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ABSTRACT

One of a series of curriculum guides prepared for the building occupations cluster of the construction/fabrication occupational group, this guide identifies the essentials of the carpentry trade as recommended by the successful carpenter. An instructional program based upon the implementation of the guide is expected to prepare a student to adequately perform entry level tasks required of a carpenter or to enter a post-secondary technical or apprenticeship program in carpentry where additional depth can be realized. Trade tasks or information are listed in chart form under the headings of safety, blueprint reading and planning, labor and material estimating, building site layout, footing and foundation, framing--floors, framing--walls, framing--ceiling and roof, finish work, tools and equipment, completion tasks, and general competencies. Space is provided on the charts to record for each item the date completed, teaching methods used, and teaching materials used. Also included are a list of teacher responsibilities, sources of occupational information, recommended tests and references, and a chart depicting the total construction/fabrication occupational curriculum. A typical application for employment and a sample trade and industrial education injury report are appended. (HD)

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TRADE AND INDUSTRIAL EDUCATION

TRADE PREPARATORY TRAINING GUIDE

CARPENTRY

U.S. DEPARTMENT OF HEALTH
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DEFINITIONS USED IN THIS GUIDE

Major Occupational Group

A grouping of similar and related occupational area clusters. These groups include occupations that have been determined to be the most relevant and pertinent for inclusion in vocational education in Nebraska.

Occupational Area Clusters

These clusters are distinguishable in terms of similar work performed, materials used, products produced, and/or services rendered. They include a wide variety of common occupational skills and knowledge.

Occupation

The career or employment engaged in by an individual for remuneration. This activity includes technical competencies and related technical information often referred to as one's vocation.

Technical Competency

The specific tasks required for a vocational trade and industrial graduate to perform successfully at the entry level in an occupational area. These technical competencies apply to the psychomotor domain and include elements which emphasize motor skills such as: operate a machine; measure; etc.

Related Technical Information

The information the entry level worker must know in order to make appropriate trade decisions which will allow him to adequately perform the tasks or technical competencies of his occupation. This information applies to the cognitive domain and includes elements which are intellectual outcomes such as: knowledge and understanding.

Related General Information

Information which is desirable and good for the tradesman to know but which is not necessary to do his work properly; information that is nice to know, such as the history and development of his trade.

Related Guidance Information

Information that helps the student choose, prepare for, secure, hold, and make progress in an occupation.

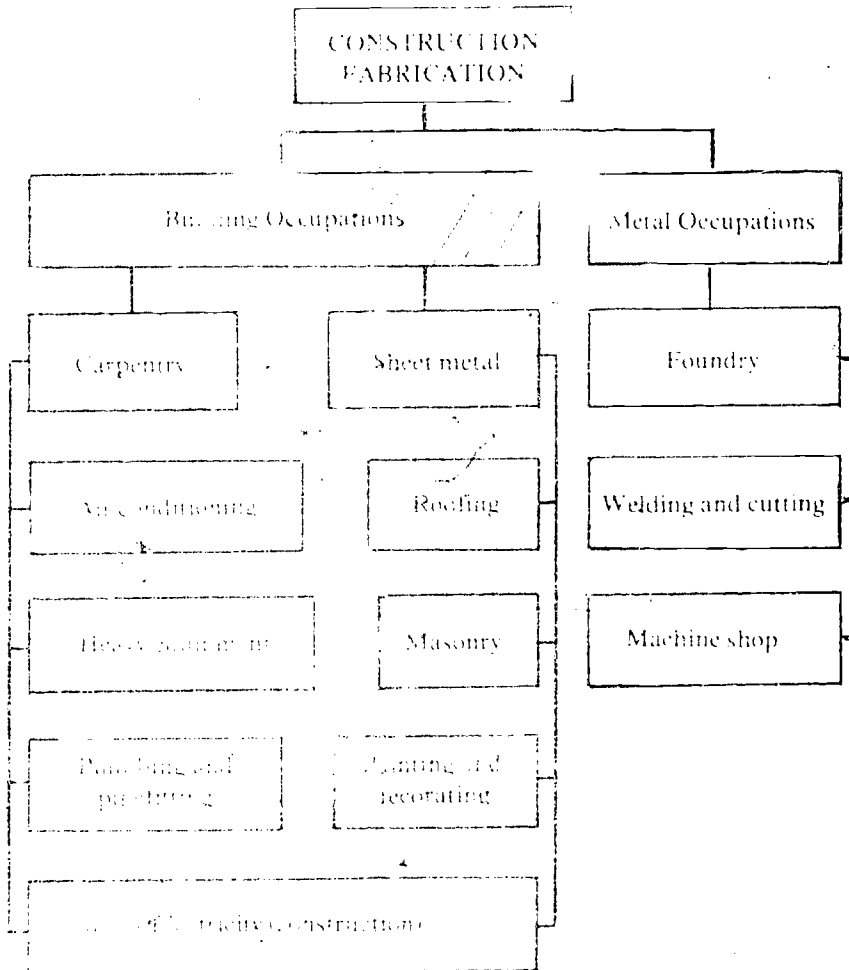
Entry Level

The technical competencies and related technical information deemed necessary by industry for obtaining and holding a job in a specific occupational area. This level of employment includes the technical competencies and related technical information that will be utilized by the employer within the first year of employment.

Occupational Analysis Chart

The chart on the following page shows Carpentry as it relates to other occupations within the Building Occupations cluster. Building Occupations is one of two clusters which is a part of the major occupational group entitled Construction Fabrication. This guide is concerned with Carpentry only. Other guides have been prepared for each of the occupations found in this chart and are available through the Nebraska State Department of Education.

OCCUPATIONAL ANALYSIS CHART



INTRODUCTION

This curriculum guide has been prepared with the help of competent craftsmen in the building trades. The funds that made this guide a reality were provided through a federal research grant in cooperation with the Nebraska State Board for Vocational Education and sponsored by the Nebraska Research Coordinating Unit.

Curriculum guides have been prepared for several trade and industrial occupational clusters from which high school teachers can develop appropriate occupational related experiences for their students. The major occupational groups, occupational area clusters, and occupations are shown in graphic form on pages of this guide.

Selection of trades within five major occupational groups have been made based on a three year survey by the Nebraska Research Coordinating Unit on needs of Nebraska business and industry. This study has identified the occupations with the greatest need for employees. A related set of curriculum guides have been prepared for these occupations.

Guidance Information

The U.S. Department of Labor has developed an extremely helpful book entitled, "Occupational Outlook Handbook." This annual publication provides a very complete description of the activities of the persons employed in the occupations represented in the Nebraska trade and industrial curriculum guides. Information concerning current and future opportunities is a major portion of this publication. Inexpensive reprints in booklet form that describe individual occupations are available through the Department of Labor. These booklets should be used by trade and industrial teachers and school guidance counselors for the most up-to-date guidance information about a particular occupation.

A listing of these reprints from the "Occupational Outlook Handbook," the order number, and price per copy is listed below for those occupations in the occupational area cluster of "Building Occupations."

Number	Title	Price
1650-69	Bricklayers, Stonemasons, Marble Setters, Tile Setters, Terrazzo Workers20
1650-70	Carpenters, Painters and Paper- hangers, Glaziers20
1650-71	Cement Masons, Lathers, Plasterers20
1650-72	Construction Laborers and Hod Carriers15
1650-73	Electricians (Construction)15
1650-75	Floor Covering Installers15
1650-77	Plumbers and Pipefitters15

1650-78	Roofers, Sheet-Metal Workers	15
1650-80	Air-Conditioning, Refrigeration, and Heating Mechanics	10

The Carpentry Guide

This guide uses the title Carpentry as the most logical descriptive term for identifying a particular related group of workers. Identification of specific job titles within this group should be determined by referring to the "Dictionary of Occupational Titles." The USOE classification system for coding instructional programs has assigned 17.1001 to the instructional program, Carpentry.

The information within this guide identifies the essentials of the carpentry trade as recommended by the successful carpenter. An instructional program based upon the implementation of this guide will prepare a student to adequately perform entry level tasks required of a carpenter or to enter a post-secondary technical or apprenticeship program in carpentry where additional depth can be realized.

The tasks and/or competencies identified within these covers are those agreed upon by a jury of reputable Nebraska carpenters. A separate group of persons directly employed within this trade in Nebraska have further verified these tasks and/or competencies. Jury members, tradesmen, and educators who contributed toward the development of content for this guide are listed in the front.

Course offerings in trade and industrial education in Nebraska are to be organized within two period blocks of time each day, five days a week. Time is to be set aside for classroom instruction directly related to manipulative laboratory instruction. The remainder of the student's school day is to be utilized for general education subjects.

USE OF THIS GUIDE

The use of curriculum guides for trade and industrial education in Nebraska secondary schools may vary greatly, depending upon the depth and breadth of each school district's vocational program. Large school districts, for example, may utilize one particular curriculum guide to develop a course in a trade area such as carpentry. A small school district may, on the other hand, incorporate several curriculum guides to develop a course in the building trades occupational cluster.

The manipulative content identified in this guide is deemed necessary for inclusion in a course that is designed to prepare entry level carpenters. While not all secondary school facilities in Nebraska are equipped to expose students to all of this content through hands-on experience, it is assumed that this content will through some media become related technical information. This will insure inclusion of all content and provide at least discussion level understanding.

This guide is written with the assumption and expectation that the related technical information necessary to perform technical competencies will be an integral part of instruction. Thus, occupational decisions that must be made by an entry level worker will be developed along with each related manipulative activity.

The carpentry instructor who uses this guide is responsible for including the identified related technical information as well as the identified manipulative tasks. He is also responsible for the identification of competencies pertaining to general and guidance information, even though this information is not specifically identified for him.

Definitions for various terms used in this guide are presented in the front.

TEACHER RESPONSIBILITIES*

1. Use the American Vocational Association National Safety Council's "National Standards School Shop Safety Inspection Check List" for shop safety inspections. (Available from American Vocational Association, 1510 "H" Street, N.W., Washington, D.C. 20005)
2. Use safety check list to assure safe factors exist.
3. Require students to report ALL accidents to instructor.
4. Keep complete records of ALL accidents on file.
5. Report ALL accidents to the school administration.
6. Develop safety consciousness in the students through teacher example—always doing things in the safe way.
7. Give shop demonstrations stressing safe use of machines.
8. Give shop demonstrations stressing safe use of hand tools.
9. Provide instruction on what to do in case of an accident.
10. Develop information sheets dealing with the safe use of specific machines.
11. Give demonstrations on the proper use and care of personal protective devices.
12. Develop information sheets dealing with the general safety rules for the trade.
13. Enclose all gears, moving belts, and other power transmission devices with permanent guards.
14. Prohibit students from operating machines when instructor is not present.
15. Prohibit the removal of guards and safety devices, even for a brief period, without the approval of the instructor.
16. Prohibit more than one operator from using a machine at one time.
17. Determine personal liability factors and liability coverage afforded through your school.
18. Provide for the bulk storage of flammable materials.
19. Mark the location of fire-fighting equipment.
20. Post instructions and inform students of building evacuation procedures.
21. Require the wearing of appropriate eye protection as specified by the State of Nebraska eye safety regulations.
22. Keep tools sharp, clean and in good working condition.

*These responsibilities are necessary for inclusion in all trade and industry programs in the State of Nebraska.

23. All shop personnel should be thoroughly familiar with the location of fire extinguishers and the type fire for which each extinguisher is designed.

CARPENTRY CONTENT
(Identified Trade Tasks or Information)

TRADE TASK OR INFORMATION	DATE COMPLETED	TEACHING METHODS USED	TEACHING MATERIALS USED
<p>SAFETY</p> <p>Exercise care in using and storing inflammables and combustibles.</p> <p>Correct unsafe conditions of tools and machines.</p> <p>Provide adequate ventilation when using solvents.</p> <p>☐ Exercise care in all operations about job or construction site.</p> <p>Correct unsafe conditions of ladders and scaffolding.</p> <p>Recognize safe areas of job or construction site—avoid unsafe areas.</p> <p>Report unsafe conditions to immediate supervisor.</p>			

TASK OR INFORMATION	DATE COMPLETED	TEACHING METHODS USED	TEACHING MATERIAL
<p>in handling or using tools.</p> <p>in handling or es.</p>			
<p>READING AND PLANNING</p> <p>stand, and interpret (building plans).</p> <p>print symbols.</p>			
<p>MATERIAL ESTIMATING</p> <p>materials and supplies.</p>			
<p>SITE LAYOUT</p> <p>ade level.</p> <p>ation lines.</p>			1

Erect batten boards.

Layout building lines according to a plot plan.

FOOTING AND FOUNDATION

Set forms for footings.

Install reinforcing steel in concrete.

3
Set wall forms for concrete foundation.

Level and brace finished concrete forms.

Install expansion joints between concrete floors and walls and between slabs.

Construct concrete step and stair forms.

TRADE TASK OR INFORMATION	DATE COMPLETED	TEACHING METHODS USED	TEACHING MATERIALS USED
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Remove concrete forms.

FRAMING--FLOORS

Install sills.

Install floor joists.

Lay subfloor.

↳ Install bridging.

Layout and construct wooden steps and stairways.

FRAMING--WALLS

Layout plates and studs for conventional wall sections.

↳ Frame doors, windows, and build

Assemble and install cabinets
and built-in fixtures.

Fit and hang doors.

Measure, layout, cut and install
wood paneling for walls.

Measure, layout, cut and install
exterior trim.

17 Measure, layout, cut and install
exterior siding, (aluminum,
asbestos, planking, etc.).

Measure, layout, cut and install
cornice work and trim.

Measure, layout, cut and install
weather stripping.

Install hardware, locks, etc.

Appendix A

One of the primary objectives of trade and industrial education is the successful placement of students completing course work in a specific occupation. The following sample application form is included in this guide with the recommendation that the preparation of such forms become a necessary activity for students in all trade and industrial education courses.

APPLICATION FOR EMPLOYMENT

PERSONAL INFORMATION

NAME: _____ DATE: _____ SOCIAL SECURITY NUMBER: _____

PRESENT ADDRESS: _____ STREET: _____ CITY: _____ STATE: _____

PERMANENT ADDRESS: _____ STREET: _____ CITY: _____ STATE: _____

HOME NO.: _____ OWN HOME: _____ RENT: _____ BOARD: _____

DATE OF BIRTH: _____ HEIGHT: _____ WEIGHT: _____ COLOR OF HAIR: _____ COLOR OF EYES: _____

MARRIED: _____ SINGLE: _____ WIDOWED: _____ DIVORCED: _____ SEPARATED: _____

NUMBER OF CHILDREN: _____ DEPENDENTS OTHER THAN WORKING CHILDREN: _____ CITIZEN: _____ U.S. BORN: _____

RELATED TO ANY NEARBY EMPLOYER: _____ STATE NAME AND DEPARTMENT: _____ REFERRED BY: _____

EMPLOYMENT DESIRED

POSITION: _____ SALARY DESIRED: _____

IF YOU EMPLOYED NOW: _____

WHERE APPLIED TO THIS COMPANY: _____ WHEN: _____

EDUCATION

	NAME AND ADDRESS	YEARS ATTENDED	DATE GRADUATED	WHERE EMPLOYED
GRAMMAR SCHOOL				
HIGH SCHOOL				
COLLEGE				

TRADE, BUSINESS OR COMMERCIAL SCHOOL: _____

SUBJECTS OF SPECIAL INTEREST OR KNOWLEDGE: _____

HEIGHT: _____ LANGUAGES KNOWN: _____ SPEAKS: _____ SEX: _____ HAIR: _____ EYES: _____

U.S. BORN: _____ FOREIGN BORN: _____ DATE OF MEMBERSHIP IN: _____

CONTINUED ON OTHER SIDE

FORMER EMPLOYERS (LIST BELOW LAST FOUR EMPLOYERS STARTING WITH LAST ONE FIRST)

DATE MONTH AND YEAR	NAME AND ADDRESS OF EMPLOYER	SALARY	POSITION	REASON FOR LEAV
FROM				
TO				
FROM				
TO				
FROM				
TO				
FROM				
TO				

REFERENCES: GIVE BELOW THE NAMES OF THREE PERSONS NOT RELATED TO YOU WHOM YOU HAVE KNOWN AT LEAST ONE

	NAME	ADDRESS	BUSINESS	YEAR ACQUA
1				
2				
3				

PHYSICAL RECORD:

LIST ANY PHYSICAL DEFECTS

WERE YOU EVER INJURED? GIVE DETAILS

HAVE YOU ANY DEFECTS IN HEARING? IN VISION? IN SPEECH?

IN CASE OF EMERGENCY NOTIFY NAME ADDRESS PHONE NO

I AUTHORIZE INVESTIGATION OF ALL STATEMENTS CONTAINED IN THIS APPLICATION. I UNDERSTAND THAT MISREPRESENTATION OR OMISSION OF FACTS CALLED FOR IS CAUSE FOR DISMISSAL. FURTHER, I UNDERSTAND AND AGREE THAT MY EMPLOYMENT IS A DEFINITE PERIOD AND MAY, REGARDLESS OF THE DATE OF PAYMENT OF MY WAGE AND SALARY, BE TERMINATED AT ANY WITHOUT ANY PREVIOUS NOTICE.

DATE SIGNATURE

DO NOT WRITE BELOW THIS LINE

INTERVIEWED BY DATE

REMARKS:

NEATNESS	CHARACTER
PERSONALITY	ABILITY

Hired FOR DEPT POSITION WILL REPORT SALARY WAGES

APPROVED 1 EMPLOYMENT MANAGER 2 DEPT HEAD 3 GENERAL MANAGER

Appendix B

One of the most important parts of any trade and industrial education course is a safety program. The following form is recommended for use in courses of this type.

**SAMPLE
TRADE AND INDUSTRIAL EDUCATION
INJURY REPORT* ****

Student injured _____ Date _____

Shop in which accident occurred _____ Time _____

Instructor in charge _____

Nature of injury _____

First aid administered _____

By whom? _____

Cause of injury _____

Could injury have been prevented? _____ How? _____

Action taken or recommendations made to prevent recurrence _____

Remarks: _____

Signed _____
(Person making report)

Witnesses: _____

Names _____

and _____

Addresses _____

*Complete in Duplicate

**File one copy in office

RECOMMENDED TEXTS AND REFERENCES

Chamberlain, L. S., *Related Mathematics for Carpenters*. Chicago, Illinois: American Technical Society.

Dahl, Alf and J. Douglas Wilson, *Cabinetmaking and Millwork: Tools, Materials, Layout, Construction*. 2nd ed. Chicago, Illinois: American Technical Society.

Department of Labor, *Job Corps Training Standard for Carpenter, Construction*. Washington, D.C.: Department of Labor, 1969.

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Kimbrell, Grady and Ben S. Vineyard, *Succeeding in the World of Work*. Bloomington, Illinois: McKnight and McKnight Publishing Company, 1970.

Steinberg, Joseph and Martin Stempel, *Estimating for the Building Trades*. Chicago, Illinois: American Technical Society.

Sundberg, Elmer W., *Building Trades Blueprint Reading, Part I*. 4th ed. Chicago, Illinois: American Technical Society.

Sundberg, Elmer W., Rex Battenberg, and W. Rahy Paul, *Building Trades Blueprint Reading, Part II*. Chicago, Illinois: American Technical Society.

Townsend, Gilbert, *Steel Square*. Chicago, Illinois: American Technical Society.

Ulrey, H. F., *Building Construction and Design*. Indianapolis, Indiana: Howard Sams and Company, Inc.

Ulrey, H. F., *Carpentry and Building*. Indianapolis, Indiana: Howard Sams and Company, Inc.

*Wagner, W. H., *Modern Carpentry*. South Holland, Illinois: Goodheart-Willcox, 1970.

Wilson, J. D., *Practical House Carpentry*. New York: McGraw-Hill, 1957.

*Highly recommended.