student sustainability committee
university of illinois at urbana-champaign

Design Of Portable Deployable Farm Stands (PDFSs) For The Sustainable Student Farm (SSF)

The SMALL Studio, Architecture 571
Submitted February 2012

Student Sustainability Committee
2011-12 Request for Proposal

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APPLICANT INFORMATION

Name of Group
The SMALL Studio, with the Sustainable Student Farm

Project Primary Contact Information
Name: Jeffery S. Poss, FAIA, Professor of Architecture
Email: poss@illinois.edu
Phone: 217-390-6993

Project Consultant Contact Information
Name: Eric Benson, Assistant Professor of Graphic Design
Email: ebenson@illinois.edu
Phone: 512.538.4211

Project Consultant Contact Information
Name: Zachary Grant, Student Farm Manager.
Email: zgrant2@illinois.edu
Phone: 815-735-6763

Financial Contact Information
Name: Cheryl Heck, Assistant to the Director, School of Architecture
Email: chaheck@illinois.edu
Phone: 244-4381
Account Number: Cheryl Heck will determine this.

1. Applicant Information and Mission Statement
The SMALL studio explores sponsored projects of intimate scale, with careful attention to materials, details, rituals, and exquisitely solving specific or envisioned program needs. Our objective is to apply highly innovative, beautifully conceived design ideas to unmet real world needs.

2. Proposal Summary
In keeping with the Mission Statement of the small Studio, we are teaming with the Sustainable Student Farm (SSF) this spring to develop a series of projects. SSF has already received funds to construct two permanent small structures required for the development of the farm. This separate request is to fund the construction of two Portable Deployable Farm Stands (PDFSs), one that powered by a bicycle and one that is loaded into the farm's minivan. The farm will use the PDFSs to deliver and display their produce in local marketplaces, initially the Quad, and eventually local Farmer's Markets in Urbana and Champaign.

3. Project Goals

This project will become an important demonstration of high-quality design solutions serving the environmental needs of the local community. It will increase the SSF's visibility throughout the community by creating a unique and recognizable movable "billboard" for their market goods. It will increase students' understanding of sustainable farm practices and available alternatives to corporate farming practices. The Architecture students enrolled in the spring studio will learn what the making of lightweight, cost-effective sustainable designs entail, and also what users need from their designs. These prototypes are very sophisticated, forward-looking transformations of stereotypical market display systems, which will bring positive national and international publicity to the university, the SSF and the SSC. They will be thoughtfully constructed out of durable and recycled/recyclable materials to be both beautiful and long lasting.

In addition, this project contributes to the following goals of the SFF:

- To continue to develop a student-operated farm that produces significant quantities of fruits and vegetables for purchase on campus and for use in the University food service operations.
- Contribute to campus sustainability by reducing carbon emissions associated with the transport of fresh produce from farms thousands of miles from campus.
- Introduce thousands of University of Illinois students to the joy of eating fresh, locally grown foods produced by their classmates and local residents.
- Deliver abundant, delicious, and locally grown produce for the Campus.
- Incorporate the missions of the University – teaching, research, and outreach, into the daily operation of the farm.
- Besides working closely with the Sustainable Student Farm, we plan to work with the Campus Bike Project for acquisition of a bicycle suitable for towing the bicycle-driven component of this proposal.

4. Sustainability and Environmental Impact

A bicycle will power one of the two Portable Deployable Farm Stand prototypes. This will reduce greenhouse gas emissions in the transportation of food from farm to market. As our country moves towards a more sustainable agricultural model, ancillary devises like the PDFS that both symbolize and contribute to the reality of sustainability become an important part of the total green build-out. The PDFS will represent a visible symbol of the commitment to green values.

5. Feasibility and Longevity of Project on Campus

If funding is allocated we have every intention to construct two designs that support the SSF agricultural outreach. The studio is lead by Professor Jeffery S. Poss, FAIA. Through his teaching, practice, and research, Poss emphasizes the importance of initiating socially relevant projects, then finding solutions by combining innovative design with appropriate materials and reliable details.

While the SSC is considering this proposal, the students of the SMALL studio are continuing to refine the essential details of their designs. The executed designs will be constructed of durable, weather-resistant materials. They will be detailed to last many years of sustained use with appropriate maintenance, mostly the lubrication of moving parts. We will specify proven materials such as powder-coated metal, marine-grade plywood, stainless steel fasteners, and lab tested and approved drive trains.

6. Project Governance

Once the designs have been constructed and tested, ownership will be transferred to the Student Sustainable Farm. SSF will then be solely responsible for the use, maintenance and general upkeep of the PDFS.

7. Licensing Requirements

On January 25, Poss talked to Gary Williamson, Dispatcher in Division of Campus Parking about licensing requirements for the PDFS:

- There are no special issues involved with bringing the cart onto the Memorial Plaza on the Quad for an organized event (i.e. the SSF Farmer's Market)
- The Secretary or State's office will likely require a license plate for the cart, if it will use roads to access the Quad or other locations. The exact nature of the license cannot be determined until the design is finalized (mode of mobility, size, etc).

8. Detailed Project Budget

The total request for this project is $5811.24.

This amount will purchase the materials and specialized services required to construct two Portable Deployable Farm Stands. We have chosen two projects, from several conceived in the SMALL studio, for construction: a bicycle powers the first, entitled "Folding Farm." The second, entitled "Slide IIIII," folds into the back of the mini van owned by the farm.

Team: folding farm

Chuck Huss, Zak Helmick, Meagan Calnon, Jordan Buckner, Fadi Salem

Item	Price/unit	Quantity	Cost
RAIN DROP CANOPY			
Shock-corded Fiberglass (Used)	$1.00/30'	30'	1
3/8" Diameter Steel Rod	$6.55/3'	1'	2.18
Polyester Fabric	$7.99/sq. yd.	6 sq. yd	47.94
Nylon Strap	$1.80/yd.	2 yd.	3.6
UV Resistant Paint	$4.99/each	4	19.96
Labor			
Artist	$25.00/hr	4	100
Seamstress	$18.00/hr.	2 hr.	36
Misc.	--	--	50
		SUBTOTAL:	**260.68**
FOLDING FARM TRAILER			
Steel Members [1 1/4" Round Tubes]		140.9 linear feet	1000
Hardware			100
Powder Coating			600
Ball Bearing Collars			119.8
Axle			39.99
Wheels / Tires			100.25
Y-Frame			300
Bike		potentially free	100
Labor / Miscellaneous			200
		SUBTOTAL:	**2560.04**
FOLDING FARM DISPLAY (4)			
Polyethylene Sheets	$21/sheet	16	$336
Threaded Rod	$2.88/rod	4	$12
Laser Cut Time	$5/hour	16	$80
Labor	$35/hour	4	$140
		SUBTOTAL:	**567.52**
		TOTAL:	**3388.24**

Team: slide /////

Michael Johnson & Shaefer Kirby

Item	Price/unit	Quantity	Cost
1-1/2 X 1-1/2 X 16GA (.065 wall) A513 Steel	$3.00	96.	$288.00
1/2 X 1/2 X 16 GA (.065 wall) A513 Steel	$3.25	48.	$156.00
3 X 1-1/2 X 14 GA (.083 wall) A513 Steel	$8.25	8.	$66.00
Fabrication Labor	n.a.	unknown	$695.00
Vinyl Signage (6' x 3')	$25.00	4.	$100.00
18" Heavy Duty Drawer Slides	$5.50	16.	$88.00
Emergency Stretcher Legs	$600.00	1.	$600.00
Additional Hardware (estimated)	unknown	unknown	$150.00
Additional Labor (estimated)	$35.00	8.	$280.00
		TOTAL:	**$2,423.00**
		TOTAL REQUEST	**$5,811.24**

9. If the Student Sustainability Committee does not fund the full requested amount, will the project be able to move forward?
If the SSC does not fund the full amount, there is no other available source at this time.

10. Resource Contributors / Other Funding Options

- ***School of Architecture:*** Students developing the farm stands and accessories will have access to all digital and shop resources in the School of Architecture. The PDFS will be constructed using the equipments and the spaces available to students in the MArch program, including traditional woodworking equipment and digital cutting tools.
- ***School of Art and Design:*** Graphic Design students developing the graphics for the farm stands will have access to all digital and shop resources in the School of Art and Design and screen-printing facilities at Noble Hall.
- Fresh Press: Graphic Design students will be able to work with the researchers at Fresh Press to develop and make agri-fiber paper for promotion of the PDFS.
- ***Sustainable Student Farm:*** providing critique and technical guidance through the design process. Providing standardized containers that are part of the farm cart design.
- ***The Bike Project:*** we plan to work with the Campus Bike Project for acquisition of a bicycle suitable for towing the bicycle-driven component of this proposal.

11. Timeline

Activity	Start Date	Duration
Conceptual Design	Jan-Feb '12	1 month
Prototype Construction/Testing	Feb-Mar '12	1 month
Consultation with Graphic Design Studio		
Prototype Construction/Completion	Mar-May '12	2 months
Project Dedication and Inaugural Use	June '12	

12. Energy Savings

- ***The Amount Of Energy And Money The Project Will Save On An Annual Basis And For The Lifetime Of The Project:*** 25 weeks of the farm stand = 150 gallons of gas consumed @ 6 mpg/round trip to union and back. If we didn't utilize the farm cart that would create another round trip to the farm and back, which would be another 150 gallons of gas per year saved.
- ***Greenhouse Gas Impact:*** Offset 2,910 lbs of CO2 otherwise emitted from more than one trip to the farm and back for more produce.
- ***Social Impact:*** The deployable farm stand would increase visibility of the biking culture on campus; showcasing the efforts of the Sustainable Student Farm, Student Sustainability Committee, and the Bike Project; as well as setting examples for the potential of bikes to transport larger than usual payloads. The

deployable farm stand would also increase visibility of the SSF, resulting in greater awareness of easy access to more healthy organic produce within the student population.

- ***Economic Impact:*** Will save the student farm $520.50 per year in gas expenditures @ 150 gallons/year saved x the national average of $3.47/gallon.

13. Publicity and Campus Awareness / Acknowledge SSC Contribution

We envision Portable Deployable Farm Stand as both a working tool and an icon. It will contribute meaningfully to the campus food distribution. But it will also be a memorable representation, or "billboard" for sustainable farm practices. The farm will use the PDFS at markets and other promotional events to bring the farm to an audience. Our intention is to promote the design beyond the limited travelling distance within the community. I will be submitted to both design and green web sites, and possibly submitted to competitions for innovative new design solution

This image depicts all of the projects developed by the students of the SMALL studio, from January 19-February 13, 2012. It shows how students working on several designs, each incorporated the SSF and SSC graphics into their designs. Larger images of selected projects are included at the end of this proposal.

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14. Letter of support from Zachary Grant, Manager of the Sustainable Student Farm:

Zachary Grant

2711 S. Race St. • Urbana, IL 61801
Phone: [Your Phone] • E-Mail: zgrant2@illinois.edu
Web: thefarm.illinois.edu

Date: 2/10/12

Student Sustainability Committee
Portable Deployable Farm Stand

Dear Committee:

This letter is to lend my support and advocate for the portable deployable farm stand. The stand will be utilized by the Sustainable Student Farm (SSF) for our farm stand at the Illini Union Anniversary Plaza on a weekly basis from late May through November. It will become a very visible symbol of sustainable payload transportation on campus.

The SSF currently sells the bulk of its produce to the dining halls on campus. The remainder of the seasonal produce is sold directly to the university community on Thursdays from 11am-5pm on Anniversary Plaza. This will continue into 2012; with the possibility of selling on the quad an additional day during the week per demand of the university community. In response to this, the SSF will have to increase the amount and frequency of produce transported to campus on a weekly basis. In addition to the majority of the produce that gets transported to the dining halls, the increased trips to the quad for the farm stand will no doubt raise our fuel usage and carbon footprint.

In order to begin to address this increase, the deployable portable farm stand will solve a few issues with transport of produce to the quad. First, the bike cart portion of this project will create a highly visible sustainable transportation vehicle for the extra produce we may need to bring to campus. Second, the deployable storage module, that will be inserted in the back of our delivery van, will make better use of the van space; as well as make it easier to move the produce to stand from our parking spot. Finally, the mobility of the farm stand will allow the SSF to very easily display and/or sell produce at special events on campus (e.g. quad day, sustainability week, etc.)

I fully support this great collaboration and hope we can receive SSC support for this highly visible and progressive concept.

Sincerely,

Zachary Grant
Farm Manager/Coordinator/Educator Sustainable Student Farm

15. Images of Design Solutions by Graduate Students enrolled in the SMALL Studio
Below: "Folding Farm," a bicycle driven transport and farm stand by Chuck Huss, Zak Helmick, Meagan Calnon, Jordan Bucker, and Fadi Salem. Total project cost: $3388.24

Above: "Slide IIIII," a collapsible farm stand by Michael Johnson and Schaefer Kirby. Total project cost: $2423.0


folding farm
cart
raindrop canopy
display arms
sustainable student farm
sustainable student farm
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school of architecture
sustainable student farm

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slide
produce · deploy · sell

sustainable student farm
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