

# DATA CENTER DESIGN SEMINAR

**September 25, 2014**

PG&E Pacific Energy Center  
851 Howard Street  
San Francisco, CA 94103



The intent of this seminar is to provide an overview of current data center HVAC system design best practices. The presenters will touch on HVAC concepts and server room equipment fundamentals. The seminar will provide attendees with a basic understanding of data center requirements and efficiency metrics. The seminar will also include an overview of architectural considerations as well as electrical system and building networking design. Attendees will gain an understanding of the key parameters in data center design strategies and what trends in the industry may be changing the design approaches.

\$75 for ASHRAE members  
\$100 for non-members  
\$25 for full-time students



Continental breakfast and  
catered lunch included

**Speakers:** Tim Chadwick Alfa Tech, President of Design  
Mark Fisher Alfa Tech, Electrical Lead  
Rich Garrison Alfa Tech, Senior Principal  
Neil J. Sheehan Sheehan Partners, Principal and Owner

Additional information on the speakers is provided on the following page



## Agenda

8:00-8:15	Arrive and Check-in
8:15-8:30	Introductions
8:30-9:30	Data Center Design Strategies and History of Data Center Design
9:30-10:30	Data Center Technology and Server Design Considerations
10:30-10:45	Break
10:45-12:00	Data Center Design Approaches
12:00-1:00	Lunch
1:00-2:00	Electrical Design Considerations
2:00-3:00	Continuation of HVAC Design Approaches
3:00-3:15	Break
3:15-4:00	Architectural Considerations
4:00-4:30	Sample Design Charette
4:30-5:00	Case Study Presentation

# DATA CENTER DESIGN SEMINAR PRESENTERS



Tim Chadwick

As a President of Design for Alfa Tech, Mr. Chadwick brings expertise in project management, consulting engineering and construction administration to the projects he leads. Mr. Chadwick has also been instrumental in implementing the LEED Certification process into Alfa Tech's projects, and has been particularly successful in doing so with data center projects.

Mr. Chadwick has successfully completed dozens of data center projects. Clients have included Facebook, Equinix, Coresite, Savvis, Symantec, VMware, Cisco Systems, Adobe, and many other high-profile companies. Mr. Chadwick is a registered mechanical engineer in 20 states, an ASHRAE Member, a founding member of Northern California AFCOM chapter, and a Voting Member of the ASHRAE Energy Standard For Data Centers And Telecommunications Buildings - T-STDS-SPC 90.4 Committee.

Mr. Fisher is experienced in the design and construction of all types of sustainable facilities including mission critical, high tech, educational, hospitality, mixed use, R&D and various other types. He has been a principal-in-charge of 12 different LEED platinum and 3 net zero energy projects. As head of the electrical department at Alfa Tech, Mr. Fisher has had the opportunity to design electrical power distribution systems for numerous data centers.

Mr. Fisher has taught numerous design courses, exam review courses, and sustainable seminars across the country. He has previously taught PGE Energy Center courses on Net Zero Energy Buildings and Sustainable Lighting Design. In this course, Mr. Fisher will review various typical power distribution topologies and discuss how the type of electrical distribution system impacts the type of mechanical systems and equipment required for the facility.



Mark Fisher



Rich Garrison

Mr. Garrison currently serves as a Senior Principal in our Technology Division. He provides Project Management and Consulting Services to a wide variety of clients, specializing in the design, procurement, implementation, and project management of technology and infrastructure. He has previously held various IT Management and Director level positions in the areas of Data Center Design and Operations, Telecommunications, Network Architecture and IT Management for Bay Area companies such as AG Associates and Aspect Telecommunications.

Mr. Garrison now specializes in mission critical infrastructure design, project management and strategic management consulting, including preparation of Data Center OPR documentation and master data center programming efforts. As a board member of the local chapter of 7x24, Mr. Garrison is a well-known speaker at data center industry conferences and seminars regarding technology related design concepts and approaches.

Mr. Sheehan is a design architect with expertise designing and managing complex projects for data centers, electronics research and manufacturing facilities, and trading floors. As the owner and principal of Sheehan Partners (SPARCH), he leads a national practice that is widely recognized as a leader in the design of data centers, providing architectural services that combine awareness of the clients' business needs with innovative design solutions and a practical understanding of construction requirements. Based in Chicago, SPARCH has successfully completed over 4 million SF of data center projects nationwide for clients such as Facebook, Equinix and Digital Realty, among others.

Mr. Sheehan is a licensed architect in 19 states, and a member of the American Institute of Architects (AIA). SPARCH's work has been recognized with Distinguished Building Awards and Interior Design Awards by AIA Chicago, an Editor's Choice award from Engineering News Record and has been published in Engineering News Record, Architect, Architectural Record, Building Design and Construction and Fast Company magazines.



Neil J. Sheehan

# DATA CENTER DESIGN SEMINAR SPONSORS

A big thanks to the sponsors making this seminar possible! Please contact **Zberri Alvi** at [zberri.alvi@siemens.com](mailto:zberri.alvi@siemens.com) if you would like to sponsor this seminar. All proceeds will go toward ASHRAE research. Funds are earmarked for project 1499-RP (The Effect of Humidity on the Reliability of ICT Equipment in Data Centers).

## PLATINUM



**SIEMENS**

Building Technologies

*Sigler*

Representing Industry Leading  
Manufacturers of Commercial  
HVAC Products & Solutions



**Schneider**  
Electric



---

## GOLD



---

## SILVER

