



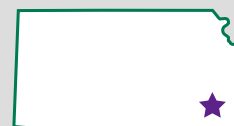
GRANDVIEW CABINETRY

Intern: Averil Baker
Major: Biological Systems Engineering
School: Kansas State University



Company background

Grandview Cabinetry manufactures finished wood kitchen and bathroom cabinets for both single and multi-family buildings. The company operates three facilities— a hardwood mill in Cherryvale, Kansas; a laminate processing site in Parsons, Kansas; and a softwood mill and main cabinet build/paint site in Parsons, Kansas. The company was founded in 1947 as Grandview Products Co. in Grandview, Missouri, but later expanded and relocated to Parsons, Kansas, in 1965. In 2018, Grandview Products Co. was acquired by Woodmont Cabinetry and rebranded as Grandview Cabinetry. Grandview's company motto is "integrity ingrained."



Project background

Grandview Cabinetry partnered with the K-State Pollution Prevention Institute to host a sustainable materials management, or SMM, and pollution prevention, or P2, intern to investigate two waste projects and three P2 projects. These projects could reduce waste to landfills, reduce environmental emissions and save costs. These projects mainly come from paint and processing operations at the main plant in Parsons. A solution was identified and recommended for each project. Several of these projects are connected to work a 2017 PPI intern completed.

Incentives to change

Grandview has three core promises: keep manufacturing jobs in America, take care of the environment and produce the highest-quality cabinetry. This second core promise is the driver for this partnership and is what drove Grandview to implement environmentally sound practices at its facilities, such as wood and cardboard recycling, use of low VOC and HAP paints, used solvent recovery and litter pick-up around company grounds. The intern's projects support Grandview's commitment to community and environment while promoting innovation and economic success.

PROJECTS REVIEWED FOR P2 AND SMM POTENTIAL

Solvent recovery system assessment

Grandview uses solvents to clean spray guns and to purge paint lines between color changes. The initial and ending fluid from line flushes is stored in red buckets, and the middle of the flush is stored in green buckets. At the end of the day, green bucket waste is recovered by distillation and red bucket waste is disposed of. The distillation system was not functioning at the efficiency Grandview desired, so the intern assessed the system and discovered red and green bucket waste was being swapped and the distillation temperature was too low. The intern recommended increasing the distillation temperature according to average product usage and to distill both red and green bucket waste if liquid enough. With the changes already implemented, Grandview will recover 698 additional gallons of solvent per year, saving \$13,716. Hazardous waste disposal costs will be eliminated for the amount mentioned, saving another \$4,256 per year.

Compressed air leak audit

Nearly all industrial equipment used at Grandview requires compressed air. With the help of this year's PPI circuit rider, the intern conducted air leak audits at all three Grandview locations using a UE Ultraprobe 9000. Eighty-four air leaks were identified. Fixing these leaks would save 436,917 kWh annually, equivalent to \$60,419, giving a simple payback period for fixing the leaks of one week.

Air pollution investigation

Before Grandview was acquired by Woodmont Cabinetry, they were exclusively using Gemini brand paints and finishes, but now they've expanded to using Sherwin-Williams products as well. The new product has less VOC and HAP content on average. The intern investigated potential air pollution reductions that could be achieved by exclusively using Sherwin-Williams products. The reduction in VOCs was calculated to be 187 tons and the reduction in HAPs was calculated to be 75.4 tons. This project requires more research to determine its feasibility.

PROJECTS REVIEWED FOR P2 AND SMM POTENTIAL, CONTINUED

Power Factor Correction

Each of Grandview's three locations has a low enough power factor — how much energy is used versus how much is drawn from the grid — that the service provider is charging penalty fees. The previous 2017 intern noticed this and recommended a power factor correction project, but the project was not implemented. Each facility is still incurring fees, so the 2022 intern revisited and updated the calculations and recommendations. The investment for the three facilities to implement would be \$62,194 and the annual savings would be \$69,355, giving a simple payback period of 11 months.

Solid waste analysis

In order to assess changes in Grandview's solid waste management, solid waste disposal and diversion invoices from as far back as 2019 were gathered and analyzed. A graphical depiction of the tonnage and costs was created. This allows Grandview to review the data for both successes and potential future improvements or diversion options.

SUMMARY OF 2022 P2/SMM INTERN RECOMMENDATIONS

Project	Annual estimated environmental impact	Estimated cost savings (\$/year)	Status
Solvent recovery system assessment	698 gallons solvent	\$17,972	Implemented
Compressed air leak audit	436,917 kWh	\$60,419	Recommended
Air pollution investigation	187 tons VOC 75.4 tons HAP	N/A	More research needed
Power factor correction	N/A	\$69,355	Recommended
Solid waste analysis	N/A	N/A	Previously implemented
Total¹	698 gallons solvent 436,917 kWh	\$147,746	
GHG reductions^{1,2}	460 metric tons CO₂e		

¹Does not include projects "not recommended" or where "more research needed" or "previously implemented."

²EPA P2 GHG Calculator with Cost, Apr. 7, 2016 & EPA WARM Tool- Version 14, Mar. 13, 2018