

# GreenRibbonSchools



## 2012-2013 Nominee Presentation Form

### PART I - ELIGIBILITY CERTIFICATION

#### **School and District's Certifications**

The signatures of the school principal and district superintendent (or equivalents) on the next page certify that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct. *In no case is a private school required to make any certification with regard to the public school district in which it is located.*

1. The school has some configuration that includes one or more of grades K-12. (Schools on the same campus with one principal, even a K-12 school, must apply as an entire school.)
2. The school has been evaluated and selected from among schools within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
3. Neither the nominated public school nor its public school district is refusing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review.
4. OCR has not issued a violation letter of findings to the public school district concluding that the nominated public school or the public school district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.
5. The U.S. Department of Justice does not have a pending suit alleging that the public school or the public school district as a whole has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
6. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the public school or public school district in question; or if there are such findings, the state or public school district has corrected, or agreed to correct, the findings.
7. The school meets all applicable federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

U.S. DEPARTMENT OF EDUCATION  
Green Ribbon Schools

DISTRICT  
NOMINATIONS!

U.S. Department of Education Green Ribbon Schools 2013

For Public Schools only:  Charter  Title I  Magnet  Choice

COUNTY SUSTAINABILITY CONTACT  
Name of Principal MR. MARK SWIGER

(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

DISTRICT  
Official School Name MARSHALL COUNTY SCHOOLS

(As it should appear in the official records)

School Mailing Address PO BOX 578 (214) MIDDLE GRAVE CREEK ROAD

(If address is P.O. Box, also include street address.)

MOUNDSVILLE WV 26041  
City State Zip

County MARSHALL State School Code Number\* 048

Telephone (304) 843-4400 Fax (304) 843-4409

Web site/URL http://doe.marsh.k12.wv.us E-mail MSWIGER@ACCESS.K12.WV.US

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

MARK SWIGER Date 2/13/2013  
(Principal's Signature) COUNTY CONTACT (FOR SUSTAINABILITY)

Name of Superintendent\* MR. ALFRED RENZELLA  
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name\* MARSHALL County Schools Tel. (304) 843-4400

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate. This is one of the highest performing green schools in my jurisdiction.

Alfred Renzella Date 2-13-13  
(Superintendent's Signature)

\*Private Schools: If the information requested is not applicable, write N/A in the space.



**PART II – SUMMARY OF ACHIEVEMENTS**

**Instructions to School Principal**

Provide a concise and coherent "snapshot" that describes how your school is representative of your jurisdiction's highest achieving green school efforts in approximately 800 words. Summarize your strengths and accomplishments. Focus on what makes your school worthy of the title U.S. Department of Education Green Ribbon School.

**PART III – DOCUMENTATION OF STATE EVALUATION OF NOMINEE**

**Instructions to Nominating Authority**

The Nominating Authority must document schools' high achievement in each of the three ED-GRS Pillars and nine Elements. For each school nominated, please attach documentation in each Pillar and Element. This may be the Authority's application based on the Framework and sample application or a committee's written evaluation of a school in each Pillar and Element.

**Nominating Authority's Certifications**

The signature by the Nominating Authority on this page certifies that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct.

1. The school has some configuration that includes one or more of grades K-12. (Schools on the same campus with one principal, even a K-12 school, must apply as an entire school.)
2. The school is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
3. The school meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency

West Virginia Department of Education

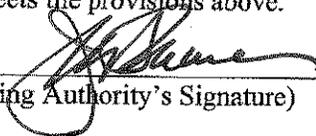
Name of Nominating Authority

(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application and certify to the best of my knowledge that the

U.S. DEPARTMENT OF EDUCATION  
GreenRibbonSchools

school meets the provisions above.

  
(Nominating Authority's Signature)

Date 2.14.12

The nomination package, including the signed certifications and documentation of evaluation in the three Pillars should be converted to a PDF file and emailed to [green.ribbon.schools@ed.gov](mailto:green.ribbon.schools@ed.gov) according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509  
Expiration Date: February 28, 2015

**Public Burden Statement**

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email [ICDocketMgr@ed.gov](mailto:ICDocketMgr@ed.gov) and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.

Schools are unique in their social, cultural, geographical, economic, and academic challenges. Even within districts like Marshall County Schools, demographic and geographic challenges faced by individual community schools are clearly evident. Marshall County Schools serves 13 schools along with our district offices in the county seat of Moundsville, West Virginia as well as 312 square miles of rugged terrain in the Ohio River valley. Most of our residents live along the Ohio River however numerous other schools are distributed throughout the rugged terrain of our beautiful county.

The district's commitment to sustainability rests not only in our investment in the built environment, which consists of two of the states first three LEED certified schools, both having won recent placemaker awards at the state's second annual building conference for innovation and design, dynamic investments by our staff and administration have focused heavily on sustainability literacy, professional development opportunities for staff, and transformation to green practices in regard to cleaning products, healthy breakfasts and physical activity emphasis for every child, a bus fleet that is 100% biofuel buses, but also in energy efficiency for all of our schools mirroring our investment in LEED facilities for construction and renovation. Based on a recent study of the West Virginia Department of Education's Comprehensive Facilities Plan data compiled by Energy Efficient West Virginia, our district is listed as the second most energy efficient district in West Virginia and based on data before the opening of our second LEED project.

Building on the accomplishments of our school district in regard to sustainability and our state's first Black Bear Award (and first LEED certified school) as the state's most sustainable school (Hilltop Elementary), and a National Green Ribbon designee last year, the Marshall County School district is applying for the first ever district wide Green Ribbon School Award. For the past four years, the district has implemented commitments to Leadership in Energy and Environmental Design (LEED) building principles in construction of both Hilltop and the recently opened Cameron Middle/High School and through implementation of these same principles in the renovation of our existing buildings. Our district's commitment to environmental, educational, and financial sustainability is clearly evident based on its vision for the built environment tied to healthy schools and also tied to the sustainability literacy of its entire school community.

Through our work with formal and informal education entities, taxpayers, parent groups, local businesses, public-private partnering, and the generous anonymous contributions to these efforts through a \$54,000 kit development grant the district has acquired valuable support in our effort to be a model district for the nation in the area of sustainable schools. Through this work, each school in the district will be given learning materials that allow students to do the same work that STEM professionals do, using a LEED Framework tied to state, national, and Common Core standards. College and career ready students have emerged as winners in sustainability entrepreneurship national competitions that are focused on blending STEM to Career and Technical Education initiatives.

Sustainable Learning™ Systems (SLS) and Sustainable Learning™ Institute (SLI) are developing unique learning kits and greening districts through teambuilding, curriculum development, and student programming strategically. The district is also collaborating with school districts throughout the nation through SLS and SLI. <http://greenschoolsforteachers.wikispaces.com>. The schools in this network emphasize how high performance buildings can assist in creating high performing schools. In the final year of the aforementioned grant, kits developed in partnership with SLS will be awarded to each school in the district so that they may implement LEED principles based on the three pillars of the Green Ribbon Schools program. Each of these pillars has their own specific problem based learning (PBL) module and activities based on:

- Sustainable Sites-Our Footprint on Society;

- Water Efficiency-Go Green, Conserve Water, and Keep it Clean;
- Energy and Atmosphere-Energy and Atmosphere, Energy is Everything
- Materials and Resources-The Three Rs of the 21<sup>st</sup> Century: Reduce, Reuse, Recycle
- Indoor Environmental Quality-A Healthy Place to Work, Learn, and Play
- Innovation and Design-Time to Build Design Thinking

Sustainable Learning™ Systems has established with Marshall County Schools what we believe to be the first district wide Sustainability Professional Learning Community™ (SPLC). This group of teachers are assisting each other in the implementation of the three pillars of the Green Ribbon Schools program, as well as using the LEED Curriculum Frameworks developed by SLS in order to make our existing buildings more sustainable. Marshall County participated in a least a dozen district-wide programs on the USGBC's Center for Green Schools' Green Apple Day of Service in school specific programs that are being driven by this team of teachers across the district. The SPLC will brainstorm solutions to create what SLS calls a "healthier schools at lower cost" approach to building community sustainability and sustainable practices in the school and into the community at-large.

## **Marshall County Schools Green Ribbon District Nomination**

Marshall County Schools is being submitted as a district that embodies the principles and criteria of all three pillars of the U.S. Department of Education Green Ribbon Schools designation.

Marshall County Schools Superintendent: Alfred Renzella  
E-mail: [arenzel@access.k12.wv.us](mailto:arenzel@access.k12.wv.us)  
Phone: 304-843-4400

Sustainability Contact: Mark Swiger  
E-mail: [swiger.mark@gmail.com](mailto:swiger.mark@gmail.com)  
Phone: 304-280-4882

Marshall County Schools consists of 13 schools and one district office building. The district's free or reduced lunch statistics measure over the 40% threshold requested by the Green Ribbon Schools application. The district has 4728 students with a graduation rate of 83% and a district wide attendance rate of 97.6%.

The district has been awarded numerous honors in recent years and continues to make sustainability a key component of the overall mission of the district. Hilltop Elementary became West Virginia's first LEED certified school in 2009. Marshall County Schools was awarded a \$54,000 Sustainable Schools grant in 2010. Hilltop Elementary won the West Virginia Black Bear Award as the state's most sustainable school in 2012. Hilltop was awarded U.S. Department of Education's National Green Ribbon School designation in 2012. Hilltop was also awarded the West Virginia Department of Environmental Protection's Clean Energy Award in 2012. Cameron Middle/High School became Marshall County's 2nd LEED school project having opened in January 2013.

### **Pillar One**

#### **WV Sustainable Schools Review = 25 out of 30**

##### **Part A: Reduced greenhouse gas emission reduction, reduction planning, cost-effective energy efficiency improvements, and on-site renewable energy and / or purchasing of green power:**

During the data collection period from December 1999 to September 2011 the entire district calculated a total of 30.4% greenhouse gas reductions. Because of fluctuation in student and staff population, per person calculations were not performed. Using E-Cap calculations, from the benchmark date to the final date, total energy and water efficiency savings equaled more than \$5,100,000. In a recent study of West Virginia's k-12 districts using the Comprehensive Education Facility Plans (CEFPs), Energy Efficient West Virginia lists Marshall County Schools as the second most energy efficient school district in the state, even before the recent opening of the districts 2<sup>nd</sup> LEED Project.

It is being planned by district leaders to convert E-Cap data into Energy Star Portfolio Manager and to move towards more automated systems for even more savings. The total reduction of carbon emissions equals 111,433 MT of carbon from earlier emission totals. It is our estimation that Energy Star certification will be realized by some of our schools, while providing new benchmarks will give the district an opportunity to set goals to certify all of our buildings. Based on calculations from E-Cap and

our energy manager, our carbon reduction is equal to removing 7,733 automobiles and saved 1,101,966 trees over a ten year span.

Marshall County Schools is only using solar demonstration projects on-site. One location is Washington Lands Elementary schools where power company partnerships utilize an array of PV panels. The new LEED project that opened in January, Cameron Middle/High School is using solar to power greenhouses as a part of the Agricultural Education program. The district does not purchase alternative energies, but is utilizing the built environment and construction and renovation projects to create energy efficient buildings. Two of the schools, both LEED projects will rate in the top 90% percentile in energy efficiency for buildings in the United States.

The schools in Marshall County range from more than 50 years old to a new building opening in January of 2013. The district consists of 911,467 square feet of buildings and is fortunate enough to pass 100% of their levies in order to update, renovate, and construct buildings. The district either certifies and commissions their buildings using LEED and renovates utilizing those same principles when possible. For our new buildings, both constructed since 2009 are LEED projects, with one being West Virginia's first LEED certified school. The 2<sup>nd</sup> Project just opened and will be applying for certification over the next year. Total new construction of LEED buildings equals 228,700 square feet. Because of these LEED projects being commissioned, the district will be accountable to operations and maintenance procedures to keep our buildings sustainable. The same goes for renovation of existing buildings. Since the 2009 construction of Hilltop Elementary, all renovations in the district utilize LEED principles.

#### **Part B: Improved Water Quality, Efficiency, and Conservation**

Marshall County Schools can demonstrate a reduction in the districts total water consumption from its initial baseline. Domestic water use decreased considerably from August 2010 to August 2011, but water costs stayed relatively the same due to an increase in irrigation of numerous athletic fields. Our data was measured through utility bills and metering. Further, with an effort to move towards utilization of Energy Star Portfolio Manager, monitoring of water usage will be more effective.

Balancing EPA requirements, discussions have started concerning the use of gray water and storm water for irrigation. The district would eventually like to move toward programmatic changes like this, but logistics have been somewhat of a hindrance. School based programs where students perform some measurements in energy, water, sustainable sites, and indoor environmental quality, working with the districts sustainability contact and the energy manager educational programming and student learning tied to improvements will produce district and community "buy-in" to positive changes in these areas.

At new and existing buildings, landscaping utilizes natural plant species and perennial plants in its grounds to reduce irrigation costs/water efficiency. Our LEED projects require this, while the district is attempting to make these adjustments at existing buildings. At our two LEED projects, both buildings gather stormwater before it heads into the watersheds of Wheeling and Grave Creeks. Some schools are planning uses for this water. Others are planning rainwater gathering for other projects through the district wide Sustainability Professional Learning Community. These instructors meet periodically at each other's schools to audit, plan, and deploy sustainability strategies through a LEED curriculum framework.

All water comes from municipal sources where testing for impurities, lead, mercury and other contaminants is done all the time. All water is testing per state regulations and all construction and renovation projects install lead free plumbing. Our buildings are tested periodically for multiple

contaminants, including lead. At all LEED certified schools and at schools as they're renovated, ecological principles are utilized through commissioning of new construction and in projects where renovation takes place.

**Part C: Reduced solid waste production through increased recycling, reduced consumption and improved management, reduction, or elimination of hazardous waste stream.**

Although Marshall County Schools does not measure in calculations the amounts of recycling waste, most schools utilize a combination of PTO organizations, student clubs, entrepreneurship programs, and construction using "cradle-to-cradle" principles in addressing materials and resource utilization across the district. Hilltop Elementary, for instance, earned over \$1000 in funds from recycling paper alone. They are also a national leader in a plastics recycling program. Food scraps are collected by local chicken and pig farmers for food for their livestock. This issue will be addressed through the Sustainability Professional Learning Community.

This year, one of our students won a national semifinalist award for a business plan in the Conrad Spirit of Innovation Challenge where they will begin a recycling company that provide profit sharing for schools, solid waste companies, and recycling centers. Regardless, the district is encouraging social entrepreneurs in sustainability now and into the future.

All paper products/office supplies are from post-consumer sources and are green certified and with implementation of a more focused recycling program in the future, the goal for the district and our young entrepreneurs to close the loop in regard to resources to reduce, reuse, and recycle (as well as rethink) the process of resource utilization.

In regard to flammable, corrosive, toxins, and mercury, the district does not generate any waste in this regard. We can measure this through purchasing (purchase orders), requisitions, and monitoring of what comes into our buildings. In the incidence that there are hazardous materials noticed/detected, private contractors licensed in handling/managing removal are under contract with the district. Records are kept about work done and disposal of materials are saved.

All custodial cleaning products are moving toward green certified materials. Between 60% and 80% of products are green certified per LEED principles. As more buildings convert over to green products, more systemic approaches to cooperative purchasing between schools will benefit the entire district. LEED manuals and consulting with LEED Aps help Marshall County Schools to implement standards for green cleaning.

**Part D: Expanded use of alternative transportation to, during, and from school through active promotion of locally-available options and implementation of enabling projects and policies**

Marshall County Schools promotes alternative transportation as categories in LEED design at their LEED certified buildings. In town schools and LEED buildings provide for bike racks and changing rooms at the LEED schools. Calculations through parking permit sales, documentation on bus travel, and surveys have been taken to arrive at approximately 80% of all students who attend Marshall County Schools either walk, bike, bus or carpool to our schools.

Our entire district has implemented carpool parking stalls at our LEED certified schools and well-publicized no-idling policies at all of our schools. Vehicle loading and unloading takes place at all of our schools takes place more than 25 feet from doors, windows, and ventilation intakes at our buildings.

The entire bus fleet of the district utilizes bio fuel technologies in the buses. Our LEED certified buildings require educational programming on transportation (walk, bikes, carpool, energy efficient vehicles.) These buildings give preferential parking to alternative energy vehicles and energy efficient vehicles. These same principles are being mirrored at existing buildings as well as our LEED schools.

Our district wide curriculum is tied to all pillars of the Green Ribbon program and emphasizes sustainability literacy components in new and existing buildings. Relevant contexts in sustainability where buildings are learning laboratories for sustainability are a part of all partnerships with outside groups. As part of a three-year grant acquired from a local family's charitable trust for over \$50,000, Marshall County Schools has leveraged community involvement with learning through developing learning kits and school manuals where students become engaged in healthy, clean, and efficient schools. In the third year of the grant, all of the schools in the district have been able to send teachers to professional development sessions where project-based learning, sustainability, iPad training, and creating healthy communities have been the focus. Students will be able to use architecture, engineering, design thinking, and career development at k-12 levels for students in all subject areas.

Fortunately, the investment in LEED construction and renovation have given students learning laboratories in the form of school buildings to learn about everything from Science, Technology, Engineering and Math (STEM) careers to opportunities to infuse learning into traditional careers. With the second LEED Project at Cameron scheduled for completion this winter, Marshall County students and the community at-large will benefit from more savings and healthier schools.

On September 29, over a dozen projects were showcased during the US Green Building Council's (USGBC) Center for Green Schools Green Apple Day of Service, an international observance that ties conservation and environmental stewardship to community service. The district's involvement is unprecedented for a district. Some projects included:

- School and community wide recycling and clean up programs at numerous schools in the county;
- Partnerships with Oglebay Institute's Schrader Environmental Center with all 5<sup>th</sup> grade science students in the county;
- Composting workshop with Hilltop Elementary staff and students;
- Announcing of a \$14,000 partnership grant between the Marshall County Historical Society and John Marshall High School Career and Technical teachers to design and observe outdoor shed development at the Cockayne Farmstead;
- A county-wide Sustainability Professional Learning Community being offered to all district schools through Sustainable Learning™ Systems;
- A county-wide "Energy-Off" weekend to audit and measure energy savings for the entire district;
- Water efficiency audit by Career and Technical students at John Marshall High School;
- Announcement of a collaborative curriculum development project at the Preservation Alliance of West Virginia conference with John Marshall High School, the Marshall County Historical

Society, the Cockayne Farmstead Committee and Sustainable Learning™ Systems focused on sustainability education tied to preservation science, historical analysis, and design thinking;

- Continuation of learning kit development with the Sustainable Professional Learning Community™ involvement and with Sustainable Learning™ Systems and a local charitable trust; and
- Numerous other activities that encourage schools to be the epicenter for sustainable lifestyles in their communities.

Other achievements in sustainability programs include Conrad Foundation's Spirit of Innovation National Semifinalists, 2012 John Marshall High School graduates and 2013 graduates where social entrepreneurship and sustainable design and products have been developed.

Their efforts in student entrepreneurship and innovation garnered numerous academic scholarships as well as internships in the Office of Sustainability at WVU this fall, the first given to freshmen engineering majors since the office was established in order to work on their innovation with the university's multiple departments. These students have given keynote addresses at the West Virginia Entrepreneurship Summit, the State School Superintendent's Conference and were recently showcased at the Create West Virginia Statewide Conference for their accomplishments. The goal for these groups is to be a full-fledged business upon graduation and to create new opportunities in community health and sustainability for Marshall County. Our model for sustainability was showcased at this year's statewide building conference where our two new LEED projects won Placemaker Awards for Innovation and Design, along with replicating our successes into statewide programming and including PK-Adult programming.

## **Pillar Two**

### **WV Sustainable Schools Review = 20 out of 30**

**Part A: An integrated school environmental health program based on an operations and facility-wide environmental management system that considers student, visitor, and staff health and safety in all practices related to design, construction, renovation, operations, and maintenance of schools and grounds.**

Marshall County Schools uses state guidelines for pesticide usage when needed. We use almost no pesticides, except when a need is reported. When used, students and staff are not present and are given 48 hour notice where and when pesticides are used. Again, virtually no pesticides are used at all in an effort to keep these materials use to a minimum.

As an entire district, all student planners and manuals given during orientation and the beginning of school each year includes no smoking announcements in those publications for all of our facilities. Principals of our schools announce regulations concerning smoking and use of smokeless tobacco in our facilities in assemblies, and at athletic contests. Regulations are enforced by both school staff and by our resource officers. Signage is placed on school property as well, particularly for the benefit of our visitors. All schools have smoke monitors and cameras in areas where smoking may take place. Our regional education agency has provided programming around the RAZE program previously and address smoking in all of our schools to enhance the lives of people in our community. Our school district has in place

support for smoking cessation programming in order to address existing problems with students as needed.

In order to address hazardous contaminants:

- Our schools prohibit smoking on campus and in public school buses as mentioned above.
- Our schools have identified and properly removed sources of elemental mercury and prohibit its purchase and use in the school.
- Our schools use fuel-burning appliances and have taken steps to protect occupants from carbon monoxide (CO) with use of CO alarms that meet the requirements of the National Fire Protection Association.
- Our schools have annually tested all frequently occupied rooms at or below ground level for radon gas and has fixed and retested all rooms with levels that tested at or above 4 pCi/L OR our school was built with radon resistant construction features and tested to confirm levels below 4 pCi/L.
- Our schools have identified any wood playground or other structures that contain chromate copper arsenate and have taken steps to eliminate exposure.

Two of our fourteen facilities use combustible appliances; Moundville Middle School and Cameron Elementary. The other twelve facilities do not. All facilities have been tested and are free from radon. Our school playgrounds have removed all of the mentioned materials and replaced with more sustainable products.

In regard to chemicals used in schools and in cleaning chemicals used by staff, Generally speaking, chemicals in schools are housed in chemistry classrooms. Chemistry teachers and students have a process (by chemical) for minimizing negative events in the classroom. Staff follows stringent OSHA standards and store chemicals in proper locations. Evacuation and first aid procedures are made clear to students in science classes.

In apply cleaning chemicals, staff has met with the national green cleaning programs on this topic and has followed up with our maintenance director, buildings director, energy manager and superintendents and they are committed as well to apply the idea of using only green cleaning chemicals in our schools. Elsewhere in this document our maintenance director listed that we're purchase 60-80% green certified products including post consumer paper towels and other paper products (chemical free). The district never uses acidic materials for cleaning and if chemicals are used in our schools for pesticides, or other reasons, all parents and students are notified that these materials have been used and are given a 48 hour notice of such action. The district is moving towards integrating a complete green cleaning /chemical program that will ensure healthier schools and better indoor environmental quality. All of our LEED projects and renovation are commissioned to use green cleaning products as well.

Our investment in LEED certified schools also limits airborne contaminants through commissioning indoor environmental quality (IEQ) criteria to prevent asthma as well. As new construction of LEED certified facilities and with renovations keeping sustainable practice in mind, the district is making every effort to utilize principles outlined in LEED Materials and Resource standards when possible. As existing buildings encounter issues around asthma, it is addressed with student and staff health in mind. Indoor environmental quality is important to the district. In our new schools, low emitting materials are utilized, mold-resistant materials are standard and allergens kept to a minimum in all buildings. Operations and maintenance challenges are addressed thoroughly as the challenges present

themselves.

Further, Our LEED certified schools have by design humidity and indoor environmental quality controls, including CO2 monitoring. As part of the energy program, our energy manager and maintenance directors monitor humidity in the schools are repair immediately with outside contractors and county staff any and all humidity, water leakage and mold creating events before the results of high humidity can form. Whenever schools are renovated, LEED principles are utilized in reference to Indoor Environmental Quality (IEQ) and Materials and Resource provisions. All of our schools have humidity monitoring equipment that assures appropriate IEQ and that mold causing condensation is eliminated before problems arise. Again, staff is always responsive to humidity levels that need to be addressed. Some newer technologies are being integrated into our building systems, such as Chill Beam technology that requires constant monitoring of humidity in our schools.

Our energy and water efficiency staff monitors issues such as these not only for cost effective practice, but also to monitor water loss and leaks. When we have leaks, private contractors with expertise in water removal are contracted to eliminate the chances of mold and other water related conditions from occurring by working with county staff.

In addition to humidity controls for IEQ, the district has secured contracts with HVAC experts to inspect and be available for maintaining our ventilation systems in all our schools. HVAC contractors are trained in new systems / efficiency and healthy practice in ventilation. Under contract, our HVAC experts constantly screen the effectiveness and the need for cleaning of the systems in all of our buildings. In our LEED buildings, commissioning of indoor environmental quality principles reinforce that construction, as well as operation and maintenance of HVAC equipment meets the highest of LEED standards. Other facilities benefit from this knowledge.

To assure adherence to ASHRAE 62.2 standards and verification, the district schools are inspected each year, including a sampling by the School Building Authority in order to meet national ventilation standards. With our newest LEED projects, ventilation is an advantage for learning as well as health. CO2 levels are monitored and fresh air pumped in based on critical mass of CO2 in relationship to air quality. The same HVAC contractors for our other buildings do their best to implement as close to these higher standards as they can.

Not only do our LEED certified buildings utilize IAQ standards for LEED, our existing buildings have EPA IAQ tools available for students in our Green Schools Learning Kits in order for them to be involved in learning about these same issues. When issues are brought to the district's attention, they are quickly addressed both through inspection and then appropriately dealt with in a timely fashion by county maintenance personnel and outside expert contractors who deal with specific issues. With LEED projects in the district, the district is learning from LEED Accredited Professionals and others about the standards with which these issues should be dealt. Our energy and water-monitoring official inspects buildings when they're not in use. Green cleaning products make up between 80-90% of our custodial products, consisting of low-emitting chemical output as well as low VOC materials in new schools and renovation projects. Further, all recent building materials utilized district-wide implement LEED principles for indoor environmental quality.

**Part B: High standards of nutrition, fitness, and quantity and quality of outdoor time for both students and staff.**

In an effort to address overall school health, our district employs the following criteria for our students:

- Our schools participate in a Farm to School program to use local, fresh food (in pilot phase).
- Our schools have on-site food gardens at some schools.
- Our schools' gardens supplies food for our staff as a demonstration project, a cooking or garden class or to the community prepares what the Agricultural Education students produce.
- Our students spent at least 120 minutes per week over the past year in school supervised physical education.
- Health measures are integrated into assessments i.e. FITNESSGRAM, HEAP.

Marshall County Schools adheres to West Virginia state code in all of our nutrition and physical activity programs. PE, food, etc. are no exceptions. All of our schools meet state codes for quality physical education and outdoor education programming. Physical education classes meet during three forty-five minute classes per week. All current requirements for assessment of health and physical education are met, including FITNESSGRAM, USDA programming, and innovative provisions for quality food and assurance that a healthy breakfast is provided for all children.

Physical education classes spend approximately 25% if there class time outside. Numerous schools have built and use outdoor classrooms, including some that include nature walks. An 1850s Farmstead has become an outdoor learning space for John Marshall High Schools students and pilot schools being presently named to showcase the farm from 1850 to now historically, agriculturally, sustainability-wise (renovations being made through the work of our students that are collaborating with LEED Accredited Professionals and historic preservationists and by using sustainable products), and economically. Our students are designing and building the outdoor classroom through a \$14,000 grant through the local historical society. Students in all schools will learn about Sustainable Sites in regard to LEED, measuring the environmental footprint of the facility and its location. Greenhouses used for science/agriculture labs are at approximately 1/4 of our schools.

In regard to innovative approaches to healthy schools, all of our schools will be piloting the Farms to Schools program and participate in the breakfast program for all students. Agriculture Education students have outdoor gardens that produce food for the Prostart food preparation programs in our schools. Prostart also fed dignitaries and consistently provide food for Monarch cafe, a program that markets and sells lunches for adults at John Marshall High School. Marshall County Schools understands the relationship between nutrition and human movement/exercise. Our schools have been involved in many programs, such as Let's Move, Farms to School, and FITNESSGRAM. Health measures are integrated into assessments as well, providing benchmarks for staff to help students set personal and community goals for healthy students, families, and communities. Further, Marshall County Schools promote safety of students through programming, drilling for adversity in schools, and provides physical and emotional health programs that encourage the growth of complete people. Marshall County sees itself as an agent for community health and sustainability.

### **Pillar 3**

**WV Sustainable Schools Review = 27 out of 35**

**Part A: Interdisciplinary learning about the key relationships between dynamic environmental, energy, and human systems.**

There is no Environmental or Sustainability Literacy requirement in Marshall County. However, since the state of West Virginia offered an elective course, our 9-12 institutions have offered the course and have certified teachers teaching the courses, including a beginning offering of AP Environmental Science. It is anticipated that the AP course will be offered and taken during the 2013-14 school year. This option is fairly new, but is being promoted through many channels in our district.

When the statewide course content standards were being reviewed, numerous science and sustainability professionals from our district promoted the adoption of those standards promoting environmental science as part of the “body of science” and without any part of the body of science that science isn’t complete. Although the environmental standards-based course is new, it is the intention of the district to work with instructors to offer environmental science class for all students as an elective and offer an Advanced Placement course, as well.

In regard to the multi-disciplinary approach to environmental and sustainability literacy, through our work with formal and informal education entities, taxpayers, parent groups, local businesses, public-private partnering, and the generous anonymous contributions to these efforts through a \$54,000 kit development grant the district has acquired valuable support in our effort to be a model district for the nation in the area of sustainable schools. Through this work, each school in the district will be given learning materials tied to both Environmental Science and Sustainability Literacy standards that can be implemented across the curriculum. All new learning materials will be tied to Common Core and Next Generation standards, emphasizing both reading and writing literacy. All learning materials will emphasize career development that allow students to do the same work that STEM professionals do, using a LEED Framework tied to state, national, and Common Core standards. Working with our energy director, based on a recent study of the Comprehensive Facilities data by Energy Efficient West Virginia, our district is the second most energy efficient school district in West Virginia. Students will be engaged in environmental auditing through county wide programming. The LEED Framework focuses on stimulating STEM and STEAM approaches to using the building as a teaching tool.

Sustainable Learning Systems (SLS) is partnering with the district to develop unique learning kits and greening districts through teambuilding and curriculum development strategically. This includes performing a complete crosswalk of standards and Common Core alignment. The district is also collaborating with school districts throughout the nation through SLS using a “Connectivist”; Constructivism tied to technologies such as Web 2.0 extension, online instruction and systemic sustainability approach to curriculum collaborations. <http://greenschoolsforteachers.wikispaces.com>. The schools in this network emphasize how high performance buildings can assist in creating high performing schools and encourage STEM and STEAM integration tied to sustainability knowledge, as well as tied to Career and Technical Education and student entrepreneurship.

In the final year of the learning materials grant, kits developed in partnership with SLS will be awarded to each school in the district so that they may implement LEED principles based on the three pillars of the Green Ribbon Schools program. Each of these pillars has their own specific problem based learning (PBL) module and a full array of activities and performance tasks based that encourage mastery of Common Core/Next Generation standards through a balanced formative and summative assessment program. The activities measure an understanding of the following criteria: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, and Innovation and Design.

Formative and summative assessments will not be rolled out until summer 2013; with release of the

last version of the Next Generation Science Standards/Common Core. Final adjustments are being made to modules/activities that will be affect assessments. New assessments will include rubrics for summative assessments and performance tasks tied to Common Core and Next Generation standards in all areas. As these assessments are generated, all grade levels instructors county-wide will have access to these tools as well as weeklong and yearlong opportunities for professional development where best practices will be showcased.

Further, learning kits that allow for student generated data, started children at adaptation level and moving STEM and STEAM education from theoretical academics to applied academics will be a goal for all children in Marshall County through the this sustainable schools program. Hilltop Elementary School's success as a LEED certified school that is utilized as a K-5 Sustainability Laboratory and now the district gets extended curriculum to Grades 6-12 with the opening of Cameron Middle/High School. These learning laboratories have been delivered into kits so that the "existing" buildings will be provided with sustainability and environmental education opportunities that are authentic to the district and allow other schools to be more sustainable.

Sustainable Learning™ Systems has established with Marshall County Schools what we believe to be the first district wide Sustainability Professional Learning Community™ (SPLC). This group of teachers are assisting each other in the implementation of the three pillars of the Green Ribbon Schools program, as well as using the LEED Curriculum Frameworks developed by SLS in order to make our existing buildings more sustainable. Marshall County participated in a least a dozen district-wide programs on the U.S. Green Building Council's (USGBC™) Center for Green Schools™ Green Apple Day of Service, county-wide "intentional power outage" events, student driven energy audits, the greening of an 1850s Farmstead, as well as specific programs that are being driven by this team across the district. The SPLC will brainstorm solutions to create what SLS dubs a "healthier schools at lower cost: who can argue with that?" approach to building community sustainability and building capacity for sustainable practices in the school and into the community at-large. Over the past four years, all the schools in Marshall County have been provided sustainable schools training showcasing many organizations, such as Oglebay Schrader Center. It is our hope to expand our network to teacher professional organizations and green industry professionals into the future. Marshall County Schools has successfully accessed guest speakers for teachers from the School Building Authority, Schrader Environmental Center, and any other interested private or non-profit organization with a story to tell or that can share technical assistance with our teachers and students.

From an outdoor education perspective, these activities are not only just happening county wide in our district, but is highly encouraged. Oglebay Institute's Schrader Environmental Center is providing as partner, the REACH program; a program where all 5th graders and their teachers, district wide are provided with standards based outdoor education programming. Staff members of the Schrader Center have attended our Sustainability Professional Learning Community meetings, which has helped to organize the program. Further, all of our schools are encouraged to administer walking/hiking programs, use outdoor classrooms that exist at some of our schools. Presently, Career and Technical classes are designing and helping to build an outdoor classroom at an 1850s Farmstead by John Marshall High School, where our Agriculture, History, Science, and Buildings Trades classes can learn outside while using the facility as a learning tool. Clubs and school based organizations/classes do numerous service learning programs that encourage environmental stewardship.

There are many other programs where outdoor education in occurring where the community becomes our schools' learning labs. Most schools have outdoor physical activities programs as well that tie the

outdoor environment to sustainable sites concepts, whether its through hiking, outdoor classroom activities, or healthy play areas for physical education. Because we are a PK-12 district, these activities tied to sustainability come in many different forms.

At the high school level, .023 of our students have taken the environmental science elective, mainly because the course is very new. In the 2013-14 year, AP Environmental Science will be offered at our largest high school. As our offerings in environmental science increase, it is our hope that more students will take the things they are learning vertically at the lower levels in school and expand them into lifelong sustainability efforts.

**PART B: Use of the environment and sustainability to develop Science, Technology, Engineering, Arts, and Math (STEAM) content knowledge and thinking skills to prepare graduates for the 21st century technology-driven economy.**

Our schools utilize sustainability literacy to develop Science, Technology, Engineering, Arts, and Mathematics content knowledge and skills to prepare them to be college and career ready. Our investment in LEED construction has given students learning laboratories in the form of buildings. Students learn about everything from STEM careers to opportunities to infuse learning into traditional careers. With the second LEED Project at Cameron now completed, district students and the community at-large will benefit from countywide LEED learning kits that emphasize STEM education, green collar careers, the arts, and civic engagement. Sustainability PLC teachers represent all areas of the curriculum and all levels. Art students, broadcasting students, Agricultural Education students, and Drafting and Building and Construction Trades students are contributing time and effort to showcase an 1850s Farmstead renovation project through utilizing their abilities in the renovation that is using LEED frameworks to convert this centuries old farm into a sustainable food production, building outdoor classrooms and authentic sheds using sustainable design, and feeding students, staff, and visitors to John Marshall HS in the ProStart program. High school students have won National Semifinalist honors in the Conrad Spirit of Innovation Awards, both in sustainability entrepreneurship.

In regard to the district's efforts to use sustainability contexts for pathways to green technologies and career pathways, much is going on in the district. In the final year of the learning materials grant, kits developed in partnership with SLS will be awarded to each school in the district so that they may implement standards-based LEED and STEAM principles based on the three pillars of the Green Ribbon Schools program and 10 additional career pathway activities that use the building as a learning tool. Each activity poses a PBL module and a full array of real world tasks based on the following criteria: Sustainable Sites-Our Footprint on Society; Water Efficiency-Go Green, Conserve Water, and Keep it Clean; Energy and Atmosphere, Energy is Everything; Materials and Resources-The Four Rs of the 21st Century: Reduce, Reuse, Recycle (Rethink); Indoor Environmental Quality-A Healthy Place to Work, Learn, and Play; Innovation and Design-Time to Build Design Thinking. The Sustainability PLC teachers are assisting each other in the implementation of the kit curriculum and a soon to be released PK-12 sustainability curriculum focused on college and career readiness, including CTE extensions. These principles are embedded into this county-wide curriculum designed with Sustainable Learning™ Systems. The effects of sustainability pathways thinking has already resulted in nationally recognized student developed business plans in sustainability and social entrepreneurship, for example.

**Part C: Development of civic engagement knowledge and skills, and students' application of these to address sustainability and environmental issues in their community.**

In an effort to increase students' civic engagement in the community, in partnership with Oglebay Institute, Marshall County Schools has acquired the outdoor education REACH program for all 5th grade science students and composting across the curriculum opportunities for the district's teachers. Numerous outdoor gardens and greenhouse activities focused on sustainability have emerged and are expanding to other schools in the district. Outdoor learning is mandatory at our LEED schools and encouraged at all others.

The Conrad Award National Semifinalist sustainability student entrepreneurs along with present members of JMHS student council have been involved in the Moundsville Comprehensive Plan redevelopment project; a legislative mandate for all West Virginia's municipalities. The project is a partnership with WVU's Department of Public Administration and Moundsville city council to help Moundsville and the Marshall County community redesign the community for the future of the city and its surrounding areas and to prepare a community design that encourages the students' ability to remain in our communities in order to work, live, and play. Since the end of the Industrial Period and into the Post-Industrial era, West Virginia has lost a large portion of its student population to other areas with more vibrant economies.

Here, students become problem-solvers and new economy ambassadors focused on environmental, educational, and financial sustainability. Students are equal team members and are modeling sustainable practices for those not knowledgeable in the process of greening communities. In a shrinking community, students are creating reasons to stay and work in Marshall County.

Developing students' civic and community engagement doesn't end with the Comprehensive Planning process for municipalities. Service learning programs strengthen the communities where this type of learning takes place. During this year's USGBC Center for Green Schools Green Apple Day of Service that ties environmental stewardship to community service, the district's involvement was unprecedented. Some district wide projects for students and teachers include: School and community wide recycling and clean up programs; Oglebay Institute's Schrader Environmental Center with all 5th grade science students throughout the county; Composting workshop with school staff and students; Announcing of a \$14,000 partnership grant for John Marshall HS CTE teachers to design and observe outdoor shed development using sustainable products; A county-wide Sustainability PLC announced for all district schools and ALL DISCIPLINES; A county-wide "Energy-Off" weekend at all schools; Continuation of learning kit development with the Sustainable PLC involvement and SLS. Achievements include Conrad Foundation Spirit of Innovation National Semifinalists in 2012 and 2013. The "Green Gym" project and the "Cradle to Cradle Waste Not" programs exemplify student emphasis on social and financial entrepreneurship excellence. A student also received a gold medal for her passionate speech on sustainability at a national FCCLA meeting.

Through our work with formal and informal education entities, state agencies, taxpayers, parent groups, local businesses, public-private partnering, non-profit organizations, and the generous anonymous contributions to these efforts through a \$54,000 kit development grant the district has acquired valuable support in our effort to be a model district for the nation in the area of sustainable schools. Through this work, each school in the district will be given learning materials that allow students to do the same work that STEAM professionals do, using a LEED Framework tied to state, national, and Common Core standards. All schools are able to participate in the Sustainable Learning System and the Sustainability Professional Learning Community, culminating in summer week long workshops sponsored by the county that invites partners to participate. Working with our energy director, based on a recent study of the Comprehensive Facilities data by Energy Efficient West Virginia, our district is the second most

energy efficient school district in West Virginia. Students have begun to utilize data and create their own in an effort for even more savings both at school and in the community.

Organizations like the US Green Building Council (USGBC-WV Chapter), the Northeast Corridor Regional Council of the USGBC, Create West Virginia, a grassroots economic development group, the Council for Educational Facilities Planners International (CEFPI) the West Virginia Department of Education, Oglebay Institute, the West Virginia Science Teachers Association (WVSTA), and the West Virginia Environmental Educators (WVEEA) network have all been instrumental in allowing the Marshall County Sustainability story to be told at their conferences. Outreach continues and partnering with private sustainable industries, public agencies, and other non-profits are invaluable to expanding a more sustainable Marshall County and West Virginia, at-large.

In the 21st Century context, our modules, manuals, and kit plans utilize a constructivist approach that has evolved into connectivist practice. As constructivism has evolved into “connectivism”; these same strategies that utilize interactive, Web 2.0 technologies such as wikis, weblogs (blogs), online courses, etc. Connectivism and its outwardly spiraling impact can make LEED certified schools global laboratories for learning sustainability. This is truly a mission for Marshall County's sustainable schools program. We want to be leaders. At the core of constructivist teaching and learning is inquiry, the curiosity component of engagement that can be developed through strong instructional design strategies that are vertically articulated, such as Inquiry Based Learning for early grades, Project Based Learning in the middle grades, and Problem Based Learning in the upper grades into adulthood. In Marshall County's Schools, sustainability education, using the building as a learning tool, and process learning are not anomalies. Using green themes within a Green School is imperative; becoming green is easier. By utilizing this process, students retain knowledge by solving real problems and can make places that weren't green, greener and ensure that most students will create for themselves and their families a more sustainable lifestyle.



Hilltop Elementary Recycling



Cameron High School Foyer - LEED