



API-653 Toolbox - Included Applications

Applications Description	Reference, Standard or Document Source
1. AST Module	
1.1 Tabulated Text Windows set in cascade design for quick access to commonly referenced code issues per component and applicable subject matter (Design, Inspection and Repairs)	<ul style="list-style-type: none"> • API-653 Inspection and Repair of AST's • API-650 Design & Construction of Atmos. ST's • API-620 Design & Construction of LP ST's • UL-142 Steel aboveground Tanks for Flammable Liquids • NFPA Flammable Liquids Code
1.2 Design Code Access Linking	<ul style="list-style-type: none"> • API, ASME, UL, NFPA
1.3 Pick buttons to Report Builder, Engineering Data, Repair Specs, AST Calculations, Hydro Testing Calculations, Definitions	Program Functions
2. Report Builder for AST's	
2.1 Report Writeups - Executive Summary, Findings & Recommendations	API-653 Inspection and Repair of Aboveground Storage Tanks
2.2 Thickness Measurements (UT) Data entry	ASNT
2.3 Component Calculations (Shell, Roof, Floor MRT) based on inspection data thickness measurements	API-653 Inspection and Repair of Aboveground Storage Tanks
2.4 Shell Settlement Survey Calculations and Automated Plotting of Settlement Cosine Curve.	<ul style="list-style-type: none"> • API-653 Appendix B
2.5 API In-service and Out-of-Service Checklist and STI Checklist	<ul style="list-style-type: none"> • API-653 Appendix C • STI SP001
2.6 AutoCad Boiler Plate Drawings with to scale block options for shells, nozzles, ladder, ATG, et.	<ul style="list-style-type: none"> • AutoCad 14 (or greater) Program Required
2.7 Word Document Template for Photographs	<ul style="list-style-type: none"> • Microsoft Word Program Required
3. AST Calculations	
3.1 Shell Calculations to include one foot method, VDP Calcs, App M, App F & App V	<ul style="list-style-type: none"> • API-653 Inspection and Repair of AST's • API-650 Design & Construction of Atmos. ST's
3.2 Roof Calculations including Atmospheric and App F	<ul style="list-style-type: none"> • API-653 Inspection and Repair of AST's • API-650 Design & Construction of Atmos. ST's
3.3 Tank Settlement Calculations to	API-653 Appendix B

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include Shell Settlement, Edge Settlement, Floor Bulge	
3.4 Seal Inspection Evaluation	<ul style="list-style-type: none"> EPA Regs - 40 CFR, Chpt 1, Part 60
3.5 Nozzle Reinforcement	<ul style="list-style-type: none"> API-650 ASME Sect VIII, Div 1
3.6 AST Venting and Evaluation	API-2000 Venting Atmos. & LP ST's
3.7 Horizontal Tank Calculations	Pressure Vessel Hnd Book - Zick Formula
4. Engineering Data	
4.1 Material Stress including the most common material used in the construction of storage tanks, pressure vessels and piping such as welding material, plated designs (shells, roofs, floors), piping, forgings, castings, and bolting	Design Codes: ASME Sec II Part D, ASME B31.3, API-650, API-653
4.2 Pipe Standards to include Class ratings, WN & LWN specifications, Size and Schedules, Practical minimum thicknesses, Gaskets, Bolting, et.	<ul style="list-style-type: none"> ASME B16.5, ASME Section II
4.3 Product Data (SG, Flash Point, Boiling Point, et of commonly stored substances)	Product MSDS
4.4 Sheet Metal Gauge Thicknesses	AWG, SWG, BWG, US, BG, ISWG
4.5 Engineering calculations to include areas of squares, rectangles, circles, volume of cylinders, cubes, conversions tables, basic trig functions	Basic Math operations
5. Repair Specifications	
5.1 Modules for issuing repair spec to include Nozzle Installation, Repad Installation, Shell Inserts, Lap Patches, Weld Repair and Overlay, et	Design Codes: ASME Sec VIII, ASME B31.3, API-650, API-653