

# Engineering Student Technology Committee

<http://www.engr.colostate.edu/ESTC>

College of Engineering

Colorado State University

**1. Title of Proposal:** **Emergency Exhaust Fan in the Scott Data Center**

**2. Proposal Participants:**

*Primary Contact for Proposal*

Name: **Shaila Parashar** \_\_\_\_\_ E-Mail: **shaila.parashar@colostate.edu**

Department/Major: **Engineering Network Services (ENS)**

Check One:  **Faculty**  **Staff**  **Student**

*Additional proposal participants*

Name: **Kelley Branson** \_\_\_\_\_ E-Mail: **kelley@atmos.colostate.edu**

Department/Major: **Engineering Network Services (ENS)**

Check One:  **Faculty**  **Staff**  **Student**

*Additional proposal participants*

Name: \_\_\_\_\_ E-Mail: \_\_\_\_\_

Department/Major: \_\_\_\_\_

Check One:  **Faculty**  **Staff**  **Student**

**3. Proposal Abstract (limit to 100 words):**

To “fix” the emergency exhaust fan in the Scott Data Center so it evacuates air from the “hot aisles” more efficiently when there is a power loss.

**4. Proposal Budget**

*List of items to purchase and cost of each*

CSU Facilities’ Budget Opinion for this is \$17,770.40. ENS is asking for the following:

- From the ESTC, 56% = \$10,000
- From the College of Engineering, 44% = \$7770.40

*Dollar or percentage amount requested from ESTC:*

- 56% = \$10,000

**5. Full description of proposal:**

When the Scott Bio building loses power, an emergency generator comes online to keep supplying power to the server racks in the data center on the fourth floor. However, the building

cooling system is not on backup power. Because of the number of computing devices in the room, the room heats up quickly. Typically, ENS staff and other systems administrators who have equipment in the data center rush over to bring computers down gracefully in case power is down for a significant amount of time. Because of the increasing number of computing devices in the room, the time before machines shut down due to temperature thresholds is lessening.

In the summer of 2016, an emergency exhaust fan was installed by CSU Facilities. This fan runs on backup power and kicks on when power is lost. The intent was for it to evacuate hot air and give systems administrators more time to either get to Scott before damage is done due to excessive heat, or if the campus network is still functional, to remotely log in and shut systems down gracefully.

During testing, it was discovered that more air is being removed by the fan from the plenum, a space above the ceiling tiles, than from the intended hot aisles between the server racks. Facilities has produced a Budget Opinion to rectify this which includes the building of a wall to block the plenum air flow.

Scott Bio has not lost building power for a significant amount of time since the exhaust fan was put in so the measurable extent to which this affects temperature is unknown in a real case. However, new equipment is continually being installed in the Data Center and this will need to be fixed in the near term.