هيئة كفاءة الإنفاق والمشروعات الحكومية
Expenditure Efficiency & Projects Authority

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List of Commonly Used Design and Engineering Software

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Table of Contents

1.0 INTRODUCTION

This listing of commonly used design and engineering software is meant to provide a starting point for Entities, A/Es and consultants to develop their own list of required software to use when preparing designs of facilities. The software listing here is not an exhaustive listing. Software listed here is not a promotion nor an endorsement of the software.

2.0 LISTING

SN	Design Discipline	Program Name	Program Description	Name of Software Developer
1	General	MS Access	Information Management tool for storing, referencing, reporting and analysing of data in tables	Microsoft
2	General	MS Excel	A numerical spreadsheet program that can perform calculations & includes graphing tools, pivot tables, & a macro programming language called Visual Basic for Applications.	Microsoft
3	General	MS PowerPoint	A computer slide presentation program.	Microsoft
4	General	MS Word	Use as a word processing program.	Microsoft
5	General	MicroStation	Used to create graphical or schematic 2D CAD drawings, including PFDs & P&IDs (when an intelligent program is not required).	Bentley Systems
6	General	e-SPECS	Automates the preparation of construction specifications by extracting product & material requirements direction from the Revit Building Information Model (BIM) software. Provides a platform for authoring & maintaining engineering technical specifications in the CSI format.	Arcom
7	General	Adobe Acrobat Pro	A .pdf file viewer that can open, edit, & interact with other .pdf documents. It can view, word search, & edit .pdf documents.	Adobe
8	General	Adobe Acrobat Reader	A .pdf file viewer that can open & interact with other .pdf documents. It can view & word search .pdf documents.	.
9	General	AutoCAD	Used to create graphical or schematic 2D CAD drawings, including PFDs & P&IDs (when an intelligent program is not required).	Autodesk
10	General	Nuance PDF Converter Enterprise	Used to create, edit or convert PDF files from or to other formats with optical character recognition scanning capabilities.	Nuance
11	General	Visio	Used to create graphical flow diagram sketches & figures.	Microsoft
12	General	Raster Design	Raster Editor for AutoCAD	Autodesk, Inc.
13	General	MATHCAD	Engineering Calculations	Parametric Technology Corp.
14	General	ProjectWise	Electronic document and file management system	Bentley Systems
15	General	REVIT	3D CAD building design software specifically built for Building Information Modeling (BIM), which includes Architectural design; Mechanical, Electrical, & Plumbing (MEP) design; Structural design; & Construction modules.	AutoDesk
16	General	Smart3D	3D data-centric and rule-driven Plant Design system	Hexagon
17	General	E3D	3D data-centric and rule-driven Plant Design system	Hexagon
18	General	CADWORX	3D file based Plant Design system	Hexagon
19	General	Subsurface Utility Engineering (SUE)	The software's 3D modeling capabilities allow you to automatically create 3D models from survey information, CAD artifacts, GIS, Excel spreadsheets & databases	Bentley Systems
20	General	NavisWorks	Federated Model Assembly & Model Review	AutoDesk

SN	Design Discipline	Program Name	Program Description	Name of Software Developer
21	General	AECOsim Building Designer	Building BIM	Bentley Systems
22	Arch	InfraWorks	3D Conceptual Civil Design	AutoDesk
23	Arch	3DSMax	3D Modeling, Rendering, & Animation	AutoDesk
24	Civil	INROADS	Civil/Site & Roadway Design	Bentley Systems
25	Civil	Civil3D	A civil engineering design & documentation software that supports building information modelling, mainly used for Roadway, Drainage, Sub-surface utilities and Surveying	Autodesk
26	Civil	OpenRoads Designer	A civil engineering design & documentation software that supports building information modelling, mainly used for Roadway, Drainage, Sub-surface utilities and Surveying. Not includes Inroads Geopack, Mechanical, Power and Civil	Bentley Systems
27	Civil	MXROAD Suite	A civil engineering design & documentation software that supports building information modelling, mainly used for Roadway, Drainage, Sub-surface utilities and Surveying	Bentley Systems
28	Civil	AutoTurn	Vehicle swept path analysis tool used for analyzing the movements (turning circles and clearances) of cars, trucks, and many other vehicles in road & site design projects including intersections, roundabouts, bus terminals, loading bays, and parking lots or any on/off-street assignments.	TranSoft
29	Civil	Vehicle Tracking	Vehicle swept path analysis tool used for analyzing the movements (turning circles and clearances) of cars, trucks, trams, aircrafts and many other vehicles in design of road, site, light rail and airport projects including intersections, roundabouts, bus terminals, loading bays and parking lots or any on/off-street assignments.	Autodesk
30	Civil	AutoTrack	Vehicle swept path analysis tool used for analyzing the movements (turning circles and clearances) of cars, trucks, trams, aircrafts and many other vehicles in design of road, site, railway and airport projects including intersections, roundabouts, bus terminals, loading bays and parking lots or any on/off-street assignments.	Savoy Computing
31	Civil	Power Rail Track	Comprehensive 3D Rail design software application with built-in CAD and GIS for preliminary and detailed 3D design of rail infrastructure.	Bentley Systems
32	Civil	Rail Track	3D Rail design software application (No built-in CAD) works as add-on in MicroStation.	Bentley Systems
33	Civil	VISSIM	A microscopic traffic simulation tool that is capable of modeling roads with signalized intersections and roundabouts.	PTV Planung Transport Verkehr AG
34	Civil	CORSIM	A microscopic traffic simulation software package for signal systems, highway systems, freeway systems, or combined signal, highway and freeway systems.	McTrans Center, University of Florida
35	Civil	Simtraffic	A microscopic traffic simulation tool that is capable of modeling roads with signalized intersections and roundabouts.	TRAFFICWARE
36	Civil	Synchro	A macroscopic traffic analysis and optimization software application. It supports the Highway Capacity Manual's analyzing procedure of signalized intersections, unsignalized intersections and roundabouts	TRAFFICWARE
37	Civil	Sidra Intersection	A macroscopic traffic software package used for intersection and network capacity, level of service and performance analysis, and signalized intersection and network timing calculations.	Sidra Solutions
38	Civil	Highway Capacity Software (HCS)	A macroscopic traffic analysis and optimization software application. It supports the Highway Capacity Manual's analyzing procedure of signalized intersections, unsignalized intersections and roundabouts	McTrans Center, University of Florida

SN	Design Discipline	Program Name	Program Description	Name of Software Developer
39	Electrical	ETAP	Electrical system modeling & analysis for determination of loadflow, fault currents, cable allowable loadings, protective device coordination, etc.	Operations Technology, Inc.
40	Electrical	CDEGS	Ground grid layout & analysis. Calculates & graphically displays touch, step, & mesh voltages.	Safe Engineering Services & Technologies
41	Electrical	AGI32	Calculates & graphically displays illumination levels based on designed fixture layout.	Lighting Analysts, Inc.
42	Electrical	Bentley Raceway & Cable Management	Raceway & Cable Design and management Management	Bentley Systems
43	Electrical	Autocad Electrical	Designing wiring, circuiting, PLC modules, panels including data and schedules	AutoDesk
44	Electrical	SmartPlant Electrical (SPEL)	Electrical Schematics, One Line Diagrams	Hexagon
45	Extra-Low Voltage (ELV)	SmartPlant Instrumentation	Instrumentation database, data sheets, loop drawings, hookups and wiring diagrams	Hexagon
46	Geotechnical Engineering	CPT	CPT includes three programs: CPeT-IT (v.1.7.6.19) for interpretation of CPTu data, CLiq (v.1.7.4.34) for liquefaction calculations, & Section Maker (v.2.0.2.6) for creating 2D cross sections	GeoLogismiki, Inc.
47	Geotechnical Engineering	FLAC2D	A 2D Explicit Finite Difference Program for Engineering Mechanics, Particularly Geotechnical Engineering	Itasca Consulting Group, Inc.
48	Geotechnical Engineering	GRLWEAP	Wave Equation Analysis for Pile Driving	Pile Dynamics Inc.
49	Geotechnical Engineering	GROUP	Computes distribution of loads (vertical, lateral, & overturning moment) applied from the pile cap to piles arranged in a group	Ensoft, Inc.
50	Geotechnical Engineering	LPILE	Analysis of Piles & Drilled Shafts Under Lateral Loads	Ensoft, Inc.
51	Geotechnical Engineering	PLAXIS 2D	A Two-dimensional Finite Element Computer Program Used to Perform Deformation & Stability Analyses for Various Types of Geotechnical Applications	Plaxis, Bv.
52	Geotechnical Engineering	PLAXIS 3D	A Three-dimensional Finite Element Computer Program Used to Perform Deformation & Stability Analyses for Various Types of Geotechnical Applications	Plaxis, Bv.
53	Geotechnical Engineering	SHAFT	Analysis of Drilled Shafts Under Axial Loads	Ensoft, Inc.
54	Geotechnical Engineering	SEEP/W	Seepage Modeling Program	GEO-SLOPE International Ltd.
55	Geotechnical Engineering	SLOPE/W	Circular & Non-circular Slope Stability Analysis	GEO-SLOPE International Ltd.
56	Geotechnical Engineering	WINSAF	The Program WINSAF Consists of Three Applications that are WINSTRESS, WINSAF-I, & WINSAF-TR	Prototype Engineering, Inc.
57	Geographical Information Systems	ArcGIS	GIS Software	Esri
58	Geographical Information Systems	Blue Marble Desktop Geographic Calculator	Conversion of Individual Coordinates, Point Databases, & Map Files	Blue Marble Geographic
59	Geographical Information Systems	Global Mapper	GIS Software	Blue Marble Geographic
60	Geology	EXAMINE2D	2D Boundary Element Stress Analysis for Underground Excavation	Rocscience, Inc.
61	Geology	DIPS	Plotting, Analysis, & Presentation of Structural Geology Data	Rocscience, Inc.
62	Geology	GINT	Geotechnical Database & Presentation	gINT Software Inc.
63	Geology	LOGPLOT7	Boring Log Graphical Visualization	RockWare Inc.

SN	Design Discipline	Program Name	Program Description	Name of Software Developer
64	Geology	PHASE2	2D Plastic FE Stresses/Displacements for Underground Openings	Rocscience, Inc.
65	Geology	ROCDATA	Strength Envelopes of Soil/Rock Based on Lab Strength Tests	Rocscience, Inc.
66	Geology	ROCKWORKS 15	Geological Data Management, Analysis, & Visualization	Rockware
67	Geology	ROCSUPPORT	Estimating Deformation in Circular Excavations in Weak Rock & Visualizing Supp	Rocscience, Inc.
68	Geology	SWEDGE	Geometry/Stability of Surface Wedges With 2 Planes & Surface	Rocscience, Inc.
69	Geology	GROUND-WATER Vistas	Graphical User Interface for 3-D groundwater flow & transport modeling	Environmental Simulations Inc.
70	Geology	PHREEQCI	Industry Standard for Various Chemical Calculations	USGS
71	Geology	AQTESOLV	Analysis of Aquifer Pumping Tests & Slug Tests	HydroSOLVE Inc.
72	Hydraulics & Hydrology	ADCIRC	The Advanced Circulation Model is a Two-Dimensional, Depth-Integrated, Time-Dependent Long Wave, Hydrodynamic Circulation Model	AQUAVEO
73	Hydraulics & Hydrology	CORMIX-GI	Cornell Mixing Zone Expert System	MixZon, Inc.
74	Hydraulics & Hydrology	DELFT3D	Multi-Dimensional Hydrodynamic Simulation Program	Deltares
75	Hydraulics & Hydrology	HEC-HMS	Hydrologic Modeling System that Simulates the Precipitation-Runoff Process of Dendritic Watershed Systems	USACE
76	Hydraulics & Hydrology	HEC-RAS	River Analysis System	USACE
77	Hydraulics & Hydrology	STWAVE	Steady-State Spectral Wave Analysis	USACE
78	Hydraulics & Hydrology	SWMM5	Rainfall-runoff Simulation Model Used for Simulation of Runoff Quantity & Quality from Primarily Urban/Industrial Areas	USEPA
79	Hydraulics & Hydrology	XP-SWMM	Storm Water Management Model	XP Software, Inc.
80	Hydraulics & Hydrology	CFA	Performs statistical analyses of hydrologic data	Environment Canada
81	Hydraulics & Hydrology	MIKE 21	Two-dimensional hydrodynamic simulation model for coastal areas	DHI
82	Hydraulics & Hydrology	WaterCAD	Water Distribution Modeling and Analysis Software	Bentley Systems
83	Hydraulics & Hydrology	SewerCAD	Modeling Software for Design and Analysis of Sanitary Sewers	Bentley Systems
84	Hydraulics & Hydrology	SewerGEMS	Modeling Software for Sanitary and Combined Sewers	Bentley Systems
85	Hydraulics & Hydrology	H$_2$OMAP Sewer	A stand-alone GIS-based computer program for use in the planning, design, analysis, and expansion of sanitary, storm and combined sewer collection systems	Innovyze
86	Hydraulics & Hydrology	InfoSewer	An ArcGIS-based computer program for use in the planning, design, analysis, and expansion of sanitary, storm and combined sewer collection systems	Innovyze
87	Hydraulics & Hydrology	InfoWorks ICM SE	A sewer collection systems modeling without 2D simulation of surface flooding	Innovyze
88	Hydraulics & Hydrology	H$_2$ONET	A water distribution modeling, analysis and design software	Innovyze
89	Mechanical	CADNAA	Computer Aided Noise Abatement (CadnaA) is a C/C++ software package used for assessment, prediction, presentation, & informal calculation of environmental noise emissions.	DataKustik
90	Mechanical	TRACE 700	Used to optimize the design of a building's heating, ventilation, & air conditioning (HVAC) system based upon energy utilization & life-cycle cost.	Trane
91	Mechanical	HYDRACALC	Hydraulic calculations for pressure drop & water discharge through sprinkler heads & other types of nozzles in fire protection systems. Compatible with	Hydratec, Inc.

SN	Design Discipline	Program Name	Program Description	Name of Software Developer
			NFPA 2007 printout requirements. Can choose Hazen-Williams or Darcy-Weisbach for pressure drop calculations. May be used in conjunction with REVIT MEP 3D model software for direct input of data for pipe configurations.	
92	Structural	spColumn	Concrete Column Analysis	Structure Point
93	Structural	spMats	FE Analysis & Design of Foundation Slabs, Combined Footings	Structure Point
94	Structural	SAG10	Switchyard	Southwire
95	Structural	STAAD.PRO	Structural Analysis & Design	Bentley Systems
96	Structural	tnxTower	Structural Analysis & Design	tnxTower
97	Structural	PLS-CADD	Transmission Line Design	Power Line Systems
98	Structural	PLS-Tower	Structural Analysis & Design	Power Line Systems
99	Structural	Enercalc	Calculation modules for design of structural components in steel, concrete, & masonry structures	ENERCALC
100	Structural	RAM Concept	Design of post-tensioned & reinforced concrete floors including slabs, mats, & rafts	Bentley Systems
101	Structural	RAM Elements	A toolkit for analysis & design of a structure or structural component, including retaining wall, tilt-up wall, concrete wall, & masonry wall	Bentley Systems
102	Structural	RAM Sbeam	Non-composite & composite steel beams, including web opening design	Bentley Systems
103	Structural	RAM Connection	Steel connection design, either stand alone, or integrated with RAM Structural System, RAM Elements & STAAD.Pro	Bentley Systems
104	Structural	RAM Structural System	Structural Analysis & Design	Bentley Systems
105	Structural	PY-Wall	Designs flexible retaining walls	Ensoft
106	Structural	LARSA 4D Bridge Series	A unified 3D finite element environment for the analysis, design & rating of bridges without the need to purchase additional tools	Larsa
107	Structural	Bridge Designer II (BD2)	2D stage construction analysis & design of pre/post-tensioned concrete bridges	IDS
108	Structural	LEAP Bridge (Concrete)	A modeling & analysis software for small & medium-sized concrete bridges of all types: precast, cast-in-place, reinforced, & post-tensioned	Bentley Systems
109	Structural	FB-MultiPier	A nonlinear finite element analysis program capable of analyzing multiple bridge pier structures interconnected by bridge spans	BSI
110	Structural	Merlin-DASH	Design & Analysis of Straight Steel & Reinforced Concrete Girder Bridge Systems	University of Maryland
111	Structural	PLS-Pole	Structural Analysis & Design	Power Line Systems
112	Structural	Tekla	Steel Detailing	Tekla
113	Structural	Rail Track	A comprehensive application for preliminary & detailed 3D design of rail infrastructure	Bentley Systems
114	Structural	Robot Structural Anal. Professional	Structural Analysis & Design Tool. Advanced BIM integrated analysis & design tool to understand the behavior of structures & verify code compliance	AutoDesk
115	Arch	ALLPLAN 2022	With Allplan 2022, you have the tools to incorporate terrain, access roads, sewers, pipelines, and cables, to better design your project. By integrating geodata, such as contour lines or survey points a precise digital terrain model is created. With these tools, important design decisions can be made earlier and with more certainty when implementing your building or structural project.	ALLPLAN 2021
116	Structural	SOFISTIK	FEA software for civil and structural engineering modeling, analysis, design, and detailing. SOFiSTiK is one of the most complete FE packages and covers almost all structural	Sofistik

SN	Design Discipline	Program Name	Program Description	Name of Software Developer
			engineering disciplines: building, bridges, foundation, tunneling, membranes, lightweight, dynamics. Design code checks can be performed for 18 international codes.	
117	Structural	SAFE	Safe Buildings is a digital content management tool that enables users to digitally manage their building emergency procedures and compliance practices through a mobile application or any browser anywhere in the world.	Safe Buildings Tech
118	Structural	ETABS	The innovative and revolutionary new ETABS is the ultimate integrated software package for the structural analysis and design of buildings.	SAPFire®Analysis Engine
119	Structural	SAP2000	STRUCTURAL ANALYSIS AND DESIGN The SAP2000 name has been synonymous with state-of-the-art analytical methods since its introduction over 45 years ago.	SAP2000