Construction Site Preparation and Foundations

Construction Site Preparation and Foundations is a one-credit course designed to facilitate student understanding of the first phases of construction, including types of structures and their uses. Topics include career opportunities, safety, planning, location, layout, concrete and masonry, and foundations of various structures.

Content standards for this course are not intended to serve as the entire curriculum. Teachers are encouraged to expand the curriculum beyond the limits of these content standards to accommodate specific community interests and utilize local resources. This course encourages critical thinking, use of the scientific method, integration of technology, development of student leadership skills, and application of knowledge and skills related to practical questions and problems. Safety concepts are integrated into instruction to the maximum extent possible.

Career and technical student organizations are integral, cocurricular components of each career and technical education course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth.

Career Opportunities

Students will:

1. Identify career opportunities in the construction industry.
   Examples: draftsman, engineer, construction foreman, carpenter, concrete finisher, plumber, electrician

Safety

2. Demonstrate job site safety concepts required for site preparation and foundation construction.
   Examples: personal protection equipment, hand tool safety, power tool safety, electrical safety

Planning Structures

3. Demonstrate the mechanical drawing process used in designing structures.
   - Identifying various mechanical drawing components
     Examples: symbols, dimension lines, extension lines, hidden lines, object lines, center lines, lettering

4. Explain local building codes affecting the construction of buildings.

5. Calculate equipment and work space requirements for structures.

6. Identify factors in selecting building materials used in structures.
   Examples: cost, availability, suitability
7. Formulate a bill of materials for a specific structure.
   Examples: concrete, lumber, fasteners, roofing materials, hardware, electrical supplies, plumbing supplies

**Structure Location**

8. Identify positive characteristics of a building site.
   Examples: proper drainage, location, orientation

9. Explain the importance of conducting property surveys for structures, including the location of property and setback lines.

**Structure Layout**

10. Demonstrate building layout procedures for a specific structure.
    Examples: staking, squaring, constructing batter boards, leveling

**Foundations**

11. Explain how to lay out and construct pier, edge, and footing forms.

12. Describe the use of concrete reinforcements in structures.

**Concrete and Masonry**

13. Demonstrate the use of concrete and masonry tools in construction.

14. Demonstrate the process of mixing concrete.
    - Estimating the amount of concrete needed for a project
    - Applying various finishing techniques used with concrete

15. Demonstrate the process of laying block.
    - Estimating the number of concrete blocks needed for a project