

Introduction to Lean Construction
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Experiment 5S with Yourself First, Project Implementation, Facilitations, Why 5S May Fail, Recap

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Session 09 – 5S: Case Studies



Topics to be Covered

- [S09.01](#): Understand How to Experiment on 5S with Yourself First, Project Implementation, Facilitators, Why 5S May Fail?, Recap (The 5S Journey)
- [S09.02](#): Understand the Applications of 5S through Case Studies
- [Supplementary Module](#)



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Introduction to Lean Construction: Module 1 – Lean Basics – Session 09 – 5S: Case Studies



Now we come to the next session, session 9, where we talk mainly about case studies. So, we will look at how to experiment with 5S on yourself, how to implement in projects, what facilitates 5S, what may make it fail and then a final recap. And then there are some case studies for you to understand 5S implementation in a better way.

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S09.01: Experiment 5S with Yourself First, Project Implementation, Facilitations, Why 5S May Fail?, Recap (The 5S Journey)

- Learning objective(s)
 - To Understand How to Experiment on 5S with Yourself First
 - To Understand How to Implement 5S in Projects, Facilitators
 - To Understand Why 5S may Fail
 - To Understand the 5S Journey

Topics to be Covered Slide



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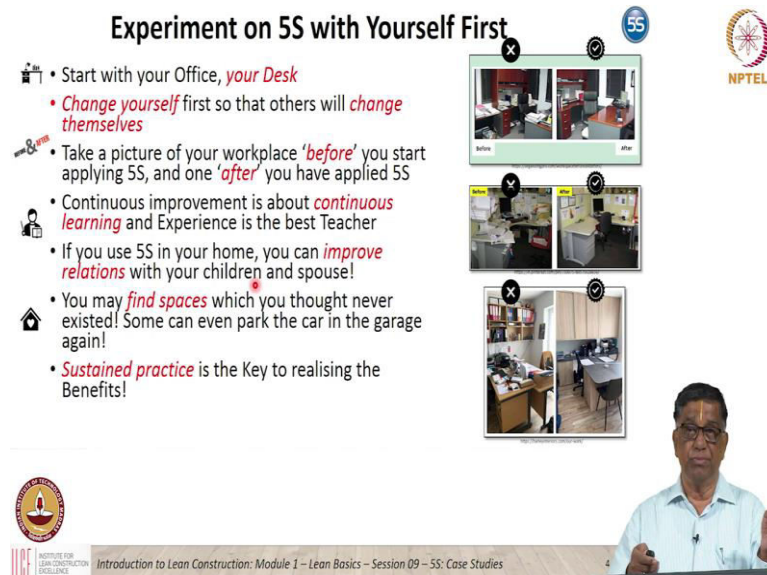


So, the main objectives for this session are to understand how to experiment with 5S on yourself, how to implement 5S at your project site, to understand why 5S may fail and work better, and then the embarking on the 5S journey. These are the main topics, which we will be covering.

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Experiment on 5S with Yourself First

- Start with your Office, *your Desk*
- *Change yourself* first so that others will *change themselves*
- Take a picture of your workplace '*before*' you start applying 5S, and one '*after*' you have applied 5S
- Continuous improvement is about *continuous learning* and Experience is the best Teacher
- If you use 5S in your home, you can *improve relations* with your children and spouse!
- You may *find spaces* which you thought never existed! Some can even park the car in the garage again!
- *Sustained practice* is the Key to realising the Benefits!



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So, first experimenting with yourself on 5S is not a very hi fi, high technology work. It is a simple exercise, and anything before you experiment on somebody else, better to try it out on yourself. A simple example, just look at your computer, or the desktop, and see how many icons you have on the desktop, how many do you use frequently, how many are not required at all, whether you are able to find an icon easily.

So, that is gives you a good idea of what exactly 5S. So, start doing 5S on your computer desktop to start with. Similarly, when you look at your office, your office itself, or your desk that can be organized better. On the right hand side, you have a number of examples of before and after organizing 5S.

The best thing should you use take a picture of your workplace, before you start doing 5S, then you do that sorting, set in order, shine, all that you do one after another. And once you are happy with what you have set up, take another picture and after some time, you have a look at it yourself, before and after. And you realize what 5S can do for yourself.

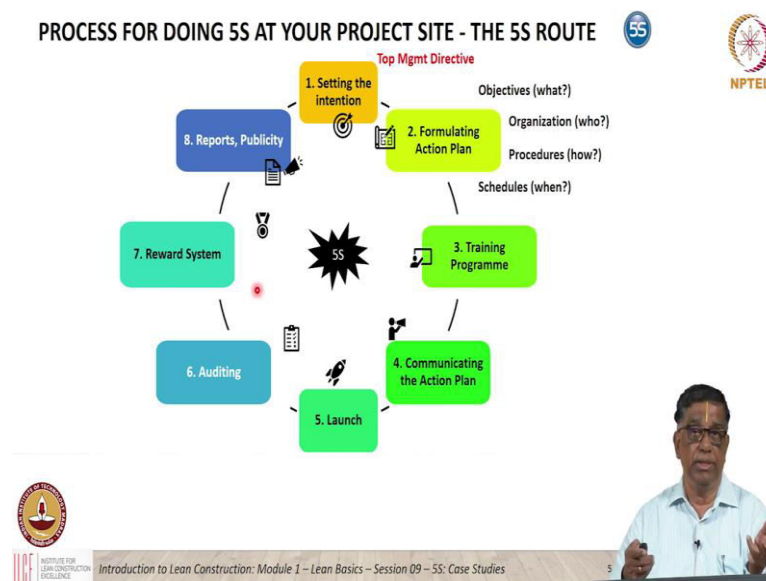
And you show it to your family. And you start practicing it in your own home. Slowly by and by your family itself, they will start appreciating the changes, which are taking place as a result practicing 5S and everybody gets happy and the whole family life becomes much

better. So, basically what we are doing is not only doing it once, it has to be reinstated continuously. We need to practice it day in and day out. Otherwise, your desk will go back to the same shape it was before you started 5S.

So, we need to be at it all the time, the same thing at desk space, or office space, or at home, or in the workplace, continuous reinstatement, continuous improvement, these are required for whichever change process you embark upon, till it becomes a matter of habit as a matter of culture, and something which you do without even thinking about that. So, we need to come to that particular stage.

And if you do all that, you find also a lot of space at home, which you never thought existed as a joke, people even say you can park your garage again back. So, many times what we do we keep on dumping stuff in garage, the car cannot be parked there. So, you organize everything and the car can go back to your garage. So, sustained practice is what is required for reaping the benefits.

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Now, you extend that same practice into your project site. How do we start 5S? First, I said top management directive, their commitment, that is very, very essential and that has to be seen perceptibly by all the people at the site. So, there has to be a clear directive, maybe a spoken message, a circular, something on the notice board, maybe a visit by the top management to the site.

So, all these actually will give a clear signal that the top management values 5S. And then of course for any process, one needs to formulate an action plan. What is an action plan? There

are four main elements, what do we do? Who will do it? How we will do that and when will we do that? So, these four parameters have to be addressed. And we need to organize the objectives, the Organization for doing the work, the procedures, or process and the time schedules and timeline.

So, once you do that you are ready with the action plan. Then what do we do? We have a, there is a process called mockup, for example, before you start any work, you make a trial, you do something, make a trial, and then make sure everything is all right. Similarly, we can have a training program at the site, for all your staff, for the labor, for your subcontractors, and so on. So, nothing like having a good training program to communicate the objectives of doing 5S, how to do that? All that.

Then, of course, you need to communicate your action plan, also to the main rollout, after the training program comes the main rollout. For that, we may have a number of notices, you may have short meetings, toolbox meetings in the morning, and so on. So, the clear communication has to go out to all the people at the site about the four points. What do we do? Who will do it? When we will do it and how we will do that? Then, of course, you launch.

I always recommend the launch of a 5S should be like a major festival, put up, a number of flags, face toons, colorful items, and so on. And make sure that people are able to appreciate, that yes, 5S is being launched at the site. So, that we should be very clear about that. And auditing. So, what are what we do is whatever we do, we need to have regular audits, to make sure that things are going alright, so we have an audit for S1, S2, S3, S4 and S5. We need to have clear cut items on which the audits are being a conducted.

And the audit will not be done by the same person all the time, it will be done by different people. So, we need to have commonality between all these people. That is why the standardization part comes in. So, we write down what are the parameters on which the auditing has to be done? What are the scores to be assigned to each factor in this list of parameters? And then we also give weightages for each of these 5S's, and then get the aggregate score. And that is your audit score.

So, auditing may be done initially, at closer intervals, like for example, every week, and so on, then you also have monthly audits, which are more rigorous. And wherever somebody comes from head office, you do special audits, ask them to conduct an audit independently,

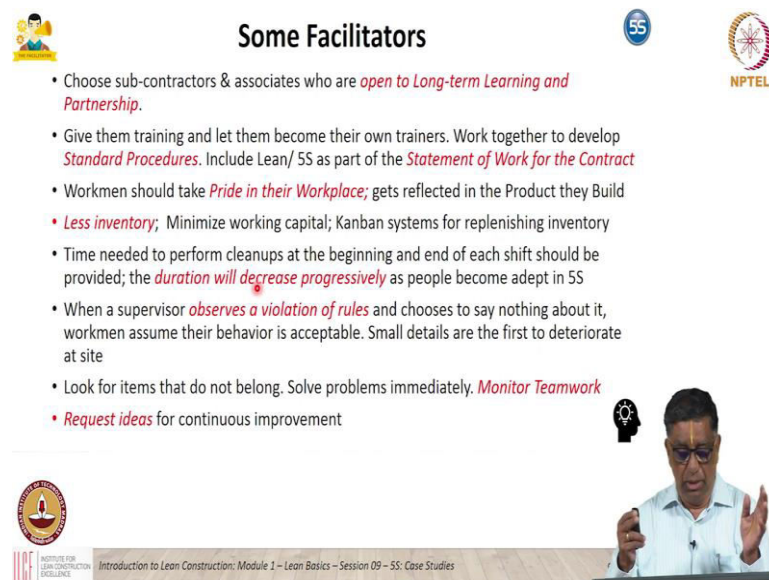
and get their feedback, and then use that, the 5 whys keeping asking why, why, why, why something has not been done properly, remedy all that, and then you are through.

And to incentivize the people, what we can do is? When you are conducting audit, you may conduct audit in different parts of the project, and keep their scores individually. Whoever is doing a good job, reward them. Nothing like recognition that spurs people on to better and better performance. So, we have a reward system. And, we also give a lot of publicity, to what has been done well.

There is something called 5S newsletters. You may print on a paper and then distribute to all the people, or you may put upon the notice board, or sent an email, with a virtual message, what exactly has gone well, and what is yet to be improved upon, and so on. So, communication, recognition, rewarding, and celebration.

So, these are the things, which will make sure that your 5S launch out, is going well, and the people that are all brought on board, and they all get to enjoy what you are doing with the 5S process. And then it will be sustainable. And the fifth 5S sustainability that will be fulfilled.

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Some Facilitators

- Choose sub-contractors & associates who are *open to Long-term Learning and Partnership*.
- Give them training and let them become their own trainers. Work together to develop *Standard Procedures*. Include Lean/ 5S as part of the *Statement of Work for the Contract*
- Workmen should take *Pride in their Workplace*; gets reflected in the Product they Build
- *Less inventory*; Minimize working capital; Kanban systems for replenishing inventory
- Time needed to perform cleanups at the beginning and end of each shift should be provided; the *duration will decrease progressively* as people become adept in 5S
- When a supervisor *observes a violation of rules* and chooses to say nothing about it, workmen assume their behavior is acceptable. Small details are the first to deteriorate at site
- Look for items that do not belong. Solve problems immediately. *Monitor Teamwork*
- *Request ideas* for continuous improvement

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Look at some of the facilitators, we have been telling you in the various talks. So, the top management directive, that goes a long way. And then we need to have a long term learning and partnership with your subcontractors and associates. So, mainly in many sites, the work is being done by many subcontractors and vendors. So, we need to make sure that we also bring them on board, along with your own staff and your own labor.

And then we need to have standard procedures, that is very very important to make sure that people are all on the same page. They do the same thing in the same way and so on. So, we need to have well laid out SOPs, or standard operating procedures. And then once you give this training program to the labor, we also reinforce them with toolbox talks every day morning and have special exercises.

So, they should take pride normally, you will see, have seen in 5S sites, the labor pick up the practice very easily, they are quite happy to work in a 5S site and follow all the procedures. I will show you one case study later. And then ultimately you find that you have less inventory, less working capital. Nothing like the Kanban system we talked about earlier for regulating your inventory.

So, we need to keep any buffers in Lean practices, the practice of keeping buffers becomes lesser and lesser, because you are sure about what you are doing, you have much higher certainty levels, and then your processes are well laid out. So, we do not need to keep any buffers at use the Kanban system to give you an alert, when things are going to when supplies are going to run out and replenish them well in time.

As an as you keep on doing the work, you will find that the durations are decrease progressively, you can for example, cleaning up, that does not take as much time as it takes in the beginning. So, once the people are used to it, the sorting, the setting in order and the shining, they all take progressively lesser and lesser time.

But of course, we need to earmark sometime in the beginning of the shift and the end of the shift for people to set the place properly before the leave. Because you do not want the next man to come and find that your workplace is not tidy, not clean and so on, we need to do that. And all this has to be watched by the supervisors. The moment a supervisor observes some violation and keeps quiet about that, that sends a signal to the workman that yes, that behavior is acceptable, we should never give room to that kind of understanding.

Anytime we see something not being done properly, we need to tell the people immediately there is something which needs to be corrected and made in a better manner. So, everybody gets a signal that it is a relentless process with continuous improvement to come to the top basis for 5S.

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The slide is titled "WHY 5S MAY FAIL?". It features a vertical list of six reasons, each in a colored box with an icon to its right. The reasons are: 1. Lack of Top Leadership Commitment & Drive (yellow box, LEADER icon with a red prohibition sign). 2. No Systems at the Site (light green box, NO SYSTEM icon). 3. Lack of Self-Discipline at the Site (green box, NO SELF-DISCIPLINE? icon). 4. Not Understanding "Why" –the reasoning behind 5S (light green box, There Is No Reasoning icon). 5. Lack of Motivation to Change, Stubbornness (teal box, icon of a person with a hand on their forehead). 6. Lacking Desire to Improve (blue box, No Desire icon). The slide also includes the 5S logo, NPTEL logo, and IIT Bombay logo. A video inset shows a man in a light blue shirt speaking.

Even after doing all these, sometimes you know 5S may fail. There are a few reasons, which we can identify and make sure that they never occur. Of course, the first is top management commitment, if it is only a lip service and not something, which is coming out as a serious matter, again it may not be that well.



And then the site has to have systems inherent systems, we do not inject system for 5S only into a site. The site must have its own well established systems and practices, which are followed for the various activities and we only add 5S to the existing systems, another very important point. The fifth point if we look at sustainability, the fifth S that stands for self-discipline also.






So, unless the staff and labor have inherent self-discipline and want to practice 5S voluntarily and in a good way it will not succeed in the long run. The role of the top management is to instill training and instill the self-discipline into the people concerned and whenever something goes wrong, immediately find out the reason by using that 5 why's that process and remedy the problem which has gone wrong.

And then of course, we need to motivate the staff and labor and subcontractors and so on by constant talking to noticeboards and our own behavior, we set an example and so on. So, finally, we need to inculcate that deep desire to improve, that has to come from top to bottom and permeate into all parts of the site in all the stakeholders. If that is done, there is no way 5S can fail.

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Recap - The 5S Journey







Sort **Set in Order** **Shine** **Standardize** **Sustain**

What is 5S? • A way to improve the *workplace organization* • Can be done as a *stand-alone effort* • Builds in the controls to keep the *space neat, well accessible & efficient*

What is Visual Management? • Being able to look at any given process and know the status of the operation

The Goals of Visual Management: • The ability to identify, at a glance, how well an area is operating to its: • Goals • Status of production • Problem solving effectiveness

• Anybody should be able to walk up to any work area and *immediately know what is going on.*



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So, just to recap, 5S you know is actually a workplace organization, a visual management exercise and many sites when people ask me what I can do to start Lean management, I start with 5S, because 5S inculcates a matter of self-discipline, and then you can see the results very, very quickly.

So, start with can be a standalone effort. And then the space can be kept neater, the efficiency improves, productivity improves and so on. And the basic meaning of visual management is, somebody coming to the site and having a look, immediately, what is going on? Where is it going on? How is it going on? There are a number of charts to explain how are things going?

So, the 5S site, they are actually having very good visual management. And the main goals are to like I said, to understand the goals for example, the daily targets, weekly targets and so on. What are the quality standards? What is the actual status of production every day every shift? And then how well do we solve our problems? You will be even put up a list of problems and how we solve them.

And anybody finally, looking, walking into a site will know that it is a 5S site is very, very clear and quite apparent. And we also know exactly what work is going on where. So, all these actually are well visible indicators of a good 5S site. So, I wish you all the best in practicing 5S and reaping all the benefits. So, we will now see some of the case studies where we have been practicing 5S and reaping a lot of benefits. Thank you.