
Basics In Iron Fencing Care

Participant Guide

April 2009

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Welcome

Welcome to today's TELNPS course titled, *Basics in Iron Fencing Care*. This class will last from 3:00PM to 4:00 PM EST on April 23, 2009, and will consist of live instruction via Technology Enhanced Learning (TEL) from the US Fish and Wildlife Service National Conservation Training Center in Shepherdstown, West Virginia. Thank you for joining us today. We look forward to your participation.

As a participant you will also see one 9-minute video segment on repair and surface treatments of iron fences, view digital photographs, participate in a condition survey exercise, participate in question and answer sessions, and view appropriate tools for preservation work.

Pre-course Reading Assignments

Prior to the class, please read the **three pre-course reading assignments** designed to give you additional course background.

These reading assignments are located on the TEL website @ http://www.nps.gov/training/tel/participant_guides.htm -under the March 4th listing.

The **readings** are:

Philosophy - 1 page

Secretary of Interior's Standards - 4 pages

Secretary of Interior's Guidelines - 6 pages

Audience

The course is designed for maintenance staff, architectural conservators, and personnel responsible for the care of historic structures or historic cemeteries and cultural resource specialists who oversee the care of iron fencing.

How to Interact with the Instructors

We encourage you to ask questions and share your comments with the instructors throughout this TELNPS course.

If you were physically in the classroom with the instructor, you would raise your hand to let her/him know you had a question or comment. Then you would wait for the instructor to recognize you and ask for your question. We are all familiar with that “protocol” for asking questions or making comments.

With TELNPS courses, there is also a “protocol” to follow to ensure you can easily ask questions and others can participate as well. It may seem a little strange at first asking a question of a TV monitor. Remember, it is the instructor you are interacting with and not the monitor. As you ask more questions and participate in more TELNPS courses, you will soon be focusing only on the content of your question and not the equipment you are using to ask it.

As part of the TEL station equipment at your location, there are several push to talk microphones. Depending on the number of students at your location, you may have one directly in front of you or you may be sharing one with other students at your table.

When you have a question, press and hold down the push to talk button maintaining at distance at least 12-18 inches and say, “Excuse me [instructor’s first name], this is [your first name] at [your location]. I have a question (or I have a comment).”

Then release the push to talk button. This is important. Until you release the button, you will not be able to hear the instructor. The instructor will acknowledge you and then ask for your question or comment. Stating your name and location not only helps the instructor, but also helps other students who are participating at different locations to get to know their classmates.

Instructors

Your instructor is Jason W. Church, NCPTT Materials Conservator, specializes in preservation issues associated with historic cemeteries. Church holds a MFA in historic preservation from the Savannah College of Art and Design and a BS degree in Building Sciences from Appalachian State University. Prior to coming to NCPTT, Church was the conservator for the Department of Cemeteries, City of Savannah, GA. Currently, he implements the Center’s National Cemetery Preservation Initiative, including the popular Cemetery Monument Conservation workshops.



Coarse Goal and Learning Objectives

Coarse Goal:

This course emphasizes sound maintenance techniques for iron fencing and exterior iron elements that are sustainable, cyclic, non-invasive, and do no harm. The course will address documentation, cleaning, simple repairs and surface treatments.

Objectives:

After this workshop, learners should be familiar with

- ❑ Identification of differences between cast iron and wrought iron
- ❑ Documentation of historic iron fencing
- ❑ Original construction techniques.

Additionally, learners will be able to

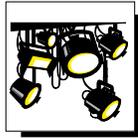
- ❑ Reset fences with few complications
- ❑ Stabilize corroded iron surfaces
- ❑ Apply surface treatments to iron fences.



Agenda

Background: Iron Fencing Care

- Overview of National Center for Preservation Technology and Training (NCPTT) and Its Mission
- How to identify the differences between cast and wrought iron.
- Documentation
- Getting Started, What are your first priorities?
- Resetting the fence into soil or masonry.
- Proper techniques for simple repairs
- Stabilization of corroded iron surfaces
- Surface treatments for iron fencing (with video demonstration)
- Questions?
- Course Conclusion

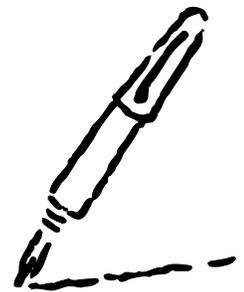


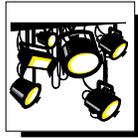
Video Overview of NCPTT and Its Mission

The National Center for Preservation Technology and Training was created by Congress in 1992 to develop and disseminate preservation technologies and to train practitioners in new technologies. NCPTT promotes preservation technologies in the fields of archeology, historic architecture, historic landscapes, and materials conservation.

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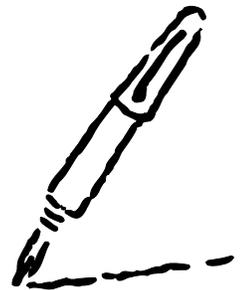
How to Identify Cast Verses Wrought Iron

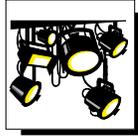
It is important when doing documentation, contracting work, or undertaking any conservation that the iron work is properly identified as being either cast or wrought iron. Cast and wrought iron have very different working characteristics. Treatments that work well on wrought iron can easily break or destroy cast iron.

Cast iron is an iron based alloy containing at least 2% carbon. The iron is heated to a fluid state and poured into a mold. The use of a mold allows cast iron to have a more detailed but heavier design. Due to the ability to reuse molds, cast iron is cheaper to make. Cast iron fence components are held together in tension using mechanical fasteners.

Wrought iron is iron that has been drawn out and shaped over a period of time using repeated force and heat. This requires the skill and time of a trained blacksmith. This process makes wrought iron more expensive. Once the process was mechanized, it still required more labor and cost than a cast fence. Due to its construction process, wrought iron tends to have lighter and more delicate features with simpler shapes. Wrought iron fence components are usually riveted or fused together either by welding or lap joints.

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Getting Started

It is important to properly prepare the site before beginning any work. Preparing the site generally means to carefully cover any non-fence related materials in the general area. These may be but are not limited to surrounding masonry and nearby vegetation.

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Surface Preparation

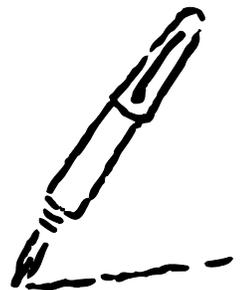
The first process is to remove loose rust and scale from the surface of the iron work using a fine wire brush by hand or power tool. It is not recommended to use heavy corded wire brushes as these can gouge details from the fence. Sandblasting and grinding is not recommended for cleaning the historic iron. Both of these practices can remove excess materials from the iron and expose too much “shiny metal.”

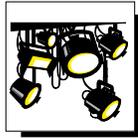
Once the surface rust is removed with a brush, wash the surface of the fence with water and non-ionic detergent or non-ionic detergent mixed with a solvent.

After the fence has completely dried, the rust converter can be applied to the iron work. There are two main types of rust converters: Tannic acid based and Phosphoric acid based. These chemically convert the iron oxide into a stable iron tannate or iron phosphate. Caution should be used when working with rust converter. Always use the manufacture’s recommendations, including personal protective equipment. Most rust converters go on white but dry to a flat black. Keep in mind that they will permanently stain stone.

Next a primer is applied. The primer should be oil based and designed for metal. After the primer dries, the finish coat can be applied. Two coats of an oil based paint that is designed for metal should be applied. The paint color should match original or be historically accurate for the fence.

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Video on Basics for Iron Fence Care

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Closing Remarks and Class Credit

To Receive Credit for this Course:

Take the on-line evaluation at

www.nps.gov/training/tel

Click on the DOI Learn tab

Go to the link under Class Evaluations for *Basics for Iron Fencing Care*.

Please complete the evaluation within 2 weeks of the course, by

May 8, 2009.

If you have further questions you may reach the instructor via email or telephone:

Jason Church:

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Telephone: 318/356-7444 ext. 236

Fax: 318-356-9119 fax