Best Practices to Support Operation and Maintenance in Cold Climates Workshop Facilitation Guide

A Guide on How To Undertake a Training Workshop To Learn From and Add To the Body of Knowledge

I want to personally thank you for supporting the effort to improve Operations and Maintenance in the State of Alaska! Cold climate regions have unique challenges when it comes to designing, building and operating facilities. Though efforts have been made to document cold region engineering, there are very few written "Best Practice" resources available that address the very significant impact of long-term operational costs of these facilities. This document and its associated workshops are aimed at providing such guidance.

The current Body of Knowledge is the collaborative knowledge of over 200 Alaskan professionals in design, project management, and facility management, collected from workshops just like the one you will be holding. It is through this sharing of our knowledge that we can create a significant impact on the cost of living not only in Alaska but for all cold climate inhabitants.

This document originated at a conference at the Alaska Chapter of the Association for Learning Environments and was originally developed for schools. Though you will still see references to school specific issues, the document now covers multiple types of facilities. You are encouraged to provide input on the facilities you are used to working on. If it is an issue specific to a type of facility (such as a wastewater treatment plant), feel free to note that.

There is a high focus in our industry on energy efficiency, but this document takes a big-picture look at how to reduce a facilities "long term operational costs". "Long term operational costs" includes the total cost in operating a facility including the utility costs (energy consumption) as well as the associated cost to maintain and operate the system/facility. Low-energy systems that require significant maintenance can ultimately have a higher long-term operating cost compared to a simpler, lower efficiency system that requires less maintenance. Remote facilities compound that cost through the need to fly specialty technicians to a site to complete maintenance.

A firm understanding of that concept should prepare the participants to be in the right mindset for the exercise.

Time Requirement:

I have found that 1-1/2 hours is ideal. You want to maximize the time the participants have at each station but not so long they get bored. There is a short 10-15 minute presentation in the beginning of the workshop. This leaves about 7 minutes at each station.

The workshop can be done in 1 hour, but the introduction has to be quick. This leaves about 4-5 minutes at each station.

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Having the workshop over two hours can utilize a longer introduction, but risks burnout by the end of the workshop. I recommend a 5 minute break around the end of the first hour to mentally reset and accomplish liquids maintenance.

Doing this workshop as a "lunch-and-learn" is difficult. In addition to the extra delay of people getting food, it is also very difficult to eat while going around the stations. It is instead recommended to provide finger-food snacks, something like bagels in the morning or cookies in the afternoon.

Note it takes about 10-15 minutes to setup the room prior to the workshop. If this is being done at a conference, I recommend writing the station headers on all of the sheets ahead of time (in the order of the stations) so all you have to do is hang them on the walls during the break immediately before the workshop. Another time saver is to hand out the station copies of the Best Practices document and markers while the participants are getting situated at their first station.

Materials:

1. You'll start with 23 sheets of large (25" x 30"), self-stick easel pad pages (Post-It or Office Depot brand) per station.
    a. I typically end up with 30-35 sheets on the wall by the end of the workshop, so it is recommended to have at least one extra easel-pad available for extra sheets.
    b. It is also recommended to have multiple filler easel pads strategically spread out around the room so that attendees can go and grab another sheet. Otherwise the facilitator is spending a lot of time running around and adding paper to the walls. It goes fast!
2. Print out as many copies of the Best Practices document as needed for the workshop for participants to reference during the workshop.
    a. Note this document is now over 60 pages long.
    b. Printing a copy for each participant is an excessive amount of paper and it will be immediately out of date as the workshop will generate an updated version that each participant will receive electronically after the event.
    c. If they want an immediate copy, offer to email them the current file that you received.
        i. Some people want to bring a hard copy back to their office that day. I keep a couple (three-ish) copies at the front for those who won't accept the email option.
    d. I recommend printing three sets, separated by station. That station's copies will be available to allow a quick perusal of what has been noted for that station to date.
        i. Warn folks that
    e. Recommend collating and stapling these packets ahead of time to expedite setup.
3. Have at least three writing markers available per station, more is recommended.
    a. Dry erase markers or Crayola markers work well.
    b. Be careful of using permanent markers ("Sharpies") or other markers that may bleed through the paper.
    c. Lighter colors (yellow, etc.) cannot be read so don't include those in your count.

Room Setup:

1. Identify seven stations around the room and/or the space outside of the room.
    a. Figure out an easy transition flow between each station.

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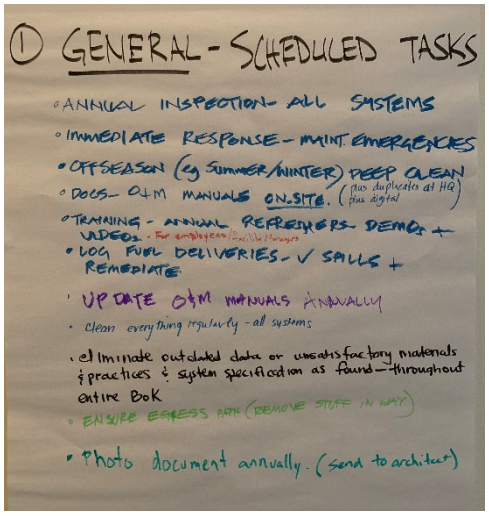
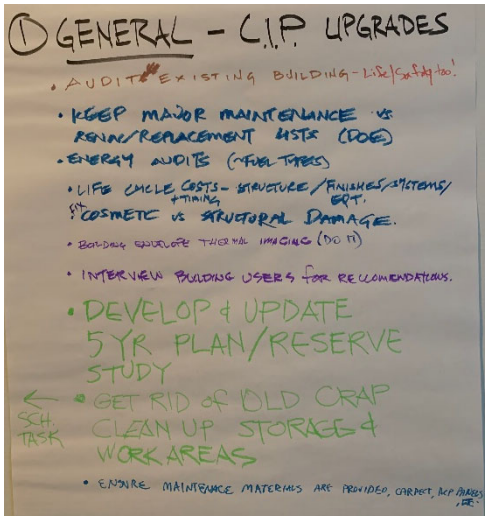
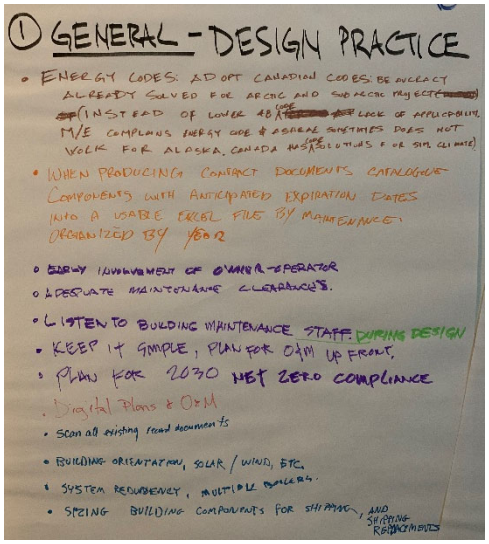
b. Each station should be at least 6 ft wide for the three sheets of paper.
c. Anticipate where additional sheets will go once the original sheets are filled. Filled sheets can be moved up or down.
d. Windows work great.

2. At each station, you'll hang three pieces of self-stick easel paper.
   a. Label each page beginning with the main category (I recommend underlining it):
      i. General
         1. This information pertains to all or multiple disciplines. Such as, "Hire a design team with cold climate experience."
      ii. Site and Landscaping
         1. This includes items such as fencing, parking lots, playgrounds, landscaping, and utilities.
      iii. Building Envelope
         1. This includes building envelope items such as roofs, windows, exterior doors, and siding.
      iv. Finishes, Furnishings, and Floor Plan
         1. This includes all interior finishes such as doors, flooring, ceilings, paint, and furnishings.
         2. Architectural planning and floor-plan considerations.
      v. Structural Systems
         1. This includes items such as foundations, framing, structural steel and building elements.
      vi. Mechanical Systems
         1. This includes items such as plumbing, heating, ventilation, fuel, and fire suppression.
      vii. Electrical Systems





1. This includes items such as power, lights, comm/data, security, and fire detection.



b. For each station, hang three sheets of paper and label them:
   i. Regularly Scheduled O&M
      1. These are preventative and proactive maintenance tasks that are regularly scheduled activities (daily, monthly, annually, etc.)
      2. This includes training and other user and facility staff activities.
   ii. Capital Improvement Upgrades (or just CIP Upgrades)
      1. You have $500,000 to spend on a building, where do you spend it to best impact long term operating costs?
      2. This also includes contractual type recommendations for design and construction.
   iii. Design Practices
      1. This is how facilities should be designed to facilitate maintenance and minimize long-term operational costs.
c. For instance, the first station would have three sheets with the below titles.
   i. <u>General</u> Regularly Scheduled O&M
   ii. <u>General</u> Capital Improvement Upgrades
   iii. <u>General</u> Design Practices

3. That's 21 sheets, where are the other two? Those two sheets are placed between two stations. It is intended that these papers are not stand-alone stations but instead are added to informally as people move around the room:
   a. Additional Resources for O&M Best Practices
      i. This would include books, papers, organizations, or even individuals who have valuable information/services to support O&M.
   b. Open Comment Category
      i. Anything they don't think fits. I'll find a home.
   c. The event may choose to have an additional sheet for participants to add recommendations on presentations for the next conference or other categories they want feedback on.

Facilitator's Role:

1. Give a <u>brief</u> introductory presentation that covers the following:
   a. Limit this to 10-15 minutes to maximize time at the stations.
      i. I have a PowerPoint presentation with this information already on it that you can use as a starting point if interested.
   b. Goals of the workshop: To learn from and add to the body of knowledge of best practices to support long-term operation and maintenance.

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c. The information they put on the paper will be incorporated into the document and an updated version will be sent out to all attendees a couple of weeks after the workshop.
    i. Be sure to get all participants' email addresses. If not sending to the entire conference, have a sign-in form.
d. The Best Practices document is not copy-righted.
    i. The attendees are encouraged to share it with coworkers and clients.
    ii. Please comment and add more information to the document! But be sure to turn on Track Changes or somehow highlight the additional information so I can figure out what was added.
    iii. The participants are encouraged to hold their own workshops. If interested, contact me at the below email for this guide on how to run the workshop.
    iv. Only request is to send back any recommendations/additions to me so that I can add the information to the list so that others may benefit.
e. Explain the stations and how the information is separated out.
f. Participants will be separated into teams and they will have a set amount of time to add their knowledge to that station.
g. Note the time at each station, between stations, and the notifications (noted below).
h. Rules for how to add information (noted below).
i. Note where you have extra easel paper and though they are encouraged to grab more sheets, the facilitator will be going around to add paper on the walls. Don't stop writing!
j. Note how to add more information after the workshop (Craig's contact information).
    i. Some people may have a lot of information to add but may not feel comfortable communicating that during the workshop.
    ii. This includes the outcome from any workshops the attendees hold so we can expand the body of knowledge.
k. Ask for questions before breaking into groups.
l. Facilitate breaking the participants into groups.
    i. I recommend the elementary school PE class version of counting off from 1 to 7. That breaks up the group and gets a mix of people in each team as well as equalizes the number of people at each station.

2. Time keeper:
    a. At the end of the brief introduction, calculate how much time the teams will have at each station.
        i. It typically will takes two minutes to get everyone to their first station.
        ii. Assume one minute for teams to move between stations.
        iii. 1 hour workshop is typically 5 minutes.
        iv. 1-1/2 hour workshop can be 7-10 minutes depending on the introduction.
        v. You can increase this time as you watch participants' energy level, especially as you reach 10 minute lengths.
    b. Provide a warning when there is two minutes left at that station so they can jot down their discussions.
    c. Recommend using the timer on your phone to note 2 minute and end of station timing.
3. Actively watch the boards:
    a. Add paper to the walls when a sheet is almost filled. Add the station/category on the top so I'll know what the sheet was referencing in the photos.

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   b. If you see a short response or something you do not understand on the sheet, ask the participants for additional information. You may find the author is from a previous group. Write down more information on the sheet to help me interpret the comment.
4. At the end of the conference, please take photos of each station in the above order (which follows the Best Practices document order) and email it to me.
5. I will incorporate them into the main document. As this is volunteer work, it may take a couple weeks to get fit into my schedule.

Rules for Adding Notes:

1. Write legibly.
2. Write in complete sentences/thoughts. Remember it is a mechanical engineer deciphering these comments. Writing "Gym Floors" or "PVC Siding" means nothing to me (both of those were previous comments). What is it? Is it good or bad? Why?
   a. If you want, have them add their initials next to the comment and I can go off of the attendee list to ask follow up questions if need be.
3. If you want to see what has been previously written (which can be a good primer), I recommend scanning the document at each station when you get there and then adding information. The document is way too long to read through completely and then do the stations.
   a. Some just disregard this and start writing. That is fine as well as I know what items are redundant and already covered.
4. Discuss ideas in your group but don't get caught up on one item. You don't have to convince the group it is a good idea or go "into the weeds" on it. There is limited time to get everyone's input for each station. Keep writing!!!
5. A team may elect to have a group scribe. This can be helpful for those who are legibly-challenged, but don't let the scribe be a bottle-neck in getting information down on the sheet.
6. Think of all of the "Lessons Learned" you've had during your career (or subconsultants have forced you to deal with) and what seasoned Facility Managers and Mentors have shared with you over the years. Think of how O&M is unique to cold climates and remote locations. Write that down!!!
7. Don't worry about what station a recommendation should be noted under. If you think of something, write it down where you are. I move a lot of the comments around during the compiling process.
8. If you see something written in the document or on the workshop sheet that you disagree with or want to note exceptions/caveats to, add that to the list. I will put them down as sub-bullets below the note. As you know, not all solutions can be universally applied under all circumstances. As a best practice handbook, we need to make readers aware of pros and cons.
9. Participants can also just email me recommendations. The document is sent out as a .doc file to facilitate typing information in directly into the document. Again, please use Track Changes or somehow clearly identify what text or comments are being added.
   a. Groups can be overtaken by an extroverted leader. Introverts may prefer doing it on their own and that's good as well.
10. I will compile the results a couple of weeks after the event and send that document back to the facilitator so it can be dispersed back out to the attendees for their use and sharing.

Thank you once again for participating!

If you have any questions, please do not hesitate in emailing or calling me.

Good luck!

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