

The Need

Teng & Associates, Inc. required a lighting control solution for both their new branch office as well as Tridium's Corporate Headquarters Building, both located in Richmond, VA. The solution selected for implementation had to meet the following strict performance and operating criterion:

- * A single web based tool that provides full commissioning, set up of lighting control strategies and management of DALI® ballasts, sensors and control devices.
- * Directly connect to a suitable Niagara AX® platform via any web based hardware running a suitable web browser.
- * Native Tridium Niagara AX® application that enables total integration between connected DALI® lighting networks and any other intelligent building subsystem connected to Niagara AX™.
- * Ability to obtain LEED personal lighting control credit in a cost effective fashion through the ability to securely provide local user interface via a web browser over the customer's corporate network.
- * Ability to provide advanced lighting control strategies such as: time of day dimming, day light harvesting, demand response dimming, occupancy based dimming, custom lighting scenes for conference rooms, and sustained light level.
- * Cost Effective solution that can meet new lighting control requirements stipulated by California Title 24 – 2008, Section 7.4.5.1 of ASHRAE 189 and GSA High Performance Building criterion.



Teng & Associates, Inc. Richmond Branch
3901 Westerre Parkway



Tridium Corporate Headquarters
3951 Westerre Parkway

The Solution

elite DALI® solutions for Niagara AX™ operates with all DALI® devices that comply with existing published DALI® standards. It will also be upgradeable to meet any future changes to these published specifications in the future. The product is developed to allow remote upgrading of all software to enable established **elite DALI®** sites to be easily kept up to date to meet changes to the DALI® standards or other requirements including but not limited to USER/Owner operation, Regulatory and Lamp technology.

What is DALI®?

DALI is an acronym for “Digital Addressable Lighting Interface” created by the lighting industry. It is a published open standard part of Europe’s Standard EN60929 and has been a NEMA Standard (243-2004) in the United States since 2004.

DALI is the only published open standard global intelligent lighting protocol. Teng has been involved in installations and commissioning of DALI systems in the United States since 1999.

The Benefits

The following benefits have been realized through sub-metering the lighting circuits and through establishing various lighting control scenarios:

1. The existing 2 x 4, 3 lamp 32 w T8 fixtures can be dimmed to 30% without a significant impact to the occupied environment.



2. Lighting electrical energy can be reduced 30 – 50% by established user defined minimum illumination set-points, controlling to maintain this set-point and allowing natural day light to contribute to the overall illumination as the first stage of lighting.
3. Demand Response – load shedding with potential using dimmable lighting can be as much as 60 -70% of the light load using a 1-2 minute fade rate.

Schematic Network Architecture

Below is a basic representation of the network architecture deployed for both buildings:

