University of Wisconsin – Eau Claire
Facilities Program Assessment
2015
# Table of Contents

## EXECUTIVE SUMMARY

- **Current State** ........................................................................................................... 4
- **Custodial Services** .................................................................................................... 4
- **Grounds/Landscaping and Sport Field Maintenance** ................................................. 5
- **Plant Operations and Maintenance (POM)** ............................................................... 7

## TQM Program

- **Table of Organization** .............................................................................................. 8

## CUSTODIAL ASSESSMENT

- **Leadership & Management Structure** ..................................................................... 12
- **Scheduling & Staffing** ............................................................................................. 13
- **Scope of Work (SOW)** ............................................................................................ 14
  - Work Loading ......................................................................................................... 15
  - Task Schedules ....................................................................................................... 15
  - Job Card .................................................................................................................. 16
  - Training ................................................................................................................... 17
  - Employee Recognition ............................................................................................ 18
- **Analysis by Area** ..................................................................................................... 18
  - Entryways .............................................................................................................. 18
  - Cleaning in High Visibility Areas ........................................................................... 19
  - Restrooms .............................................................................................................. 20
  - Corridors & Stairs ................................................................................................ 20
  - Academic / Administrative Areas ......................................................................... 20
- **Safety & Health** ....................................................................................................... 20
- **Chemical Use and Storage** ..................................................................................... 21
- **Equipment & Supplies** .......................................................................................... 21
- **Departmental Key Management** ........................................................................... 22
- **Process-oriented Cleaning [Team Cleaning]** .......................................................... 22
  - Develop a Working Plan ......................................................................................... 24
  - Training Implementation ......................................................................................... 24
  - Monitor and Refine ................................................................................................ 25
  - Timing ..................................................................................................................... 25
  - Getting Started ..................................................................................................... 25
  - Setting Up .............................................................................................................. 25
  - Rotation ................................................................................................................ 25
- **Custodial APPA levels Defined** ................................................................................. 26
- **Custodial Photo Gallery** .......................................................................................... 27

## GROUNDS ASSESSMENT

- **Leadership & Management Structure** ................................................................... 31

## Operational Plan

- **Admissions Tour** .................................................................................................... 32
- **Snow and Ice Removal Policy and Procedure** ......................................................... 33
- **Job Cards** ............................................................................................................. 34
- **Scheduling** .......................................................................................................... 34
- **Training** ................................................................................................................. 35
- **Hardscape Safety** .................................................................................................. 35
- **Hazardous Tree Safety** ......................................................................................... 35
- **Grounds Shop Safety** ........................................................................................... 35
- **Grounds Equipment** ............................................................................................. 35
- **Sports Fields** ........................................................................................................ 35

## Grounds APPA levels Defined

- **Sports Fields** ........................................................................................................ 35
- **Grounds Equipment** ............................................................................................. 35
- **Hazardous Tree Safety** ......................................................................................... 35
- **Admissions Tour** .................................................................................................... 35
Grounds Photo Gallery .......................................................................................................................39

POM ASSESSMENT ...................................................................................................................................43
  Preventive Maintenance (PM) Program .................................................................................................43
  Sample PM Setup Checklist ..................................................................................................................44
  Leadership & Management Structure .....................................................................................................45
    Staffing and Scheduling .......................................................................................................................45
  Computer Maintenance Management System (CMMS) ..........................................................................46
  Infrastructure and Building Envelope Analysis .....................................................................................47
    Mechanical/HVAC Systems ..................................................................................................................50
    Electrical Systems and Generators .......................................................................................................51
    Plumbing Systems ...............................................................................................................................51
  Facilities Condition Assessment ............................................................................................................52
  Project Management ...............................................................................................................................52
    Job Responsibilities ..............................................................................................................................52
    Job Cards .............................................................................................................................................54
    Carts/Trucks Loading ..............................................................................................................................55
    Inventory Management ..........................................................................................................................55
    Equipment/Tools ..................................................................................................................................55
  Safety & Health .......................................................................................................................................55
    Lockout/Tagout (LO/TO) Knowledge ......................................................................................................56
    Occupational Health and Safety ...........................................................................................................56
    Personal Protective Equipment (PPE) ......................................................................................................56
    Chemical Storage ...................................................................................................................................56
    Emergency Response Plan ....................................................................................................................57
    Spill Prevention, Control, and Countermeasure (SPCC) Plan .................................................................57
    Disposal of Equipment and Conservation Measures ............................................................................57
    Asbestos Management ..........................................................................................................................57
    Life Safety & Fire Suppression/Protection Systems ...............................................................................57
  Maintenance APPA levels Defined ........................................................................................................58
  POM Photo Gallery ................................................................................................................................59

SUSTAINABILITY & ENERGY ......................................................................................................................61
  Sustainable Green Cleaning ....................................................................................................................62
  Renewable Energy ..................................................................................................................................62
  Lighting ....................................................................................................................................................63
  Water .......................................................................................................................................................63
  Variable Speed Exhaust Ventilators and Power Packs ............................................................................64
  Vending Machines ...................................................................................................................................64
  Recycling Program .................................................................................................................................65

SUMMARY ..................................................................................................................................................67
EXECUTIVE SUMMARY

An operational evaluation was conducted at University of Wisconsin – Eau Claire (UWEC), located in Eau Claire, Wisconsin for the following services:

- Custodial
- Grounds/Landscaping and Sport Field Maintenance (GLSF)
- Plant Operations and Maintenance (POM)

The assessments were completed by members of the Sodexo Operations Support and Strategic Development group during the weeks of May 18 and May 25, 2015. Budget reductions mandated by the state prompted the request of an Integrated Facilities Management Consultation. The primary focus of each assessment was to review all current campus conditions and highlight program efficiency opportunities. Means of assessment occurred through observation; cursory conversations with staff; evaluation of existing programs, processes and practices; and a tour of the campus including infrastructure and building systems. UWEC’s campus statistics include: 177.36 developed acres, 33 structures and a total of 2,641,509 maintainable square feet.

With regard to the relationship between staffing levels and service quality, benchmarking to a recognized national standard is the ideal method to quantify program effectiveness. With over 100 years in educational experience, APPA is the industry standard for the College & University market utilized by Sodexo as the benchmark for all facilities management (FM) evaluations, ensuring an independent analysis. Sodexo understands that academic programming is directly related to the quality of educational facilities.

“APPA is the gathering place for those engaged in the field of educational facilities management, and dedicated to the ongoing evolution of its professionals into influential leaders in education.”

~APPA, Leadership in Educational Facilities

The current operational observations have been compared to APPA standards. Within these standards, APPA levels of 1 to 5 have been established to designate the highest to lowest measures of service. This allows for an objective measurement of current program staffing, quality and efficiency.

Contributing factors when determining desired APPA levels are staffing, preferred quality and available budget. Greater efficiencies may be achieved through programmatic standardization; adequate labor; lean methodology; a structured approach to task management (Quality Management) with a solid Computerized Maintenance Management System (CMMS); and appropriate equipment. Each component contributes to the resulting APPA level in order to strike the appropriate balance and achieve the desired result.

Current State

Custodial Services

The Sodexo approach to custodial services is, “Clean to protect health without harming the environment.”

The UWEC custodial program is divided into four different custodial departments with each department responsible for maintaining their own specific buildings, staffing, budgets, equipment and supplies. Each custodial department is facing the same challenge of improving financial efficiencies without sacrificing cleaning levels.

The four custodial departments and areas of responsibilities:

- Facilities Management – Academic and Administrative Buildings
- Office of Housing Residence Life (Housing) – Residence Halls
University Centers (Centers) – Davies Center, Hilltop Center [2nd floor], Zorn Arena and Einstein Bros Bagels [Centennial Hall]
University Recreation and Sports Facilities (UR&SF) – Crest Wellness Center [2nd floor], Hilltop Center [1st floor] and McPhee Center

The current custodial staffing level equates to a Sodexo APPA level 1.75, which represents one of the higher levels of staffing against national standards. The overall custodial quality of service observed during the site visit is a Sodexo APPA level 3, with individual buildings ranging in quality from APPA level 2.5 through 3.5. The campus is cleaned at an acceptable level; however, it does not display at an APPA quality level commensurate with the departmental staffing level. The staffing level at UWEC indicates that a higher level of service is attainable with a more focused approach.

**CUSTODIAL APPA LEVELS DEFINED**

- **APPA 1** – Orderly Spotlessness (show-quality cleaning for corporate officer suite)
- **APPA 2** – Ordinary Tidiness (baseline cleaning for most institutions)
- **APPA 3** – Casual Inattention (lowering of normal expectations)
- **APPA 4** – Moderate Dinginess (areas becoming unacceptable)
- **APPA 5** – Unkempt Neglect (unacceptable level of cleaning)

Overall, the cleaning processes appear to be hygienically focused with the custodians delivering an acceptable level of cleaning quality that is consistent with most conventional cleaning methods. However, there are opportunities to streamline the operation, increase productivity and enhance the cleaning techniques through training and development.

The following elements are missing or deficient from the custodial program at UWEC:

- Defined scope of work
- Standard operating procedures (SOP)
- Task schedules
- Comprehensive & consistent training
- Work loading
- Standardized uniform policy
- Standardized chemicals & supplies
- Total Quality Management (TQM) Program
- Key policy
- Employee recognition
- Standardized equipment
- PPE – safety shoes

A detailed summary of the current campus conditions, with program improvement recommendations designed to achieve the highest possible program quality within the parameters of current departmental budgets, staffing levels and campus environments can be found in the “Custodial” section of this report.

**Grounds/Landscaping and Sport Field Maintenance**
The Sodexo approach to grounds services is “Clean, Green and Well-Defined.”

From an aesthetic point of view the campus grounds and landscape (approximately 177 developed acres) levels vary greatly throughout campus. The campus “core” where Administration and Admissions is located at is an APPA level 3.2 with relatively new hardscape and softscape. Once outside the “core,” the maintenance level drops to an APPA level 3.5. The Upper Campus is at an APPA level 4.0 and the sports fields are maintained at an average APPA level 2.5. Two full time equivalent employee (FTE) mechanics fall under the new grounds supervisor’s umbrella. The department is also supplemented with 11 students during the summer months. Overall, the department is staffed at an average APPA level of 3.9 (1 FTE/19 developed acres), and an unknown current funding level for supplies, materials and services.

Service levels should naturally vary throughout the campus. The “front door” and admissions tour areas should have the highest level of attention, with the “back of the house” less detailed in order to reach the balance of service required.
One option for the grounds work performed at the Priory property is to contract out to a third party. It is too far from the main campus to mobilize and return equipment on a recurring basis. It would take vital time away from any detail work on campus. Another option is to have time set aside on a weekly basis from an on-site custodian, maintenance worker and/or student worker to keep the grounds mowed and trimmed. All plowing of parking lots and roadways should also be contracted out, with sidewalk and entrances being done by on-site custodians, maintenance workers and/or trained students.

The **BEST** perspective comes from walking the same route that others walk on campus.

The Grounds & Landscape program quality is measured on a scale that is based on the Association of Higher Education Facilities Offices (APPA) quality standards, as well as proprietary Sodexo quality standards and key risk indicators (KRI). The current quality on campus varied at levels ranging from an APPA 2.5-4.0.

**GROUND APPA LEVELS DEFINED**

- **APPA 1** – State of the Art (Estate/arboretum quality)
- **APPA 2** – High-Level Maintenance (Well-defined areas)
- **APPA 3** – Normal Maintenance (Maintained and weed-free; lacking distinct definition)
- **APPA 4** – Moderate to Low-Level Maintenance (Lacks attention)
- **APPA 5** – Minimum Maintenance (Nature areas)

Programmatic findings:

- There is a positive first impression in the campus core; however, anything outside the “core” is missing the “wow” factor, especially along the tour walk.
- The quality of the campus edges and entrances should articulate a sense of arrival and welcome to the university campus; it currently does not. The boundaries are not recognizable or well-defined and there is a “disconnect” between the upper and lower campus that lacks “visual coherence”.
- There is a lack of annual color [plantings] throughout campus. The flowers that are present are inadequate to impart a strong first impression of campus. Adding similar colors, plant material, along with unification of styles of site furnishings to the tour route and campus would bring coherence to the landscape for a positive experience.
- No one interviewed in the grounds department is aware of the Admissions Tour route, therefore there has been no inspection of quality developmental opportunities.
- From a work distribution perspective, the campus grounds are broken down into zones; however, while there is a detailed schedule of what should be done within the zones, there is no quality assurance (QA) in place to check completed work and enhance continuous improvement.
- All necessary equipment is provided for each zone.
- Edging of sidewalks and shrub/trees beds is assigned to each zone, but evidence of such practices being employed is non-existent.
- There is no documentation of sports fields maintenance. [This is a critical task to ensure that the fields are being maintained properly on a daily basis to promote their safety and playability.]
- While no hazard trees are present on campus, there is no documentation to show historical maintenance. However, there are a number of smaller trees that need “dead wooding”, particularly in the campus core.
- Training of employees appears to be limited and individual “sign-offs” of training is not being maintained.
- The turfgrass is at a very high level in the campus core but did not continue throughout the zones. Soil test have been done over the years and there is an outlined program.
- Campus trees are composed primarily of weak wooded, fast growing trees (Norway maple and Silver maple) that can have numerous structural integrity issues as they age. No one species of tree should comprise over 8% of the total tree canopy on any university campus. The campus does not have a detailed Plant Palette for any new softscape applications.
• Many asphalt parking lots are in need of sealing or re-surfacing. All lots should be reviewed by an engineer to examine the base material and determine scope before beginning re-surfacing or sealing.
• Most sidewalk trip/fall edges, from raised concrete, have been ground down.
• A very positive working relationship exists between Recreation and the Grounds Department.
• An irrigation audit is necessary to evaluate the current system of heads and controllers on campus and sports fields, and should be performed annually.
• An updated equipment list was provided; however, it does not have the number of miles or hours for the machines that require them. This is vital for replacement scheduling.
• There is a Snow Removal Policy; however, it is missing many key components.

The “performance gap” between staffing and quality can be addressed through items such as focused employee training; proper supplies and material selection; proper equipment use and maintenance; and a technically skilled grounds leadership program. The body of the grounds report will focus on methods to elevate the current departmental effort to achieve a grounds quality level commensurate with the current staffing level.

A detailed summary of the current campus conditions, with program improvement recommendations designed to achieve the highest possible program quality within the parameters of current departmental budgets, staffing levels and campus environments can be found in the “Grounds” section of this report.

Plant Operations and Maintenance (POM)
The foundation to Sodexo’s approach to Plant Operations and Maintenance services is Preventive Maintenance and Total Quality Management (TQM). This programmatic approach means fewer impending component failures and greater system reliability which equates to less down time/ interruption for the campus community and increased return on investment (ROI) for capital expenditures.

The POM department is staffed consistent between an APPA level 1 and APPA level 2 program. The overall POM Program is currently operating at an APPA level 3 which translates to a program that falls in a “Managed Care” state, indicative of POM quality levels, programmatic management, and general systems administration observed.

**POM APPA LEVELS**
- APPA 1 – Showpiece Facility
- APPA 2 – Comprehensive Stewardship
- APPA 3 – Managed Care
- APPA 4 – Reactive Management
- APPA 5 – Crisis Response

The guidelines for determining an APPA level 3 are:
1. Maintenance work is organized yet remains people dependent with organization and/or activities with equipment and building components mostly functional with occasional breakdowns. *(see POM APPA levels in POM Assessment of this report)*
2. FM Program Non-Generalist/Trade Centric staffing
3. Service and maintenance call response times are variable and sporadic. Current CMMS system is non-functional in some departments *(i.e. CMMS deficiencies noted below).*
   a. Work Orders are hand written, issued via email or called over radio (Housing, Centers and UR&SF)
   b. No use of mobile devices for efficiency
   c. Technicians perform preventive activities, only in areas of trade specialty or as the technicians feel are necessary
   d. System lacks PM’s for major assets associated with grounds, custodial and kitchen equipment
4. Building and equipment are periodically upgraded to current standards and usage, but are not enough to control the effects of normal usage and deterioration.

5. Catalogue of university equipment assets does not contain all equipment (i.e., custodial, grounds and kitchen assets).

6. No formalized Total Quality Management program in place.

7. Breakdown of Preventive Maintenance vs. Corrective Maintenance falls between 50% - 75%.

8. Aggregate building conditions indicated as an APPA level 3 or "Managed Care"

Operational effectiveness and proactive maintenance are required to ensure systems/equipment function and support the campus mission. "Operational Effectiveness" assures that organizations are leveraging the use of best practices to improve functional performance; cooperative process and compliance; system automation; and solid metrics. "Proactive Maintenance" is instituting practices to detect and prevent the onset of system degradation, allowing equipment/systems to run efficiently, for the design life of the component. It is through the implementation of standards and proven processes that operational effectiveness is achieved.

Facilities operations should strive to maintain safe, healthy and comfortable environments for all campus occupants; the primary core mission of facilities is to perform services non-core to the academic mission of the campus. Facilities must support experiential learning opportunities and enrich the student experience and campus climate.

Programmatic quality issues identified:

- Lack of Total Quality Management (TQM) Program
- Decentralized maintenance staffed positions in other departments
- Open staff positions
- Lack of cross-training
- Lack of a cohesive work order planning structure
- Lack of Computerized Maintenance Management System (CMMS) across all maintenance
- No formalized standard operating procedures (SOP) documented
- Utilizing front-line employees to complete projects
- Ineffective use of employees across daily maintenance tasks and project work

A summary of the current campus conditions, with program improvement recommendations can be found in the “POM” section of this report.

Table of Organization
The most effective centralized reporting structure is a management-centric, top-down methodology; this process requires a strict adherence to the “chain-of-command” hierarchy. UWEC’s facilities department was indicated as decentralized with staffing exclusive to each of the following departments: University
Centers (Centers), Office of Housing and Residence Life (Housing), University Recreation & Sports Facilities (UR&SF), and Facilities Management. As a result, no program is on the same level of quality; a lack of communication exists among trades; levels of training and accountability vary; access to computerized software programs is restricted; and standard operating procedures are lacking.

Based on a general review of the University-provided summary budgets, the average annual wage cost for each facilities department employee [assuming all classified salaries and LTE salaries] is approximately $44,000 per FTE. Given the industry KRI-based possible staffing solutions provided in this report; this could equate to an overall annual savings, in wages alone, of over $1.6M. [A deeper review of line-item detailed budget reports would be necessary to finalize this estimate.]

Current UWEC Table of Organization

The fundamental building blocks of a successful facilities operation is a well-conceived, well-conveyed organizational structure. Sodexo utilizes a centralized organizational configuration, where all personnel
report to one central location. Although each campus may have additional decentralized locales or are geographically separated by great distances, a cohesive centralized reporting structure should be maintained.

A properly designed central-based organizational structure clearly defines the reporting relationship from one group to the next; provides operational efficiencies through job or assignment clarity; and affords individuals with a road map for internal promotions and growth opportunities.

**Typical Sodexo Table of Organization with an onsite Project Management team:**

**Total Quality Management (TQM) Program**

Across all functions, standard operating procedures (SOP) for process and work completion should be established immediately to aid in cross-training, on-the-job training and capture institutional knowledge in order to establish an acceptable level of work quality. There is no indication of a quality control program in place currently. A Total Quality Management (TQM) Program would address this issue and ensure desired results. This program is specifically targeted toward Facilities Management operations and the work order processes. To achieve incremental quality improvement, a robust program should be implemented. Purchasing the module for Quality Management within the current CMMS (TMA) would be effective and efficient to manage a program that aligns with the completed work orders (both planned and unplanned) already held within the CMMS.

The TQM Program is designed to properly assign quality management responsibilities for the daily operations and tasks across the entire spectrum of size, complexity, scope and strategy of departmental operations.

The following points are fundamental to the TQM Program:

- The General Manager/Facility Director is responsible for controlling and assuring the quality of departmental work and subcontractors.
- The level of quality is established by the departmental scope of work and program specifications and drawings in accordance with the desired APPA quality level.
- Quality control (QC) requirements expedite the work by streamlining work assignments; reducing delays associated with projects; properly scheduling restorative project work; establishing standard FM processes/practices; ensuring the comfort of the end user; and ensuring successful work completion and outcomes.
• Quality assurance (QA) inspections prevent deficiencies and foster the elimination of defective/unnecessary work. The correct quality frequencies should be established at the beginning of each month and the work monitored through completion to ensure that quality requirements are met.

The TQM program is designed to mitigate risk and ensures proper recourse mechanisms are in place to correct deficiencies. Proper planning is an important part of a successful QC system for any facilities management department (which includes POM, Custodial and Grounds). Each task and project requires careful consideration from conception through execution of the work. At least a 10% sampling of completed work orders should be done monthly to effectively gauge success. Once a baseline standard of acceptable completed work is established, this percentage can decrease over time.

Quality assurance inspections are not performed in any of the custodial departments. As cleaning is a results based industry, the ability to compile, track and analyze data enhances the ability to effectively identify training opportunities and areas that need improvement. In a traditional zone-cleaned building, because a different person cleans each floor or area, a supervisor must inspect each area to determine the overall quality. Workers who focus on a few clearly defined responsibilities do a better job more consistently, making supervision easier. QA inspections should be conducted by the custodial supervisors daily and program directors weekly. At the end of each week, each employee’s area should be inspected and reviewed by the affected employee. Any cleaning deficiencies require immediate follow-up. The data from the inspections will be used to determine individual and group training needs. As team members are coached and trained on deficiencies, given the necessary skills training, and held accountable for the respective work areas; incremental quality gains will be achieved. The TQM process enables the custodial departments to generate and track metrics and drive quality performance.

The campus grounds are broken down into zones. While there is a detailed schedule of what should be done within the zones, there is no quality assurance (QA) follow-up to show it had been done or to show continuous improvement. Weekly QA tours should be completed by the Grounds Supervisor and then monthly QA grounds tours should be conducted during the growing season with the Assistant Director for Operations (ADO). This ability is critical so that the ADO can review performance expectations in an accurate and timely manner.

Below is a sample FM inspection schedule:

**Sodexo FM Inspection Schedule**

<table>
<thead>
<tr>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Quarterly</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Review, Organized Sampling</td>
<td>MM, CM, GS</td>
<td>GM</td>
<td>GM</td>
<td></td>
</tr>
<tr>
<td>Review Closets/Mechanicals/Storage Rooms</td>
<td>MM, CM, GS</td>
<td>GM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Campus &amp; Building Review</td>
<td>GM, MA, CM, GS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Order/Effort Audit</td>
<td>MM, CM, GS</td>
<td>GM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Client Campus Walk (1 hour Walk)</td>
<td>GM, C</td>
<td>C, GM, MM, CM, GS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gold Check (Custom Overall QA Form)</td>
<td>GM, DM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GM Audit Tool</td>
<td>GM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance, Custodial &amp; Grounds Area Specific Quality Assurance Forms</td>
<td>MM, CM, GS</td>
<td>*GM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**KEY**
- GM = General Manager / Director
- MM = Maintenance Manager / Asst. Director
- CM = Custodial Manager / Asst. Director
- GS = Grounds Supervisor or Manager
- C = Client / Asst. Chancellor
- *GM verifies inspections are occurring
CUSTODIAL ASSESSMENT

Leadership & Management Structure
The longstanding division of the custodial departments will limit the success of the program as budget constraints intensify. Due to the financial limitations that are set to be implemented, it is imperative to consider combining the four custodial departments into one centralized custodial program as shown in the beginning portion of this report. This strategy is necessary in achieving program effectiveness and efficiencies across each of the custodial applications; otherwise budget reductions will quickly outpace the current productivity rates.

The evaluation process provides insight on initiatives that are working, those that are not effective and strategies that need to be considered. A unified approach to the custodial department will strengthen its core with better communication, planning efforts, staffing, product selection and training. This collaborative effort is one way to utilize the custodial experience and resources to improve the overall cleaning structure and service quality.

Below is a brief description of the four separate custodial departments:

Facilities Management
The Facilities Management custodial department is responsible for cleaning and locking/unlocking the academic and administrative buildings on campus. The current staffing level of 47.10 FTE’s equates to a Sodexo APPA level 2. The custodial quality of service observed during the site visit is a Sodexo APPA level 3, with academic and administrative buildings ranging from APPA level 2.5 through 3 in terms of quality. To align with a Sodexo APPA 3 quality level, utilizing the Team Cleaning concept would anticipate a staffing model of approximately 32.84 FTE’s.

Residence Life
The Residence Life custodial department is responsible for cleaning the residence halls on campus. The current staffing level is 23 FTE’s with up to 65 work study employees that work throughout the year in a “on demand” basis. The 23 FTE’s equates to a Sodexo APPA level 1.5 staffing level. The custodial quality of service observed during the site visit is a Sodexo APPA level 3, with the residence halls ranging in quality from APPA level 3 through 4. To align with a Sodexo APPA 3 quality level the expected staffing would be approximately 11.70 FTE’s.

University Centers
The University Centers custodial department is responsible for cleaning the Davies Center, Hilltop Center 2nd floor, Einstein Bros Bagels (Centennial Hall) and Zorn Arena. The current staffing level is 25 FTE’s; this includes the 11 Limited Term Employees¹ (LTE’s), 2 LTE’s that are “Relief Custodians”, and the 4 student workers. The FTE count equates to a Sodexo APPA level 2 staffing level. The custodial quality of service observed during the site visit is a Sodexo APPA level 3, with each of the building scoring an APPA level 3. To align with a Sodexo APPA 3 quality level utilizing the Team Cleaning Concept the expected staffing would be approximately 11.70 FTE’s.

University Recreation & Sports Facilities
The University Recreation & Sports Facilities custodial department is responsible for cleaning the Crest Wellness Center 2nd floor, Hilltop Center 1st floor, and McPhee Center. The current staffing level is 7 FTE’s, which equates to a Sodexo APPA level 3.5 staffing level. The custodial quality of service observed is a Sodexo APPA level 3, with each of the buildings scoring an APPA level 3. The custodians are performing at a higher level than the staffing level would indicate. To align with a Sodexo APPA 3 quality level utilizing the Team Cleaning Concept the expected staffing would be approximately 8.87 FTE’s.

The following matrix compares the four custodial departments to each other with an “X” under the corresponding group that utilizes specific elements indicative to their custodial program. There is a clear disconnect of processes, standards, communication and expectations between the custodial departments.

¹ Limited Term Employees that can work up to 1,043 hours per appointment. The appointment can last up to 6 months before it must be renewed.
Scheduling & Staffing

The allocation of custodial employees should be reconsidered: specifically, implementing Team Cleaning in the administrative and academic buildings during the night shift. Currently, the custodial departments utilize the Zone Cleaning methodology, whereby one custodian is responsible for all cleaning processes in an area. This method is not altogether incorrect and does have the right application in specific locations, such as the Visitors Center; however, analysis of the current zone cleaning methodology highlighted inefficiencies within the process. Task and productivity between FTE’s is currently unbalanced. A team cleaning approach will simplify tasks and balance the workloads to deliver consistent service.

Where possible, the team should be organized into “process-oriented” teams, where each custodian has a single function, and works in concert with a number of other singularly-focused custodians. Team work loading will allow flexibility in staffing levels. It is like a moving assembly line, except the labor moves rather than the product. This concept allows for teams as small as one worker (in smaller facilities). One person teams can complete all steps of the process by performing each function in a prescribed sequence, and can do so more quickly than in the area- or zone-method. In addition, these individuals are interchangeable with team members in other larger areas.

The Team Cleaning approach at UWEC would be optimized by dividing the cleaning of academic/administrative/athletics buildings and residence halls into different quadrants and assigning teams of custodians per quadrant.

A night shift implementation would be instrumental in performing a successful team cleaning program. The night shift cleaning would eliminate many of the interruptions that cause a decrease in productivity during the day.
Daytime cleaning in public facilities is less efficient and should be primarily utilized for emergency clean-up with a lean crew to address calls. Implementing a “porter/policing shift” during the day will ensure maintenance of high-profile buildings to clean spills, elevators, stairwells, emergency exits and refilling of consumables in restrooms, along with additional support for event setup and cleanup. The goal of the porter position is to assign specific cleaning tasks, removing these tasks from the day or night shift while allowing ample time for the variable needs of the campus.

Typical programs do not have custodial employees on the student floors in residence halls until 10:00 AM allowing the students to shower and prepare for class. From 7:00 AM – 10:00 AM, the residential housing team should be policing/portering other areas on campus. This group could also Team Clean academic buildings, stairwells, offices or any other restricted areas on campus. Better management of workflow will increase productivity.

**Scope of Work (SOW)**

The scope of work is a document that captures and defines specific custodial tasks performed and the frequencies of those tasks. Frequencies can be hourly, daily, weekly, monthly and annually. The SOW is utilized to determine the department’s staffing model and budget. A proper SOW will provide custodial tasks and frequencies for achieving program expectations that align with APPA quality levels. APPA quality levels increase or decrease according to frequencies. Developing and implementing a SOW that is applicable to each type of building on campus is critical for standardization of the custodial program.

The Facilities Management Custodial Department utilizes the BLUGOLD Service Levels Standards document as a guideline for tasks and frequencies for cleaning academic buildings. The BLUGOLD Service Levels Standards is fundamentally correct; however, several of the task frequencies do not align with the APPA quality level expectation.

The chart below is a sample SOW per APPA quality level that can be adapted to a specific custodial operation and may require minor adjustments to properly capture the frequency of every cleaning task for each specific area.

<table>
<thead>
<tr>
<th>OFFICE/CONFERENCE ROOMS</th>
<th>APPA 1</th>
<th>APPA 2</th>
<th>APPA 3</th>
<th>APPA 4</th>
<th>APPA 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty trash/replace liners</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>2X Week</td>
<td>1X Week</td>
</tr>
<tr>
<td>Clean Whiteboards</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>2X Week</td>
<td>1X Week</td>
</tr>
<tr>
<td>Straighten furniture</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>1X Week</td>
<td>Bi-Weekly</td>
</tr>
<tr>
<td>Sweep/Dust mop floors</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>2X Week</td>
<td>1X Week</td>
</tr>
<tr>
<td>Spot mop floors</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
</tr>
<tr>
<td>Damp mop floor (entire area)</td>
<td>Daily</td>
<td>Daily</td>
<td>1X Week</td>
<td>Bi-Weekly</td>
<td>Monthly</td>
</tr>
<tr>
<td>Vacuum high traffic areas</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>2X Week</td>
<td>1X Week</td>
</tr>
<tr>
<td>Vacuum (entire area)</td>
<td>Daily</td>
<td>Daily</td>
<td>1X Week</td>
<td>Bi-Weekly</td>
<td>Monthly</td>
</tr>
<tr>
<td>Carpet spot removal</td>
<td>As Needed</td>
<td>As Needed</td>
<td>Daily</td>
<td>Bi-Weekly</td>
<td>Monthly</td>
</tr>
<tr>
<td>Wipe down touch points</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
</tr>
<tr>
<td>Spot Clean interior glass</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
</tr>
<tr>
<td>Clean interior glass (full cleaning)</td>
<td>Daily</td>
<td>Daily</td>
<td>1X Week</td>
<td>Monthly</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Disinfect drinking fountains</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>1X Week</td>
<td>Bi Weekly</td>
</tr>
<tr>
<td>Remove gum</td>
<td>Daily</td>
<td>Daily</td>
<td>Daily</td>
<td>Bi-Weekly</td>
<td>Monthly</td>
</tr>
<tr>
<td>Dust furniture</td>
<td>Daily</td>
<td>Daily</td>
<td>1X Week</td>
<td>Bi Weekly</td>
<td>Monthly</td>
</tr>
</tbody>
</table>
Work Loading
After the SOW is finalized, the next step is to complete a comprehensive work loading process. Work loading is the process that is used to estimate the total labor hours needed to complete a task as outlined in the SOW or necessary to achieve an expected service or quality level. By analyzing cleanable square footage, tasks, frequency of tasks, floor types, room types, the number of restrooms and the number of fixtures in each restroom, and available equipment and supplies; it can be determined how long it will take to clean each room, area and building on the campus. The metrics generated will help determine the number of FTE’s needed to perform at the desired level of service or APPA quality level.

Work loading can be done manually or by utilizing a custodial software program. The additional benefits of utilizing custodial software for work loading are:

- The ability to create perpetual cleaning plans and project schedules
- Balance workloads across employee work schedules to ensure equitable distribution of assignments
- Track supply costs and usage levels for planning and budgeting purposes
- Analyze the impact of changes to cleaning schedules on costs, productivity and workloads
- Maximize productivity without increasing labor
- Minimize costs without decreasing quality
- Conduct quality assurance inspections
- Track quality improvements over time

**Task Schedules**
Job cards provide a systematic way to efficiently route work for each staffed custodial position. Job cards provide clarity of responsibilities and duties that make it possible for the custodian to move from one area to another to cover an opening or a change in position and know how to proceed efficiently. The importance of job cards is to help each employee manage his/her workload and ensure that daily and project work is completed on a regular basis. Creating the job cards provides an evaluation of responsibilities in order to balance workloads. Re-positioning the custodians to perform specific tasks in designated buildings, which is the Team Cleaning concept, is a simple solution to productivity issues and
maintaining consistency. The job card also serves as a training tool for managers to use when onboarding new employees and an outline of the work that each employee is held accountable for and evaluated on during annual performance reviews.

The creation of job cards can be done in conjunction with the work loading process. If custodial software is used, job cards can be generated from the program, minimizing the labor and effort needed to create them and allow for balance and accuracy in the division of labor.

The University Centers custodial department has developed task schedules per employee. The task schedules in use display fundamentals accurately; nevertheless, evaluation is required to adjustment tasks based on time allocations of actual work performed.

Job cards should be a guide for the custodian and represent the basic daily and hourly control to attain consistent quality results. An examination of proper routing and time allocations for each employee will need to be refined in order to enhance efficiencies. Analyzing the actual workflow and making changes to eliminate non-value added steps is critical to establishing an efficient work flow process.

After completion of the task schedules, the expectation is that each employee be:

1. Provided step-by-step training for their particular task schedule
2. Provided expectations of their position
3. Held accountable for their daily work according to the established schedule

<table>
<thead>
<tr>
<th>Complete Task Schedules</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify position</td>
<td></td>
</tr>
<tr>
<td>• Assign daily tasks with time allocation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classify Each Employee</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify employee and job title on task schedule</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assign Cards to Employee</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Train on expectations</td>
<td></td>
</tr>
<tr>
<td>• Walk through specific daily tasks notating time alloted for each task</td>
<td></td>
</tr>
</tbody>
</table>

**Job Card**

<table>
<thead>
<tr>
<th>LOCATION:</th>
<th>Athletic Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAYS:</td>
<td>Monday – Friday</td>
</tr>
<tr>
<td>HOURS:</td>
<td>7:00 AM – 3:00 PM</td>
</tr>
<tr>
<td>BREAK TIME</td>
<td>12:00 PM – 1:00 PM</td>
</tr>
</tbody>
</table>

**Areas of Responsibility following steps 1-6**
- gym
- weight room
- restrooms
- entrances
- lobbies
- vestibule
- ticket office
- stairs
- corridors

**Six Cleaning Steps**
1) Pull waste
2) High dust
3) Damp wipe
4) Dust mop/vacuum
5) Spot mop
6) Inspect room

**Policing**
Training

The majority of the custodians are long term employees which has created the “they know what to do” mentality. This mindset has resulted in a deficient training program. There is no standardized on-the-job training performed on a consistent basis. Safety training is currently conducted only once a year. Daily, weekly and monthly custodial training on safety, proper cleaning techniques and service delivery is the most effective way to continuously improve job satisfaction and performance as well as drive quality results. A focused approach to training will enable any new and existing employee the opportunity to develop their custodial knowledge and skills needed to perform at an optimum level on a consistent basis. The combination of weekly training on both cleaning techniques and a service attribute will not only improve the quality of services provided and increase employee engagement; it will benefit the supervisors by developing their coaching, training and communication skills.

There are no standard operating procedures in place for the custodians to utilize as a guideline for proper cleaning methods and safety practices. A completed task is not the definition of a “job well done”. Many tasks can be performed to the satisfaction of those monitoring the outcome without proper procedures having been applied. Developing standard operating procedures and processes that govern day-to-day custodial operation and reinforces the value of cleaning is essential in building a strong and fundamentally sound program that aligns with UWEC’s high standards.

Example of a custodial procedure outlined in the Sodexo Custodial Unit Operating System Manual:

Sodexo 7-Step Cleaning Process

The Sodexo standard Seven Step Cleaning Procedure is the standard method for cleaning all areas (unless otherwise specified).

Summary of the 7-Step Cleaning Process

1. Pull trash
2. High dust
3. Damp wipe
4. Clean restroom
5. Dust mop
6. Damp mop
7. Inspect work
Employee Recognition
The morale of the custodians is currently low due to the threat of change. There is no employee recognition program currently in place. It is vital for custodians to understand the role they play in creating and maintaining exceptional student experiences. Keeping the campus clean is not just a job; it is a system. The hard work of each custodian keeps it running smoothly. The cleaning effort must be recognized regularly and supported with ongoing communication. Implementing an employee recognition program will reinforce the customer service message and help guide and shape employee behaviors to meet UWEC’s expectations.

Analysis by Area
Following is a chart that shows the current cleaning quality by building.

<table>
<thead>
<tr>
<th>Building Name</th>
<th>Type of Building</th>
<th>Observed APPA level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ade Olson</td>
<td>Athletics</td>
<td>3</td>
</tr>
<tr>
<td>Brewer Hall</td>
<td>Administrative</td>
<td>3</td>
</tr>
<tr>
<td>Bridgman Hall</td>
<td>Residence Hall</td>
<td>3.5</td>
</tr>
<tr>
<td>Centennial Hall</td>
<td>Academic</td>
<td>2.5</td>
</tr>
<tr>
<td>Chancellors Hall</td>
<td>Residence Hall</td>
<td>3</td>
</tr>
<tr>
<td>Crest Wellness Center</td>
<td>Fitness CT/Health CT</td>
<td>3</td>
</tr>
<tr>
<td>Davies Student Center</td>
<td>Academic/Admin</td>
<td>3</td>
</tr>
<tr>
<td>Governors Hall - West</td>
<td>Residence Hall</td>
<td>3.5</td>
</tr>
<tr>
<td>Governors Hall - North</td>
<td>Residence Hall</td>
<td>3.5</td>
</tr>
<tr>
<td>Haas Fine Arts</td>
<td>Academic</td>
<td>3</td>
</tr>
<tr>
<td>Hibbard Humanities Hall</td>
<td>Academic</td>
<td>3</td>
</tr>
<tr>
<td>Hilltop Center</td>
<td>Rec CT/Dining</td>
<td>3</td>
</tr>
<tr>
<td>Horan Hall</td>
<td>Residence</td>
<td>3</td>
</tr>
<tr>
<td>Human Sciences and Services</td>
<td>Academic</td>
<td>3</td>
</tr>
<tr>
<td>Katherine Putnam Hall</td>
<td>Residence Hall</td>
<td>3</td>
</tr>
<tr>
<td>Katherine Thomas Hall</td>
<td>Residence Hall</td>
<td>3</td>
</tr>
<tr>
<td>Kjer University Theatre</td>
<td>Academic</td>
<td>3</td>
</tr>
<tr>
<td>McIntyre Library</td>
<td>Library</td>
<td>3</td>
</tr>
<tr>
<td>McPhee Physical Education Center</td>
<td>Athletics</td>
<td>3</td>
</tr>
<tr>
<td>Murray Hall</td>
<td>Residence Hall</td>
<td>3</td>
</tr>
<tr>
<td>Oak Ridge Hall</td>
<td>Residence</td>
<td>3</td>
</tr>
<tr>
<td>Phillips Science Hall</td>
<td>Academic</td>
<td>3</td>
</tr>
<tr>
<td>Priory Hall</td>
<td>Residence/Events</td>
<td>N/A</td>
</tr>
<tr>
<td>Schneider Social Science Hall</td>
<td>Academic</td>
<td>3</td>
</tr>
<tr>
<td>Schofield Hall</td>
<td>Admin/Academic</td>
<td>2.75</td>
</tr>
<tr>
<td>School of Nursing</td>
<td>Academic</td>
<td>3</td>
</tr>
<tr>
<td>Sutherland Hall</td>
<td>Residence Hall</td>
<td>3</td>
</tr>
<tr>
<td>Towers Residence Hall - North</td>
<td>Residence Hall</td>
<td>3.5</td>
</tr>
<tr>
<td>Towers Residence Hall – South</td>
<td>Residence Hall</td>
<td>3.5</td>
</tr>
<tr>
<td>Zorn Avenue</td>
<td>Athletics</td>
<td>3</td>
</tr>
</tbody>
</table>

This assessment was conducted during the last two weeks of the semester, where students were moving out of residence halls. The Residence Life custodians were initiating the summer project work process, in lieu of routine cleaning which occurs during the typical academic calendar year. That factor contributed to lower APPA scoring in select facilities.

Entryways
Entryways are the first line of defense in limiting contaminations from entering building especially during inclement weather. Therefore, special effort should be focused in these areas to keep the contaminants...
out of the building. Proper maintenance of the entryway system can increase the life of the flooring systems (i.e., carpet, stone, resilient tile, etc.). From an economic and safety standpoint, appropriate entry mats reduce liability and costs associated with cleaning.

The first impression areas and the condition of the entryways are at an acceptable level that present well and have a positive impact on visitors and potential students.

The following items need attention:
- Cobwebs and small amounts of dust in corners
- Fingerprints and smudges on entrance doors
- Dirt buildup along thresholds

There are walk-off mats in place at almost every entrance of the surveyed buildings. The walk-off matting at many of the building entrances is not the right size for each entrance. Either the matting is too short or not wide enough to capture the dirt, debris and moisture entering the building.

A comprehensive flooring entry system should capture the majority of dirt and debris being brought into the building via foot traffic, add an appealing element to the interior space, and aid in creating a safe, slip-free environment.

A high performing cleaning program would include the following:
- 12 to 15 feet in length of interior matting, especially during inclement weather
- Install exterior scraper mats
- Utilize HEPA vacuums that meet the CRI Green Label program
- Train staff to vacuum mats in both directions, to ensure appropriate cleanliness
- Change vacuum filters as recommended by the manufacturer
- Rotate mats on a regular cycle
- Extract mats as needed
- Ensure mopping solution is mixed properly and changed when dirty
- Use microfiber flat mops and microfiber cloths
- Sweep and mop hard floors underneath mats
- Repeat procedures as needed based on weather conditions and soil loads
- Use recommended ice melt products, when necessary. Ensure that entrances are policed regularly to remove buildup of product.

**Cleaning in High Visibility Areas**

The buildings and areas on the Admissions Tour route show well. The Admissions Tour is an opportunity to showcase the campus grounds, facilities, student amenities and all that UWEC has to offer to prospective students and parents. A successful tour can be a key decision factor for many potential students. The tour route should be considered a high visibility area and should be maintained at the highest possible APPA level quality.

The High Visibility Areas surveyed on campus such as the Davies Student Center, Centennial Hall, McIntyre Library and Hilltop Center are well maintained and require frequent monitoring due to the amount of traffic moving throughout the buildings. In general, these areas look appealing, with acceptable routine floor care and tile maintenance.

The following items need attention:
- Minor high and low dust
- Scratches in the floor finish
- Minor buildup in corners & edges
- Smudges and finger prints on windows and glass doors
- Coffee spills on main stairwell in Davies Center that remained for several days
- Glass partitions in Davies Center appear to be smeared with either a dirty cloth or a result of improper glass cleaner chemical dilution
- Carpet spots
- Dirt buildup in elevator tracks
- Dusty vents
Restrooms
The restrooms are in good physical condition. Neither graffiti nor vandalism appears to be an issue. The residence hall community showers are in disarray and require a deep cleaning. The Kaivac restroom cleaning machines will be helpful in removing the dirt and soap scum buildup. Mirrors are clean and smudge free.

There are a few cleaning items that need to be addressed.
- Grout restorative project work required in residence halls
- Dust and dirt buildup behind restroom entrance doors
- Detail cleaning needed around paper and soap dispensers to remove soap and grime buildup
- Wipe down trash receptacles
- Wipe down partitions
- Paper supplies are stored inappropriately, such as on top of the dispensers

Corridors & Stairs
Corridors and stairs are free of trash, debris and graffiti throughout campus. The majority of corridors are spot free. The tile floors appear to be machine scrubbed. Several areas have dull finishes and require restorative project work.

The following items need to be addressed:
- Older buildings have visible buildup on cove base
- Dust window ledges
- Wipe down walls in stairwells
- Wipe down handrails
- Clean metal thresholds
- Clean elevator tracks
- Tile is yellowing in certain areas and requires strip/refinish

Academic / Administrative Areas
The classrooms, labs, libraries and other academic areas are well maintained with the expected wear and tear at the end of the school year. The summer project work is underway with the tile and grout deep cleaning and strip/refinish in process.

The following items require attention:
- Dust window ledges
- Touch points in classrooms should be disinfected daily
- Wipe down walls
- Carpet spots in classrooms require restorative project work
- Clean metal thresholds
- Glass has finger prints and smudges
- Perform high and low dusting

Safety & Health
Custodians are the first line of defenders of health, hygiene and infection prevention. It is the custodian’s responsibility to protect the built environment. A well-trained custodial staff will extend the building’s life cycle. A poorly run program will spread pathogens, damage the built environment, and impact building occupants’ mental and physical well-being.

UWEC custodial departments have a basic Right to Know-SDS program in place. The SDS information is stored in the main offices of each custodial department not in the individual custodial closets. Secondary labeling violations and unlabeled spray bottles are present in the campus inventory. This is a violation of OSHA standards, making identification of the cleaning product difficult in the event of an exposure.
incident. Summer project work is in full swing, and as such, many of the custodial closets are left open and custodial cart/equipment is left unattended in hallways. This practice is a safety hazard for students, faculty and guests, and is cause for concern.

Personal Protective Equipment (PPE) is stored in closets; its actual use for cleaning is somewhat inconsistent. The use of safety shoes is not required by UWEC. PPE must be consistently worn to keep the frontline employees safe. There is no particular uniform standard enforced for the custodians. The Housing and Recreation custodial department is the only group that wears a designated shirt and pants uniform. The Facilities Management custodians wear a uniform shirt and are allowed to wear with jeans. A standardized uniform program will convey a unified, professional appearance for the custodians.

**Chemical Use and Storage**

Chemical usage and ordering process is not standardized. The different custodial departments have a vast array of chemicals. The custodians are working with a combination of diluted chemicals from a single chemical dispensing system, aerosol sprays, bleach and “ready to use” chemicals. Facilities Management, Centers and UR&SF order their custodial supplies and chemicals from UWEC’s Surplus while the Housing group orders directly from the distributors. Ordering from UWEC Surplus is a “on demand” process that has a 24 hour turn around with the order being delivered directly to the building.

Standardizing chemical products is a key factor in monitoring costs and ensuring products selected are providing optimal cleaning results while reducing environmental impact. The Ecolab Bio-Based hard surface cleaners are an example of a product line that is certified by Green Seal and requires no PPE to use.

The majority of the custodial closets are clean, well-organized and shelving labeled. The Housing custodial closets are cluttered and cleaning supplies are scattered throughout the hallways while performing turnover cleaning duties. Organizing and standardizing the custodial closets makes it easier for the custodians to find what they need quickly, and the well-ordered look of the closets adds to the overall professional presence of the custodial department.

The cleaning process could be simplified if all of the “ready to use” chemicals and bleach were eliminated and a full chemical dispensing system was implemented. Using controlled, properly diluted chemicals will provide the custodians with needed product to clean properly and help the department realize cost savings.

The custodians need four primary chemicals for daily use:

- Disinfectant
- General Purpose Cleaner
- Glass Cleaner
- Bathroom Cleaner

**Equipment & Supplies**

There is a significant amount of custodial equipment on campus. The majority of equipment in each custodial department is organized and neatly stored. All equipment and supplies need to be cleaned and stored properly to maintain hygienic storage areas to ensure that the equipment and supplies do not become carriers of bacteria and germs. There is no standardized equipment program; as a result, there are many different brands of equipment. UWEC has invested in modern and time-saving equipment such as backpack vacuums, auto scrubbers and restroom cleaning equipment.

The custodians are also using both upright vacuums and backpack vacuums. Upright vacuums can be heavy and cumbersome to use especially when moving around a building or a small house. Backpack vacuums are less stressful on the body than uprights. Productivity increases are achieved with the use of backpack vacuums. The mobility and agility of the backpack will allow the custodians to cover more area faster and more efficiently. It is recommended that as vacuums are replaced, they are replaced with backpacks instead of uprights.
Each of the custodial departments has a designated equipment and light maintenance technician. This position is primarily responsible for equipment preventive maintenance (PM) and repair which has contributed to the substantial amount of equipment on campus that appears to be in good working condition. A PM is the routine, regularly scheduled maintenance of a piece of equipment to ensure its continued use and maximize its life expectancy. Equipment failure is often a direct result of wear and tear on parts that should have been replaced on a periodic basis. PM training should be conducted to inform custodians of the steps to follow when routine maintenance is performed and how to troubleshoot when there is an equipment malfunction. The equipment is well maintained; however, formal equipment records are not available. Maintaining formal equipment records is essential to monitoring and tracking condition, equipment breakdowns, repairs and PM schedules. This can be accomplished by including this equipment in the computerized maintenance management system utilized by the Facilities Management department.

The custodians are utilizing housekeeping carts, brute barrels with aprons, microfiber cloths and cleaning tools. Cleaning tools that are duct-taped together and beyond their useful life should be discarded. Microfiber cleaning cloths and mopping systems are in use. It is imperative to provide training on proper color coded microfiber cloths to prevent cross contamination during cleaning. For sanitary purposes, it is critical to separate cloths used for restroom cleaning from cloths used for office cleaning.

**Departmental Key Management**

Key safety is critical. UWEC’s key program is an area of concern and should be refined. There is an extensive key tracking system in place; however, once the key is assigned to the custodian, they are permitted to take the keys home with them. This is not a good practice, as security and safety risks increase. The key program can be strengthened to mitigate these risks by standardizing key labeling both on the ring and in a locked cabinet, securing the cabinet [while making sure the weekend cleaner has access to his/her keys], and tracking keys taken in and out.

Suggested key procedures listed below:

- The key cabinet should include back up keys for the following areas:
  - Bulk Storage Area
  - Shift Cabinets
  - Custodial Closets
  - Dispensers
  - Pad Locks
  - Equipment Rooms
  - Floor Care Rooms
  - Custodial Vehicles [trucks, vans, golf carts, etc.]

- Each set is to be returned daily after their shift ends. No one is given a set of keys unless it is for an emergency purpose only.
- Each shift supervisor is responsible for keys that are assigned and distributed to their designated custodians.
- While carrying UWEC keys, it is the responsibility of the employee to provide maximum security of these keys.
- Loaning of UWEC keys to other persons, such as non-employees, is prohibited.
- UWEC keys that are lost, damaged, or stolen must be reported immediately to the supervisor or manager.

**Process-oriented Cleaning [Team Cleaning]**

Process-oriented cleaning [Team Cleaning] is really work simplification and redistribution to achieve a higher level of cleanliness. It is a process defined by teams of three or more custodians performing specialized tasks to clean an area. This is in contrast to zone cleaning, in which an individual is responsible for all the cleaning tasks in an assigned area.

Effective cleaning teams improve productivity, capture costs savings and produce a higher degree of cleaning efficiency. Experience shows facilities that convert from zone cleaning to the Sodexo Cleaning System realize an improved level of cleaning due to productivity gains, improved equipment and balanced distribution of duties.
In the Sodexo Cleaning System, each Specialist (custodian) becomes an expert at a specific task such as vacuuming, waste pick-up, restroom cleaning or mopping. This allows the custodian to perform the work not only faster, but also better. Interdependence of team members results in more thorough and coordinated cleaning and greater accountability.

The cleaning tasks are grouped in specialized jobs or specialist. The Specialists are:

- Light Duty Specialist – Starter
- Vacuum Specialist – Closer
- Restroom Specialist
- Utility Specialist – Usually a working Lead

The Light Duty Specialist (starter) is followed by the Vacuum Specialist (closer) over approximately the same assigned square footage. Here is where the system shines. Depending upon the type of facility there is a queuing gap that needs to be determined. For example, in an office building the Closer will produce about 30% more square feet/hour (SF/HR) than the Starter, therefore the queue gap is one to two hours depending on part time or full time shifts. In the school classroom environment it is reversed, the Starter will produce 30% - 40% more SF/HR. In the school example, the gap may be as little as 10 minutes and will grow. These estimates are based on assigned duties and frequencies. The following graphic depicts the tools of each specialists:

There are some unique tools that aid in the management of daily work and support efficient workflow; Quadrant design and Job Assignment Cards.

Quadrants are utilized to rotate detail cleaning and other less than daily frequencies. Monday through Friday has a detail quadrant and the 1st through the 4th Friday is used for some type of project cleaning.
The Job Assignment Cards are a critical communication tool for the Specialists and management. The cards should contain information as to exactly where the Specialists are to go, the task to perform and how long it should take to complete a quadrant (25% of their total assigned SF). There is an actual room by room or area by area routing specified on the card.

Develop a Working Plan
In order to launch a successful Sodexo Cleaning System program, it is imperative to secure management support and consensus on expected outcomes. The implementation plan consists of several steps:

- **Measure**
  - Conduct a Building or Area Survey
    - Evaluate Floor plans, Measure Areas
    - Fixture Count
    - Surfaces
    - Logistics, Equipment Rooms, Storage
  - Baseline, Quality Assessment Audit

- **Determine Partner Needs**
  - Define Scope of Work
    - Tasks
    - Frequencies
    - Quality levels by Area

- **Determine Custodial Needs**
  - Calculate Staffing Levels
  - Determine Equipment Needs
  - Build Job Cards
    - Based on Tasks and Specialists
    - Balance Workload by Specialists
    - Determine Route of Work

- **Put the Plan in Action**
  - Job Card Implementation
    - Card Instruction – Road Map
    - Training

- **Monitor and Refine**
  - Measure Output
  - Validate and Re-Tune

Training Implementation
Training can often be achieved in a one-day workshop or over several days. Training should not be too difficult, since the actual tasks will not be new to employees, only the methodology of the tasks change.
The major change will involve the vacuum specialists who will need to learn how to properly wear the vacuum to prevent injury and proper usage for maximum productivity. The backpack vacuum is more mobile and allows an individual to move through an area more quickly and efficiently. It is ergonomically designed for side-to-side motion, not bending and pushing. The lightweight backpack straps on, leaving both hands free to clean in a wide arc, wielding a wide suction nozzle. Its design prevents re-circulation of dirt and dust into the environment.

**Monitor and Refine**
Once the program is implemented, the process needs to be continually monitored in order to make adjustments and handle problems as they arise. Encourage regular feedback from cleaning staff and from customers. Continue to monitor the process fairly closely for the first year utilizing the TQM program.

**Timing**
Planning-to-implementation normally takes up to six months, with another six months for fine-tuning the process.

**Getting Started**
Start small, use the best workers first and build on success. In a large institution, a building-by-building approach works well. Start with a crew of custodians who are more open to change if possible. Allow a percentage of additional labor at first while the routine becomes familiar, gradually reducing the help over a few days until the team is meeting the target times without assistance. Allow the team time to discuss the work plan after a week or two and provide an open forum for suggested changes to make improvements to the work plan, which will now become “their work plan.” Modify the job duty cards as required and move on to the next building.

**Setting Up**
Setting up a team cleaning program in a building provides a first-class opportunity to clean out the janitor closets. The benefits of this move are significant. First, there is the symbolic sense of a “new start.” Old methods are being replaced with new processes. Second, the closets can be supplied with only the supplies and equipment needed for the Team Cleaning program, thus preventing staff from reverting to old practices while unsupervised. Third, but not least, the closets will likely have accumulated an amazing amount of material over time. Some of the material may include chemical products for which no SDS are on file, risking potential fines from regulatory agencies. Other “finds” are sure to be unused or underused equipment or parts of equipment thought to have been lost. This often happens in large institutions. When the closets are cleared, they can be painted; a brighter bulb put in the light fixture; and stocked with supplies for the team specialists.

**Rotation**
After the program has been in place for more than 6 months, it is common to rotate positions. Typical rotations will last three months, in other words, specialists will rotate quarterly.

Rotation of specialist duties has three main benefits. First, it ensures that all team members are cross-trained, understand each specialist job duty card and can act as a relief person in a short staffing situation. Second, rotation of duties promotes level loading the work. Third, rotation prevents boredom and complacency.
## Custodial APPA levels Defined

<table>
<thead>
<tr>
<th>Level</th>
<th>Orderly Spotlessness</th>
<th>Ordinary Tidiness</th>
<th>Casual Inattention</th>
<th>Moderate Dinginess</th>
<th>Unkempt Neglect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>• Floors and cove base molding shine and/or are bright and clean. Colors are fresh. There is no buildup in corners or along walls.</td>
<td>• Floors and cove base molding shine and/or are bright and clean. There is no buildup in corners or along walls, but there can be up to two days’ worth of dirt, dust, stains or streaks.</td>
<td>• Floors are swept clean, but upon close observation, dust, dirt and stains, as well as a buildup of dirt, dust and/or floor finish in corners and along walls can be seen.</td>
<td>• Floors are swept clean, but are dull. Colors are dingy, and there is an obvious buildup of dust and/or floor finish in corners and along walls. Molding is dull and contains streaks and splashes.</td>
<td>• Floors and carpets are dirty and there is a conspicuous buildup of dirt, dust, and/or floor finish in corners and along walls. Molding is dirty, stained and streaked. Gum, stains, dirt, dust balls and trash are broadcast.</td>
</tr>
<tr>
<td>2</td>
<td>• Washroom and shower tile and fixtures gleam and are odor-free. Supplies are adequate. Trash containers and pencil sharpeners are empty, clean and odor free.</td>
<td>• Washroom and shower tile and fixtures gleam and are odor-free. Supplies are adequate. Trash containers and pencil sharpeners are empty, clean and odor free.</td>
<td>• Washroom and shower tile and fixtures gleam and are odor-free. Supplies are adequate. Trash containers and pencil sharpeners are empty, clean and odor free.</td>
<td>• Washroom and shower tile and fixtures are dirty and have unpleasant odor. Supplies are inadequate.</td>
<td>• Washroom and shower tile and fixtures are dirty and have unpleasant odor. Supplies are inadequate.</td>
</tr>
<tr>
<td>3</td>
<td>• Floors are swept clean, but upon close observation, dust, dirt and stains, as well as a buildup of dirt, dust and/or floor finish in corners and along walls can be seen.</td>
<td>• Floors are swept clean, but upon close observation, dust, dirt and stains, as well as a buildup of dirt, dust and/or floor finish in corners and along walls can be seen.</td>
<td>• Floors are swept clean, but are dull. Colors are dingy, and there is an obvious buildup of dust and/or floor finish in corners and along walls. Molding is dull and contains streaks and splashes.</td>
<td>• Floors and carpets are dirty and there is a conspicuous buildup of dirt, dust, and/or floor finish in corners and along walls. Molding is dirty, stained and streaked. Gum, stains, dirt, dust balls and trash are broadcast.</td>
<td>• Floors and carpets are dirty and there is a conspicuous buildup of dirt, dust, and/or floor finish in corners and along walls. Molding is dirty, stained and streaked. Gum, stains, dirt, dust balls and trash are broadcast.</td>
</tr>
<tr>
<td>4</td>
<td>• Floors are swept clean, but upon close observation, dust, dirt and stains, as well as a buildup of dirt, dust and/or floor finish in corners and along walls can be seen.</td>
<td>• Floors are swept clean, but upon close observation, dust, dirt and stains, as well as a buildup of dirt, dust and/or floor finish in corners and along walls can be seen.</td>
<td>• Floors are swept clean, but are dull. Colors are dingy, and there is an obvious buildup of dust and/or floor finish in corners and along walls. Molding is dull and contains streaks and splashes.</td>
<td>• Floors and carpets are dirty and there is a conspicuous buildup of dirt, dust, and/or floor finish in corners and along walls. Molding is dirty, stained and streaked. Gum, stains, dirt, dust balls and trash are broadcast.</td>
<td>• Floors and carpets are dirty and there is a conspicuous buildup of dirt, dust, and/or floor finish in corners and along walls. Molding is dirty, stained and streaked. Gum, stains, dirt, dust balls and trash are broadcast.</td>
</tr>
<tr>
<td>5</td>
<td>• Floors are swept clean, but upon close observation, dust, dirt and stains, as well as a buildup of dirt, dust and/or floor finish in corners and along walls can be seen.</td>
<td>• Floors are swept clean, but upon close observation, dust, dirt and stains, as well as a buildup of dirt, dust and/or floor finish in corners and along walls can be seen.</td>
<td>• Floors are swept clean, but are dull. Colors are dingy, and there is an obvious buildup of dust and/or floor finish in corners and along walls. Molding is dull and contains streaks and splashes.</td>
<td>• Floors and carpets are dirty and there is a conspicuous buildup of dirt, dust, and/or floor finish in corners and along walls. Molding is dirty, stained and streaked. Gum, stains, dirt, dust balls and trash are broadcast.</td>
<td>• Floors and carpets are dirty and there is a conspicuous buildup of dirt, dust, and/or floor finish in corners and along walls. Molding is dirty, stained and streaked. Gum, stains, dirt, dust balls and trash are broadcast.</td>
</tr>
</tbody>
</table>
Custodial Photo Gallery

Zorn Arena – acceptable cleaning in restroom

Hibbard Hall – Classroom is clean and carpet is spot free

McPhee Center – black marks on concrete is gum. It takes approximately 7 days for chewing gum to turn black.

McPhee Center – soap residue buildup on wall and in grout under dispenser in restroom

McPhee Center – Custodial tools wrapped with duct tape and a cloth

Toilet bowl swab on custodial cart is located right next to paper towels used for cleaning. Each time toilet bowl swab is accessed, contaminated water is lost from the swab potentially contaminating all of the cleaning tools on the cart.

Distinct transition cutoff from the Music Theater hallway into an office

McIntyre Library – dusty return vent

Hibbard Hall – Facilities Specialist equipment repair cage
Custodial supplies & chemicals stored for purchase in the Surplus area

Zorn – stairwell is clean and free of dust and debris

Crest Wellness Center – matting taped to floor in front of fitness center

McIntyre Library – PPE observed in custodial closet

Hibbard Hall – excessive amount of trash receptacles in restroom. The 3rd trash receptacle not in picture.

Hibbard Hall - Designated laundry for Facilities Mgmt. custodial department

Centennial Hall – organized custodial closet

Centennial Hall – organized tool & equipment storage

School of Nursing – Secondary label violation. Cleaning cloths resting in the trash bin – potential cross contamination
School of Nursing – labels utilized in custodial closet to correctly organize supplies

Human Sciences & Service – well maintained floor

Residence Life vacuums awaiting repair

Secondary label violation

Broom duct taped to another cleaning tool to extend the length for high dusting.

Potential cross contamination. Duster is located near paper towels used for cleaning, each time duster is used the dust is transferred to paper towel roll. Cleaning cloths resting on trash bin.

Variety of aerosol cans in use & stored in custodial closet

Murray Hall – unorganized custodial closet

Davies Center – high dust in women’s restroom
Bridgman Hall – restroom shower requires deep cleaning

Horan Hall – common area is clean & carpet is spot free

Restroom grout requires restorative project work

Custodial cart with “Ready to Use” cleaning chemicals & food and drink

Secondary label violation

Restorative project work needed on floor in Schneider Hall
GROUND ASSESSMENT

Leadership & Management Structure

Position Power is the power associated with a person’s position within the organizational hierarchy. Personal influence and position power are complementary tools used by leaders. That is, leadership augments management by motivating desired behavior and increasing a manager’s sphere of influence.

Competent Leaders Manage Themselves and Lead Others

The Grounds Supervisor (GS) and Grounds Technicians should understand and be able to describe daily work, tasks, and frequencies by employee position. This was not able to be determined. The GS position had been vacant for nine months but has recently been filled with someone who has grounds and sports field experience. The GS position was re-structured to be a “working” supervisor. While this could add additional labor, the campus is too large and fragmented to have that position be a working supervisor. Weekly and monthly meetings have recently been implemented by the GS.

The department has considered changing the title of the current “gardener” position to a Landscape Architect position. The current technician in this role has a Master’s degree in Landscape Architecture and is currently pursuing her license. While the addition of a licensed Landscape Architect could have benefit to the university, the position should be a staff position and not within the “daily operations” grounds department.

There are a number of technicians on staff who are licensed to apply control products.

Existing Organization Chart
Operational Plan
Listed below is an outline to help "operationalize" the department and ensure a smoother work flow. The intent of a formalized operational program is to:

- Provide a structured, safe environment in which to work;
- Communicate clear expectations to employees and manage performance; and
- Enhance service by meeting and exceeding client expectations and develop a benchmark for service.

Admissions Tour
"Over 60% of prospective students making campus site visits said what influenced them most during the visit was the appearance of the grounds and the buildings."

~ The Carnegie Foundation for the Advancement of Teaching (survey of 1,000 high school seniors.)

The Admissions Tour walk is one of the most important paths on campus. It is a collection of images, events and people that will help define the school to its potential clients. Admission Directors believe that a student will form an opinion of campus in the first 10 minutes and will rule that campus in or out in the next 20 minutes. As our partner's building and grounds experts, we need to ask "how do our efforts provide value to our partners, and how can we help them to create the best first impression?" Landscape has an "affective power;" it can influence emotions which will affect recruitment, retention and learning. The design intent and maintenance thereof also communicate institutional values and priorities.

An Admissions Tour walk was completed following a map provided by Admissions:

- Most of the campus parking lots and roadways are free of accumulated debris and recently blown off. Larger hard surface “gathering spaces” are also very clean.
- Lawn areas are free of weeds and are very healthy in the campus core.
- Large drifts of annual color are missing from key areas.
- All tree/shrub beds along with sidewalks need edging.
- Spring bulbs are in bloom.
- Numerous smaller trees need to have dead wood removed.
- Some of the “disconnect” between upper and lower campuses can be solved by removing the sumac from the UWEC shrub lettering bank and the buckthorn on the opposite bank.
- The recent landscape improvements to the campus core should be a template to follow throughout campus. The use of hardy cacti in front of McIntyre is an interesting addition to the softscape.

Areas for improvement include:

- Complete deep bed edging of shrub and tree beds on the tour route and then eventually over the entire campus, making sure mulch does not cover edging and is the proper 2” depth.
- Improve turf areas in the upper campus, paying particular attention to the tour route, with increased aerification, overseeding, scheduled fertilizer applications, thinning of the tree canopy and/or removal of some trees.
- Repair remaining snow damage from grass areas along walks and drives.
- Improve the Snow Response Plan in areas noted below.
- Improve documentation of sports field and hazard tree work.
- Improve training of technicians.
- Have Grounds department take the Admissions Tour route and then laminate a map of it for each zone.
- Mass in daffodil/tulip bulbs around main entrance signs and along tour route to “theme” and highlight the walk.
- Improve summer/fall annual flower color throughout the tour walk, making sure to create a “theme” of color and plants. Limit annual color to two choices only for greater visual impact.
- Increase the amount of plant material in beds near Admissions.
- Straighten all signs and posts on campus and replace where necessary.
• Improve “wow” factor at main entry gateways to campus with University banners on light poles and hanging flower baskets.
• Remove mulch from over-mulched beds in fall.
• Improve the maintenance levels in the upper campus.
• Implement QA weekly checks.
• Grounds Supervisor should join the Professional Grounds Management Society, Sports Turf Manager Association, National Association of Landscape Professionals (NALP) and the Snow and Ice Management Association.
• On-going training should be implemented using Tailgate Safety Talks from the NALP and Landscape Safety Training videos from LS Training.
• Consider developing a Campus Master Landscape Plan to include a design intent, campus site furnishing standards and plant palette to improve the disconnect between upper and lower campus.

Snow and Ice Removal Policy and Procedure
There is an outlined snow and ice removal plan; however, it is missing a number of key components that would be needed in the event of a lawsuit:

• No documentation has occurred as to what tasks were performed, time or location for the previous storms.
• No documentation of the air/pavement temperatures on current hard surface conditions at the start of shift, middle and end of shift.
• No documentation as to the amount, location or time product was applied.
• No documentation as to the start or end times of each storm event.
• No slip and fall policy that would immediately notify grounds of an incident so that a picture of the footwear and site could be taken as well as to immediately address the concern. Detailed notes of what was done in that area prior to, during and after the incident is necessary.
• Custodial team is involved in the snow removal process; however, no documentation of what they have done is occurring. The number of main and emergency entrances for each building needs to be identified in the custodial snow removal plan.
• No post-storm meetings have occurred to determine what went right or where things could be improved.
• No “disaster contractor” has been identified in the plan in the event the storm becomes overwhelming for the University’s equipment and manpower.
• A Snow Response Team Leader needs to be identified whose job is to travel campus to coordinate how things are being done and where additional support may be needed.
• Consideration should be given to after-hours coverage during the winter for one/two technicians. This way, no time is lost between the evaluation of the call-in and the eventual arrival of technicians to begin work.

Other observations include:
• The campus poses considerable maintenance challenges with the bridge over the river, the series of very steep wooden and concrete steps, the steep drive from upper to lower campus and the limited space to store or push snow in the Towers Lot.
• The Holder snow machines are more than adequate snow fighting equipment; however, their extreme weight may pose asphalt repair concerns in the future to walkways and lots without a proper base.
• De-icing and anti-icing strategies are understood by the department’s lead technician. Material selection of product used is very good and is altered on the type of event occurring.
• Consideration should be given in the future to the use of drop salters on the sidewalks instead of the broadcast spreaders. Even at low speeds a considerable amount of product is lost to off-target bounce and scatter drift.
Job Cards

Job cards are daily task assignments for each position in the Grounds department. Completing job cards, identifying specific zones, assigning a specific person to that zone and following up weekly using Grounds Quality Assurance forms are the first steps in improving efficiencies within the department. A hierarchy of spaces within a zone is critical, so key points can be policed daily before traffic or special events become a factor. For example, if the zone includes the President’s route to his office, this would be a good first stop to police.

<table>
<thead>
<tr>
<th>POSITION</th>
<th>Day/1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone</td>
<td>Police-up Zone 1, Broadcast Zone 1</td>
</tr>
</tbody>
</table>

**Collect Proper PPE Before Starting Any Task**

- Police-up Zone 1
- Break
- Begin mow/trim/edge/blow broadcast Zone 1
- Lunch
- Continue to mow/trim/edge/blow Broadcast Zone 1
- Clean equipment / Paperwork

**Police-up Zone Hierarchy**

1. Entrance portal
2. Key campus point
3. Administrative Building
4. Student gathering areas
5. Parking lots
6. Athletic complexes
7. Inspect areas

**Daily Police-up Tasks**

- Litter control
- Sweep hardscape
- Prune/Trim as needed
- Check mulch and plants
- Monitor trash receptacles
- Weed/disease control
- Write needed WO

**Daily Tool List**

1. Power or pull cart
2. Litter tool and receptacle
3. Rake/shovel/hoe
4. Blower/vacuum
5. Pruner/shears
6. Push mower
7. String trimmer and string
8. Fuel

Scheduling

Grounds assignments are self-motivating positions. There are team members to assist when needed but a clear understanding of each crew member’s roles and responsibilities is essential to running an efficient program. Best practice would be to assign regular areas of responsibilities (zones) and establish a defined schedule for each team member.

All tools and material should be loaded upon arrival for the entire day’s tasks. Fifteen minutes at the end of the day should be allotted to clean the vehicle and put away tools. An additional fifteen minutes should be allotted for personal clean up at the end of each day. Allotted breaks should be taken in convenient locations where current tasks are being performed to reduce travel time to a central break location. Current shift times for the 8.0 FTE are 6:00AM-2:30PM, Monday-Friday. One FTE should be selected to work Tuesday-Saturday and another Wednesday-Sunday. From November 1-April 1, 24/7 coverage should be considered for improving reaction times in snow emergencies.
Training
There is no documentation of the Ground’s staff safety training. Technical and safety training should occur using the Tailgate Safety Talks and signing up for LS Training (www.landscapesafety.com). The Grounds Supervisor should develop a monthly training outline, document all training, and keep an up-to-date file of attendees. The Grounds Supervisor should also look into becoming a Certified Grounds Manager. All student workers should be formally trained to help Grounds Department in various tasks like mowing, line trimming and snow removal.

Hardscape Safety
Many of the asphalt parking lots should be reviewed by an engineer to determine the quality of the base material and what lots are in need of immediate milling, paving or top coating and those that can wait. An engineering study has begun or has been completed recently according to campus personnel. Most “lips” on concrete sidewalks have been ground down using a grinding saw.

Hazardous Tree Safety
It is important for every Grounds employee to not only look down for safety issues but also to look up into the tree canopies for potential hazards. A tree is not a hazard unless there is a target (i.e., walkway, parking lot, building, entrance, etc.) where someone could be injured or killed.

An initial hazardous tree assessment should be completed by the new Grounds Supervisor and a Certified Arborist. No hazard trees were noted on the tours; however, a Certified Arborist will take a closer look at suspect trees. After the broader hazard tree assessment is completed a bi-annual “windshield survey” should be conducted by the on-site Grounds Supervisor. All potential hazards should be reviewed by a Certified Arborist and documented during these walks by developing a Hazardous Tree Form. This report would be submitted to the ADO for annual budgeting purposes.

The Certified Arborist report will add credibility to the question, “is it a hazardous tree?” Any tree removals should be documented in pictures to show the decay within the tree. The Certified Arborist report, along with any work done, should be filed in the same file as the windshield survey. Any in-house tree removals or pruning above 15 feet should also be documented.

Grounds Shop Safety
The Grounds Garage has no eye wash stations and not enough OSHA-approved cabinets. The garage is very organized and the equipment is very clean with all blades recently sharpened on the mowers.

Grounds Equipment
Having the right equipment, operating it effectively and maintaining it properly will extend the useful life of each piece; thereby, providing a maximum return on each capital investment. This can also keep labor dollars down by using the most efficient piece of equipment for the right application. An updated equipment list was provided, however; it is missing hours and mileage for the equipment. The recent purchase of the Holder tractors should be more than sufficient for most snow storms. The Holder with the out-front mowing decks is not the correct piece of equipment for the sports fields. The machine is extremely heavy (over four tons) and could eventually cause compaction issues, even with the different tires for the fields. Future purchases should consider a Toro 4500 that is designed for use on sports fields. A drop salter, like an Accuspread, should be used for the sidewalks to prevent bounce and scatter from salt applications. The off-target applications increase the amount of turf repair needed in the spring.

Sports Fields
The department responsibilities to the Bollinger, Simpson and Tower sports fields are documented in an agreement between Student Support Services and UWEC Grounds Department. Essentially, Recreation marks the fields, does clay infield maintenance and installs the nets on the goals. All work performed by UWEC staff and materials is charged back to the Recreation Department. All Bollinger fields have adequate turf cover and showed little wear (except for Field 1). A number of fields are taken out of play on
a re-occurring basis which will greatly improve turf cover and playability. Most baseball fields needed work to their pitching mounds, home plate area and grass “lips”. Softball fields needed “lip” removal and all fields need a lazer grade to the clay infield.

The Simpson field track has had a recent overlay and the grass playing field within the track has adequate turf cover. Recent aerification and overseed of the practice fields was identified.

Turf cover on the practice field is also adequate, but there is some wear in the goal mouths that is scheduled to be addressed.

Tower fields are used for alternate parking at times and will need remedial aerification and overseeding once that is completed.

The wooden barriers surrounding the volleyball courts need padding to prevent injury.
## Grounds APPA levels Defined

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>State of the Art (Estate/Arboretum Quality)</th>
<th>High Level Maintenance (Well-defined Areas)</th>
<th>Normal Maintenance (Maintained and Weed Free Lacking Distinct Definition)</th>
<th>Moderately to low-level Maintenance (Lacks Attention)</th>
<th>Minimum Maintenance (Nature Areas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turf Care</td>
<td>Grass height maintained according to species and variety of grass. Mowed at least once every five working days but may be as often as once every three working days. Aeration as required but not less than four times per year. Reseeding or sodding as needed. Weed control to be practiced so that no more than 1 percent of the surface has weeds present.</td>
<td>Grass cut once every five working days. Aeration as required but not less than two times per year. Reseeding or sodding when bare spots are present. Weed control practiced when weeds present a visible problem or when weeds represent 5 percent of the turf surface. Some pre-emergent products may be used at this level.</td>
<td>Grass cut once every ten working days. Normally not aerated unless turf quality indicates a need or in anticipation of an application of fertilizer. Reseeding or sodding done only when major bare spots appear. Weed control measures normally used when 50 percent of the general turf is infested or when 15 percent of the general turf is infested with weeds.</td>
<td>Low-frequency mowing scheduled based on species. Low growing grasses may not be mowed. High grasses may receive periodic mowing. Weed control limited to legal requirements for noxious weeds.</td>
<td>Low-frequency mowing scheduled based on species. Low growing grasses may not be mowed. High grasses may receive periodic mowing. Weed control limited to legal requirements for noxious weeds.</td>
<td></td>
</tr>
<tr>
<td>Fertilizer</td>
<td>Adequate fertilization applied to plant species according to their optimum requirements. Amounts depend on species, length of growing season, soils, and rainfall. Rates should correspond to at least the lowest recommended levels. Materials should ensure an even supply of nutrients for the entire year.</td>
<td>Adequate fertilizer level to ensure that all plant materials are healthy and growing vigorously.</td>
<td>Applied only when turf vigor seems to be low. Low-level application done once per year. Rate suggested is one-half the level recommended.</td>
<td>Not fertilized.</td>
<td>Not fertilized.</td>
<td></td>
</tr>
<tr>
<td>Irrigation</td>
<td>Sprinkler irrigated-electric automatic commonly used. Some manual systems could be considered adequate under plentiful rainfall circumstances and with adequate staffing. Frequency of use follows rainfall, temperature, season length, and demands of plant material.</td>
<td>Sprinkler irrigated—electric automatic commonly used. Some manual systems could be considered adequate under plentiful rainfall circumstances and with adequate staffing. Frequency of use follows rainfall, temperature, season length, and demands of plant material.</td>
<td>Depending on climate, locations that receive more than 25 inches of rainfall may require supplemental irrigation.</td>
<td>No irrigation.</td>
<td>No irrigation.</td>
<td></td>
</tr>
<tr>
<td>Litter Control</td>
<td>Minimum of once per day, seven days per week. Extremely high visitation may increase the frequency. Receptacles should be plentiful enough to hold all trash usually generated between servicing without overflowing.</td>
<td>Minimum of once per day, five days per week. Offsite movement of trash depends on size of containers and use by the public. High use may dictate daily or more frequent leaning.</td>
<td>Minimum service of two to three times per week. High use may dictate higher levels during the warm season.</td>
<td>Once per week or less. Complaints may increase level above one servicing.</td>
<td>On demand or complaint basis.</td>
<td></td>
</tr>
<tr>
<td>Pruning</td>
<td>Frequency dictated primarily by species and variety of trees and shrubs. Length of growing season and design concept also a controlling factor i.e., clipped vs. natural-style hedges. Timing scheduled to coincide with low demand periods or to take advantage of special growing characteristics.</td>
<td>Usually done at least once per season unless species planted dictate more frequent attention. Sculpted hedges or high-growth species may dictate a more frequent requirement than most trees and shrubs in natural-growth plantings.</td>
<td>When required for health or reasonable appearance. With most tree and shrub species, pruning would be performed once every two to three years.</td>
<td>No regular trimming. Safety or damage from weather may dictate actual work schedule.</td>
<td>No pruning unless safety is involved.</td>
<td></td>
</tr>
<tr>
<td>Disease and Insect Control</td>
<td>At this maintenance level, the controlling objective is to avoid public awareness of any problems. It is anticipated that if problems will either be prevented or observed at a very early stage and corrected immediately.</td>
<td>Usually done when disease or insects are inflicting noticeable damage, are reducing vigor of plant material, or could be considered a bother to the public. Some preventive measures may be used, such as systemic chemical treatments. Cultural prevention of disease problems can reduce time spent in this category. Some minor problems may be tolerated at this level.</td>
<td>Done only to address epidemics or serious complaints. Control measures may be put into effect when the health or survival of the plant material is threatened or when public comfort is an issue.</td>
<td>None except where the problem is epidemic and the epidemic condition threatens resources or the public.</td>
<td>No control except in epidemic or safety situations.</td>
<td></td>
</tr>
</tbody>
</table>
### Grounds APPA levels Defined (continued)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>State of the Art (Estate/Arboretum Quality)</td>
<td>High Level Maintenance (Well-defined Areas)</td>
<td>Normal Maintenance (Maintained and Weed Free Lacking Distinct Definition)</td>
<td>Moderately to low-level Maintenance (Lacks Attention)</td>
<td>Minimum Maintenance (Nature Areas)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Snow Removal</td>
<td>Snow removal starts the same day that accumulations of .5 inch are present. At no time will snow be permitted to cover transportation or parking surfaces longer than noon of the day after the snow stops. Application of snow-melting compound and/or gravel is appropriate to reduce the danger of injury due to falls.</td>
<td>Snow removal done on the day following snowfall. Gravel or sand may be used to reduce ice accumulation.</td>
<td>Snow removal done based on local law requirements. Some crosswalks or surfaces may not be cleared at all.</td>
<td>Snow removal done based on local law requirements but generally accomplished by the day following snowfall. Some crosswalks or surfaces may not be cleared at all.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surfaces</td>
<td>Sweeping, cleaning, and washing of surfaces should be done so that at no time does an accumulation of sand, dirt, or leaves distract from the looks or safety of the area.</td>
<td>Should be cleaned, repaired, repainted, or replaced when their appearances have noticeably deteriorated.</td>
<td>Cleaned on a complaint basis. Repaired or replaced as budget allows.</td>
<td>Replaced or repaired when safety is a concern and when budget is available.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Repairs</td>
<td>Repairs to all elements of the design should be done immediately when problems are discovered, provided replacement parts and technicians are available to accomplish the job. When disruption to the public might be major and the repair is not critical, repairs may be postponed to a time period that is least disruptive.</td>
<td>Should be done whenever safety, function, or appearance is in question.</td>
<td>Should be done whenever safety or function is in question.</td>
<td>Should be done whenever safety or function is in question.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inspections</td>
<td>A staff member should conduct inspection daily.</td>
<td>Inspection should be conducted by some staff member at least once a day when regular staff is scheduled.</td>
<td>Inspections are conducted once per week.</td>
<td>Inspections are conducted once per month.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Floral Plantings</td>
<td>Normally, extensive or unusual floral plantings are part of the design. These may include ground-level beds, planters, or hanging baskets. Often, multiple plantings are scheduled, usually for at least two blooming cycles per year. Some designs may call for a more frequent rotation of bloom. Maximum care, including watering, fertilizing, disease control, disbudding, and weeding, is necessary. Weeding flowers and shrubs is done a minimum of once per week. The desired standard is essentially weed free.</td>
<td>Normally, no more complex than two rotations of bloom per year. Care cycle is usually at least once per week, but care varies based on bloom. Health and vigor dictate cycle of fertilization and disease control. Beds essentially kept weed free.</td>
<td>Only perennials or flowering trees or shrubs.</td>
<td>None. May have wildflowers, perennials, flowering trees, or shrubs in place.</td>
<td></td>
</tr>
</tbody>
</table>

*Note: All data and information provided in this document is for educational purposes only and does not constitute professional advice. Always consult with qualified professionals for specific guidance.*
Grounds Photo Gallery

One of several entry gateways that does not have a clear "sense of arrival". University banners on the light poles and hanging baskets would give more of a welcome.

The Welcome Center is a positive touch and should be enhanced with more color.

The tulips in this bed soften the Garfield Ave approach; however, all perennial and annual color should be "themed" at entry points and tour route using school colors.

The view to the campus core is a welcoming one.

The Admissions Parking sign should also have a wayfinding sign.

A welcoming entry to the Zorn Center.

The next slides show the Admissions Parking area.

Admissions Parking – Thin turf, no edging and dead trees does not give a positive first impression.

Admissions Parking – The bike parking area should have pavers instead of grass.
New landscape treatments near Admissions are very thin.

This bed is near Admissions does not convey the proper message to the visitor. Increase the number of shrubs.

The sculpture and plantings with low seat wall give a positive impression.

Quality turf, cut to the proper height, walks blown off, benches in good condition. Very appealing entrance to this building.

The bridge over the Chippewa River is very well done however it poses significant challenges in the winter to keep free of ice and snow.

The bridge exits the visitor to the Water St. side of campus and offers a positive view of that side of campus.

All crosswalks need to be painted

Once out of the campus core the turf declined considerably.

The UWEC sign shows “you have arrived;” however, it is the campus boundaries that need definition.
The new landscape treatments at the Davies Center should have larger size plant material for a more immediate impact.

This “no mow” sustainable turf area should have a sign stating why it looks this way and not mowed.

Most hard surface gathering spaces are very clean.

This trash can was full for 3 days. Quality Assurance checks would eliminate this issue.

The overgrown areas in the next two pictures may be designed to be that way; however, no signs communicate the message.

This may be a “rain garden,” however, there is no signage to explain.

The roadway and walkway leading to the Upper Campus is the start of the “disconnect” between the two spaces.

The best picture of the UWEC planting is from the Recreation office but not the walk or road. The sumac can frame the letters; however, now it is to overgrown and needs to be thinned along with the buckthorn on the walkway side.

The shrub and tree beds on the upper campus are not maintained at a level consistent with the rest of campus.

A “design intent” with campus standards should be developed before beginning any new landscape construction efforts.
No remedial work has been done along the walk edges, light poles are old style, signs are faded and leaning.

Simpson Field turfgrass is in very good condition and the track has recently been re-surfaced.

Bollinger Fields are a short drive from campus and comprises 36 acres of baseball, softball and soccer fields.

Lettering on the buildings do not match the Lower Campus.

The practice fields next to Simpson show wear in the goal areas but remediation has begun.

The turfgrass on most fields is in very good condition, however; the baseball and softball fields need work to the pitching mound, home plate, “lip” removal and lazer grade.

The soil in Field 1 is not the same as the rest of the fields and compacts more easily. Wear is noticeable in the goal mouths and need aerification and overseeding.

Site furnishing like bike racks, trash cans, benches etc. do not match lower campus.

The wooden edges of volleyball should be padded to prevent injury and potential lawsuit.
POM ASSESSMENT

Preventive Maintenance (PM) Program
Preventive Maintenance is the basis of Sodexo's model for a true facilities management team translating to real cost savings. Operating in a reactive environment will cost a campus more money in effort chasing repairs and making costly improvements. The cost of maintenance not only impacts day-to-day expenses, but decreased equipment longevity will force unanticipated, unscheduled equipment replacement costs. In short, a proper deferred maintenance program is only as effective as the preventive maintenance program that supports it.

There is a presence of a preventive maintenance (PM) program at UWEC with the main Facilities team. However, the remaining departments: Centers, Housing, and UR&SF; do not have a formalized PM program.

Reactive Programs Cost More:

<table>
<thead>
<tr>
<th>Reactive Management (Breakdown or Run-to-Failure Maintenance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost: $18/hp/yr</td>
</tr>
<tr>
<td>This maintenance philosophy allows machinery to run to failure, providing for the repair or replacement of damaged equipment only when obvious problems occur. Studies have shown that the costs to operate in this fashion are about $18 per horsepower (hp) per year.</td>
</tr>
</tbody>
</table>

VERSUS

<table>
<thead>
<tr>
<th>Proactive Management (Condition-Based Maintenance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost: $9/hp/yr</td>
</tr>
<tr>
<td>This philosophy consists of scheduling maintenance activities only if and when mechanical or operational conditions warrant-by periodically monitoring the machinery for excessive vibration, temperature and/or lubrication degradation, or by observing any other unhealthy trends that occur over time. When the condition gets to a predetermined unacceptable level, the equipment is shut down to repair or replace damaged components so as to prevent a more costly failure from occurring. In other words, “Don’t fix what is not broke.” Studies have shown that when it is done correctly, the costs to operate in this fashion are about $9 per hp per year.</td>
</tr>
</tbody>
</table>

Deploying an effective PM program across all departments will:
- Reduce equipment failures
- Reduce the magnitude of equipment failure or repair costs
- Reduce technician production downtime due to equipment failure or repair
- Reduce the deterioration in the productive capacity of equipment
Sample PM Setup Checklist

1. **Determine Critical Equipment & Assets**
   - Highest potential for downtime, greatest impact to customer, greatest cost for replacement

2. **Catalogue Assets**

3. **Barcode or Number Each Piece of Equipment**

4. **Classify Assets into Types**
   - Life Safety/Fire Safety
   - Conveyance Systems (elevators, hydraulic lifts)
   - SPCC & EPA Requirements
   - Generators
   - Safety Requirements
   - HVAC/Mechanical (boilers, AC, cooling towers)
   - Electrical (lighting, switch gear)
   - Plumbing (fixtures, back flow prevention)
   - Roof and Gutter Systems (penetrations, underlayment’s, transitions)
   - Structural (cracks)
   - Doors & Windows (closers, hardware, sealing)
   - General (woods, surfaces)
   - Flooring & Ceiling (Tegular grid)
   - Paint (annual effort, prior to semester, residence hall punch, etc.)
   - Others as required

   
   Note: Above categories are listed in order of importance. Capture entire piece of equipment or system in beginning, individual components can be broken out later.

5. **Develop PM Procedure for each piece of Equipment, Component, and/or System**
   - Gather O&M Information specific to equipment (obtain from Manufacturer)
   - Determine Equipment History (document history from Tech perspective; changes in design, operating levels, maintenance techniques, etc.)

6. **Identify steps and maintenance requirements:**
   - Craft Required
   - Tools Required
   - Specific Equipment Requirements
   - Safety Procedures
   - Parts or Materials Required
   - Detailed Job Instructions
   - Expected/Estimated Time to Complete

7. **Schedule PM’s**

   PM schedules are generally integrated into the overall O&M maintenance schedule
   - Refer to Sodexo Life Safety Checklist for Life Safety and Fire Safety
   - Weekly PM’s should be scheduled for critical systems that could effect occupants; these PM’s should be observational, checking that equipment and systems are running within design parameters
   - Monthly PM’s should be specific to O&M required maintenance activities, testing, lubing, filtration, building specific, etc.
   - Quarterly PM’s should be based on equipment care requirements
   - Yearly PM’s are specific to compliancy, regulatory or for cyclical maintenance requirements
   - Semi-Annual PM’s may be required as well
Leadership & Management Structure
Currently each department has its own group of maintenance employees reporting to an Assistant Director. The Facilities Management team has appointed 4.0 FTE Supervisors; presently, there is one vacancy. The remaining departments (Housing, Centers, and UR&SF) do not have supervisors. Beyond preventive maintenance and work orders involving large mechanical, structural, and electrical equipment/systems that is performed by Facilities Management; the Assistant Directors of remaining departments assign work orders and tasks to their respective technicians. There is no line of demarcation for tasks involving carpentry, plumbing, and lighting nor are there tasks outlining the work complexity levels allowable for the staff operating under the directors of Centers and UR&SF. However, Housing has a detailed “minor facilities repairs” agreement in place with Facilities Management highlighting tasks that can be performed and a list of responsibilities. POM related staffing across departments stands at the following FTE levels:

<table>
<thead>
<tr>
<th>Department</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities Manage</td>
<td>35.02</td>
</tr>
<tr>
<td>Housing</td>
<td>4.0</td>
</tr>
<tr>
<td>Centers</td>
<td>1.0</td>
</tr>
<tr>
<td>UR&amp;SF</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>44.02</strong></td>
</tr>
</tbody>
</table>

Collectively, with these levels, the campus is staffed between an APPA level 1 (Showpiece Facility) and APPA level 2 (Comprehensive Stewardship). However, given the condition of systems, functionality of equipment, the project work outlined in the Campus Physical Development Plan (CPDP), the amount of non-PM work orders over the last year (7520), and the number of planned PM tasks in the coming year (5743); the overall POM Program is currently operating at an APPA level 3 (Managed Care) state. This is an acceptable level of performance; however, the level of maintenance attention and tasks falls on stakeholders. If the satisfaction of the campus aligns with the mission of the campus and its stakeholders, staffing at an APPA level 3 can be implemented to mirror the operating level. Moving toward a centralized facilities management program as highlighted at the beginning of this report (Table of Organization section) would ensure all personnel is getting the same training; the work quality is universally established; standard operating procedures are maintained; processes are streamlined; and overall better management of time, people, resources and projects.

Staffing and Scheduling
The Facilities Management staff has specific trade specialties (i.e., HVAC, Electrical, Plumbing, Carpentry, Painting, etc.). All staff should be cross trained in order to achieve a more Generalist Technician status. Trade-specific technicians tend to perform work specific to their job scope and pass effort outside of their limited scope on to others. Scheduling of PM and non-PM work is interrupted by projects originating from UWEC’s Facilities Planning group further diluting the efficiency process of performing the day-to-day tasks associated with maintenance. Current scheduling of the work process flow is very inefficient, cumbersome, lacks use of technology and includes no formal quality management process.

Based on data, all Facilities Management employees begin their shift between 6:00 AM and 8:00 AM, and everyone ends their shift by 4:30 PM each day, Monday – Friday. This schedule makes maintenance-specific activities non-existent in the evening/night hours with the exception of an emergency call resulting in overtime. The maintenance technicians in the Housing department work varied shifts with coverage from 7:00 AM to 7:30 PM each day, Monday – Friday. Technicians for Centers and UR&SF end shifts at 3:30 PM each day, Monday – Friday with the exception of the Bowling Alley Mechanic whose schedule changes according to bowling leagues. Across all departments, there are no maintenance technicians who can deal with issues relating to large mechanical, electrical and plumbing systems onsite after 4:30 PM. The unit lacks a cohesive work order (PM and non-PM) planning structure to accomplish the greatest amount of tasks that do not interfere with the daily student class schedules. Staggering schedules for more coverage allows a scheduling model that operates with minimal
interruption in student and faculty schedules and a decrease in the amount of overtime. Additionally, scheduling PM work to occur on weekends allows for better use of time.

In order to ensure effective use of manpower, a systematic method of scheduling work is recommended, based on the following criteria:

- Job Workload Demands
- Job Skill Sets and Personnel Concerns
- Work and Labor Agreements
- Impact of Scheduling Based on Work Site Availability
- Time and Job Deadline Factors
- After-hours or Weekend Support
- Additional Administrative Agreements

The Director needs to evaluate maintenance coverage needs of the facility in conjunction with the Assistant Directors, Supervisors or lead workers and schedule personnel accordingly. Considerations in scheduling personnel include:

- Service level agreements
- Faculty, staff, and student safety
- Facility conditions
- Safety
- Workload
- Nature of work
- Routing
- Department hours of operation
- Off-shift coverage
- On-call requirements

Computer Maintenance Management System (CMMS)

The CMMS, known as TMA, is only in place with the Facilities Management Department and is just under two years old. Hand helds/cell phones have not been purchased for technicians; mobile devices could be leveraged for efficient work order distribution and close-out.

There is no CMMS used by for Centers, Housing, or UR&SF. These remaining departments utilize an archaic approach to issuing work orders (PM and non-PM) by paper. Maintenance tasks are issued by the director on a daily basis via phone call, work-of-mouth, or email. There are no radios in use, nor do any of these departments utilize the TMA for work order tracking. For example, the PM’s for the Housing department are maintained with excel spreadsheets which does not allow for an analysis of historical data. Reports and analysis can be performed effortlessly with the TMA system along with maintaining historical data on assets. Work Orders are hand written and assigned every morning by the administrative personnel at Housing and Centers, while there is no formal process at UR&SF. Lastly, various assets such as kitchen, custodial, and grounds equipment are not included in the PM schedule of the TMA system. These items should be included to maintain accurate records and timely maintenance is performed to maximize useful life of equipment.

Detailed drawings for infrastructure and buildings on the campus are available digitally and also show all utility lines for the campus. These files are maintained in an online system accessible by university staff. The Facilities Planning department also maintains information for each room, space and office on campus detailing size, floor type, paint color, room/closet numbers, ceiling type and function. This is a great resource that now needs to be pulled in to the new CMMS. Additionally, access to TMA should be provided to the Facilities Planning department to ensure these items are up-to-date and accurate on an ongoing basis.

Effectively Plan Maintenance Functions

A CMMS lets UWEC take control of maintenance functions, giving the Director of Facilities freedom to move maintenance activities out of crisis mode and into planning mode.

Improve Productivity

A CMMS improves organizational productivity by maximizing equipment uptime and keeping assets in peak operating condition. This reduces unplanned downtime and demand maintenance. Work efficiency is also achieved through better scheduling of maintenance staff.
Lower Overall Operating Costs
A CMMS provides cost control and the ability to lower maintenance department expenditures. Campuses gain significant savings by preventing expensive repairs before occurring and improve the efficiency of routine maintenance tasks. Furthermore, since UWEC does not stop paying employees when equipment is not functioning, preventing downtime also delivers lower operating costs.

Extend Equipment Life
When equipment is maintained through proper inspections and preventive maintenance, it doesn't have to be replaced as often. Extending the life of expensive equipment saves money.

Reduce Insurance Premiums
Many insurance companies have recognized that proper use of a CMMS reduces the chance of costly insurance claims. Facilities are safer because maintenance work gets done promptly and reliably. Campus infrastructure suffers fewer malfunctions; preventive maintenance inspections can spot potential dangers before they actually cause trouble. For this reason, insurers may reduce the premiums of organizations that use a CMMS.

Record and Store Valuable Information
A CMMS offers the ability to provide relevant information regarding maintenance functions. For example, a CMMS can alert an organization to under-performing equipment or spaces, labor inefficiencies and reasons for production deficiencies.

Infrastructure and Building Envelope Analysis
Best Practices ensure the achievement of a quality end product and greater equipment longevity. By preserving proactive maintenance standards and documented systemic processes, this operation will realize fewer component failures and greater systems reliability. As the equipment ages and settles into the latter stages of its “useful life period”, failures will become more constant, increasing as the components approach the end of their useful life. By maximizing warranty opportunities early and ensuring that technicians are in tune with manufacturer required maintenances; high cost/impact failures will be less common.

The preservation or restoration of a piece of equipment, system or facility should be performed to such condition that it may be effectively used for its designated purposes. This may include adjusting, testing, and tuning restored systems for optimal performance so that it will function as originally designed and intended by the manufacturer.
## Current State of Building Conditions

### EXTERIOR AND INTERIOR

<table>
<thead>
<tr>
<th>Building Name</th>
<th>Safety</th>
<th>Site Exterior Conditions</th>
<th>Thermal &amp; Moisture Protection</th>
<th>Doors &amp; Windows</th>
<th>Exterior Lighting</th>
<th>ADA Accessibility</th>
<th>Interior Finishes</th>
<th>Floor Systems</th>
<th>Safety</th>
<th>Interior Lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harvey A. Schofield Hall</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>H</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td></td>
<td>H</td>
</tr>
<tr>
<td>L.E. Phillips Science Hall &amp; etc.</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>William D. McIntyre Library &amp; etc.</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Schneider Social Science Hall</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>McPhee Physical Education Center</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Ade Olson Addition</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Leonard and Dorellen Haas Fine Arts Center</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>School of Nursing &amp; etc.</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Human Sciences and Services</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Richard E. Hibbard Humanities Hall</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>W.R. Davies Student Center</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Centennial Hall</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Earl S. Kjer University Theatre</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>L</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>C.J. Brewer Hall</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Willis L. Zorn Arena</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Heating Plant/Coal Storage &amp; etc.</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Facility Service Building &amp; etc.</td>
<td>M</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Crest Wellness Center</td>
<td>H</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Hilltop Center</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Chancellor’s Hall</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Katherine Thomas Hall</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Katherine Putnam Hall</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Bridgman Hall</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Sutherland Hall</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Governors Hall West &amp; North</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Emmet Horan Hall</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Murray Hall</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Towers Residence Hall South &amp; North</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Oak Ridge Hall</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>The Priory</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
</tbody>
</table>

**KEY**

- **H**: Building systems and equipment are in good condition; well maintained.
- **M**: Minor improvements required to improve equipment/system stability; equipment is generally maintained and operational.
- **L**: Major improvements required to improve equipment/systems stability; failed systems present; repairs more than likely will trip capital requirements.
## Current State of Building Conditions
### Building System Reliability

<table>
<thead>
<tr>
<th>Building Name</th>
<th>Building Type</th>
<th>Year</th>
<th>Sq. Ft.</th>
<th>Built/Renovated</th>
<th>Conveyance Systems</th>
<th>Mechanical/HVAC</th>
<th>Plumbing</th>
<th>Electrical</th>
<th>Fire &amp; Life Safety Systems</th>
<th>Safety</th>
<th>Indoor Air Quality</th>
<th>Contaminant Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Harvey A. Schofield Hall</td>
<td>Office</td>
<td>1915</td>
<td>109999</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>2 L.E. Phillips Science Hall &amp; etc.</td>
<td>Laboratory</td>
<td>1963/1968/2003</td>
<td>192250</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>4 Schneider Social Science Hall</td>
<td>Classroom</td>
<td>1938</td>
<td>89943</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>5 McPhie Physical Education Center</td>
<td>Classroom</td>
<td>1948</td>
<td>109615</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>6 Ade Olson Addition</td>
<td>Classroom</td>
<td>1968</td>
<td>87000</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>7 Leonard and Dorellen Haas Fine Arts</td>
<td>Classroom</td>
<td>1969</td>
<td>149316</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>8 School of Nursing &amp; etc.</td>
<td>Laboratory</td>
<td>1968/1984</td>
<td>48620</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>9 Human Sciences and Services</td>
<td>Classroom</td>
<td>1981</td>
<td>48333</td>
<td></td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>None Present</td>
<td>None Present</td>
</tr>
<tr>
<td>10 Richard E. Hobard Humanities Hall</td>
<td>Classroom</td>
<td>1973</td>
<td>181677</td>
<td></td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>11 W. R. Davies Student Center</td>
<td>Classroom</td>
<td>2012</td>
<td>175438</td>
<td></td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>None Present</td>
<td>None Present</td>
</tr>
<tr>
<td>12 Centennial Hall</td>
<td>Classroom</td>
<td>2013</td>
<td>182000</td>
<td></td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>13 Earl S. Kjer University Theatre</td>
<td>Classroom</td>
<td>1951</td>
<td>13954</td>
<td></td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>14 C.J. Breweer Hall</td>
<td>Classroom</td>
<td>1951</td>
<td>21711</td>
<td></td>
<td>M</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>15 Willis L. Zorn Arena</td>
<td>Classroom</td>
<td>1951</td>
<td>43964</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>16 Heating Plant/Coal Storage &amp; etc.</td>
<td>Office</td>
<td>1965/1999/2002</td>
<td>24931</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>18 Crest Wellness Center</td>
<td>Classroom</td>
<td>1964</td>
<td>28343</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>19 Hilltop Center</td>
<td>Residence</td>
<td>1967</td>
<td>72546</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>20 Chancellor Hall</td>
<td>Residence</td>
<td>1989</td>
<td>131970</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>21 Katharine Thomas Hall</td>
<td>Residence</td>
<td>1953</td>
<td>30496</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>22 Katharine Putnam Hall</td>
<td>Residence</td>
<td>1956</td>
<td>36769</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>23 Bridgman Hall</td>
<td>Residence</td>
<td>1964</td>
<td>50222</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>24 Sutherland Hall</td>
<td>Residence</td>
<td>1964</td>
<td>76378</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>25 Governors Halls West &amp; North</td>
<td>Residence</td>
<td>1951</td>
<td>65333</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>26 Emmet Horan Hall</td>
<td>Residence</td>
<td>1960</td>
<td>39025</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>27 Murray Hall</td>
<td>Residence</td>
<td>1965</td>
<td>97371</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>28 Towers Residence Hall South &amp; North</td>
<td>Residence</td>
<td>1965</td>
<td>245018</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>29 Oak Ridge Hall</td>
<td>Residence</td>
<td>1969</td>
<td>63363</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
<tr>
<td>30 The Priory</td>
<td>Residence</td>
<td>1964</td>
<td>80336</td>
<td></td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Low</td>
<td>None Present</td>
</tr>
</tbody>
</table>

**Key:**
- **H:** Building systems and equipment are in good condition; well maintained.
- **M:** Minor improvements required to improve equipment/system stability; equipment is generally maintained and operational.
- **L:** Major improvements required to improve equipment/systems stability; failed systems present; repairs more than likely will trip capital requirements.

**Legend:**
- **M:** Marginally adequate
- **L:** Low
- **S:** Significant
- **N:** None
- **H:** High
The average ages of the buildings on campus are 48 years old. Campus structures built between 2012 and 2013 fall under the current Federal and State building code requirements. Other buildings built between 1981 and 1999 may have varying updated code requirements. The remaining (largest percentage) of campus structures were built from 1915 to 1973. Unless these buildings received a full infrastructure and systems update, most systems would have been constructed prior to federally mandated construction practices (i.e., elimination of asbestos in construction materials, updated fire and life safety requirements, etc.).

**Mechanical/HVAC Systems**

There is a heating plant on campus that provides steam for heating, cooling, hot water, humidification, sterilizers and laundry services on campus. The plant has firm capacity to meet the existing and planned needs for the campus and mostly operates on coal but can operate on a limited basis with natural gas. There is storage for 650 tons of coal underground. With projects recently completed in the past few years, the power plant is in good condition. All preventive maintenance on steam lines are maintained by the power plant operators throughout campus.
The campus is peppered with roof top units (RTU), cooling towers and split system air conditioning units on campus that were operational, clear of brush and appeared maintained. Coils on systems did not have any large deposits of notable buildup. Additionally, filters appeared clean and were found unclogged.

Mechanical rooms visited were generally free of storage and locked. Those rooms that did share storage space had designated spaces for said items.

The university has undergone some major HVAC upgrades. Overall mechanical/HVAC systems are being maintained though some systems are beyond the useful life and require more frequent corrective maintenance. These systems are detailed in the CPDP with an emphasis on further system upgrades. On campus, heating and cooling related issues will have the greatest potential impact to student and academic satisfaction.

The campus has a comprehensive HVAC Building Automation System (BAS) and Energy Management System (EMS) standard that uses the Niagara system. This system collects data for each building tracking the electrical, water, steam and gas usage on campus. Having had a history of mixed software, the push to an open platform works well for replacing equipment, managing systems remotely and programming. The foundation is in place to start managing utilities across campus. Targeted analysis of utility services can yield key data for project development, operational baselines, savings validation, and provide ongoing information for the sustainability of the projects undertaken by resource/building. This data can provide value by isolating general spaces or specific systems to troubleshoot issues and provide accountability for energy use. This method can provide an additional level of granularity of measurement that can provide benefit to UWEC’s energy management program. While this process does not necessarily provide direct energy savings, this system is an enabling technology that can provide indirect benefit. It can be used to identify anomalies in energy consumption, target areas with the greatest savings potential, and provide measured validation of the impact of energy projects. Visibility to real time energy consumption data will greatly enhance the impact of the company wide energy awareness programs; occupant behavior will be modified as people can see the ramifications of their actions. The key will be implementing a program that allows occupants to see their usage in real-time in comparison to other areas on campus. Digital energy platforms showcasing this data can be implemented on the school’s web portal or visual media technology already in place on the campus.

**Electrical Systems and Generators**

A preliminary review of the campus electrical systems was performed at the time of this assessment. The majority of the electrical systems are dated to the original construction of buildings, with minimal renovations over the years to support repurposing and renovation of buildings/spaces. The university is purchasing primary power and owns the onsite transformers and infrastructure. Given the additional risk, a comprehensive electrical PM program must be implemented. There are numerous onsite generators operating on fossil fuels. These primarily serve life safety functions but also are back-up for the IT functions, lighting, etc. Generators are maintained by a third party. PM’s should be generated and executed for this equipment to ensure maintenance is per manufacturer requirements with annual inspections and operable with weekly run tests. Improperly maintained generators are considered a Life Safety Hazard.

Many transformers throughout campus still contain PCB-laden oil. The condition of exterior transformer shells is poor. It is recommended that the campus contract with a local licensed electrician to inspect and identify compromised transformers. Further, thermal graphic analysis should occur to identify other potential points of failure, or as a part of a business continuity evaluation.

**Plumbing Systems**

Overall, the campus plumbing system is archaic. The lift station is on campus and is managed and operated by the Facilities Management department. The FM must ensure that proper valve PM’s are scheduled and executed. Pressure gauges should be marked with “go/no-go” markings, indicating safe operating pressure ranges. The FM should also ensure that PM’s are generated to inspect critical
plumbing areas given most infrastructure is original to the building with an average life of 48 years across all campus plumbing systems.

A few isolated areas (newer buildings) have low flow devices or a newer water conversion apparatus installed. Many of the showerheads on campus are rated at 2.5 GPM (gallons per minute). Many of the flushometers (toilets) in the newer buildings were outfitted dual flush valves. The flushometers themselves were found to be 1.6 GPF (gallons per flush). As upgrades are being made, moving remaining devices in aged buildings to more water efficient solutions will decrease water usage over time. Refer to Sustainability section below for details related to cost savings.

Facilities Condition Assessment

The Campus Physical Development Plan is the closest thing to a Facilities Condition Assessment found on most campuses for each building highlighting current conditions and detailing capital projects with costing breakdown to aid in budget planning. It is maintained by the Facilities Planning department in a Microsoft Word and Excel format. Moving this data to an internet based software system that communicates with the current CMMS will also help in the accessibility of information across stakeholders. Unfortunately, this plan does not take into account the history of maintenance work orders for ranking criticality of projects. Using the historical data in the CMMS can help with this ranking. Capital projects outlined should fall into one of three categories:

- **Deferred Maintenance**: The replacement of a piece of equipment or the part of a structure that has lived past its estimated life span, needs repairs/replacement or is aesthetically unappealing;
- **Capital Renewal**: The replacement of a piece of equipment or the update of a structure at the end of its useful life span; or
- **Capital Improvement**: The addition or upgrade of a piece of equipment or structure that brings value to the facility.

Project Management

The Facilities Planning department oversees many of the in-house projects. These in-house projects often include small renovations. There is not a dedicated project team; instead, maintenance technician from the Facilities Management department are pulled from completing day-to-day tasks to complete tasks. This should stop immediately, and a dedicated team for project work should be identified. Having a separate team keeps routine, corrective and emergency work orders scheduled to be completed in a timely manner in lieu of being pulled back and forth between assignments.

For projects that go out to bid, this department is a part of the procurement process. However, once the project is awarded, they do not serve as Project Managers. Instead this function falls to the Facilities Management department for project/contract management duties. These duties should be held within the realm of this department for efficiency purposes and project knowledge familiarity.

Process Management

Job Responsibilities

Each job description should be reviewed annually; job cards should be produced indicating daily tasks as per their job classification. Job scope should not be trade specific. Job descriptions and responsibility identification is an important step in planning FM staff schedules. These two things form the foundation for many important processes such as job postings, recruitment and selection, setting expectations, compensation, training and performance management. Job descriptions should give a brief overview of the role, how it relates to the campus mission vision, and a list of key responsibilities, requirements and qualifications.

Developing Job Descriptions has several pay-offs:

- Job descriptions assist in making sure staff duties align with campus mission;
- Allow the FM to make informed hiring decisions by developing recruiting strategies that clearly outline to applicants respective roles and responsibilities;
• When conducting interviews, job descriptions should form the foundation for the development of interview questions;
• Job descriptions can also be used to determine areas in need of training and development when expectations or requirements are not being met;
• Having clear job descriptions also allows for a basis on which to develop compensation plans that ensure jobs are being compensated in ways that reflect levels of responsibility and qualification in the organization;
• When used as a means to communicate expectations, job descriptions can also be used as a basis for performance management; and
• For the employee, having a clear job description allows them to understand the responsibilities and duties that are required and expected of them.

Job descriptions typically have the following sections:
• A high-level summary of the key duties;
• Identification of the values that should be demonstrated by all staff;
• A detailed list of the responsibilities and generalist activities;
• A description of the experience, knowledge, skills and abilities required; and
• A list of any special working conditions or minimum physical requirements (e.g., must be able to lift 40 lbs.).

Additional consideration must be given to the State of Wisconsin licensing requirements. Technicians must have trade licenses if working on/in:
• Heating Plants
• Plumbing
• Electrical
• HVAC (installations over 30 tons)
• Construction Supervisors license for work on one or two family units and any building less than 33,000 cubic feet
• A registered sprinkler company must inspect/repair sprinklers in lodging units
• A registered elevator company must inspect/repair all cabs, including chair lifts
Sample POM Job Card Side 1:

| Craft: General Maintenance Tech I | Employee: |
| Zone: Buildings A - D |

**Weekly Schedule**

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>AM</td>
<td>AM</td>
<td>AM</td>
<td>AM</td>
<td>AM</td>
<td>AM</td>
</tr>
<tr>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
<td>PM</td>
</tr>
</tbody>
</table>

**Schedule Breakdown:**

- 7:00 - 7:15: Punch In, gather tools, materials and work orders for the day
- 7:15 - 7:30: Travel to first work order assignment
- 7:30 - 9:00: Work Order Effort (Routine & Preventive Maintenance)
- 9:00 - 9:15: Morning 15 minute break (in field)
- 9:15 - 11:00: Work Order Effort
- 11:00 - 11:30: Lunch break
- 11:30 - 1:00: Work Order Effort (Routine & Preventive Maintenance)
- 1:00 - 1:15: Afternoon 15 minute break (at Plant)
- 1:15 - 1:30: Restock supplies (as necessary) or continue Work Order Effort
- 1:30 - 3:00: Work Order Effort (Routine & Preventive Maintenance)
- 3:00 - 3:15: Travel to Plant, update Work Orders and submit to Admin
- 3:15 - 3:30: Lock up tools, secure golf carts/vehicles, place unused materials back in inventory

Sample POM Job Card Side 2:

<table>
<thead>
<tr>
<th>Key Functions</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shift Start-up Procedures</strong></td>
<td></td>
</tr>
<tr>
<td>Gather appropriate tools, parts and supplies needed for today’s jobs.</td>
<td>Daily</td>
</tr>
<tr>
<td>Load cart/vehicle with gathered tools and supplies for today.</td>
<td>Daily</td>
</tr>
<tr>
<td>Perform safety check on tools and cart/vehicle before starting work.</td>
<td>Daily</td>
</tr>
<tr>
<td>Organize tasks by priority and plan efficient route before beginning assigned tasks.</td>
<td>Daily</td>
</tr>
<tr>
<td><strong>Perform Assigned Work Orders</strong></td>
<td></td>
</tr>
<tr>
<td>Perform the maintenance action(s) listed on the WO and complete.</td>
<td>Daily</td>
</tr>
<tr>
<td>Ensure workmanship and area is clean before leaving.</td>
<td>Daily</td>
</tr>
<tr>
<td>Document WO#, completion time, and asset tag # of equipment.</td>
<td>Daily</td>
</tr>
<tr>
<td><strong>Perform Assigned PM Work Orders</strong></td>
<td></td>
</tr>
<tr>
<td>Perform the maintenance task(s) listed on the PM and complete.</td>
<td>Daily</td>
</tr>
<tr>
<td>Ensure workmanship and area is clean before leaving.</td>
<td>Daily</td>
</tr>
<tr>
<td>Document PM WO#, completion time, and asset tag number.</td>
<td>Daily</td>
</tr>
<tr>
<td><strong>Work Space</strong></td>
<td></td>
</tr>
<tr>
<td>Ensure work space in shop is clean and organized</td>
<td>Daily (end of shift)</td>
</tr>
<tr>
<td>Ensure all tools, supplies, materials, and vehicles are in respective spaces</td>
<td>Daily (end of shift)</td>
</tr>
<tr>
<td><strong>Additional Duties as Required</strong></td>
<td></td>
</tr>
</tbody>
</table>
Carts/Trucks Loading
Each technician has his own mini-truck or mini-van. Trucks and carts are currently loaded and outfitted with sufficient materials to complete shift work orders. Of the vehicles observed, most were tidy while a few others were found unkempt. A properly loaded vehicle is vital to an efficient program. The last 15 minutes of the work day should be spent restocking carts/vehicles for the following day’s assignment(s) and returning unused stock to the inventory room. The time spent stocking vehicles with the necessary resources for the day, reduces down time associated with traveling back and forth to stock rooms to complete routine maintenance tasks.

Inventory Management
The Facilities Management building has dedicated inventory areas by shop. Each shop area shows a 5S (Stabilize, Shine, Sort, Standardize and Sustain) method being utilized. The mechanical storage areas outside of this building need to be examined and non-sanctioned supplies or equipment removed. These remote maintenance shops/storage areas throughout the campus should follow the 5S methodology for supplies, equipment, tools, and materials as the shops. The utilization of student workers to deliver new filters and dispose of used filters to/from appropriate mechanical areas is a good efficient tactic to ensure materials are in place for technician. This approach could also be used for other disposal items such as belts and fluorescents lamps.

The critical elements of a Sodexo Inventory System:
- Well organized location names
- Easy to read location labels, unambiguous
- Unique, short, and unmistakable item numbers
- Units of measure
- Accurate starting count (Par Count)
- Software that tracks all inventory activity
- Established policies & procedures
- Frequent training

This will establish a structured program to implement workplace organization and standardization:
- Searching for tools is eliminated
- Flow principles are applied
- Tools are stored where needed most.
- Location indicators visualize how things have been organized
- Non-conformities are seen at once

Equipment/Tools
Having the right tool(s) to successfully accomplish tasks is first and foremost in maintaining equipment and systems. Some of the other equipment is aged but appears to be functional. A full inventory and audit of the university owned tools should be completed annually. The shops do a great job of organizing tools; however, this is not carried over into campus buildings were there are facility storage spaces.

Safety & Health
Safety is an integral part of any facilities management department especially when working with a variety of chemicals, different types of machine (hand tools), and equipment systems. A well-trained staff extends the building’s life cycle and helps to protect the environment. A poorly run program will spread pathogens, impact building occupants’ mental and physical well-being, and damage the built environment. With multiple maintenance personnel within each organization, collective safety training should be performed.
Lockout/Tagout (LO/TO) Knowledge
Based on discussions with the technicians, training is not occurring on an annual basis. A LO/TO board could not be located at the time of this assessment; however, a LOTO PowerPoint training was located. A comprehensive Occupational Health and Safety Audit should be performed to review and address all safety deficiencies.

Occupational Health and Safety
Several potential violations were noted, pertaining to confined space, improper chemical containment, lack of eye wash stations, expired eye wash solutions, etc. The current operation appears to lack effective, recurring safety training. Many technicians could not recall the last safety class taken or the topic covered. Safety topics should be covered on a weekly basis by management/supervisory staff and documented.

Personal Protective Equipment (PPE)
Use of the proper PPE can significantly reduce more than 29% (Cuts & Burns) of year-to-date accidents. PPE protects employees from cuts from tools; burns from handling hot tools; chemical and electric shock; and eye injuries.

PPE is not readily accessible. Warning signs should be installed in all storage areas where potential eye/chemical hazards, asbestos exposure, etc. could occur. All staff must be trained annually on how to deploy and store PPE.

Chemical Storage
There is currently improper storage of chemicals in several mechanical rooms on campus. Safety Data Sheets (SDS) should be reviewed throughout all centralized and decentralized storage rooms. A full site review and analysis should be performed to ensure that chemicals are properly stored, labeled and have accompanying SDS.
Emergency Response Plan
The campus’ Office of Loss Prevention and Safety Department is responsible for all Emergency Response Plans including the execution and reporting. Proper evacuation routes are not consistently posted and present in buildings on emergency evacuation floor plans.

Given the winter weather conditions in Wisconsin, it is recommended that further analysis occur in areas surrounding snow and ice removal. A plan should be created to reduce the risk of injury to members of the campus community and ensure access to essential services for residential students. Additional detail pertaining to a “Snow Response Plan” can be found in the Grounds section of this report.

Spill Prevention, Control, and Countermeasure (SPCC) Plan
The reviewed SPCC plan was dated December 2001. This plan includes two above storage tanks (AST) and three underground storage tanks (UST). The campus has numerous generators located in General Purpose Revenue (GPR) facilities that burn fossil fuels; however, none of these are included in this SPCC plan that is accessible from UWEC’s Facilities webpage. Also, with the addition of new buildings coming online since 2001 that are supported by emergency generators, this SPCC plan should be updated. The maintenance team must deploy above-ground storage tank and underground storage tank (AST/UST) procedures immediately, including proper labeling on these generators.

Disposal of Equipment and Conservation Measures
In some instances spent/used lamps are boxed and in others they are stored haphazardly in mechanical rooms. Proper disposal should be enforced across the entire campus. The campus should expand the bulb recycling program with centralized warehousing of used bulbs prior to disposal with guidance and accountability enforced with employees.

Asbestos Management
An abatement program has been implemented for the campus; this policy was developed and implemented by the Facilities Planning & Management department. Additionally, all Asbestos Containing Material for the campus is kept on file with the Facilities Management office. The last update for this policy is unknown. All of the current abatement is occurring on a project-by-project basis. Asbestos-laden areas in mechanical rooms should be identified with signage for field technicians.

Life Safety & Fire Suppression/Protection Systems
Facilities Management has the responsibility for Life Safety, Fire Safety and for the coordination of fire alarm monitoring. Contracts are in place for all annual testing and inspection of fire systems. The Facilities Department is responsible for all weekly/monthly testing and inspections. The campus operates on a centralized Emergency Management System that is integrated on all buildings with audio and visual devices for emergency notification. The Life Safety and Fire Safety policy was last modified in 2012 and needs to be updated to reflect the changes on campus.

Several buildings are protected by a wet fire suppression system. Dry systems are present in several temperature controlled areas. The campus does have the NFPA-required automatic external defibrillation (AED) units throughout campus.
### Maintenance APPA levels Defined

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Service and</td>
<td>Able to respond to virtually any type of service, immediate response.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response Time</td>
<td>Response to most service needs, including limited maintenance activities, is typically within a week or less.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>Proud of facilities, have a high level of trust for the facilities organization.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Satisfied with facilities-related services, usually complementary of facilities staff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Accustomed to basic level of facilities care. Generally able to perform mission duties. Lack of pride in physical environment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preventive Maintenance vs.</td>
<td>100%</td>
<td>75% - 100%</td>
<td>50% - 75%</td>
<td>25% - 50%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Corrective</td>
<td>Maintenance Mix</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All recommended preventive maintenance (PM) is scheduled and performed on time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reactive maintenance is performed when needed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preventive maintenance reduces the number of emergency calls.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory Compliance</td>
<td>Highly trained staff or contracted services provide for full compliance for required and recommended OSHA, EPA, and life safety requirements.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Independent department group with funding to support development of maintenance programs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All required and recommended OSHA, EPA, and life safety programs are in place.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Records are well organized and meet regulatory standards.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetics, Interior</td>
<td>Like new finishes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cleaning finishes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Average finishes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New finishes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetics, Exterior</td>
<td>Windows, doors, trim, interior walls are like new.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Watertight, good appearance of interior finishes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetics, Lighting</td>
<td>Bright and clean, attractive lighting.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bright and clean, attractive lighting.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service Efficiency</td>
<td>Maintenance work is highly organized and directed. Calls are responded to in a timely manner.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Buildings and equipment are regularly inspected and maintained to ensure compliance with standards.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Systems Reliability</td>
<td>Breakdown maintenance is rare and limited to vandalism and other repairs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Breakdown maintenance is limited to system components that have been in use for more than two years.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone Spending as % of</td>
<td>ZH 4.0</td>
<td>3.5 - 3.0</td>
<td>3.0 - 3.5</td>
<td>2.5 - 3.0</td>
<td>&lt;2.5</td>
<td></td>
</tr>
<tr>
<td>GBV</td>
<td>0.05 - 0.13</td>
<td>0.05 - 0.13</td>
<td>0.15 - 0.29</td>
<td>0.30 - 0.49</td>
<td>&gt;0.30</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** APPA, American Public Works Association; OSHA, Occupational Safety and Health Administration; EPA, Environmental Protection Agency; GBV, Green Building Value; ZH, Zone Hour; CI, Cost Impact; GBV, Green Building Value.
POM Photo Gallery

- Great implementation of 5S in FM shops
- Great implementation of 5S in FM shops
- Great implementation of 5S in FM shops
- Improper disposal of spent lamps found in Housing Mechanical Closet
- Expired eyewash solution (09/2013) in multiple mechanical rooms and custodial closets
- Use of incandescent light bulbs in Hilltop Dining Area instead of LED bulbs
- Building evacuation routes are not consistently posted in buildings and do not exhibit evacuation routes
- Unorganized materials in Library Mechanical Room
- Improper disposal of spent lamps found in Schofield Mechanical Closet
- Electronic ADA accessibility at most building entrances
- 2.5 GPM showerheads in use
- Rooftop unit (RTU) at library with unobstructed coils
Unorganized facilities closet in Hibbard Hall

WO tag for mechanical belts inventory tracking

Brick exterior representative of most buildings on campus

Sub metering in residential halls

Varied temperatures with fluorescent lighting

Steam lines clearly identified with directional markings and operable gauges

Improper storing of chemicals and labeling of those in second containment

Vacuum tagged with paper work order (WO) in Housing facilities work area

Pneumatic controls upgraded to digital direct controls (DDC) throughout the campus managed by Niagara system (BAS)

Gravel rock roof in good condition with newly installed solar panels in the background

Solar Panels on Davies Center to support renewable energy program

LED exit signs in place to support lighting efficiency efforts
Unorganized inventory of supplies and materials located in Schneider Hall

Properly locked and stored ladder

Unsorted materials located on the floor of a Mechanical Room

Rebuilt chillers by in-house staff located in Library currently used as a redundancy in the system

One of many generators located throughout campus

Built up flat roof along with exhaust fan in good condition

SUSTAINABILITY & ENERGY

Sustainability is the concept of enduring. This assessment highlights a few areas for Sustainable Organizational Practices - or simply put – sustainability. All we touch in life is about sustainability: energy, waste, attitude, infrastructure, productivity, transportation, community, life cycle assessment, product design, process flows, best practices, climate change, transparency, disclosure, accountability - the list goes on. Sustainability is not a destination but a process. People and organizations are either more or less sustainable in their approach to the consumption of natural resources, capital and human resources.

The three core aspects of sustainability are:
These are often referred to as the Triple Bottom Line – TBL of sustainability, or sometimes referred to as “people-planet-profit.” Some of the largest global businesses and organizational operators have fully embraced sustainable practices for many years. This assessment encompasses portions of economic and environmental sustainability and introduction to aspects of social sustainability. Social sustainability is the essence of an individual's or organization’s commitment to changing the values system and behavior to reduce resource consumption and balance economic outcomes. There are opportunities to implement these sustainable practices, to help conserve energy and reduce the campus’ carbon footprint. The campus does make its own biodiesel fuel, solar energy, and other eco-friendly efforts (i.e., generating electricity for the building through spin exercise classes). There are also initiatives in place to sell salvageable items for profit, recycle used resources, and repurpose goods obtained from replaced equipment, and strip old equipment for useful parts. Opportunities to implement sustainable practices at UWEC can continue with these initiatives for a more sustainable, energy efficient program on the campus.

Sustainable Green Cleaning
Sustainable “green cleaning” generally refers to the use of products and services that have a "lesser or reduced impact on human health and the environment when compared with competing products or services that serve the same purpose." For many students, an institution’s commitment to sustainability has become a prerequisite in their higher education selection process.

At UWEC, there are a number of opportunities to implement sustainable practices into the current custodial program.

- Eliminating aerosol and “Ready-to-Use” chemicals on campus is a sustainable and cost effective approach to custodial management, which will result in less ozone pollution and less plastic container trash in the waste stream
- Right-sizing trash bags across campus will reduce plastic waste and allow for cost savings
- Introduction of work loading and job cards to reduce the number of wasted cleaning steps and travel time
- Conversion to bio-based cleaning chemicals
- Implement the Ecolab Hydris On-Site Generation System. This cleaning system uses all-natural mineral tablets and tap water to dispense three powerful cleaning solutions that are EPA registered as effective at killing MRSA, Norovirus, E. Coli and odor causing bacteria on a variety of surfaces. A single Hydris unit dispenses three products: a one-step disinfectant; an all-purpose sanitizer and glass cleaner, and a multi-surface daily floor cleaner. The Hydris product can be an effective cleaning method on a variety of surfaces, including glass and mirrors, finished floors, wood laminate furniture, washable walls, stone, metal, kosher metals, plastics, melamine surfaces and carpets.

Renewable Energy
The Solar Dok units [manufactured by www.enerfusioninc.com] give the campus community the opportunity to charge laptops and cell phones with green energy. Through photo-voltaic panels, the Solar Dok takes the power of the sun and converts it into usable energy, efficient enough to power devices day and night. Operation at night is supported with a battery bank system that is charged during the day from the same panels.

The plastic components that comprise the table are made from a range of recycled materials. EnerFusion estimates that approximately 1,200 milk jugs go into every Solar Dok. In addition, the structural parts of the Solar Dok are made from aluminum, which is non-toxic and also recyclable.
The Solar Dok can be used at night, as the LED lights under the umbrella illuminate the table. These lights use around 80% less energy than regular incandescent bulbs.

**Lighting**

Many of the buildings have been converted from T-12’s to T-8’s/T-5’s. Several spaces have lighting fixtures with varied hues. A standard should be established and all fixtures should be converted to a single color hue (e.g., 3500 or 4100 degree kelvin).

In many lamps, ceiling fan systems, and residential bathroom areas; incandescent bulbs were in use versus LED bulbs. A culture should be established to implement the more energy efficient bulbs throughout the campus.

Given the amount of bulbs used on campus, the disposal process would benefit from the implementation of a Bulb Eater. This would cut down on the amount of labor spent packing, boxing and shipping spent bulbs out for disposal. Machine benefits include:

- **Eliminate storage hassles** - Reduce your needed storage space for lamps by crushing up to 1350 T8 4’ lamps per 55-gallon drum
- **Reduce handling** - Handle your spent bulbs once. Simply roll your Bulb Eater® lamp crushing system on a 55-gallon drum dollie to the work area or into a storage area. Save roughly 20 hours of labor per 1000 lamps by crushing rather than boxing the lamps!
- **Safer work environment** - EPA studies show an estimated 2-3% accidental breakage rate while boxing lamps prior to pick-up. The 0.001% emission rate from the Bulb Eater® lamp crushing system provides for less mercury vapor emission.
- **Cut costs** - By pre-crushing the lamps, facilities are able to save money on their lamp recycling costs. Savings are typically anywhere from a dime to $1 per lamp!
- **Nationwide recycling program** - Certificates of Recycling are provided once the lamps are recycled.

**Water**

Currently there is minimal use of flow sensors at sinks, urinals and toilets. Recently remodeled and newly built buildings are the only structures with upgraded low-flow devices. A campus-wide, facilities-established standard for fixtures and devices should be created and deployed for future replacements.
Showerheads in residence halls have a 2.5 GPM rating. Given a showerhead is used on average 10 minutes per day, simply upgrading showerheads to a 1.5 GPM model can save almost $9,500 per year. The difference results in a 40% reduction in gallons per year used in showers.

For flushometers that do not currently operate at 1.6 GPF, a system design for the older buildings could model changing all bowls and leaving one 3.5 GPF bowl in place to help with the water pressure. These designs can be performed easily by the chosen distributor that the university chooses for replacement moving to models that operate between 1.1 – 1.6 GPF.

**Variable Speed Exhaust Ventilators and Power Packs**

Energy efficient ventilators and power packs require no belt or pulley maintenance. It allows the flexibility to adjust motor speed (fan airflow) based on the building’s needs. Most importantly, the unit will realize energy savings of 40% to 50% with the electronically commutate motor (ECM) technology. UWEC should investigate the possible installation of energy efficient power pack for roof variable speed exhaust ventilators when replacement is needed.

![Variable Speed Exhaust Ventilators and Power Packs](image)

**Vending Machines**

Numerous vending machines are present throughout the campus. The energy used by these machines drives up energy costs. An easy modification to save resources is to install vending misers on both soda and snack vending machines. Misers are a quick, inexpensive solution for immediate energy savings and conservation. Vending Misers add occupancy based controls to turn off lights and allow the upper portion of the storage chamber to drift up in temperature, but maintain cold temperatures at the bottom ⅓ of the machine. If someone walks up to the machine, the lights will come on and the drink retrieved will be cold.

![Sample of various vending machines throughout campus](image)
Recycling Program

Lasting and effective recycling programs are each unique, but they share many commonalities and the same basic foundation. Working with concessionaires and venue managers is key to a successful program and they should be involved as early as possible in the program’s planning stages. The following eight steps will help you design an effective recycling program:

- **Step 1:** Select a Recycling Coordinator
- **Step 2:** Determine the Waste Stream
- **Step 3:** Practice Waste Prevention
- **Step 4:** Include Concessionaires, Staff, and Volunteers
- **Step 5:** Select a Contractor/Hauler
- **Step 6:** Set Up the Collection Program
- **Step 7:** Facilitate Outreach and Education
- **Step 8:** Monitor and Evaluate the Program

For outdoor usage, a possible solution is the use of solar trash compacting units [utilizing solar technology] distributed by Big Belly (www.bigbelly.com) save money, reduces litter, increases recycling, conserves fuel, reduces the carbon footprint, eliminates overflows, frees up labor and lowers tipping fees.

The nine photos on the following page capture over 10 different varieties of recycling containers on campus. To avoid confusion, the recycling bins should look different from trash cans and be easy to identify. Recycling bins should be uniformed. Maintaining a standard for recycling bins will reduce a guessing method for intended users throughout the campus and increase usage. The labels on the bins should be large and clear with both words and pictures indicating what is being collected. Make sure to clearly label the trash cans too. Try to purchase collection bins made of postconsumer recycled-content materials.

When selecting bins to use on your campus, consider:

- Cost
- Durability
- Capacity
- Ease of handling
- Amount of recycled-content materials
Various recycling containers located throughout UWEC
SUMMARY

In conclusion, there are a variety of action items presented for the University to implement to improve the efficiency and effectiveness of the facilities departmental service offerings. Collectively, these constitute an enormous culture change for the department [i.e., centralized management vs. a decentralized operation], and will not be fully realized overnight. Compounding the challenges these items present is the reality that most of the current facilities management team appear to be accepting severance packages offered by the University this summer, leaving a leadership void precisely when it is needed most.

In order to institute the recommended facilities programs and systems, the University should strongly consider issuing an expedited RFP for facilities management professionals to immediately provide a strong, on-site facilities leadership team at the Eau Claire campus, inclusive of the option for access to the successful vendors purchasing partnerships for facilities-related supplies, materials and services. Having access to these purchasing partnerships provides the University with access to cutting edge research & development, the most sustainable products and services, enhanced warranties and liability insurances, increased 3rd party vendor training opportunities and the best pricing possible. [A preliminary review of current University procurement facilities spending shows a potential savings of 5% - 10% annually]

A second possible solution would be for the University to issue an RFQ for the complete outsourcing of the facilities department, inclusive of leadership, procurement and frontline staffing. While the upfront process for a “full service” RFQ may be more involved than the outsourcing of the leadership and procurement functions only, the desired change in departmental culture can generally be achieved more rapidly.

Following are a number of alternative solutions:

Option 1: Consider an expedited RFP process to select a vendor that would provide a limited personnel training program to enable implementation of some or all of the specific changes recommended in this report.

Option 2: Consider an expedited RFP process to select a vendor that would provide temporary on-site facilities management professional services to work in conjunction with the university’s facilities leadership team to identify and implement some or all of the specific changes recommended in this report. Professional services would include personnel training.

Option 3: Consider an expedited RFP process to select a vendor that would provide procurement of facilities-related materials and supplies in order to standardize use of materials and supplies across all university facilities operations with the stated goal of achieving substantial savings.