

# Porch Railing Flag Pole Holder

Content Area: **21st Century Life & Careers**  
Course(s): **Generic Course**  
Time Period: **Marking Period 3**  
Length: **4 Weeks**  
Status: **Published**

## Unit Introduction

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## Standards

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| 9.3.12.AC.1               | Use vocabulary, symbols and formulas common to architecture and construction.  |
| 9.3.12.AC-CST.9           | Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.  |
| 9.3.12.AC-DES.6           | Apply the techniques and skills of modern drafting, design, engineering and construction to projects.  |
| ARCH.9-12.9.4.12.B.(1).1  | Demonstrate communication skills and strategies that are used to work effectively with potential clients and others.   |
| ARCH.9-12.9.4.12.B.(1).9  | Develop technical drawings drafted by hand and computer-generated plans to design structures.  |
| ARCH.9-12.9.4.12.B.(1).10 | Demonstrate understanding of principles, conventions, standards, applications, and restrictions pertaining to the manufacture and use of construction materials, components, and assemblies, and incorporate this understanding into project design. |
| ARCH.9-12.9.4.12.B.(1).11 | Apply basic organizational, spatial, structural, and constructional principles to the design of interior and exterior space so that design plans are effective.  |
| ARCH.9-12.9.4.12.B.18     | Employ critical thinking skills (e.g., analyze, synthesize, and evaluate) independently and in teams to solve problems and make decisions.   |
| ARCH.9-12.9.4.12.B.22     | Create and implement project plans to accomplish realistic planning in design and construction situations, considering available resources and requirements of a project/problem.  |
| ARCH.9-12.9.4.12.B.26     | Operate Internet applications to perform tasks.  |
| ARCH.9-12.9.4.12.B.61     | Demonstrate skills related to seeking and applying for employment in a desired job.  |
| ARCH.9-12.9.4.12.B.62     | Maintain a career portfolio to document knowledge, skills, and experience in a career field.   |
| ARCH.9-12.9.4.12.B.74     | Read, interpret, and use technical drawings, documents, and specifications to plan a project.  |
| STEM.9-12.9.4.12.O.(1).1  | Apply the concepts, processes, guiding principles, and standards of school mathematics to solve science, technology, engineering, and mathematics problems.  |
| STEM.9-12.9.4.12.O.(1).9  | Employ concepts and processes for the application of technology to engineering.  |
| STEM.9-12.9.4.12.O.2      | Demonstrate mathematics knowledge and skills required to pursue the full range of postsecondary education and career opportunities.  |
| STEM.9-12.9.4.12.O.48     | Employ teamwork skills to achieve collective goals and use team members' talents effectively.  |

## Essential Questions

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1. What can we learn by solving this problem?
2. What factors can/will influence design/solution?
3. How do you know if you have successfully solved the problem?

## Content / Skills

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*Students will research/develop a new type of railing flag pole holding device and produce a set of working drawings, a model and presentation/advertisement for the product.*

*Textbooks:*

**Basic Technical Drawing** - Spencer, Dygdon, Novak, 8th edition, 2004

**Engineering Drawing & Design** - D.A. Madsen, D.P. Madsen, 6th edition, 2017

*Skills: See Below*

- brainstorming/modelstorming
- craftsmanship
- design process
- dimensioning
- drawing pictorials/3D
- Interpreting Orthographic views
- Layout
- math operations
- measurement
- mechanical drawing
- Plotting Drawings to Scale
- safety
- sectioning
- teamwork
- using CAD
- visualization

