Rule** - Alternative method of measurement available when wood not promptly weighed in case of payment for services in harvesting.

 (a) **Alternative method available**. Under the following conditions, the person providing services in harvesting may require that the wood instead be measured at the harvesting site using the state standard method of measurement for the production form of the wood involved.

 (i) **Time frame**. The person providing the service may require an alternative method in the case of wood which is not or will not be weighed within 15 days of felling.

 (ii) **Form of notice**. The notice requiring the alternative method of measurement must be in writing and identify the wood involved. The notice must be delivered to the person requiring the services or such other person responsible for measuring the wood.

 (iii) **Compliance with "Green Wood" Rule**. Upon receipt of a notice requiring an alternative method of measurement, the person requiring the services shall measure the wood at the harvesting site within 15 days using the state standard method of measurement for the production form of the wood involved.

 (b) **Delayed weight scale**. If the person providing the services does not require an alternative method of measurement, he may agree to delayed weight scale. In the case of delayed weight scale:

 (i) the parties shall designate the period within which the wood will be weighed and, shall agree on a reasonable and appropriate factor to account for any resulting loss of moisture (weight).

 **NOTE**: For example the parties might agree as follows: if wood felled between December 30 and April 30 is not weighed within 15 days: add 2% to the actual weight; and, if wood felled between May 1 and September 30 is not weighed within 15 days of felling: add 10% to the actual weight; and if wood felled between October 1 and November 30 is not weighed within 15 days of felling: add 5%.

 (ii) The person requiring the service shall furnish the person providing the service with a written record of the wood within 20 days of when the service of harvesting the wood was performed.

 **NOTE**: The information required on the written record is set forth in Chapter 383, section 1(A).

 3. **Measurement procedures for gross scale**. Measurement computations shall be made as follows:

 (a) **Single and multiple draft methods**. In single draft method all axles of a commercial vehicle shall be weighed simultaneously on one or more scales, except that the weight of a coupled combination may be determined by uncoupling the various elements (tractor, semi-trailer, trailer), weighing each unit separately as a single draft, and adding together the results. Multiple draft method is not permitted, except when authorized in writing by the State Sealer.

 **NOTE**: The separate regulations relating to multiple draft weighing are available from the Division of Regulations, Maine Department of Agriculture, Conservation and Forestry.

 (b) **Load weight**. The weight of the load shall be computed as follows:

 (i) Determine the loaded vehicle weight by weighing the loaded vehicle.

 (ii) Determine the tare weight by weighing the vehicle and any foreign matter and culled wood. Separately indicate the actual or a reasonable estimate of the weight of the culled wood.

 (iii) Subtract the tare weight from the loaded vehicle weight. The result is the load weight, which is the gross scale of the wood.

 (c) **Dry weight based on oven-dried weight**

 (i) Compute the load weight according to paragraph (b) above.

 (ii) Weigh the representative sample.

 (iii) Oven dry the sample.

 (iv) Weigh the oven-dried sample.

 (v) Compute the percent moisture content.

 (vi) Subtract the percent moisture content from 100%.

 (vii) Apply the resulting percent to the load weight. The result is the oven-dried load weight, which is the gross scale of the wood, dry weight.

 (d) **Dry weight using the infra-red moisture determination method or an alternative method of moisture analysis**

 (i) Compute the load weight according to paragraph (b) above.

 (ii) Compute the percentage of moisture content using the infra-red moisture determination method, or by an alternative method that has been authorized by the State Sealer.

 (iii) Apply the resulting percentage to the load weight. The result is the dry weight of the load.

 4. **Net scale - discounting**

 (a) Where payment is made for services, taking .deductions from gross scale is prohibited.

 (b) In the sale of wood, when weight scale is used, taking deductions from gross scale is prohibited except under the following conditions:

 (i) The parties have submitted to the State Sealer a proposed method of calculating net scale deductions along with documentation that the proposed method accurately determines the amount of the defect and that the proposed method affords traceable measurement standards. The State Sealer may require further information including a demonstration of the proposed method.

 (ii) The State Sealer has approved the method of calculating the deductions based on the following criteria;

 AA. The method accurately determines the proportional amount of defect;

 BB. The method affords traceable measurement standards;

 CC. In the wood quality specifications the method of defect deduction is stated for all relevant defects.

 (iii) The approval of the State Sealer shall be for a designated period of time, and in no case for longer than one year.

 (iv) The approval of the State Sealer may be rescinded at any time the State Sealer finds the required criteria are not being met.

 5. **Marking**. Mark any culled stem or piece in an easily visible and distinct manner.

 6. **Culled Wood**. Any stem or piece that is culled shall be handled as provided for in Chapter 381.

 7. **Declaration of quantity**

 (a) Where the method of measuring is weight scale, the quantity shall be represented in one thousand pound units, Tholbs, or in tons (two thousand pounds).

 **NOTE**: The weight may not be represented in other than one thousand pound units or tons.

 (b) A notation shall be added indicating the weight is represented as the dry weight. The abbreviation o.d. may be used when the oven-dried method was used.

 8. **Tally**. The requirements for the measurement tally sheet are set forth in Chapter 383.

 K. **Sample Scaling**

 1. **General description**. Sample scaling is the method of wood measurement where wood is count or weight scaled and a sample of that wood is then measured by another measurement system. The sample is then expanded by the total count or weight to determine the final scale.

 Subject to the limitations imposed by Section 3 (b) of this Section, below, application's of sample scaling must incorporate two of the measurement systems described in Sections A through J of this Section 6 and include, but are not limited to the following methods:

 (a) counting all stems, then butt measuring a representative sample to determine either diameter count or cumulative sum;

 (b) counting all logs, then gross log scaling a representative sample; or

 (c) counting or weighing all stems, then butt scaling a representative sample to determine volume.

 2. **Use of Sample Scaling Method**

 (a) **Approved use**. When agreed upon by the parties in a sale transaction, sample scaling may be used to measure wood in any wood form, provided the proposed method has been approved in advance and in writing by the State Sealer.

 (b) **Prohibited use. Payment for services**. The use of sample scaling is prohibited in any payment for services transaction. Likewise calculation of quantity based on sample scaling may not he used as the basis for payment of persons providing services.

 3. **Measurement procedure for gross scale**

 (a) The use of sample scaling requires:

 (i) counting or weighing all stems,

 (ii) randomly selecting a representative sample that meets or exceeds in size the requirements of any statistical sampling formula, method or procedure to which the parties agree,

 (iii) determining the average scale for the measurement of wood for the total quantity in question, and

 (iv) expanding by the count or weight of the total quantity of wood being sample scaled.

 (b) **Use of authorized systems of measurement**. The use of sample scaling also requires that two of the other ten authorized systems of scaling are used in combination. only authorized systems of measurement for the particular wood production form involved may be used. See this Section 6, subsections A through J, for requirements for the use of other systems and for the proper procedures for the other systems.

 4. **Advance approval from the State Sealer**

 (a) Any person proposing to use a Sample Scaling method must send a written request to the State Sealer seeking a permit to do so, and supplying the information necessary for the State Sealer to determine whether to issue the authorization. An applicant must furnish the following information:

 (i) the names and addresses of all parties involved in the sale transaction;

 (ii) the locations where sample scaling will be carried out; the period during which sample scaling will be used;

 (iii) the measurement standards upon which the sample scaling is based along with any supporting data;

 (iv) a statement signed by the parties setting forth the agreed upon sample scaling measurement procedures, including the method of selecting a representative sample;

 (v) any additional information requested by the State Sealer relevant to the review of the request.

 (b) The State Sealer shall approve all requests and issue a permit for sample scaling, provided:

 (i) The method of sample scaling is reasonable and is based on a randomly selected representative sample that meets or exceeds in size the requirements of any statistical sampling formula, method or procedure which the parties have agreed in writing to use.

 (ii) The proposed use of sample scaling is consistent with the other requirements of this Section, as well as with all other applicable provisions of these rules.

 (c) The State Sealer may attach reasonable conditions to any authorization, either at the time of authorization or following any inspection of the use of the sample scaling. The conditions imposed may include, but are not limited to, modifying the measurement procedures, expanding the size of the sample, modifying or adding to the record keeping or reporting systems.

 5. **Gross scale - deductions**. In all wood transactions in which sample scaling is used, taking deductions is prohibited.

 6. **Marking**. Mark all wood according the marking requirements for the particular systems of measurement employed in the sample scaling.

 7. **Culled wood**. Any stem or piece that is culled shall be handled as provided for in Chapter 381.

 8. **Declaration of quantity**. When sample scaling is used the quantity of wood shall be expressed in the appropriate unit for the systems of measurement employed.

 9. **Tally**. The measurement tally sheet requirements for sample scaling are those required for the two other systems of measurement employed. The measurement tally sheet requirements for the other systems of measurement are set forth in Section 2(d) of Chapter 383, at pages 383-5 to 383-6. All cumulative tally sheets shall also include:

 (a) the average scale of the applicable representative sample;

 (b) the count or weight of the total quantity of wood being sample scaled; and,

 (c) for purposes of identification, a reference description of the wood being sample scaled, by location or otherwise.

STATUTORY AUTHORITY: 10 M.R.S.A. §2362-A *et seq*.

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