9

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Kagawasan Ave., Daro, Dumaguete City, Negros Oriental

TLE-IA-CARPENTRY

Quarter 1 – Module 2:
PREPARE TOOLS, MATERIALS AND EQUIPMENT FOR STAKING OUT BUILDING LINES

ALTERNATIVE DELIVERY MODE
ADM

TLE - CARPENTRY – Grade 9
Alternative Delivery Mode
Quarter 1 – Module 2: Preparing Tools, Materials and Equipment For Staking Out Building Lines
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9

TLE-IA-CARPENTRY

Quarter 1 – Module 2:

PREPARING TOOLS, MATERIALS AND EQUIPMENT FOR STAKING OUT BUILDING LINES

Introductory Message

For the facilitator:

Welcome to the TLE-IA-CARPENTRY (9) Alternative Delivery Mode (ADM) Module on Preparing Tools, Materials and Equipment for Staking Out Building Lines!

This module was collaboratively designed, developed and reviewed by educators both from public and private institutions to assist you, the teacher or facilitator in helping the learners meet the standards set by the K to 12 Curriculum while overcoming their personal, social, and economic constraints in schooling.

This learning resource hopes to engage the learners into guided and independent learning activities at their own pace and time. Furthermore, this also aims to help learners acquire the needed 21st century skills while taking into consideration their needs and circumstances.

In addition to the material in the main text, you will also see this box in the body of the module:

Notes to the Teacher

This contains helpful tips or strategies that will help you in guiding the learners.

As a facilitator, you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Furthermore, you are expected to encourage and assist the learners as they do the tasks included in the module.

For the learner:

Welcome to the TLE - CARPENTRY (9) Alternative Delivery Mode (ADM) Module on Preparing Tools, Materials and Equipment for Staking Out Building Lines!

This module was designed to provide you with fun and meaningful opportunities for guided and independent learning at your own pace and time. You will be enabled to process the contents of the learning resource while being an active learner.

This module has the following parts and corresponding icons:

 ***What I Need to Know***	This will give you an idea of the skills or competencies you are expected to learn in the module.
 ***What I Know***	This part includes an activity that aims to check what you already know about the lesson to take. If you get all the answers correct (100%), you may decide to skip this module.
 ***What's In***	This is a brief drill or review to help you link the current lesson with the previous one.
 ***What's New***	In this portion, the new lesson will be introduced to you in various ways; a story, a song, a poem, a problem opener, an activity or a situation.
 ***What is It***	This section provides a brief discussion of the lesson. This aims to help you discover and understand new concepts and skills.
 ***What's More***	This comprises activities for independent practice to solidify your understanding and skills of the topic. You may check the answers to the exercises using the Answer Key at the end of the module.
 ***What I Have Learned***	This includes questions or blank sentence/paragraph to be filled in to process what you learned from the lesson.
 ***What I Can Do***	This section provides an activity which will help you transfer your new knowledge or skill into real life situations or concerns.

 ***Assessment***	This is a task which aims to evaluate your level of mastery in achieving the learning competency.
 ***Additional Activities***	In this portion, another activity will be given to you to enrich your knowledge or skill of the lesson learned.
 ***Answer Key***	This contains answers to all activities in the module.

At the end of this module you will also find:

References	This is a list of all sources used in developing this module.

The following are some reminders in using this module:

1. Use the module with care. Do not put unnecessary mark/s on any part of the module. Use a separate sheet of paper in answering the exercises.
2. Don't forget to answer *What I Know* before moving on to the other activities included in the module.
3. Read the instruction carefully before doing each task.
4. Observe honesty and integrity in doing the tasks and checking your answers.
5. Finish the task at hand before proceeding to the next.
6. Return this module to your teacher/facilitator once you are through with it.

If you encounter any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator. Always bear in mind that you are not alone.

We hope that through this material, you will experience meaningful learning and gain deep understanding of the relevant competencies. You can do it!

What I Need to Know

In this module you will learn more about preparing tools, equipment, and materials for stakeout building lines. It is here to help you understand more about carpentry. The scope of this module permits its uses in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course.

The module has one lesson:

Lesson 1 – Materials Estimates & Properties of Wood for Staking Out Building Lines

At the end of the module, you should be able to:

1. Identify the types of wood used in carpentry.
2. Discuss the properties of wood and timber.
3. Follow steps in estimating a carpentry job.

What I Know

Directions: Read each item carefully. Match column A with column B. Write the letter of the correct answer on your activity notebook.

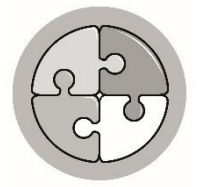
Column A	Column B
1. The arrangement and direction of growth of the wood elements in the wood.	A. Final Estimate
2. Gained from the atmosphere and lose to the atmosphere depending on content of their cells vis-a-vis the humidity in the atmosphere.	B. Strength
3. Determine the price all materials, including cabinets, wood, drywall and even screws.	C. Additional Details
4. Add the cost of materials, cost of labor and cost of any permits.	D. Moisture Content
5. Find out the size dimensions of the room, whether or not you will be picking out the new designs and the costs of materials.	E. Data Collection
6. Decides your value in hour terms.	F. Cost of Materials
7. Determined with reference to the direction of the grain of the wood under load.	G. Grain
8. It is essential to estimate the maximum duration of the project .	H. Cost of Labor
9. Listen to your client and understand his requirements.	I. Wood
10. Used as a building material for thousands of years.	J. Duration of the project

Note: If you get 100% correct in this pre-assessment, skip the lesson but if not and only get 50% to 99% correct, then proceed with the lesson.

Lesson 1 Materials Estimates & Properties of Wood for Staking Out Building Lines

In this module, material estimation is introduced. Carpenters use both power and hand tools to build buildings, cabinets, doors, and other objects made of wood. To bid successfully for projects you must know how to estimate a carpentry job. Carpentry price tips form an essential tool to bid effectively and win projects. If you know how to price carpentry work, consider half the battle won.

Also, this module talks about the properties of wood for staking out building lines. Wood has been used as a building material for thousands of years, being second only to stone in terms of its rich and storied history in the world of construction. The chemical properties of wood are inherently complex, but even despite this challenge, human beings have successfully harnessed the unique characteristics of wood to build a seemingly unlimited variety of structures. This exceptionally versatile material is commonly used to build houses, shelters, and boats, but it is also extensively used in the furniture and home decor industry as well.



What's In

LET'S REVIEW!

Direction: Match column A with column B. Write the letter of the correct answer to your activity notebook.

Column A	Column B
1. Falling objects	a. Safety shoes
2. Objects that could roll over the worker's feet	b. Hard hats
3. Heat	c. Goggles
4. Radiation	d. Respirator
5. Toxic chemicals	e. Gloves
6. Excessive noise	f. Ear muff

What's New

Answer the following questions. Copy and write your answers in your question.

1. What is the importance of material estimate?
2. What makes wood an excellent candidate for use in a wide array of construction projects?

What is It

HOW TO ESTIMATE A CARPENTRY JOB

Carpenters use both power and hand tools to build buildings, cabinets, doors, and other objects made of wood. To bid successfully for projects you must know how to estimate a carpentry job. Carpentry price tips form an essential tool to bid effectively and win projects. If you know how to price carpentry work, consider half the battle won.

To provide an estimate, you will need to take a lot of things into consideration including your client's needs, work hours, materials needed for the job and more. Providing an accurate estimate requires critical thinking and attention to detail. Of course, industry experts know that process of creating carpentry estimates for clients becomes quicker and easier with time.

To prepare an estimate for a carpentry job is in itself a dedicated task. It is very critical to determine cost of carpentry work. The following are the basic carpentry estimating tips.

a. Data Collection

Listen to your client and understand his requirements. For example, your client might want to remodel his kitchen, add an addition to his home or finish his basement. Inform the client that you will need additional information before you can provide an estimate. Do not use a flat rate for each service because it is not cost effective. For example, charging a flat rate to remodel a kitchen can prove problematic as every kitchen remodel is different -- like a 70 square foot kitchen versus a 225 square foot kitchen. You could also be agreeing to various different services in a remodel, such as demolition and hauling. Carpentry job estimating is a tricky art and you might get a hang of it after experience in this field.

b. Additional Details

Ask for additional details. Find out the size dimensions of the room, if you will be doing the demolition, whether or not you will be picking out the new designs and the costs of materials. If you are to determine on how to Calculate the cost of carpentry jobs, these additional details will be a great

boon to arriving as close to estimates as possible.

c. Cost of Materials

Determine the cost all materials, including cabinets, wood, drywall and even screws. Charge clients a fair price for materials, but not necessarily the amount you actually paid for them. For example, if you purchased a box of 100 screws for $2, you can charge 5 cents per screw instead of charging $2 for the whole box. For materials such as cabinets and counter-tops that the client specifically requests, charge the client what you paid for those materials. Materials forms one of the chief determiner in the carpentry job estimator.

d. Cost of Labor

For estimating labor for carpentry work, you must decide what your value is in hour terms. A person getting an annual salary of $100,000 comes out to about $50 per hour. Earnings of $75,000 transform into $37.50 per hour. To estimate the carpentry cost per hour, first estimate number of hours required in the project, and then an approximate guesstimate of the money you intend to earn from the project. In case of labor shortage, Carpentry job corps is a good source of getting trained and knowledgeable junior carpenters for larger projects.

e. Duration of the project

It is essential to estimate an optimal duration of the project. Optimal means the desired result with reasonable amount of manpower and costs using optimum resources. Estimation of near accurate time duration is essential parameter on how to charge for carpentry work.

f. Final Estimate

Add the cost of materials, cost of labor and cost of any permits. You now have your total estimate, referred to as the time and materials method for carpentry estimating. Your success in the carpentry business is dependent on your skill on how to quote a carpentry job.

WOOD / TIMBER / LUMBER AS A CONSTRUCTION MATERIAL

Wood has been used as a building material for thousands of years, being second only to stone in terms of its rich and storied history in the world of construction. The chemical properties of wood are inherently complex, but even despite this challenge, human beings have successfully harnessed the unique characteristics of wood to build a seemingly unlimited variety of structures. This exceptionally versatile material is commonly used to build houses, shelters, and boats, but it is also extensively used in the furniture and home decor industry as well.

Perhaps one of the biggest advantages of using wood as a building material is that it is a natural resource, making it readily available and economically feasible. It is remarkably strong in relation to its weight, and it provides good insulation from the cold. Wood is highly machinable and can be fabricated into all kinds of shapes and sizes to fit practically any construction need. Wood is also the perfect example of an environmentally sustainable product; it is biodegradable, renewable, and carries the lowest carbon footprint of any comparable building material. In addition, no high-energy fossil fuels are required to produce wood, unlike other common

building materials such as brick, steel or plastic.

LUMBER OR TIMBER?

The words "lumber" and "timber" are often used interchangeably to refer to wood used in construction work, but there has been considerable debate as to which term should apply in a given scenario.

- **Lumber** –wood that are smaller than 5 inches wide by 5 inches thick (regardless of length). These pieces are machine-planed and sawn to fit certain dimensional specifications (e.g., 2”x4"x5’, 2x8"x10’, etc.) and are primarily used in residential construction.

- **Timber** – wood over 5 inches wide by 5 inches thick (regardless of length), commonly utilized in large quantities for railroad ties, mine shaft supports and crossbeams on utility poles. They are also often used to construct the frames of large structures such as buildings and bridges

- **Beams** – pieces that exceed 8" wide by 8" thick.

- **Engineered wood** – more intricate fabrication process in which various wood strands, fibers, veneers, or other forms of wood are glued together to form a type of composite material that is used for specific construction applications like plywood, glued laminated timber (a.k.a. "glulam"), oriented strand board, fiberboard, and particle board.

TYPES OF WOOD

Wood has traditionally been classified into two primary categories: Hardwood and softwood.

- **Hardwood –** any leaf-bearing tree. Considered to be heavier and more dense than softwoods and commonly used in the construction of walls, ceilings and floors. Some examples of the most popular hardwoods include oak, maple, mahogany, cherry, walnut, and teak.

- **Softwood** – any cone-bearing tree. Often used to make doors, furniture, and window frames. Commonly used softwoods include pine, hickory, beach, ash, birch, and cedar.

As with most other general classifications, this can get somewhat confusing due to the fact that there are some leaf-bearing trees that can have relatively soft wood, while some coniferous trees that can have rather hard wood.

LUMBER GRADES

The National Hardwood Lumber Association (NHLA) of America has created a grading system to rate various types of lumber, primarily based on the amount of defects that can be found in a board. Below is a brief summary of NHLA grades for both hardwood and softwood lumber.

HARDWOODS

1. **First and Seconds (FAS)** - This is the highest grade possible for hardwood lumber, and is mainly suited for high-quality furnishings, solid wood mouldings and interior joinery. Contains 83% usable material on one face (minimum 6" x 8" board size).

2. **Select (Sel)** - Also contains 83% usable material, but for a smaller minimum board size (4" x 6") than FAS.

3. **#1 Common (#1 Com)** - Contains 66% usable material on a 3" x 4" board face.

4. **#2 Common (#2 Com) -** Contains 50% usable material on a 3" x 4" board face.

SOFTWOODS

1. **C Select** - Almost completely free of all defects; commonly used for cabinets and interior trim.

2. **D Select** - Comparable to C Select, but may contain small knots (no bigger than the size of a dime)

3. **1 Common** - Contains small, tight knots that won't fall out; offers a high-quality knotty appearance (e.g., pine)

4. **2 Common** - Very similar to 1 Common, but with slightly larger knots; often used in shelving and paneling

5. **3 Common** - Larger knots that what are found in 2 Common; typically used for crates, boxes and fences

BENEFITS OF WOOD IN CONSTRUCTION

Wood carries several benefits that make it an excellent candidate for use in a wide array of construction projects.

- **Thermal properties** – give it an advantage in terms of its resistance to high temperatures. Unlike steel, which can expand or even collapse in high heat, wood actually dries out and becomes stronger as the heat increases. In addition, the heat conductivity of wood is relatively low in comparison to other materials such as aluminum, marble, steel, or glass. This gives wood an advantage in terms of being used in various applications such as matches, hardware equipment handles, wall coverings, and ceilings.

- **Highly-sought-after acoustic properties** – It can absorb sound and echoes and is a favorite material of choice for the construction of structures where proper acoustics is important, such as concert halls.

- **Resistant to electrical currents** – making it an optimal material for electrical insulation.

- **Tensile strength** – ability to bend under pressure without breaking. Wood is exceptionally light in proportion to its tensile strength, making it the preferred construction choice for surfaces that take a constant beating such as basketball courts and bowling lanes. Tensile strength is also one of the main reasons for choosing timber as a building material; its remarkably strong qualities make it the perfect choice for heavy-duty building materials such as structural beams.

Of the many construction materials that a person can choose from, wood stands out as a unique and amazingly versatile product. Its aesthetic appeal, tensile strength, insulation qualities, and ease of fabrication enable it to remain a favorite choice for use in an extensive array of construction applications.

Properties of Wood and Timber used in Construction.

Most important properties of wood and timber may be discussed under the following general headings.

1. **Color and Odor.**
   Most trees are characterized by a typical color and odor. Thus, walnut wood is distinguished by its typical dark brown color. Similarly, a freshly cut teak wood has a golden yellow shade. The softwoods like deodar and pine show light (white) colors. As regards odor (smell), quite a few kind of woods are immediately identified by their characteristic smell. Teak kinds of wood have an aromatic smell. The pines smell of resins. The color and odor, however, may show variation.

2. **Specific Gravity.**
   Wood is a very light material, its specific gravity being always less than 1 (that of water). It is interesting to note, however, that if the wood tissue is compacted in such a way that not even a few pores are left in it, then its specific gravity will approach 1.5 (i.e., it will become heavier than water). Such compression is, however, not possible as a natural process. Woods shows a good deal of variation in their Specific gravity. Some varieties may be as light as 0.3 whereas, in other varieties of timber, the specific gravity may approach 0.9. This depends on their structure and presence of pores in them. The heartwood is heavier than sapwood in the same tree. Similarly, hardwoods are always denser than soft woods as a whole

3. **Moisture Content.**
   All woods are porous to some extent. Further, all woods are hygroscopic in nature. They gain moisture from the atmosphere and lose moisture to the atmosphere depending on moisture content of their cells vis-a-vis the humidity in the atmosphere. The natural moisture content “Mc” of wood is easily determined from the below relationship.

   $Mc = w1 – w2 / w2 \times 100$

   Where W1, is the weight of the natural wood sample.

W2 is the weight of the same sample after it is oven dried.

The cell walls and hence the cell cavities of many kinds of woods are quite easily stretched. As such, wood may absorb moisture more than 2 to 2.5 times than its own weight. Hence, Mc values of natural (green) wood may sometimes be as high as 250 percent. Wood that has been lying in the air for quite some time (six months to one year) after felling, however, loses most of its moisture to the atmosphere. Its "Mc" may be as low as 20-30 percent. The air seasoned woods can be made to lose further moisture by prolonged exposure (up to four years). Moisture content of 12-15 percent of air-seasoned woods is considered quite safe for timber being used in any construction. Woods can be seasoned in kilns with less than 6-7 percent moisture.

4. Grain.

By grain, it is understood that the arrangement and direction of growth of the wood elements (tracheids, fibers, and vessels) in the wood. In a normal wood, the tracheids and vessels (called collectively as fibers) grow parallel to the length of the tree trunk. This type of structure is called a straight grain. The fibers may be very tightly and closely packed giving rise to a fine-grained texture in wood. In other cases, they may be broad and quite wider (comparatively). The structure is then termed coarse-grained. Sometimes the fibers do not grow essentially parallel to the trunk. These may be arranged in a twisted, spiral or interlocked manner. This type of structure is called "cross-grained."

5. Shrinkage and Swelling.

The newly cut wood loses moisture when subject to drying naturally or artificially. On drying, the wood undergoes a shrinkage. Similarly, dry wood on getting rain melted or wetted may undergo considerable swelling. It is known that in the drying process, moisture from the wood is lost first from the cell cavity and then from the cell walls. It is only when the water is lost from the cell walls then the wood starts shrinking. Conversely, when dry wood is wetted the water is first received by the cell walls. Only when the walls become saturated, water goes to the cell cavities. Hence, on wetting, the swelling starts quickly. Thus, shrinkage and swelling are related to the behavior of the cell wall of the wood tissue towards the water.

It is now fairly established that:

- Thick walled cells shrink more than the thin-walled cells. It is for this reason that the hardwoods shrink more than the softwoods.
- Shrinkage in the longitudinal direction is least (0.1 to 0.5 percent) whereas it is highest (7 to 15 percent) in a direction tangential to cell walls. It is because in the latter case "full width" of the cell walls is involved. In the radial direction, it is of an intermediate order.
- Deformation is caused by the board cut from timber due to shrinkage and swelling. The extent of deformation will depend on the direction in which it has been cut with respect to the grain of the tree.

6. Strength.

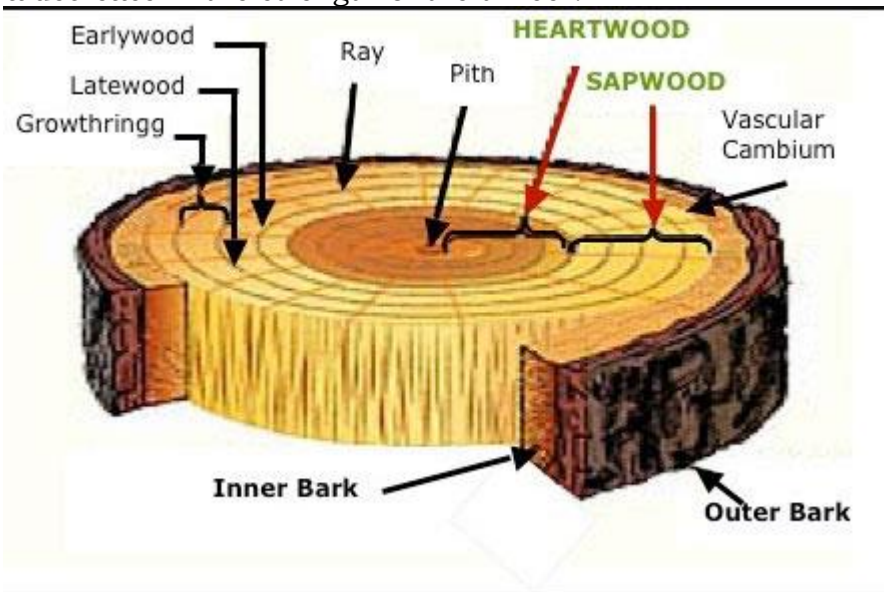
The most important fact about the strength of timber is that it is not the same in all directions. This is because wood is an anisotropic material (having a different structure in different directions). Hence, the Strength of

wood is determined with reference to the direction of the grain of the wood under load. Besides grain, many other factors also influence the strength of the timber. These are:

a. **Density:** Higher the density of timber, greater will be its strength.
   This is because the high density of timber is a result of thicker cell walls, i.e., the greater amount of wood substance per unit volume.

b. **Moisture content:** Higher the moisture content, lower is the strength of the timber.
   This is because water in itself has no load-bearing capacity. Its increased volume in the cell simply decreases the volume of the wood tissue. Moreover, the higher amount of water in the cells invites many fungal and insect growths which destroy the wood tissue. They tend to reduce the strength indirectly.

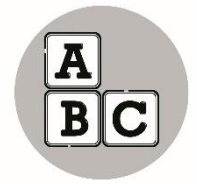
c. **Presence of defects:** There may be some of the natural and artificial defects in timber such as cross-grain, knots, and shakes, etc. All of them cause a decrease in the strength of the timber.



d. **Compressive strength:** Timber from most of the trees is amazingly strong under compressive loads -500 kg/cm2 to 700 kg/cm2. It is, however, to be noted that other things being same, the compressive strength parallel to grain is always less than that determined at right angles to the grain in the same type of wood.

7. **Tensile strength:** Wood is very strong to tensile forces acting parallel to grain but very weak when these forces are made to act perpendicular to the grain. Thus, the tensile strength of some woods ranges from 500-2000 kg/cm2 parallel to the grain, whereas same values lie between 10-100 kg/cm2 for the same varieties when tested perpendicular to the grain.

8. **Transverse or bending strength:** The most important use of timber as beams is based on the fact that wood has very high bending strength. It may vary from 300 to 900 km/cm2 or more.



What's More

Test I. Directions: Identify the following tips in estimating a carpentry job. Copy and write your answers in your notebook.

1. It is the total estimate, referred to as the time and materials method for carpentry estimating.
2. Decides your value in hour terms.
3. Listen to your client and understand his requirements.
4. Find out the size dimensions of the room, if you will be doing the demolition, whether or not you will be picking out the new designs and the costs of materials.
5. Estimation of near accurate time duration.

Test II. Directions: Identify the following terms being described. Copy and write your answers in your notebook.

1. Benefit of wood in construction that give it an advantage in terms of its resistance to high temperatures.
2. Wood that are smaller than 5 inches wide by 5 inches thick.
3. A type of wood often used to make doors, furniture and window frames.
4. It is the arrangement and direction of growth of the wood elements (tracheids, fibers, and vessels) in the wood.
5. Size of wood that exceed 8" wide by 8" thick.
6. A type of wood commonly used in the construction of walls, ceilings and floors.
7. Benefit of wood in construction making it an optimal material for electrical insulation
8. Lumber grade that contains 66% usable material on a 3" x 4" board face.
9. Lumber grade that contains larger knots than that of what are found in 2 Common; typically used for crates, boxes and fences.
10. Property of wood where it is very strong when forces acting parallel to grain but very weak when these forces are made to act perpendicular to the grain.

What I Have Learned

Providing materials estimate for a carpentry job is an important step early-on in a project because almost everyone has a budget they have to meet. Almost everyone wants to know how much it will cost before they are willing to start. Estimates are also used to narrow down a choice in a contractor.

One of the most important materials used carpentry is wood. It has been used as a building material for thousands of years, being second only to stone in terms of

its rich and storied history in the world of construction. That's why it is very important to know all characteristics and properties of wood for your carpentry works.

What I Can Do

Directions: Group the following wood according to its type. Write your answers in your notebook.

Ash	beach	birch	cedar
Cherry	hickory	mahogany	maple
Oak	pine	teak	walnut

Assessment

Instruction: Choose the correct answer from the given options. Write your answers in your notebook.

1. What must be worn to lessen the noise in the workplace?
   a. Hearing protection
   b. foot protection
   c. head protection
   d. hearing protection
2. It has similar function with steel square which is used to check the flatness and squareness of a small piece of stock or lumber.
   a. Pull-push rule
   b. Bolo
   c. try square
   d. chalk line
3. What tool is used for cutting lumber across the grain of wood?
   a. Ripping/wrecking bar
   b. Sledge hammer
   c. steel square
   d. cross cut saw
4. What department requires cutting permit for trees?
   a. Department of Environment and Natural Resources
   b. Department of Agrarian Reform
   c. Department of Agriculture
   d. department of trade and industry
5. The following are necessary permit to secure before constructing a building **EXCEPT** _____.
   a. Building permit
   b. Permit to cut trees
   c. permit to travel
   d. scaffolding permit
6. Who is responsible for relocating the boundaries of the construction, especially lots without existing reference point or adjoining structures?
   a. Geodetic engineer
   c. civil engineer

b. Electrical engineer
d. mechanical engineer

7. A tool used for driving and pulling out nails.
   a. Claw hammer
   c. bolo
   b. Sledge hammer
   d. chalk line
8. It is a tool used to mark straight line on a long piece of stock or lumber.
   a. Try square
   c. steel square
   b. Chalk line
   d. pull-push rule
9. Personal Protective Equipment that protects against heavy object or tool that could be accidentally dropped on the feet.
   a. Head protection
   c. foot protection
   b. Hand protection
   d. respirators
10. A tool used to check the verticalness of the post or column.
   a. Nylon string
   c. spirit level
   b. Water hose level
   d. plumb bob

Additional Activities

Copy and answer this reflection. Write your answers in your notebook.

I have learned that _____ _____ _____.

I have realized that _____ _____ _____.

I will apply _____ _____ _____.

Answer Key

What's In *Review-refer to Module 1*

What I Know

1. G
2. D
3. F
4. A
5. C
6. H
7. B
8. J
9. E
10. I

What's More

I.

1. Final estimate
2. Cost of labor
3. Data Collection
4. Additional Details
5. Duration of the project

II.

1. Thermal properties
2. Lumber
3. Softwood
4. Grain
5. Beams
6. Hardwood
7. Resistant to electrical currents
8. #1 Common (#1 Com)
9. 3 Common
10. Tensile Strength

What's New

1. Estimating in construction is important because almost everyone has a budget they have to meet for a project. Almost everyone wants to know how much it will cost before they are willing to start. Estimates are also used to narrow down a choice in a contractor.

2. Properties of wood makes it an excellent candidate for used in a wide array of construction projects such as thermal properties, highly-sought-after acoustic properties, resistant to electrical currents and tensile strength.

What I Can Do

Hardwood – oak, maple, mahogany, cherry, walnut, and teak.
Softwood – pine, hickory, beach, ash, birch, and cedar.

Assessment

1. C
2. A
3. B
4. B
5. D
6. C
7. B
8. D
9. A
10. A

References

References for Content:

- *https://gltnhs-tle.weebly.com/lesson-11.html*
- *https://woodtech.events/trade-in-global-softwood-lumber-increases/*

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