



## Architectural CAD/Design

### Available Certifications:

International Residential Code 2009

Autodesk Certified User

OSHA Certification

American Design Drafting

Certified Drafter

### Complete Task List:

Task Number	Description	Hours	Level
<i>*Local Task List</i>			
VA100	ORIENTATION & SAFETY	14.00	
VA101	Identify school rules, regulations, & attendance requirements.	2.00	
VA102	Recognize school layout, resources, & evacuation procedures.	2.00	
VA103	Identify general course objectives.	2.00	
VA104	Identify shop rules & regulations.	2.00	
VA105	Identify class dress code & the essence of good grooming.	2.00	
VA106	Recognize the grading procedure.	2.00	
VA107	Identify co-op experience guidelines and procedures.	2.00	
VA200	CAREER OPPORTUNITIES	20.00	
VA201	Compare the duties and educational requirements of various occupations in architecture.	4.00	
VA202	Explain the advantages and disadvantages of entrepreneurship.	4.00	
VA203	Describe the skills and traits employers look for when interviewing job applicants	4.00	
VA204	Describe strategies for increasing your chance of promotion.	4.00	
VA205	Explain the proper procedure for leaving a job	4.00	
VA300	ARCHITECTURAL STYLES	20.00	
VA301	Describe traditional architectural styles used in the United States.	5.00	
VA302	Explain the historical design influences on today's homes.	5.00	
VA303	Identify types of multifamily housing.	5.00	
VA304	Describe current trends in architecture.	5.00	
VA400	BASIC HOME DESIGN	32.00	
VA401	Recognize the four basic house designs.	8.00	
VA402	Explain the advantages of each house design.	8.00	
VA403	Recognize the disadvantages of each house design.	8.00	
VA404	Explain the variations of split-level design.	8.00	
VA500	DESIGNING FOR HEALTH AND SAFETY	48.00	
VA501	Identify fire hazards around the home and explain preventive measures.	8.00	
VA502	Explain the hazards associated with carbon monoxide.	8.00	
VA503	Explain the hazards associated with radon in residential housing.	8.00	
VA504	Discuss problems in residential structures associated with excess moisture.	8.00	
VA505	Compare building techniques used in different areas of the United States to minimize damage from natural disasters.	8.00	
VA506	identify safety tips to increase general home safety.	8.00	
VA600	PRIMARY CONSIDERATIONS	22.00	

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
VA601	Discuss key site considerations, restrictions, zoning and codes and the community importance	8.00	
VA602	List of family needs that should be considered when planning a dwelling.	8.00	
VA603	Describe the basic construction drawings used to build a structure.	6.00	
VA700	THE FLOOR PLANS	50.00	
VA701	List the information required on a typical floor plan.	10.00	
VA702	Represent typical materials using standard architectural symbols.	8.00	
VA703	Design and draw a residential floor plan using accepted symbols and techniques.	16.00	
VA704	Dimension a framed and concrete wall plan using acceptable drafting methods.	16.00	
VA800	SLEEPING AREA	44.00	
VA801	Discuss factors that are important in the design of bedrooms.	8.00	
VA802	Design standard & walk-in closets	8.00	
VA803	Apply the furniture cut out method in planning a room arrangement using CAD.	6.00	
VA804	Measure and draw your own bedroom utilizing CAD.	6.00	
VA805	Implement important design considerations for bathrooms.	8.00	
VA806	Plan a bathroom that follows solid design principles.	8.00	
VA900	LIVING AREA	44.00	
VA901	Identify the three main areas in a typical residence.	6.00	
VA902	Describe the rooms and areas that comprise the living area.	6.00	
VA903	Apply design principles to planning a living room.	6.00	
VA904	Analyze a dining room using good design principles.	6.00	
VA905	Design a functional entryway and foyers.	6.00	
VA906	Communicate the primary design considerations for family recreation room.	8.00	
VA907	Integrate designs for outdoor living areas into the total floor plan of a dwelling.	6.00	
VA1000	SERVICE AREA	54.00	
VA1001	Apply good design principles to planning the service area of a home.	10.00	
VA1002	Design a functional kitchen to meet family's needs.	16.00	
VA1003	Plan an efficient laundry room.	10.00	
VA1004	Describe appropriate dimensions for garage and design a detached garage using good design principles.	8.00	
VA1005	Define proper dimensions for driveways	10.00	
VA1100	PLOT PLANS	50.00	
VA1101	Identify the various features shown on a typical plot plan.	8.00	
VA1102	Visualize land elevation from contour lines.	10.00	
VA1103	Extract the information from a deed to create the boundaries for a typical site plan.	8.00	
VA1104	Properly locate a building on a site.	8.00	
VA1105	Draw a plot plan using correct symbols.	16.00	
VA1200	FOOTINGS, FOUNDATIONS, AND CONCRETE	40.00	

Task Number	Description	Hours	Level
VA1201	List the major considerations when designing a footing for a residential foundation.	8.00	
VA1202	Discuss the design considerations for wood, concrete and masonry foundation walls.	8.00	
VA1203	Calculate the load to be supported by a beam.	8.00	
VA1204	Calculate the size of a post for a typical basement plan.	8.00	
VA1205	Identify the types of lintels used in masonry wall consecution.	8.00	
VA1300	THE FOUNDATION PLAN	30.00	
VA1301	Identify the primary features, included in a foundation plan.	10.00	
VA1302	Discuss the difference between a foundation/basement plan.	4.00	
VA1303	Design and draw a foundation/basement plan.	16.00	
VA1400	SILL AND FLOOR CONSTRUCTION	32.00	
VA1401	Design & draw a detail showing a cantilevened floor system.	6.00	
VA1402	Create a drawing showing floor framing for openings in a floor	8.00	
VA1403	Determine proper joists size using a typical span data chart.	8.00	
VA1404	Draw and identify the components of a floor system.	10.00	
VA1500	WALL AND CEILING CONSTRUCTION	36.00	
VA1501	Sketch the various types of exterior walls used in residential construction.	12.00	
VA1502	Sketch the various masonry wall symbols utilizing CAD.	8.00	
VA1503	Draw and label a brick veneer over frame wall section.	16.00	
VA1600	DOORS AND WINDOWS	24.00	
VA1601	Draw a typical door and window schedule.	6.00	
VA1602	Recognize the different windows used in residential construction.	8.00	
VA1603	Draw proper door and window symbols on a typical floor plan.	4.00	
VA1604	Label the components of a typical window/door detail.	6.00	
VA1700	STAIRS	50.00	
VA1701	Define common stairs terminology.	6.00	
VA1702	Recognize the general types of stairs used in residential construction	6.00	
VA1703	Design a stairway for a residential structure.	12.00	
VA1704	Draw structural details for a main stairs.	12.00	
VA1705	Perform stair calculations for a residential stairway.	14.00	
VA1800	FIREPLACES AND CHIMNEYS	34.00	
VA1801	Draw and identify the parts of a standard ,masonry fireplace and chimney.	16.00	
VA1802	Apply the appropriate principles to design a typical fireplace.	12.00	
VA1803	Use a fireplace design data chart.	6.00	
VA1900	BUILDING SECTIONS	33.00	
VA1901	Describe the three main types of building sections.	5.00	
VA1902	Design and locate proper building section marks.	16.00	
VA1903	Draft a full or partial building section for a typical residential structure.	12.00	
VA2000	ROOF DESIGNS	40.00	
VA2001	Identify 12 different types of basic roof designs.	8.00	
VA2002	Describe the construction for a typical frame roof.	10.00	

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
VA2003	Design, draw and label typical eave details.	12.00	
VA2004	Recognize multiple roof truss designs.	6.00	
VA2005	Explain the importance of proper ventilation and flashing.	4.00	
VA2101	ELEVATIONS	48.00	
VA2101	List features that should be included on a exterior elevation.	8.00	
VA2102	Identify the dimension commonly shown on elevations.	4.00	
VA2103	Illustrate symbols that are often found on elevation.	12.00	
VA2104	Draw a typical exterior elevation that demonstrates proper techniques.	24.00	
VA2200	RESIDENTIAL ELECTRICAL AND THE ELECTRICAL PLAN	40.00	
VA2201	Define typical residential terms.	6.00	
VA2202	Identify and explain the three types of electrical circuits in a residential structure.	6.00	
VA2203	Calculate circuit requirements for a residence.	10.00	
VA2204	Represent typical electrical symbols found on a residential electrical plan.	6.00	
VA2205	Draw an electrical plan for a residential structure.	12.00	
VA2300	RESIDENTIAL PLUMBING	45.00	
VA2301	Discuss the purpose of a residential plumbing system.	6.00	
VA2302	Identify the elements contained in a residential water supply system.	6.00	
VA2303	Prepare a schematic diagram of a residential water and waste removal system.	7.00	
VA2304	Draft a residential water supply system.	8.00	
VA2305	Explain the layout of a sewage disposal system.	6.00	
VA2306	Develop a residential plumbing plan.	12.00	
VA2400	OPERATING SYSTEMS	30.00	
VA2401	Start and exit a software program as required.	5.00	
VA2402	Demonstrate proper file management techniques.	5.00	
VA2403	Identify, create and use directory structure and change paths.	5.00	
VA2404	Demonstrate proper file maintenance and backup procedures.	5.00	
VA2405	Use on-line help.	5.00	
VA2406	Save drawings to storage devices.	5.00	
VA2500	BASIC CAD COMMANDS	50.00	
VA2501	Create new drawing.	5.00	
VA2502	Perform drawing set up.	5.00	
VA2503	Construct geometric figures.	5.00	
VA2504	Create text using appropriate style and size to annotate drawings.	5.00	
VA2505	Use and control O-snap tools.	5.00	
VA2506	Use appropriate symbols library.	5.00	
VA2507	Create objects using primitives.	5.00	
VA2508	Create offset surfaces.	5.00	
VA2509	Find intersection of two surfaces.	5.00	
VA2510	Create a fillet or blend between two surfaces.	5.00	
VA2600	EDIT AND MODIFY COMMANDS	23.00	

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
VA2601	Trim surface.	6.00	
VA2602	Extend surface.	6.00	
VA2603	Edit control points.	6.00	
VA2604	Erase and remove objects.	5.00	
VA2700	MANIPULATE	25.00	
VA2701	Control coordinates & display scale.	5.00	
VA2702	Use viewing commands.	5.00	
VA2703	Use display commands.	5.00	
VA2704	Plot drawings on media using correct layout & scale.	5.00	
VA2705	Use layering techniques.	5.00	
VA2800	Softplan	48.00	
VA2801	Create walls.	6.00	
VA2802	Create doors and windows.	6.00	
VA2803	Create a rood utilizing Softplan.	6.00	
VA2804	Show proper annotation and dimensioning techniques.	6.00	
VA2805	Utilize line work and modify tools in Softplan.	6.00	
VA2806	Create a floor plan utilizing Softplan commands.	6.00	
VA2807	Create elevations utilizing Softplan commands.	6.00	
VA2808	Create a section in Softplan.	6.00	
VA2900	IRC COURSEWORK	54.00	
VA2901	Utilizing the IRC code book gain an understanding of the Study Session 1, Administration and referenced Standards.	6.00	
VA2902	Utilizing the IRC code book gain an understanding of the Study Session 2, Building Planning I.	6.00	
VA2903	Utilizing the IRC code book gain an understanding of the Study Session 3, Building Planning II.	6.00	
VA2904	Utilizing the IRC code book gain an understanding of the Study Session 4, Building Planning III.	6.00	
VA2905	Utilizing the IRC code book gain an understanding of the Study Session 5, Foundations	6.00	
VA2906	Utilizing the IRC code book gain an understanding of the Study Session 6, Floors.	6.00	
VA2907	Utilizing the IRC code book gain an understanding of the Study Session 7, Wall Construction and Wall Covering.	6.00	
VA2908	Utilizing the IRC code book gain an understanding of the Study Session 8, Roof/Ceiling Construction and Roof Assemblies.	6.00	
VA2909	Utilizing the IRC code book gain an understanding of the Study Session 9, Chimneys/Fireplaces and Energy Efficiency.	6.00	
VA3513	13.2.11.A- Apply effective speaking and listening skills used in a job interview.		
VA3514	13.2.11.B- Apply research skills in searching for a job. (CareerLink, O-NET, Networking, Newspapers, Professional Associations, Reource Books (OOH), etc.		
VA3515	13.2.11.C-Develop and assemble, for career portfolio placement, career acquisition documents, such as, but not limited to: job application, letter of appreciation, Cover Letter, Resume, Post-Secondary Application, etc.		

<b>Task Number</b>	<b>Description</b>	<b>Hours</b>	<b>Level</b>
VA3516	13.2.11.E- Demonstrate, in the career acquisition process, the application of essential workplace skills/knowledge, such as, but not limited to: Communication, Health and Safety, Resilience, Integrity, Problem Solving, Teamwork and Communication.		
VA3517	13.3.11.A- Evaluate personal attitudes and work habits that support career retention and advancement, with focus on Resilience, Integrity, Problem Solving, Communication, Teamwork.		
VA3518	13.3.11.B-Evaluate team member roles and describe and illustrate active listening techniques: clarifying, encouraging, reflecting, restating, and summarizing.		
VA3519	13.3.11.C- Evaluate conflict resolution skills as they related to the workplace.: constructive criticism, group dynamics, managing leaderships, mediation, negotiation, problem solving.		
VA3520	13.3.11.D- Develop a personal budget based on career choice, such as but not limited to : fixed/variable expenses, gross pay, net pay, saving, taxes.		