



# 2022-2023

## Technical Skills Assessment Drafting and Design

### Results by Standard

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

Assessment: Drafting and Design	% Correct	% Correct	% Correct
Number tested: 43	20-21	21-22	22-23
<b>CONTENT STANDARD 2.0: DRAFTING FUNDAMENTALS</b>	62.04%	56.48%	59.54%
<b>Performance Standard 2.1: Geometric Constructions</b>	60.10%	57.86%	59.91%
2.1.1. Define geometric terms and recognize various geometric shapes by name.	46.59%	48.11%	56.86%
2.1.2. Use lines, circles, and arcs to construct regular and irregular geometric shapes.	79.55%	86.79%	84.31%
2.1.4. Divide lines and bisect angles and arcs.	61.36%	58.49%	60.13%
2.1.6. Calculate area, perimeter, and volume of geometric shapes to include circle, square, rectangle, and triangle.	61.36%	54.09%	53.59%
<b>Performance Standard 2.2: Measuring and Scaling Techniques</b>	69.32%	60.94%	64.12%
2.2.1. Explain the concept of scaling of objects.	53.41%	39.62%	40.20%
2.2.2. Determine appropriate engineering, architectural, and metric scales.	68.18%	62.26%	64.71%
2.2.3. Measure object size, area, and volume utilizing appropriate industry devices.	75.00%	67.92%	74.51%
2.2.6. Determine and apply the equivalence between fractions and decimals.	87.12%	72.96%	83.66%
2.2.7. Convert between customary (i.e., SAE, Imperial) and metric systems.	45.45%	56.60%	41.18%
<b>Performance Standard 2.3.: Conventional Drafting Practices</b>	73.86%	62.26%	58.33%
2.3.1. Identify and select appropriate drafting media.	59.09%	45.28%	50.98%
2.3.5. Produce drawings from sketches.	78.41%	67.92%	61.76%
2.3.7. Demonstrate drawing revision control.	79.55%	67.92%	58.82%
<b>Performance Standard 2.4.: Multi-View Drawings using Orthographic Projection</b>	51.21%	48.18%	52.42%
2.4.1. Determine the principle view of an object.	53.03%	47.17%	50.98%
2.4.2 Identify, create, and arrange multi-view drawings.	76.52%	68.55%	67.32%
2.4.3. Identify, create, and arrange sectional views.	47.73%	43.40%	46.41%
2.4.4. Identify, create, and arrange primary auxiliary views.	31.82%	44.34%	43.14%
2.4.5. Identify multiple projection theories (first angle, third angle).	60.23%	53.77%	63.73%
2.4.6. Apply appropriate measurement units.	26.14%	24.53%	39.22%

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<b>Performance Standard 2.5: Dimensions and Annotations</b>	68.94%	66.04%	73.20%
2.5.1. Differentiate appropriate dimension standards.	56.82%	39.62%	58.82%
2.5.2. Arrange dimensions and annotations using appropriate standards.	75.00%	79.25%	80.39%
<b>Performance Standard 2.6: Pictorial Drawings</b>	34.09%	22.64%	33.33%
2.6.2. Create isometric drawings.	34.09%	22.64%	33.33%
<b>Performance Standard 2.7: Hand Sketching Techniques</b>	95.45%	81.13%	83.33%
2.7.4. Utilize the alphabet of lines.	95.45%	81.13%	83.33%
<b>CONTENT STANDARD 3.0: FUNDAMENTAL CADD SKILLS</b>	50.00%	44.38%	50.89%
<b>Performance Standard 3.1.: Basic Computer and IT Skills</b>	37.88%	35.22%	41.18%
3.1.5. Use industry reliable media to acquire information to complete drafting problems.	31.82%	32.08%	34.31%
3.1.6. Use Industry reliable media to acquire information to complete drafting problems.	50.00%	41.51%	54.90%
<b>Performance Standard 3.2: Drawing Environment</b>	44.19%	38.36%	42.05%
3.2.1. Select appropriate existing title blocks	88.64%	84.91%	90.20%
3.2.2. Set drafting settings	45.45%	42.14%	39.22%
3.2.3. Determine and apply scaling factors, including plotting and printing	59.09%	43.40%	56.86%
3.2.4. Assign line weights, line types, and colors.	22.73%	20.75%	41.18%
3.2.5. Utilize template files.	40.91%	16.98%	35.29%
3.2.6. Utilize sheets/layouts for plotting/printing.	25.00%	26.42%	18.63%
<b>Performance Standard 3.3: Geometric Shapes and Objects using Cartesian Coordinate System</b>	60.23%	59.43%	59.80%
3.3.1. Describe and utilize the Cartesian Coordinate System to create geometric shapes and objects (x, y, z).	77.27%	86.79%	76.47%
3.3.2. Calculate input coordinates.	43.18%	32.08%	43.14%
<b>Performance Standard 3.4: CADD Commands</b>	71.97%	59.75%	71.24%
3.4.2. Utilize geometric relationships to ensure accuracy (i.e., endpoint, midpoint, and center).	68.18%	57.55%	64.71%
3.4.3. Utilize CADD commands to create and modify objects.	79.55%	64.15%	84.31%
<b>Performance Standard 3.5: Annotations</b>	50.57%	45.75%	58.33%
3.5.2. Arrange text based on industry standards.	45.45%	37.74%	66.67%
3.5.4. Arrange dimensions based on industry standards (may include dual dimensioning).	22.73%	20.75%	31.37%
3.5.5. Use industry standard symbols to annotate drawings.	67.05%	62.26%	67.65%
<b>CONTENT STANDARD 5.0: ARCHITECTURAL DRAFTING AND DESIGN</b>	66.25%	52.92%	60.98%
<b>Performance Standard 5.1: Architectural Design</b>	63.43%	58.83%	59.89%
5.1.1. Identify and describe different architectural styles.	70.45%	66.51%	63.73%
5.1.2. Identify construction terminology, materials and building codes.	57.39%	46.70%	50.00%

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5.1.3. Identify architectural annotation standards.	61.36%	64.15%	69.61%
5.1.4. List and describe construction drawings.	63.64%	66.04%	64.71%
<b>Performance Standard 5.2: Architectural Views and Details related to Design Criteria</b>	69.70%	45.70%	62.31%
5.2.1. Apply architectural design concepts to plan views.	70.45%	45.28%	47.06%
5.2.2. Create an exterior elevation from an existing floor plan.	68.18%	25.16%	72.55%
5.2.3. Create interior elevations.	90.91%	86.79%	72.55%
5.2.4. Create building sections and details.	57.58%	42.77%	49.67%
5.2.5. Produce schedules.	88.64%	75.47%	74.51%
<b>CONTENT STANDARD 6.0: MECHANICAL DRAFTING AND DESIGN</b>	48.79%	40.25%	50.33%
<b>Performance Standards 6.1.: Drafting Concepts related to Basic Manufacturing Processes</b>	46.59%	39.43%	49.80%
6.1.2. Describe standard machine processes.	61.36%	67.92%	82.35%
6.1.3. Utilize standard welding/machining symbols per ANSI and ASME.	40.91%	34.91%	40.20%
6.1.5. Create scaled working drawings using dimensions, tolerances, and other specifications for machine tool, fabrication, and/or welding processes.	34.09%	18.87%	42.16%
6.1.6. Create thread and fastener representations and utilize thread designations.	29.55%	26.42%	23.53%
6.1.7. Create assembly drawings with a bill of materials table.	78.41%	77.36%	71.57%
<b>Performance Standards 6.2: Geometric Dimensioning and Tolerancing (GD&amp;T) Standards</b>	53.18%	41.89%	51.37%
6.2.1. Understand datums utilized for tolerancing.	37.50%	32.08%	32.35%
6.2.2. Utilize basic dimensioning for GD&T toleranced features.	63.64%	48.43%	64.05%