

Introduction to Lean Construction
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Understand Each “S” in Detail - Standardize, Sustain

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S4 - STANDARDIZE



Standardize the Processes used to Sort, Order and Clean the Workplace

- Written documentation regarding 5S Organization & Responsibilities to be shared with all concerned people & their wholehearted commitment secured. Use **Notice boards**
- Everyone at Site is a 5S Champion; Get all to sign the Base Document.
Different agencies-bring them to common grounds
- Have a system for all new joinees/ new associates to understand the Site's 5S system & easily adopt it
- **Audit reports and compliance report** formats to be standardized & documented. Specific instructions for grading audit observations/ Scores to be written down. Reports to be brief & point-oriented
- Idea is to have a **uniform method of observations & reporting** by all.

Juan Felipe Pons (2014) - Keys and Tips to Implement the 5S Methodology, Karen Martin & Associates (2010). <https://leanmanufacturingtools.org/5s/>, http://en.wikipedia.org/wiki/5S_methodology



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Now we come to the next S, that is S for standardize, we need to standardize the procedures which we use for sort, set in order and shine, so that all the people are on the same wavelength, and all follow the same process and procedures. So, one way of doing that is to have a proper process and make it clear to everyone by putting it up on the notice boards. And then you may have different subcontractors, vendors, different agencies. So, we need to make sure that they all come on board, or the same wavelength.

And we need to also make sure that people may join from join the site from time to time. So, they also come on board in the same way. And frequent audit reports, of course, will tell us how things are going. And we need to take corrective steps based on what we find. So, the basic thing is to have a uniform basis on which everyone on the site operate, you have SOPs, standard operating procedures, and there is no point in only making them. We need to make sure that everyone is aware of these SOPs, they read them, and then appropriately follow them.

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S4 – STANDARDIZE (cont.,)



- *Standard operating procedures* for first 3S's to be written down – Methodology, Frequency, Responsibility,...**remember anybody...means Nobody!**
- All documentation to be *regularly reviewed* in Site Weekly & Monthly meetings till process stabilizes. Thereafter periodic Management Reviews
- Use plenty of Charts to show--- *Site progress*, Status of operations, Stocks, etc.
 - Ex Consumables: mark levels: high & low--innovate/ use ingenuity; A3 Reporting Formats
- Make up the rules and follow them - make it obvious by *visual techniques*
- It also means to repeat the first three steps over and over to *continuously* improve



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So, the procedures by which we do the first 3 S's, they need to be standardized. Otherwise, somebody may think something is useful, somebody may think it is not useful. So, how do we determine the first one, first S, you know the sort process? What is useful in the near future, middle future, distant future not required at all, and so on? How do we set in order? How do we shine? So, all these have to be properly reviewed, and written down, and everybody has to have the same understanding of all these.

Have plenty of charts, I always when I go to a project manager's office, I first look around to see what kind of charts he uses, for example, your progress or your invoicing, or the directions to the staff. Similarly, the practice of 5S again, has to be appropriately advertised, put up on the notice boards, and then the various charts have to show what is being done, what is been done well, what needs to be improved on so on.

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S4 – STANDARDIZE – How



- Helps everyone know exactly what they are *responsible* for doing, when it is to be done, *where and how* it is to be done to maintain the first 3S's agreements
- Clearly *mark and post* where the material, tools & equipment are to be placed; Mark material *movement routes*
- Have *clear instructions* for people who deliver goods or materials to the site
- *Educate* Suppliers on what is expected of them
- Many international sites: Different areas are *restricted* to different sets of people
- Develop *checklists* for routine tasks



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And then the SOPs have to show exactly how things have to be done for the 3 S's. And there have to be clear instructions. And even the people who come from outside for example, your suppliers or vendors, they also need to know what your SOPs are. Many good sites have seen when somebody comes from outside into the site, he is asked to wear properly for example, your site boots, you do not bring in whatever you have from the outside.

And then you need to check in, you need to tell who you are, where you want to go. And then you are told direct clearly where how to reach the place where you want to go. And some important projects the entry to various areas is restricted. For example, a man who wants to supply rebars he did not have to go to the work areas, he only needs to go to the stores. So, how do we restrict entries of people to designated areas. So, all these actually have to be seen properly. And there have to be proper checklist for all the routine tasks.

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S4 – STANDARDIZE (cont.,)



- Work to prevent chaos from coming back by:
 - Making it *impossible to put things* in wrong place
(Consider removing excess storage locations or putting an obstacle so excess material can't be stacked around)
 - Poka Yoke (Mistake-proof!)
- Use the “*Ask Why 5 times*” approach to get to *root cause* of why things are not how they are expected or desired to be



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And then when you are keeping the things back in the stores or in the workplace, there is a technique called Poka-Yoke, what is called mistake proofing. That means when you want to put a tool it can be put only in that place in a particular way. It cannot be done in any other manner.

For example, you enter a room, there are two doors, the entry door and the exit doors. The entry door will only work inwards, from inside you cannot open the door to go out you have to go only where the outdoor, that kind of thing you can use for what is called mistake proofing, Poka-Yoke is a very important tool of lean and that goes along with your S4. So, make sure that things are done in one particular way and not in haphazard ways.

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S5 - SUSTAIN/ SELF-DISCIPLINE



Sustain is implementing the Developed Processes by Self-Discipline of all Involved
- Also Translates as “*Do Without Being Told*”

- Comprehensive & *repeated communications* to all stakeholders is vital
- *Periodic address* by management to all would greatly help!
- The Launch should be like a Festival! Involving all!
- Periodic Site *Gemba walks* by Management, periodic Audits, periodic pep talks, etc. will be required
- Develop *simple systems* like while walking off the site at the end of the day *everyone should carry some item for disposal* or keeping away in designated place
- *Non-compliance complaint box? Suggestions Box?*
- Monthly Meetings should have Kaizen- each staff should produce at least one *new thing* which he has done for Lean or 5S. Document them & Circulate

Juan Felipe Pons [2016] – Keys and Tips to Implement the 5S Methodology, Karen Martin & Associates (2010). <https://leanmanufacturingtools.org/5s/>, https://en.wikipedia.org/wiki/5S_methodology



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And next S we come to S5 that is sustain or self-discipline. Literally, it can mean that do without being told. See, ultimately lean is not a assembly of tools, it is a matter of culture, which we need to develop over a long period. And the lean culture is what is sustainable in the long run. Similarly, for 5S, unless the 5th S, the sustain part is taken care of properly, it will not be running in the long run, it will not be sustainable.

So, every person at the site actually is a 5S promoter. I always maintained Safety and Quality, every person on the site is a safety person, every person on the site is a quality person. Similarly, we need to inculcate the belief that every person on the site is also a 5S person, he needs to know remove the unwanted materials, keep the record once in the right place, and keep it properly cleaned and shown and then we need to have proper standard procedures and then make sure it is sustainable in the long run.

So, one important aspect is as and every other matter, top management involvement. So, when we start 5S, there has to be a clear-cut announcement from the top management, that 5S has to be practiced in that particular site, everyone has to know and everyone has to comply it. And the project manager has to periodically repeat that kind of thing. And make sure that people are all aligned properly and they do practice 5S as a matter of routine.

And you may have a great launch like have a big show, a big Jamboree, so the people have started 5S in the site, and then you put up a number of signboards that this is a 5S site, make it difficult to go back, make it such a big affair that people take pride in having come to a 5S site, and they should not slide back into the old ways of not doing work properly. And develop simple systems.

In one site for example, we told the labor, when you go for lunch, or when you go at the end of the day, the after the shift is over. Just pick up something which you do not require, some scrap item. When you go out, where you punch out your card, there will be 3 or 4 bins kept with clear cut directions useful, not useful, required, repairs, needs repair and so on. And the labour gets so much trained, that they will put the materials in the right bins, scrap was in the scrap bin, repair items go the repair bin and so on.

So, and after sometimes the labor take pride in doing that, and nobody wants to leave the site without carrying a particular item in his hand, that becomes a matter of habit, becomes a matter of self-discipline, and they all take pleasure in doing that. And then you can have something called Kaizen, Kaizen stands for continuous improvement in Japanese.

So, in every monthly meeting, we can ask the people what have you done new, what have you done better in this month, and people come and share whatever they have done. And we can even have competitions between various sections, and give rewards awards for the best section, how they have been doing that.

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S5 - SUSTAIN/ SELF-DISCIPLINE (cont.,)

- *Site 5S newsletters*-1 or 2 pages-compiled by the Planning Team based on observations by all can be *displayed and circulated* to keep up the *morale and excitement*
- *Periodic Scoring* for various attributes, competitions between different groups, public commendations, Recognitions, Rewards
- As with any management initiative, constant reiteration, *publicizing and recognitions* are important to sustain 5S till it becomes a mater of *Culture and Way of Life*



S5 - SUSTAIN/ SELF-DISCIPLINE (cont.,)

- Standardize the *Best Practices* in the work area
- Maintain *Orderliness* according to its Standard; Every Process has a Standard
- To keep the 5S practices in continuous working order "*Do without being told*"
- Perform *Regular Audits* & use the findings to improve continuously
- Continue *Training and Discipline* on monthly basis with feedbacks
- Management's responsibility to *Reinforce and Demonstrate Leadership*. Make it part of daily work and it becomes a *habit*



So, it is a matter of seeing applying your ingenuity and innovativeness on how to make it sustainable, how to make it go in autopilot mode in the long run. And to get everybody on board, you can have newsletters, you not be a formal newsletter printed and circulated, it can be just something mounted on the wall or the noticeboard written by hand or typewritten or printed anyway, but the basic idea is all the people at the site know that the top management is keen on lean, is keen on 5S.

That message has to go very clearly across the board and everybody has to come on board. And like I said you could have competitions, periodic scoring, and keep on doing it in such a way that becomes a culture, a way of life. Once it becomes a way of life, what happens, you do not need to be told, you do not need to remember you just do it. So, 5S has to come to such a stage that the people in the site just do it.

And like I said at the beginning, when you walk into a site, you always know that is a 5S site is well cleaned, well cleaned up, well maintained and very, very, very orderly also, you have a lot of signboards, you have greenery, and everything is in the right place where it needs to belong. So, basically, having done all this you need to have regular audits. And the standardization part comes in here, that the audit scores have to be objective, they cannot be subjective.

So, you may have different people go in auditing the 5S part. So, we need to have an SOP, how do you determine whether something has been done properly or not? So, for example, shine, shine means what, to what degree a thing has to be clean, sort means what, what kind of items are allowed to remain at the site, what catering items are not allowed to remain at the site.






So, we give scores and then we compare, we asked the people are you happy with the score which you got, come back refine that. So, ultimately the SOP becomes a document, which is well understood, well-practiced in the long run. And ultimately, it is all a matter of leadership, we need to keep reinforcing, we need to keep demonstrating leadership, ultimately till it becomes a matter of habit.

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S5 - SUSTAIN/ SELF-DISCIPLINE (cont.,)

- After some time (say, 3 to 6 months - depending on the size and complexity of the site), *Perform an in-depth Audit*
- Use a very precise Questionnaire, which assesses the previous 4S's, and use it to certify the site where successful. *Audit to be objective* & not in any way subjective
 - Ex. For any item define the *scoring method/criteria*. Say, for Cleanliness-Criteria are:
 - No tools lying around
 - No wastes present
 - Segregated Trash boxes available
 - no shuttering lying around after decentering,



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And once it becomes a matter of practice like this, maybe after about 3 to 6 months' time, we can get a major audit done, preferably by somebody from outside the site. And there we have a very precise questionnaire, like I said, we need to have a standard method of understanding what is acceptable and what is not acceptable.

For example, sort, the cleanliness criteria, do you have tools lying around, any waste on the ground, or is trash segregated and take it out as quickly as possible. And shuttering material something I have seen, they should never be allowed to lay on the ground, once you remove it from the structure, it immediately has to go to the yard get properly cleaned up, and then returned back to the site.

So, we make a questionnaire which is standard well understood, get somebody from outside the site to come and do an audit and then you understand what has been done properly, what has not been done properly, and then keep on improving all that.

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5S - SUSTAIN/ SELF-DISCIPLINE (cont.,)

5S



- Points for building *Self-Discipline*:
 - Be *Polite* in addressing others
 - Wear your Safety Equipment with *Pride*
 - Follow the *3 specifics* by clearly indicating
 1. *what* (specific items)
 2. goes *where* (specific places) and
 3. in what *amount* (specific amounts)
 - Get to the source or *root cause* of any disorder or problem



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So, the basic thing is that everybody understands at the site, what has to be done, and where do the things materials go and in what quantities and so on. And wherever something is not being done properly, for example a lower audit score, we need to go into the root cause. There is a procedure in lean called 5 whys.

So, whenever something is not okay, not acceptable, we need to ask why 5 times, many times the first answer you get or the answer the obvious kind of thing may not be the real reason, the deep reason is something but he says, no sir, that person is not available, why, the person is on leave, why, he is not been performing well, why, he has not been told like that there may be a number of reasons.

So, keep asking, why, why, why 5 times till you get to the root cause, till you really reach into the reason why something is not been done properly, and remedy that. If you look at only the ostensible cost, the apparent cause and remedy that the things may not improve in the long run, you may do something in the short run, either it will again slide back to the way it was earlier.

So, ask why 5 times, go to the root cause, remedy that and then make sure that the things going well and sustainable in the long run. So, if you do all these and make sure they are going in, like autopilot mode with a proper lean culture, proper 5S culture, then we are there. Otherwise, we need to improve. Thank you.

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Quiz



1. Name 3 steps for Standardizing the 5S process

- i. Written documentation regarding 5S Organization
- ii. Responsibilities to be shared with all concerned people & their wholehearted commitment secured
- iii. Uniform method of observations & reporting by all

2. Name 3 steps for Sustaining the 5S process

- i. Comprehensive & repeated communications to all stakeholders is vital
- ii. Periodic address by management to all would greatly help!
- iii. Periodic Site Gemba walks by Management, periodic Audits, periodic pep talks, etc. will be required

3. What is the main difference between conventional Housekeeping and 5S practices?

Conventional Housekeeping is more focused on the physical aspect of it, for the storage and organization of your environment,
5S practices are systematic workplace management with visual emphasize - much deeper and focus is on people, seeking a change in behavioral patterns



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Supplementary Module

Link (to read and contribute)

<https://tinyurl.com/yeureghs>



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