



2020-2021

Technical Skills Assessment

Drafting and Design

Results by Standard

Legend (%)		
0-50%	51-75%	76-100%

Assessment: Drafting and Design Number tested: 43	% Correct 17-18	% Correct 18-19	% Correct 20-21
CONTENT STANDARD 2.0: DRAFTING FUNDAMENTALS	61.36%	59.18%	62.04%
Performance Standard 2.1: Geometric Constructions	62.68%	58.00%	60.10%
2.1.1. Define geometric terms and recognize various geometric shapes by name.	50.94%	54.00%	46.59%
2.1.2. Use lines, circles, and arcs to construct regular and irregular geometric shapes.	92.45%	84.00%	79.55%
2.1.4. Divide lines and bisect angles and arcs.	62.26%	60.67%	61.36%
2.1.6. Calculate area, perimeter, and volume of geometric shapes to include circle, square, rectangle, and triangle.	61.01%	49.33%	61.36%
Performance Standard 2.2: Measuring and Scaling Techniques	65.66%	63.80%	69.32%
2.2.1. Explain the concept of scaling of objects.	48.11%	46.00%	53.41%
2.2.2. Determine appropriate engineering, architectural, and metric scales.	65.41%	62.67%	68.18%
2.2.3. Measure object size, area, and volume utilizing appropriate industry devices.	71.70%	72.00%	75.00%
2.2.6. Determine and apply the equivalence between fractions and decimals.	79.25%	79.33%	87.12%
2.2.7. Convert between customary (i.e., SAE, Imperial) and metric systems.	54.72%	48.00%	45.45%
Performance Standard 2.3.: Conventional Drafting Practices	69.81%	73.50%	73.86%
2.3.1. Identify and select appropriate drafting media.	66.04%	64.00%	59.09%
2.3.5. Produce drawings from sketches.	71.70%	73.00%	78.41%
2.3.7. Demonstrate drawing revision control.	69.81%	84.00%	79.55%
Performance Standard 2.4.: Multi-View Drawings using Orthographic Projection	52.58%	49.20%	51.21%
2.4.1. Determine the principle view of an object.	48.43%	44.67%	53.03%
2.4.2 Identify, create, and arrange multi-view drawings.	73.58%	76.67%	76.52%
2.4.3. Identify, create, and arrange sectional views.	54.09%	42.67%	47.73%
2.4.4. Identify, create, and arrange primary auxiliary views.	46.23%	33.00%	31.82%
2.4.5. Identify multiple projection theories (first angle, third angle).	45.28%	64.00%	60.23%
2.4.6. Apply appropriate measurement units.	38.68%	26.00%	26.14%

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Performance Standard 2.5: Dimensions and Annotations	68.55%	73.33%	68.94%
2.5.1. Differentiate appropriate dimension standards.	66.04%	80.00%	56.82%
2.5.2. Arrange dimensions and annotations using appropriate standards.	69.81%	70.00%	75.00%
Performance Standard 2.6: Pictorial Drawings	26.42%	18.00%	34.09%
2.6.2. Create isometric drawings.	26.42%	18.00%	34.09%
Performance Standard 2.7: Hand Sketching Techniques	89.62%	87.00%	95.45%
2.7.4. Utilize the alphabet of lines.	89.62%	87.00%	95.45%
CONTENT STANDARD 3.0: FUNDAMENTAL CADD SKILLS	50.40%	53.81%	50.00%
Performance Standard 3.1.: Basic Computer and IT Skills	37.74%	42.67%	37.88%
3.1.5. Use industry reliable media to acquire information to complete drafting problems.	33.02%	37.00%	31.82%
3.1.6. Use Industry reliable media to acquire information to complete drafting problems.	47.17%	54.00%	50.00%
Performance Standard 3.2: Drawing Environment	45.28%	46.89%	44.19%
3.2.1. Select appropriate existing title blocks	96.23%	86.00%	88.64%
3.2.2. Set drafting settings	42.77%	52.00%	45.45%
3.2.3. Determine and apply scaling factors, including plotting and printing	41.51%	42.00%	59.09%
3.2.4. Assign line weights, line types, and colors.	32.08%	26.00%	22.73%
3.2.5. Utilize template files.	35.85%	46.00%	40.91%
3.2.6. Utilize sheets/layouts for plotting/printing.	36.79%	33.00%	25.00%
Performance Standard 3.3: Geometric Shapes and Objects using Cartesian Coordinate System	64.15%	64.00%	60.23%
3.3.1. Describe and utilize the Cartesian Coordinate System to create geometric shapes and objects (x, y, z).	83.02%	92.00%	77.27%
3.3.2. Calculate input coordinates.	45.28%	36.00%	43.18%
Performance Standard 3.4: CADD Commands	69.18%	78.67%	71.97%
3.4.2. Utilize geometric relationships to ensure accuracy (i.e., endpoint, midpoint, and center.	72.64%	81.00%	68.18%
3.4.3. Utilize CADD commands to create and modify objects.	62.26%	74.00%	79.55%
Performance Standard 3.5: Annotations	50.47%	54.00%	50.57%
3.5.2. Arrange text based on industry standards.	49.06%	66.00%	45.45%
3.5.4. Arrange dimensions based on industry standards (may include dual dimensioning).	26.42%	34.00%	22.73%
3.5.5. Use industry standard symbols to annotate drawings.	63.21%	58.00%	67.05%
CONTENT STANDARD 5.0: ARCHITECTURAL DRAFTING AND DESIGN	61.98%	68.10%	66.25%
Performance Standard 5.1: Architectural Design	60.21%	64.55%	63.43%
5.1.1. Identify and describe different architectural styles.	59.43%	68.50%	70.45%
5.1.2. Identify construction terminology, materials and building codes.	56.60%	53.00%	57.39%
5.1.3. Identify architectural annotation standards.	65.09%	73.00%	61.36%

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5.1.4. List and describe construction drawings.	67.92%	78.00%	63.64%
Performance Standard 5.2: Architectural Views and Details related to Design Criteria	64.15%	72.44%	69.70%
5.2.1. Apply architectural design concepts to plan views.	62.26%	68.00%	70.45%
5.2.2. Create an exterior elevation from an existing floor plan.	71.70%	80.00%	68.18%
5.2.3. Create interior elevations.	84.91%	98.00%	90.91%
5.2.4. Create building sections and details.	49.69%	56.00%	57.58%
5.2.5. Produce schedules.	66.04%	78.00%	88.64%
CONTENT STANDARD 6.0: MECHANICAL DRAFTING AND DESIGN	49.69%	50.00%	48.79%
Performance Standards 6.1.: Drafting Concepts related to Basic Manufacturing Processes	50.57%	45.80%	46.59%
6.1.2. Describe standard machine processes.	64.15%	56.00%	61.36%
6.1.3. Utilize standard welding/machining symbols per ANSI and ASME.	66.04%	58.00%	40.91%
6.1.5. Create scaled working drawings using dimensions, tolerances, and other specifications for machine tool, fabrication, and/or welding processes.	31.13%	31.50%	34.09%
6.1.6. Create thread and fastener representations and utilize thread designations.	37.74%	22.00%	29.55%
6.1.7. Create assembly drawings with a bill of materials table.	73.58%	69.00%	78.41%
Performance Standards 6.2: Geometric Dimensioning and Tolerancing (GD&T) Standards	47.92%	58.40%	53.18%
6.2.1. Understand datums utilized for tolerancing.	37.74%	47.00%	37.50%
6.2.2. Utilize basic dimensioning for GD&T toleranced features.	54.72%	66.00%	63.64%