



New Action Update- Green Design for Schools

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Presenters



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FREE Technical Assistance with Energy Actions

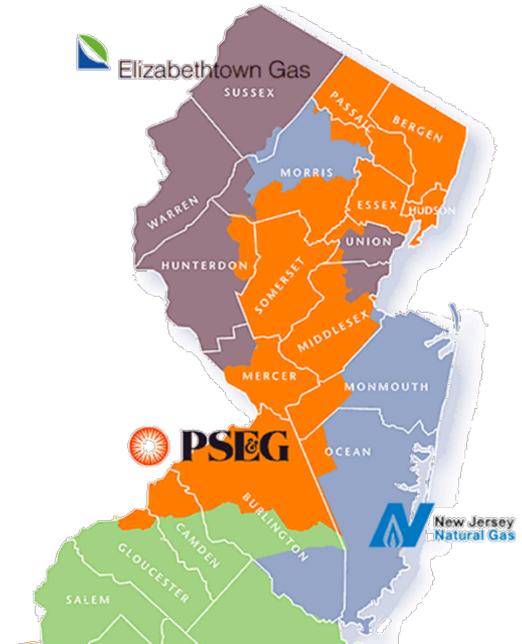
Partnership with the *Environmental Defense Fund* and *New Jersey Natural Gas* (NJNG) to assist school districts and municipalities within [NJNG service territory](#) in completing Sustainable Jersey energy actions.

Full-time, on-site support for 10 weeks in the summer of 2018, for energy projects such as:

- Improving building performance through energy efficiency analysis, planning, and upgrades
- Renewable energy
- Other energy-related improvements

Go to www.sustainablejerseyschools.com/grants-resources/ for application form and more information

Application Deadline: Friday, April 13, 2018 at 11:59pm



2018 Certification Cycle

- **January 19** – Initial Application Deadline
- Late February – Reviewer Comments
- **March 30** – Second Submission
- Early May – Reviewer Comments
- **June 22** – Final Application Submission
- Early August – Certified Schools Notified
- **October** – Certified Schools Celebration



Long Branch Middle School – Champion Award



Jackson School District – 10 schools



Webinar Agenda

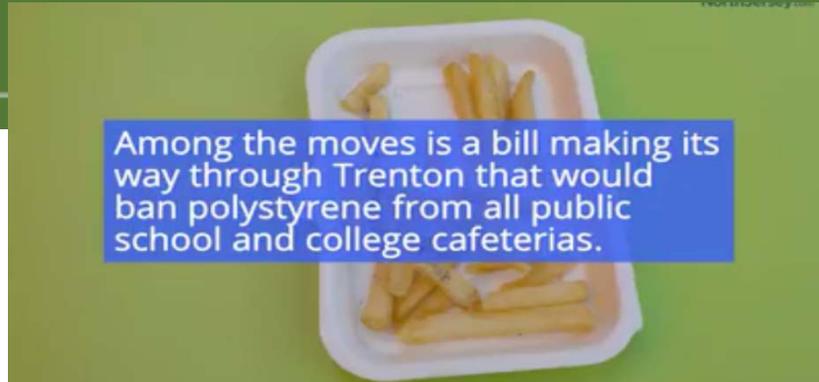
- New Actions
 - Green Building Policy
 - Green Building Training
 - Design/Build/Certify New Construction & Major Renovations using Green Standard
- Related Actions
 - Final Thoughts
- Question & Answer Session



Why Green Design?

- Sustainable Mission- schools provide living labs for growing curricular emphases on technology and the environment.
- Better Learning- A healthier, more comfortable indoor environment stimulates learning, reduces student absences and increases teacher retention.



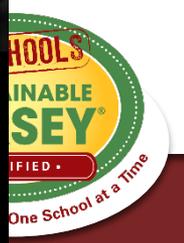


Among the moves is a bill making its way through Trenton that would ban polystyrene from all public school and college cafeterias.





SJ for Schools @SJ_Schools · 3/20/17
Nixon School Kids, Teachers Show
Roxbury Board Their "Re-Thinking
Recycling" initiative tapinto.net/towns/





Delran Schools kick off energy efficiency project



Energy Savings = Budget Dollars

NJ is #2 in the nation for solar installation at schools

- The Lawrenceville School in Mercer County has the nations largest school solar array at 6.1 megawatts
- Medford BOE: Saving \$300K annually
- Long Branch BOE: Saving \$400K annually in behavior modification alone, plus an additional \$1million in solar pic.twitter.com/xgli0lFaZn
- Delran BOE: Generating 75% of district energy through solar panels, reducing energy bills by \$285K per year
- High Bridge BOE: Reduced energy use by 30% in just two months through behavior modification = \$19K (60 days)



Net Zero

A highly efficient building that, over the course of a year, produces from onsite renewable sources at least as much energy as it consumes.

- 126 verified and emerging “net zero” K-12 schools nation wide.
- In 2016, the US Dept of Energy established a [Zero Energy Schools Accelerator](#).

Wilde Lake Middle School Opens as First Net-Zero School in Maryland

Monday, January 2nd 2017



Green Building Policy

- **PRIORITY ACTION*** **District Level** **10 points**
 - **Mandatory elements of policy:**
 - All new construction, major additions & modernization projects follow a high performance building standard
 - Establish priorities guiding the design process
 - Require an annual presentation to BOE summarizing district projects that incorporate the green building standard
 - Require all new construction & major renovation projects that include energy efficiency & conservation to participate in the NJ Board of Public Utilities Clean Energy program rebate and/or any grant and design assistance programs and other financial assistance programs offered by the local utility company.



Green Standards

- LEED
- Collaborative for High Performance Schools (CHPS)
- Green Globes



Green Building Training

- **School or District Level 10 points**
 - Open to green team members & staff
 - Training that occurred within the last 24 months
 - Training can occur internally or externally. Webinars are OK too!
 - Upload documentation showing that at least five district or school personnel each completed a minimum of two hours of green building professional training.
 - See Resources section for training providers



Design, Build or Certify

School Level 10- 50 points

- PRE-REQUISITE: Must pass Green Building Policy
- Bid Project to a Green Standard: **10 points** (unfinished projects only)
- Build Project to a Green Standard: **20 points**
- Certify Project to a Green Standard: **50 points**



Building Design & Construction Process

1
Programming/
Concept
↻

2
Schematic
Design
↻

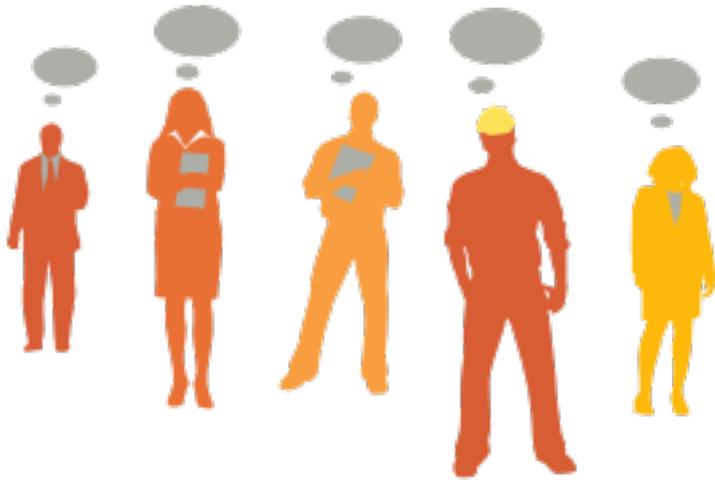
3
Design
Development
↻

4
Construction
Documents
↻

5
Construction
↻

6
Certification
&
Occupancy
↻

The Integrative Design Process

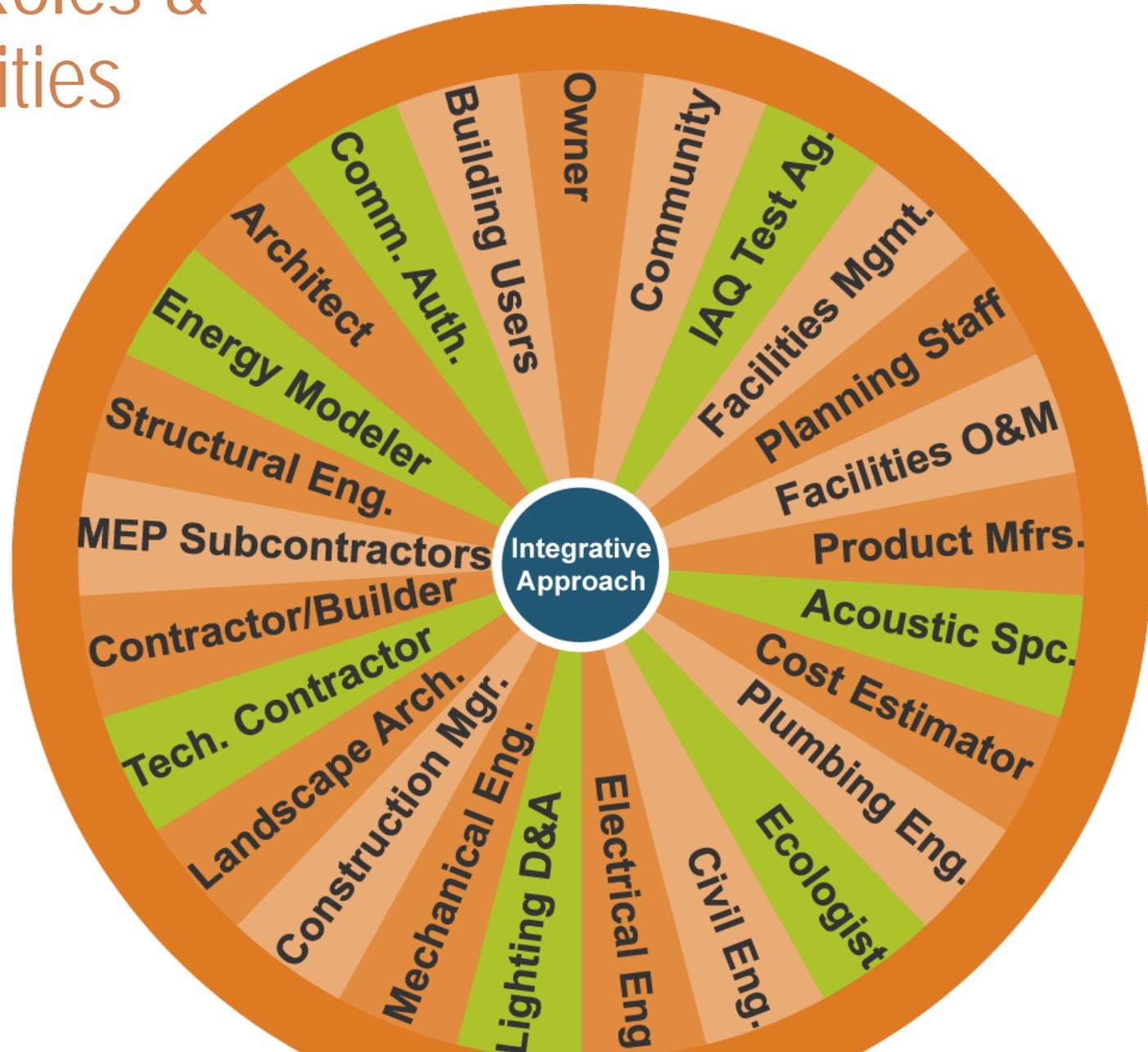


Typical Relationship

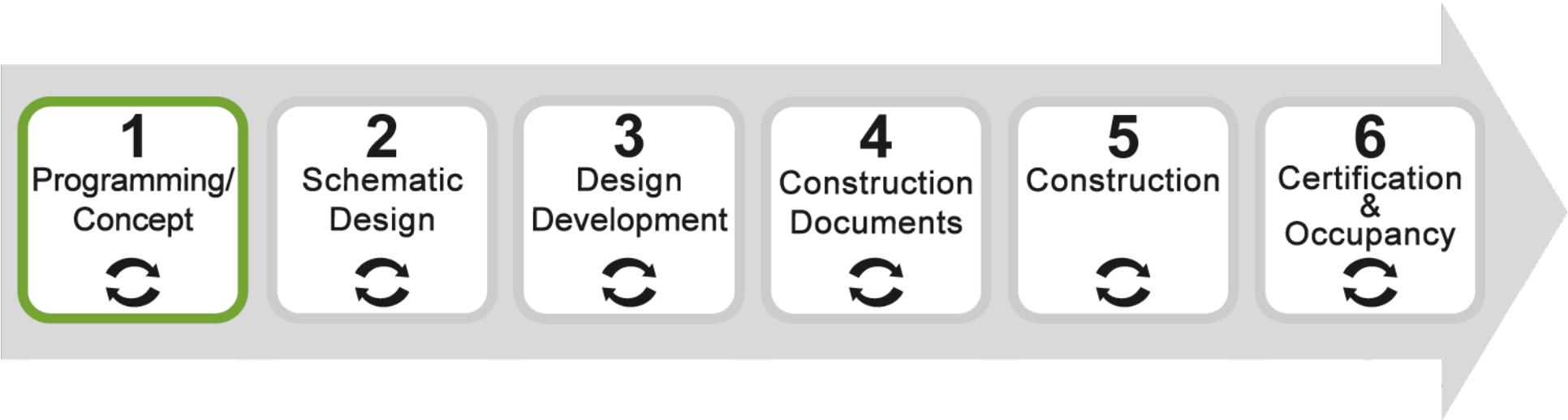


Sustainable Relationship

Additional Roles & Responsibilities



Phase 1: Programming/Concept



- Understand owner needs, priorities, and special considerations.
- Select team.
- Select site.
- Set goals.

Critical Items to Address Early

- ✓ Meet all LEED prerequisites
- ✓ LT Brownfield Redevelopment (e.g., soil remediation)
- ✓ EA Enhanced Commissioning (e.g., OPR and BOD)
- ✓ MR Construction Waste Management (e.g., demolition)
- ✓ Others

Concept

SD

DD

CD

Construct

Occupy



Phase 2: Schematic Design

1
Programming/
Concept
↻

2
Schematic
Design
↻

3
Design
Development
↻

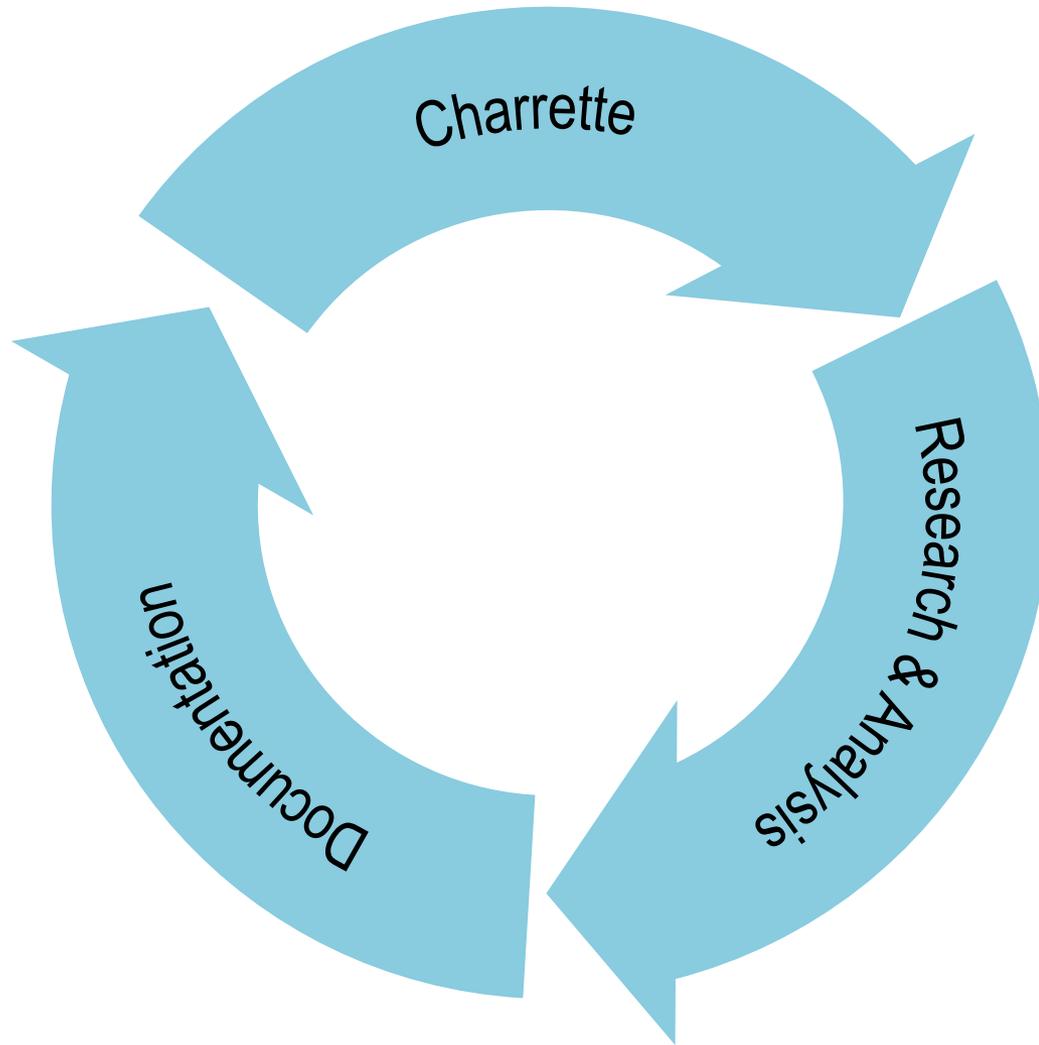
4
Construction
Documents
↻

5
Construction
↻

6
Certification
&
Occupancy
↻

- Design charrette
- Research and analysis
- Pre-certification (CS rating system only)

Ongoing Iterative Cycle



Concept

SD

DD

CD

Construct

Occupy



Confirm All Prerequisites

- SS Construction Pollution Prevention
- WE Minimum Indoor Water Efficiency (20% better)
- WE Minimum Outdoor Water Efficiency (30%)
- WE Whole Building Water Metering
- EA Minimum Energy Performance - ASHRAE 90.1 (5/3%)
- EA Fundamental Commissioning - ASHRAE
- EA Fundamental refrigerant management
- EA Building Level Metering
- MR Project Recycling – 5 basics + 2 of 3 others
- MR Construction Waste Plan & Reporting
- IEQ Minimum Indoor Air Quality Performance ASHRAE 62.1
- IEQ Environmental Tobacco Smoke

Concept

SD

DD

CD

Construct

Occupy

Phase 3: Design Development

1
Programming/
Concept
↻

2
Schematic
Design
↻

3
Design
Development
↻

4
Construction
Documents
↻

5
Construction
↻

6
Certification
&
Occupancy
↻

- Verify and validate decisions made in schematic design.
- Research materials and products.
- Integrate LEED into specs and drawings.
- Conduct commissioning.

Design Development Outcomes

- Refined materials and products research
- Refined energy model
- "Preliminary" calculations
- Design development documents

Concept

SD

DD

CD

Construct

Occupy



Phase 4: Construction Documents

1
Programming/
Concept
↻

2
Schematic
Design
↻

3
Design
Development
↻

4
Construction
Documents
↻

5
Construction
↻

6
Certification
&
Occupancy
↻

- Finalize drawings and specifications.
- Prepare and submit LEED design credits.
- Receive and respond to LEED design phase review.

Phase 5: Construction

1
Programming/
Concept
↻

2
Schematic
Design
↻

3
Design
Development
↻

4
Construction
Documents
↻

5
Construction
↻

6
Certification
&
Occupancy
↻

- Pre-bid meetings
- Bid/award
- Pre-construction
- Construction
- Close-out and turn over

Don't Lose Credits

- **Submittals**
 - ✓ Be certain to obtain complete submittal information prior to approval.



Photo by Kimberly Hosken

Concept

SD

DD

CD

Construct

Occupy

Construction

- Include LEED in project meeting agendas.
- Coordinate with designers and subcontractors.
- Collect back-up documentation and photographs.
- Build LEED into submittal process.
- Review typical submittal.
- Collect periodic "LEED progress reports."

Concept

SD

DD

CD

Construct

Occupy



Construction Waste Management Plan

- Possible ID credit (95% Recycling)



Concept

SD

DD

CD

Construct

Occupy

Construction Indoor Air Quality Plan

Sheet Metal and Air Conditioning Contractor's National Association (www.smacna.org)

- HVAC protection
- Pathway interruption
- Housekeeping
- Scheduling
- Source control



Concept

SD

DD

CD

Construct

Occupy

Other Plans

- Erosion & Sedimentation Control Plan
- Measurement & Verification Plan
- Flush-out versus testing



Concept

SD

DD

CD

Construct

Occupy

Close-out & Turn Over

- Training
- Operations and Maintenance manual
- Confirm facilities team (manuals, training)



Concept

SD

DD

CD

Construct

Occupy

Outcomes of Construction Phase

- Finalized LEED construction credit submittal
- Confirmed LEED design credit approval
- Completed building



J.H. Findorff Office Building
Photo by J.H Findorff & Son, Inc

Concept

SD

DD

CD

Construct

Occupy

Summary

- Proactively coach contractors/ subcontractors who are new to LEED.
- Put the right plans in place – then follow them.
- Keep a binder by credit for documentation.
- Tie payment to plan and credit submission



Salt Lake City Intermodal Passenger Hub
Photo by AJC Architects

Concept

SD

DD

CD

Construct

Occupy



Phase 6: Certification & Occupancy

1
Programming/
Concept
↻

2
Schematic
Design
↻

3
Design
Development
↻

4
Construction
Documents
↻

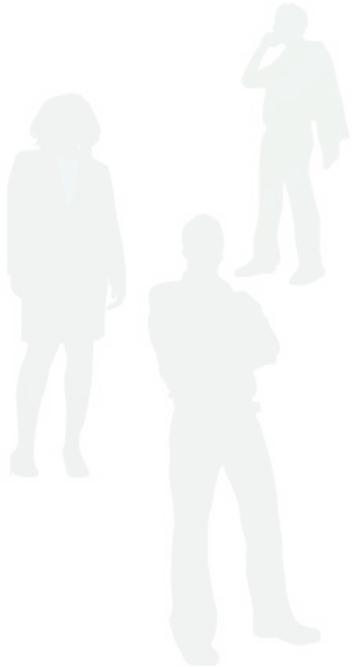
5
Construction
↻

6
Certification
&
Occupancy
↻

- Receive certification – or appeal process
- Feedback
- Ongoing education
- Register for LEED for Existing Buildings: Operations & Maintenance

Ongoing Education

Design and
Construction Team



Facility Manager

Owner



Occupants

Concept

SD

DD

CD

Construct

Occupy



Ongoing Education



- LEED Implementation
- Energy Efficiency
- Indoor Environmental Quality
- Sustainability Policy Development
- Green Cleaning Implementation
- Green Your Existing Building
- Climate Resilient Design/Planning
- Carbon Footprint Reduction
- Healthy & Green Materials
- WELL Building Implementation
- Net Zero Energy, Water & Waste

<http://www.greenbuildingcenter.com/education.html>

Tips

- Choose a Design Professional well versed in Green Design
- Benchmark. Understand your current efficiency and where you want to go
- Engage Operations & Maintenance staff
- Use the building as a learning lab. Incorporate sustainability into the school's curriculum and culture



Related Actions for Existing Buildings

Energy Efficiency

- Behavior Based Energy Conservation Programs
- Energy Efficiency for School Facilities
- Energy Tracking & Management

Climate Mitigation & Energy Efficiency

- School Carbon Footprint
- Buy Renewable Electricity
- Energy Aggregation
- Solar & Geothermal



Related Actions for Existing Buildings

Green Purchasing Actions

- Green Purchasing Policy
- Recycled Paper Purchase
- Energy Efficient Appliance or Equipment Purchase



Green Cleaning

- Green Cleaning Policy
- Green Cleaning Supplies
- Green Cleaning Equipment
- Green Cleaning Training & Education Programs



Related Actions for Existing Buildings

Healthy School Environments

- Indoor Air Quality Review
- Integrated Pest Management- Education & Organic Lawn Care
- Classroom Chemical Purchase, Storage & Disposal Policy

Board Leadership & Planning

- Sustainability Policy

School Grounds

- Green Infrastructure Assessment & Plan
- Green Infrastructure Installation



Questions?

Sustainable Jersey for Schools is here to help!

Contact Veronique Lambert

at 609-771-3427 or

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The recorded webinar and slides will be posted under [Conference & Webinar Presentations](#) on the [Events & Training](#) tab of our website.

