Greening Health Care Facilities: Solid Water Treatment Technology

Health care facilities are increasingly looking for ways to more efficiently use energy, water and materials while reducing their impact on health and the environment. This focus on green building complements the mission to promote patient, employee and community health and has significant financial benefits. Although often overlooked in the green equation, the water treatment program for buildings and water systems can play a crucial role in helping healthcare facility managers meet sustainability objectives.

In many health care facilities, the water treatment program can be engineered to significantly improve energy and water efficiency. Steps can also be taken to reduce chemical usage and associated handling concerns or more environmentally responsible chemicals can be used with equivalent or improved results.

Energy and Water Efficiency. The return on investment for green building is closely linked with increased energy and water efficiency. In a typical office building, energy used to operate HVAC systems accounts for 60 percent of utility costs. Water can easily be as much as total 5 percent of utility costs. Although water treatment is a small fraction of utility costs, results received from water treatment programs have far-reaching impact in terms of operating costs, resource conservation, and reducing greenhouse gas (GHG) emissions.

For facilities seeking LEED® certification by the U.S. Green Building Council® (USGBC) energy efficiency is vital. For example, energy efficiency, as measured by the EPA ENERGY STAR® Rating System, constitutes the largest single category of points in the LEED-EB: O&M Rating System™. A high-performance water treatment program that maximizes energy efficiency by keeping HVAC systems, waterside surfaces clean helps increase a facility's energy efficiency and improves its ENERGY STAR rating.

In many health care settings, such as a hospital, surgical center, urgent care facility or the common medical office building, end users often are not aware of the negative impacts they can have on their projects by selecting the lowest project bid price or an underqualified contractor. How does an owner or owner representative select the right contractor based on the bid proposal that is presented? Has the proposed project budget been justified on confirmed data and realistically based on the overall scope of work? Should the contract be awarded on lowest bid, but in most cases this is not the best overall value for the end user. Too much emphasis on the bottom line often pre-empts the success of the overall final project value, installation time, and ultimately long-term customer satisfaction.

Project costs are not always apparent or visible like the nuts and bolts of a physical structure. The overall cost is impacted by the contractor’s ability to complete the task, based on several intangible factors. These factors can and do influence the successful completion of a project’s budget and schedule. Owners have the right and responsibility to use prequalification documents to ensure that the bidding contractors are qualified to present a bid proposal. Owners should ask the following questions to their contractors:

Does the successful bidding contractor meet all of the facility’s safety requirements? Does it have an established written safety policy? Does it own and inspect all of their safety equipment as required? Is your contractor technically qualified? Does it provide ongoing training to ensure that the contractor can perform all of the work required within the project scope? Does your contractor have all of the tools and necessary equipment to provide the level of containment that is required in medically sensitive environments? Has the contractor performed similar scopes of work in the past and will it provide viable references when requested? Does your contractor possess the necessary certifications and training, including infectious control, particulate mitigation or blood borne pathogens?

Project value is the culmination of a variety of attributes a qualified contractor will bring to the table. The age-old saying that “you get what you pay for” holds true and is paramount in the medical construction process. Will the contractor be able to assist in:

1. Value engineering opportunities that are realized and incorporated into the project?
2. Timely project punch list completion and turnover through to meet deadlines and final project turnover dates?
3. Scheduling the project development and integrating the information provided by the material and equipment suppliers?
4. Providing a fair, timely and transparent change order process?
5. Reducing change orders through upfront recognition and communication about errors and omissions on engineered drawings and design prior to bid?
6. Ensuring that qualified, well-trained professionals on the project will recognize potential issues with site safety, product quality and building automation systems?
7. Designing and building opportunities using 3D CADD? Can the contractor also incorporate BIM documents to facilitate a comprehensive project overview and installed systems coordination?

Facilities with multiple physical environments may and should require different levels of qualification. The current or proposed contractor may be technically savvy enough to “figure it out” but what will that do to the project timeline and how will that impact the project budget? Owners have the right and responsibility to use prequalified contractors. If this is not done, the owner will then assume the risk and liability of any project delays and cost overruns.

Developing a solid owner-contractor relationship is essential for the completion of successful projects. A clear project scope, supported with complete documents and realistic budget expectations, are the foundation for a timely and successful project execution. Do not allow the focus on the bottom line to be a distraction from the best, overall contractor and proposal. Too many times, the quality of the proposal is sacrificed because of unforeseen scope additions, change orders and missed elements of constructability. The end goal is to develop a team attitude that will deliver a safe, affordable, functional and aesthetically pleasing project that will provide a long lasting useable environment.

Bill Bicket
Director of Service, E Light Electric Services, Inc.

Allan Browning
Technical Marketing Manager, Chem-Aqua (Irvine, Texas)

Fred Shaw
Sales Representative, Chem-Aqua (Brighton, Colorado)

Before HandiChem Installation: Cooling Tower Chemical Feed

After Installation: Cooling and Boiler Chemical Feed Combined with HandiChem System

1. Value engineering opportunities that are realized and incorporated into the project?
2. Timely project punch list completion and turnover through to meet deadlines and final project turnover dates?
3. Scheduling the project development and integrating the information provided by the material and equipment suppliers?
4. Providing a fair, timely and transparent change order process?
5. Reducing change orders through upfront recognition and communication about errors and omissions on engineered drawings and design prior to bid?
6. Ensuring that qualified, well-trained professionals on the project will recognize potential issues with site safety, product quality and building automation systems?
7. Designing and building opportunities using 3D CADD? Can the contractor also incorporate BIM documents to facilitate a comprehensive project overview and installed systems coordination?

Facilities with multiple physical environments may and should require different levels of qualification. The current or proposed contractor may be technically savvy enough to “figure it out” but what will that do to the project timeline and how will that impact the project budget? Owners have the right and responsibility to use prequalified contractors. If this is not done, the owner will then assume the risk and liability of any project delays and cost overruns.

Developing a solid owner-contractor relationship is essential for the completion of successful projects. A clear project scope, supported with complete documents and realistic budget expectations, are the foundation for a timely and successful project execution. Do not allow the focus on the bottom line to be a distraction from the best, overall contractor and proposal. Too many times, the quality of the project is sacrificed because of unforeseen scope additions, change orders and missed elements of constructability. The end goal is to develop a team attitude that will deliver a safe, affordable, functional and aesthetically pleasing project that will provide a long lasting useable environment.

Bill Bicket
Director of Service, E Light Electric Services, Inc.
Chem-Aqua’s HandiChem System: a Resourcefully Green® Solution
The HandiChem Solid Water Treatment System is a sustainable solution for treating cooling towers, boilers and closed loop systems. With the HandiChem Solids, your facility’s water treatment program will reduce energy and water usage, minimize maintenance costs, conserve resources and help protect the environment.

Contact Chem-Aqua today for a free evaluation of your system.
Fred Shaw, 303.394.4917
fred.shaw@chemaqua.com

E Light Electric Services, Inc. has recently completed:

Rocky Mountain Hospital for Children at Presbyterian St. Luke’s
Rocky Mountain Professional Plaza, Medical Office Building

Denver Area
Phone (303) 754-0001
Fax (303) 754-0011

Colorado Springs Area
Phone (719) 314-0670
Fax (719) 314-0669

www.elightelectric.com

CAM Services is Proud to Offer the Following Quality Services
- Power Sweeping
- Parking Lot Sweeping
- Snow Removal
- Day Porter Services
- Tenant Finish
- Interior/Exterior Building Maintenance
- Power Washing
- Power Scrubbing
- Fence Repair
- $15 Million Insurance Umbrella
- Signage Repair
- Curb & Sidewalk Repair
- Parking Blocks
- Construction Clean-up
- Water Damage Clean-up
- Properly Security
- Rubber Removal
- Glycol Spraying
- GSE Maintenance
- Cargo Handling
- Fully Bonded

...and much more!
Phone: 303.295.2424 • Fax: 303.295.2436
www.camcolorado.com

24 Hours A Day, 7 Days A Week!
State of the art equipment, with GPS tracking for your convenience.

Discounts for Spring Clean-up Services
Turner
Continued from Page 278
their scope and sequences. On the
day of the pull plan, each
designer, owner, inspector, and contract is assigned
a different color sticky note to
make work visible. Each person
writes the description of task
on the sticky note, duration,
and predecessor tasks. Sticky
notes are placed on chart paper
starting from the milestone working right to left
using the pull plan. Pull planning better defines
potential sequences and handoffs as the milestone
activity pulls each predecessor activity. Having all the
gatekeepers present improves the
can quality of communication and
improves planning. They find innovative ways to
work, define constraints, set expectations. Face to face
promotes help improve the level of understanding and
ownership of the plan. This is more likely to be accurate
compared to a schedule created by a few uninvolved
senior managers. Identifying constraints in advance, we are
more likely able to remove them to reliably plan and
execute the work.
Throughout the project, a
constraint log is maintained so
leadership focuses on removing
constraints so the team
starts work on date certain.
This is one way LPS uses
"critical chain" methods. The
log identifies the constraint
(i.e., incomplete submittal,
Required Information Form
(RIF), and documents a
promise by date certain by
a team member to remove
the constraint. This helps
create individual responsibility
related to problems quickly and
efficiently. The team sees
constraints being removed,
confidently plan work knowing
they can start and continue
their work knowing they will
not be stopped.
The pull plan is followed by
weekly look ahead planning and
detailed work plans showing
daily commitments. The
plan measures their
reliability focusing on solving
high priority issues and
smooth flow. The collaborative
planning and visual posting of
activities and predecessors
drives issues to the surface
early to understand and
resolve issues.
Open dialogue and
cooperation is key to
improving projects with a
strong focus to evaluate and
improve both the project.

Fleisher
Continued from Page 78
healthcare and its ultimate
cost. The most expensive place
to provide health care is a
hospital, costing as much as
four times that of similar
procedures off property. By
shifting these consumers to
less expensive preventive
procedures and off property
facilities, healthcare costs will
improve, while enhancing
demand for non-hospital medical
office space.
■ The Traditional Medical
Office is Changing. The
small privately owned doctor's
office can no longer survive
in this integrated, lower
cost medical environment.
Practitioners are consolidating
their practices to gain
more negotiating power
with insurance companies and
vendors. This has resulted in
the downsizing of hospital
and additional medical office
space. Because medical
offices are lacking new,
more convenient locations
to provide services to
their patients, the demand
for medical office space
is no longer constrained
by the need to locate near
a hospital. As healthcare
becomes more available
to Americans, medical offices are
spreading into suburban areas,
shopping centers, and other
non-traditional medical office
locations, driving increased
demand for medical office
space.
Despite uncertainties in
how the Health Care Act may
be amended over time, the
overall push for integrated
low cost healthcare is here to
tay. The demand and make-
up of medical office space is
undergoing a sea change that
ultimately will drive an
increased demand for medical
office space. Outpatient
facilities will experience
increased demand as hospitals
become less
landlord-centric, and doctors' offices increase in size. There is no
doubt that the Health Care
Act will have a positive impact on
real estate.

Chem-Aqua
Continued from Page 22B
not operated to maximize
water efficiency. In many cases,
the cycles of concentration
can be increased to reduce
tower blowdown. Alternate
makeup water sources, like
air handler condensate and
heating system return water,
can be used. Boilers and
closed loops also afford water
saving opportunities along with
energy savings and GHG
emission reductions. Solid
treatment programs are available that provide effective
water treatment that minimizes energy and water usage for all
treatment processes including cooling
towers, boilers and closed loops.

■ Minimizing Chemical
Usage. Water treatment
measures that help reduce
chemical usage also support
green building measures.
Pre-treatment and filtration
equipment often optimize a
water treatment program's
results while reducing chemical
requirements. Advanced
feed and control equipment
directory applies treatment
chemicals to ensure only the
necessary chemicals are used.
This same equipment can
effectively monitor water
usage. Concentrated
treatment chemicals, like solid
systems, also provide significant
green benefits by reducing
packaging, transportation,
and chemical handling
requirements.
■ More Environmentally
Responsible Chemicals. No
organizations currently have
standards to certify water
treatment and water systems
are green. However, certain
chemicals and technologies
are considered more "environmentally
responsible" than others.
For example, treatment
chemicals that more readily
depreciate when discharged
into the environment, are
less hazardous to manufacture
or use, or have lower usage/
packaging requirements can
be considered environmentally
responsible.
Solid water treatment systems
particularly, offer several
sustainability benefits over
liquids traditionally used.
Solids contain less hazardous
chemicals and, because they
decrease packaging material,
both reduce landfill waste
and shipping weights, which
 reduces energy and CO2 emissions
associated with product
delivery. Combustion of wood
is a use of these factors make solid
water treatment systems an
attractive alternative to liquid
chemicals.
While it is important to minimize chemical usage and
use environmentally responsible chemicals, it is
crucial that green water treatment programs provide
similar or better results in
terms of system protection
and energy/water efficiency.
Otherwise, environmental
benefits from reducing
chemical usage will be offset
by increased energy, water,
and material usage.
The water treatment
program for a building's
HVAC system is integral to
the operation of
energy, water,
and resource-efficient
facilities. Obtaining
results from a water treatment
program has huge economic
benefits and helps meet green
building objectives. Solid
water treatment systems afford
an excellent opportunity
for healthcare facilities to
succeed with their sustainability
initiatives.

Franke
Continued from Page 32B
must be in writing, signed
by the parties, covers all
issues occupied or used
and adequately describes
the premises covered by the
lease.
2. The term of the lease
must be for at least one year. If the
lease is terminated during the
term, with or without cause,
the parties cannot enter into a
new agreement during the first
year of the original term of the
lease.
3. The space rented or leased
cannot exceed that which
is reasonable and necessary
for the legitimate business
purposes of the lease or rental
and is free and clear of any tenancies
by the tenant when being used
by the tenant and is not shared
with or used by the landlord,
or any person or entity related
to the landlord (allocations
of common areas are allowed
if payments are proportionate to
space leased).
4. The rental charges over
the term of the lease are set
in advance and are consistent
with value of services performed
in length transactions,
not based on volume or value
of past rentals, other
transactions, or rental
services performed in the
premises or any person or entity
related to the landlord (allocations
of common areas are allowed
if payments are proportionate to
space leased).
5. If the lease is for a
term, it must specify in detail
the schedule of occupancy,
length of occupancy period
and renewal of the
lease.
6. A holdover month-to-
month rental can be no
longer than six months immediately
following the expiration of an
agreement of at least one year
provided the holder
rental is on the same terms and
conditions as the immediately
preceding agreement and
satisfies all of the other
requirements.
7. The lease would be
commercially reasonable even
if no referrals were made
to benefit landlord.
These are just a few basic
concepts to help understand
the complexities that can
arise in negotiating medical
office leases. The federal laws
involved and their implications
on your lease can be complex
and each situation requires
a separate analysis of how it
should be handled.