

Investing in Environments for Teachers, Students and Staff

2023 ANNUAL
CONFERENCE

Do Today
Right!

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THE LONG-VIEW STRATEGY: West Aurora Case Study



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Angie Smith, Ed.D.

West Aurora School District 129

- Responsible for Finances, Operations, Facilities and Transportation
- Former School Board Member of West Aurora School District

Notable Experience

- Assistant Superintendent for Operations - West Aurora School District 129
- Assistant Superintendent for Finance - Plainfield Community Consolidated School District #202
- Director of Business Services - Community Unit School District 308
- Vice President and Trust Officer - Castle Bank

Other Activities

- Board of Directors- IASBO
- IASBO –Vice-Chair Sustainability PDC
- Governors Taskforce for Financial Empowerment
- Treasurer for WCSIT



ANGIE SMITH

Assistant Superintendent for Operations
and CSBO, WASD 129



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Patrick Callahan

StudioGC architecture + interiors

- Company founded September 1992
- Office in Chicago, IL
- Full Service Architectural and Educational Planning Firm

Notable Experience

- Served 75 Illinois school districts
- Accredited Educational Facility Planners
- Also serving public libraries, municipalities, federal and commercial clients.

Other Activities

- Association of Learning Environments - Accredited Learning Environment Planner (ALEP)
- Licensed Architect in Illinois and 15 states
- Member of U.S. Green Building Council (USGBC)



PATRICK CALLAHAN
Managing Principal, StudioGC



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Brian Rominski

PathoSans

- Company founded 2005, 1st patent established in 2008
- Office in Glendale Heights, IL
- Industry leaders in Electrochemically Activated Solutions (ECAS)

Notable Experience

- Served as Director of Buildings and Grounds in multiple IL school districts
- Project manager for Full Service Architectural and Educational Planning Firm

Other Activities

- CPS and CPMM certified
- IASBO member and contributor
- Member Illinois Green Schools Project, Association for Facilities Engineering, CASBO (California)



Brian Rominski
Strategic Account Manager, PathoSans



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Agenda

- Introductions
- Benefits of Sustainability beyond Savings
- Building Certification
- Available Certification Options
- WELL Building
- Questions

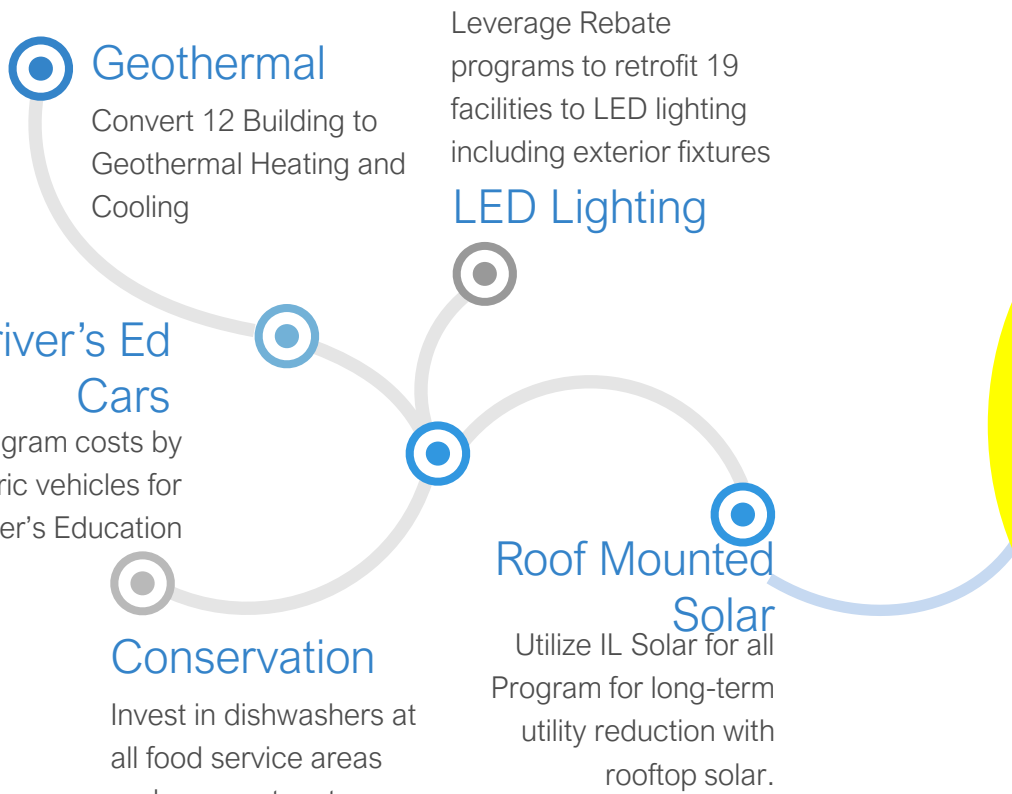


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WA Case Study: Phased Approach





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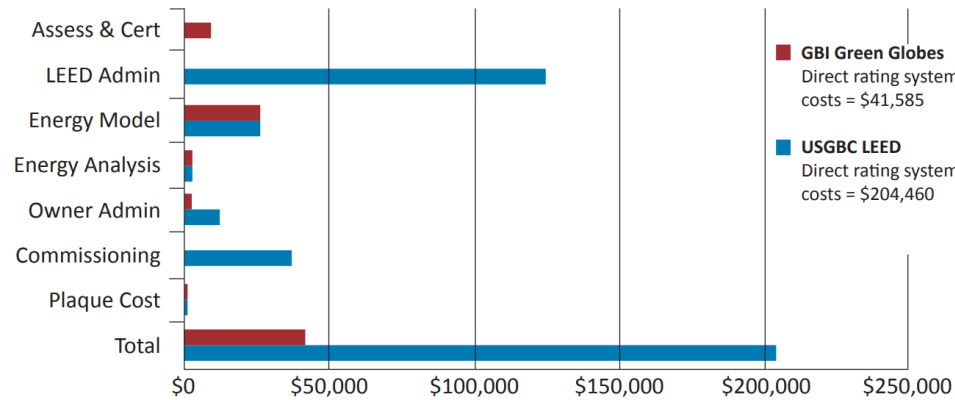
Project rating system cost comparison

Inclusive of estimated design and construction cost premiums for Drexel's Papadakis building



Direct cost comparison of LEED and Green Globes rating systems

Does not include design and construction cost premiums for Drexel's Papadakis building



GREEN GLOBES RATINGS:

After the final assessment is verified by a third party, properties achieving a score of 35% or higher receive a Green Globes rating based on the percentage of total points achieved (up to 1000).

85-100%
FOUR GREEN GLOBES
 Demonstrates world-class leadership in resource efficiency, reducing environmental impacts, and improving occupant wellness.

70-84%
THREE GREEN GLOBES
 Demonstrates outstanding success in resource efficiency, reducing environmental impacts, and improving occupant wellness.

55-69%
TWO GREEN GLOBES
 Demonstrates significant achievement in resource efficiency, reducing environmental impacts, and improving occupant wellness.

35-54%
ONE GREEN GLOBES
 Demonstrates a strong commitment to resource efficiency, reducing environmental impacts, and improving occupant wellness.



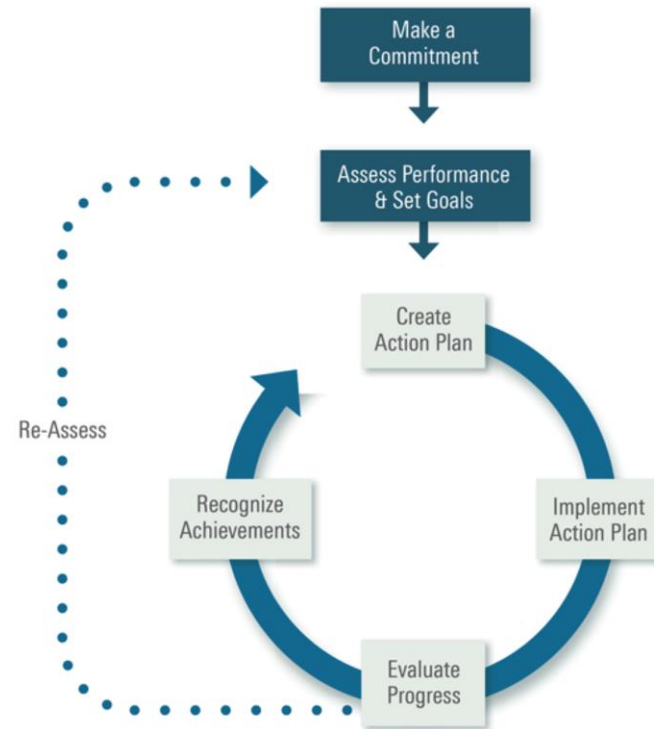
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A 7-Step Road Map

ENERGY STAR® Guidelines for Energy Management



The ENERGY STAR Guidelines contain a step-by-step road map for continuous improvement, based on best practices from the nation's leaders in energy management. The document is broken out into seven steps:

- Step 1: Make Commitment
- Step 2: Assess Performance
- Step 3: Set Goals
- Step 4: Create Action Plan
- Step 5: Implement Action Plan
- Step 6: Evaluate Progress
- Step 7: Recognize Achievements

EPA developed the Portfolio Manager Technical Reference series to provide a detailed and transparent look at the methodologies, analyses, and calculations that underpin the metrics available to use Portfolio Manager to get certified.

- [Portfolio Manager Technical Reference: ENERGY STAR Score](#) for details about how the ENERGY STAR score is developed and calculated
- [Portfolio Manager Technical Reference: Climate and Weather](#) for an in-depth explanation of how Portfolio Manager accounts for the climate of your region and annual fluctuations in weather
- [Portfolio Manager Technical Reference: Thermal Conversion Factors](#) for the calculations used to convert the energy data you enter into standard units (either kBtu or GJ)
- [The difference between source and site source energy](#) for an explanation of why EPA recommends source energy for national median benchmarks and for the 1-100 ENERGY STAR score
- [ENERGY STAR score details by property type](#) for more information on the specific data analysis and methodology used to calculate an ENERGY STAR score for each available property type



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30,488 projects encompassing over 2.93 billion square feet are applying WELL across 98 countries.

A comprehensive approach to well-being

Spanning 108 features and 10 concepts, WELL is a roadmap for improving the quality of our air, water and light with inspired design decisions that not only keep us connected but facilitate a good night's sleep, support our mental health and help us do our best work everyday.

AIR

WATER

NOURISHMENT

LIGHT

FITNESS





COMFORT

MIND

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| | | | | |
|---------------------------------|---|--|--|--|
| |  |  |  |  |
| Sponsoring Agency | USGBC US Green Building Council | GBI Green Building Initiative | EPA US Environmental Protection Agency | IWBI International Well Building Institute |
| Process | start in early design (integrative process); In-depth submittal, verification by USGBC; option for existing Building option (O+M) | begin up to 18mo after occupancy; existing building option | Online process; annual cert/verification on actual energy use; option for “Design to Earn” | In-depth submittal, verification and site visit by IWBI. |
| Certifying authority | USGBC | GBI | Independent Third-Party selected by Owner | IWBI |
| Levels of Certification | 40 to 80 points of 110 Basic, Silver, Gold, Platinum | Green Globes score of 245 to 1,000 | Energy Star score of 75 to 100 (% of target) | 4 levels based on Optimizations: Bronze, Silver, Gold, Platinum |
| Cost of Certification | approx \$200,000 admin, fees and charges | approx \$40,000 admin, fees and charges | approx \$10,000 admin, fees and charges | approx \$100,000 admin, fees and charges |
| Construction Cost Impact | \$\$\$\$ | \$\$\$\$ | \$ | \$\$\$ |



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THE WELL BUILDING STANDARD™

SEVEN CONCEPTS FOR HEALTHIER BUILDINGS

The WELL Building Standard is the culmination of over eight years of rigorous research in collaboration with leading physicians, scientists, and industry professionals. Looking beyond building sustainability, WELL focuses on the people and how the built environment can improve the Health and Wellness of the individuals who use them.

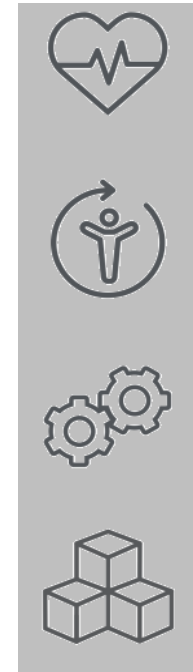


AIR

WATER

NOURISHMENT

LIGHT



FITNESS

COMFORT

MIND

INNOVATION



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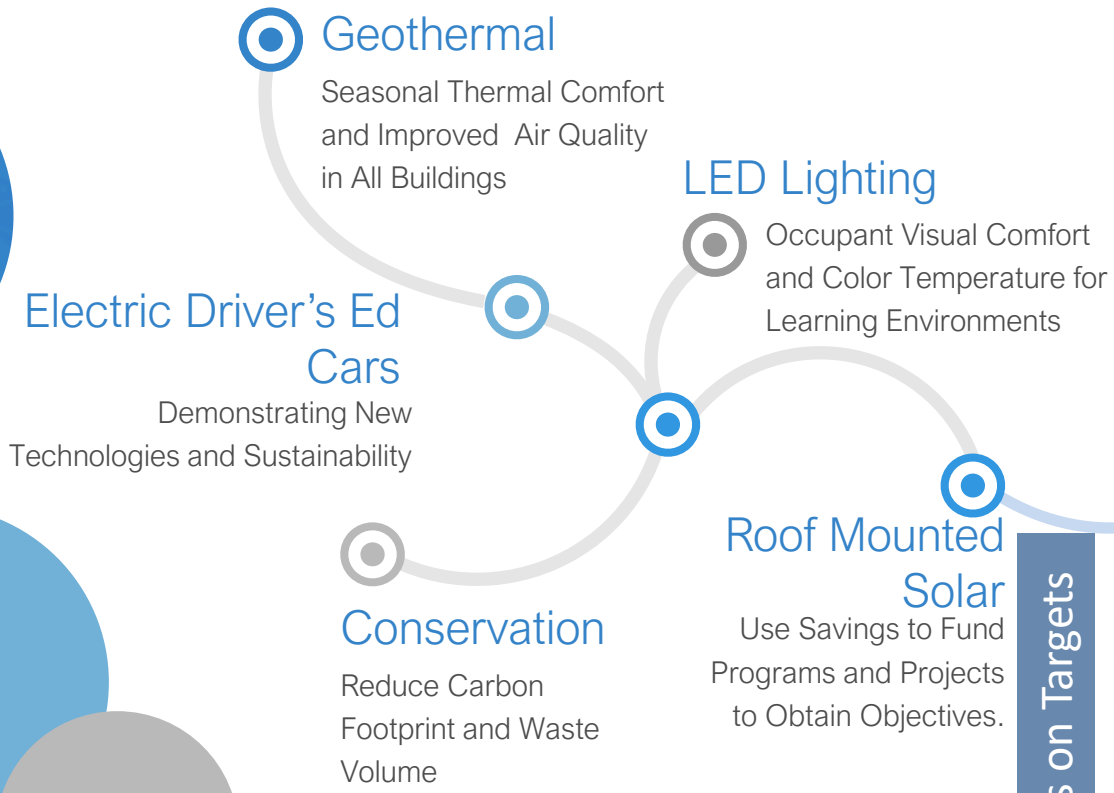
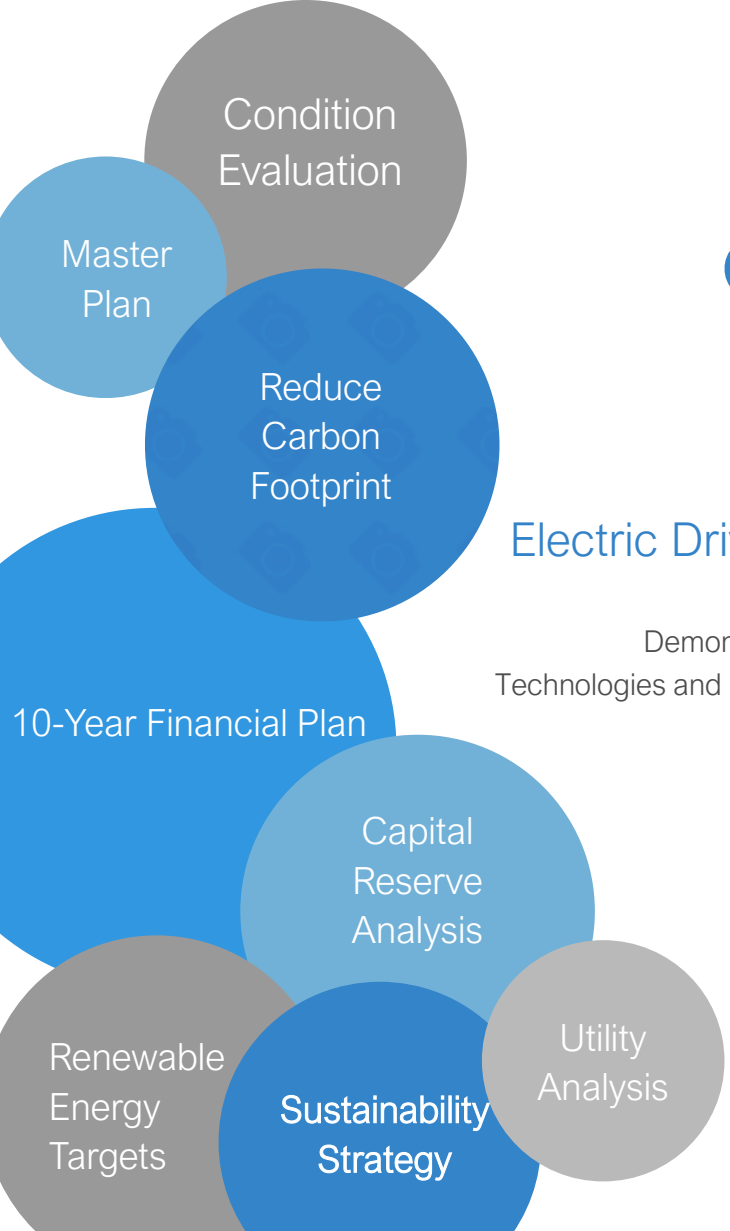
LIGHT FEATURE LEVEL MATRIX

| | Core and Shell | New and Existing Interiors | New and Existing Buildings |
|---|----------------|----------------------------|----------------------------|
| 53 VISUAL LIGHTING DESIGN | | | |
| 1: Visual Acuity for Focus | - | P | P |
| 2: Brightness Management Strategies | - | P | P |
| 54 CIRCADIAN LIGHTING DESIGN | | | |
| 1: Melanopic Light Intensity for Work Areas | - | P | P |
| 55 ELECTRIC LIGHT GLARE CONTROL | | | |
| 1: Lamp Shielding | - | P | P |
| 2: Glare Minimization | P | P | P |
| 56 SOLAR GLARE CONTROL | | | |
| 1: View Window Shading | O | P | P |
| 2: Daylight Management | O | P | P |
| 57 LOW-GLARE WORKSTATION DESIGN | | | |
| 1: Glare Avoidance | - | O | O |
| 58 COLOR QUALITY | | | |
| 1: Color Rendering Index | - | O | O |
| 59 SURFACE DESIGN | | | |
| 1: Working and Learning Area Surface Reflectivity | - | O | O |
| 60 AUTOMATED SHADING AND DIMMING CONTROLS | | | |
| 1: Automated Sunlight Control | - | O | O |
| 2: Responsive Light Control | - | O | O |
| 61 RIGHT TO LIGHT | | | |
| 1: Lease Depth | O | O | O |
| 2: Window Access | - | O | O |
| 62 DAYLIGHT MODELING | | | |
| 1: Healthy Sunlight Exposure | O | O | O |
| 63 DAYLIGHTING FENESTRATION | | | |
| 1: Window Sizes for Working and Learning Spaces | O | O | O |
| 2: Window Transmittance in Working and Learning Areas | O | O | O |
| 3: Uniform Color Transmittance | O | O | O |

COMFORT FEATURE LEVEL MATRIX

| | Core and Shell | New and Existing Interiors | New and Existing Buildings |
|--|----------------|----------------------------|----------------------------|
| 72 ADA ACCESSIBLE DESIGN STANDARDS | | | |
| 1: ADA Regulations | P | P | P |
| 73 ERGONOMICS: VISUAL AND PHYSICAL | | | |
| 1: Visual Ergonomics | - | P | P |
| 2: Desk Height Flexibility | - | P | P |
| 3: Seat Flexibility | - | P | P |
| 74 EXTERIOR NOISE INTRUSION | | | |
| 1: Sound Pressure Level | P | O | P |
| 75 INTERNALLY GENERATED NOISE | | | |
| 1: Acoustic Planning | - | P | P |
| 2: Mechanical Equipment Sound Levels | O | P | P |
| 76 THERMAL COMFORT | | | |
| 1: Ventilated Thermal Environment | P | P | P |
| 2: Natural Thermal Adaptation | P | P | P |
| 77 OLFACATORY COMFORT | | | |
| 1: Source Separation | - | O | O |
| 78 REVERBERATION TIME | | | |
| 1: Reverberation Time | - | O | O |
| 79 SOUND MASKING | | | |
| 1: Sound Masking Use | - | O | O |
| 2: Sound Masking Limits | - | O | O |
| 80 SOUND REDUCING SURFACES | | | |
| 1: Ceilings | - | O | O |
| 2: Walls | - | O | O |
| 81 SOUND BARRIERS | | | |
| 1: Wall Construction Specifications | - | O | O |
| 2: Doorway Specifications | - | O | O |
| 3: Wall Construction Methodology | - | O | O |
| 82 INDIVIDUAL THERMAL CONTROL | | | |
| 1: Free Address | - | O | O |
| 2: Personal Thermal Comfort Devices | - | O | O |
| 83 RADIANT THERMAL COMFORT | | | |
| 1: Lobbies and Other Common Spaces | O | - | O |
| 2: Offices and Other Regularly Occupied Spaces | - | O | O |





Focus on Targets

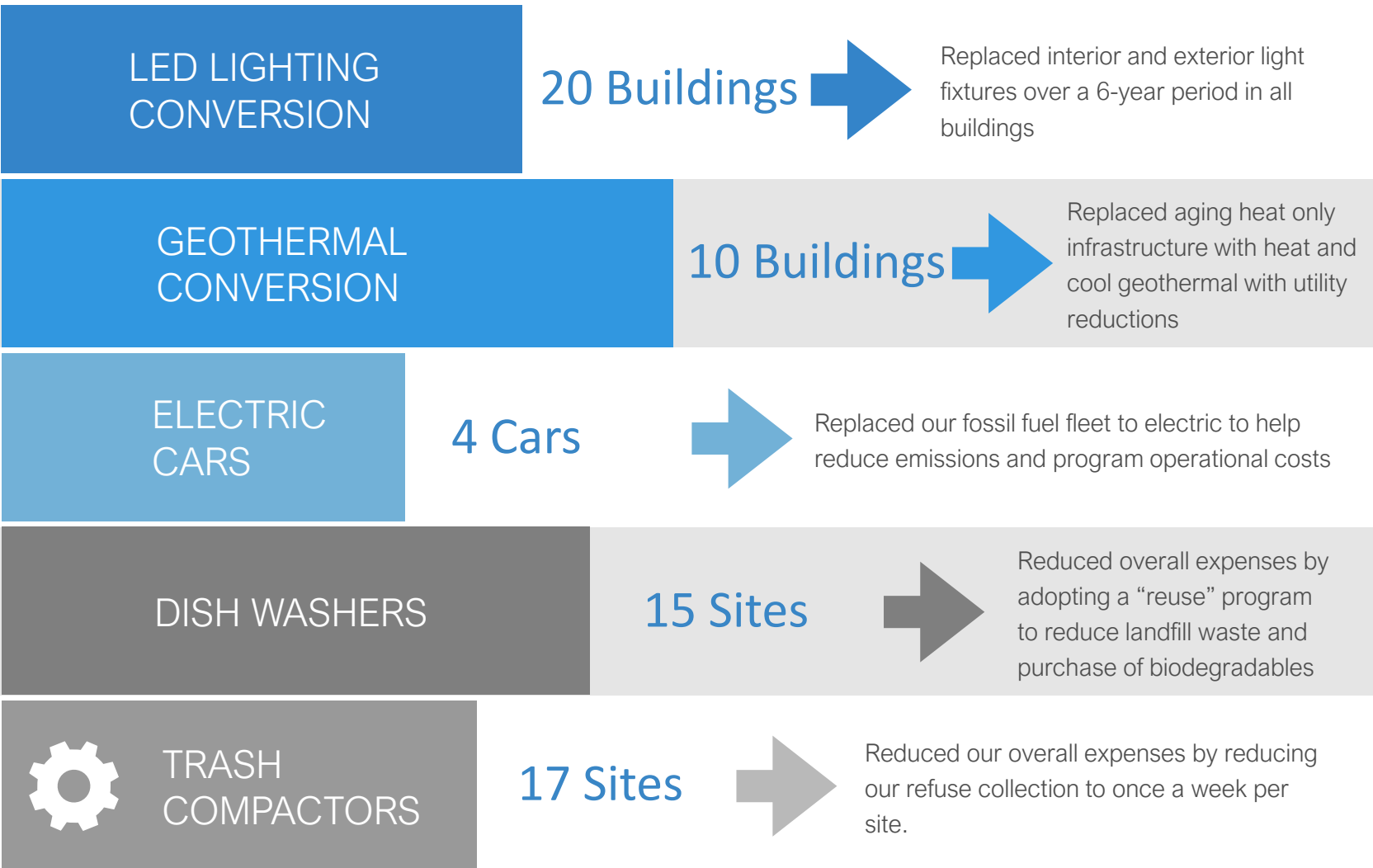
- 53. Visual Lighting Design – **Special Needs**
- 54. Circadian Lighting Design – **Special Needs**
- 55. Electrical Lighting Glare Control - **Everyday**
- 75. Internally Generated Noise – **Unit Selection**
- 76. Thermal Comfort – **Heat/Cool**
- 77. Olfactory Comfort - **Mildew**
- 82. Individual Thermal Comfort - **Anytime**



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The Master Plan with a Phased Approach



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 LED LIGHTING
CONVERSION

\$120K/year → Replaced interior and exterior light fixtures over a 6-year period in all buildings

 GEOTHERMAL
CONVERSION

\$400K/year → Replaced aging heat only infrastructure with heat and cool geothermal with utility reductions

 ELECTRIC
CARS

\$5K/year → Replaced our fossil fuel fleet to electric to help reduce emissions and program operational costs

 DISH WASHERS

\$50K/year → Reduced overall expenses by adopting a "reuse" program to reduce landfill waste and purchase of biodegradables

 TRASH
COMPACTORS

\$75K/year → Reduced our overall expenses by reducing our refuse collection to once a week per site.

 PHOTOVOLTAICS

\$170K/year → Reduced our carbon footprint and utility expenses

The Master Plan with a Phased Approach

\$820K per year in savings shifted to Capital Projects

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Geothermal Utility Savings @ Start-up

*Utility Rates Used
At Time of Design*

0.0819 kWh
0.0779 Therm

| School | Building Type | Building Square Footage | Gas Therm Savings | Gas Savings @ Today's Rate | Effective Utility Savings v Air Conditioning | Total Estimated Construction Costs |
|------------------|---------------|-------------------------|-------------------|----------------------------|--|------------------------------------|
| Goodwin | Elementary | 47,795 | 23,050 | \$14,982.50 | (\$30,335.57) | \$1,445,877 |
| McCleery | Elementary | 50,625 | 23,617 | \$15,351.35 | (\$32,035.32) | \$1,531,490 |
| Schneider | Elementary | 53,228 | 25,037 | \$16,273.83 | (\$37,257.92) | \$1,610,235 |
| Hall | Elementary | 54,980 | 22,247 | \$14,460.31 | (\$34,579.26) | \$1,663,235 |
| Hill | Elementary | 43,238 | 28,167 | \$18,308.49 | (\$24,526.67) | \$1,929,138 |
| Nicholson | Elementary | 35,230 | 2,678 | \$1,740.93 | \$18,873.21 | \$1,134,008 |
| Freeman | Elementary | 50,643 | 25,399 | \$16,509.66 | (\$32,046.13) | \$1,532,034 |
| Jefferson | Middle | 98,598 | 54,420 | \$35,373.14 | (\$65,014.88) | \$2,982,751.64 |
| Washington | Middle | 99,708 | 34,422 | \$22,374.56 | (\$59,018.61) | \$2,982,751.64 |
| West High School | Senior High | 498,219 | 80,399 | \$52,259.06 | (\$102,000.00) | \$3,419,435.20 |
| | | | | \$207,633.83 | (\$397,941.15) | \$3,301,817 |



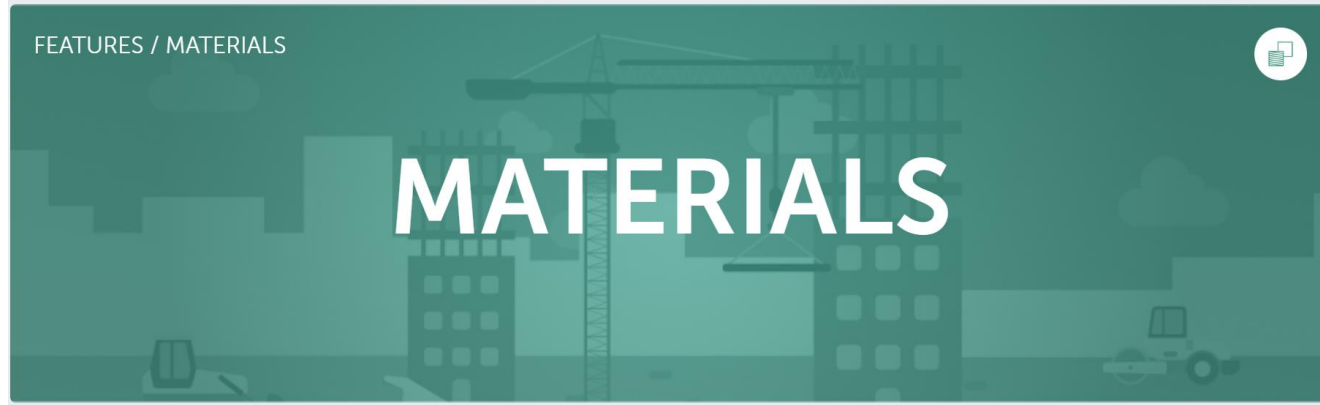
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The WELL Materials concept aims to reduce human exposure, whether direct or through environmental contamination to chemicals that may impact health during the construction, remodeling, furnishing, and operation of buildings.



CONCEPTS / MATERIALS / FEATURE X11 OPTIMIZATION

Cleaning Products and Protocols

3 CONCEPTS ON WELL BSI

Max
2 Pts

Provide cleaning effectiveness by selecting less hazardous products and establishing adequate cleaning protocols and practices.

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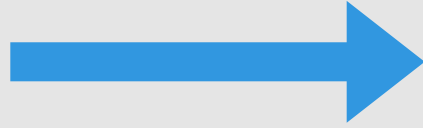


EXTENT & FREQUENCY



PROVIDES PLAYBOOK FOR ALL PARTIES

SURFACES TO CLEAN AND/OR DISINFECT



AVOID THE PANDEMIC EFFECT

DOCUMENTATION & FEEDBACK



APPLIES METRICS TO QUANTIFY SUCCESS

CLEANING MATERIALS & PPE



PROTECT CUSTODIANS & AVOID CROSS CONTAMINATION

EQUIPMENT & CHEMISTRY



QUALITY EQUIPMENT, SAFE & EFFECTIVE CLEANING CHEMICALS

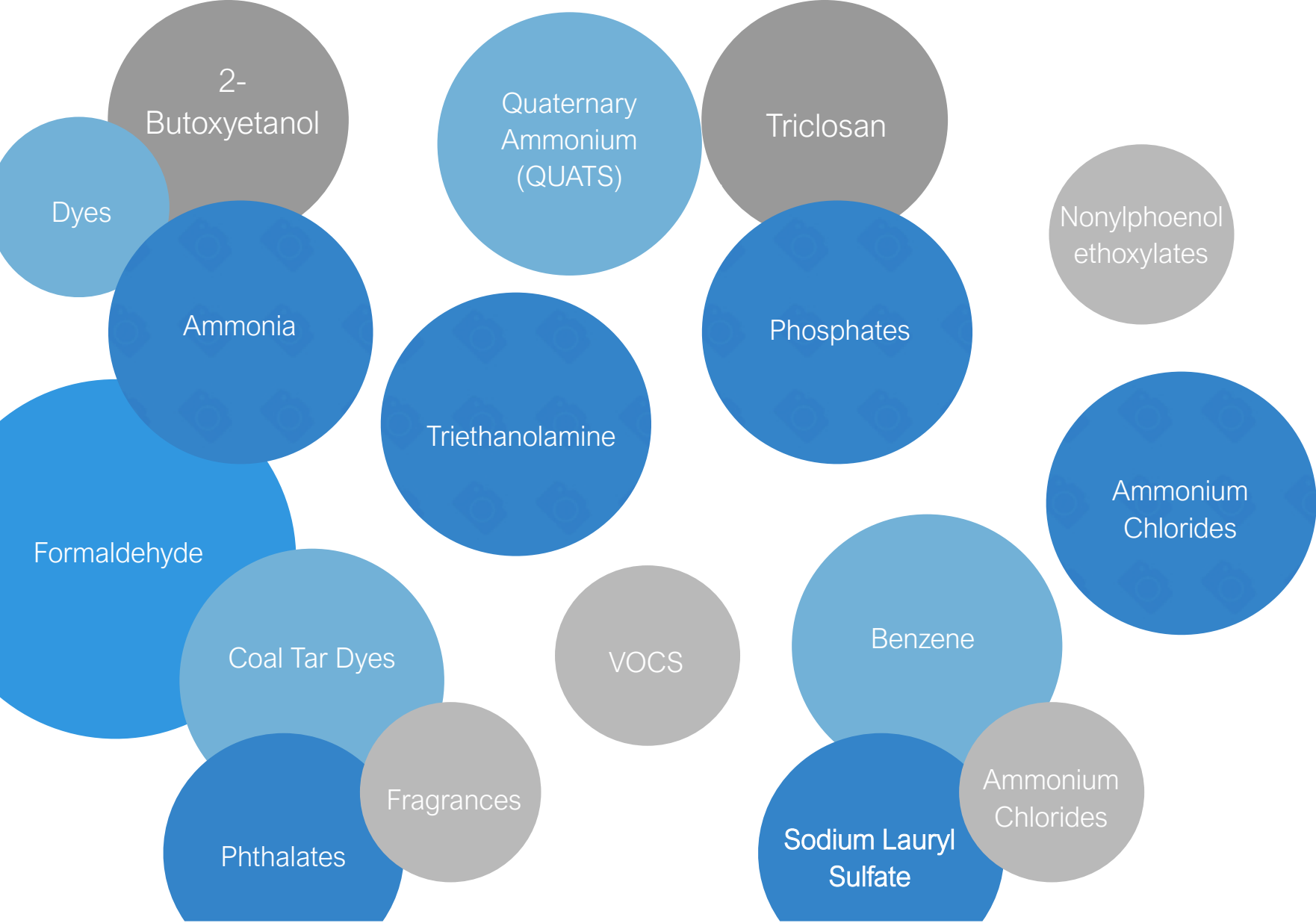
“A comprehensive housekeeping program provides a framework for expectations and quality control, eliminates damage to interior surfaces, but more importantly protects custodians, teachers, and students from exposure to pathogens, toxic chemicals, and allergens”



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Toxins in Cleaning Chemicals



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In a Common School Disinfectant !

| Chemical name | CAS-No. | Concentration (%) |
|---|-----------------------|-------------------|
| Alkyl (50% C14, 40% C12, 10% C16) dimethyl benzyl ammonium chloride | 68424-85-1 | 3 |
| Octyl decyl dimethyl ammonium chloride ethanol | 32426-11-2 64-17-5 | 2.25 1 - 5 |
| Didecyl Dimethyl Ammonium Chloride | 7173-51-5 | 1.35 |
| Diocetyl dimethyl ammonium chloride | 5538-94-3 | 0.9 |

Experience with human exposure

Product AS SOLD

| | |
|--------------|---------------------------------|
| Eye contact | : Redness, Pain, Corrosion |
| Skin contact | : Redness, Pain, Corrosion |
| Ingestion | : Corrosion, Abdominal pain |
| Inhalation | : Respiratory irritation, Cough |

Product AT USE DILUTION

| | |
|--------------|----------------------------------|
| Eye contact | : Redness, Irritation |
| Skin contact | : No symptoms known or expected. |
| Ingestion | : No symptoms known or expected. |
| Inhalation | : No symptoms known or expected. |

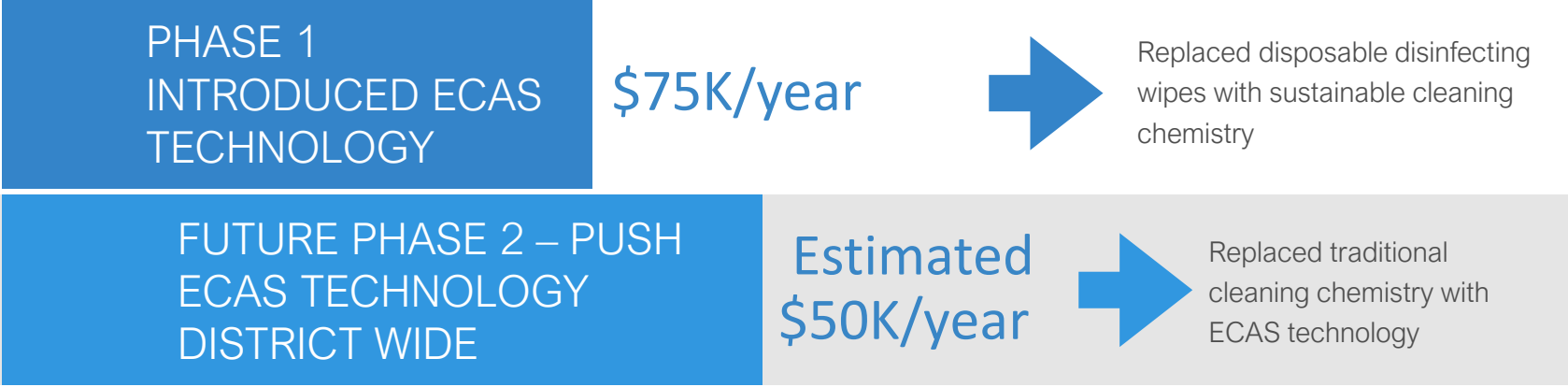
| | |
|------------------------|--|
| Eye protection | : Wear eye protection/ face protection. |
| Hand protection | : Wear the following personal protective equipment: Standard glove type. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. |
| Skin protection | : Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing |
| Respiratory protection | : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. |
| Hygiene measures | : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard. |

Product AS SOLD Hazard pictograms



| | |
|--------------------------|---|
| Signal Word | : Danger |
| Hazard Statements | : Harmful if swallowed. Causes severe skin burns and eye damage. |
| Precautionary Statements | : Prevention: Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/ protective clothing/ eye protection/ face protection. Response: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for |

The Master Plan with a Phased Approach



Staff and Student Safety

Reduced Plastic and Cardboard Waste

Positive Impact to IAQ

\$125K per year in savings shifted to other needs



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Questions and Answers

We thank you for your time!



PATHOSANS



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Presenters:

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