



STATE OF NEW YORK
DEPARTMENT OF LABOR

APPENDIX A

DRAFTER (ARCHITECTURAL)
D.O.T. CODE 001.261-010

This training outline is a minimum standard in terms of Work Processes and Related Instruction which are required to achieve skilled worker status. It is recognized that rapid technological and regulatory changes will frequently result in the need for mastery of additional on-the-job or theoretical instruction.

WORK PROCESSES

Approximate Hours

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|----|--|-----|
| A. | <u>Tools, Equipment and Work Aids</u> | 300 |
| 1. | Using and caring for drafting table, triangle, T-square, rulers, drawing instruments, inking tools, templates, lettering guides, compass. | |
| 2. | Using and caring for drafting machine. | |
| 3. | CAD: using and caring for computer-aided drafting terminal, keyboard, mouse and/or stylus and digitizing tablet. | |
| 4. | Understanding and using sketches, rough drawings, tracing paper, pictorial drawings. | |
| 5. | Understanding and using handbooks, charts, technical specifications, catalogs, building codes, building manuals, reference library materials, CAD manuals and tutorials. | |
| 6. | Using and caring for plotters, printers, mylar. | |
| 7. | Documenting procedures; maintaining files; setting up project directories. (Optional) | |
| B. | <u>Blueprint Reading</u> | 200 |
| 1. | Reading standard blueprints. | |
| 2. | Reading orthographic projections. | |
| 3. | Reading isometric projections. | |
| 4. | Reading geometric constructions. | |
| 5. | Reading auxiliary views. | |
| 6. | Reading sectional views. | |
| 7. | Understanding dimensioning procedures. | |

B. Blueprint Reading – continued

8. Reading architectural parts blueprints.

C. Drafting Basics

1,500

Producing drawings using traditional manual board drafting and CADD systems:

1. Tracing simple drawings.
2. Sketching freehand, preliminary and final.
3. Drawing lettering freehand; using lettering aids and devices, CADD.
4. Sketching orthographic projections.
5. Board drafting multiple views.
6. Inking lines, symbols and letters on pencil drawings. (Optional)
7. Determining sequence of work and method of presentation, in conjunction with supervisor or project team.
8. Interpreting rough sketches and notes and engineering specifications.
9. Drafting detailed drawings of architectural designs and plans for buildings.
10. Drawing plans to scale.
11. Changing drawings using tracing paper, overlays, CADD systems.
12. Sketching pictorial views.

D. Making Calculations

500

1. Understanding and using metric system.
2. Compiling tolerances and dimensions.
3. Checking dimensions and materials to be used, assigning numbers to materials list.
4. Calculating weights, volumes and stress factors.
5. Using reference materials such as engineering handbooks, product catalogs, tables, etc.
6. Calculating related materials needed, projecting amount required, preparing materials schedule. (Optional)
7. Determining scale.

E. Construction Detailing 800

The following tasks may be performed using manual drawing, or using CADD programs:

1. Drawing wall sections.
2. Drawing roof detail.
3. Drawing standard framing detail.
4. Drawing sheet metal detail.
5. Drawing electrical installation. (Optional)
6. Drawing heating and air conditioning. (Optional)
7. Drawing plumbing installations. (Optional)

F. Drafting Simple Architectural Drawings 300

1. Drawing masonry.
2. Drawing structural framing.
3. Drawing landscaping.

G. Drafting Residential Plans, Manual and CADD 1,000

1. Drawing plot plans.
2. Drawing basement plans.
3. Drawing floor plans.
4. Drawing elevations.
5. Drawing simple architectural renderings.
6. Learning basic surveying, using such items as tapes, levels, transits, and lasers for field layout; horizontal and vertical structure placement.

H. Drafting Commercial and Public Structures, Manual and CADD 1,200

1. Reviewing preliminary considerations, commercial building codes, ADA codes.
2. Drawing plot plans.
3. Drawing basement plans.
4. Drawing roof plans.
5. Drafting floor plans.
6. Drawing elevations.
7. Drawing foundation plans.
8. Drawing architectural renderings.
9. Checking surveys in commercial and public projects.

I. Drafting Alterations 400

1. Sketching in the field and taking measurements.

I.	<u>Drafting Alterations</u> – continued	
	2. Surveying existing conditions in conjunction with structural engineer.	
	3. Planning alterations scheduling/sequencing as part of a team.	
	4. Gathering information for specifications, customer input. (Optional)	
J.	<u>Drafting Detail Work</u>	500
	1. Drawing millwork.	
	2. Drawing interior trim.	
	3. Drawing exterior trim.	
	4. Drafting structural steel with direction of Architect and Engineer. (Optional)	
K.	<u>Writing Specifications</u>	500
	1. Using commercial catalogs.	
	2. Using building code manuals.	
	3. Using builder’s manuals.	
L.	<u>Quality Assurance Checking</u>	200
	1. Inspecting finished drawings.	
	2. Checking drawings for content.	
	3. Checking for accuracy.	
	4. Checking symbols and conventions.	
	5. Checking specifications.	
	6. Checking shop drawings.	
M.	<u>Inspecting Field Sites</u>	300
	1. Surveying sites under construction.	
	2. Inspecting materials for conformity with plans and specs. (Optional)	
	3. Inspecting structures during progressive stages of completion.	
	4. Inspecting completed structures. (Optional)	
N.	<u>Drawing Architectural Renderings</u> (Optional)	300
	1. Using variety of media in production of pictorial sketches.	
	2. Using air brushes.	
	3. Using color.	

N. Drawing Architectural Renderings (Optional)

- 4. Drawing pictorial views in isometric, oblique orthographic and perspective.

Total hours 8,000

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to <http://www.labor.state.ny.us/workerprotection/publicwork/PDFs/Article8FAQS.pdf>.

APPENDIX B

DRAFTER (ARCHITECTURAL)

RELATED INSTRUCTION

Safety (16 hours)

Fundamentals – including fire, electrical, Right-to-Know (Hazardous Communications), OSHA, Emergency Procedure

Trade Safety

Drafting Room: VDT Precautions, Ergonomic Furnishings

Site Safety

First Aid (minimum 6.5 hours every 3 years)

CPR (optional; renewable yearly)

Blueprint Fundamentals, Sketching and Drawing

Basic Reading and Interpreting

Handling, Filing Practices

Blueprint Production

Blueprint Reading for Construction Trades

Drawing and Sketching

Geometric Constructions

Sectional Views

Trade Symbols: Carpentry, Electrical, Plumbing, HVAC

Modifying Drawings

Mathematics

Fundamentals: Algebra, Geometry, Trigonometry; Basic Calculus (Optional)

Geometric Construction

Basic Dimensioning – Procedures

Architectural Applications

Using Tables, Engineering Handbooks

Calculating Stress Factors

Calculating Reduced Scales

Estimating

Architectural Specifications

Architectural Dimensions

Computer Aided Drafting and Designing

Basic Introduction to Terminal, CADD Software and Applications; Techniques, Drawing, Editing, Plotting, Projection

Customizing with Programs such as Auto CADD including: Customizing Menus, Creating Special Files, Three Dimensional Modeling

Advanced CADD Applications to Complex Architectural Projects, Two and Three

Drafter (Architectural) Related Instruction – continued

Computer Aided Drafting and Designing – continued

Dimensional Design

Overview of Current Developments in CADD Commercial Packages and Enhancements. Converting Manual Drawings to CADD.

Quality Control Process

ISO 9,000 Standards (Optional)

Total Quality Management (Optional)

Continuous Improvement Philosophy (Optional)

Trade Theory

Tools, Machines and Equipment, Care and Maintenance

Materials

Terminology

Drafting Department Practices and Operation

Work Sequencing

Methods of Presentation

Projection Theory

Lettering and Tracing

Alterations

Multiple Perspective Drawings

Conceptualizing Spatial and Building Component Relationships

Trade Science

History of Architecture

Principles of Building Construction and Engineering

Physical Properties of Materials, Strength of Materials

Architectural Handbooks, Catalogs and Reference Materials

New York State Building Code and Zoning

Principles of Architectural Drafting

Working Drawings

Detailing Structural, Electrical, Plumbing, Foundations and Heating

Residential Design

Commercial and Industrial Design

Site Conditions

Structural Foundations

Masonry Construction and Veneers

Structural Systems; Wood, Steel, Iron, Concrete

Drafting Wood Flooring, Walls, Roofs and Supports

Sheet Metal Design, Structural Systems, Forced Air, HVAC Systems

Drafting Plumbing Diagrams

Electrical Drafting – Circuit Fundamentals, Technique, Wiring Diagrams,

Service Diagrams, Power, Lighting Diagrams

Preparing Specification Documents

Drafter (Architectural) Related Instruction – continued

Industrial and Labor Relations

History and Background (6 hours 1st year)

Current Laws and Practices (14 hours 2nd year)

Interpersonal Communications: Management; Customer; Architect/Engineer

Problem Solving, Group Team Problem Solving (Optional)

Sexual Harassment Prevention Training (3 hours minimum)

Americans with Disabilities Act Overview

Other Courses as Necessary

144 Hours of Related Instruction are required for each Apprentice for each year.