

Draft Energy Management Plan

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Executive Summary

- Academy School District 20 does not have any formal technical guidelines, goals, or policy regarding energy management.
- Energy management is a rapidly maturing business and facilities management sector that requires daily attention and management oversight. As resources become tighter and utility costs escalate, understanding of sustainable building operations and opportunities is a necessary deliverable to demonstrate care and diligence of tax payer dollars.
- Academy District 20 is blessed with a parent community that appears very interested in supporting an energy management plan at the school level.
- Technical understanding of the steps necessary to retrofit existing schools and develop the necessary new construction guidelines exists in D20, however a comprehensive energy policy and resources do not exist today.
- Resources do exist within the state of Colorado with proven track records in the development of Sustainable Management and New Construction guidelines comparable school districts with Academy District 20.
- A comprehensive Energy Plan needs to be included as part of the District's strategic plan.
- Infinite technical sustainable design resources exist today, helping D20 to evaluate what best fits our goals and operational style in an energy management business and facilities management setting.
- Opportunities for substantial savings exist today, however initial costs will keep documented savings from materializing for a minimum of 2 to 4 years.
- The effort to deliver an energy plan will require many school district technical and non technical resources. The vast number of resources is necessary to develop the type of holistic and shared approach necessary to galvanize the D20 community at every level.

Introduction:

- On any given school day, about 20% of Americans spend time in a school. The average age of America's schools is 50 years, and studies by the U.S. General Accounting Office have documented widespread physical deficiencies in many.
- The Environmental Protection Agency (EPA) classifies indoor air quality as one of the top five environmental health risks today, affecting the health and performance of occupants. Such health risks have special importance for children in our nations' public schools.



- Improving student achievement through better physical learning environments is an opportunity for all those involved in the development of educational facilities.
- States and local agencies are planning to invest more than \$60 billion in the next three years to build or renovate schools.

The Case for 'Green' Schools

What Makes a School 'High Performance' or 'Green'

- A structure that is planned, designed, built, commissioned, operated, renovated, or reused in an ecological and resource efficient manner. High performance buildings are designed to meet specific objectives such as protecting occupant health, improving employee productivity, using energy (electric and gas), water and other resources more efficiently, and reducing the overall impact to the environment.
- Features associated with a High Performance building are:
 - o Healthy indoor environment (temperature, humidity, outside air, acoustics, visual comfort)
 - o Energy efficient
 - o Material efficient
 - o Water efficient
 - o Site efficient
 - o Ease of Operations and Maintenance
 - o Commissioned systems
 - o Teaching opportunities
 - o Safe and secure
 - o A community resource
 - o Adaptable
- Requires a holistic commitment to the building construction process starting with the concept phase. Some call this the 'whole building' approach hence the involvement of a panoply of human resources to insure all possible opportunities and potential outcomes are evaluated.
- Because there is a general perception that high performance buildings require more time to plan and design and the costs of these buildings exceed typical construction budgets, actual execution of these types of buildings is building but certainly not the norm. In addition, recent code changes and the escalation of 'green' building knowledge, practices, and standards have made energy efficiency a relatively baseline concept. It is when the baseline is exceeded that cost, schedule, and resources become a major issue.

Benefits of High Performance Schools

- The bottom line is that high performance schools help educate students. The primary benefits resonate from the classroom to the Superintendent.
- The benefits include:



- Higher test scores
- Increased average daily attendance
- Reduced operating costs
- Increased teacher satisfaction and retention
- Reduced liability exposure
- Reduced environmental impacts
- Example to the voting public
- The benefits are the results of specific building performance goals at the outset of a project. The performance goals are something that must be fought for throughout the design process, assuming the initial project planning, most specifically budget and schedule, included high performance planning.
- A simple goal is that a project achieves its highest performance level possible for its particular circumstances.
- The benefits can be surmised knowing that high performance buildings create healthier work, learning, and living environments, with more natural light and cleaner air, and contribute to improved employee and student (occupant) health, comfort, and productivity. Sustainable buildings are cost-effective, saving taxpayer dollars by reducing operations and maintenance costs, as well as lowering utility bills.

Why High Performance Schools

- Schools are our highest priority because they house our children and are important the well being of a community
- The Energy Information Administration (EIA) Annual Energy Overview indicates that the US rate of energy consumption has increased almost every year since 1949. The rate of consumption continues to increase while utility costs continue to escalate at a far greater pace than inflation or typical cost of living increases.
- While the US continues to improve its technology in the area of conservation and energy efficiency, the rate of consumption is outpacing these improvements...hence costs continue to climb as resources are depleted and demand escalates.
- A humbling statistic true for most school districts is the fact that the budgets for educational materials, teacher training, and classroom tools is considerably less than what is spent on energy. What is the right balance or recipe?
- The cheapest source of energy is conservation

Green Building Programs

- 'Green' building was an undefined term until the late 1990s.
- Four 'Green' building programs, typically used by schools, in the US are: LEED, CHPS, Rebuild America, and Energy Star
- **LEED:** (Leadership in Energy and Environmental Design) is a program initiated by the US Green Building Council (USGBC). The Leadership in



Energy and Environmental Design (LEED) **Green** Building Rating System (<https://www.usgbc.org/ShowFile.aspx?DocumentID=1095>), version 2.2 was promulgated to improve the environmental and economic performance of new and existing commercial, institutional, and high-rise residential buildings. Specifically, LEED was created to:

- Define ‘Green’ building by establishing a common standard of measurement
 - Promote integrated, whole building design practices
 - Recognize environmental leadership in the building industry
 - Stimulate green competition
 - Raise consumer awareness of green building benefits
 - Transform the building market
- The LEED Green Building Rating System is a voluntary, consensus based national standard for developing and delivering high performance, sustainable buildings. The LEED rating system offers four certification levels for new construction -- Certified, Silver, Gold and Platinum -- that correspond to the number of credits accrued in five green design categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality. The rating system consists of the following 6 major categories, and maximum points:

· Sustainable Sites:	14
· Water Efficiency:	05
· Energy and Atmosphere:	17
· Materials and Resources:	13
· Indoor Environmental Quality:	15
· LEED Innovation Credits:	05
· Total Maximum Possible Points:	69

Certification Levels:

· LEED Certified:	26-32 points or >37% of max.
· LEED Certified Silver Level:	33-38 points or >47% of max.
· LEED Certified Gold Level:	39-51 points or >56% of max.
· LEED Certified Platinum Level:	52-69 points or >75% of max.

- To achieve LEED status, it is highly recommended the project process follow five planning and execution benchmarks:
- **Set a clear environmental target.** Before you begin the design phase of your project, decide what level of LEED certification you are aiming for and settle on a firm overall budget. Also consider including an optional higher certification target -- a "stretch" goal -- to stimulate creativity.



- **Set a clear and adequate budget.** Higher levels of LEED certification, such as Platinum, do require additional expenditure and should be budgeted for accordingly
 - **Stick to your budget *and* your LEED goal.** Throughout out the design and building process, be sure your entire project team is focused on meeting your LEED goal on budget. Maintain the environmental and economic integrity of your project at every turn.
 - **Engineer for Life Cycle Value** As you value-engineer your project, be sure to examine green investments in terms of how they will affect expenses over the entire life of the building. Before you decide to cut a line item, look first at its relationship to other features to see if keeping it will help you achieve money-saving synergies, as well as LEED credits. Many energy-saving features allow for the resizing or elimination of other equipment, or reduce total capital costs by paying for themselves immediately or within a few months of operation. Prior to beginning, set your goals for "life cycle" value-engineering rather than "first cost" value-engineering.
 - **Hire LEED-accredited professionals.** Thousands of architects, consultants, engineers, product marketers, environmentalists and other building industry professionals around the country have a demonstrated knowledge of green building and the LEED rating system and process -- and can assist in meeting your LEED goal. These professionals can suggest ways to earn LEED credits without extra cost, identify means of offsetting certain expenses with savings in other areas and spot opportunities for synergies in your project.
- New LEED School based initiatives: September 4, 2008 Washington, DC - The U.S. Green Building Council (USGBC) kicked off its "Fifty for Fifty" initiative working with state lawmakers in all 50 states to promote green school buildings. The Council's goal is for every state legislature in the nation to have its own caucus or working group of lawmakers advancing green schools for kids. Inspired by the successes of the Congressional Green Schools Caucus, the initiative will build on widespread participation in USGBC's LEED for schools program, which has over 1,000 green schools registered across the U.S.
 - **CHPS:** In many energy and environmental issues, California is on the leading edge for environmentally progressive programs. Specifically, the Collaborative for High Performance Schools (CHPS or called



‘Chips’). CHPS helps facilitate and inspire change in our educational system. CHPS is intended to:

- Increase student performance with better-designed and healthier facilities,
 - Raise awareness of the impact and advantages of high performance schools,
 - Provide professionals with better tools to facilitate effective design, construction and maintenance of high performance schools,
 - Increase school energy and resource efficiency, and
 - Reduce peak electric loads.
- CHPS aims to increase the energy efficiency of Schools in California by marketing information, services, and incentive programs directly to school districts and designers. CHPS’s goal is to facilitate the design of high performance schools: environments that are not only energy efficient, but also healthy, comfortable, well lit, and containing the amenities needed for a quality education.
- CHPS Programs:

High Performance School Recognition and Rating Programs

CHPS oversees the nation’s first green building rating program especially designed for K-12 schools. The CHPS Criteria is a comprehensive system of environmentally responsible benchmarks designed by the CHPS technical committee, which is made up of over fifty school facilities experts including state agency officials, designers, school district officials, contractors, product manufacturers and energy and water utility officials. A CHPS school is a school that has strived to achieve excellence in environmental efficiency and healthy building practices. CHPS recognizes superior design teams and school districts through award ceremonies, case studies and media outreach. Schools can self-certify their school through the free [CHPS Designed](#) program, or seek third-party verification of their high performance school through the [CHPS Verified](#) program.

High Performance School Trainings

CHPS, an American Institute of Architects registered provider of Continuing Education Services, offers accredited high performance school technical seminars to design professionals. A leader in the field of green school development, CHPS also offers workshops to school districts and other stakeholders on the green school development process, including assisting school districts in creating district-wide resolutions on green



school construction. CHPS also offers an annual conference on high performance schools called [Greentools for Healthy Schools](#).

CHPS Best Practice Manual

CHPS has developed and maintains a [six-volume technical best practices manual](#) for high performance schools. The manual covers planning, design, high performance benchmarks, maintenance and operations, commissioning and relocatable classrooms in high performance schools. The manual was developed through a consensus process with the assistance of school officials, state agencies, industry representatives and design professionals. CHPS periodically updates each volume of the manual.

CHPS High Performance Resources

CHPS manages a member directory of [green school building services and products](#) and a [directory of certified low emitting materials](#) for green school construction. CHPS also offers [online trainings and presentations, specifications and informational fact sheets](#). CHPS is developing an individual professional accreditation program that will allow design professionals to become CHPS-accredited.

- **Rebuild America**

- Rebuild America is a US Department of Energy program and a growing network of community-driven voluntary partnerships that foster energy efficiency and renewable energy in commercial, government, and public housing projects. At the federal level, it is the largest, most established technology deployment program within DOE's Office of Energy Efficiency and Renewable Energy (EERE). The programs goals are to:
 - Conserve Energy
 - Accelerate the use of the best and most technologically advanced energy technologies
 - Save money
 - Reduce air pollution
 - Lower US reliance on energy imports
 - Help revitalize aging city and town neighborhoods
 - Create Energy Smart jobs
- Through its "Energy Smart Schools" program, Rebuild America has developed "Energy Design Guidelines for High Performance Schools". Written specifically for architects and engineers, the manual is designed to help design or retrofit schools and the project managers that work with design teams. It addresses various technologies and systems where energy efficiency can be maximized ranging from daylighting and windows, HVAC systems, renewable energy systems, and building commissioning practices.



- **Energy Star for K-12**

- o ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping us all save money and protect the environment through energy efficient products and practices. In 1992 the US Environmental Protection Agency (EPA) introduced ENERGY STAR as a voluntary labeling program designed to identify and promote energy-efficient products to reduce greenhouse gas emissions. Computers and monitors were the first labeled products. Through 1995, EPA expanded the label to additional office equipment products and residential heating and cooling equipment. In 1996, EPA partnered with the US Department of Energy for particular product categories. The ENERGY STAR label is now on major appliances, office equipment, lighting, home electronics, and more. EPA has also extended the label to cover new homes and commercial and industrial buildings.

Through its partnerships with more than 12,000 private and public sector organizations, ENERGY STAR delivers the technical information and tools that organizations and consumers need to choose energy-efficient solutions and best management practices. ENERGY STAR has successfully delivered energy and cost savings across the country, saving businesses, schools, organizations, and consumers about \$16 billion in 2007 alone. Over the past decade, ENERGY STAR has been a driving force behind the more widespread use of such technological innovations as efficient fluorescent lighting, power management systems for office equipment, and low standby energy use.

Recently, energy prices have become a hot news topic and a major concern for consumers. ENERGY STAR provides solutions. ENERGY STAR provides a trustworthy label on over 50 product categories (and thousands of models) for the home and office. These products deliver the same or better performance as comparable models while using less energy and saving money. ENERGY STAR also provides easy-to-use home and building assessment tools so that homeowners and building managers can start down the path to greater efficiency and cost savings.

Does 'Green' Cost More?

- It Depends is the short answer...but there is much the fine print does not address while the large print illustrates an easy conclusion. The true and total costs are not simple to document without first hand experience.
- A 2004 (a similar study was conducted in 2006 with similar findings to the 2004 study) study by Davis Langdon Adamson, a construction cost-planning



and management company, found that the first costs of constructing a sustainable building tend to match or only slightly exceed those of comparable non-green buildings. The study, *Costing Green: A Comprehensive Cost Database and Budgeting Methodology*, measured the square-foot construction costs of 61 buildings seeking certification under the LEED green building rating system against those of buildings of similar type that did not aim for sustainability. Taking into account a range of construction factors including climate, location, market conditions and local standards, the study found that for many of the green projects, pursuing LEED certification had little or no budgetary impact.

The study's findings also underline that incorporating and integrating green features into a project early is critical to the success of any green building project. "It is the choices made during design which will ultimately determine whether a building can be sustainable, not the budget set," the report concluded.

In addition, in order to accurately evaluate the impact of green building on your budget, it's important to look beyond first costs. Increasingly, architects and procurement specialists are using "life-cycle assessments" (LCA) to evaluate and quantify the economic and environmental costs and benefits of materials and products over their lives. LCA analysis methods are becoming more standardized and tools such as LCA are emerging to provide comparable product-level evaluations.

- Typically, the literature today will attempt to nullify the increased first cost aspect of 'Green' construction. The simple fact is if 'Green' were only a 2%-3% cost increase (which is what the prevailing literature communicates), ALL projects would be green. Based upon D20's experience with both designers and builders, the cost increase, from typical baseline budgets for D20 schools, is between 15% and 40%. In other words, a typical D20 school, meeting 2006 International Energy Conservation Code (IECC) and ASHRAE 90.1 requirements (the prevailing baseline design energy management guidelines), can be built for approximately \$180/sf. If LEED certification (Silver or greater) is added and expanded design evaluation and systems are included, the per square foot cost for a K-12 school will easily grow by \$20 to \$30 per square foot (or, for a D20 MS for example, approximately 125,000 sf, the cost increase is approximately \$3M). If a school is simply looking to meet LEED Certified status, I would agree that a moderate cost increase would allow the project team to meet the Certified criteria. However, an interesting point that has not been specifically addressed by the USGBC are the anticipated savings resulting from a Certified credential versus a Silver, Gold or Platinum credential. Literature suggests the overall energy savings relative ASHRAE 90.1 is between 20% and 75%. What this means in terms of a square footage or KBTU savings is not clearly quantified due to location and project scope differences.



- Cost budgets for future D20 bond initiatives (documented in the D20 Long Range Capital Committee Draft Recommendations, 2007) include typical construction costs in excess of \$200 per square foot for design and construction to meet the anticipated requirements of 'Green' construction. At this time life cycle cost analysis has not been conducted to evaluate the total net cost of a D20 school project over an expected lifetime of 30, 40, or 50 years.
- The literature all suggest, the projects with the most success implementing sustainable design, are those which had clear goals established from the start, and which integrated the sustainable elements into the project at the concept and pre-planning phases.

Financial Benefits of Going Green

- To meet the ever-changing demands placed upon schools, changing curriculums, student growth and individual needs, the demands for improved student performance, tight school operating budgets, and the consistent maintenance and operational needs of the physical structure, school districts will spend billions of dollars in upcoming years to build and renovate facilities. How these schools are built will affect, for decades, the quality of the teaching provided, operating costs, and most importantly the health and productivity of generations of students and staff.
- Simply stated high performance buildings can simultaneously provide better learning environments for children, cost less to operate, and help protect the environment.
- Healthy, comfortable, energy efficient, resource efficient, water efficient, safe, secure, adaptable, and easier to operate and maintain are the primary benefits Green schools offer. The results, indicated in various studies, are that school districts achieve higher test scores, retain quality teachers and staff, reduce operating costs, increase average daily attendance (ADA), reduce liability, create a source of both school and district pride, create teaching opportunities otherwise non existent – and at the same time – are friendlier to the environment.
- By using less energy, water, and waste diversion methods, overall operating costs are lower – most notably in times of rising and uncertain energy process – and, with good operation practices in place, will remain so for the life of the facility. School districts can save 20% - 40% on annual utility costs for new schools and 15% - 20% for renovated schools by applying either comprehensive or targeted high performance design and construction solutions.
- According to the USGBC, a recent case study concluded that of 30 schools studied who used high performance building standards; there was a 33.4% average direct energy savings and a 32.1% average water savings.
- In Poudre School District in Fort Collins, Colorado, a recently completed high school, Fossil Ridge, reports annual direct energy savings of 59% as compared to an incumbent high school.



- For example, a typical D20 elementary school August utility bill will illustrate about \$3000 per month electric and gas costs (energy). If measures were taken to fully integrate 'Green' retrofit measures into these schools it would be anticipated that the savings per school would be approximately \$5000 per year. Multiplying this times 20, the number of elementary schools in D20, yields a \$100,000 annual savings. Of course the savings number does not include the costs to achieve the high performance goals, however, with the expected life schools are anticipated to achieve along with the anticipated rise in energy costs, the \$100K figure may be conservative in the out years.

Current Energy Policy

- The current D20 Energy Conservation and Management Policy, ECF [4026] https://neo.asd20.org/education/sctemp/99c506da8ecb80dc37371f243926bf8e/1221594118/,DanaInfo=scd20net.asd20.org+Facilities_Mgt_O_M_Manual_2008.pdf aims to recognize the importance of energy management in existing facilities while illustrating specific areas of conservation emphasis. The Energy Conservation and Management Policy was adopted by D20 in September of 2001.
- In addition, D20 Facilities has documented criteria for building operating systems.
- In recent years, D20 has made enormous strides to meet current energy code and policy by retrofitting energy inefficient lighting and mechanical systems at many school facilities. Examples of the efforts, projects, and programs are the following:
 - o Effective Building Scheduling:
 - HVAC systems started 1 hour before classes begin
 - HVAC systems turned off ½ hour after classes are complete
 - Exceptions to these schedules are programmed every Monday, based on input from individual schools.
 - o Energy use trends are reviewed monthly to spot billing errors and unusual use/cost patterns.
 - Issues are reviewed with utility companies
 - o We are currently installing irrigation meters at: Liberty High School, Timberview Middle School, Eagleview Middle School, Challenger Middle School, Woodman Roberts Elementary School and the Education and Administration Center. Expected savings on sewer charges is \$100,000 annually.
 - o Reviewing Historical energy use trends to spot past billing errors
 - Electrical and Natural Gas complete
 - Water and Sewer in progress
 - o Awareness meeting with Building Managers
 - Awareness
 - Audit Checklist
 - Peak Demand hours



- Energy Efficient Lighting Upgrades – T-12 classroom lighting and Metal Halide gym lighting replaced with energy efficient T-8 lighting. (Other sites not on this list were done earlier)
 - Air Academy High School
 - Rockrimmon Elementary School
 - Timberview Middle
 - Woodman Roberts
 - Foothills Elementary
 - High Plains Elementary
 - Douglass Valley Elementary
 - Pine Creek Gym & Media Center
 - Antelope Trails Gym
 - Douglass Valley Gym
 - Academy International Gym
 - Rampart Gym
 - Prairie Hills Gym
 - Explorer Gym
 - Frontier Gym
 - Mountain View Gym
 - Challenger Middle Gyms
 - Liberty Gym
 - Facilities Management Exterior
 - Academy International – Misc fixtures
 - Academy Endeavor – Misc fixtures
 - Eagleview Middle gym
- During the bond program energy simulations were run on most new schools to balance cost effective construction with operational energy savings. The goal was to exceed the International Energy Conservation Code by at least 30%.
- We have installed Direct Digital Control systems on HVAC systems which allow effective scheduling and control of mechanical equipment while maintaining occupant comfort:
 - All High Schools
 - All Middle Schools
 - All New Construction
 - All Elementary Schools except:
 - Antelope Trails Elementary
 - Explorer Elementary
 - Prairie Hills Elementary

(These 3 schools are schedule to be upgraded summer 2009)
- Commissioning of existing mechanical equipment to ensure it is working effectively
 - Pine Creek HS – 95% complete
 - Education and Administration Center – 95% complete.
- Additional projects and system operations are currently under evaluation to solidify better control of waste, water, and energy management systems.



- At this time D20 does not have a comprehensive new construction or existing construction sustainability guidelines document. The development of such documents, it is anticipated, would take 6 – 8 months due mostly to the time required to investigate and thoroughly review the operations of existing systems at incumbent schools and facilities throughout D20.

New Sustainable Design Guidelines

- Typically, Sustainable Design Guidelines are focused on new construction and serve the greater mission of educating children in safe and tax payer dollar efficient facilities.
- The goals for the school district must be clear, achievable, and measurable.
- Included in the guidelines are:
 - o Introduction to sustainable Schools
 - o The Sustainable Design Process
 - Overview of the District Philosophy
 - Project Management Approach
 - Procurement Approach
 - Sustainable Design Charette Process
 - LEED Certification and the Role of Sustainable Design Standards
 - Facility Performance Goals
 - o The Sustainable Design Product: Key Features of Sustainable Schools
 - Site Planning and Landscape Design
 - Renewable Energy Sources
 - Using Solar Energy in Schools
 - Wind Power and Other Renewable Energy Purchases for Schools
 - High Quality, Energy Efficient Lighting
 - Daylighting
 - Electric Lighting
 - Energy Efficient Building Shell
 - Energy Efficient HVAC Systems
 - Geothermal Heating and Cooling Systems
 - Building Controls Systems
 - Indoor Environmental Quality
 - Environmentally Preferable Materials
 - Indoor Air Quality
 - Total Moisture Control
 - Construction Indoor Air Quality
 - Acoustics
 - Water Conservation
 - Safety and Security
 - Kitchen Operations
 - Recycling and Waste Management
 - Construction Waste Recycling and Management



- Commissioning
- Design for Maintainability
- Buildings that teach

Sustainability Management System

- The first step in creating Sustainability Guidelines is to establish Sustainability Policy, not just simple Conservation Policy.
 - An example is the policy of Poudre School District: “Poudre School District is committed to being a responsible steward of our natural resources and believes that public education should lead the way in developing an ethic of sustainability in all of its practices. Building off the successes of applying sustainability in constructing new schools, remodels, and school improvement projects, the district now reaffirms its commitment to sustainability by adopting a Sustainability Management System (SMS) that extends the principles of sustainability to all operations.”
- An example of this change would result in the following likely policy items: the policy will
 - Support its educational mission by providing physical spaces that promote the health, productivity, and safety of all students and staff
 - Reduce life-cycle costs by conserving energy and natural resources, further supporting the educational mission through fiscal responsibility.
 - Balance educational, financial, and environmental issues in daily decision making.
 - Consider and incorporate relevant aspects of sustainability into all future policies.
 - Inspire commitment to this policy among employees and students.
 - Serve as a community, state, and national leader in sustainability and partner with other local, state and federal organizations to further common goals.
- The next steps of the process involve identifying existing sustainability opportunities and practices across all D20 departments, crafting a vision to guide both immediate and long term decision making, and setting both short and long-term goals.
- While opportunities for sustainability abound in new project design, assessment of existing buildings for greater resource conservation, comfort, and productivity is necessary. Through on-site assessments, D20 will discover energy, water conservation, and solid waste opportunities that are feasible, practical, and cost effective. In this case a hired consultant will work with D20 to analyze costs, implement solutions, and project expected payback periods so that informed decisions to improve building efficiency can be made. Outside consultants are necessary largely due to their vast experience in this building segment and knowledge of innovative building technologies. It is important to also consider support during implementation.



- The SMS is designed to operationally address both long term opportunities and short term wins. For example, long term areas of consideration are:
 - o Resource Conservation
 - o Green House Gas Emissions
 - o Sustainable Education
 - o Transportation
- The short term opportunities are in areas like:
 - o Building Maintenance Operations
 - Carpentry
 - Electrical
 - HVAC
 - Locksmithing
 - Painting
 - Plumbing
 - Theatre
 - o Business Services/Finance
 - o Conservation Policy enforcement and documentation of results
 - o Communications
 - o Curriculum
 - o Custodial
 - o Customer Support
 - o Food Services
 - o Information Technology
 - o Grounds Services
 - o Purchasing
 - o Facilities Office Operations
 - o Risk Management
 - o Security
 - o Staff Development
 - o Utilities Management
 - o Transportation
- Evaluate results
 - o Document
 - o Communicate
 - o Provide Gap Analysis and Opportunities for Improvement

Next Steps

There is no doubt that sustainable design practices in both existing and new facilities, along with day to day operational changes to meet district sustainable management goals are overdue in Academy District 20. Early win opportunities exist throughout the district. However, the process to determine what opportunities are most important and in line with the D20 mission and vision will begin with the development of BOE policy in



this area. Board policy serves as the cornerstone for planning, implementation, confirmation, and management actions. Within these four areas, D20 will be able to develop the operational tasks that support an overall policy within the broader district strategic plan. All motivation must be in support of the district mission; however the evaluation of results will certainly be more immediate and objective. To better define the situation before the district today while integrating policy, D20 will require expert advice, resolve, parent and community support, and a well documented, consensus based evaluation of the specific opportunities, goals, and resulting cultural and operational changes for D20.

No matter the size or type of organization, the common element of successful energy management is **commitment**. Organizations make a commitment to allocate staff and funding to achieve continuous improvement.

To establish an effective energy program, leading organizations form a dedicated energy team and institute an energy policy.

- Form a Dedicated Team

Appoint an Energy Director — Sets goals, tracks progress, and promotes the energy management program.

Establish an Energy Team — Executes energy management activities across different parts of the organization and ensures integration of best practices.

- Institute an Energy Policy

Institute an Energy Policy — Provides the foundation for setting performance goals and integrating energy management into an organization's culture and operations.

Because sustainable design can mean many things and there is no one size fits all approach, deliberate planning is key to the successful development of High Performance or 'Green' school construction and maintenance guidelines. Outlined below are the recommended planning, execution and evaluation steps. The planning process allows the project team to carefully evaluate all factors that can affect design, construction, cost, schedule, and long-term maintenance before the design process begins. Ideally, the planning process should include:

- Make the Commitment: Now
- Assess Needs and Performance: 4 months
- Identify Benchmarks: Concurrent with assessment
- Prioritize Your Goals: 2 months
- BOE Policy: Immediately following assessment and Goal prioritization
- Develop Guidelines and Action Plan for New Construction and Maintenance: 6 months
- Make the Case through Implementation, Evaluation, and Achievement: As needed
- Create a District Green Team: On going



Visually, the process looks like:



It is anticipated that leadership and management of this process will be needed. Current staffing does not support the redirection of an entire FTE for this purpose. In fact, this area could easily support 2 FTE knowing day to day operations are ongoing and technical evaluation could be used immediately. It is anticipated that expert advice and consulting will be needed as well to develop the framework for district wide discussion, evaluation of other school districts using similar programs, and the documentation and technical evaluation of recommendations and results. Overall, the timeline to achieve a well documented plan, supported by staff, the community, parents, and students is 12 months at best. In addition additional FTE and consulting will be required at an anticipated cost of no greater than \$100K.

I look forward to continued discussion of this topic and am always available to serve.



Respectfully,

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Executive Director of Construction
Academy School District 20

