

Starting a Wood Technology Course as part of “Working Hands”, an existing discipleship/vocational Training Program of Action International in the Philippines. The following pages are to be included with the “Working Hands” manual information given by Daryl Germiné. I have not included any information on the formal Discipleship part of the program headed up by Pastor Rowel. Hope this is helpful.
Gary Root

1. Discern Need and Focus:

The obvious question before setting up the program: Will such a program help students find a job and support their family? Is there a need and demand for trained and skilled woodworkers?

I visited various woodworking industries and talked with people who had set up vocational training programs. Advice was solicited from people who know the culture and the needs.

There was a need for skilled woodworkers with an eye for quality workmanship and for workers who have confidence to solve problems and who bring dignity to the trade. In the Philippines, woodworking, carpentry, furniture making, cabinetmaking, etc are considered lower in status than automotive mechanics or electronics even though many of the concepts and skills learned are transferable. The term “Wood Technology” was used rather than “Woodworking” simply because it is perceived as a more honorable and dignified craft because of the word “Technology”.

Needs: The following needs were identified: basic measuring skills, reading working drawings, safety awareness in the workplace, and knowledge and skills in the use of hand tools and machine tools and understanding problem solving process. Promoting the right attitude toward work was also identified as a need. Doing a job well for the glory of God gives dignity in ones labor.

Philosophy and focus:

The overall philosophy of Working Hands is to develop people. First and foremost, the goal is discipleship- helping students grow in their relationship with Jesus Christ and help them mature spiritually so they can minister to others and be godly fathers and husbands. Secondly, the goal is to help students develop work skills and attitudes that glorify God and help them earn money to support their family. The program is therefore people focused and not product focused.

Working Hands moved away from the model of an “income generating” program that could be semi-self sustaining because it became difficult to keep the focus right. Customer needs and deadlines competed with student needs and skill development. The Wood tech program will however be open to opportunities to generate some income that can be put back into the program as it applies and if it fits the needs. This may depend in

part on the availability of funds donated for the program. Fund raising and encouraging donated supplies, tools and machines both from the home country while on furlough and from the Philippines will remain an important part of keeping Working Hands running.

Developing a course description and course objectives

The length of the course was to match the existing Automotive program which was 8 to 9 months. The first batch of Wood Technology worked out to be about 170 hours of “theory” and about 290 hours of “practical” shop time.

The students from Automotive, Electronics and Wood Technology share the same dorm and participate in all other activities including chores, dorm life, discipleship class, devotions and sports programs. Goals and objectives for these programs are not covered here.

See appendix for course description.

Requirements for Eligibility:

Students must meet the general student qualifications spelled out in the recruitment overview of the existing Working Hands program. Basically, they must come from a needy family, have basic math and reading skills, have a relationship with Jesus Christ and a recommendation from their pastor.

Note: The entrance test varies slightly according to the course applied for.

Course outline: The topics covered were chosen because of the knowledge and skills I happen to have and because of the perceived needs here in the Philippines.

See appendix for course outline developed.

Facility Development

We took about 1 ½ years to set up a new Wood Tech. facility. Many existing machines did not work and required repair. We build a dorm and a chapel by tearing off the old termite infested roof of the old shop and adding a new floor above the shop. I brought over many of my own tools and purchased a used 12 “ table saw to ship here. For the Philippines there are several companies that will ship boxes for you at a very reasonable cost. If tools and equipment fit in a 18”x18” x24” cardboard box, I have been able to ship them through companies such as LBC or Balikbayan for \$65 with no weight

restriction and no customs hassle. It takes about 6-8 weeks and so far I have not had any damage or things missing.

Supplies, material, hardware, wood products and finish supplies are available but I needed to take time to find out the best places to buy them

Language Learning

One and a half years of language lessons with a language teacher helped build a foundation upon which to build in learning Tagalog. For most lessons, I write them out in English then have my assistant (a graduate of the Working Hands) write it in Tagalog. I use a mix of Tagalog and English which has worked well.

Staffing

Having a helper who knows some English, who is teachable and who understands the nature of the ministry and has a heart to serve the Lord is invaluable. Graduates of Working Hands have worked best.

Need to know labor laws of the country
How to properly write up a contract, job description etc.

Meeting regularly- (every day) for devotions, and sharing of needs and concerns is very important to the program running well.

Designing Projects

Student projects are designed that will develop specific knowledge and skills taught in the lesson and that are useful. Material for the project must be available and the cost not too great.

For each project a multi-view drawing is provided and a bill of materials so the students can get used to following a plan.

The dimensions of some projects are in metric units and some are in standard inch units as both systems are used here in the Philippines.

As new and more complex skills are learned, more concepts in drafting and design are introduced.

See appendix for sample :

Student Evaluation : See appendix for example

On the Job Training (OJT)

After the students graduate from the Working Hands program, an OJT program is available to them. They find an employer willing to train them as they work and ACTION gives the student a minimum wage for the work they do. This helps them get their foot in the door and if they are diligent, the employer often keeps them on as a regular employee. At present the students are given 600 pesos a week from ACTION after they have their employer sign a form verifying the hours they worked.

At the end of the 6 month OJT, they are entitled to a set of tools (worth about \$100). This is also an incentive to finish their training.

Follow up

Follow up and continual evaluation of the program is essential to know if we are meeting the needs.

Appendix

A-1- Course Description

A-2- Course Outline

A-3- Detailed Course Outline

A-4- Basic Shop Policies for Students

A-5 Student Attendance and Expected Behavior

A-6 Project Grade Evaluation sheet (individual)

A-7 Project Grade Evaluation Sheet (Group)

A-8 Official Transcript (Sample)

A-9 General Shop Safety (Attitudes)

A-10 General Shop Safety Rules

A-11 Sample Machine Safety Rules (Radial Arm Saw)

Wood Technology

June, 2006

Course Description:

Wood Technology is a 10 month, project oriented course that teaches basic skills related to Cabinet making, furniture making and carpentry.

The course will include lecture and demonstration (about 1 hour per day)

Hands on projects (about 3 1/2 hours per day) Students will be evaluated by weekly quizzes and assignments, unit tests, daily shop performance and student projects.

Course Objective:

Upon completion of this course, the student will be able to demonstrate basic cabinetmaking operations. His skills will include the following: 1. Ability to read and to make basic multi-view working drawings, 2. Proper use of all hand tools, portable power tools and power equipment covered in the course. 3. Ability to plan a project, estimate costs, layout material, and see the project to completion in an efficient and safe manner.

The student will demonstrate an attitude toward work that is honoring to God and reflects the Biblical mandate to work with all their heart “as working for the Lord, not men...” The student will develop an appreciation for quality workmanship and develop habits of punctuality, teamwork and integrity. He will develop confidence to experiment and try new things.

A major goal of the course is to help prepare students for successful employment and to build a foundation for continued growth. This course is to compliment and provide application for the Biblical training received at second mile.

Requirements for Eligibility:

Students must meet the general student qualifications spelled out in the recruitment Overview.

Note: The entrance test varies according to the course applied for.

Wood Technology Course Outline June 2006

- 1. Introduction and Orientation**
- 2. Wood and Wood Materials**
- 3. General Shop Safety**
- 4. Use and Safety of Hand tools**
- 5. Use and Safety of Power Tools**
- 6. Use and Safety of Power Equipment**
- 7. Basic Shop Math**
- 8. Basic Drafting**
- 9. Planning Your Project**
- 10. Wood Jointery**
- 11. Fastening (Fasteners, Hardware, Gluing, Clamping)**
- 12. Finishing (Preparation and application)**
- 13. Cabinet Making Process**
- 14. Building Structure Process**
- 15. Advanced Hand and Machine Processes**
- 16. Veneering and Bending**
- 17. Tool Maintenance and repair**

18. Career Planning and Preparation

A-3

Wood Technology Detailed Course Outline June '06

1. Introduction and Orientation

Introductions of instructors and students
Introduce Course (overview, objectives, evaluation, schedule, etc)
Shop facility orientation and General Shop Guidelines

2. Wood and Wood Materials

Nature of Wood (Structure and characteristics of wood)
Types of Wood and Wood Products

3. General Shop Safety

Attitude, Safety awareness, Protective clothing and equipment, safe environment

4. Use and Safety of Hand tools

Proper use and care of all hand tools and related safety rules

5. Use and Safety of Power Tools

Proper use and care of commonly used power tools in the shop and the safety rules of each. Tools covered – power drill/driver, sanders, jig saw, planer and skill saw.

6. Use and Safety of Power Equipment

Proper use and care of commonly used Power equipment and the safety rules of each. Machines covered: Jointer, Planer, Table saw, Radial arm saw Band saw, Chop saw, Stationary disk and belt sander, and Drill Press.

7. Basic Shop Math

Measurement in metric and standard systems
Basic Math assessment
Working with fractions and basic Geometry

8. Basic Drafting

Communication of ideas through sketching
Understanding basic working drawings-1. *Orthographic projection*- (focus on 3-view working drawings), 2. *Isometric drawings* and 3. *Introduction to Perspective drawings*.
Dimensioning

9. Planning Your Project

Steps to complete a Project
Estimation of Cost
Obtaining Material and Hardware
Layout Procedures
Efficient use of Time and Materials

10. Wood Jointery

Making common wood joints using hand tools (Dado, Rabbet, Miter)

Making common wood joints using power tools and machines. (Dado, Rabbet, Lap, Miter, Dowel)
Advanced Wood Joinery (Raised Panel doors, Mortise and Tenon)

11. Fastening and Hardware

Types of fasteners-(nails, screws, dowel, staples)
Use of Pneumatic fasteners
Use of Adhesives and Clamping Techniques
Hardware-(hinges, glides, pulls)

12. Finishing

a. Finish preparation

Types of Abrasive Paper and sequence of use
Use of power sanders and hand blocks for hand sanding
Scrapers

b. Types of Finishes (Laquer, Acrylic, Oil and Enamel)

c. Safety considerations in Finishing

d. Stains and Fillers

e. Brush on finishes. – (Procedure, clean-up, care of brushes)

f. Spray painting

13. Cabinet Making Process

Face Frame Construction
European or “Euro” Construction
Use of “Storey Pole”
Use of Plastic Laminate and other countertop materials
Installation Techniques.

14. Building Structure Process (Mostly theory and observation with some hands on experience as opportunity provides.)

Structures and the role of the Carpenter
Leveling Tools
Laying out straight edges with chalk line or string
Layout of Foundation and wall framing
Reinforced Concrete and hollow block construction
Use of a rafter square for figuring length of rafters and stair layout
Fitting and hanging a door.

15. Advanced Hand and Machine Processes (Use of Pocket Hole Jig and Jinter and Use of Router and Shaper.

16. Veneering and Bending

Bending wood laminating veneers using molds, clamping and vacuum press

17. Tool Maintenance and repair

Attitude of Stewardship
Sharpening hand plane blades and chisels
Checking squares
Basic machine care and maintenance

18. Career Planning and Preparation

Making a Resume'
Looking for work

Basic Shop Policies for Students - Wood Technology

(Mga Tuntuning Dapat Sundin Ng Mga Estudyante Sa Shop)

- 1 .All the shop safety rules and precautions must be followed.** *(Dapat sundin ang lahat ng mga tuntuning pangkaligtasan sa shop.)*
- 2. Shop clean-up procedures must be followed at the end of each day's training session.** *(Dapat sundin ang mga paraan ng paglilinis sa shop pagkatapos ng training session (klase)*
- 3. All students will assist in returning the shop hand tools and power hand tools to the shop tool room.** *(Tutulong ang lahat ng estudyante sa pagbabalik ng mga gamit (kagamitan) sa shop tool room.)*
- 4. Students must report to the shop instructor (or his assistant) ALL NOTICEABLE DEFECTS found on shop hand tools and equipment.** *(Dapat sabihin ng mga estudyante sa shop instructor o sa assistant nito kung may mga sira ang mga gamit (kagamitan)).*
- 5. No horse-play or actions creating unsafe conditions in the shop will be tolerated.** *(Huwag maglaro sa shop.)*
- 6. The instructor (or his assistant) must be notified before any student leaves the shop (for any reason) during training sessions.** *(Dapat magpaalam muna sa instructor o sa assistant ang sinumang estudyante na aalis sa anumang dahilan habang may training session (klase) sa shop.)*
- 7. Shop tools and equipment must be operated and cared for properly by the students. If a student is in doubt about any tool or piece of equipment that's in the shop, he should ask his instructor.** *(Dapat gamitin at pangalagaan nang mabuti ng mga estudyante ang mga kagamitan sa shop. Kung hindi alam ng estudyante ang paggamit ng mga kagamitan sa shop, dapat niyang tanungin ang isang instructor.)*
- 8. All unsafe conditions or accidents should be reported to the shop instructor (or his assistant).** *(Dapat na sabihin agad sa shop instructor o assistant ang anumang hindi mabuting pangyayari o aksidente sa shop.)*
- 9. All visitors need to report to the shop instructor (or his assistant) before entering the shop working area.** *Dapat na makipagkita muna ang lahat ng mga bisita sa shop instructor o sa assistant bago pumasok sa shop working area.*

10. No tools are to be taken out of the shop. (*Walang tools na puwedeng ilabas ng shop.*)

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Student attendance and expected behavior (Wood Technology)

Attendance:

- 1. Attend all classes and come on time** (*Pumasok sa lahat ng klase at sa tamang oras*)
(Attendance at all WH activities is very important. Attendance is taken every day and your grade is lowered when you are late or absent. Come to class rested and ready to listen and work.)
(*Attendance sa lahot ng W.H. activities ay mahalaga. Araw-araw ay may attendance at apektado ang inyong mga grades kapag lagging late at absent. Pumasok sa klase ng maayos at handang makinig at magtrabaho.*)
- 2. Complete all assignments on time.** If you need help, ask your instructor. (*Tapusin ang lahat ng assignments sa tamang oras. Kung kailangan ng tulong, magtanong sa instructor*)

Expected Behavior:

- 1. Show respect to the teacher(s) and to fellow students** (*Ipakita ang paggalang sa mga instructors at kapwa estudyante*)
- 2. Full attention needs to be given when instruction is given** (*Kailangan ang buong atensiyon kapag nagbibigang ng instruction ang instructor*)
- 3. Follow all rules pertaining to Wood Technology including “Basic Shop Policies” and all safety rules.** (*Sumunod sa lahat ng mga Rules patungkol sa Wood Technology*)
- 4. Follow general Working Hands rules** (*Sumunod sa lahat ng tuntunin ng Working Hands*)

Consequences of not adhering to the above rules: (*Mga consequences sa paglabag (not following) sa mga nasabing tuntunin:*)

- 1. Warning** (This could be verbal or simply writing your name on the board) (*Ito ay maaaring tawagin ang iyong pangalan o isulat sa board*)
- 2. Note to the director of Working Hands.** (*Sulat para sa director ng Working Hands*)
(A check by your name or verbal)
- 3. Letter to parents /pastor** (*Sulat para sa maglulang o Pastor*) (This would be like a final warning)
- 4. Expelled.** (*Tanggal na sa klase*)

(*Ang mga nasa itaas ay ang normal ng sequence ng consequences.*) The above would be a normal sequence of consequences. Blatant disrespect or disregard for the rules will be dealt with by immediate disciplinary action according to severity.

The purpose of the above rules and consequences are so students know clearly what is expected of them and if they choose not to follow the rules, they know what to expect. No surprises.

It is a privilege to be a part of the Working Hands program and we want to ensure that everyone in the program benefits from it.

Project Grade (Individual)

Student Name: _____

Project: _____

Date: _____

- | | | |
|---|----|-------|
| 1- Process - (followed instructions and made proper Use of time, tools, machines and materials) | 20 | _____ |
| 2- Accuracy - Made according to the plan- | 20 | _____ |
| 3- Joints - Tight, clean and properly made- | 20 | _____ |
| 4- Finish - Finish preparation and finished result | 20 | _____ |
| 5- Attitude and Efficiency - Includes organization, Respect of authority, Consideration of others, clean-up etc. | 20 | _____ |

Total Project Points 100 _____

X Difficulty factor 1-10 _____

Project Grade: _____

Comments:

Project Grade (Team)

Student Name: _____

Project: _____

Date: _____

- | | | |
|--|-----------|-------|
| 1- Process - (followed instructions and made proper Use of time, tools, machines and materials) | 15 | _____ |
| 2- Accuracy - Made according to the plan- | 15 | _____ |
| 3- Joints - Tight, clean and properly made- | 15 | _____ |
| 4- Finish - Finish preparation and finished result | 15 | _____ |
| 5- Teamwork - Attitude, cooperation, organization, Respect of authority structure, communication, efficiency, and clean-up. | 40 | _____ |

Total Project Points 100 _____

X Difficulty factor 1-10 _____

Project Grade: _____

Comments:

A-8
OFFICIAL TRANSCRIPT
(Wood Technology)

Student: JR

Batch: 15

Date: July 19, 2007

Quarter 1

1. Wood and Wood Products.....	100
2. Measurement.....	88
3. Shop Mathematics.....	86

Hand Tool Projects:

1. Sanding Block, Drill Box, Marking Gauge.....	81
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Quarter 2

1. Design, Proportion and Technical Sketching	71
2. Shop Physics (Mech. Advantage)	80

Projects using power machinery:

(Table Saw, Jointer, Planer/Surfacer)

1. Tool Box.....	97
2. Dovetail Box.....	90

Quarter 3

1. Geometric Construction and Multi-view Drawing.....	95
2. Cabinet Making Process.....	

Projects using power machinery:

(Miter Saw, Lathe, Radial Arm Saw, Band Saw)

1. Coat Hanger Shelf.....	92
2. Kitchen Cabinets (Group Project).....	92

Quarter 4

1. Isometric Drawing and Perspective Drawing.....	98
2. Sharpening a Chisel	90

Projects: Using Mortise and Tenon Joints and Cabinet

Design and Layout using Storey Pole

1. Work Tables Using M & T joints.....	90
2. Kitchen Upper Cabinet.....	92

Attendance.....116/ 116

Gary Root,
Instructor, Wood Technology

Final Exam:.....83

Final Course Grade:.....91

General Shop Safety

Attitude: (Pag-uugali)

Safety is an Attitude more than anything else. One who cares about himself and others will care enough to work safely and to create a safe working environment. *(Ang pagiging listas ay isang ugaling higit kaysa ano pa man. Ang taong nag-iingat sa kanyang sarili at sa lapwa ay nag-iingat din na magtrabaho ng ligtas at sa ligtas na lugar.)*

A safe worker is **humble** enough to ask for help and admit it when he is unsure of how to use a machine or tool. *Ang maingat na traahodor ay mapag kumbaba. Upang humingi ng tuling at umamin kung hindi siya sugurado kung paano humamit ng machine o tools!*

A safe worker is **teachable**. He is willing to follow instructions and take necessary precautions to prevent injury or accidents. *(Ang manigat na trabahador ay madaling turuan siya ay marunong sumunod sa mga tuntumin sa shop at mga baalala para maka-iwas sa sakung o pinsala.)*

A safe worker is **responsible** for himself and for others and cares enough to warn others of unsafe practices or conditions. (for example: If someone is using the table saw without eye protection he is reminded of this safety rule.) *(Ang maingat o ligtas na trabahador ay responsible sa kanyang sarili at kapwa. Siya ay responsible na ituma ang inang kasama sa mga maling trabaho.)*

A safe worker is **orderly** and keeps his work area clean. *(Ang maingat o ligtas na manggagawa ay maayos at malinis sa lanyang working area.)*

A safe worker is **thoughtful** of others and willing to help. *(Ang maingat na manggagawa ay Hindi makasarili at maalalahamin sa kapwa at randang tumulong sa kanila.)*

A safe worker is **focused** on what he is doing and is not easily distracted.
(Ang maingat at ligtas na manggagawa ay nakatuon sa kanyang ginagawa at hindi agad nawawalan ng atensiyon.)

Some facts:

Shop managers here in the Philippines and in many countries around the world will not care about your physical safety. They are concerned about making money. You must be the one to care about your personal safety and the safety of others as much as possible. *(Maraming mga 'Shop Managers' sa Pilipinas at sa ibang bansa ang hindi mag-iisip ng inyong kaligtasan. Ang kanilang iniisip at kung paano kumita. Ikaw ang bahala ma mag-ingat sa iyong sarili at ng iba pa.)*

As much as 95% of serious accidents could have been avoided with safe practices. *(Mga 95% ng mga malubhang aksidente ay pwedeng maiwasan kung may safe practices.)*

General Shop Safety Rules

1. "Horse play" (playful jokes) in the shop may cause serious accidents. (show transparency)(*Ang 'Horse Play' o pagbibiro sa loob ng shop ay pwedeng maging dahilan ng aksidente.*)

2. Do not disturb others when they are trying to do their work- especially when they are using a machine. (*Huwag istorbohin ang iba na nagsisikap gumawa ng kanilang proyekto lalo na kung gumagamit ng machine.*)

3. Do not run or chase others in the shop. (*Huwag maghabulan sa loob ng shop.*)

4. Avoid loose clothing that may get caught in a machine. (It is a good idea to remove rings, watches, necklaces etc. that might also get caught in a machine). Torn pockets, loose shirts, etc are a hazard. (show transparency) (*Iwasan ang maluluwang na damit na pwedang maging dahilan ng aksidente. Mabuting alisin ang mga sisngsing, relo, kuwintas at iba pa, mga sirang bulsa at maluluwang na damit.*)

5. Wear safety glasses when you are doing any cutting operations. If you are observing or are near someone cutting, you need to wear eye protection. (show transparency)(*Mag suot ng safety glasses kung maglalagari kung ikaw ay nanonood o malapit sa tuong maglalagari, kailangan din ang eye protection.*)

6. Long hair is a safety hazard and should be cut or tied back. (show transparency) (*Ang mahabang buhok ay kailangan putulin o talian sa likod.*)

7. Use dust collectors and ventilation fans where needed. Use a dust mask if sawdust or other dust is in the air. (*Gumamit ng mga dust collectors at fans kung kinakailangan. Mag suot ng dust mask kung mayroong alikabok sa hangin.*)

8. Always wear ear protection when using loud power tools or machines or if you are near loud impact noises (pounding). Wear ear protection whenever you are near any loud noise. *(Laging gumamit ng proteksiyon sa tainga kung gumagamit ng maingay na power tools o machines o kung malapit sa maingay na lugar. Gumamit ng ear protection kahit saang lugar na maingay.)*

9. Finger nails should be short so they don't interfere with your handling of a tool. *(Ang mga kuko ay kailangang maiksi para hind imaging sagabal sa paggamit ng hand tools at iba pa.)*

10. Never carry sharp tools in your pocket. *(Huwag magdala ng mga matatalas na bagay sa bulsa.)*

11. Use tools only for what they are intended. For example: never use a chisel for a screwdriver or a pry bar. Never hammer with a wrench. Misusing tools will damage the tool and make it unsafe to use. *(Gamitin ang mga tools sa tamang gamit. Halimbawa: Huwag gamitin ang pait na katulad sa screwdriver o fry bar. Huwag gawing pamukpok ang liyabe. Ang maling paggamit ng mga tools ay makakasira dito at hindi ligtas na gamitin.)*

12. Avoid using dull or broken tools. Dull tools can slip or require more force to operate which may cause injury. *(Iwasan ang paggamit ng napurol at sirang tools. Ang mapurol na gamit ay hindi mabuti ang resulta at puwedeng maaksidente.)*

13. Don't leave tools hanging over a table where they can be knocked off. *(transparency) (Huwag iwanan ang mga tools sa tabi ng table, baka mahulog at masira.)*

14. Don't leave a power tool on a table with the cord plugged in (unless plugged into an outlet above the table). Someone might trip on the cord and pull the tool on the floor causing damage to the tool or the person. *(Huwag iwanan ang mga power tools sa mesa na nakasaksak. Baka mahila ang cord at mahulog ang tool sa sahig. Sira ito at puwede rin may damage sa tao.)*

15. Extreme care must be used when using a pneumatic blower. Workers have died because of compressed air being forced inside their body.

Always use safety glasses when using compressed air. Be careful when blowing off dust from tables or machinery. (*Mag-ingat mabuti kapag gumagamit ng pneumatic blower. Maraming tao ang namatay dahil sa compressed air. Laging gumamit ng safety glasses kapag gumagamit ng compressed air.*)

16. Never put fasteners or hardware in your mouth. (transparency)
(*Huwag maglagay ng pako o fastener sa bibig. Delikado!*)

17. Avoid throwing tools or anything else to another person. (*Iwasan ang paghagis ng tools o kahit ano sa ibang tao.*)

18. When carrying long stock (eg: board or plywood) get someone to help you so you can maintain good control and avoid risk of back injury or other bodily injury. (*Kung nagbubuhay ng mahabang stock (katulad ng plywood o board), tumingi ng tulong sa iba, para may mabuting control at iwas sa back injury at iba pang body injury.*)

19. Use proper lifting technique—using your legs and not your back to lift. (*Gumamit ng mga tamang technique sa pagbubuhay, gamitin ang mga binti hindi ang likod sa pagbubuhay.*)

20. Maintain a clean and orderly work environment. Clean up scrap material and sawdust from your work area, put tools away when done and clean up any spills of paint or oil. (*Panatilihin malinis at maayos ang work area. Alisin ang mga scrap materials at mga alikabok sa work area, ibalik ang mga tools kung tapos na, at linisin ang mga 'spills' ng pintura or oil.*)

21. Place all oily rags (especially those soaked with oil stain) into a covered metal container or spread them out outside and away from the building. Fire can result from oily rags by “spontaneous combustion”. (*Ilagay ang mga 'oily rags' sa metal container na may takip. Pwede magsimula ang apoy dahil sa 'oily rags', o tinatawag na 'spontaneous combustion.*)

22. Do not use any machine unless you have been instructed as to its use, have passed the safety test and have been given permission to use it. (*Huwag gumamit ng mga machine kung hindi sinasabi ng instructor, kung hindi pa pasado sa safety test at may permission galing sa instructor.*)

A-11
Radial Arm Saw
(Safety Rules)

General safety rules for crosscutting:

- 1) Be sure the blade moves freely and is adjusted just below the surface of the table and that all adjustment clamps are tight.
- 2) Check wood for nails, staples, dirt, etc before cutting.
- 3) Hold pieces of wood to be cut against the fence. The edge of wood against the fence should be straight.
- 4) Wear safety glasses and hearing protection.
- 5) Turn on the machine only after you are holding the handle. When cutting, hold firmly the handle and pull the blade toward you. (The saw rotates in a way that can pull the blade toward you.)
- 6) Always keep your hands clear from the path of the blade. (at least 6 inches away)
- 7) Check your cut for square ness with a try square. Run a test cut on a scrap piece of wood first.
- 8) After cutting, turn off the machine, lock the motor on its arm and wait until the blade comes to a complete stop before leaving the machine.
- 9) Clean up area after use. The table should be clear of scrap and ready for the next person to use.
- 10) Unplug the saw when changing a blade or working on the machine.

