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| **SUBJECT AND GRADE**  | Civil Technology (**Woodworking)** Grade 12  |
| **TERM**  | TERM 2 (Week 4 – Week 5)  |
| **TOPIC**  | Doors **(Specific)**  |
| **OBJECTIVES OF THE** **LESSON**  | **(Week 4)** Theoretical background of solid wood doors, including all components and the composition thereof: * Raised panels
* Raised and fielded panels
* Joint between the lock-rail and style
* Two, three and four panel doors
* Framed ledged and braced batten doors

 **(Week 5)** To sign skills to develop and capture of theory be promoted. Sketch with the aid of drawing instruments on A4 paper following views (determine a scale on your own.):  |
| **RESOURCES**  | ***Paper-based resources***  | ***Digital sources:***  |
| *Textbook pages 112 – 132 of* *Chapter 8* *Paper and drawing equipment needed.*  | *YouTube the following links:* [https://www.youtube.comwatch?v=eM2lzP8JQhU](https://www.youtube.comwatch/?v=eM2lzP8JQhU) [https://www.youtube.com/watch?v=E1E0QwdyVzo](https://translate.google.com/translate?hl=en&prev=_t&sl=af&tl=en&u=https://www.youtube.com/watch%3Fv%3DE1E0QwdyVzo) [https://www.youtube.com/watch?v=i1xyAc0J0hY](https://translate.google.com/translate?hl=en&prev=_t&sl=af&tl=en&u=https://www.youtube.com/watch%3Fv%3Di1xyAc0J0hY)  |
| **INTRODUCTION**  | You are already familiar with panel, ledge, braced doors. Flat panel doors as well as ledged and braced doors were introduced in Grade 11. Focus will now be placed on raised and raised field panel doors for two three and four panel doors, as well as the Z-braced door with lock and bottom rails.  |
| **CONCEPTS AND SKILLS**     | In the previous chapter you learnt about casement windows and the structure thereof. You have earned how the window, glass and other parts made are held together (putty and quarter-rounds) the same is for panel doors. Instead of the panels been held together with putty, it is machined in various profiles and with the aid of glue and grooves are assembled. Different components of a door:  |

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| Raised and fielded panel    Single panel door    Double panel door. Note the middle / lock rail    Three panel door. Note middle / locking rail and mullion that the two smaller panels in between  | **Two types of panels that use is.** 1. Normal raised panel. The center panel is flat and thicker than the edges. See page 112.
2. Raised and fielded panel. Center panels flat and thicker than edges. The edging shape but not a 9O degree angle and is profiled for a more decorative finish. See page 113.

 **Composition of a basic single-panel door:** 1. Top rail
2. 2 styles
3. Bottom rail (usually 1.5 times wider than the top rail, because you from the top down look and then look it on the eye off same thickness as that of the top rail.).
4. Panel (normal raised or raised and fielded panel).

The top components are glued and no nails are used. The top and bottom rails are joint by means of a single stub mortise and tenon joint to each other glued where the panel slides into the groove. P115.  **Middle / lock rail and bottom rail**: * The lock rail houses the door handle and lock mechanism, also automatically divides the door into two parts. It means that it is a minimum of a two- panel door.
* The middle rail is found either above or below the lock rail. The lock rail is only the locking rail when it houses the lock mechanism otherwise it is only a middle rail. It divides the door and make provision for more panels. (This measurement can be smaller or can be the same size of the lock or middle rail depending on the size of the door.).
* The bottom rail is most of the time the same width as the lock rail but wider than the bottom rail. Otherwise all rails seem to be the same when viewed from the front.

• **Two panel doors** * The basic components remain the same (top and bottom rails and 2 styles)
* To accommodate the two panels, a middle rail/lockrail is addedl.

 **Three and four panel doors**  |

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|   Framed ledged and braced batten door    Entrance door with side lights     | * The basic components remain the same (top and bottom rails and 2 boards) plus the middle / lock rail.
* Panels are divided and you can even get 6.8 and 10 panel doors.
* How does it work? The lock rail remains and the door is divided to accommodate the total panels. This means that more muntins or middle rails (not lock rails that houses the lock mechanis) are added to the number to separate the panels. See P 113 which three panels containing with a locking rail and muntin.

**Framed ledged and braced batten door:** This type of construction is very popular for kitchen doors as well as garden gates. There are several variants of the door but we will focus only on the solid construction.  The door consists of the same components as a panel door: * Above and bottom rails and 2 styles plus the middle rail and or lock rail
* Instead of a raised panel is it replaced with V tongue and groove plank
* These panels and the entire construction are further reinforced by the braced battens (2) per door.
* The braced battens prevent the door from sagging to a time.
* Hinges are also strategically placed to it the braced planks / battens to support an upward force. It strengthens the construction and help to keep the doors shape.

 **Entrance door with shaped brush and fixed side lights in a window frame:** Study sketch 8.24 on p 127 together with the following theory: This design is for an entrance door to have it luxurious and impressive look. It continued a door (front door in the middle) and two sidelights (solid doors (it can make is to open as well.).  The door and two sidelights is placed in a wooden door frame. The door frame is however thicker as normal and lends itself to a more decorative finish. The stiles (separated the door and two sidelights) are the same dimensions as the head of frame. If you want to add more sidelights, you have to add more styles.   |
|  Entrance door frame with side lights   Metal door frame        |   **Inside and outside ns homes by frames.** **Outside door frame.** Outside doorways are mainly of wood made and the rebates in the style, top and bottom rails , and a threshold that same rebate. The main reason for this is for water not to penetrate the house. Extra length top and bottom rails are found to be in the middle of the cavity wall.  **Week 4-to the end of week** **5.** Now that you understand the theory, it must be captured. The best method is to sketch the parts of the doors. Use drawing tools and make neat scale drawing of the following from your textbook: * Figure 8.3 on p 113'
* Draw a complete isometric view of the stub mortise and tenon joint to a scale 1: 1 on page 115 sketch 8.9. Show all hidden details.
* Draw a complete isometric view of the double- stub mortise and tenon to a scale of 1: 1 on p 116 sketch 8.11. Show all hidden details.
* Draw fully figure 8.12 on p 118's front view as well as vertical section numbered AA, BB and CC. Add dimensions and label.
* Draw a complete figure 8.19 on p 123's front view as well as vertical sectional views of cuts numbered AA, BB, CC and DD. Add dimensions and labels. Each sketch on a separate page. (5 sketches total)
* Draw fully figure 8.24 on p 127's front view as well as vertical section views of cuts numbered KK, LL, MM, and PP. Add dimensions and labels. Each sketch on a separate page (5 sketches total)
* Draw a complete isometric drawing of figure 8.31 and 8.32 to scale on p 131.
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| **Concepts and skills** **CAN YOU?**  | * Explain the difference and identify between a raised panel and raise and filed panel door?
* Distinguish between the parts of a one panel door?
* Composition of three and four-door panel, what has changed (keep the number of panels determine the parts)?
* Explain composition of a Framed ledged and braced batten door?
* Various sections (see after assessment) neatly and completely drawings with the help of your instruments and to scale?
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| **ASSESSMENT**  | Complete drawing activities as set out for Weeks 4 and 5. If you can draw all components and know the parts, you will automatically understand and interpret the theory for examination purposes.  |
| **SUMMARY**  | Learners can distinguish between the different raised panels and raised and fielded panels. Composition of the different parts of two, three and four-door panel doors. Composition of braced batten and ledge door. Can do full scale drawings of components as mentioned above.  |
| **VALUES**  | You will learn neatness and accuracy. Presentation is a reflection of your personality. Clarity is an expression is a pride in an engineer. Accuracy will eventually realise the actual product and prevents waste of time and money. A wrong drawing can lead to a waste of resources.  |