

Proposal Details

G Hendrix

Section 1: Summary Information

* Project Title:	USF Magnolia Apartments HVAC Equipment Replacement
* Duration (months):	3
* Total Budget (\$):	\$1,842,450.00
* Requested SGEF Funds (\$):	\$272,853.50
* Matching Funds (\$):	\$1,569,596.50
* Proposed Starting Date:	5/8/2019

PI Graduation Date (if applicable):

Section 2: Applicant Information

	Full Name	Unit/Department	Phone	Email
* Principal Investigator	Rajeev Gopal	Graduate Engineer USF H&RE Facilities	813-449-2	gopalr@mail.usf.edu
Investigator 1	Arun Kumar Narasimhan	Chemical & Biomedical Engineering	813-451-06	arunkumar@usf.edu
Investigator 2	Walter Pestrak	Director USF H&RE Facility Design & Construction Management	813-974-61	wpestrak@usf.edu
Investigator 3	Tom Murray	Operations Manager, USF H&RE Facilities Operations	813-974-96	murrayt@usf.edu
Investigator 4				

Section 3: Project Description

* Project background and purpose (reasons motivating request) (Max 500 words)

The existing HVAC equipment for all seven Magnolia student apartment buildings are reaching 15 years of service. Without the USF campus hot and chilled water loops, the equipment is a system of roof-top compressors circulating refrigerant to air handling units for each 4-bedroom apartment residence but accessed from the corridors for servicing. The replacement is required but we wish to provide more efficient equipment (16 SEER instead of the required 14) and introduce controls compatible with our Metasys system in addition to the individual apartment thermostats. Housing & Residential Education sees this as an opportunity for energy cost savings and to be in alignment with the university goals of energy savings and a reduced carbon footprint. Last year we renovated all the buildings with new insulated roofs and a new fully insulated exterior wall assembly which immediately reduced cooling and heating costs, even with the inefficient aging equipment. With the new equipment installed and the controls for operating and monitoring we expect a further reduction in operating costs of around 18%.

* Project activities (Max 250 words)

As we have developed the design and specifications for the HVAC equipment replacement with our consulting engineering firm, CEA, we have investigated the options for achieving the most efficient way of providing heating, ventilating and cooling in the most affordable way with a system independent of the campus services but in an affordable way. With help from the SGEF program to fund the increase in the capital costs to provide additional efficiency (16 SEER) and the additional costs for controls that can be integrated with our existing system we can align with campus sustainability goals and reduce operating costs for these student residences. Our project activities, as we developed the design and specifications with our consulting engineers, was to model the project with simulation techniques to prove the resulting efficiencies in terms of operating costs saved. With the installation of controls and help from our business and finance department, we will also be able to monitor the performance of the builds over the next 10 years to prove the projected savings. The monitoring and controls will also give opportunities to student involvement in measuring the effectiveness of voluntary conservation or setting goals for students to contribute to the conservation of energy as a campus community. Expected time frame for completion of this project is around 3 months, from May 8th to August 1st.

*** Project results (Max 500 words)**

The bulk of the energy used by the building is for heating and cooling of the indoor air, therefore any increase in efficiency will have large savings both from an economic standpoint and an environmental view. The increase in efficiency of the HVAC system will result in a decrease of 18% in the energy needed for cooling, with subsequent reductions in greenhouse gas emissions.

*** Outcomes of the project (Max 250 words)**

The project is expected to decrease the GHG output of the USF Tampa campus by 176 metric tons annually and to promote USF Housing and Residential Education’s commitment to reducing carbon emissions while providing the best experience for student success.

* Annual Energy Savings	249,400 kWh
Annual Cost Savings	\$27,434.00
Return of Investment in %	0.10
Annual Green House Gas Reduction	0.00

*** Project Sustainability (Max 200 words)**

The HVAC system will be run by and maintained by USF facilities and operations once installed. The large reductions in greenhouse gases will contribute to the campus wide aim of reducing carbon emissions and setting a standard for others to emulate.

Section 4: Workplan and Budget Details

*** Detailed work plan/schedule of activities (Max 250 words)**

The residents will have vacated the buildings and each building will be shut down during the summer break. The existing HVAC equipment will be removed by the contractor and the new equipment will be installed over the course of 3 months. Contracts are currently being negotiated.

*** Budget breakdown**

Category	Request from SGEF	Applicant contribution	Total
Personnel (include all involved)	\$1,500.00	\$0.00	\$1,500.00
Equipment	\$271,353.50	\$1,569,596.50	\$1,840,950.00
Supplies/Materials	\$0.00	\$0.00	\$0.00
Contractual	\$0.00	\$0.00	\$0.00
Construction	\$0.00	\$0.00	\$0.00
	\$0.00	\$0.00	\$0.00

Other (specify in budget justification)			
Total Project Cost	\$272,853.50	\$1,569,596.50	\$1,842,450.00

*** Budget justification (Max 250 words)**

The majority of the cost will be covered by H&RE. The difference between the higher efficiency (SEER16) and the standard efficiency (SEER14) equipment plus half the cost of controls and work contributed by student members will be requested by SGEF.

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