



Welding Pavilion Contest Outline and Rules

Scope: Hastings Air Energy Control Inc., Welders Supply Company, FumeVac, IVEC Systems, Abicor Binzel, Speedy Metals and Expo Productions Inc. will conduct a welding skills contest at the WMTS trade show which takes place October 8-10th, 2019, at the Exposition Center, Wisconsin State Fair Park. The space and utilities will be provided by Expo Productions; the welding booths, fume extraction equipment, registration system and scholarships will be provided by Hastings Air Energy Control, Inc., IVEC Systems, FumeVac and Binzel; the welding equipment, welding wire and contest judges will be provided by Welders Supply Company. The steel coupons will be provided by Speedy Metals. The contest will include all weld coupons, filler metals, gases and safety equipment required to perform the required welds. The technical colleges will encourage appropriate students from their welding technology programs to compete. The contest will be conducted during the first three days of the show and judging will be performed the morning of the third day of the show. Awards presentation will be on October 10th in the afternoon (exact time to be announced).

Contestants and Registration: Qualified contestants must be a student at a technical college in the Fall of 2019. They may register on-line or in-person at the show and must present student identification in order to participate. Registrants from the technical colleges may be verified by the instructors of their respective programs. There is no registration deadline other than the end of the contest hours at the show and registration is free. Competition hours are Tuesday, 1 pm – 7 pm, Wednesday 9 am – 5 pm, and Thursday 9 am – 11 am.

Rules: The contest will consist of students performing a horizontal 3/16" fillet weld on 10 gauge carbon steel, a vertical down hand 3/16" fillet weld on 10 gauge carbon steel, a horizontal 1/4" fillet weld on 1/4" carbon steel and a vertical up 1/4" fillet weld on 1/4" carbon steel. The 10 gauge welds will be performed with the GMAW process using .035" ER70S-6 filler metal and 90% argon 10% carbon dioxide shield gas. The 1/4" welds will be performed with the FCAW process using .045" E71-T1 filler metal and 75% argon 25% carbon dioxide shield gas. All power supplies will be Miller Matic 252 units, the GMAW process will use Binzel, 300 amp fume extraction guns and the FCAW process will use FumeVac 400 or 500 amp fume extraction guns, all settings will be at Manufacturers recommended settings, contestants will not be permitted to adjust any welding parameter. Contestants will assemble each coupon on a jig provided using 2 each assembly tack welds on the opposite side of the coupon from the weld, additional tack welds may be placed on the weld side of the coupons as the contestants see fit. The assembly tack welds will be performed to AWS D 1.1 standards for the thicknesses of metal tacked. The coupons will be identical 4" X 5" pieces and the assembly will be performed with the 5" dimension placed on the longitude of the weld. Each student will be given approximately 5 minutes to perform practice welds for



each of the 2 processes, they will then proceed to the competition booths where they will be allotted an additional 5-10 minutes to assemble coupons and perform the horizontal and vertical welds for each of the two processes, the contestants will then clean the welds with brushes and chipping hammers provided and turn their finished products into the judging station.

Judging: Judging will be conducted by qualified professionals (WSC employees and technical college instructors) to objective standards AWS D 1.1 standards for tack size, fillet size, crater fill and fillet distribution and bead geometry. Allowable deviation in fillet size or distribution is plus or minus 1/16", all of these metrics will be determined with an AWS approved fillet gauge, assembly quality and weld clean up will be additional judging points. Out of square coupons, weld spatter remaining, adhered slag and residual weld smut will be judged, finally bead appearance will be a judging parameter, admittedly a subjective standard but this will come into play only after all objective standards are met.

Qualifying coupons: In order for a coupon to be judged it must be square, the two pieces cannot deviate in alignment by more than 1/16", there must be no more than 1/16" joint gap, all tacks and welds must comply with AWS D 1.1 standards, all assembly tacks must be placed within 1" of the ends of the coupons and crater fill and bead geometry must comply with AWS D 1.1, all welds must begin and end no further than 1/4" from the ends of the coupon. All submitted coupons which do not meet these standards will be eliminated from further judging beyond this point. Contestants may choose to perform all 4 of the coupons or only certain of the coupons, for example a contestant may choose to perform the GMAW coupons but not the FCAW coupons. Only contestants who perform all 4 of the coupons will be eligible for the scholarships. All contestants who submit coupons which meet the minimum standards and pass through to final judging will be entered into prize drawings for select welding gear and other items which will be held on the 3rd day of the show after the coupon judging is complete. Contest awards include scholarships for First, Second, and Third places.

Need not be present to win.

We reserve the right to limit welding time in the booths and total number of participants based on available resources.