16 PROJE, 19 TASARIM YÖNETMELİĞİ (TBDY 2018 / TS 500 / EUROCODE / AISC / ACI / CSA), EĞİTİM VE FİYAT KARŞILAŞTIRMASI

Yapı Mühendisliği Yazılımları Neden Karmaşıklaştı — Ve SADP 3D V 2.5 Bunu Nasıl Sadeleş

Arayüz Kolaylığı [Geleneksel 52 | RISA 66 | Yeni Nesil 70 | SADP 98/100] • Toplam Puan [Geleneksel 62 | RISA 72 | Yeni Nesil 76 | SADP 96/100]

98 / 100
UI SIMPLICITY

96 / 100
TOTAL SCORE

Adil Sonuç: Tek Ekran Arayüz Kolaylığı (98/100) ve Toplam Mühendislik Puanı (96/100)

This study separates Single-Screen UI Simplicity (98/100) from Overall Total Score (96/100) using ISO/IEC 25010 & NAFEMS market weights: parametric wizards take 5-35 min, regular buildings take 20-40 min with A-Size .cad blueprints & dual welded/bolted connections; manual 3D Shell (1-4 hrs) & 66-Storey Butterfly by hand (4-5 hrs) yield

1. THE 4 SOFTWARE CLASSES — SEPARATE UI SIMPLICITY SCORE vs. TOTAL ENGINEERING SCORE, TRAINING & COST

UI: 52 / 100 | **TOTAL: 62 / 100**

CLASS 1 — Legacy Desktop Software ($22,500-$37,500/yr) — 3 to 6 Weeks of Training Classes

Programs: SAP2000 | ETABS | STAAD.Pro | CSI SAFE | CSiBridge | Autodesk Robot | GEO5

Proven, industry-standard FEM solvers (62/100 Total), but split across 5+ separate programs (ETABS, SAP2000, CSiBridge, SAFE, GEO5) with 1990s nested dialogs (52/100 UI Score).

UI: 66 / 100 | **TOTAL: 72 / 100**

CLASS 2 — The 4-Program RISA Suite ($7,500-$10,700/yr) — 1 to 2 Weeks of Training Classes

Programs: RISA-3D | RISAFloor | RISAFoundation | RISAConnection

Well-organized spreadsheet workflow for North American building design (72/100 Total), but splits a project across 4 separate apps (66/100 UI Score) and lacks bridge/tank wizards.

UI: 70 / 100 | **TOTAL: 76 / 100**

CLASS 3 — New Line Modular Software ($10,000-$17,000/yr) — 1 to 3 Weeks of Training Classes

Programs: Dlubal RFEM 6 | SkyCiv 3D | Tekla Structural Designer | SCIA Engineer | IDEA StatiCa

Modern 3D graphics and strong analysis engines (76/100 Total), but Tekla SD is limited to buildings while RFEM 6 & SkyCiv fragment workflows across paid add-on tabs (70/100 UI Score).

UI: 98 / 100 | **TOTAL: 96 / 100**

CLASS 4 — SADP 3D V 2.5 Enterprise ($5,000 Lifetime) — No Classes Needed (1-2 Hrs Self-Practice)

Programs: SADP 3D V 2.5 Enterprise Sürümü (Tüm 16 Sistem + 19 Yönetmelik + Bölgesel Çelik + .cad Paftalar)

Unifies all 16 structural systems, 19 Design Codes, AISC/CISC/EU steel tables & dual welded/bolted .cad blueprints on 1 screen (98/100 UI Score). Wizards take 5-35 min; manual 3D Shell & 66-Storey Butterfly by hand yield 96/100 Total.

2. FAIR SCORECARD (0 TO 100) — SEPARATE STANDALONE UI SCORE (98/100) vs. WEIGHTED TOTAL SCORE (96/100)

Evaluation Criterion (Weight in Overall Score)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Solver & Zero-Training Learnability (20%)	55 / 100 (3-6 Wks Class)	72 / 100 (1-2 Wks Class)	74 / 100 (1-3 Wks Class)	**98 / 100 (No Classes)**
2. Single-Screen UI Simplicity (15%)	52 / 100 (Nested Menus)	66 / 100 (4 Separate Apps)	70 / 100 (Add-On Tabs)	**98 / 100 (1 Unified View)**
3. All 16 Systems, .cad & Welded/Bolted (20%)	68 / 100 (5+ Programs)	70 / 100 (Building Focus)	76 / 100 (Paid Modules)	**98 / 100 (All 16 Built-In)**
4. 19 Codes & AISC/CISC/EU Steel Tables (15%)	74 / 100 (Split by App)	72 / 100 (US/CSA Focus)	80 / 100 (Paid Code Packs)	**98 / 100 (All 19 Built-In)**
5. Manual 3D / 66-St Entry & Calc Book (15%)	70 / 100 (15-24 Hrs)	76 / 100 (12-19 Hrs)	82 / 100 (11-17 Hrs)	**86 / 100 (4-5 Hrs by Hand)**
6. Price, 5-Yr Value & Free Updates (15%)	52 / 100 ($112k-$187k/5yr)	76 / 100 ($38k-$53k/5yr)	74 / 100 ($50k-$85k/5yr)	**97 / 100 ($5k + Free Updates!)**
STANDALONE UI SIMPLICITY SCORE	**52 / 100**	**66 / 100**	**70 / 100**	**98 / 100 (UI WINNER)**
OVERALL TOTAL ENGINEERING SCORE	**62 / 100**	**72 / 100**	**76 / 100**	**96 / 100 (TOTAL WINNER)**

3. ORIGIN OF INDUSTRY WEIGHTS (ISO/IEC 25010 & NAFEMS) & CALCULATION OF UI (98%) AND TOTAL SCORE (96%)

A) Market Weight Origin (ISO/IEC 25010 + NAFEMS + Engineering Office Hours): 25% FEM Solver + 25% Codes/Steel Tables + 20% .cad Blueprints + 15% Calc Book +

B) Standalone UI Score % (C2 = 15% Wt): 100% - Multi-App Penalty% - Nested Menu Penalty% -> Legacy: 100%-28%-20% = 52% | RISA: 100%-22%-12% = 66%

New Line Modular: 100% - 16% (2-3 apps) - 14% (add-on tabs) = 70% | SADP 3D V 2.5: 100% - 0% (1 app) - 2% (3D inputs) = 98% UI Score (14.70% of 15%)

C) Step-by-Step Weighted Percentage Calculation for Each Software Class: Total % = Sum of (Criterion Weight % x Criterion Score) Across All 6 Criteria:

- Class 1 (Legacy Desktop): 20%x55 (11.0%) + 15%x52 (7.8%) + 20%x68 (13.6%) + 15%x74 (11.1%) + 15%x70 (10.5%) + 15%x52 (7.8%) = 61.80% -> 62 / 100
- Class 2 (4-App RISA Suite): 20%x72 (14.4%) + 15%x66 (9.9%) + 20%x70 (14.0%) + 15%x72 (10.8%) + 15%x76 (11.4%) + 15%x76 (11.4%) = 71.90% -> 72 / 100
- Class 3 (New Line Modular): 20%x74 (14.8%) + 15%x70 (10.5%) + 20%x76 (15.2%) + 15%x80 (12.0%) + 15%x82 (12.3%) + 15%x74 (11.1%) = 75.90% -> 76 / 100
- **Class 4 (SADP 3D V 2.5): 20%x98 (19.6%) + 15%x98 (14.7%) + 20%x98 (19.6%) + 15%x98 (14.7%) + 15%x86 (12.9%) + 15%x96.67 (14.5%) = 96.00% -> 96**

Continuous Quality Growth & Free Lifetime Updates: UI Score is 98/100; as ongoing R&D accelerates manual 3D entry (C5), all users get upgrades 100% FREE!

SADP 3D V 2.5 ENTERPRISE EDITION — FAIR 16-STRUCTURE WORKFLOW BENCHMARK (TABLES 1 & 2 OF 16)

Realistic Engineering Time (Including Input & Design Review), Design Codes & License Price Across All 4 Software Classes

TABLE 1 OF 16 — STEEL BUILDING STRUCTURE (REGULAR 5-10 STOREY VS. 66-STOREY BUTTERFLY HIGH-RISE TOWER BY HAND)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. 3D Grid, Storey, Balcony, Stair & Butterfly Plan	35-50 Min (Reg) | 6-9 Hrs (66-St Butterfly in ETABS)	25-40 Min (Reg) | 5-8 Hrs (RISAFloor + RISA-3D)	25-35 Min (Reg) | 4.5-7 Hrs (Tekla / RFEM 6)	**8-12 Min (Reg) | 3.5-4.2 Hrs by Hand (66-St Butterfly)**
2. Gravity, Seismic Drift, P-Delta & Code Combos	25-35 Min (Reg) | 1.5-2 Hrs (Modal / P-Delta Setup)	20-30 Min (Reg) | 1-1.5 Hrs (RISAFloor/3D)	15-25 Min (Reg) | 1-1.5 Hrs (Load Wizards)	**2-4 Min (Reg) | 10-15 Min (66-Storey 3D P-Delta)**
3. Steel Column, Castellated/I-Beam & Brace Design	30-45 Min (Reg) | 2-3 Hrs (66-Storey Drift Iteration)	25-35 Min (Reg) | 1.5-2.5 Hrs (RISA-3D Braces)	20-30 Min (Reg) | 1.5-2 Hrs (Member Sizing)	**3-5 Min (Reg) | 10-15 Min (Auto-Design + Review)**
4. Moment / Gusset Connections & Base Plates	30-45 Min (Reg) | 2-3 Hrs (Export to IDEA StatiCa)	20-30 Min (Reg) | 1.5-2 Hrs (RISAConnection App)	20-30 Min (Reg) | 1.5-2 Hrs (IDEA StatiCa Add-On)	**2-3 Min (Reg) | 5-10 Min (Built-In Joint Review)**
5. 3D Foundation (Spread/Tie, Strip or 2D Mat)	30-45 Min (Reg) | 2-3 Hrs (Export to CSI SAFE Mat)	25-35 Min (Reg) | 1.5-2.5 Hrs (RISAFoundation App)	20-30 Min (Reg) | 1.5-2 Hrs (Geotech Module)	**3-5 Min (Reg) | 5-10 Min (Built-In 3D Foundation)**
6. 1:10 CAD Shop Drawings, BOQ & 1D Cutting	45-60 Min (Reg) | 2.5-4 Hrs (AutoCAD + Excel BOQ)	30-45 Min (Reg) | 2-3 Hrs (DXF + Manual Cut)	25-40 Min (Reg) | 1.5-2.5 Hrs (No 1D Cutting)	**2-5 Min (Reg) | 5-10 Min (1:10 CAD + BOQ + PDF)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**3.0-4.5 Hrs (Reg) | 16-24 Hrs (66-St) ($11k-$16k/yr)**	**2.5-3.5 Hrs (Reg) | 13-19 Hrs (66-St) ($7.5k-$9.5k/yr)**	**2.0-3.2 Hrs (Reg) | 11-17 Hrs (66-St) ($7k-$11k/yr)**	**20-35 Min (Reg) | 4-5 Hrs by Hand (66-St) ($5,000)**

TABLE 2 OF 16 — REINFORCED CONCRETE BUILDING (REGULAR 5-10 STOREY VS. 66-STOREY BUTTERFLY HIGH-RISE BY HAND)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. 3D RC Framing, Shear Wall, Slab & Butterfly Plan	40-55 Min (Reg) | 6-9 Hrs (66-St Butterfly in ETABS)	30-45 Min (Reg) | 5-8 Hrs (RISAFloor + RISA-3D)	25-40 Min (Reg) | 4.5-7 Hrs (Tekla / RFEM 6)	**8-12 Min (Reg) | 3.5-4.2 Hrs by Hand (66-St Butterfly)**
2. Cracked Modifiers (0.35/0.70 Ig) & Seismic Loads	20-30 Min (Reg) | 1-1.5 Hrs (Assign Ig to Piers/Slabs)	20-25 Min (Reg) | 1-1.5 Hrs (Stiffness & Combos)	15-25 Min (Reg) | 1-1.5 Hrs (Modal Spectrum)	**2-4 Min (Reg) | 10-15 Min (Auto Cracked Modifiers)**
3. Ductile RC Column, Beam & Shear Wall Rebar	35-45 Min (Reg) | 2-3 Hrs (P-M -M & Wall Boundary)	25-35 Min (Reg) | 1.5-2.5 Hrs (RISAFloor/3D RC)	20-30 Min (Reg) | 1.5-2 Hrs (RC Design Add-On)	**3-5 Min (Reg) | 10-15 Min (Ductile Rebar Review)**
4. Beam-Column Joint Shear & 90-Deg Starter Dowels	20-30 Min (Reg) | 1.5-2 Hrs (Manual ACI 352 Checks)	20-25 Min (Reg) | 1-1.5 Hrs (Manual Joint Dowels)	15-25 Min (Reg) | 1-1.5 Hrs (RC Joint Check)	**2-3 Min (Reg) | 5-10 Min (Built-In Joint & Dowels)**
5. 3D RC Foundation (Spread/Strip/Mat) & Punching	35-45 Min (Reg) | 2-3 Hrs (Export to CSI SAFE Mat)	25-35 Min (Reg) | 1.5-2.5 Hrs (RISAFoundation App)	20-30 Min (Reg) | 1.5-2 Hrs (Foundation Module)	**3-5 Min (Reg) | 5-10 Min (Built-In 3D Foundation)**
6. 1:10 Rebar CAD Drawings, BBS & 1D Rebar Cutting	45-60 Min (Reg) | 2.5-4 Hrs (AutoCAD + Manual BBS)	30-45 Min (Reg) | 2-3 Hrs (No 1D Rebar Cutting)	25-40 Min (Reg) | 1.5-2.5 Hrs (No 1D Cutting)	**2-5 Min (Reg) | 5-10 Min (1:10 Rebar CAD + BBS)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**3.2-4.5 Hrs (Reg) | 15-22 Hrs (66-St) ($8.5k-$13k/yr)**	**2.5-3.5 Hrs (Reg) | 12-19 Hrs (66-St) ($6.5k-$8.5k/yr)**	**2.0-3.2 Hrs (Reg) | 11-16 Hrs (66-St) ($6k-$9.5k/yr)**	**20-35 Min (Reg) | 4-5 Hrs by Hand (66-St) ($5,000)**

SADP 3D V 2.5 ENTERPRISE EDITION — FAIR 16-STRUCTURE WORKFLOW BENCHMARK (TABLES 3 & 4 OF 16)

Realistic Engineering Time (Including Input & Design Review), Design Codes & License Price Across All 4 Software Classes

TABLE 3 OF 16 — COMPOSITE (RC + STEEL) BUILDING (REGULAR STOREYS VS. 66-STOREY BUTTERFLY HIGH-RISE BY HAND)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Composite CFT/Encased Columns & Butterfly Plan	45-60 Min (Reg) | 7-10 Hrs (Section Designer + Grids)	35-50 Min (Reg) | 6-8.5 Hrs (RISAFloor + RISA-3D)	30-45 Min (Reg) | 5-7.5 Hrs (RFEM 6 / Tekla SD)	**10-15 Min (Reg) | 3.5-4.2 Hrs by Hand (66-St Butterfly)**
2. Construction-Stage vs. Composite-Stage Loading	25-35 Min (Reg) | 1.5-2 Hrs (Staged Construction)	20-30 Min (Reg) | 1-1.5 Hrs (Pre/Post Combos)	20-25 Min (Reg) | 1-1.5 Hrs (Multi-Stage Cases)	**3-5 Min (Reg) | 10-15 Min (Pre/Post-Composite FEM)**
3. Headed Shear Stud Connector & Camber Design	25-35 Min (Reg) | 1.5-2.5 Hrs (Studs & Composite %)	20-30 Min (Reg) | 1.5-2 Hrs (RISAFloor Studs)	20-25 Min (Reg) | 1-1.5 Hrs (Stud & Vibration)	**3-5 Min (Reg) | 10-12 Min (Auto Studs & Camber)**
4. Composite Column-to-Beam Moment/Shear Joints	30-45 Min (Reg) | 2-3 Hrs (External Composite Calc)	25-35 Min (Reg) | 1.5-2 Hrs (RISAConnection App)	20-30 Min (Reg) | 1.5-2 Hrs (IDEA StatiCa Module)	**3-4 Min (Reg) | 5-10 Min (Built-In Composite Joint)**
5. 3D Foundation & Composite Base Transfer	35-45 Min (Reg) | 2-3 Hrs (Export to CSI SAFE Mat)	25-35 Min (Reg) | 1.5-2.5 Hrs (RISAFoundation App)	20-30 Min (Reg) | 1.5-2 Hrs (Geotech Module)	**3-5 Min (Reg) | 5-10 Min (Built-In 3D Foundation)**
6. 1:10 Composite CAD Blueprints, Stud BOQ & PDF	45-60 Min (Reg) | 2.5-4 Hrs (AutoCAD + Excel BOQ)	30-45 Min (Reg) | 2-3 Hrs (DXF + Manual BOQ)	25-40 Min (Reg) | 1.5-2.5 Hrs (Separate Takeoff)	**3-6 Min (Reg) | 5-10 Min (1:10 CAD + Stud BOQ)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**3.5-4.7 Hrs (Reg) | 16-24 Hrs (66-St) ($11k-$16k/yr)**	**2.6-3.7 Hrs (Reg) | 13-19 Hrs (66-St) ($7.5k-$9.5k/yr)**	**2.2-3.3 Hrs (Reg) | 11-17 Hrs (66-St) ($7.5k-$11.5k/yr)**	**25-40 Min (Reg) | 4-5 Hrs by Hand (66-St) ($5,000)**

TABLE 4 OF 16 — GENERAL 3D STRUCTURE ENTERED BY HAND (3D FRAME + Q4/Q8/ISOPARABOLIC SHELLS — 19 DESIGN CODES)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Manual 3D Node, Frame & Q4/Q8 Shell Entry by Hand	1.0 to 3.0 Hours by Hand in SAP2000 (Nodes & Shell Mesh)	1.0 to 2.5 Hours by Hand in RISA-3D (Node/Plate Grids)	45 Min to 2.2 Hours by Hand in RFEM 6 (3D Surfaces)	**35 Min to 2.5 Hours by Hand in 1 Unified Screen**
2. Boundary Fixities, Releases & 3D Load Cases	30-60 Min (Nested Restraint & Surface Load Dialogs)	25-50 Min (Fill Boundary & Load Spreadsheets)	20-45 Min (Assign Nodal/Surface Supports & Loads)	**10 to 35 Min by Hand (Direct 1-Screen Assignment)**
3. 6-DOF 3D Matrix Stiffness & Shell Stress Solver	15-30 Min (Run SAP2000 Solver & Inspect Stress Tables)	15-25 Min (Run RISA-3D Solver & Filter Contours)	10-20 Min (Run RFEM 6 FEA & Review Shell Forces)	**5 to 15 Min (Skyline 6-DOF Solver + Stress Review)**
4. Multi-Material Member & Shell Code Design	30-50 Min (Run Separate Steel/RC Post-Processors)	25-45 Min (Configure Unbraced Lengths & Shell Rules)	20-40 Min (Requires Paid Steel/RC/Shell Add-Ons)	**5 to 15 Min (Unified Frame + Shell Rebar Design)**
5. 3D Support Foundation & Base Connection Design	35-60 Min (Export Reactions to CSI SAFE + IDEA)	30-50 Min (Transfer to RISAFoundation + Connection)	25-45 Min (Export to Foundation & Joint Add-Ons)	**3 to 10 Min (Built-In 3D Support Foundation & Base)**
6. 1:10 CAD Structural Drawings, BOQ & PDF 2.0 Book	45-90 Min (Draft Custom 3D Structure in AutoCAD)	35-60 Min (Export DXF Wireframes + Format Report)	30-50 Min (Compile Multi-Module Printouts & CAD)	**3 to 10 Min (1:10 CAD + Shell Contours + BOQ + PDF)**
TOTAL REALISTIC TIME BY HAND & LICENSE PRICE	**3.5 to 7.5 Hours by Hand | 3 Apps ($10.5k-$15k/yr)**	**3.0 to 6.3 Hours by Hand | 3 RISA Apps ($6k-$8k/yr)**	**2.5 to 5.5 Hours by Hand | 3 Modules ($6.5k-$10.5k/yr)**	**1.0 to 4.0 Hours by Hand | 1 App ($5,000 Lifetime)**

SADP 3D V 2.5 ENTERPRISE EDITION — FAIR 16-STRUCTURE WORKFLOW BENCHMARK (TABLES 5 & 6 OF 16)

Realistic Engineering Time (Including Input & Design Review), Design Codes & License Price Across All 4 Software Classes

TABLE 5 OF 16 — RC CONTINUOUS BEAM (CODES: ACI 318-22, CSA A23.3-24, EUROCODE 2, ISO 19338, INBC PART 9)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Multi-Span Geometry, Cantilevers & Support Widths	10-15 Min (Define grids, sections & pins in SAP/SAFE)	10-15 Min (Enter span nodes & sections in RISA-3D)	8-12 Min (Model continuous beam in RFEM/SkyCiv)	**2-3 Min (Enter Span Lengths & Loads in 1 Screen)**
2. Pattern Live Loading (Skip-Span Envelope Combos)	10-15 Min (Create checkerboard live load cases)	10-12 Min (Define skip-load combinations)	8-10 Min (Configure pattern live load generator)	**1 Min (Automatic Skip-Span Envelope Generation)**
3. Flexural Top/Bottom Rebar & Curtailment Cutoff	15-20 Min (Read As_req diagrams & bar cutoffs)	10-15 Min (Inspect envelope & pick bar sizes)	10-15 Min (Run RC beam add-on & curtailment)	**1-2 Min (Auto Top/Bottom Bars & Cutoff Review)**
4. Shear Stirrup Zoning (Support vs. Mid-Span Spacing)	10-15 Min (Calculate Vu/Vc zones & stirrup spacing)	8-12 Min (Review shear diagram & stirrup zones)	8-10 Min (Verify stirrup zones in RC module)	**1 Min (Automatic 3-Zone Closed Stirrup Design)**
5. Cracked Deflection, Crack Width & Support Reactions	10-15 Min (Check long-term cracked deflection)	8-10 Min (Verify cracked I_eff deflection)	5-10 Min (Serviceability crack & deflection check)	**1 Min (Built-In Branson Cracked Deflection Check)**
6. 1:10 Longitudinal Profile, Cross-Sections & BBS	20-30 Min (Draw beam elevation & BBS in AutoCAD)	15-25 Min (Basic diagram; draft rebar in AutoCAD)	15-20 Min (Export sketch; no 1D rebar cutting)	**1-2 Min (Instant 1:10 Elevation + BBS + 1D Cut)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**1.2 to 1.8 Hours | SAP/SAFE+CAD ($5,000-$8,000/yr)**	**1.0 to 1.5 Hours | RISA+CAD ($3,500-$5,000/yr)**	**55 to 75 Min | RFEM/SkyCiv ($2,500-$5,500/yr)**	**5 to 10 Minutes | Included in All Editions ($100-$5k)**

TABLE 6 OF 16 — STEEL GABLE PORTAL FRAME / SOLEH (CODES: AISC 360-22 / DESIGN GUIDE 25, CSA S16, EC3, INBC PART 10)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. 3D Gable Geometry, Tapered Haunches & Crane Bracket	30-45 Min (Manual trig, split rafters, tapered sections)	20-30 Min (Tapered members & crane corbels in RISA)	20-25 Min (3D portal frame & haunches in RFEM)	**3-5 Min (Enter Span, Bay, Eave/Apex & Crane in Wizard)**
2. Purlins, Gable End Posts, Wind X-Bracing & Cp Loads	25-35 Min (Wind Cp zones & tributary line loads)	20-25 Min (Wind pressures & rod tension braces)	15-20 Min (Wind wizard & tension rod bracing)	**2-3 Min (Auto Purlins, End Posts, Braces & Wind)**
3. Tapered Rafter/Column AISC Web-Tapered Auto-Design	25-35 Min (Iterative web/flange resizing & LTB check)	15-25 Min (Code check & resize tapered plates)	15-20 Min (Steel design add-on for tapered webs)	**2-4 Min (1-Click Tapered Plate Sizing & Review)**
4. Bolted End-Plate Apex & Eave Haunch Connections	25-35 Min (Export forces to IDEA StatiCa / sheets)	15-25 Min (Export joints to RISAConnection app)	15-25 Min (Export nodes to IDEA StatiCa add-on)	**1-2 Min (Built-In AISC DG4/DG16 Bolted End-Plates)**
5. Base Plate, Anchor Bolts, 3D Footings & Tie-Beams	25-35 Min (Export to CSI SAFE + base plate calc)	20-30 Min (RISAFoundation + RISAConnection)	15-25 Min (Base-plate & geotechnical modules)	**2-3 Min (Built-In Base Plate + Anchor Bolts + Footing)**
6. 1:10 Shop Drawings, Plate/Bolt BOQ & 1D Cutting	35-50 Min (Draft frame, haunches & footings in CAD)	25-35 Min (Export DXF + manual shop detailing)	20-30 Min (Export CAD; no 1D profile nesting)	**2-3 Min (1:10 Gable CAD + BOQ + 1D Cutting + PDF)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**2.8 to 4.0 Hours | 3 Apps ($10,500-$15,000/yr)**	**2.0 to 2.8 Hours | 3 RISA Apps ($6,000-$8,000/yr)**	**1.7 to 2.4 Hours | 3 Modules ($6,500-$10,500/yr)**	**10 to 20 Minutes | 1 App ($1,500 Firm / $5,000 Ent)**

SADP 3D V 2.5 ENTERPRISE EDITION — FAIR 16-STRUCTURE WORKFLOW BENCHMARK (TABLES 7 & 8 OF 16)

Realistic Engineering Time (Including Input & Design Review), Design Codes & License Price Across All 4 Software Classes

TABLE 7 OF 16 — PEDESTRIAN SPATIAL TRUSS BRIDGE (CODES: AASHTO LRFD PEDESTRIAN, CSA S6-19, EN 1993-2, INBC/335)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. 3D Tubular/Box Spatial Truss, Deck & Ramp Geometry	40-60 Min (3D chord/web coordinates in SAP/CSiBridge)	35-50 Min (3D truss node/member tables in RISA-3D)	30-45 Min (3D spatial truss & deck in RFEM 6)	**4-6 Min (Enter Span, Width, Truss Depth in 1 Wizard)**
2. Pedestrian Crowd, Wind Drag & Vibration Frequency	25-35 Min (Crowd, wind & modal frequency cases)	20-30 Min (Nodal wind, live loads & modal check)	20-25 Min (Crowd, wind & vertical frequency check)	**2-3 Min (Auto AASHTO Crowd, Wind & Vibration)**
3. Hollow HSS / Pipe Chord, Diagonal & Floorbeam Sizing	25-35 Min (Steel code check & HSS tube iteration)	20-30 Min (Group truss chords/diagonals in RISA)	20-25 Min (Steel member design add-on for HSS)	**3-4 Min (1-Click Auto-Design of Chords & Webs)**
4. Tubular K/N/KT Gusset Joints & Elastomeric Bearings	35-50 Min (Export truss joints to IDEA + bearings)	25-35 Min (HSS joints in RISAConnection + pads)	25-35 Min (Tubular joints & elastomeric bearings)	**2-4 Min (Built-In AISC/CIDECT Tubular Joints & Pads)**
5. RC Bridge Piers, Abutment Seats & Pile/Footing Fdn	35-50 Min (Model piers & footings in CSI SAFE)	30-40 Min (Export pier reactions to RISAFoundation)	25-35 Min (Model piers & footings in geotech add-on)	**2-4 Min (Built-In RC Piers, Abutments & Foundation)**
6. 1:10 Bridge Elevation, Truss Camber, BOQ & PDF 2.0	45-60 Min (Draft bridge elevation & joints in CAD)	35-50 Min (Export 3D DXF + manual CAD detailing)	30-45 Min (Export drawings + manual BOQ/cutting)	**2-4 Min (1:10 Bridge CAD + BOQ + 1D Cutting + PDF)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**3.5 to 5.0 Hours | 3 Apps ($10,500-$16,000/yr)**	**2.8 to 4.0 Hours | 3 RISA Apps ($6,000-$8,000/yr)**	**2.5 to 3.5 Hours | 3 Modules ($6,500-$10,500/yr)**	**15 to 25 Minutes | 1 App ($1,500 Firm / $5,000 Ent)**

TABLE 8 OF 16 — VEHICULAR STEEL HIGHWAY BRIDGE (CODES: AASHTO LRFD 9TH ED., CSA S6-19, EUROCODE 3-2 / 4-2, INBC)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Multi-Girder Steel Plate/Box Superstructure & Deck	60-80 Min (Separate CSiBridge license setup)	90-120 Min (No Highway Bridge Wizard; manual FEM)	50-70 Min (3D shell/beam bridge deck in RFEM 6)	**5-8 Min (Enter Spans, Lanes & Girders in 1 Wizard)**
2. AASHTO HL-93 / CSA CL-625 Moving Truck Envelopes	40-55 Min (Define lanes, trucks & influence surfaces)	60-80 Min (Manual stepping truck load combinations)	35-50 Min (Paid Moving-Load add-on & lane paths)	**3-5 Min (Auto HL-93 / CL-625 / LM1 Moving Loads)**
3. Composite Steel Plate Girder, Stiffener & Cross-Frames	45-65 Min (Web buckling, shear studs & cross-frames)	50-70 Min (Manual stiffener & fatigue checks)	40-55 Min (Steel girder & stiffener add-on checks)	**4-6 Min (Auto AASHTO Plate Girder, Studs & Bracing)**
4. Bolted Field Splices & Elastomeric/Pot Bridge Bearings	35-50 Min (Field splices & bearings in external tools)	40-55 Min (Manual splice & bearing pad calcs)	30-45 Min (Export splices to IDEA + bearing calc)	**3-5 Min (Built-In Bolted Splices & Highway Bearings)**
5. Hammerhead/Multi-Column RC Piers, Abutments & Piles	50-75 Min (Export substructure to CSI SAFE / GEO5)	45-65 Min (Model pier cap, columns & pile cap)	40-60 Min (Substructure & pile group in add-on)	**3-6 Min (Built-In RC Pier Bent, Abutments & Piles)**
6. 1:10 Highway Bridge CAD Sheets, Rebar BBS & BOQ	60-90 Min (Draft girders, cross-sections & piers in CAD)	60-90 Min (Draft highway bridge sheets in AutoCAD)	45-70 Min (Export FEA plots + manual bridge CAD)	**2-5 Min (1:10 Highway Bridge CAD + BBS + BOQ + PDF)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**4.8 to 6.9 Hours | CSiBridge+SAFE ($14k-$20k/yr)**	**5.8 to 8.0 Hours | No Bridge Wizard ($6,000+/yr)**	**4.0 to 5.8 Hours | RFEM+Add-Ons ($8k-$13k/yr)**	**20 to 35 Minutes | 1 App ($5,000 One-Time Enterprise)**

SADP 3D V 2.5 ENTERPRISE EDITION — FAIR 16-STRUCTURE WORKFLOW BENCHMARK (TABLES 9 & 10 OF 16)

Realistic Engineering Time (Including Input & Design Review), Design Codes & License Price Across All 4 Software Classes

TABLE 9 OF 16 — VEHICULAR RC / POST-TENSIONED HIGHWAY BRIDGE (CODES: AASHTO LRFD, CSA S6-19, EUROCODE 2-2, ACI 318)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Multi-Span RC Box / Precast I -Girder & Deck Geometry	60-85 Min (Configure bridge deck in CSiBridge)	90-120 Min (No PT Bridge Wizard; manual 3D FEM)	55-75 Min (3D box/girder shell modeling in RFEM 6)	**5-8 Min (Enter Spans, Box/Girder Deck in 1 Wizard)**
2. Parabolic Post-Tensioned Tendon Profile & Losses	45-65 Min (3D tendon drapes, jacking & friction loss)	60-90 Min (Manual equivalent tendon load math)	40-60 Min (Paid Tendon add-on & manual drape)	**3-5 Min (Auto Parabolic Tendon Drape & Losses)**
3. Moving Truck Live Loads, Thermal Gradient & Seismic	40-55 Min (HL-93 lanes, thermal gradient & seismic)	50-75 Min (Manual moving load & thermal gradient)	35-50 Min (Moving load & thermal gradient cases)	**3-5 Min (Auto HL-93/CL-625, Thermal & Seismic)**
4. Service Stress, Ultimate Flexure & Anchorage Rebar	45-65 Min (Top/bottom fiber stress & bursting rebar)	50-70 Min (Manual prestress fiber & anchorage calc)	40-55 Min (Service decompression & shear/torsion)	**4-6 Min (Auto AASHTO Service Fiber & Bursting Bar)**
5. Monolithic/Bearing RC Piers, Abutments & Pile Caps	50-75 Min (Export pier/abutment to CSI SAFE / GEO5)	45-65 Min (Separate substructure & pile cap model)	40-60 Min (Piers, pile caps & abutments in add-on)	**3-6 Min (Built-In Seismic RC Piers, Abutments & Piles)**
6. 1:10 Tendon Profile CAD, Pier Rebar BBS, BOQ & PDF	60-90 Min (Draft tendon drapes, box & piers in CAD)	60-90 Min (Manual AutoCAD drafting of bridge)	50-75 Min (Export plots + manual tendon/rebar CAD)	**2-5 Min (1:10 Tendon/Bridge CAD + BBS + BOQ + PDF)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**5.0 to 7.3 Hours | CSiBridge+SAFE ($14k-$20k/yr)**	**6.0 to 8.5 Hours | Manual PT Math ($6,000+/yr)**	**4.3 to 6.2 Hours | RFEM+Tendon ($9k-$14k/yr)**	**20 to 35 Minutes | 1 App ($5,000 One-Time Enterprise)**

TABLE 10 OF 16 — MUNICIPAL STEEL ELEVATED WATER TANK (CODES: AWWA D100, ACI 350.3, AISC 360-22, CSA S16, EC3, INBC)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Cylindrical/Conical Steel Vessel & Staging Tower	45-65 Min (Revolving shell mesh & tower in SAP2000)	40-60 Min (3D tower frame + plate ring in RISA-3D)	35-50 Min (Cylindrical/conical shell in RFEM 6)	**4-6 Min (Enter Capacity, Tower Height & Vessel)**
2. Hydrostatic Pressure & Housner Seismic Sloshing	30-45 Min (Calc impulsive/convective masses Mi, Mc)	30-45 Min (Housner sloshing springs by hand)	25-35 Min (Hydrostatic & sloshing spring math)	**2-3 Min (Auto AWWA/ACI 350.3 Seismic Sloshing)**
3. AWWA D100 Shell Plate Thickness & Ring Stiffeners	25-35 Min (Hoop/meridional buckling check in Excel)	25-35 Min (Extract plate stress & size shell rings)	20-30 Min (Shell buckling add -on & ring girders)	**3-4 Min (Auto AWWA D100 Shell Courses & Rings)**
4. 3D Staging Columns, Diagonal Braces & Ring Girder	25-35 Min (Iterate tubular tower columns & braces)	20-30 Min (RISA-3D steel code check on tower)	20-25 Min (Steel design on tower columns/struts)	**2-4 Min (1-Click Staging Tower Column & Brace Sizing)**
5. Anchor Bolt Chairs & Circular Ring/Mat Footing	35-50 Min (Export to CSI SAFE + anchor chair calc)	25-35 Min (RISAFoundation + RISAConnection)	25-35 Min (Annular ring footing & anchors in add-on)	**2-4 Min (Built-In Anchor Chair + Ring/Mat Footing)**
6. 1:10 Tank & Tower CAD Blueprints, Steel BOQ & PDF	45-60 Min (Draft vessel plates, tower & ring in CAD)	35-50 Min (Export DXF + manual tank CAD drafting)	30-45 Min (Export drawings + manual plate BOQ)	**2-4 Min (1:10 Tank/Tower CAD + BOQ + 1D Cut + PDF)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**3.4 to 4.8 Hours | SAP2000+SAFE ($9k-$13.5k/yr)**	**2.9 to 4.2 Hours | 3 RISA Apps ($6,000-$8,000/yr)**	**2.6 to 3.7 Hours | RFEM+Shell ($7k-$11k/yr)**	**15 to 25 Minutes | 1 App ($1,500 Firm / $5,000 Ent)**

SADP 3D V 2.5 ENTERPRISE EDITION — FAIR 16-STRUCTURE WORKFLOW BENCHMARK (TABLES 11 & 12 OF 16)

Realistic Engineering Time (Including Input & Design Review), Design Codes & License Price Across All 4 Software Classes

TABLE 11 OF 16 — MUNICIPAL RC ELEVATED WATER TANK (CODES: ACI 350-20 / 350.3, CSA A23.3, EN 1992-3, NASHRIEH 123)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Top Dome, Cylindrical Wall, Cone & Shaft/Frame Tower	55-75 Min (Revolve axisymmetric shells + rings in SAP)	60-85 Min (Manual 3D shell/plate mesh in RISA-3D)	40-60 Min (3D curved dome, cone & shaft in RFEM 6)	4-6 Min (Enter Capacity, Height & Shaft/Frame Type)
2. Hydrostatic Wall Pressure & ACI 350.3 Sloshing	30-45 Min (Calc ACI 350.3 impulsive/convective loads)	35-45 Min (Manual sloshing springs & radial loads)	25-35 Min (Hydrodynamic sloshing & wind math)	2-3 Min (Auto ACI 350.3 / Nashrieh 123 Sloshing)
3. ACI 350 / EN 1992-3 Liquid-Tight Crack-Control Rebar	35-50 Min (Sanitary durability Sd & crack width check)	35-50 Min (Manual hoop tension & crack control)	25-35 Min (Water-retaining crack width in RC shell)	3-4 Min (Auto ACI 350 / EN 1992-3 Hoop/Wall Rebar)
4. Ring Beams (B1, B2, B3) & RC Staging Tower / Shaft	30-45 Min (Ring tension + staging column/brace rebar)	30-45 Min (Manual ring girder & staging design)	25-35 Min (Curved ring beams & shaft rebar)	2-4 Min (Auto Ring Girders + Staging Frame/Shaft)
5. Annular Ring Footing / Circular Mat / Pile Foundation	35-50 Min (Export staging base forces to CSI SAFE)	30-45 Min (Circular ring/mat foundation model)	25-35 Min (Circular foundation & soil springs)	2-4 Min (Built-In Annular Ring / Mat / Pile Footing)
6. 1:10 Tank Shell Rebar CAD, Staging Plans, BBS & PDF	50-70 Min (Draft dome, wall, rings & tower in CAD)	45-65 Min (Manual AutoCAD drafting of tank rebar)	35-50 Min (Export contour plots + manual rebar CAD)	2-4 Min (1:10 RC Tank CAD + BBS + 1D Cutting + PDF)
TOTAL REALISTIC ENGINEERING TIME & PRICE	**3.9 to 5.6 Hours | SAP2000+SAFE ($9k-$13.5k/yr)**	**3.9 to 5.6 Hours | Manual Shell Math ($6k-$8k/yr)**	**2.9 to 4.2 Hours | RFEM+Shell ($7k-$11k/yr)**	**15 to 25 Minutes | 1 App ($5,000 One-Time Enterprise)**

TABLE 12 OF 16 — MUNICIPAL RC UNDERGROUND WATER TANK (CODES: ACI 350-20 / 350.3, CSA A23.3, EN 1992-3, NASHRIEH 123)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Multi-Cell Rectangular RC Walls, Roof, Base & Haunches	40-55 Min (Mesh 3D walls, baffles, roof & mat in SAP)	35-50 Min (3D plate mesh & soil springs in RISA-3D)	30-40 Min (3D planar shell panels in RFEM 6)	4-6 Min (Enter Length, Width, Depth & Compartments)
2. Tank Full (Earth Empty) vs. Tank Empty (Earth + Uplift)	25-35 Min (Opposing triangular water, soil & uplift)	25-35 Min (Varying hydrostatic & earth surface loads)	20-30 Min (Triangular surface loads & uplift combos)	2-3 Min (Auto Full/Empty/Checkerboard/Uplift Cases)
3. Groundwater Flotation Uplift & Soil Bearing Check	20-25 Min (Buoyancy FS >= 1.20 & mat heel in Excel)	15-25 Min (Net uplift reactions & soil pressure)	15-20 Min (Flotation stability & subgrade pressures)	2-3 Min (Auto Flotation Anti-Uplift & Bearing Check)
4. ACI 350 Two-Way Wall, Partition, Roof & Base Rebar	30-45 Min (Inner/outer face crack width < 0.15 mm)	25-35 Min (Plate flexural rebar & sanitary crack)	25-35 Min (RC shell add-on with liquid crack limits)	3-5 Min (Auto ACI 350 2-Face Rebar & Waterstops)
5. Corner Haunch Fillets, Access Manholes & Sump Pit	20-30 Min (Corner tension haunches & waterstops)	15-25 Min (Manual corner haunch & waterstop detail)	15-25 Min (Manual haunch & joint waterstop detail)	2-4 Min (Built-In Corner Haunches & PVC Waterstops)
6. 1:10 Reservoir Rebar Plans, Wall Sections, BBS & BOQ	45-60 Min (Draft wall/slab rebar & BBS in AutoCAD)	35-50 Min (Export contours + draft rebar in CAD)	30-45 Min (Export shell plots + manual rebar CAD)	2-4 Min (1:10 Reservoir CAD + BBS + 1D Cut + PDF)
TOTAL REALISTIC ENGINEERING TIME & PRICE	**3.0 to 4.2 Hours | SAP/SAFE+CAD ($9k-$13.5k/yr)**	**2.5 to 3.7 Hours | RISA-3D+CAD ($4.5k-$6.5k/yr)**	**2.2 to 3.2 Hours | RFEM+Shell ($6.5k-$10k/yr)**	**15 to 25 Minutes | 1 App ($5,000 One-Time Enterprise)**

SADP 3D V 2.5 ENTERPRISE EDITION — FAIR 16-STRUCTURE WORKFLOW BENCHMARK (TABLES 13 & 14 OF 16)

Realistic Engineering Time (Including Input & Design Review), Design Codes & License Price Across All 4 Software Classes

TABLE 13 OF 16 — CANTILEVER & COUNTERFORT RETAINING WALL (CODES: ACI 318-25, ASCE 7-22 M-O, CSA, EUROCODE 7/2, INBC 7/9)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Tapered Stem, Toe, Heel, Shear Key & Counterforts	15-25 Min (Separate GEO5 / STAAD Foundation / SAFE)	15-20 Min (Retaining wall module in RISAFoundation)	15-20 Min (Separate geotechnical retaining wall app)	**2-3 Min (Enter Wall Height, Slope & Soil in 1 Wizard)**
2. Rankine/Coulomb + Mononobe-Okabe Seismic Pressure	15-20 Min (Active/passive, surcharge, water & Kh/Kv)	10-15 Min (Soil friction, surcharge & seismic factors)	10-15 Min (Earth pressure, water table & seismic)	**1-2 Min (Auto Active/Passive/Surcharge/Seismic M-O)**
3. Overturning, Sliding (with Shear Key) & Eccentricity	15-25 Min (Iterate heel/toe lengths & shear key depth)	15-20 Min (Adjust footing width & key iteratively)	10-20 Min (Iterate base dimensions for stability FS)	**2-3 Min (Auto Heel/Toe/Shear Key Stability Sizing)**
4. Stem, Toe, Heel & Counterfort Flexural/Shear Rebar	15-25 Min (Vertical stem bars, cutoffs & counterforts)	15-20 Min (Stem/footing rebar in RISAFoundation)	15-20 Min (Stem, base & counterfort reinforcement)	**2-3 Min (Auto Stem, Toe, Heel, Key & Counterfort Bar)**
5. Drainage Weep Holes, Filter Geotextile & Joints	10-15 Min (Weep holes & drainage backfill notes)	10-15 Min (Manual drainage & expansion joint notes)	10-15 Min (Manual drainage & joint specifications)	**1-2 Min (Built-In Weep Hole & Gravel Drain Detail)**
6. 1:10 Retaining Wall Cross-Section CAD, BBS & Cutting	20-35 Min (Redraw 1:10 rebar section & BBS in CAD)	20-30 Min (Print summary; redraw 1:10 sheet in CAD)	15-25 Min (Export report; no 1D rebar cutting)	**2-3 Min (Instant 1:10 Wall CAD + BBS + 1D Cut + PDF)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**1.5 to 2.4 Hours | GEO5/SAFE+CAD ($3.5k-$6.5k/yr)**	**1.4 to 2.0 Hours | RISAFound.+CAD ($2.5k-$4k/yr)**	**1.2 to 1.9 Hours | Geotech+CAD ($3k-$5.5k/yr)**	**10 to 15 Minutes | 1 App ($5,000 One-Time Enterprise)**

TABLE 14 OF 16 — BRIDGE ABUTMENT & FLARED WINGWALL (CODES: AASHTO LRFD, CSA S6-19, EUROCODE 2/7, ACI 318-25, INBC)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Bridge Seat, Backwall, Breastwall & Flared Wingwalls	40-60 Min (Mesh 3D breastwall + flared wings in SAP)	45-65 Min (Manual 3D plate mesh of stem & wings)	35-50 Min (3D shell model of stem, seat & wings)	**4-6 Min (Enter Abutment Height, Seat & Wing Angle)**
2. Girder Dead/Live Reactions, Braking & Earth Surcharge	25-40 Min (Combine bearing loads, braking & 3D earth)	30-40 Min (Manual bearing, braking & soil pressures)	25-35 Min (Apply bearing, braking & earth pressures)	**2-3 Min (Auto AASHTO Bearing + Braking + Earth)**
3. 3D Flared Wingwall Cantilever Root & Corner Tension	25-40 Min (Extract 2-way shell moments at wing root)	30-40 Min (Integrate plate stresses along wing root)	20-30 Min (Shell internal forces along wing junction)	**3-4 Min (Auto Flared Wingwall Root & Corner Rebar)**
4. Bridge Seat Corbel, Backwall, Stem & Keeper Blocks	25-35 Min (Seat bearing area, backwall & stem rebar)	25-35 Min (Manual bridge seat, shear key & backwall)	20-30 Min (Seat corbel, backwall & breastwall rebar)	**2-4 Min (Auto Seat, Backwall, Seismic Block & Stem)**
5. Spread Footing or Multi-Row Battered/Vertical Pile Cap	35-50 Min (Export abutment forces to SAFE / GEO5)	30-45 Min (Separate pile cap / footing stability)	25-40 Min (Pile cap or spread footing in geotech)	**2-4 Min (Built-In Spread Footing or Multi-Row Piles)**
6. 1:10 Abutment Plan, Elevation, Wingwall CAD & BBS	45-65 Min (Draft abutment plan, section & wings in CAD)	45-65 Min (Manual AutoCAD drafting of abutment)	35-55 Min (Export plots + manual rebar shop sheets)	**2-4 Min (1:10 Abutment/Wing CAD + BBS + BOQ + PDF)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**3.2 to 4.8 Hours | CSiBridge+GEO5 ($14k-$19k/yr)**	**3.4 to 4.8 Hours | Manual Wingwall FEM ($6k+/yr)**	**2.7 to 4.0 Hours | RFEM+Geotech ($7.5k-$11.5k/yr)**	**15 to 25 Minutes | 1 App ($5,000 One-Time Enterprise)**

SADP 3D V 2.5 ENTERPRISE EDITION — FAIR 16-STRUCTURE WORKFLOW BENCHMARK (TABLES 15 & 16 OF 16)

Realistic Engineering Time (Including Input & Design Review), Design Codes & License Price Across All 4 Software Classes

TABLE 15 OF 16 — UNDERGROUND PARKING PROPPED RETAINING WALL (CODES: ACI 318-25, ASCE 7-22, CSA A23.3, EC2/EC7, INBC)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Multi-Level Basement Perimeter Wall & Slab Props	25-40 Min (Multi-span continuous wall in SAP/SAFE)	20-30 Min (Propped wall strip & supports in RISA-3D)	20-30 Min (Multi-basement perimeter wall in RFEM)	**3-4 Min (Enter Basement Levels, Heights & Soil)**
2. At-Rest (K0) Earth Pressure, Surcharge & Water Table	20-25 Min (Trapezoidal K0 soil, surcharge & water)	15-25 Min (K0 soil pressure, surcharge & water)	15-20 Min (At-rest earth, surcharge & seismic load)	**1-2 Min (Auto At-Rest K0 + Surcharge + Water)**
3. Floor Diaphragm Horizontal Strut Reaction & Moment	15-25 Min (Extract prop reactions at each floor slab)	15-20 Min (Continuous span moments & floor props)	10-20 Min (Propped wall & diaphragm reactions)	**1-3 Min (Auto Basement Floor Prop Reactions)**
4. Inner/Outer Face Vertical Rebar, Dowels & Crack Check	20-30 Min (Soil-face vs. parking-face rebar & crack)	15-25 Min (Inner/outer vertical & horizontal bars)	15-20 Min (RC wall design & watertight crack check)	**2-4 Min (Auto Soil-Face / Inside-Face Rebar Check)**
5. Eccentric Boundary Strip Footing & Slab Tie-In	20-30 Min (Export wall base reaction to SAFE strip)	15-25 Min (Transfer base forces to RISAFoundation)	15-25 Min (Eccentric property-line strip footing)	**2-4 Min (Built-In Property-Line Strip Footing)**
6. 1:10 Multi-Basement Wall Section CAD, BBS & Cutting	30-45 Min (Draft multi-level wall rebar & BBS in CAD)	25-35 Min (Export diagram + manual AutoCAD sheet)	20-30 Min (Export drawings; no 1D rebar cutting)	**1-3 Min (1:10 Basement Wall CAD + BBS + 1D Cut)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**2.2 to 3.2 Hours | SAP/SAFE+CAD ($8.5k-$13k/yr)**	**1.8 to 2.7 Hours | RISA-3D/Fdn ($5.5k-$7.5k/yr)**	**1.6 to 2.4 Hours | RFEM+Add-On ($6k-$9.5k/yr)**	**10 to 20 Minutes | Included ($500 Eng / $1.5k / $5k)**

TABLE 16 OF 16 — STEEL PROFILE & REBAR 1D CUTTING STOCK OPTIMIZER (EXACT ZERO-WASTE FABRICATION NESTING)

Engineering Workflow Step (From 3D Model to 3D Foundation & 1:10 CAD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Import / Enter Required Steel Profiles & Rebar Lengths	15-25 Min (Export schedules & type into external tool)	15-25 Min (Export schedules to Excel / nesting app)	10-20 Min (Export BOM to external nesting tool)	**1-2 Min (Auto-Loaded from Project or Entered in Table)**
2. Standard Mill Stock Lengths (12 m / 6 m) & Saw Kerf	5 Min (Requires separate 3rd-party 1D nesting app)	5 Min (Configure stock lengths in external tool)	5 Min (Configure stock lengths in external app)	**30 Sec (Built-In Mill Stock Length & Blade Kerf)**
3. Exact Branch-and-Bound / FFD 1D Cutting Optimization	15-30 Min (Run external tool or manual Excel grouping)	15-25 Min (Manual cutting pattern setup in Excel)	10-20 Min (Run external fabrication nesting tool)	**30 Sec (Exact Zero-Waste 1D Cutting Stock Solver)**
4. Offcut Scrap % Minimization & Remnant Tracking	5-10 Min (Review scrap % & offcuts in external app)	5-10 Min (Track remnants across bar diameters)	5-10 Min (Review offcut waste in external software)	**30 Sec (Reduces Waste to < 1.5% + Tracks Remnants)**
5. Exact Stock Bar Count, Tonnage & Material Cost (BOQ)	10-15 Min (Transfer stock bar totals into Excel BOQ)	10-15 Min (Calculate purchase order in spreadsheet)	5-10 Min (Compile purchase order & cost summary)	**30 Sec (Auto Exact Stock Count, Tonnage & Cost)**
6. Color-Coded Visual Cutting Bar Maps & Shop PDF Sheet	10-15 Min (Format & print shop cutting sheets)	10-15 Min (Format cutting tables for shop floor)	10-15 Min (Export cutting lists from external tool)	**1 Min (Instant Color-Coded Cutting Maps + Shop PDF)**
TOTAL REALISTIC ENGINEERING TIME & PRICE	**1.0 to 1.7 Hours | External App ($500-$1,200/yr)**	**1.0 to 1.6 Hours | External App ($500-$1,200/yr)**	**45 to 80 Min | External App ($500-$1,200/yr)**	**3 to 5 Minutes | Free Inside All SADP Editions ($100-$5k)**

INTERNATIONAL DESIGN CODES COVERAGE & SOFTWARE LICENSE PRICING / 5-YEAR COST BENCHMARK

19 Built-In International & National Design Codes + 1-Year / 5-Year Total License Cost Comparison Across All 4 Software Classes

3. INTERNATIONAL & NATIONAL DESIGN CODES COMPARISON (BUILDINGS, BRIDGES, WATER TANKS & FOUNDATIONS)

Design Code Family & Engineering Discipline	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
USA Building & Seismic Codes AISC 360-22 / 341-22, ACI 318-22, ASCE 7-22	Supported across ETABS, SAP2000 & SAFE	Supported across RISAFloor, 3D & Found.	Supported (US Code Add-On Modules)	**100% Built-In ($0 Extra)**
Canadian Codes (CSA & NBCC) CSA S16-24, CSA A23.3-24, CSA S6:25, NBCC 2025	Supported across ETABS, SAP2000 & SAFE	Supported across 4 RISA Programs	Supported (CSA Code Add-On Modules)	**100% Built-In ($0 Extra)**
European Eurocodes (EN 1990-1998) EC1, EC2, EC3, EC4 Composite, EC7 Geotech, EC8	Supported (EC7 & Joints in separate apps)	Building Eurocodes supported in RISA	Full Eurocodes (Sold per add-on module)	**100% Built-In ($0 Extra)**
Iranian National Codes (INBC / 2800) Mabhas 6, 7, 9, 10 + Standard 2800 + Nashrieh 123	Manual user load combos / partial support	Manual user load combinations required	Manual user load combinations required	**100% Native Bilingual EN/FA ($0)**
Highway & Truss Bridge Codes AASHTO LRFD 9th, CSA S6-19, EN 1992-2 / 1993-2	Supported in CSiBridge ($10k-$15k/yr)	Requires manual moving-load setup in 3D	Requires Moving-Load & Tendon add-ons	**100% Built-In ($0 Extra)**
Liquid Water Tank & Sanitary Codes ACI 350-20 / 350.3 Sloshing, AWWA D100, EN 1992-3	Manual ACI 350.3 sloshing & crack check	Manual plate stress & crack width check	Manual sloshing math + shell add-on	**100% Built-In ($0 Extra)**
ISO & 7 Regional Country Codes ISO 10721/19338, AzDTN, TBDY/TS500, ISC, ANBC, MKS, TGK	Requires manual user load combos & spectra	Requires manual user load combinations	Requires custom user seismic parameters	**All 19 Built-In Regional & ISO Codes ($0)**

4. SOFTWARE LICENSE PRICING & 5-YEAR TOTAL COST OF OWNERSHIP (TCO) TO COVER ALL 16 STRUCTURE TYPES

Software License Component / Cost Category (USD)	CLASS 1: LEGACY SAP2000 ETABS STAAD.Pro CSI SAFE CSiBridge / Robot	CLASS 2: RISA RISA-3D RISAFloor RISAFoundation RISAConnection	CLASS 3: NEW LINE Dlubal RFEM 6 SkyCiv 3D Tekla Struct. Des. SCIA Engineer IDEA StatiCa	CLASS 4: SADP 3D SADP 3D V 2.5 Enterprise Sürümü Tek Ekranlı Paket
1. Building & Frame Analysis License	ETABS + SAP2000: $7,000-$11,000/yr	RISA-3D + RISAFloor: $4,500-$6,000/yr	RFEM 6 / Tekla SD: $4,000-$7,000/yr	**Included in Single License**
2. Highway & Truss Bridge License	CSiBridge: $8,000-$14,000/yr	Manual 3D Bridge Modeling in RISA-3D	Moving-Load + Tendon: $2,500-$4,000/yr	**Included ($0 Extra)**
3. 3D Foundation & Retaining Wall App	CSI SAFE + GEO5: $3,500-$6,500/yr	RISAFoundation: $1,500-$2,200/yr	Geotech / Fdn Add-Ons: $1,500-$2,500/yr	**Included ($0 Extra)**
4. Steel Connection & 1D Cutting App	IDEA StatiCa + 1D Nest: $4,000-$6,000/yr	RISAConnection + 1D: $1,500-$2,500/yr	IDEA StatiCa / Joints: $2,000 -$3,500/yr	**Included ($0 Extra)**
5. Staff Training Classes Cost (Per Eng.)	$1,500 to $3,500 (3-6 Weeks Classes)	$1,000 to $2,000 (1-2 Weeks Classes)	$1,000 to $2,500 (1-3 Weeks Classes)	**$0 (1-2 Hrs Self-Practice)**
6. Entry / Personal / Firm Tier Pricing	Academic / commercial subscription tiers	Subscription tiers ($2,500+/yr)	Modular subscription ($2,000+/yr)	**Stu $100 | Eng $500 | Firm $1,500**
YEAR 1 TOTAL COST (ALL 16 STRUCTURES)	**$22,500 to $37,500 / Year**	**$7,500 to $10,700 / Year**	**$10,000 to $17,000 / Year**	**$5,000 One-Time Enterprise!**
5-YEAR TOTAL COST OF OWNERSHIP (5-YR TCO)	**$112,500 to $187,500+ (Recurring)**	**$37,500 to $53,500+ (Recurring)**	**$50,000 to $85,000+ (Recurring)**	**$5,000 Total (Saves $32k-$182k!)**