



# Improving Sustainability Efforts at RTI Facilities

2020 Internship Showcase

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## Background Information

- RTI International facilities incorporate sustainable building practices daily.
  - Metering data captured for utilities (e.g., electric, water, gas, thermal)
  - Campus building automation system (BAS) to help with monitoring energy consumption
  - Learning, Energy, and Environment for Development (LEED) certification
- The Facilities Maintenance team works toward maintaining and improving each of these tasks and more.





## What Is the Problem?

- Non-billing meters have been recently affected by a BAS overhaul causing issues.
  - No frequent verification process (not being billed)
- Buildings have variable needs because of ever-changing occupancy density that determines the ventilation and thermal loads (impacts system stress and energy use).
- Documents need updating and past projects must be documented and evaluated.





## What Have I Done to Fix This?



Verified the efficiencies of campus non-billing meters compared to utility meters



Verified the LEED Silver awarded Horizon Building's actual energy performance



Calculated the outside air needed for an air handling unit at the Herbert Building and modified zones' air supplies



Updated documents and diagrams



Buildings	October			November			December		
	BAS (kWh)	Manual Reading (kWh)	Errd	BAS (kWh)	Manual Reading (kWh)	Errd	BAS (kWh)	Manual Reading (kWh)	Errd
Building 08/09	381,836	382,900	0.3%	321,040	328,600	2.3%	259,077	258,700	0.1%
Fitness Center	20,126	20,480	1.7%	14,465	15,400	6.1%	11,163	11,680	4.4%
Cox	9,043	21,900	58.7%	11,619	23,100	49.7%	10,022	20,400	50.9%
MHF	26,847	40,000	32.9%	19,378	28,800	32.7%	14,299	20,800	31.3%
Building # 11 Total	111,666	116,880	4.5%	81,911	86,300	5.1%	68,209	70,660	3.5%
Johnson	277,487	275,100	0.9%	291,295	288,300	1.0%	259,920	260,700	0.3%
ARF	19,739	19,584	0.8%	21,292	21,312	0.1%	19,448	19,200	1.3%
Little	91,940	93,300	1.5%	93,808	96,900	3.2%	88,304	90,000	1.9%
Hermann	149,137	150,000	0.6%	155,656	160,500	3.0%	144,476	145,500	0.7%
Herbert	106,420	106,560	0.1%	107,006	107,280	0.3%	97,834	105,120	6.9%
Bldg # 6	6,075	6,080	0.1%	6,084	6,320	3.7%	5,674	5,840	2.9%
Bldg # 3	10,059	9,520	5.7%	9,862	9,680	1.9%	9,351	8,720	7.2%
Hill	54,299	58,800	7.7%	29,197	32,700	10.7%	18,567	21,600	14.0%
C.U.P. Meter 1									
C.U.P. Meter 2									
C.U.P. Total									
	1,646,509	1,684,004	2.2%	1,483,653	1,533,792	3.3%	1,265,420	1,297,620	2.5%

Looking for possible errors in RTI-owned meters vs. utility meters

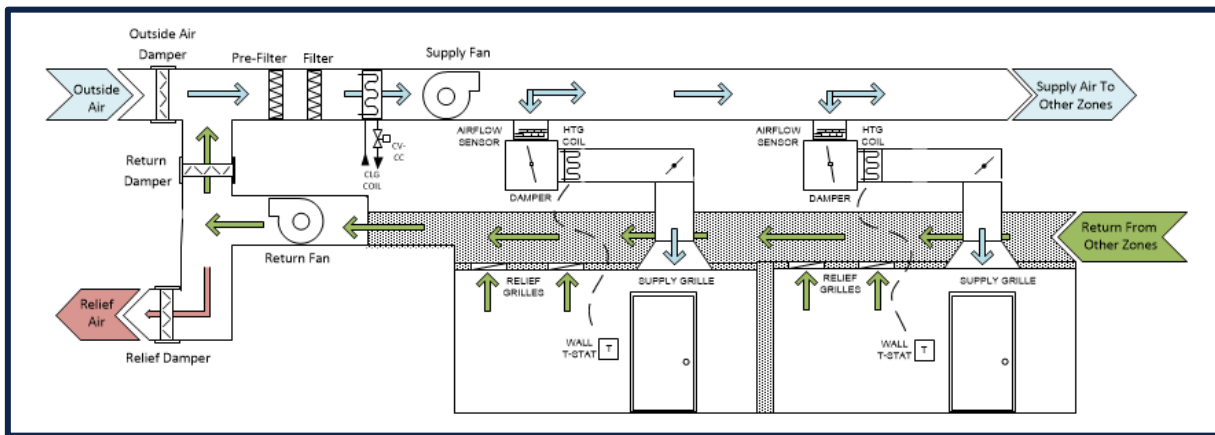


Diagram I created to convey common air handling units for leadership teams





# Looking Toward the Future



## After my time at RTI

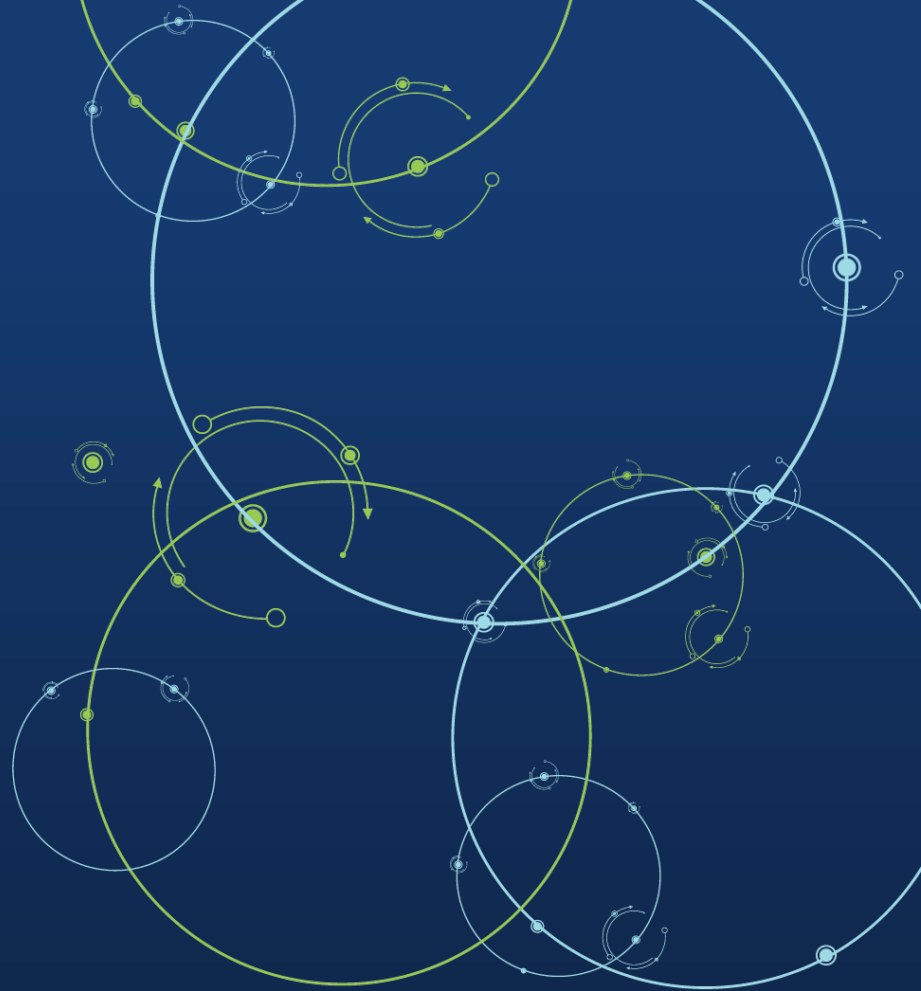
- A master meter list will be connected to single-line diagrams and an AutoCAD site drawing.
  - Thermal meters still need to be verified.
- Horizon LEED energy performance analysis will be processed and correctly handled.
- Project turnover documents will continue to be sorted and updated.



# Acknowledgments

## Mentors:

- Janelle Griffin
  - Manager
- Gary Bunce
  - Coworker





# Thank you

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