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**Federal Wage System
Job Grading Standards**



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**FEDERAL WAGE SYSTEM
JOB GRADING
STANDARD
FOR
BLOCKING AND
BRACING,
4602**



**Workforce Compensation
and Performance Service**



BLOCKING AND BRACING, 4602

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WORK COVERED

This standard is used to grade nonsupervisory work involved in blocking, bracing, staying, and securing cargo for shipment by land, sea, or air. It requires skill in constructing, placing, and installing wooden blocks, wedges, bracing structures and other staying devices, as well as skill in securing items using wires, ropes, chains, cables, plates, and other hardware.

WORK NOT COVERED

The following kinds of work are not covered by this standard:

- Constructing, altering, and repairing buildings, and related carpentry work. (See [Carpentry Series, 4607.](#))
- Making wooden boxes, crates, and containers. (See [Wood Working Series, 4604.](#))
- Work limited to prefabricating blocks, wedges, braces, and other wooden staying items. (See [Wood Working Series, 4604.](#))
- Packing and repacking items in containers, and labeling containers. (See [Packing Series, 7002.](#))
- Applying preservative materials to items for storage and shipment. (See [Packing and Processing Family, 7000.](#))
- Making cardboard boxes. (See [Carton/Bag Making Machine Operating Series, 5435.](#))
- Rigging and moving objects, using equipment such as gas chainfalls, gin poles, tackle blocks and gallows frames. (See [Rigging Series, 5210.](#))

TITLES

Jobs graded by this standard are to be titled *Blocker and Bracer*.

GRADE LEVELS

This standard describes two grade levels: Grades 7 and 8. It does not describe all possible grade levels for this occupation. Jobs which differ substantially from the skill, knowledge, and other work requirements at the grade levels described in this standard may be graded at levels other than those described based on the application of sound job-grading methods.

4602-7**BLOCKER AND BRACER, GRADE 7****4602-7**

General: Grade 7 blocker and bracers typically secure cargo such as that described below inside or upon conveyances which have regular, rectangular, unobstructed cargo areas. Typical work assignments at this level include the following:

- Construct and install wooden blocks, wedges, gates, braces, and other staying devices to separate and secure crated and boxed items inside or upon box cars, gondolas, flat cars, vans, trucks, or other conveyances which have level floors, straight sides, and no odd-shaped or curved overhead areas, framework, or obstacles protruding into the cargo area; cargo may include boxed munitions and stable, standard, containerized items; and
- Tie down, guy, block, and secure cargo such as passenger cars, trucks, jeeps, small combat and engineering or construction vehicles, and similar, regularly transported items, using cables, chains, wires, ropes, chocks, cleats, pneumatic dunnage, axle braces, turnbuckles, and clamps.

Grade 7 blocker and bracers follow existing instructions and work practices. They determine necessary sizes for braces, wedges, cables, and other staying devices by measuring or estimating them before and during construction or installation, and they insure that cargo is sufficiently secure for the type of transportation involved. They may also band accessories and place labels, directions, or handling instructions on items. Their work is checked for compliance with regulations, guidelines, and instructions.

Skill and Knowledge: In blocking, bracing, and securing cargo, as described above, grade 7 blocker and bracers:

- Apply a knowledge of frequently used agency regulations or practices covering standard, routine blocking and bracing procedures in planning the type and placement of blocks, wedges, shims, bracing structures, guying, and other staying devices;
- Apply a knowledge of the uses of various kinds, sizes, and amounts of materials and hardware (e.g., lumber, cables, straps, turnbuckle, anchor plates, rope, and chain), and are able to identify and select the appropriate items;
- Apply skill in measuring areas to determine sizes of blocking and bracing materials and structures, using rulers, tapes, squares, etc.; and apply skill in estimating sizes for similar items;
- Apply skill in cutting to proper size and angle, fitting, and securely installing blocks, wedges, and parts for wooden bracing structures, using hand and portable power saws, pneumatic nailing guns, impact wrenches, jacks, hammers, sledge hammers, and fastening devices Such as spikes, nails, and bolts;

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- Apply skill in guying, lashing, tying down, and securing items with cable, chain, steel straps, wire, rope, bolts, etc., using turn-buckles, crimpers, cable stretchers, wrenches, and bars;
- Apply knowledge of designs for, and skill in constructing, a variety of bracing items and structures of standard, common design, such as cross braces, "K" braces, car gates, "A" frames, rectangular false floors and similar items inside conveyances which have straight walls, level floors, and unobstructed interiors; and
- Apply the ability to add and subtract in computing lengths and widths of bracing and guying items, and in adding weights to determine the best placement of cargo.

Responsibility: Grade 7 blocker and bracers follow guidelines, instructions, and existing work practices which indicate the work location, type, and amount of cargo to be secured, and general type and placement of blocks, braces, wires, chains, cables, or other staying devices. Most work is similar to previous recurring assignments. Non-routine work assignments typically include onsite guidance and direction.

Grade 7 blocker and bracers use judgment in insuring that individual parts, structures, and devices installed will prevent cargo movement and damage, considering the type, weight, and placement of the load. Their work is checked for compliance with regulations and instructions and to insure that cargo is sufficiently secure for the planned transportation.

Physical Effort: Grade 7 blocker and bracers perform heavy, strenuous, tiring work for prolonged periods. They continuously lift, carry, and position tools and materials weighing up to 20 kilograms (45 pounds), and often move or position extremely heavy items using jacks, levers, or assistance from other workers. Their work continuously involves standing, stooping, reaching, or similar physical activity. They sometimes work in cramped or awkward positions and may have to climb upon or crawl under vehicles or structures.

Working Conditions: Grade 7 blocker and bracers work both inside and outside and are frequently exposed to disagreeable heat, coldness, dampness, wind and rain.

Grade 7 blocker and bracers are frequently exposed to noise and to possible cuts, abrasions, and splinters from power sawing, handling lumber, spiking, nailing, and other work. They are exposed to nose and lung irritation from dust and sawdust. They are sometimes exposed to possible injuries from falling objects, swinging crane loads, etc.

To avoid injuries, grade 7 blocker and bracers may wear protective eyeglasses, a face shield, protective ear devices, gloves, hard hats, hard toe shoes, or other protective equipment.

4602-8**BLOCKER AND BRACER, GRADE 8****4602-8**

General: Grade 8 blocker and bracers secure freight such as heavy, unbalanced machinery, vehicles, and equipment; artillery; odd-shaped containers; large explosive bombs, rockets, and missiles; sensitive electronic equipment; and similar cargo in a variety of conveyances such as ships, aircraft, vans, gondola cars, box cars, and barges. The following assignments are typical of grade 8:

- Install blocking and bracing against nonrectangular, irregular, slanted, sloped, or curved walls, floors, sides, overhead areas, etc.;
- Install blocking and bracing around obstacles such as columns, plumbing, or other utility fixtures; and protruding structural framework such as web frames;
- Make, fit, and install wooden bracing to secure odd-shaped boxes and crates, vehicles and craft, large bombs or missiles, or sensitive unsheathed equipment to withstand severe stress such as that which results from storm-caused tossing at sea;
- Block and brace, and secure uncrated, uncontainerized equipment which is sensitive, hazardous, or unusually large or heavy, and is frequently unbalanced or fragile;
- Build temporary trestles, false floors, decking, bulkheads, and cribbing in odd-shaped cargo areas or around obstacles; custom make and place large saddles, cradles, and supports in conveyances.

Grade 8 blocker and bracers determine best work methods and materials for securing items to prevent shifting or damage; this requires a knowledge of regulations, agency guidelines, and standard work procedures.

Grade 8 blocker and bracers' work is spot checked for compliance with regulations.

Skill and Knowledge: In accomplishing the blocking and bracing described above, grade 8 blocker and bracers:

- Apply a knowledge of how a variety of different kinds, sizes, shapes, weights, etc., of cargo tend to move, shift or break loose during transport by ship, aircraft, barge, truck, van, railroad car, or barge; knowledge of preferred arrangement of cargo and distribution of weight; and skill in estimating the center of gravity and general weight of items to determine how and where to brace, place, separate, support, and secure cargo to prevent shifting and damage;
- Apply a knowledge of a variety of blocking and bracing regulations issued by different agencies, such as the Interstate Commerce Commission, the American Association of Railroads, the Department of Transportation, and one or more military agencies;

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- Apply the ability to read and work from plans, written instructions, sketches, blueprints, or drawings, which indicate special, unusual, or mandatory location or placement of cargo or staying devices; structural features of conveyances; or special design or installation requirements for guying, bracing, and staying;
- Apply the ability to measure and miter lumber by using squares, miter boxes, rulers, and tapes, or by estimating the appropriate angles and sizes, along with skill in using portable power saws and drills, to cut and make angular, curved, or odd-shaped parts, and secure joints;
- Apply skill in guying, lashing, strapping, and securing heavy, delicate, odd-shaped or unbalanced cargo, using straps, cables, rope, bands, wire, etc., in conjunction with rings, eyelets, hooks, turnbuckles, cleats, stanchions, plates, and other hardware and fixtures;
- Apply skill in the use of levers, jacks, crimpers, sledge hammers, impact wrenches, strapping tools, cable stretchers, and similar tools;
- Apply the ability to add, subtract, multiply, and divide in computing sizes, weights, and quantities of parts, materials, and cargo; and
- Know how to install intermediate positions or bracing boundaries in large cargo areas, to prevent chain-series or overall loosening, or failure of wedging and bracing, due to failure at one support point.

Responsibility: Grade 8 blocker and bracers work from general instructions which indicate the work location, type, and amount of cargo to be secured, the agencies whose requirements must be met, and any unusual or hidden hazards, cargo features, or requirements. They use judgment in planning and selecting the appropriate kind, size, and type of blocking and bracing materials, the proper work methods, and the most efficient work sequences to perform the assigned work. They are responsible for selecting and using methods and materials which meet the requirements of the designated Government agencies. Their work is checked for compliance with regulations and to insure that cargo will remain secure during the planned shipment by land, air, or sea.

Physical Effort and Working Conditions: Physical effort and working conditions of the grade 8 blocker and bracers are essentially the same as those described for the [grade 7](#) blocker and bracers.