FTE FACILITY MANAGEMENT MODULE

The Future of Staffing Calculations

Mathew Trickel

Facility Planner for University Facilities Housekeeping

North Carolina State University

NC STATE THINK AND DO THE EXTRAORDINARY

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Contents

Purpose

A white paper on how current facility management (FM) systems can be enhanced to perform full time employee (FTE) calculations on the same platform by utilizing housekeeping (HK) space uses, square feet (SF), cleaning times, frequencies and absentee allowances. Institutions worldwide are struggling to provide accurate building staffing data which is often calculated on spreadsheets and calculators. Important management decisions require instantaneous access to current staffing information to be the most effective. Providing a universal FM FTE calculation module is essential to the preservation of custodial facility management in a highly competitive and economically hostile environment.

Institutions need the capacity to view current, past and future staffing predictions for cost estimates which an FTE calculation module will provide. At the time of this article, there are no FM companies actively marketing FTE calculation products which means that the playing field is wide open. In 2015 there were over 105,000 schools in the US and if only 10% of those schools have FTE calculation software or consultant services this means that 94,000 schools still need it. The FTE module extension feeds off current FM architectural data and produces staffing numbers based on its own internal data collection and administrative controls. The goal would be to produce a universal metric system that contains standard staffing calculations. Fortunately there is a widely accepted standard available in the "APPA Operational Guidelines for Educational Facilities – Custodial". These principle calculation metrics are utilized in the NCSU HK FTE calculation module and functional in Excel, but would be more adaptable and easier to navigate on a CAFM system.

This white paper outlines the history, process, application and potential of an automated user friendly interphase. The design, construction and development models were developed and tested by Mathew Trickel a Facility Planner at North Carolina State University Housekeeping utilizing FM Systems resources. The current FTE calculator is underutilized in its present form. The purpose of this white paper is to alert developers of its capabilities while providing facility organizations with a potential solution for managing their staffing needs.
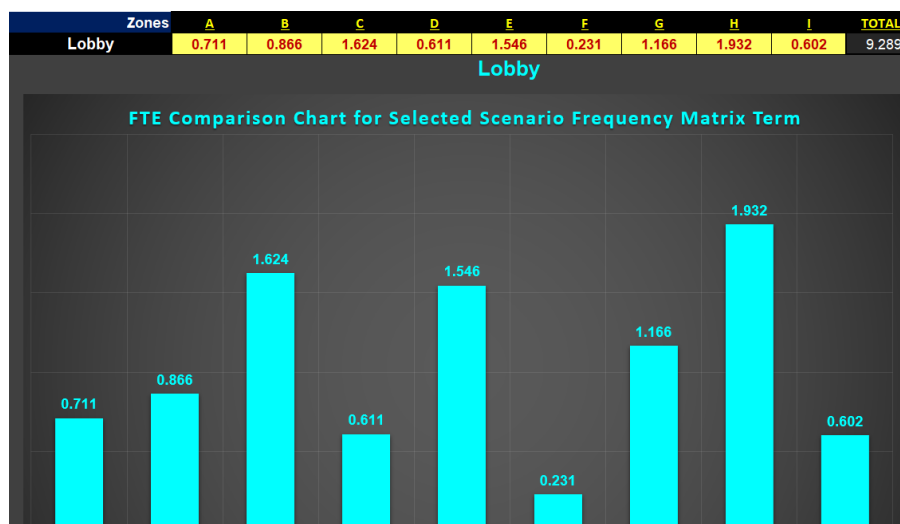
Figure A1

Zones	A	B	C	D	E	F	G	H	I	TOTALS
Lobby	0.711	0.866	1.624	0.611	1.546	0.231	1.166	1.932	0.602	9.289

Figure A1: Comparing "Lobby" FTEs in different Zones

Defining the Need

Computer Aided Facility Management (CAFM) systems are designed for a variety of space use, asset management, maintenance and service functions. However FTE calculations are not provided. Staff reductions at major institutions have plagued facility departments for years challenging them to validate staffing. Custodial / Housekeeping departments are the largest and struggling to justify employees. In many cases calculations are performed on guesstimated spreadsheets that require a lot of time to produce and maintain.

CAFM systems store about 90% of the data needed. Absentee allowances, cleaning times, frequencies and formulas are the other 10%. Unifying these data processes will enable companies to create the most powerful FTE calculation tools ever to exist. This CAFM module extension will help keep costs low while allowing institutions to still utilize their present systems.

Utilization of Systems

North Carolina State University Housekeeping has a "Think and Do" history of FTE calculation experience. In 2003 NCSU was one of the first to utilize "RKA Cleanup" a self-contain Access database. In 2011 it was abandoned due to inner-phase limitations as they migrated to Excel spreadsheets. In 2012 Campus Life Housing wanted NCSU to validate their FTE calculations are within APPA guidelines. After several months of trial and error, NCSU developed a unique process to convert architectural descriptions to HK Space Uses which migrated to service Matrix Terms where cleaning frequencies could be balanced. This process was reviewed by the Campus Life Director of Facilities, IT and Asset Management Pete Fraccaroli who collaborated with HK to check the math and applications of the tool and wrote "Too many times staffing is determined through conventional wisdom and anecdotal information. I can vouch that this is not the way they do it in University Housekeeping at NC State University. Mat's (Mathew Trickel) FTE calculator allows Facility Operations to easily determine their staffing patterns and justify the cost of the service agreement." 11/20/2015

 The final report not only validated Housekeeping staff, it proved they were two positions short. This secured the $5 Million in-house contract from going to private contractors. The validation and housing endorsement of the FTE Calculator fortified the HK Department's credibility to deploy the HK space use design into the campus CAFM system. Sally Rau NCSU's FMI (FM Systems) database administrator and FIS Manager assisted during the implementation process and co-designed some of the processes. The current NCSU HK space management module has layered floor plans, reports that display Cleanable Square Feet (CSF) and space use types per buildings, floors and zones. NCSU HK populated 90% of the database within one year. In 2016 the HK Floor Finish module was deployed which creates reports and layered floor plans for various surface types. They can see the floor finish SF totals of any level, building or zone. NCSU HK has designed a floor maintenance module that logs when surfaces are extracted or resurfaced and is current ready for deployment when funded. These extended modules are add-on applications to the central "FM System". These extension applications were developed by Connie Drake at "Little" consultant services for roughly $3,000 - $5,000 per module.

The FTE module has been modified to fit several studies over the years. The FMI building data is exported and pasted into the template which sorts and creates matrix terms, adds cleaning times and balances frequencies. They have the capacity to measure and compare up to 20 buildings in one study, however the accuracy improves substantially when measuring smaller building groups. The calculator has 7 separate cleaning frequency scenario settings that allows users to compare FTE values in data or graphic displays.

Research Findings

Try searching Google for any combination of "FTE". You will soon discover that FTE consultant companies are not very visible online. When was the last time you saw an advertisement for FTE calculations? These services are desperately needed but small consultant firms have a limited capacity due to time restraints which makes their services expensive. Most independent consultants have their own proprietary software and trademarked parameters which can complicate user navigations.

ISSA has some FTE consultant contacts on their website under work loading. They have a wealth of facility management services including books with cleaning time estimates. Similar to a dictionary it lists various types of building spaces with SF and cleaning times. This is a great resource for getting fast answers when you don't have organic data. But does it reflect on how your employees actually clean? The ball rolls both ways too, if the client wants a lower FTE they can find alternative cleaning times to justify their data. This is why homegrown data is the honest answer and if there is a discrepancy the times can be measured with the client present.

APPA is the most widely acceptable FTE expert in the world. The three publications of the "APPA Operational Guidelines for Educational Facilities" has been instrumental in assisting institutions to create their own FTE calculation spreadsheets and processes. The "Custodial" edition contains the 1-5 cleaning levels of service which is the most quoted text in the industry. It also contains several methods for calculating FTEs and does a pretty decent job of explaining the details, however it does require some study to comprehend.

The Problem

Currently there is no easy way to calculate FTEs. The data must be assembled, manually copied and pasted into spreadsheet templates, collect and log cleaning time studies, balance cleaning frequencies and then assemble the data into the proper sequence. This requires a great deal of time, knowledge and excel experience to carry out all of the calculations. Very few institutions have a sustainable method to do these calculations on a consistent reliable basis. This makes them vulnerable to budget office's when they can't validate their staffing levels.

One Solution

Convert architectural room descriptions to Housekeeping Space Uses to determine cleanable spaces. Group spaces into service matrices and assemble home grown cleaning times with a mobile application (*Figure A3*) that uploads data straight into the system. Select cleaning times for the matrices then assign cleaning frequencies with the allowance which will formulate the FTE conclusions. Results can be displayed on various reports and charted illustrations for department use, collaborations and presentations. (*Figures A1 and A2*) The advantages of a self-contained CAFM system is that it eliminates the various spreadsheets while providing accessible data reference points for staffing justifications.
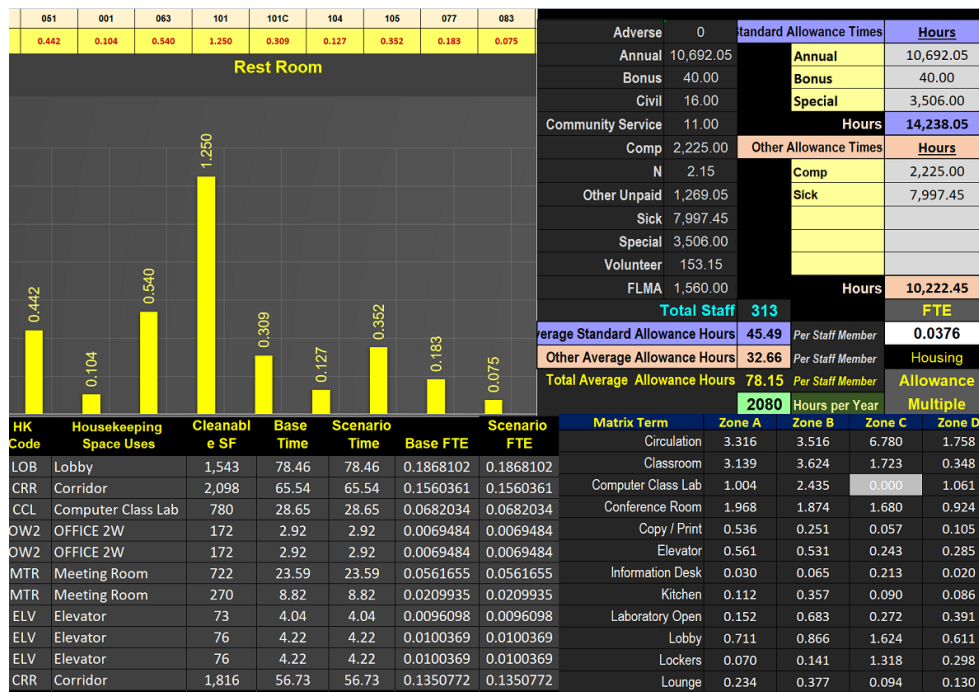
Figure A2

Figure A2: Upper Left; Illustrates restroom FTEs in selected buildings, Upper Right; is part of the FTE Allowance dashboard, Lower Left; Breaks down individual space's FTE values with base and selected frequency scenario, Lower Right; Compares the HK space use FTEs for separate zones.
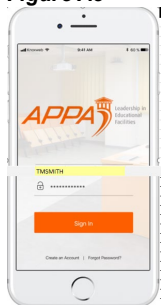
Figure A3

Figure A3: The mobile Cleaning Time application will simplify and speed up the data collection process while enabling institutions the capability of utilize their own cleaning techniques and experience.

Conclusion

Custodial / Housekeeping services cover a wide variety of industry buildings, ranging from corporations, schools, government and hospitals. In order to effectively staff over 3.2 million custodial workers in the US we need a system that is fair, easy to maintain and economical that unifies standard data markers to measure productivity while holding businesses accountable for under staffing buildings and jeopardizing public health to save a few dollars. CAFM FTE calculation systems will allow industry facility professionals the capability to adequately staff buildings. While utilizing internal data sources that allow transparent and flexible options to validate staffing on a central platform system.

Author

Mathew Trickel NCSU HK Facility Planner is an accomplished presenter and authority on FTE calculations and designing CAFM system modules for facility uses.

He is currently writing a chapter "Housekeeping Space Uses and FTE Calculations" for the 4th Edition of the "APPA Operational Guidelines for Educational Facilities – Custodial"
A member of the FM Systems Higher Education Special Interest Group 2018
Nominated for the NCSU Finance and Administration Awards for Excellence 2018
Upcoming Presentations
NCAPPA 2019 Conference, East Carolina University, Greenville, NC May 8 – 10th 2019
Previous Presentations
APPA 2018 Annual Conference, Washington, DC. August 3rd -5th, 2018
FM Systems User Conference, Raleigh, NC. April 18th – 20th, 2018
FM Systems Higher Education Special Interest Group Online Presentation February 21, 2018
SRAPPA Conference, Charlotte, NC. October 25th – 28th, 2017
ACUHO-I/APPA Atlanta, GA. October 16th – 18th, 2017
NCAPPA Conference at NC Central College, Durham, NC. May 17-19, 2017

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