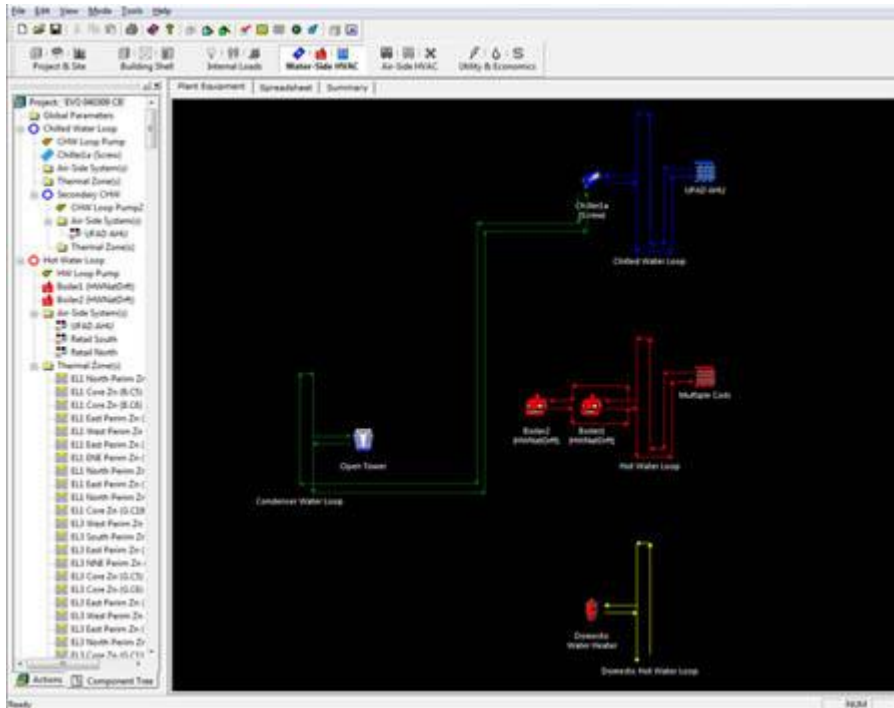


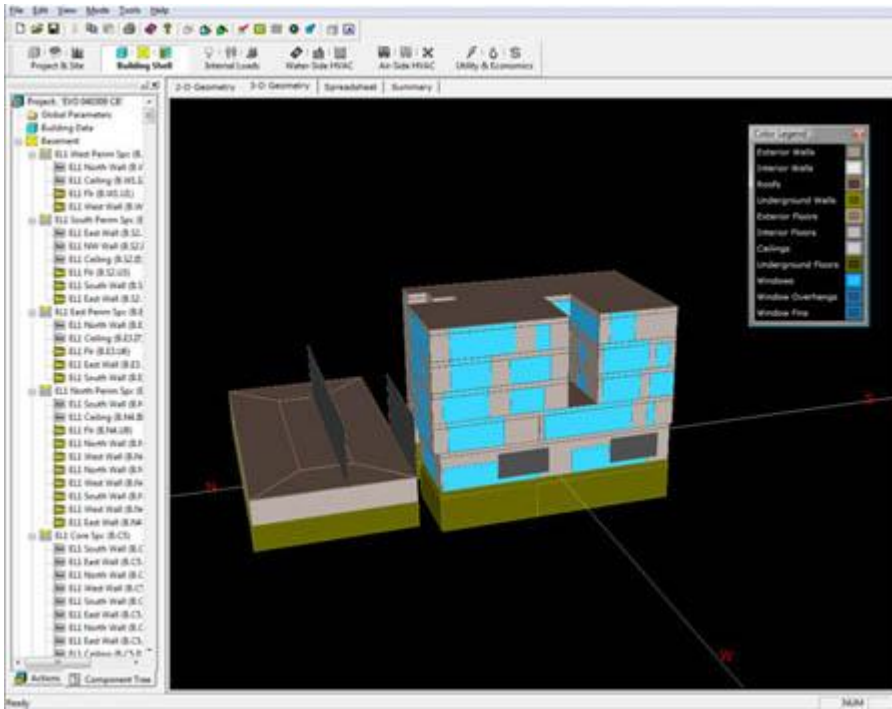
ENERGY MODELING

Haglid Engineering and Associates, Incorporated[®] assists building owners and design teams to design more energy efficient buildings, and to comply with code, qualify for utility incentives, meet ASHRAE/ANSI Standards 55, 62.1, 90.1 and earn LEED energy credits. We combine energy modeling, knowledge of cost-effective strategies, and our integrated design approach to help teams achieve maximum performance at the lowest construction cost.

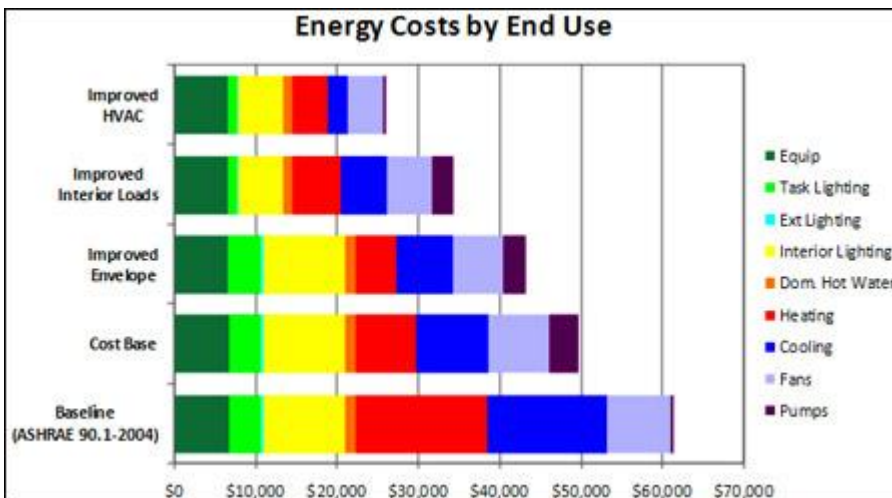
The programs are very detailed and take time to build, but can be very useful and help find the best way to upgrade and make your building work and run more effectively.



We begin by building a 3D model of the building, specifying the properties of the building envelope: windows, walls, roof, and foundation.



We then engineer and describe the building lighting, heating and cooling systems in computer formatted code. Haglid Engineering will actually build the building in a computer world where construction takes seconds and buildings are built in a day and allowed to run through 30 years of weather history data in several minutes. Much more time effective than waiting 30 years to see what will happen with an option and much more cost effective too!



We run the model with various energy reduction measures, offering alternate options for insulation, ventilation, windows, and high performance equipment. This analysis helps the owner, engineer, architect and design team see the impact of their choices on the overall energy use, and guides the team to the most cost-effective strategies for meeting the energy performance goals.

Rather than building an energy efficient option and monitoring for many years, an option can be evaluated before the foundation is built or the first construction modification is started.

In the New Jersey office, we've been providing energy consulting for over 19 years. Our engineers and support staff are experts in energy simulation, with a combined 50 years of expertise, and support from energy. We have helped over 5000 projects, including all building types: office, retail, institutional, industrial, educational, multi-unit residential, and hospitals.

New Jersey Smart Starts Program

If you are getting ready to build or plan a major renovation of 100,000 sqft or larger in new Jersey, we may be able to provide energy analysis services at 50% of normal cost to you. The New Jersey Smart Starts program offers 50% energy modeling and documentation for LEED, incentives for gas and electric efficiency and a reimbursement for the design team as applied for and approved (Note: Not all projects and applicants are accepted for this program). We can provide a complimentary initial walk through audit and review the options that can help you save energy, reduce your energy bills, improve IAQ and possibly even get paid to do it!

What is energy modeling and why do it?

We work with you the client, design teams, your engineering and architectural team, to build energy models that help inform the design process. We use Trace 700, eQuest, Custom modeling software engineered for specific projects and other building energy simulation tools. We can tell you what a energy efficient option will do before you spend the money and invest the time to do a particular energy saving option. Sometimes the correct results are surprising and client save money by eliminating options that do not have a good IRRA, please refer to ASHRAE Owning and Operating Commercial Building Chapter in the ASHRAE Handbook Series (one of our engineers, Klas C. Haglid, P.E., R.A just finished re-writing the chapter and adding the tools to calculate IRRA and SIR for commercial buildings). This modeling is often also needed to model energy savings for the different energy rebate incentives.

Commercial & Industrial Energy Rebate Incentives

These incentives were developed to offset some of the added cost to purchase qualifying energy-efficient equipment, which provides significant long-term energy savings. A wide range of incentives is available for qualifying equipment (depending on type, size and efficiency).

Listed below are the types of qualifying equipment and ranges of incentives.

Electric Chillers

- Water-cooled chillers
- Air-cooled chillers

Gas Cooling

- Gas absorption chillers
- Gas Engine-Driven Chillers (Calculated through Custom Measure Path)

Desiccant Systems

Electric Unitary HVAC

- Unitary AC and split systems
- High Efficiency Air to Air Energy Recovery Systems
- Air-to-air heat pumps
- Water-source heat pumps
- Packaged terminal AC & HP
- Central DX AC Systems
- Dual Enthalpy Economizer Controls

Ground Source Heat Pumps

- Closed Loop & Open Loop

Gas Heating

- Gas-fired boilers

Variable Frequency Drives

- Variable air volume
- Chilled-water pumps
- Compressors

Natural Gas Water Heating

- Gas water heaters
Gas-fired booster water heaters

Premium Motors

- Three-phase motors

Prescriptive Lighting

- T-5 and T-8 lamps with electronic ballast in existing facilities
- Hard-wired compact fluorescent
- Metal halide w/pulse start
- LED Exit signs
- T-5 and T-8 High Bay Fixtures

LED Traffic Signal Lamps

- 8-inch red or green
- 12-inch red or green
- Pedestrian Signal Lamp

Lighting Controls

- Occupancy Sensors
 - Wall mounted
 - Remote mounted
 - Daylight dimmers
 - Occupancy controlled hi-low fluorescent controls
- HID or Fluorescent Hi-Bay Controls
 - Occupancy hi-low
 - Daylight dimming

Other Equipment Incentives*

- Performance Lighting
- Custom electric and gas equipment incentives

*Equipment is based on type, efficiency, size, and application and is evaluated on a case-by-case basis.

Demand Response Measures

Highlights:

No out-of-pocket financial cost or penalties
associated with enrollment and participation

Earn 2 types of payments: \$ for standing by (capacity payment)
\$ for actual electricity reduced (energy payment)

Receive payment in the form of a check, not merely a credit on your electric bill

Program available to many types of businesses

Program runs non-holiday weekdays only

Reduction Events are limited to only 6 hours

Advance notice of a Reduction Event gives you plenty of time to be prepared

You decide what you can or can't reduce

Haglid Engineering has a dedicated team of engineers to help you identify your reduction strategies

Free interval meter and performance-tracking software allow you to better manage electric use;
In certain instances, you may even view your energy usage online

How it Works:

1. **Enrollment:**

If you want a face-to-face meeting, an Haglid Engineering representative will come to your location to explain the program, review your facility and estimate the payment to your company. Alternatively, we can arrange a conference call to get started.

Eligibility requirements vary between regions; for an accurate estimate, contact a Haglid Engineering representative by calling 201-722-1233.

2. **Metering:**

You need an interval meter at your facility. If you do not

have one, an interval meter will be installed on-site, **free of charge**. Haglid Engineering will access your interval data for reduction verification. In most cases, you will have the ability to log in and view your facility's interval demands, kWh usage, voltage levels, etc. Haglid Engineering is proud to present our cutting edge, energy tracking technology.

POWEROUTLOOK gives you the ability to view real-time variables, reports, forecasting and trending, and become a better user of electricity.

3. Reduction Events:

An Event can be called only on non holiday weekdays.

4. Planning for a Reduction Event:

You should put together a Reduction Action Plan that outlines who in your company is responsible for making electric reductions in the instance that an Event is called. Having a plan will support your effort to make sure reductions are carried out in an orderly manner with the full cooperation of your employees. Haglid Engineering can help you set up your plan.

Potential reduction strategies include shutting off equipment or processes, pumps and fans, turning off lighting, easing back on or shutting off air conditioning, and if applicable, utilizing a generator. If you have an energy management system, reductions can be made from a central location.

5. Notice of a Reduction Event:

When an Event is called, the individuals identified as Event contacts at your company will be notified by email, phone, text and/or fax. This notice is provided approximately 2 hours ahead of time, giving you enough "heads up" to prepare. When your Event contacts receive notice, they will implement your Reduction Action Plan, going down the list of who in your company needs to be aware of the Event and what reduction strategies are to be implemented.

6. During a Reduction Event:

Your facility should have all reductions in effect 10 minutes before the start of the Event. Make sure that staff is aware of this event and does not turn anything on or up that should remain off or reduced. If you have questions during the Event, contact Haglid Engineering.

7. After the Reduction Event:

You should maintain reductions until 5 minutes after the end of the Event. At this point in time, you may return to your usual state of electric consumption.

8. Performance:

Your performance is determined by how much you reduce your electric

demand from a predetermined baseline. Your actual performance is compared to your kW commitment.

9. Payment:

Your company will earn payment via a check for performing to your committed level during Events.

Participation Payment

= fixed rate or percentage of auction price, per kW declared. For qualified, larger facilities, or companies having facilities in multiple Haglid Engineering markets, the percentage may increase.

Event Payment

= typically 80 - 90% of associated energy payments for actual kWh reduced during an Event

Demand Response Audits

Haglid Engineering can perform a demand response audit, at your request, to help you determine your demand response electric reduction capabilities. The audit basically entails having one of our engineers survey your site and provide you with a list of what to reduce during a Reduction Event, which can be applied towards creation of your own Reduction Action Plan.

Tailored audits emphasize each buildings energy and operational characteristics with focus on the following areas:

- Electrical distribution system
- Identification of large electrical loads
- Load profile analysis
- Existing energy management systems and controls
- Equipment operating hours and cycle times
- Energy (kWh) saving options
- Load profile / demand shaving techniques
- Demand response

To request a demand response audit, call customer relations at 201-722-1233 or email from our website.

Energy Bill Audit

Energy Audits - Save On Electric Bills, Gas Bills, Steam and Oil Bills

Are You Paying the Lowest Available Rate for Your Utility and Telecom Service? The rate assigned by your utility and telecom providers as the basis for charging you for service may be a correct rate for your service; however, this may not always be the most beneficial rate available to your organization.

As a consumer, it is your responsibility to make certain that you are on the most economical rate. Sounds easy, but if your company operates like a majority of others today, it is nearly impossible for you or your employees to focus on the extensive research and analysis required to confirm or lower your costs.

Given all the other aspects of your daily operations, and, without the proper knowledge base to conduct deep tariff and bill analysis, it is best to outsource cost recovery functions. Ultimately, by working in tandem with your finance and utility management professionals, we assist in managing your expenses to maximize profits and value.

Our professionals have an ongoing record of success in identifying issues and implementing corrections and changes that have resulted in significant refunds, credits and future savings for our customers. There is no risk or out of pocket costs for your organization. Our contingency fee based comprehensive audits generate the funds from which we are paid.

A Engineering Representative can explain all the details to you by calling 201-722-1233

Would be good to have this as an onsite form that people could fill in and e-mail info to us

Project Application Form

Applicant/Company Name

Address
City
State Zip
Federal ID #

Contact Person/Title
Phone
Fax
E-mail

Facility/Company Name

Address
City
State Zip

Contact Person/Title
Phone
Fax
E-mail

Project Description and Goals for your facility:

Electric Utility *Account Number(s)*
Gas Utility *Account Number(s)*
Steam Utility *Account Number(s)*

ENGINEERING & ARCHITECTURAL SPECIAL SERVICES

WE SOLVE EXISTING BUILDING IAQ AND HVAC PROBLEMS

Passive Buildings	Energy Recovery Modules	IAQ Solutions with Savings
Chillers	Lighting	Lighting Controls
Motors	Controls/VFD's	Ground Source Heat Pump
HVAC	Variable Frequency Drives Building	Commissioning
Chiller Plant Optimization	Compressed Air Optimization	Technical Assistance
Custom Equipment	Design Support	Boilers
Cooling	Desiccant	Furnaces
Water Heating	Custom Equipment	