



Bulletin

5S's – Road to Improvement

Introduction

The 5S's is a technique of **Lean Thinking**, which Kinetics adopted from manufacturers in Japan and applied to its operations to improve productivity. Toyota, the automobile manufacturer, originated the idea, and it has been successfully implemented by many American companies, including General Motors, Boeing, Honeywell and TRW.

Although the original 5S's are Japanese, Kinetics adopted Boeing's English interpretations:

- **Sorting** – straighten up
- **Simplifying** – put things in order
- **Sweeping** – clean up
- **Standardizing** – use consistent ways to do things
- **Self-Discipline** – monitor your own actions

With each word are specific actions taken to improve work areas and processes. By applying these actions, Kinetics' employees were able to reduce wasted time, materials and information, thereby increasing their productivity.

The following are the implementation guidelines for each step of the 5S's.

How the 5S's Work

Kinetics staff first learned about the 5S's while studying ways to improve shop productivity. Next, the company participated in a pilot **Lean** training course with a local consultant. Through the course, Kinetics staff started implementing the 5S's in one of its shops. After a learning curve and some adjustment to the new procedures, the following changes became apparent:

- Craft employees enjoyed coming up with ways to apply the 5S's;
- Shop space increased by 1000 square feet at a time when an expensive shop expansion was being considered;
- The distance products traveled through the shop was reduced, saving time and employees' energy;
- Returned unused material was valued at \$5,000;
- Flow of materials through the shop improved, reducing cycle time; and
- A safer and cleaner shop environment was created.

After developing the 5S's in that shop, Kinetics applied the program to other shops, its tool and equipment repair operations, its purchasing office and

to some of its field construction sites. The following Improvements resulted:

- Streamlined the tool return and repair process by eliminating the tracking of tools valued less than \$50;
- Labeled the bins to ease and simplify retrieval of returned tools;
- Eliminated several steps in the tool repair process which reduced paperwork and time (about nine hours per week) and increased productivity;
- In purchasing, buyers reorganized their desks so that material requests, pending purchase orders, and other records could be processed more efficiently, making it easier to clear work bottlenecks and to cover staff who were out of the office;
- At work sites, gang boxes were organized so that tools could be found more quickly (i.e., harnesses were labeled with the employee's name and placed on vertical racks, which reduced the morning routine by 20 minutes for a crew of 22 employees); and
- At other shops, carts were modified for the storage of tools in specifically designed holders when not in use; clamps on jig tables were color-coded to indicate the type of clamping needed (reducing the time needed to adjust clamps); and clean rooms were kept fully stocked with clean-room consumables for easy access when needed.

Implementing the 5S's

Based on Kinetics' pilot training at its first shop, an in-house training process was developed to introduce the 5S's that consisted of the following:

- **Management Overview:** one-hour sessions to introduce managers to the program and to help them understand their role;
- **5S's Training:** two-hour sessions for employees that included briefings on the program's concepts, discussions on how those concepts should be applied within their own work areas, and where to begin;
- **Monthly Reviews:** Customized check sheets were developed for each shop or office that the department could use to perform self-audits of progress achieved in implementing the 5S's. The check sheets also helped staff to identify additional ways to apply the techniques.

A basic part of the training is a 5S's video tape that Kinetics borrowed from Boeing showing how the program was applied in a Boeing office and shop. The visual tool helped the employees see how others had applied the concepts and how it could be used in both shops and offices. Discussion followed on how the 5S's concepts could be applied in Kinetics' operations.

Kinetics' 5S's Implementation Guidelines

Sorting

Step 1: Red-tag or mark all items to be considered as unnecessary, such as materials or parts stacked around the site, excess parts or inventory, rusted and or age-deteriorated items, outdated posters, notices, memos and disorganized paper piles on desktops.

Step 2: Review all items and sort them into the following groups:

- In use, or will be used;
- Not used or will not be used; and

- Unlikely to be used.

(Tip: Hold a “use” auction with employees to determine if unused or unlikely to be used items can be used.)

Step 3: Get rid of all items that are not, or are unlikely, to be used and inventory those that are or will be used.

Step 4: Sort those items that are in use or are likely to be used into three groups:

- Rarely used (once or twice each year);
- Occasionally used (once or twice each month); and
- Frequently used (daily or weekly use).

Simplifying

This concept involves creating a designated and marked place for everything according to the frequency of its use. The goal is achieved when:

- Items used most often are easily accessible, thus reducing to almost zero the time spent finding an item; and
- Anyone, including an employee who does not work in the area, could put an item back in its designated place according to the markings used.

Step 1: Review all frequently used items and determine where to put them. Those items used most often should be stored closest to the work area, and those used less often should be stored further away. Tools and supplies should be stored safely.

Step 2: Develop a process for storing items that will enable even new employees to return items to their designated places and allow anyone to readily

determine when items are misplaced or missing.

Consider the following:

- Shadow boards;
- Mark the item and its location;
- Color-code; and
- Label drawers with lists of their contents.

Step 3: Develop ways to replace usable items daily, such as:

- Establishing lead times for replacement of supplies used daily;
- Determine minimum and maximum supply levels and mark them accordingly.

Sweeping

Studies show that a clean work environment is safer, more productive, and more inviting to workers. Sweeping is visually and physically reviewing a work area to place items in their designated storage areas and to clean the work area. Sweeping occurs after clean-up procedures are completed and work areas are orderly and safe.

Suggested activities include:

- Determine regular schedules for cleaning work/break areas;
- Acquaint all employees, including those with daily 5S's responsibilities, with the program's goals, objectives, and procedures;
- Post area cleaning guidelines and schedules;
- Keep tools, machinery and office equipment maintained and in operating condition;
- Keep work/break areas, office and conference rooms clean and orderly;

- Establish a dependable, documented procedure to reduce hazardous waste and minimize the use of chemical products; and
- Perform safety inspections on a regular basis.

Standardizing

Standardizing involves the development of consistent processes for each key work function and for the application of the 5S's throughout the operating area to achieve a high level of quality. For standardization to succeed, employees must understand the value of using and maintaining methods, such as:

- Documenting all current processes;
- Using the standard 5S's format for communications board/binders;
- Installing standard visual controls for the area (i.e., signboards, shadow boards, outlines, etc.);

- Using the 5S's agreements;
- Documenting all 5S's agreements; and
- Incorporating and documenting all changes.

Self-Discipline

Self-discipline involves making and keeping commitments and agreements on all the 5S's and includes:

- Ensuring that employees follow all 5S's rules for Sorting, Simplifying, Sweeping and Standardizing;
- Documenting all changes;
- Posting in work areas a daily activity checklist for the 5S's;
- Regularly updating the 5S's communication board/binder with current personnel assignments; and
- Keeping the work area orderly and clean.

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