

**DESE Model Curriculum**

**GRADE LEVEL/COURSE TITLE:** Carpentry, Introductory Craft Skills –  
Module 27203-07 Thermal and Moisture Protection

**Course Code:**

**COURSE INTRODUCTION:**

17003 Carpentry

Carpentry courses provide information related to the building of wooden structures, enabling students to gain an understanding of wood grades and construction methods and to learn skills such as laying sills and joists; erecting sills and rafters; applying sheathing, siding, and shingles; setting door jambs; and hanging doors. Carpentry courses may teach skills for rough construction, finish work, or both. Students learn to read blueprints, draft, use tools and machines properly and safely, erect buildings from construction lumber, perform finish work inside of buildings, and do limited cabinet work. Carpentry courses may also include career exploration, good work habits, and employability skills.

**UNIT (#) TITLE:**

**SUGGESTED UNIT TIMELINE:**

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**Course Code:**

Carpentry, Introductory Craft Skills (27203-07) – Thermal and Moisture Protection [This module covers the selection and installation of various types of insulating materials in walls, floors, and attics as well as the uses and installation practices for vapor barriers and weatherproofing materials.]		<b>CLASS PERIOD (min.):</b>				
<b>ESSENTIAL QUESTIONS:</b>						
1. What should be considered when selecting insulation?						
2. What factors impact insulation installation?						
ESSENTIAL MEASURABLE LEARNING OBJECTIVES	CCSS LEARNING GOALS (Anchor Standards/Clusters)	CROSSWALK TO STANDARDS				
		GLEs/CLEs	PS	CCSS	OTHER	DOK
1. Describe the requirements for insulation.				RST 11-12.3	27203-07	Level 1
2. Describe the characteristics of various types of insulation material.				RST 11-12.3	27203-07	Level 1
3. Calculate the required amounts of insulation for a structure.				WHST 11-12.6, N-Q 1, N-Q 2, N-Q 3, G-GMD 3, G-GMD 4, G-MG 1, G-MG 2, G-MG 3	27203-07	Level 1
4. Install selected insulation materials.				RST 11-12.3	27203-07	Level 2
5. Describe the requirements for moisture control and ventilation.				RST 11-12.3	27203-07	Level 1
6. Install selected vapor barriers.				RST 11-12.3	27203-07	Level 2
7. Describe various methods of waterproofing.				RST 11-12.3	27203-07	Level 1
8. Describe air infiltration control requirements.				RST 11-12.3	27203-07	Level 1
9. Install selected building wraps.				RST 11-12.3	27203-07	Level 2
<b>ASSESSMENT DESCRIPTIONS*:</b> (Write a brief overview here. Identify Formative/Summative. Actual assessments will be accessed by a link to PDF file or Word doc.)						
<b>*Attach Unit Summative Assessment, including Scoring Guides/Scoring Keys/Alignment Codes and DOK Levels for all items. Label each assessment according to the unit descriptions above (i.e., Grade Level/Course Title/Course Code, Unit #).</b>						

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<p><b>Obj. #</b> <b>1-9</b></p>	<p><b>INSTRUCTIONAL STRATEGIES (research-based): (Teacher Methods)</b></p> <p><input checked="" type="checkbox"/> Direct  <input type="checkbox"/> Indirect  <input type="checkbox"/> Experiential  <input type="checkbox"/> Independent Study  <input type="checkbox"/> Interactive Instruction</p>
<p><b>Obj. #</b> <b>1-9</b></p>	<p><b>INSTRUCTIONAL ACTIVITIES: (What Students Do)</b></p> <p>1. 2. 3.</p>
<p><b>UNIT RESOURCES: (include Internet addresses for linking)</b></p> <p><b>(MCCE Resource) T&amp;I DVD ROM 11</b>  <b>Building Construction: Site Surveying &amp; Development</b>  <b>CEV Multimedia</b>  <b>LUBBOCK, TX, CEV MULTIMEDIA, 2003.</b>  <b>DVD ROM</b>          Computer-generated visual effects help illustrate surveying concepts often difficult to teach in a classroom setting, such as differential leveling and profile leveling. As the featured expert illustrates route surveying and the setting of property boundaries, he also discusses equipment, field notes, other data collection and data analysis techniques. 101 minutes, 3 sections.</p> <p><b>(MCCE Resource) TE DVD ROM 11</b>  <b>Deconstruction: The Science of Building a House-Plumbing to Paint</b>  <b>Discovery Channel University</b>  <b>LAWRENCEVILLE, NJ, SHOPWARE, 2004.</b>  <b>DVD ROM</b>          A home is more than a house; technologically speaking, it’s an engineered habitat. This video explains how electrical, plumbing, and HVAC systems work with selected parts of the building envelope — building wrap, windows, fiberglass insulation, gypsum wallboard, and paint — to keep the weather out and comfort in. Animated diagrams, microscopic and thermal imaging, on-site demonstrations, and off-site tests are used to show how things like circuit breakers and P-traps work; to define U-factor, R-value, permeance, and other technical terms and concepts; to demonstrate color-matching and paint-making; and to isolate envelope failures leading to moisture infiltration and mold. A visit to a USG wallboard plant is also included. 50 minutes.</p>	

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**(MCCE Resource) T&I DVD ROM 11.3**

**HVAC Basics: Residential Air Conditioning**

**Shopware**

**LAWRENCEVILLE, NJ, FILMS MEDIA, 2008.**

**DVD ROM** This program, summarizes air conditioning operation and service. Typical systems for cooling or dehumidifying residential environments are covered. Details on condensing units and their components—including the condenser coil, compressor, motor, fan, and accumulator—are illustrated along with typical outside housings and insulation materials. The three methods of heat transfer—conduction, convection, and radiation—are outlined, along with the difference between high side and low side pressure systems. The refrigeration cycle is demonstrated, as are different types of compressors, such as scroll, reciprocating, and piston. Heat pumps, electrical controls, evaporators, and sight glasses are explained. 21 minutes.