UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

Advancer Kiln Shelves

Title

Professor John Gargano

Name of Submitter

(Faculty or Staff Only)

Department of Visual Arts

Organization

Title: Professor Date: 1/12/23
Name (Contact Person): John Gargano
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Department/College/Org: Department of Visual Arts

ABSTRACT (250 words or less):

This request is for the acquisition of state-of-the-art kiln shelves to enhance our efficiency in energy consumption, increase the capacity of our kilns and improve health and safety concerns. These engineered kiln shelves are 19 times stronger and weigh 50% less than our conventional silicon carbide shelves and 1" thick cordierite shelves. These lighter shelves weighing 9 lbs. will be safer for students and faculty to lift and place as our current shelves are heavy, weighing 17-21lbs. More importantly the Advancer shelves will not warp as our current shelves are prone to do. Warped Shelves negatively affect the student work that we fire and impact our ability to load a stable stack of shelves in our large kilns. These thinner shelves will significantly increase our loading capacity allowing for more student projects to be fired in a single firing. In addition, the low mass and high thermal conductivity of Advancer shelves result in shorter firing cycles helping us to save energy, improve productivity and reduce overall firing costs.

A. Purpose of grant and impact to student body as a whole

The purpose of this request is to enhance the learning outcomes for students in all Ceramics Area courses. The Department of Visual Arts strives to bring advanced technologies into the classroom/lab to improve learning experiences and maintain pace with developments in our disciplines. Our goal is to provide students with marketable skill sets to make them competitive in their career pursuits.

The requested Advancer kiln shelves will allow students to safely lift and place kiln shelves into front-loading and top-loading kilns when firing their ceramic projects. The students unfairly struggle with our traditional kiln shelves that weigh 17-21 lbs. and will greatly benefit from the 9 lbs. Weight of the Advancer kiln shelves. These shelves will greatly reduce the risk of injury and strain when leaning over a top-loading 3.5 - 4 ft tall kiln to insert a shelf down into the kiln chamber. This will also benefit students when front-loading our gas and wood-fired kiln as we load from our knees and seated positions when inserting kiln shelves. This weight reduction will also reduce strain and potential injury as we lift and move shelves constantly when cleaning and preparing them for a firing.

The ceramics area averages 80-90 kiln firings per semester to complete all the student projects. The low mass and high thermal conductivity of Advancer shelves result in shorter firing cycles helping us to save energy, improve productivity and reduce overall firing costs. The Advancer shelves are $5/16^{th}$ of an inch thick compared to our traditional shelves that are 5/8 to 1 inch in thickness. This will create a 20% increase of space for student projects per kiln load which will cut down on time, energy consumption, and the number of firings needed to fire all the work.

In addition, the Advancer shelves will last 3 times longer than our current array of kiln shelves due to their advanced nitride-bonded silicon carbide composition and resistance to oxidation. In lay terms, this means they can handle more incidental impacts that would crack and break our traditional shelves due to the 19 times increase in strength. These shelves also resist glaze drips which are a common occurrence for students as they learn how to apply glaze properly. This will eliminate the laborious grinding of shelves that we do in between firings. The Advancer shelves are cleaned by simply scraping with a putty knife to remove glaze from the shelf surface.

The Ceramics area courses are populated by students from Visual Arts, the School of Architecture and Design and the University at large. The introductory course is a requirement for all visual arts students.

A. Projected lifetime of enhancement

This enhancement will last 20+ years with routine cleaning.

B. Person(s) responsible for i.-iv. Implementation, Installation, Maintenance & Operation

Professor John Gargano will implement, install, maintain, operate, and instruct students in safe and proper use of the shelves. The shelves are to be housed in the Kiln Room and Kiln Yard at Fletcher Hall and are compatible with all our kilns including those purchased with STEP funds.

Training (with qualifications)

John Gargano is a Full Professor at the University, with over 29 years of experience building and maintaining ceramics equipment and kilns

C. Equipment Budget and Justification

QTY: 50 Price: $231.80 Total: $11,590 Shipping: see other

1. Kiln Shelf Advancer 12" x 24" x 5/16".
   Mix: CN703, Silicon Nitride-Bonded SiC, 2730F Max

   This furniture is the proper size and shape to allow ceramic pieces to be loaded into the gas and wood fired kilns.

QTY: 10 Price: $239.00 Total: $2390.00 Shipping: see other

2. Kiln Shelf Advancer 26″ x 13″ x 5/16″ Half 12 Sided
   Mix: CN703, Silicon Nitride-Bonded SiC, 2730F Max

   This furniture is the proper size and shape to allow ceramic pieces to be loaded into the electric kilns.

QTY: 10 Price: $330.00 Total: $3300.00 Shipping: see other

3. Kiln Shelf Advancer 13″ x 26″ x 5/16″ Rectangle
   Mix: CN703, Silicon Nitride-Bonded SiC, 2730F Max

   This furniture is the proper size and shape to allow ceramic pieces to be loaded into the electric kilns.

QTY: 5 Price: $305.00 Total: $1525.00 Shipping: see other

4. Kiln Shelf Advancer 20″ x 20″ x 5/16″ Full 10 Sided
   Mix: CN703, Silicon Nitride-Bonded SiC, 2730F Max

   This furniture is the proper size and shape to allow ceramic pieces to be loaded into the electric kilns.

Budget Proposal

1.	**Equipment**	**$ 11590.00**	Kiln Shelf Advancer 12" x 24" x 5/16"
		$ 2390.00	Kiln Shelf Advancer 26″ x 13″ x 5/16″
		$ 3300.00	Kiln Shelf Advancer 13″ x 26″ x 5/16″
		$ 1525.00	Kiln Shelf Advancer 20″ x 20″ x 5/16″
2.	**Software**	**$0**	
3.	**Supplies**	**$0**	
4.	**Maintenance**	**$0**	
5.	**Personnel**	**$0**	
6.	**Other**	**$650.00**	**Shipping**
TOTAL:		**$19,455.00**	

Additional Information

Previous STEP Funding

STEP Grant, Fall 2017 Cycle, Ceramics Decal Printer, $16,892.40, PI
STEP Grant, Fall 2017 Cycle, Pugmill for Ceramics Studio, $6,581.00, PI
STEP Grant, Fall 2017 Cycle, Computer Controlled Test KIln, $1,202.00, PI
STEP Grant, Emergency 2020 Cycle, Technology Enhancement for Social Distance Teaching in Studio/Lab, $2,401.76, PI
STEP Grant, Fall 2021 Cycle, Computer Controlled Kiln, $9,484.00, PI