



EDI Case Study Comparing a Traditional Healthcare Data Center Design to a Design Based Upon Elliptical Mobile Solutions' R.A.S.E.R. Micro-Modular Data Centers

Study Finds R.A.S.E.R. Saves Time, Space & Money

“In a comprehensive study, we found that EMS RASER Micro-Modular Data Centers saved time, space and money compared to traditional healthcare data center builds.” – Rob Nash-Boulden, Director Operations, Data Center for EDI

ABOUT US: EDI, Ltd. is a professional consulting and design firm specializing in building security, audiovisual systems, data center design and communications network technology. Our firm has extensive data center design experience within the government, medical, education and corporate sectors.

PURPOSE OF STUDY: Identify the differences in costs and process when designing and building a traditional healthcare data center versus designing and building a healthcare data center based on Micro-Modular Data Centers from Elliptical Mobile Solutions.

SUMMARY OF FINDINGS: By providing a drop in place architecture, we found the EMS Cabinet Solution saves both time and money compared with a traditional design. The EMS Solution requires less paper work, planning, and engineering. In addition, the EMS system in most municipalities will only require an electrical design and inspection which means less time to get started and less to worry about when completing the project. Finally, due to the operational efficiencies associated with the EMS Cabinet Solution, clients can realize additional savings on their operating costs once the solution is installed and operational.



“By providing a drop in place infrastructure, the R.A.S.E.R. solution eliminates the need for a mechanical engineer, large design team as well as significant planning, permitting and construction.” – Rob Nash-Boulden, EDI Director of Operations, Data Center

CHALLENGES

- Client in need of a new data center or has exhausted data center resources and needs to expand or retrofit current data center.
- Power and cooling requirements for traditional data center require significant building improvements.
- Floor space and time to implement are in short supply.
- New space requires security as well as fire suppression and detection.

SOLUTIONS

- R.A.S.E.R. enclosures offer onboard racks, cooling, security, and fire suppression.
- Simplify implementation.
- Minimize building improvements.
- Reduce data center footprint and take back data center space.
- Reduce capital, operating and energy costs.

IMPACT

- Rapid deployment within 8 to 10 weeks.
- The R.A.S.E.R. offers CapEx savings, increased floor space, easy accessibility and simplified implementation.
- The R.A.S.E.R. provides lower operating costs after implementation.
- R.A.S.E.R. offers flexibility and scalability to easily allow for future expansion without significant expense.



Elliptical Mobile Solutions' R.A.S.E.R.s Found to Save Money, Time and Space

Comparison Narrative

In this application, an existing site is in need of data center services and does not have or has exhausted its data center resources. We seek to compare the differences in implementation of a traditional data center build with Elliptical Mobile Solutions R.A.S.E.R. enclosure. Both applications require similar power considerations. The primary difference is at the branch circuit level. The EMS 12kW cabinets will require (2) connections one for the critical load and one for the on board air conditioning system. The traditional installation will have 2-4 connections per cabinet for critical load only. The power distribution system otherwise is the same, including a generator and some UPS configuration to support the desired load.

Simplified Implementation

Mechanically, the EMS cabinet has an integrated DX type cooling system with heat rejection being accomplished by simply ducting the hot air out of the space.

In contrast, the traditional build could be approached using a number of cooling methods based on critical load size and redundancy requirements. This presents the largest portion of work for the traditional approach in this comparison. Depending on the mechanical configuration selected, the traditional build would incorporate cranes, rigging, and setting of mechanical equipment. Considerations for roof or wall penetrations, for piping as well as electrical connections to various pieces of equipment must be made. This approach also necessitates a design firm, a mechanical engineer as well as a mechanical permit and inspection by the AHJ.

Greater Flexibility in Use of Space

The EMS Cabinet offers a drop in place infrastructure that can be placed in any environment. This allows flexibility in site with strict floor space limits and even allows the client to implement this solution in less traditional spaces (boiler room, outdoor space, etc). The traditional approach requires a finished space within reasonable distances of an exterior wall or roof area where supporting mechanical equipment can be placed. The development of the finished space would include basic improvements such as floors, ceiling, walls, insulation, access, access control, grounding, lighting, and general power.

The amount of square footage that has to be dedicated to the new space will be larger than an EMS cabinet installation simply based on cabinet density. Normal cabinet densities are typically (3) times less than the EMS cabinets. Higher cabinet densities also require different cooling strategies that add to the square foot total for equipment. The EMS cabinets are better suited to manage requirements as IT equipment continues to reduce in size and increase in speed and heat.

The new space will also require fire detection and suppression. The EMS cabinets have fire detection and an integrated FM200 clean agent fire suppression system. This traditional build out is another area where a design, permit, and inspection will be required for the space and the fire system installation. Integrating the new fire system into an existing buildings fire system can be a challenge in of itself.

Conclusion: EMS Solution Saves Time, Space and Money Compared to Traditional Methods

In summary, designing and building a healthcare data center based on the EMS Cabinet solution saves time, money and floor space. This design allows for greater density to support newer IT equipment that produces greater heat and is perfectly scalable to support future IT needs. Implementing this design requires less paperwork, fewer permits and a simpler way to deploy the solution as IT equipment can be placed in the cabinets, tested and moved into the space fully populated. In addition, once the implementation is complete, additional savings are realized due to the efficient cooling methodology utilized by the EMS Cabinets.