WAC 296-24-70003 Eye protection. (1) **Selection.**

(a) You must use helmets or hand shields during all arc welding or arc cutting operations, excluding submerged arc welding.

Goggles should also be worn during arc welding or cutting operations to provide protection from injurious rays from adjacent work, and from flying objects. The goggles may have either clear or colored glass, depending upon the amount of exposure to adjacent welding operations. You must provide helpers or attendants with proper eye protection.

(b) You must use goggles or other suitable eye protection during all gas welding or oxygen cutting operations. Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing or for inspection.

(c) All operators and attendants of resistance welding or resistance brazing equipment must use transparent face shields or goggles, depending on the particular job, to protect their faces or eyes, as required.

(d) You must provide eye protection in the form of suitable goggles where needed for brazing operations not covered in (1)(a), (b) and (c) of this section.

(2) **Specifications for protectors.**

(a) Helmets and hand shields must be made of a material which is an insulator for heat and electricity. Helmets, shields and goggles must be not readily flammable and must be capable of understanding sterilization.

(b) You must arrange helmets and hand shields to protect the face, neck and ears from direct radiant energy from the arc.

(c) You must provide helmets with filter plates and cover plates designed for easy removal.

(d) All parts must be constructed of a material which will not readily corrode or discolor the skin.

(e) Goggles must be ventilated to prevent fogging of the lenses as much as practicable.

(f) Cover lenses or plates should be provided to protect each helmet, hand shield or goggle filter lens or plate.

(g) All glass for lenses must be tempered, substantially free from striae, air bubbles, waves and other flaws. Except when a lens is ground to provide proper optical correction for defective vision, the front and rear surfaces of lenses and windows must be smooth and parallel.

(h) Lenses must bear some permanent distinctive marking by which the source and shade may be readily identified.

(i) The following is a guide for the selection of the proper shade numbers. These recommendations may be varied to suit the individual's needs.

Filter Lenses for Protection against Radiant Energy

Welding operation	Electrode Size 1/32 (inches)	Minimum protective arc current	Shade number
Shielded metal arc welding	Less than 3	Less than 60	10
	3-5	60-160	10
	5-8	160-250	12
	More than 8	250-550	14

Welding operation	Electrode Size 1/32 (inches)	Minimum protective arc current	Shade number
Gas shielded arc welding (nonferrous)	2, 3, 4, 5		11
Gas shielded arc welding (ferrous)	2, 3, 4, 5		12
Gas metal arc welding		Less than 60	7
		60-160	10
		160-250	10
		250-500	10
Flux cored arc welding		Less than 60	7
		60-160	10
		160-250	10
		250-500	10
Gas tungsten arc welding		Less than 50	8
		50-150	8
		150-500	10
Air carbon—light Light		Less than 500	10
Arc cutting—heavy		500-1000	11
Carbon arc welding			14
Plasma arc welding		Less than 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma arc cutting		Less than 300 (light)	8
		300-400 (medium)	9
		400-800 (heavy)	10
Atomic hydrogen welding			10-14
Torch soldering			2
Torch brazing			3 or 4
Gas welding			
Light	Under 1/8	Under 3.2	3 or 4

Note: In gas welding or oxygen cutting where the torch produces a high yellow light, it is desirable to use a filter or lens that absorbs the yellow or sodium line in the visible light of the operation.

(j) All filter lenses and plates must meet the test for transmission of radiant energy prescribed in ANSI Z 87.1-1968—American Na-

tional Standard Practice for Occupational and Educational Eye and Face Protection.

(3) **Protection from arc welding rays.** Where the work permits, the welder should be enclosed in an individual booth painted with a finish of low-reflectivity such as zinc oxide (an important factor for absorbing ultraviolet radiations) and lamp black; or must be enclosed with noncombustible screens similarly painted. Booths and screens must permit circulation of air at floor level. You must protect workers or other persons adjacent to the welding areas from the rays by noncombustible or flameproof screens or shields or they must be required to wear appropriate goggles.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 15-24-100, § 296-24-70003, filed 12/1/15, effective 1/5/16. Statutory Authority: RCW 49.17.010, [49.17].040, and [49.17].050. WSR 01-11-038, § 296-24-70003, filed 5/9/01, effective 9/1/01; Order 73-5, § 296-24-70003, filed 5/9/73 and Order 73-4, § 296-24-70003, filed 5/7/73.]