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FEDERAL WAGE SYSTEM JOB GRADING STANDARD FOR SHEET METAL MECHANIC, 3806

Workforce Compensation and Performance Service

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SHEET METAL MECHANIC, 3806

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WORK COVERED

This standard is used to grade nonsupervisory jobs which involve fabrication, modification, repair, assembly, and installation of sheet metal parts, items, and assemblies. Metals include but are not restricted to galvanized and black iron, aluminum and aluminum alloys, stainless steel, copper, and brass sheets, lead alloys, and bronze.

Sheet metal has no specific thickness. Although metals one-fourth inch thick or less are usually considered to be sheet metal, hard and brittle metals are usually thinner while soft metals and alloys may be up to one-half inch.

WORK NOT COVERED

Jobs that involve the fabrication and repair of metal tubes and pipefittings; the repair of mobile equipment, body, fender, and radiator parts; or the operation of sheet metal forming machines are not covered by this standard.

TITLES

Jobs covered by this standard below the grade 10 level are to be titled *Sheet Metal Worker*.

Jobs covered by this standard at the grade 10 level and above are to be titled *Sheet Metal Mechanic*.

Jobs which are graded at the grade 10 level and above and are engaged in the manufacture and installation of aircraft sheet metal items are to be titled *Sheet Metal Mechanic (Aircraft)*.

GRADE LEVELS

This standard does not describe all possible levels at which jobs may be established. If jobs differ substantially from the skill, knowledge, and other work requirements described in the grade levels of this standard, they may warrant grading either above or below these grades.

HELPER AND INTERMEDIATE JOBS

Helper and intermediate sheet metal workers are covered by the U.S. Office of Personnel Management Job Grading Standards for Trades Helper and Intermediate Jobs. (Grade 10 in this standard is to be used as the "journey level" in applying the Intermediate Job Grading Table.)

3806-8 SHEET METAL WORKER, GRADE 8 3806-8

General: Sheet metal workers at this grade, plan, lay out, construct, and install articles such as deflectors, pans, straps, containers, wing patches and flaps, metal furniture, and other items which have predominantly straight edges and regular curves. They work under the close supervision of a higher graded worker or a supervisor.

Skill and Knowledge: The grade 8 workers must have the skill to plan, manufacture, and install cylindrical, square, or rectangular-shaped objects that have easily constructed fastenings such as single and double-hem edges and single, double, or grooved seams. They cut and form by using basic hand and powered tools such as hammers, chisels, hand snips, band and circle saws, squaring shears, seamers, bar folders, brakes, and stakes. The grade 8 workers assemble parts by seaming, bolting, screwing, riveting, tacking, spot-welding, or soldering. They use measuring instruments such as pocket rules, hook rules, flexible and semi-flexible steel rules, compasses, and other hand-measuring devices to measure plans and patterns.

A knowledge of arithmetic is used at the grade 8 level to calculate and scribe patterns, using shop principles of parallel or radial line development.

Responsibility: The grade 8 workers work from clear-cut work orders and instructions from a supervisor or higher grade worker. They use predetermined methods, materials, and machines. Specifications are clearly described, or patterns or templates are provided in work orders and instructions. At the grade 8 level, the workers may be spot-checked during the progress of the task or work order. A supervisor or higher grade employee is available for advice on unusual problems and to check the completed work to see that it meets requirements.

Physical Effort: Physical exertion is moderate and includes prolonged standing on production lines; climbing up and down ladders and scaffolding; working in cramped and awkward positions while installing items; and reaching, lifting, and bending while using hand and powered tools. Weight lifted seldom exceeds 23 kilograms (50 pounds).

Working Conditions: They work both inside and outside and are subject to a moderate amount of noise and vibration from shop machines and to a variety of weather conditions. Workers are subject to cuts, bruises, falls, and burns.

3806-10 SHEET METAL MECHANIC, GRADE 10 3806-10

General: Sheet metal mechanics at this grade develop patterns and lay out, cut, form, join, assemble, and install items and systems such as heating, air-conditioning and ventilating pipes, and conduits; drying ovens; bulkheads; airframes, spars, airscoops, control and flying surfaces; metal furniture; and other items and systems which have combined straight and curved edges or irregular curves and planes. They work under general supervision.

These kinds of items are more difficult to plan and lay out than the kinds of items mentioned at the grade 8 level because of the more numerous and irregular angles, planes, and curves. They are more difficult to cut, bend, and form than the types at the grade 8 level where curves are more regular and angles are usually standard. Items such as those mentioned above may be bent or formed to a variety of angles or curves with varying pitch or circumference. The items are also more difficult to construct at the grade 10 level because the mechanics work with more of a variety of assembly joints and hems and edges and they operate more complex hand and power machines such as sliproll forming machines, box and pan brakes, rotary machines with extra forming rolls, and crimpers and beading machines.

To devise and calculate a pattern for these kinds of items, the grade 10 mechanics apply principles of radial-line development combined with parallel-line development. The grade 8 workers do not use both on the same item because the less complex patterns for items such as those at the grade 8 level can usually be developed by one method or the other.

Skill and Knowledge: The grade 10 mechanics use planning, layout, and construction skills to manufacture items and systems with dovetailed seams, set-in-bottom seams, burred-bottom seams, or wired or lock seams. Skill is required to use more complicated shop tools and equipment than the grade 8 workers such as hand or powered crimping, burring, turning, and beading machines, and soldering and welding equipment. They work with more kinds of metals than the grade 8 workers, including stainless steel, copper sheet, magnesium, honeycomb material, and alloys.

The grade 10 mechanics use knowledge of more complicated shop mathematics than the grade 8 worker to figure irregular curves, angles, and pitch. They must know how to evaluate structural damage to sheet metal systems or items in order to plan and lay out repair and modification projects. They use more complicated measuring instruments such as protractors; calipers; snap ring, height, depth, dial, and screw pitch gauges; and other hand-measuring devices to measure plans and projects. The grade 10 mechanics use more knowledge of pattern and template making than the grade 8 workers to develop clear instructions when planning projects for lower graded workers to follow.

Responsibility: The grade 10 level work is done from written or oral instructions, blueprints, sketches, or personal inspection of the item or system to be manufactured or repaired. The mechanics plan their own work or devise a plan for others to follow. They make templates where necessary and select, use, or prescribe methods, materials, and machines most appropriate for the

assigned project; riveting, soldering, and spot-welding are done for appearance as well as strength. The completed work is spot-checked by the supervisor for quality and accuracy.

Physical Effort: Grade 10 mechanics use greater physical effort than the grade 8 workers because they spend longer periods of continuous exertion when bending and shaping the more complex items and in constructing larger and bulkier systems.

Working Conditions: Working conditions at this grade are substantially the same as those described at the grade 8 level.

3806-11 SHEET METAL MECHANIC, GRADE 11 3806-11

General: Sheet metal mechanics at this grade develop plans and templates for, or lay out, construct, assemble, and install irregular items and systems with a minimum of accompanying instruction. The sheet metal items and systems have various combinations of features such as cornices, canopies, transition elbows, and oblique, truncated, or frustum cones. Objects and systems with these features are more difficult to make and join than those at the grade 10 level because they are usually unconventional, one-of-a-kind items, systems, or apparatus for a one-time project or in support of experimental or testing activities. In addition to the parallel-line and radial-line development which is typical at the grade 10 level, the grade 11 mechanics frequently use principles of triangulation.

The grade 11s use the same hand and power machines as the grade 10, but they adapt them to special use for the specific project.

Skill and Knowledge: Planning, layout, and construction skills are used to devise complex templates and patterns and to shape, construct, and assemble objects with combined shapes such as rectangular, cylindrical, tapered, or truncated cones, using the least number of seams and amount of metal.

The grade 11 mechanics adapt shop practices, methods, and techniques to fit each new situation. They also apply a thorough knowledge of metals and how their characteristics fit the needs and requirements of the project because the assignments are usually expressed only in terms of expected results.

Skill and knowledge at this level is greater than at the grade 10 level because the type and complexity of items require more ingenuity and imagination to plan, lay out, form, assemble, construct, and install.

Responsibility: The grade 11 mechanics receive their assignments with a minimum of accompanying information concerning methods to be used. The mechanics independently plan, construct, and install or direct the installation of the objects or systems. Completed projects are accepted as prototypes, hardware for attachments to or in experimental devices, or for manufacture as a standard item.

Responsibility at this level is greater than that at the grade 10 level because the items or systems are more difficult to plan, construct, and install, with responsibility for assignments from the initial planning to completion.

Physical Effort: No more physical effort is required at this grade than at the grade 10 level.

Working Conditions: Working conditions at this grade are substantially the same as those at the grade 8 level.