6 DIMENSIONAL APPROACH TO CONSTRUCTION

BY
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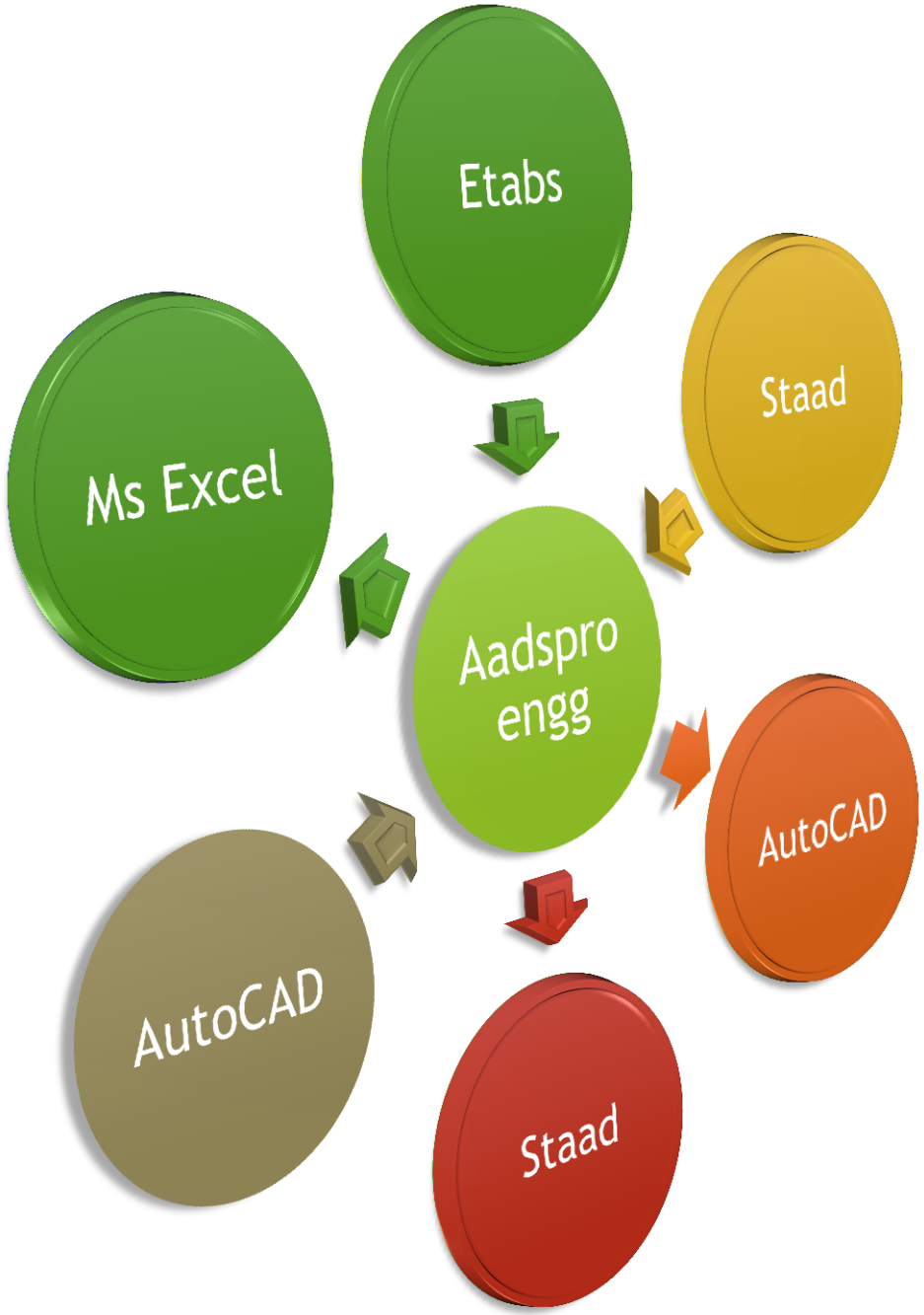
Empowering engineering

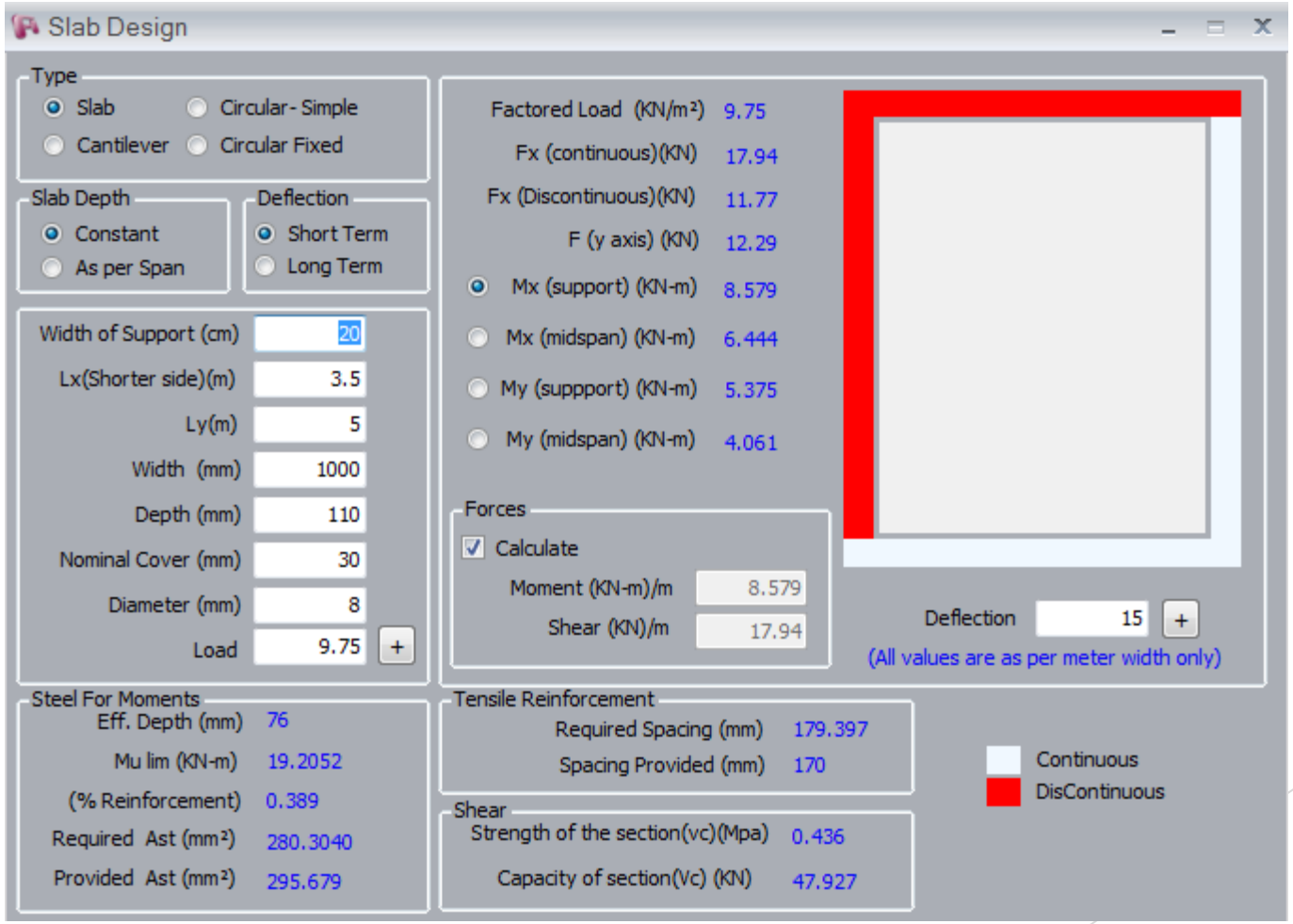
Aadspro ERP


Planning
Estimation
Inventory
aadspro
ERP
Engineering
Accounts
QC
HR

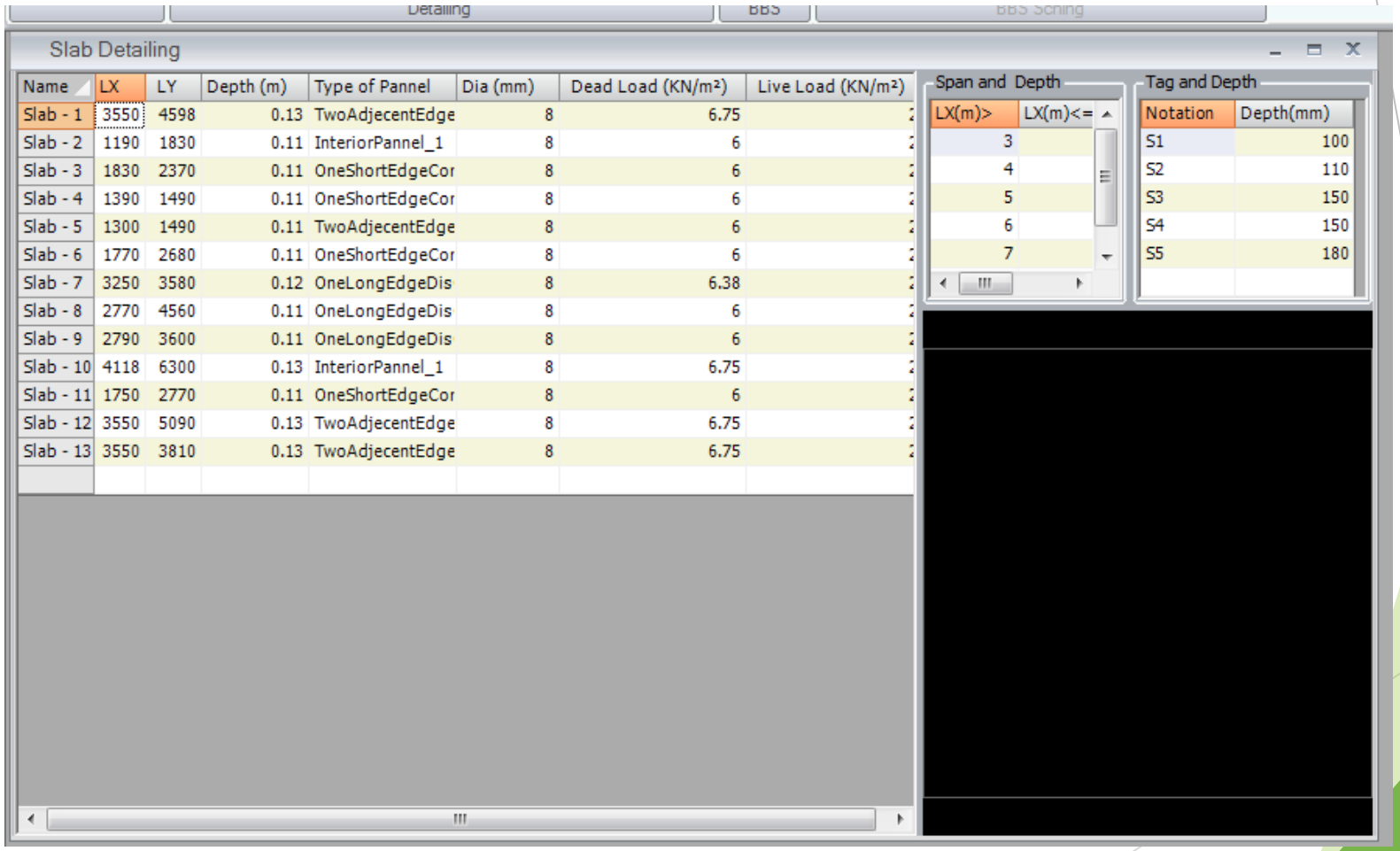
Engineering


Etabs
Staad
Ms Excel
Aadspro engg
AutoCAD
AutoCAD
Staad

Slab design


Slab Design
Type
Slab
Circular- Simple
Cantilever
Circular Fixed
Slab Depth
Constant
As per Span
Deflection
Short Term
Long Term
Width of Support (cm) 20
Lx(Shorter side)(m) 3.5
Ly(m) 5
Width (mm) 1000
Depth (mm) 110
Nominal Cover (mm) 30
Diameter (mm) 8
Load 9.75
Factored Load (KN/m²) 9.75
Fx (continuous)(KN) 17.94
Fx (Discontinuous)(KN) 11.77
F (y axis) (KN) 12.29
Mx (support) (KN-m) 8.579
Mx (midspan) (KN-m) 6.444
My (suppport) (KN-m) 5.375
My (midspan) (KN-m) 4.061
Forces
Calculate
Moment (KN-m)/m 8.579
Shear (KN)/m 17.94
Deflection 15
(All values are as per meter width only)
Steel For Moments
Eff. Depth (mm) 76
Mu lim (KN-m) 19.2052
(% Reinforcement) 0.389
Required Ast (mm²) 280.3040
Provided Ast (mm²) 295.679
Tensile Reinforcement
Required Spacing (mm) 179.397
Spacing Provided (mm) 170
Shear
Strength of the section(vc)(Mpa) 0.436
Capacity of section(Vc) (KN) 47.927
Continuous
DisContinuous

Slab detailing

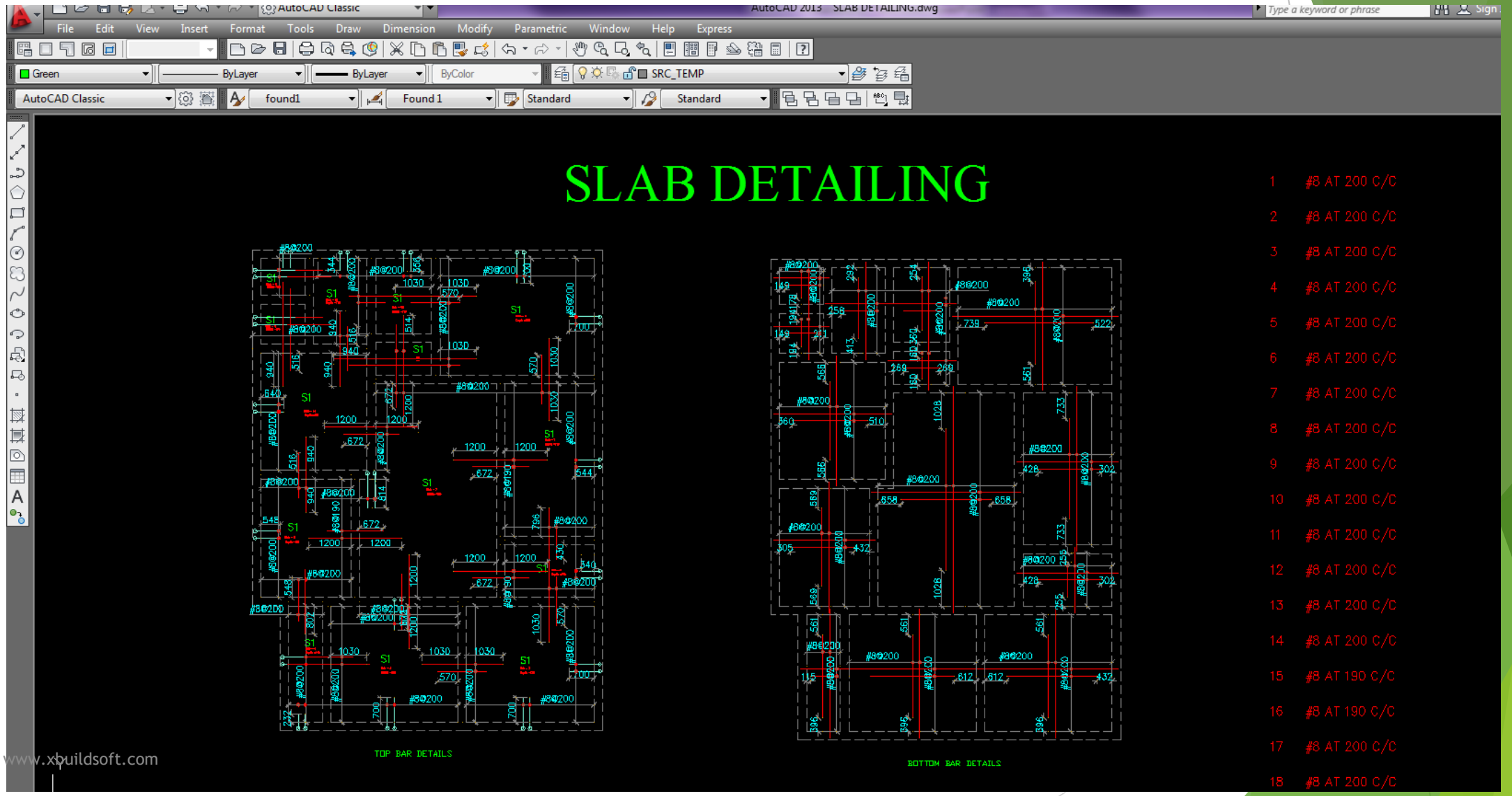


Name	LX	LY	Depth (m)	Type of Pannel	Dia (mm)	Dead Load (KN/m²)	Live Load (KN/m²)
Slab - 1	3550	4598	0.13	TwoAdjecentEdge	8	6.75	2
Slab - 2	1190	1830	0.11	InteriorPannel_1	8	6	2
Slab - 3	1830	2370	0.11	OneShortEdgeCor	8	6	2
Slab - 4	1390	1490	0.11	OneShortEdgeCor	8	6	2
Slab - 5	1300	1490	0.11	TwoAdjecentEdge	8	6	2
Slab - 6	1770	2680	0.11	OneShortEdgeCor	8	6	2
Slab - 7	3250	3580	0.12	OneLongEdgeDis	8	6.38	2
Slab - 8	2770	4560	0.11	OneLongEdgeDis	8	6	2
Slab - 9	2790	3600	0.11	OneLongEdgeDis	8	6	2
Slab - 10	4118	6300	0.13	InteriorPannel_1	8	6.75	2
Slab - 11	1750	2770	0.11	OneShortEdgeCor	8	6	2
Slab - 12	3550	5090	0.13	TwoAdjecentEdge	8	6.75	2
Slab - 13	3550	3810	0.13	TwoAdjecentEdge	8	6.75	2

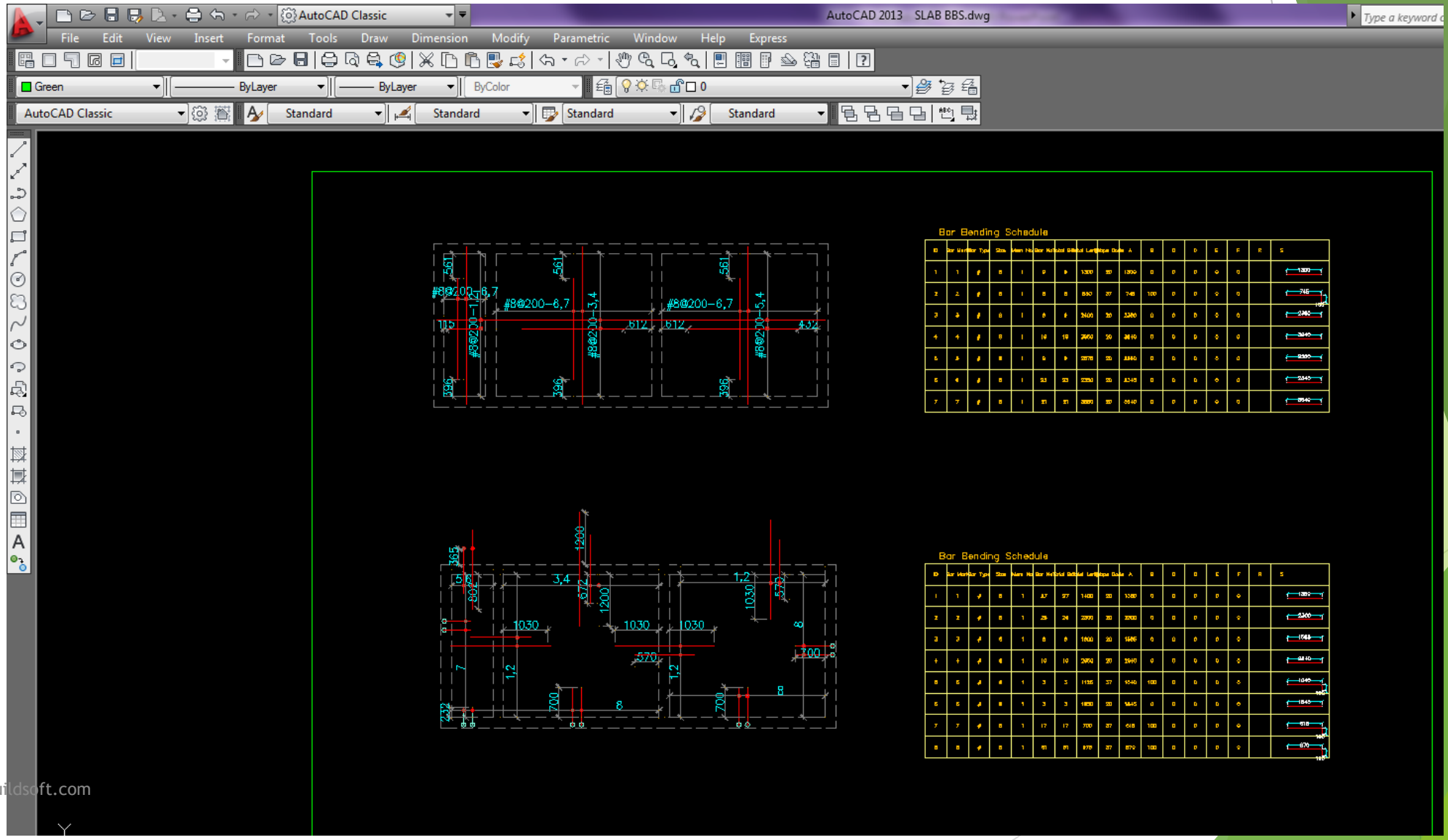
LX(m)>	LX(m)<=
3	
4	
5	
6	
7	

Notation	Depth(mm)
S1	100
S2	110
S3	150
S4	150
S5	180

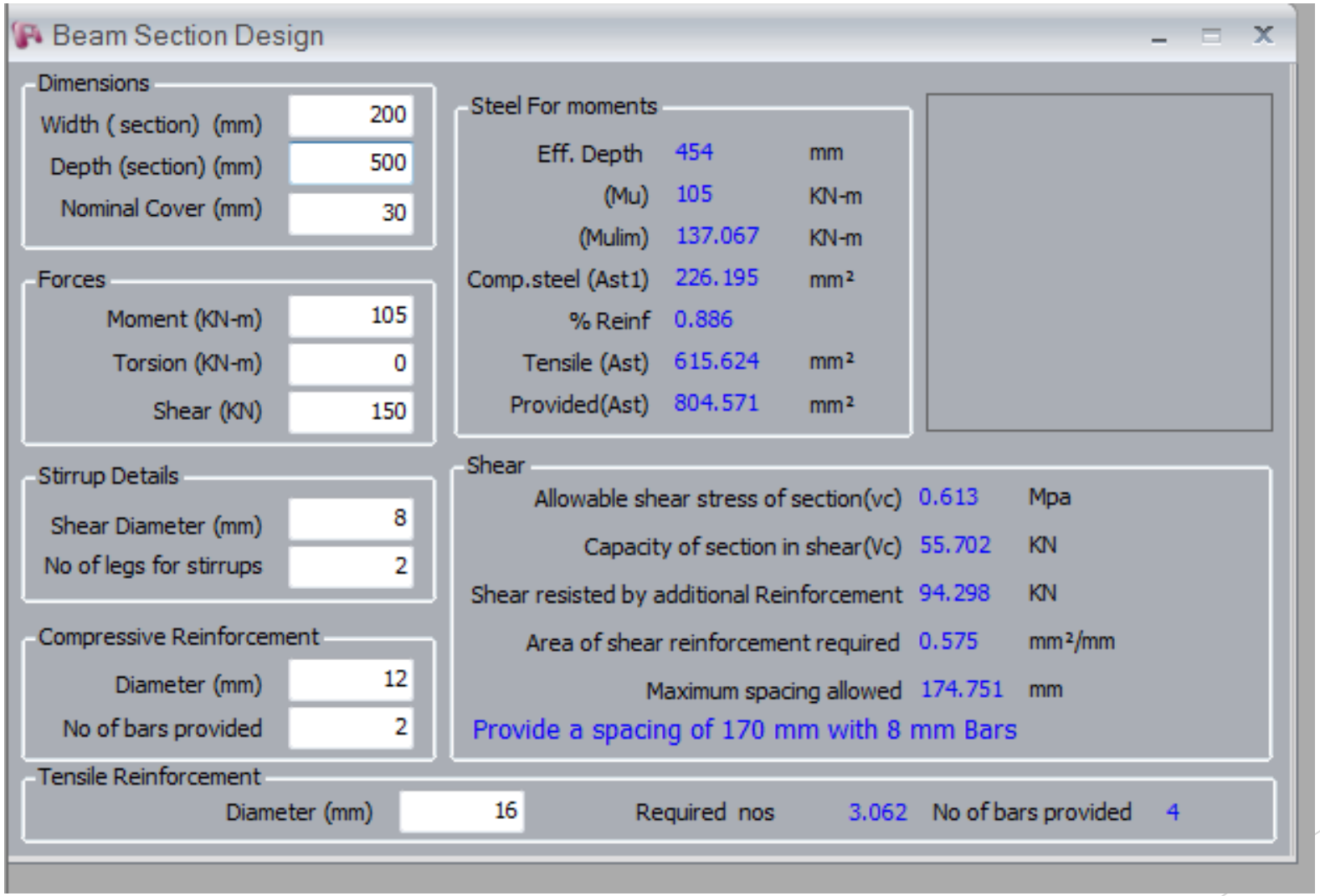
Slab detailing



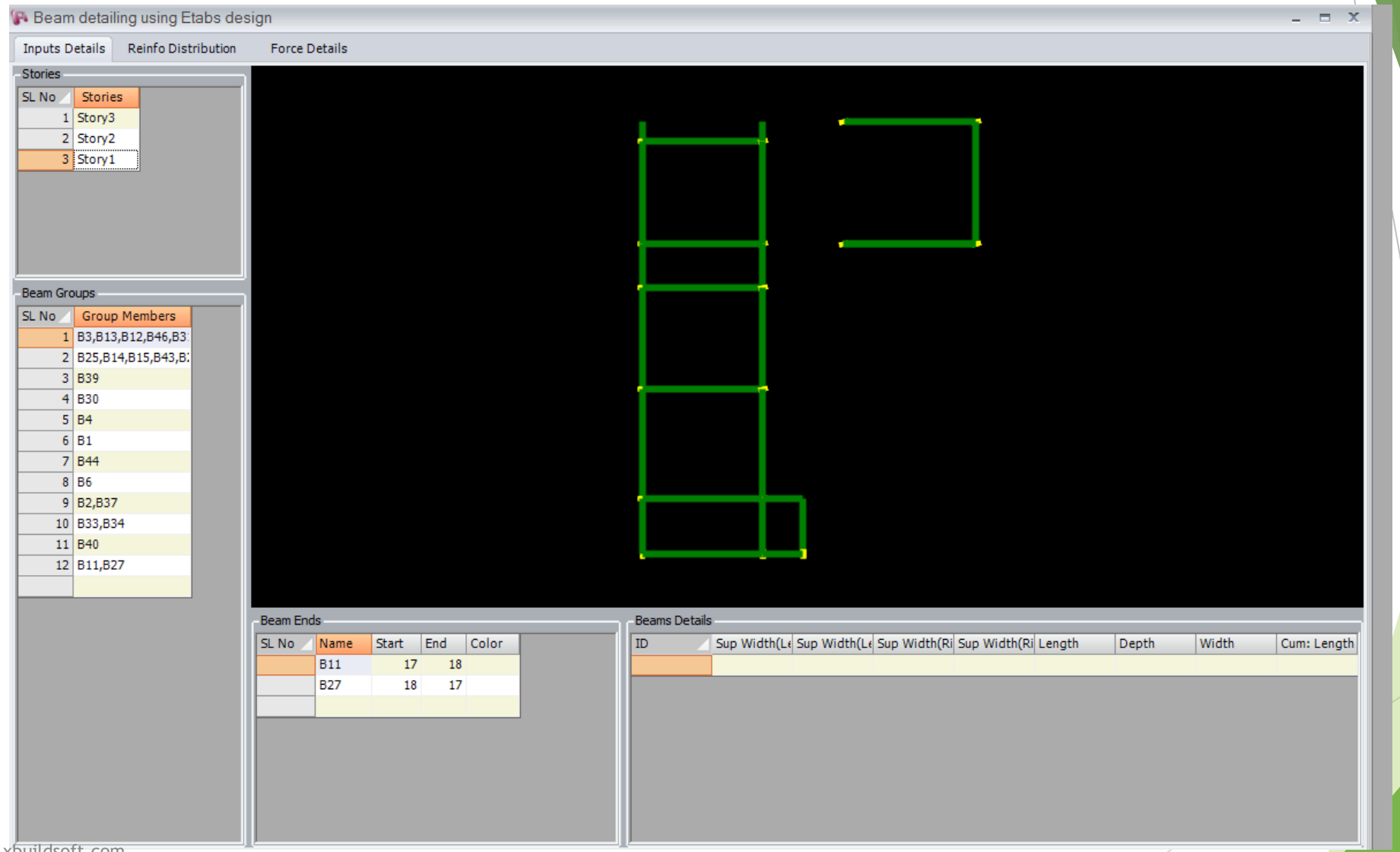
Slab bbs



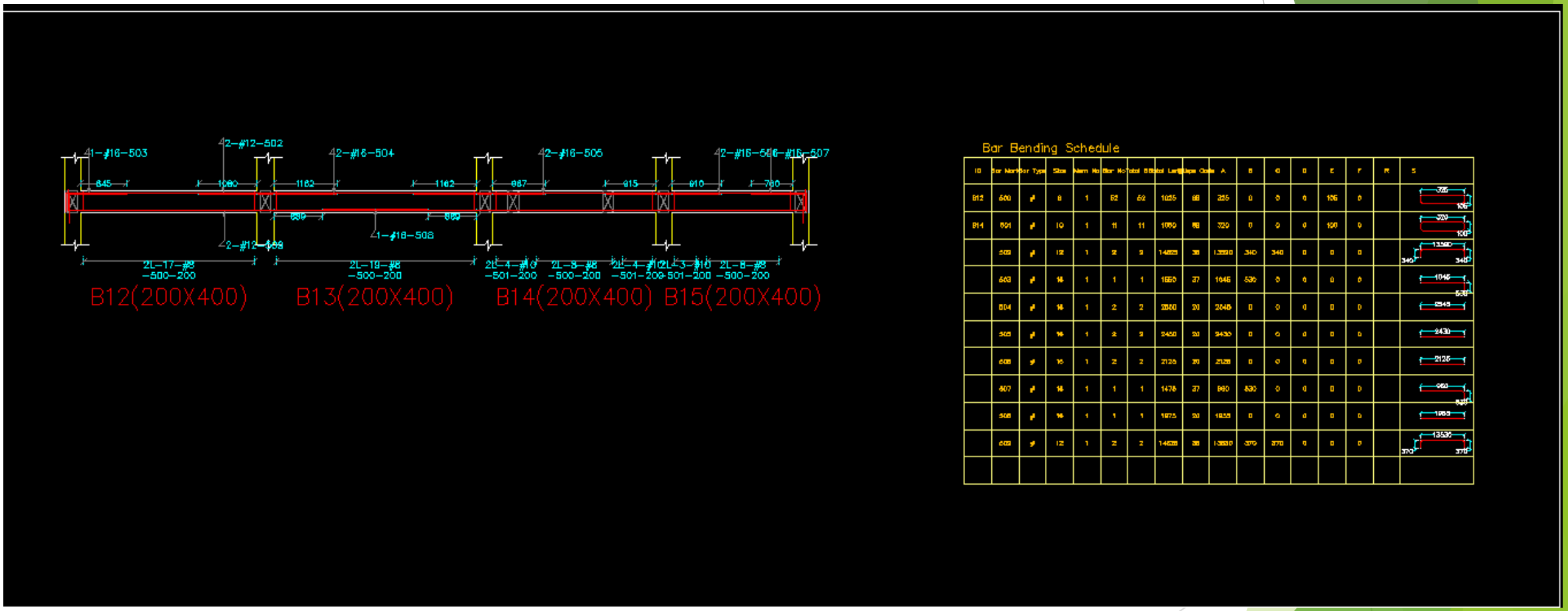
Beam design


Beam Section Design
Dimensions
Width (section) (mm) 200
Depth (section) (mm) 500
Nominal Cover (mm) 30
Forces
Moment (KN-m) 105
Torsion (KN-m) 0
Shear (KN) 150
Stirrup Details
Shear Diameter (mm) 8
No of legs for stirrups 2
Compressive Reinforcement
Diameter (mm) 12
No of bars provided 2
Steel For moments
Eff. Depth 454 mm
(Mu) 105 KN-m
(Mulim) 137.067 KN-m
Comp.steel (Ast1) 226.195 mm²
% Reinf 0.886
Tensile (Ast) 615.624 mm²
Provided(Ast) 804.571 mm²
Shear
Allowable shear stress of section(vc) 0.613 Mpa
Capacity of section in shear(Vc) 55.702 KN
Shear resisted by additional Reinforcement 94.298 KN
Area of shear reinforcement required 0.575 mm²/mm
Maximum spacing allowed 174.751 mm
Provide a spacing of 170 mm with 8 mm Bars
Tensile Reinforcement
Diameter (mm) 16
Required nos 3.062
No of bars provided 4

Beam detailing



Beam bbs


1-#16-503
2-#12-502
2-#16-504
2-#16-505
2-#16-506
2-#16-507
845
1162
1162
887
915
910
700
839
809
1-#16-508
2-#12-509
2L-17-#8
-500-200
2L-19-#8
-500-200
2L-4-#10
-501-200
2L-8-#8
-500-200
2L-4-#10
-501-200
2L-3-#10
-501-200
2L-8-#8
-500-200
B12(200X400)
B13(200X400)
B14(200X400)
B15(200X400)
Bar Bending Schedule

Advantage of BBS

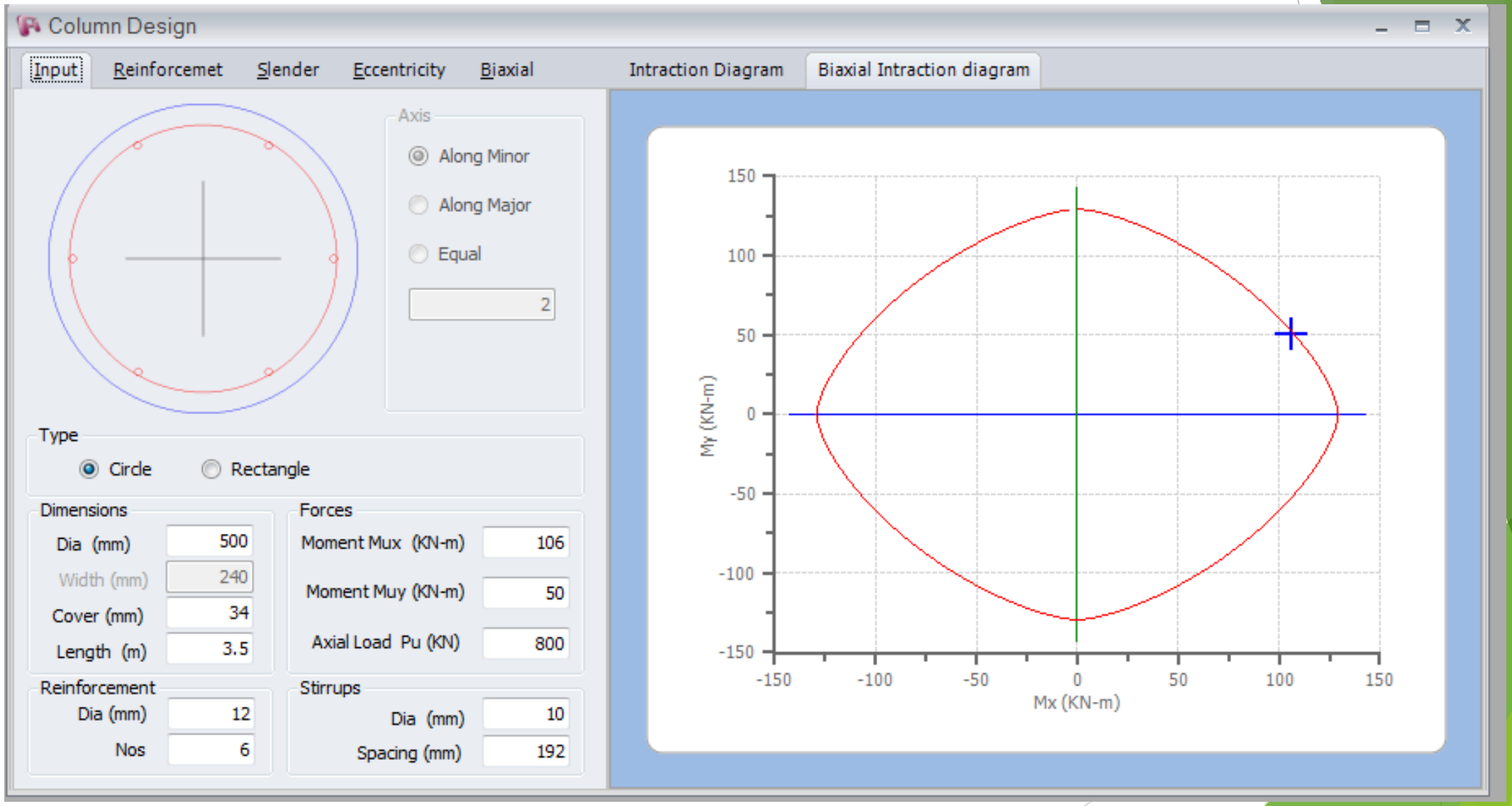
- Scheduling and proper bending is strongly recommended for Fe 500. Fe 500 saves 10% compared to Fe 415 steel used presently.
- Cutting and bending in a cut and bend factory avoids the wastage completely (5-7 %). With BBS, bars can be cut with planning to reduce the wastage in a site with even the present setup.
- There is a general tendency to group slabs and beams in the usual design methods.

- Better quality control at site.
- Better estimation of steel.
- Real time estimation data, with the design.
- Better control on stock of steel actually required.
- Theft and pilferage of steel can be reduced.
- Economical order quantity for better project management
- Bench marking quantity and quality requirements.
- Optimize your design based on the quantity of steel.

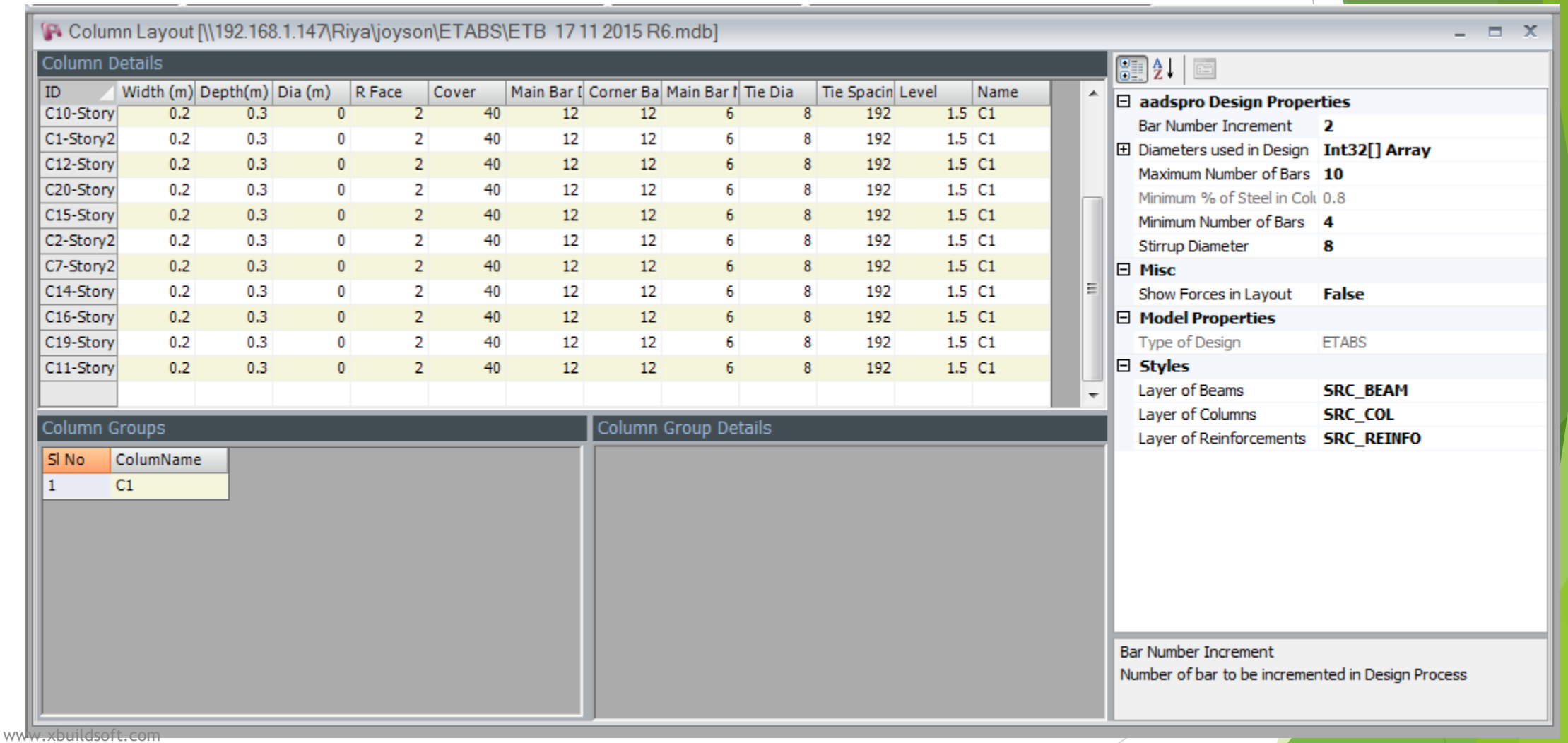
- Steel bending and cutting can commence even before the form work is done.
- Steel bending can be done at a separate site, marked and then can be assembled at site, if there is space limitations.
- Project time can be reduced as the bars can be cut and bend before form work is done.
- What you see in the drawing is what you get at the site.

- With a quality data set, other management softwares can work on it.
- A paper less office concept in the construction industry and associated advantages.
- Total length of bars calculated using Engineering formula, leaves nothing to approximation.
- Mechanization of bending and cutting is possible. (Cut and bend systems) Reduces labour and time but increases the reliability.

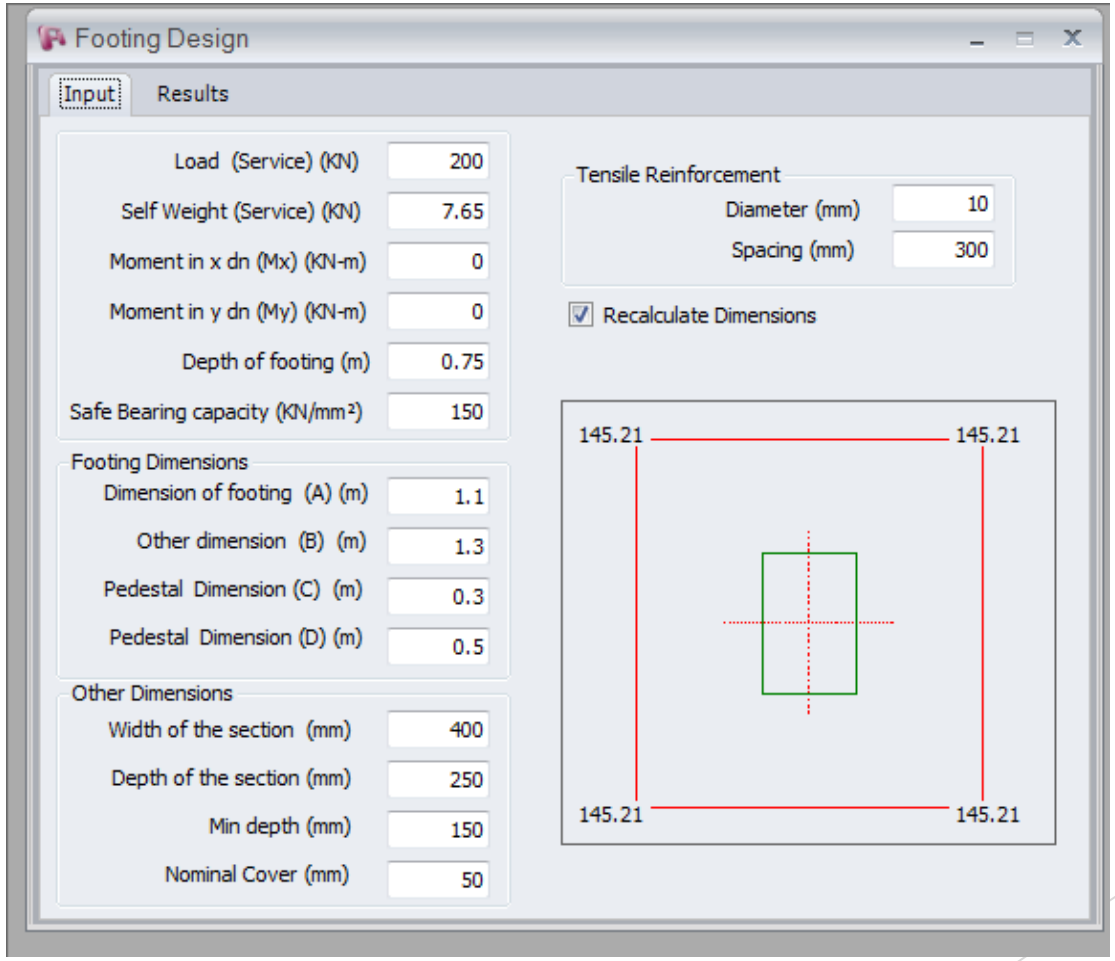
Column design



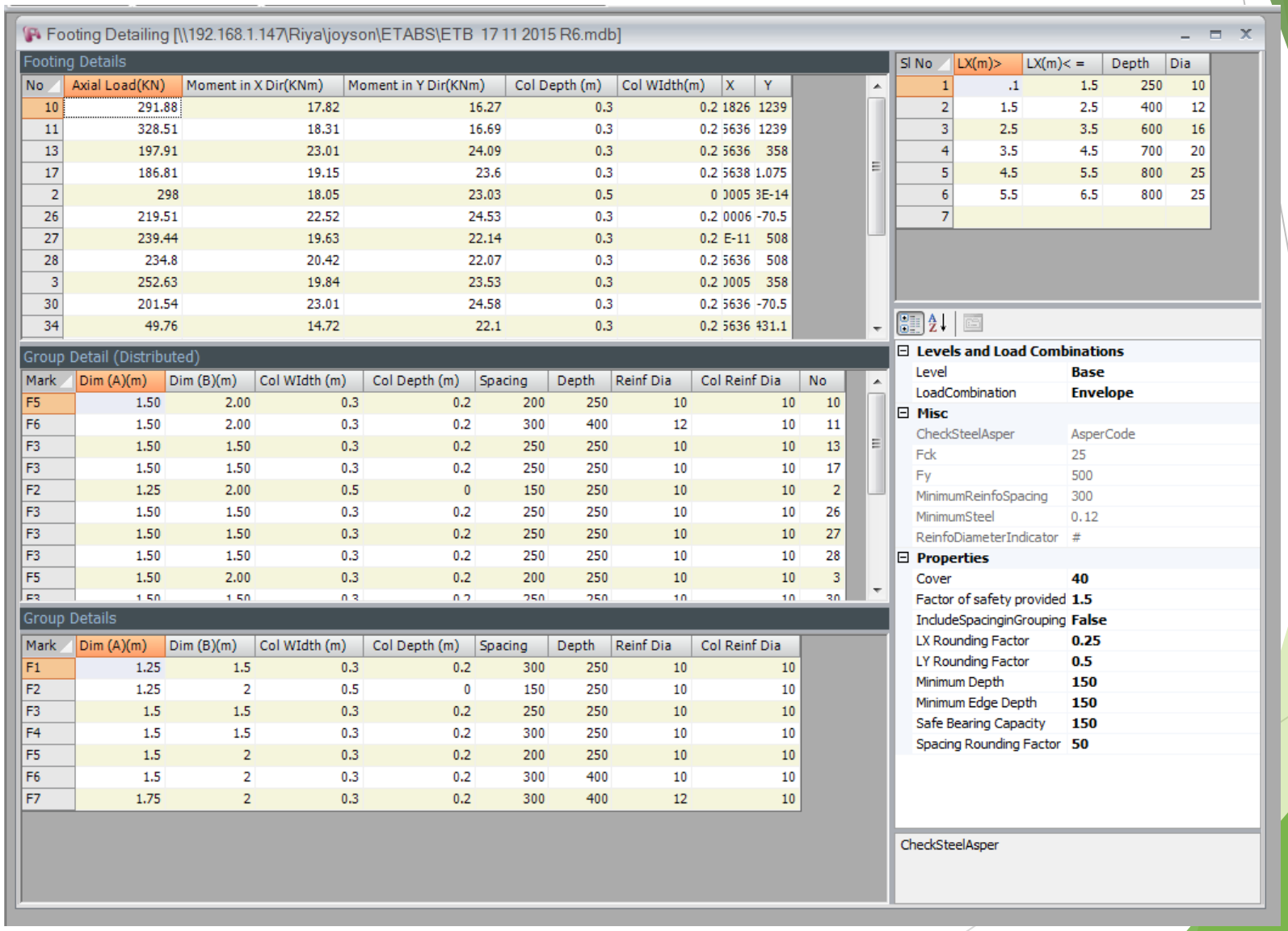
Column detailing



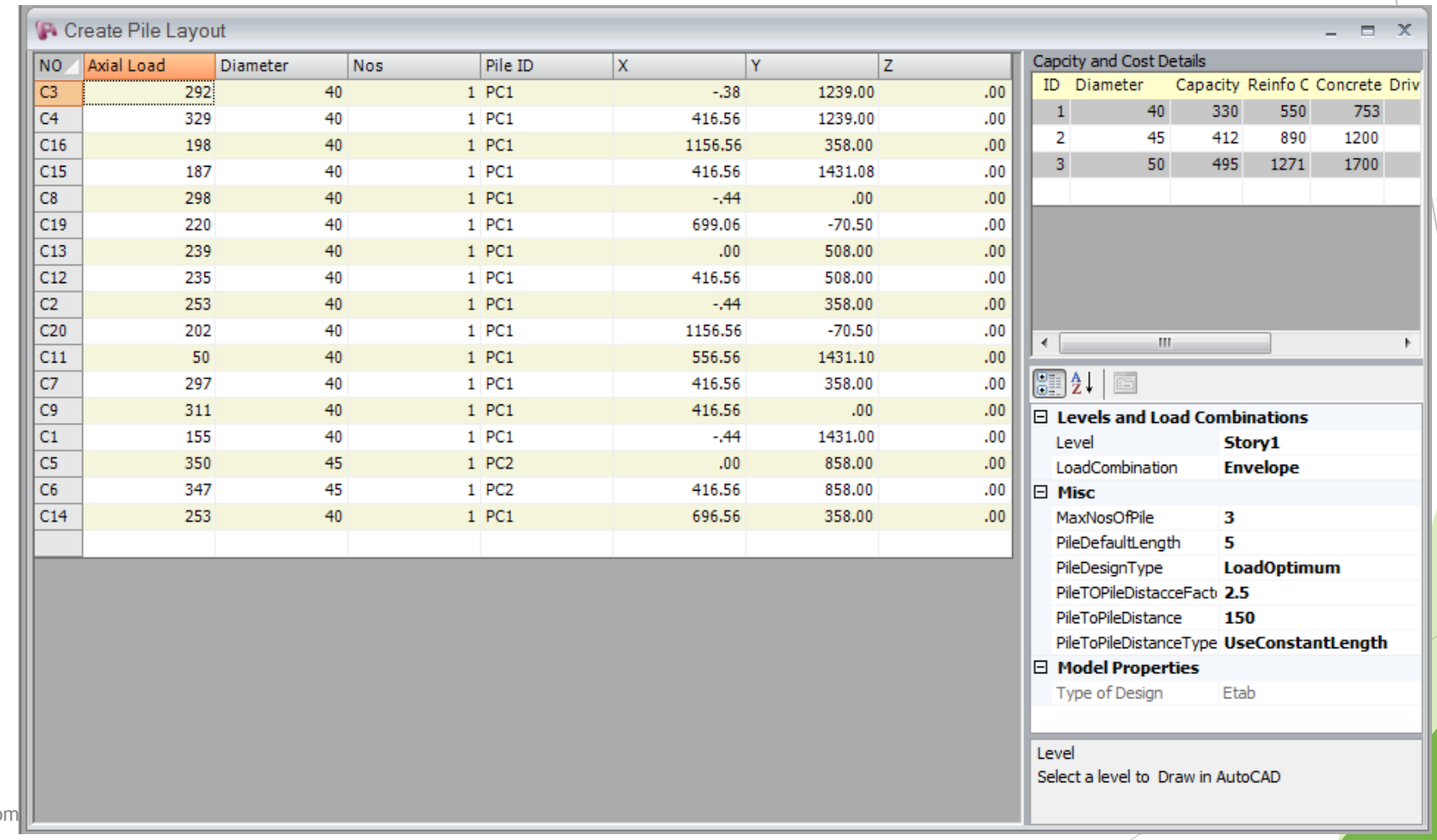
Footing design



Footing detailing

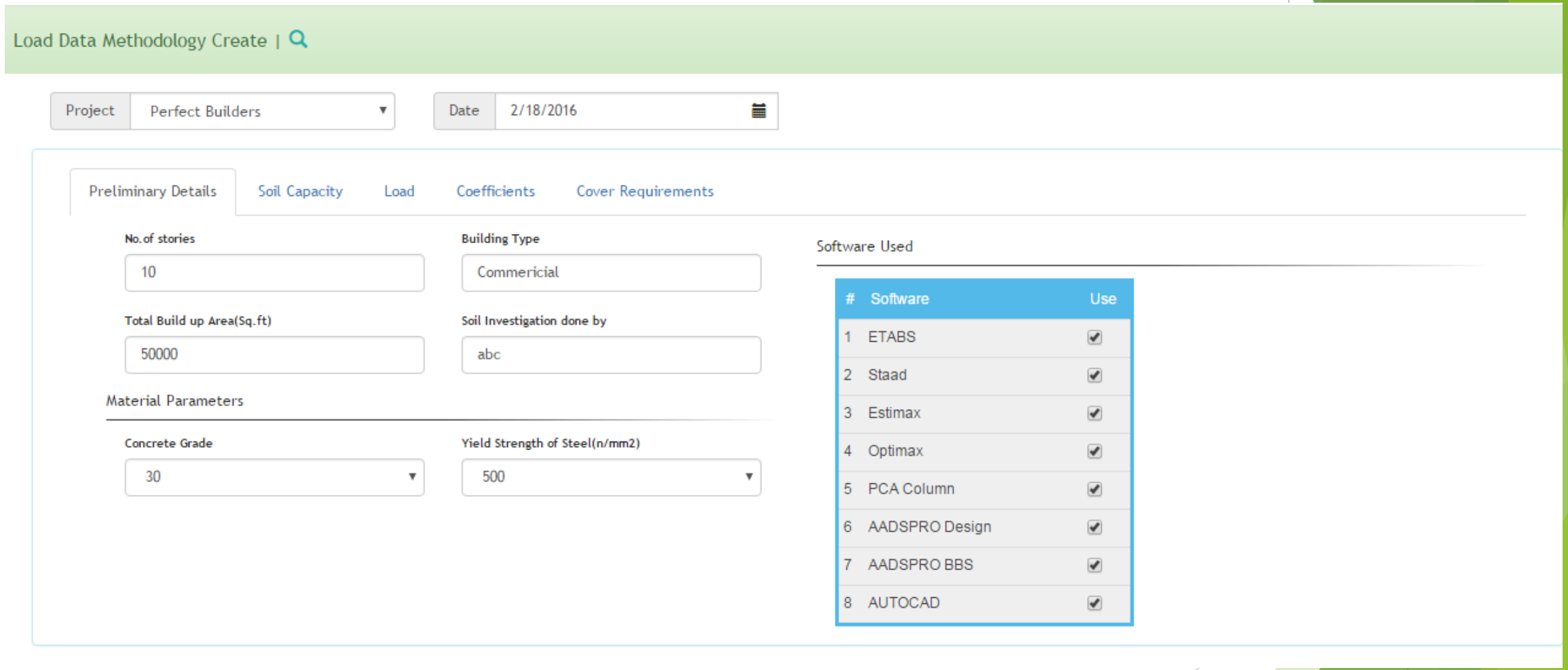


Pile detailing

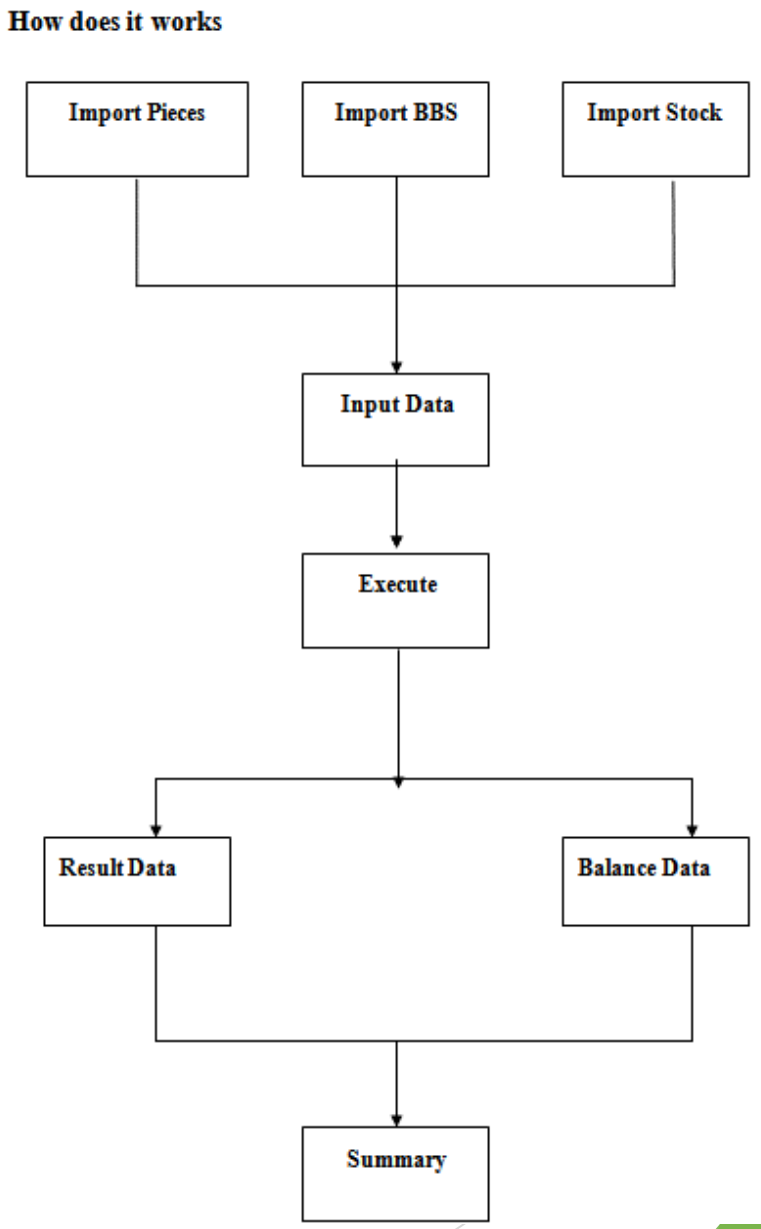


NO	Axial Load	Diameter	Nos	Pile ID	X	Y	Z
C3	292	40	1	PC1	-.38	1239.00	.00
C4	329	40	1	PC1	416.56	1239.00	.00
C16	198	40	1	PC1	1156.56	358.00	.00
C15	187	40	1	PC1	416.56	1431.08	.00
C8	298	40	1	PC1	-.44	.00	.00
C19	220	40	1	PC1	699.06	-70.50	.00
C13	239	40	1	PC1	.00	508.00	.00
C12	235	40	1	PC1	416.56	508.00	.00
C2	253	40	1	PC1	-.44	358.00	.00
C20	202	40	1	PC1	1156.56	-70.50	.00
C11	50	40	1	PC1	556.56	1431.10	.00
C7	297	40	1	PC1	416.56	358.00	.00
C9	311	40	1	PC1	416.56	.00	.00
C1	155	40	1	PC1	-.44	1431.00	.00
C5	350	45	1	PC2	.00	858.00	.00
C6	347	45	1	PC2	416.56	858.00	.00
C14	253	40	1	PC1	696.56	358.00	.00

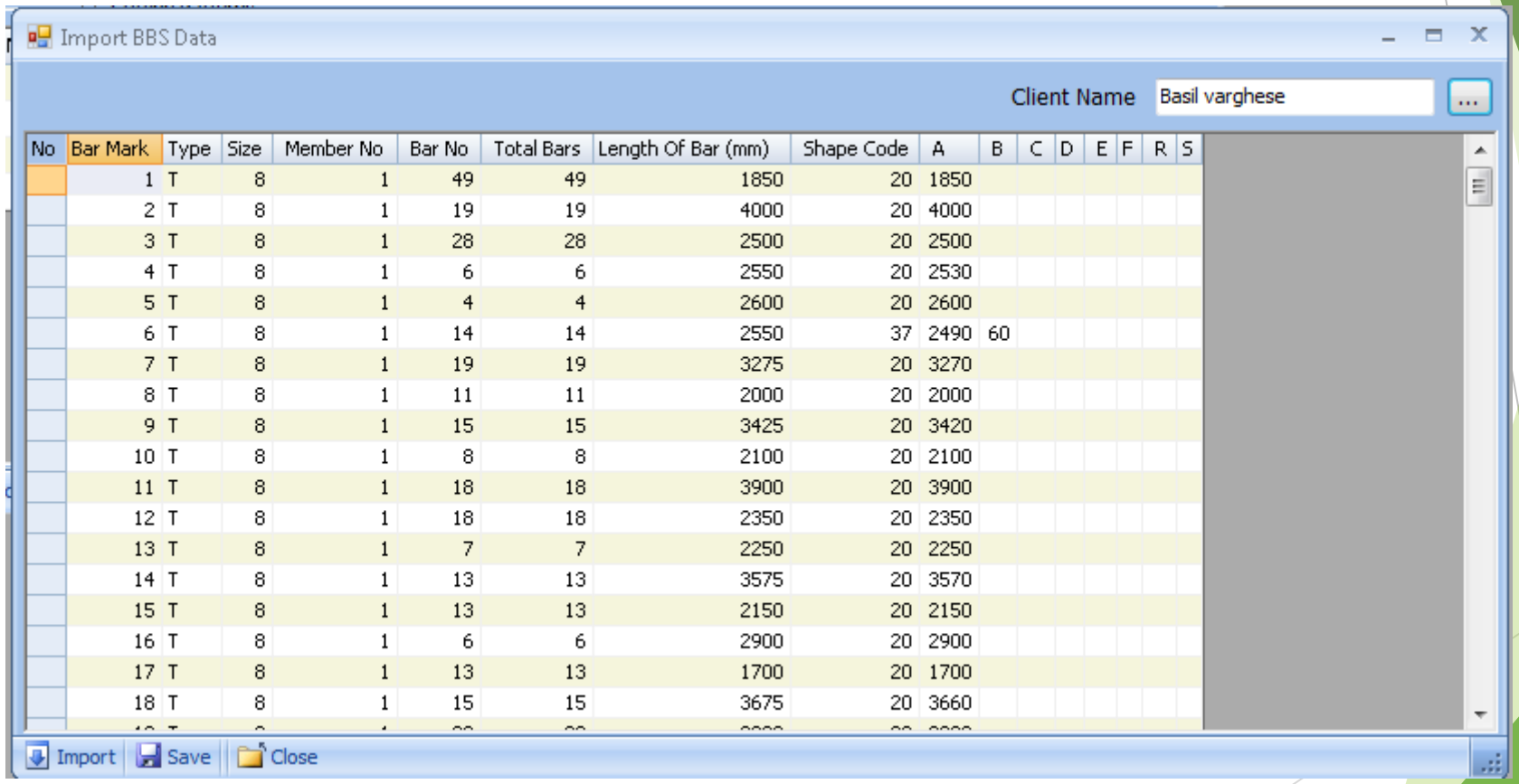
Load Data Methodology



Optimax

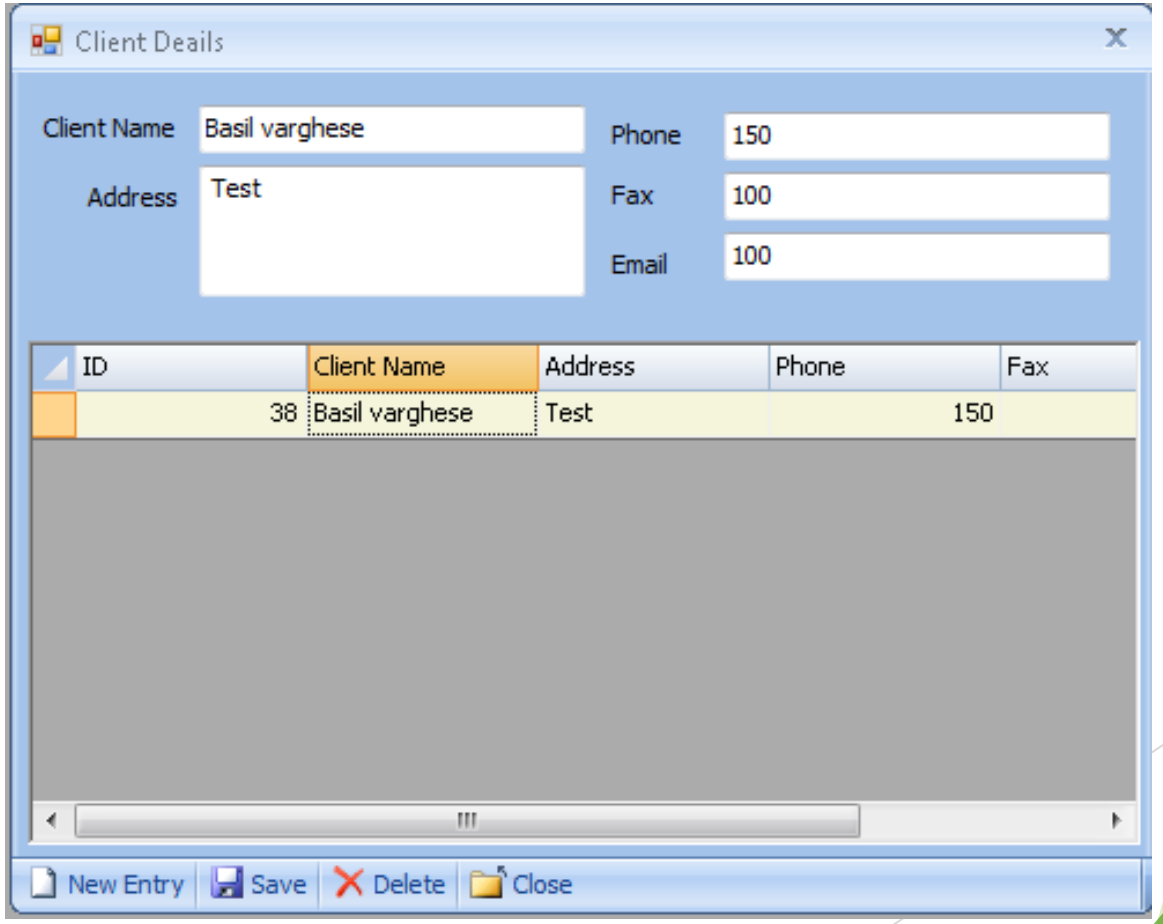

How does it works
Import Pieces
Import BBS
Import Stock
Input Data
Execute
Result Data
Balance Data
Summary

Import BBS data

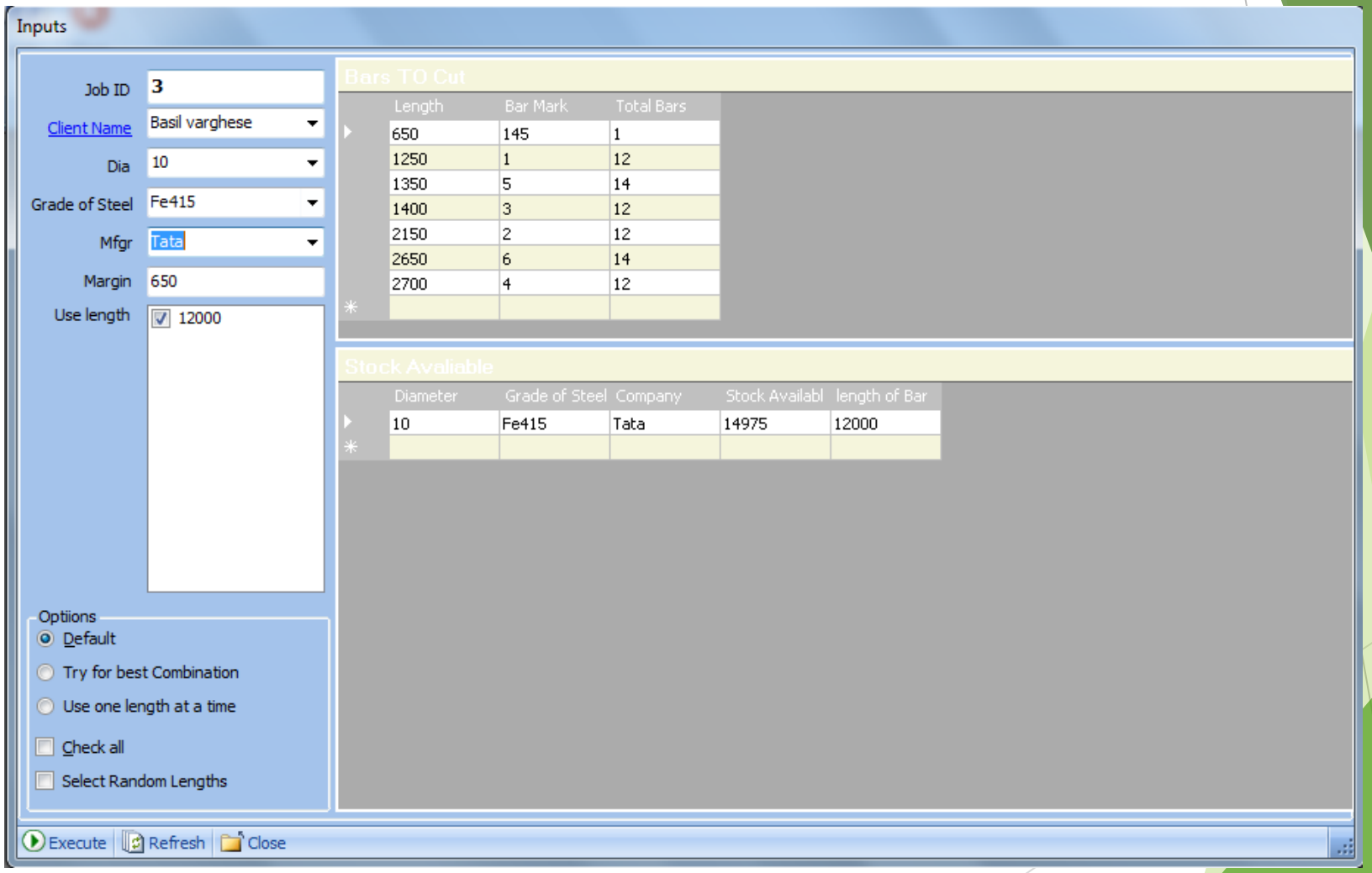


No	Bar Mark	Type	Size	Member No	Bar No	Total Bars	Length Of Bar (mm)	Shape Code	A	B	C	D	E	F	R	S
	1	T	8	1	49	49	1850	20	1850							
	2	T	8	1	19	19	4000	20	4000							
	3	T	8	1	28	28	2500	20	2500							
	4	T	8	1	6	6	2550	20	2530							
	5	T	8	1	4	4	2600	20	2600							
	6	T	8	1	14	14	2550	37	2490	60						
	7	T	8	1	19	19	3275	20	3270							
	8	T	8	1	11	11	2000	20	2000							
	9	T	8	1	15	15	3425	20	3420							
	10	T	8	1	8	8	2100	20	2100							
	11	T	8	1	18	18	3900	20	3900							
	12	T	8	1	18	18	2350	20	2350							
	13	T	8	1	7	7	2250	20	2250							
	14	T	8	1	13	13	3575	20	3570							
	15	T	8	1	13	13	2150	20	2150							
	16	T	8	1	6	6	2900	20	2900							
	17	T	8	1	13	13	1700	20	1700							
	18	T	8	1	15	15	3675	20	3660							

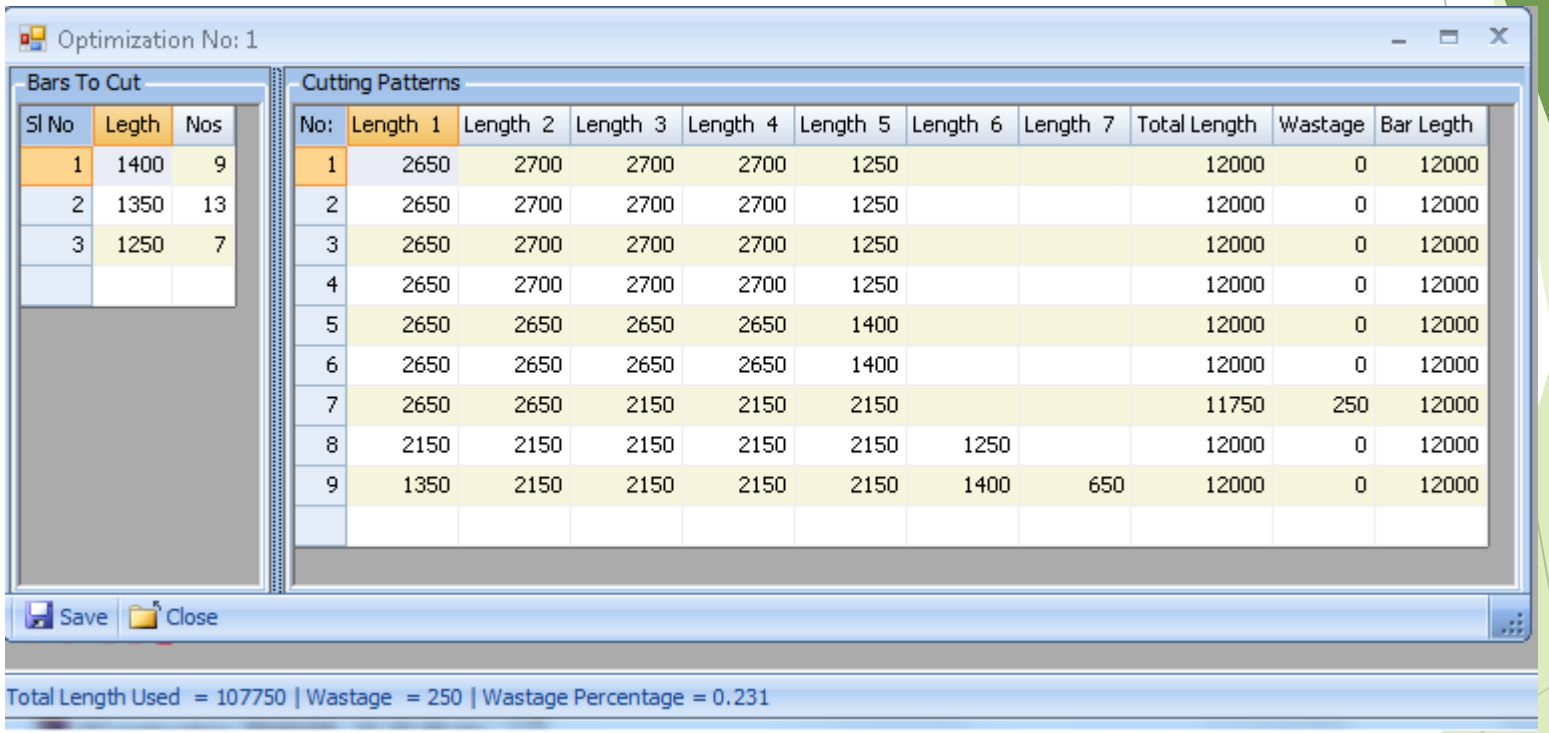
Client Details



Create Bar Sequences



Output



Bars To Cut

Sl No	Legth	Nos
1	1400	9
2	1350	13
3	1250	7

Cutting Patterns

No:	Length 1	Length 2	Length 3	Length 4	Length 5	Length 6	Length 7	Total Length	Wastage	Bar Legth
1	2650	2700	2700	2700	1250			12000	0	12000
2	2650	2700	2700	2700	1250			12000	0	12000
3	2650	2700	2700	2700	1250			12000	0	12000
4	2650	2700	2700	2700	1250			12000	0	12000
5	2650	2650	2650	2650	1400			12000	0	12000
6	2650	2650	2650	2650	1400			12000	0	12000
7	2650	2650	2150	2150	2150			11750	250	12000
8	2150	2150	2150	2150	2150	1250		12000	0	12000
9	1350	2150	2150	2150	2150	1400	650	12000	0	12000

Save Close

Total Length Used = 107750 | Wastage = 250 | Wastage Percentage = 0.231

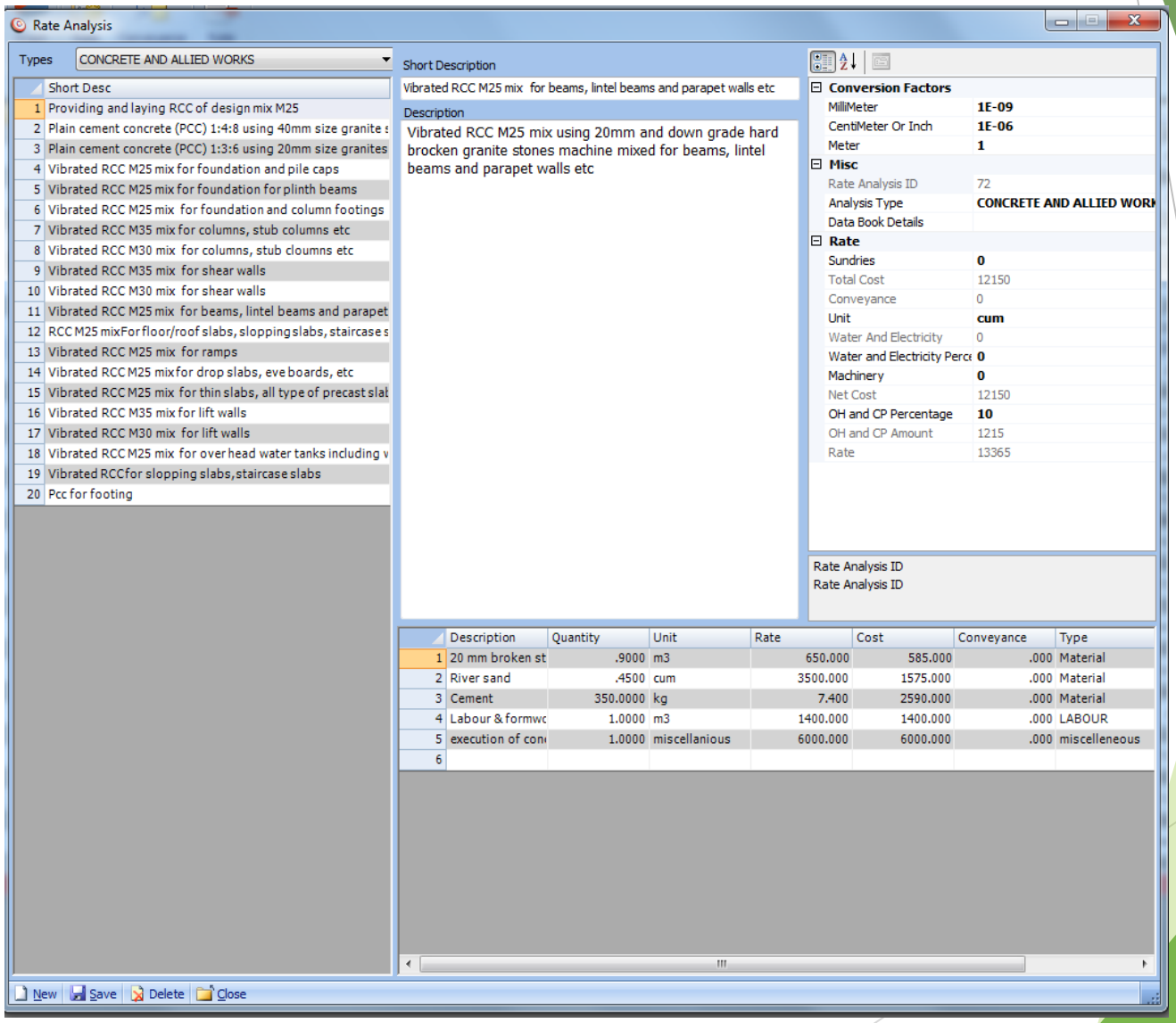
Estimation- EstimaX

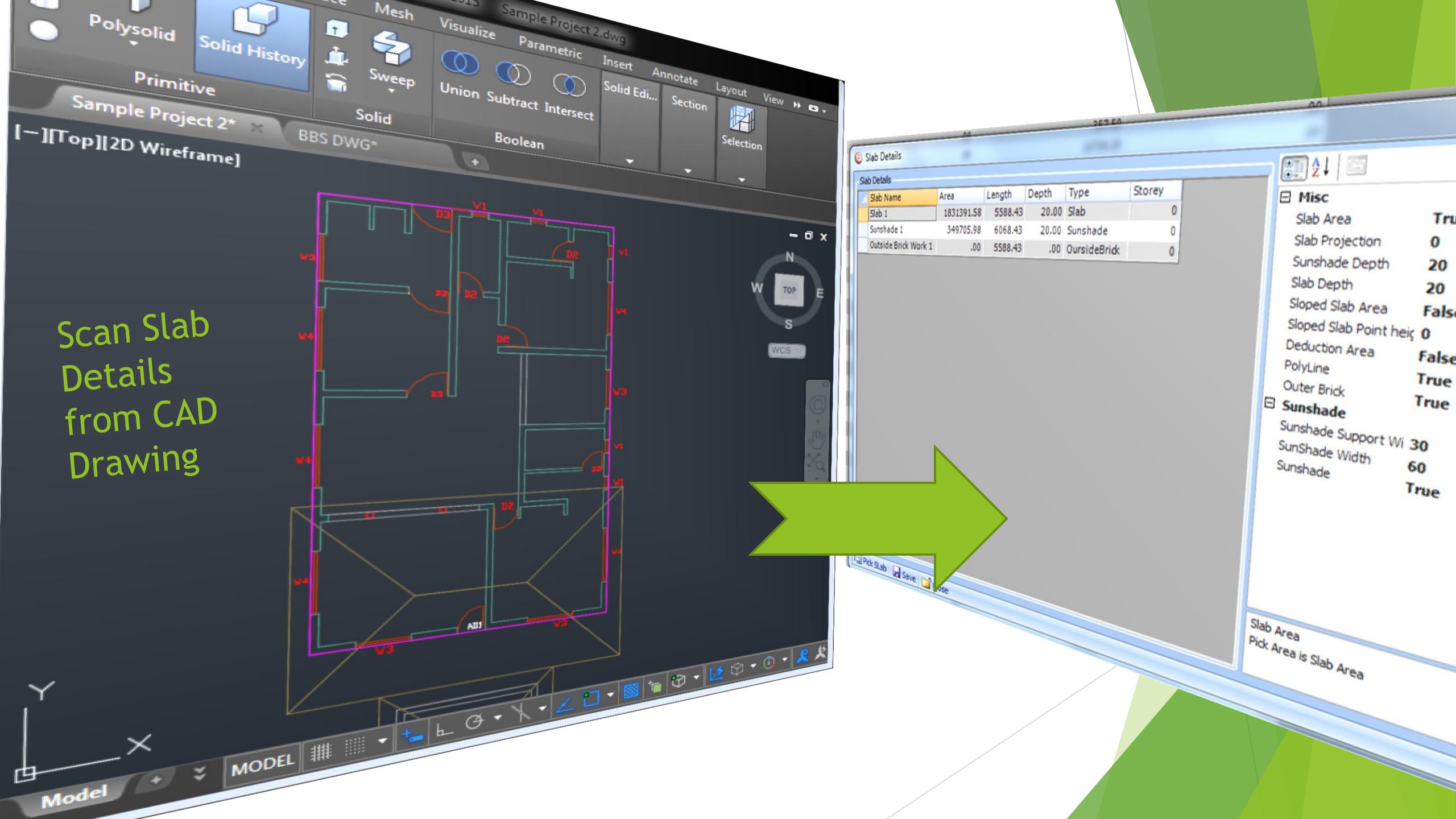
EstimaX

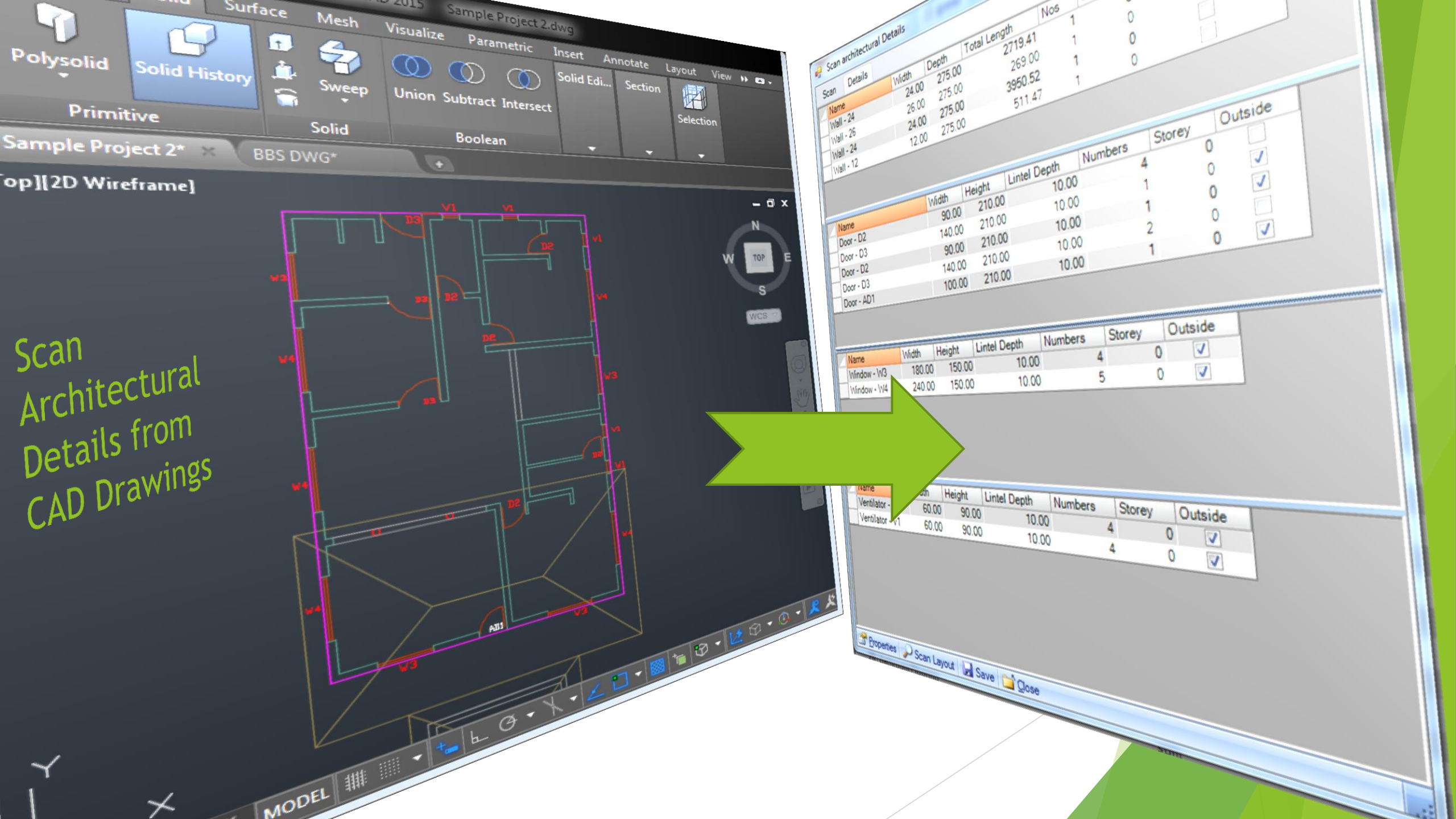
Scan/Pick | Calculate | Quantity

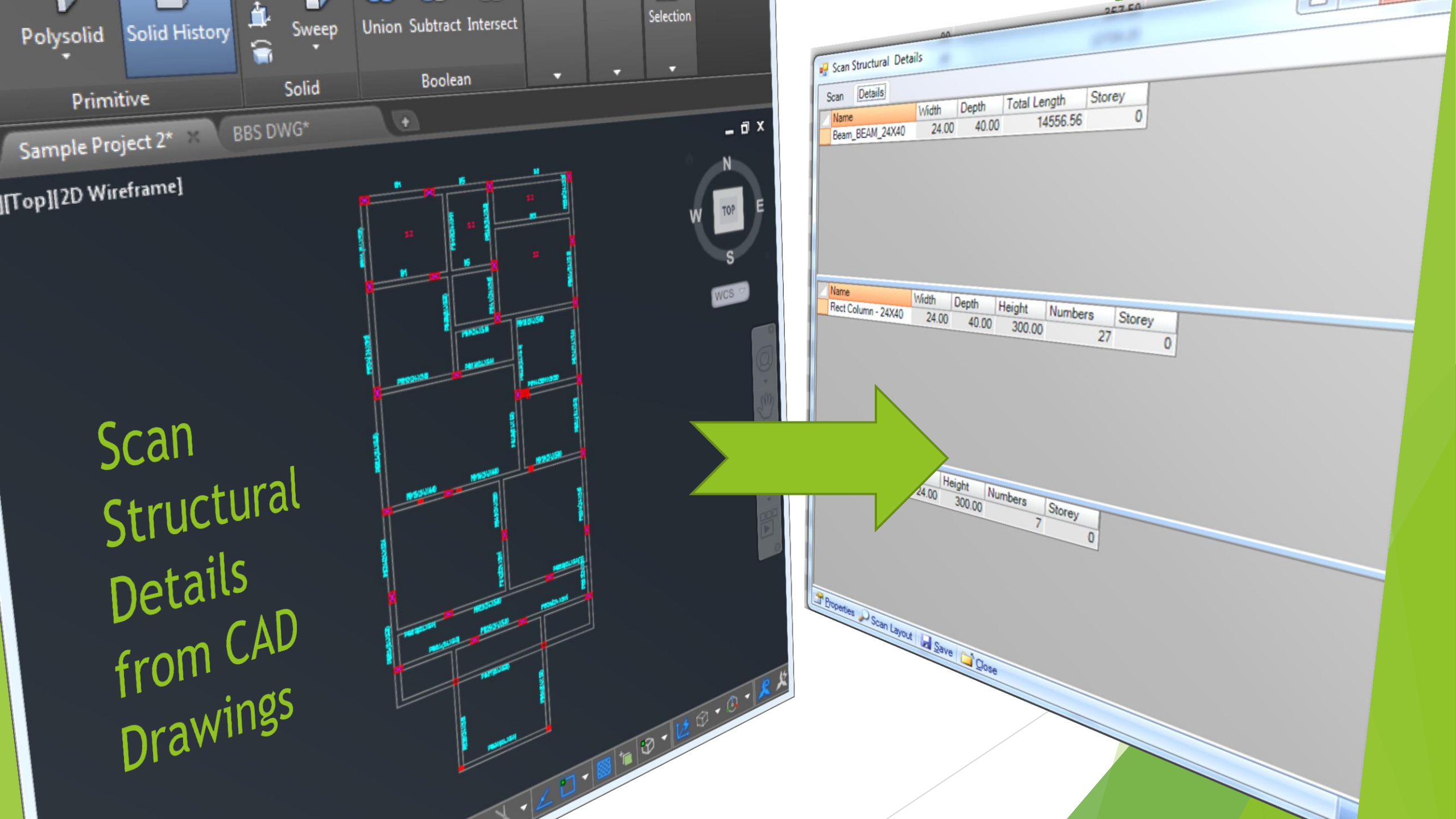
ID	Work Name	Unit	Quantity	Rate	Total
1	Site Clearing	10 sqm	.00	165.00	.00
2	Staircase	cum	.00	12407.50	.00
3	Earth Work and Excavation	cum	.00	357.50	.00
4	Footing	cum	.00	12728.25	.00
5	Footing PCC	cum	.00	6635.37	.00
6	RR	cum	.00	3637.91	.00
7	Steel	MT	.00	77000.00	.00
8	Rectangular Columns	cum	.00	14119.80	.00
9	Circular Columns	cum	.00	13794.20	.00
10	Lintles	cum	.00	13435.00	.00
11	Beams	cum	.00	13531.25	.00
12	Sloped Slabs	cum	.00	12407.50	.00
13	Sunshade	cum	.00	12005.00	.00
14	Slab	cum	.00	11991.25	.00
15	Drop Slab	cum	.00	12005.00	.00
16	Sunshade(opening only)	cum	.00	12005.00	.00
17	Panelled Doors	sqm	.00	4852.43	.00
18	Brick work	cum	.00	6165.08	.00
19	Panelled Windows	sqm	.00	5694.77	.00
20	Panelled Ventilators	sqm	.00	7700.00	.00
21	Outer Plastering	sqm	.00	391.81	.00
22	Inner Plastering	sqm	.00	391.81	.00
23	Ceiling Plastering	sqm	.00	1855.65	.00
24	Sunshade bottom Plastering	sqm	.00	1855.65	.00
25	Plastering for column	sqm	.00	1855.65	.00
26	Flooring Ceramic Tile	sqm	.00	871.15	.00
27	pcc	sqm	.00	796.18	.00
28	Bathroom Flooring	sqm	.00	871.14	.00
29	Outer Painting	sqm	.00	106.69	.00
30	Inner Painting	sqm	.00	106.69	.00
31	Applying white cement	sqm	.00	46.06	.00
32	Ceiling Painting	sqm	.00	106.69	.00
33	Door Painting	sqm	.00	98.70	.00
34	Window Painting	sqm	.00	98.70	.00
35	Column painting	sqm	.00	113.88	.00
36					.00

Rate Analysis




Scan Slab Details from CAD Drawing
Sample Project 2.dwg
Sample Project 2*
BBS DWG*
[−][Top][2D Wireframe]
Primitive
Solid
Boolean
Polysolid
Solid History
Sweep
Union
Subtract
Intersect
Solid Edi...
Section
Selection
Mesh
Visualize
Parametric
Insert
Annotate
Layout
View
MODEL
Model
Slab Details
Slab Details
Slab Name
Area
Length
Depth
Type
Storey
Slab 1
1831391.58
5588.43
20.00
Slab
0
Sunshade 1
349705.98
6068.43
20.00
Sunshade
0
Outside Brick Work 1
.00
5588.43
.00
OursideBrick
0
Misc
Slab Area
Slab Projection
Sunshade Depth
Slab Depth
Sloped Slab Area
Sloped Slab Point heig
Deduction Area
PolyLine
Outer Brick
Sunshade
Sunshade Support Wi
SunShade Width
Sunshade
Pick SLab
Save
Slab Area
Pick Area is Slab Area

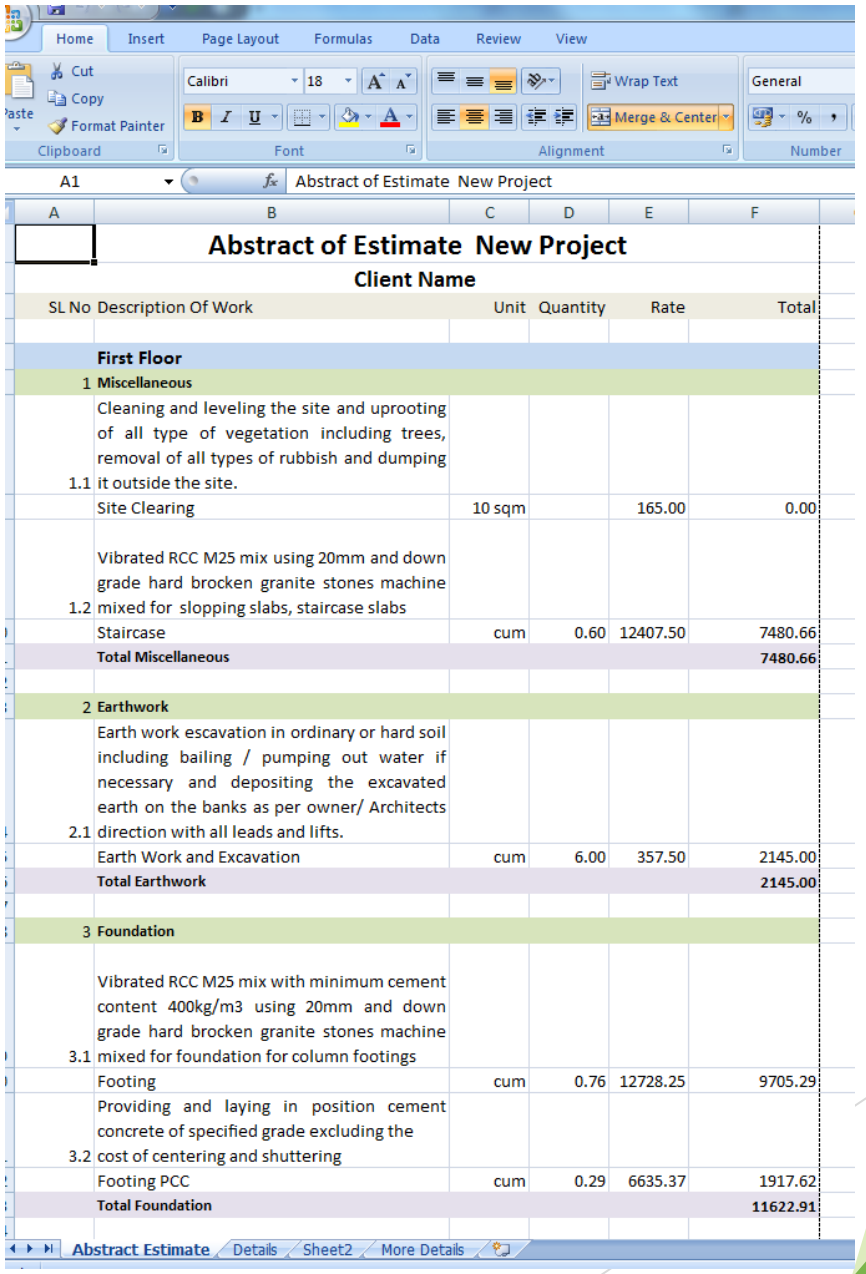

Scan Architectural Details from CAD Drawings
Polysolid
Solid History
Sweep
Union
Subtract
Intersect
Primitive
Solid
Boolean
Sample Project 2*
BBS DWG*
Scan architectural Details
Wall - 24
Wall - 26
Wall - 24
Wall - 12
Door - D2
Door - D3
Door - D2
Door - D3
Door - AD1
Window - W3
Window - W4
Properties
Scan Layout
Save
Close


Polysolid
Solid History
Sweep
Union Subtract Intersect
Selection
Primitive
Solid
Boolean
Sample Project 2*
BBS DWG*
[Top][2D Wireframe]
N
W
TOP
E
S
WCS
Scan
Structural
Details
from CAD
Drawings
Scan Structural Details
Scan
Details
Name Width Depth Total Length Storey
Beam_BEAM_24X40 24.00 40.00 14556.56 0
Name Width Depth Height Numbers Storey
Rect Column - 24X40 24.00 40.00 300.00 27 0
Height Numbers Storey
24.00 300.00 7 0
Properties
Scan Layout
Save
Close

ID	Work Name	Unit	Quantity	Rate	Total
1	Site Clearing	10 sqm	.00	165.00	.00
2	Staircase	cum	.60	12407.50	7480.66
3	Earth Work and Excavation	cum	6.00	357.50	2145.00
4	Footing	cum	.76	12728.25	9705.29
5	Footing PCC	cum	.29	6635.37	1917.62
6	RR	cum	26.82	3637.91	97573.86
7	Steel	MT	.00	77000.00	.00
8	Rectangular Columns	cum	7.78	14119.80	109795.56
9	Circular Columns	cum	.95	13794.20	13103.10
10	Lintles	cum	2.60	13435.00	34906.13
11	Beams	cum	13.97	13531.25	189089.72
12	Sloped Slabs	cum	.00	12407.50	.00
13	Sunshade	cum	6.99	12005.00	83964.41
14	Slab	cum	32.44	11991.25	388942.70
15	Drop Slab	cum	3.03	12005.00	36425.77
16	Sunshade(opening only)	cum	1.88	12005.00	22559.80
17	Panelled Doors	sqm	20.37	4852.43	98844.00
18	Brick work	cum	47.63	6165.08	293659.62
19	Panelled Windows	sqm	28.80	5694.77	164009.23
20	Panelled Ventilators	sqm	4.32	7700.00	33264.00
21	Outer Plastering	sqm	82.18	391.81	32199.72
22	Inner Plastering	sqm	327.59	391.81	128354.70
23	Ceiling Plastering	sqm	317.21	1855.65	588624.67
24	Sunshade bottom Plastering	sqm	34.97	1855.65	64893.26
25	Plastering for column	sqm	108.72	1855.65	201746.49
26	Flooring Ceramic Tile	sqm	165.82	871.15	144452.49
27	pcc	sqm	165.82	796.18	132021.11
28	Bathroom Flooring	sqm	.00	871.14	.00
29	Outer Painting	sqm	82.18	106.69	8767.91
30	Inner Painting	sqm	327.59	106.69	34950.67
31	Applying white cement	sqm	409.77	46.06	18874.10
32	Ceiling Painting	sqm	317.21	106.69	33842.75
33	Door Painting	sqm	45.83	98.70	4523.67
34	Window Painting	sqm	64.80	98.70	6395.76
35	Column painting	sqm	108.72	113.88	12380.63
36					**2999414.38**

Generate Estimation

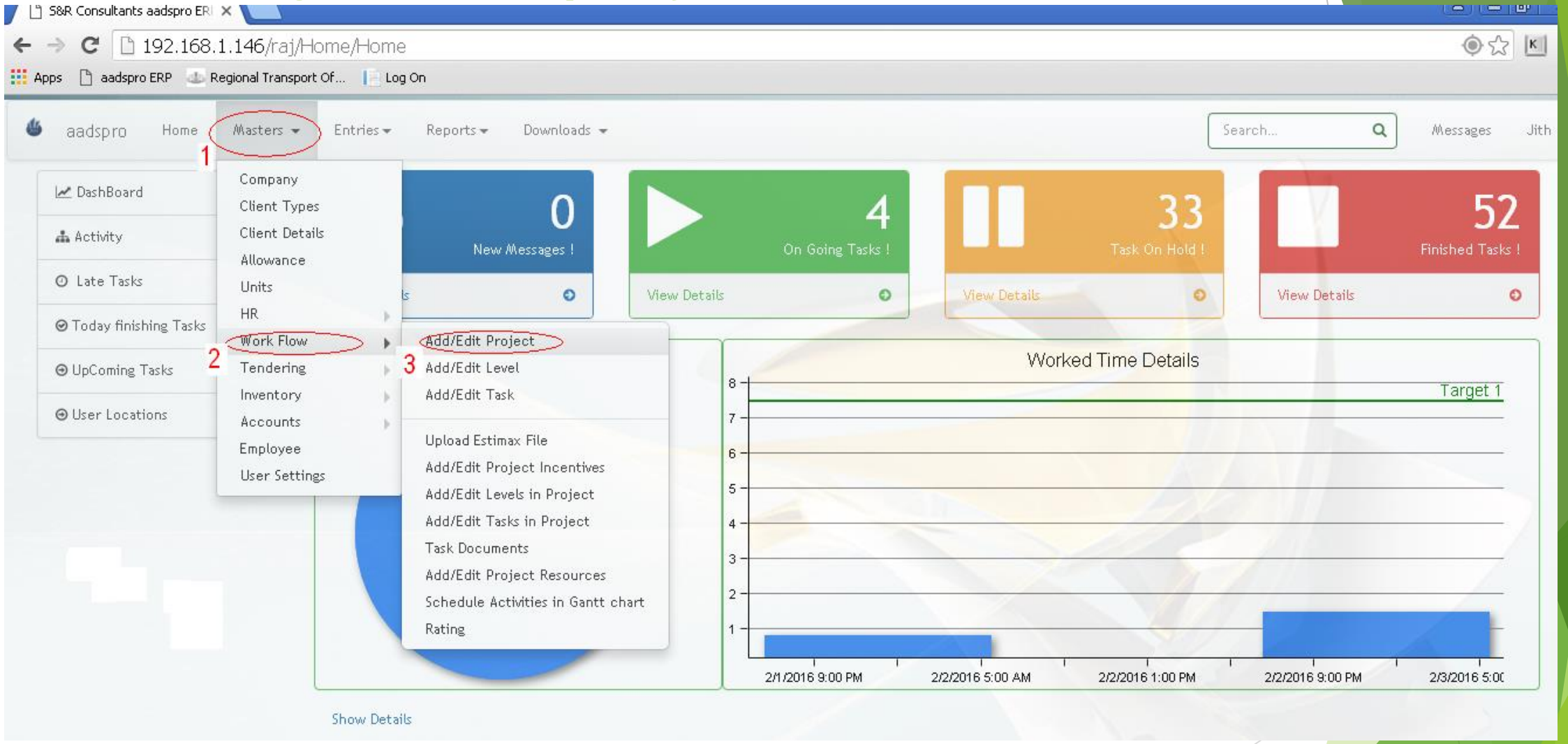
Export Estimation Quantities to MS Excel or import estimation file in aadspro erp



Planning

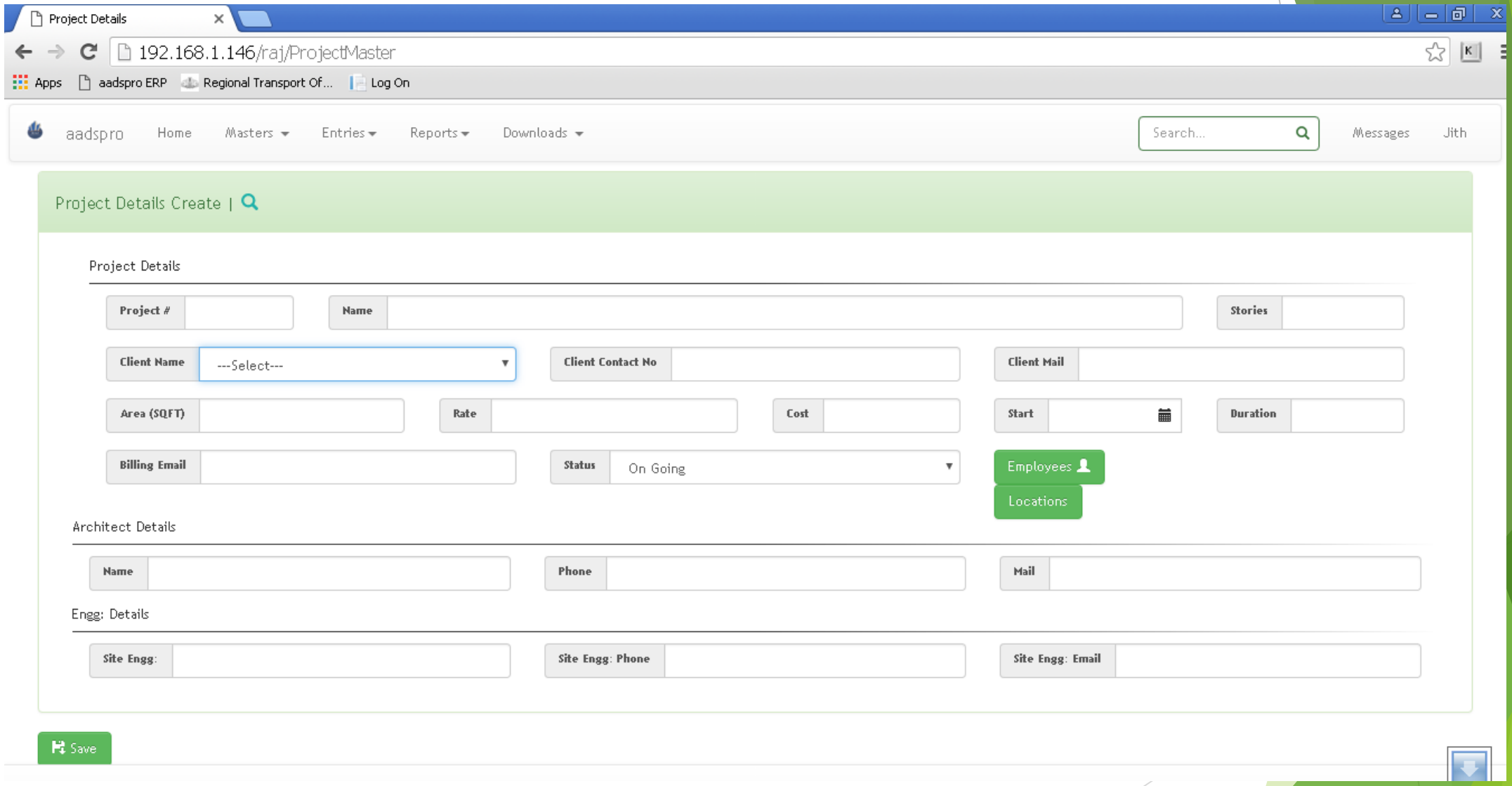
Project scheduling using aadspro erp

1. Creating a new project



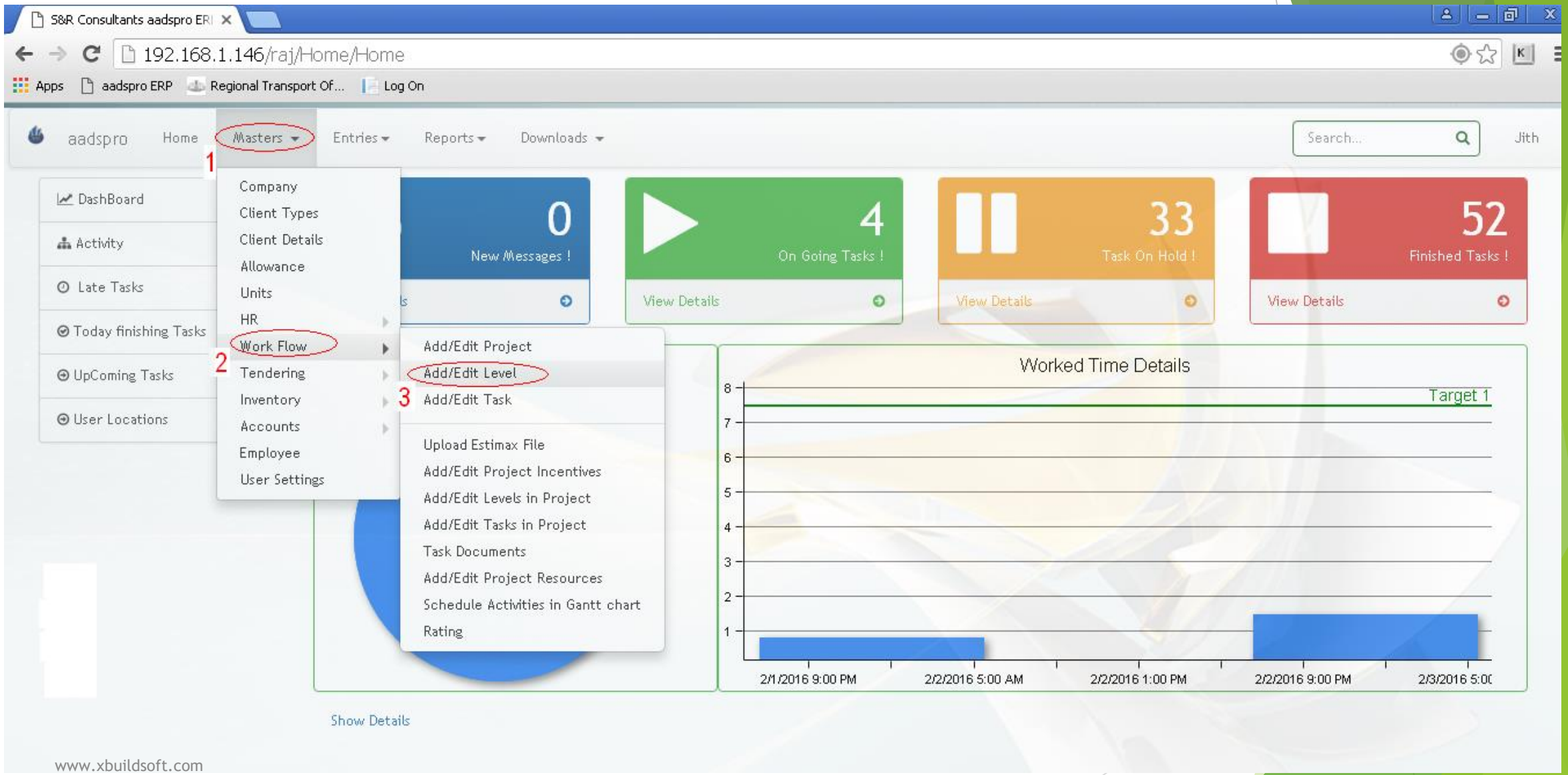
From menu select – masters – work flow - add / edit project

Adding project details



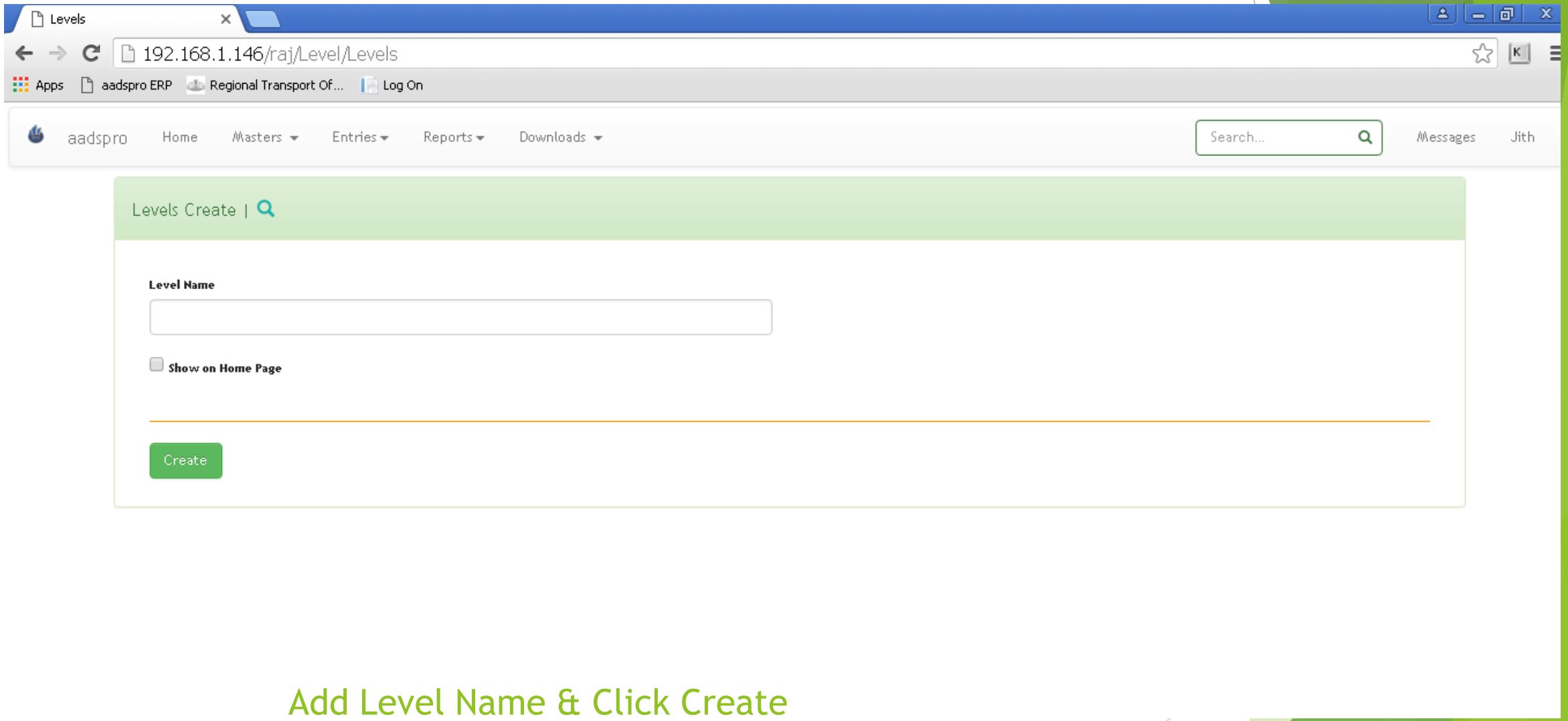
Add Project details & Save

2. Creating levels in project



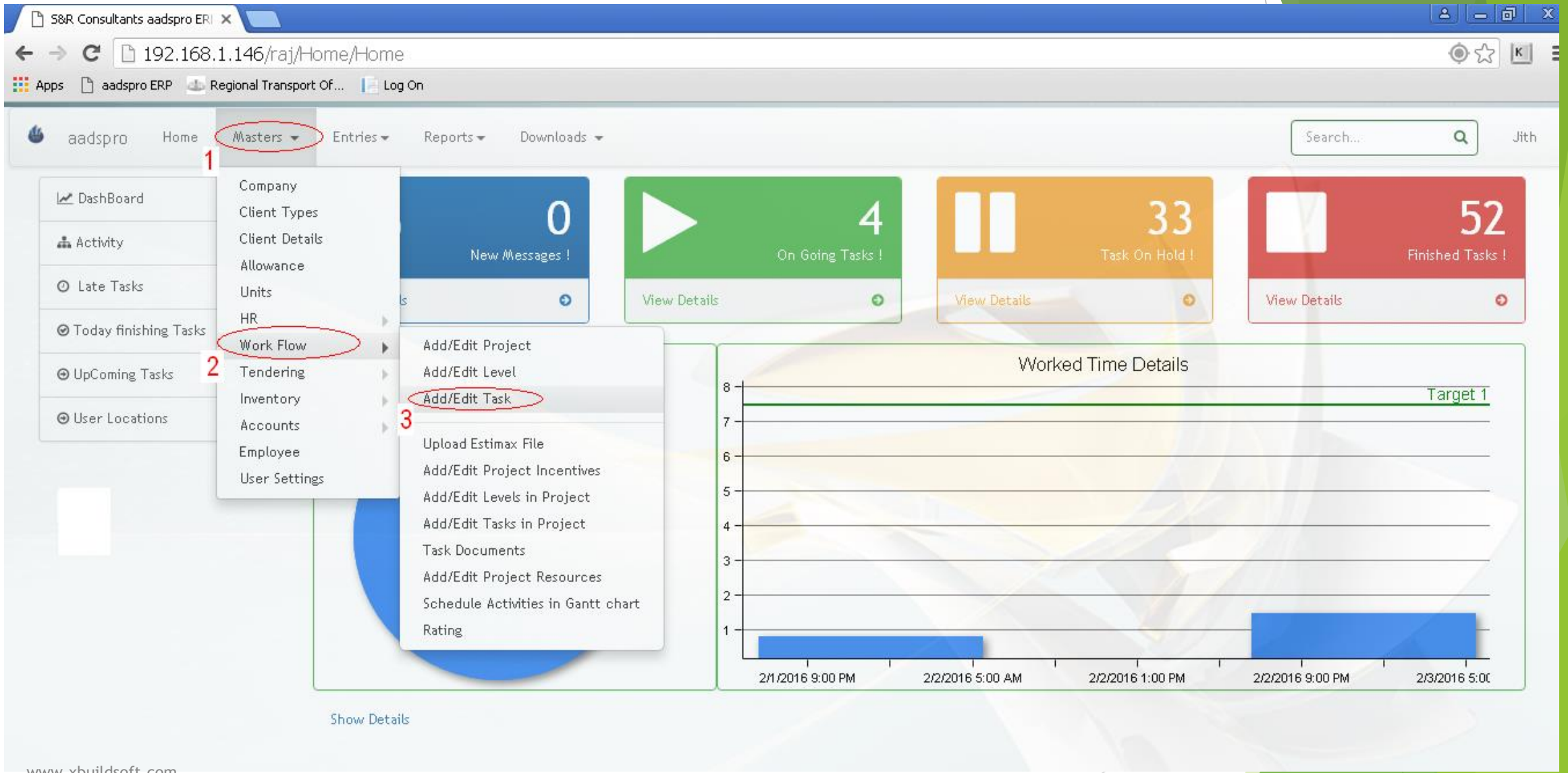
From Menu select – Masters – Work Flow - Add / Edit Level

Creating levels



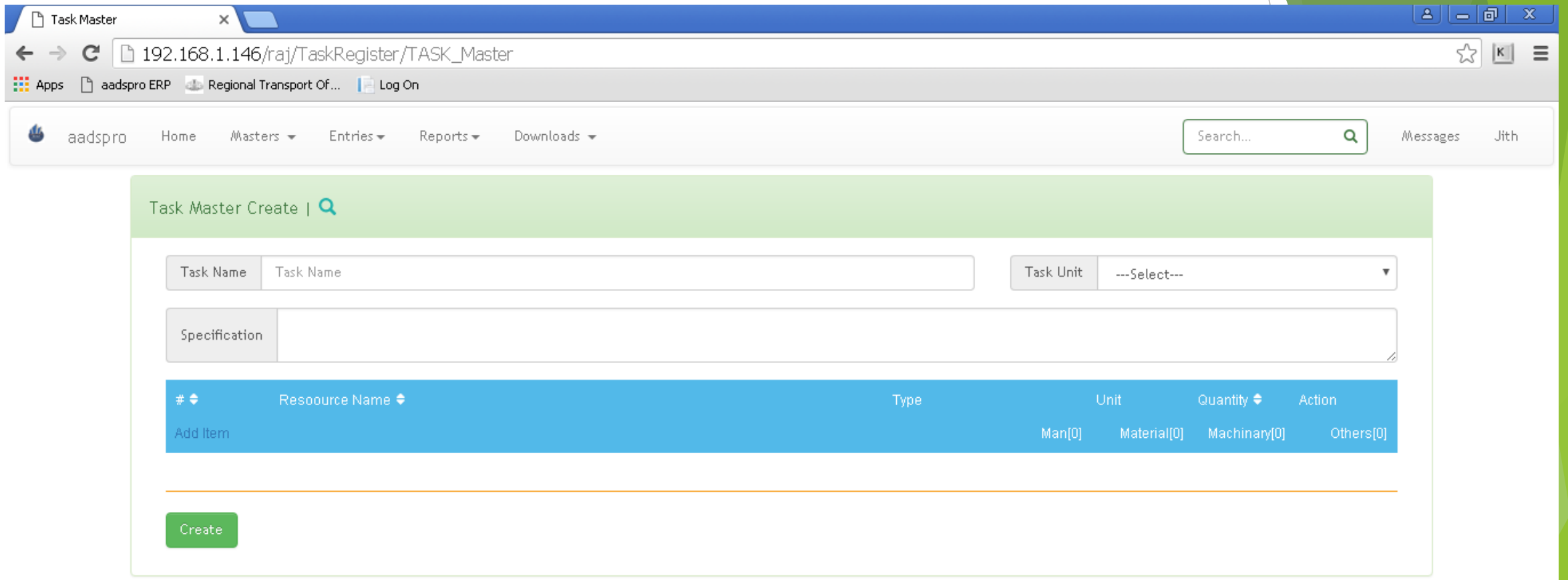
Add Level Name & Click Create

3. Creating tasks in project



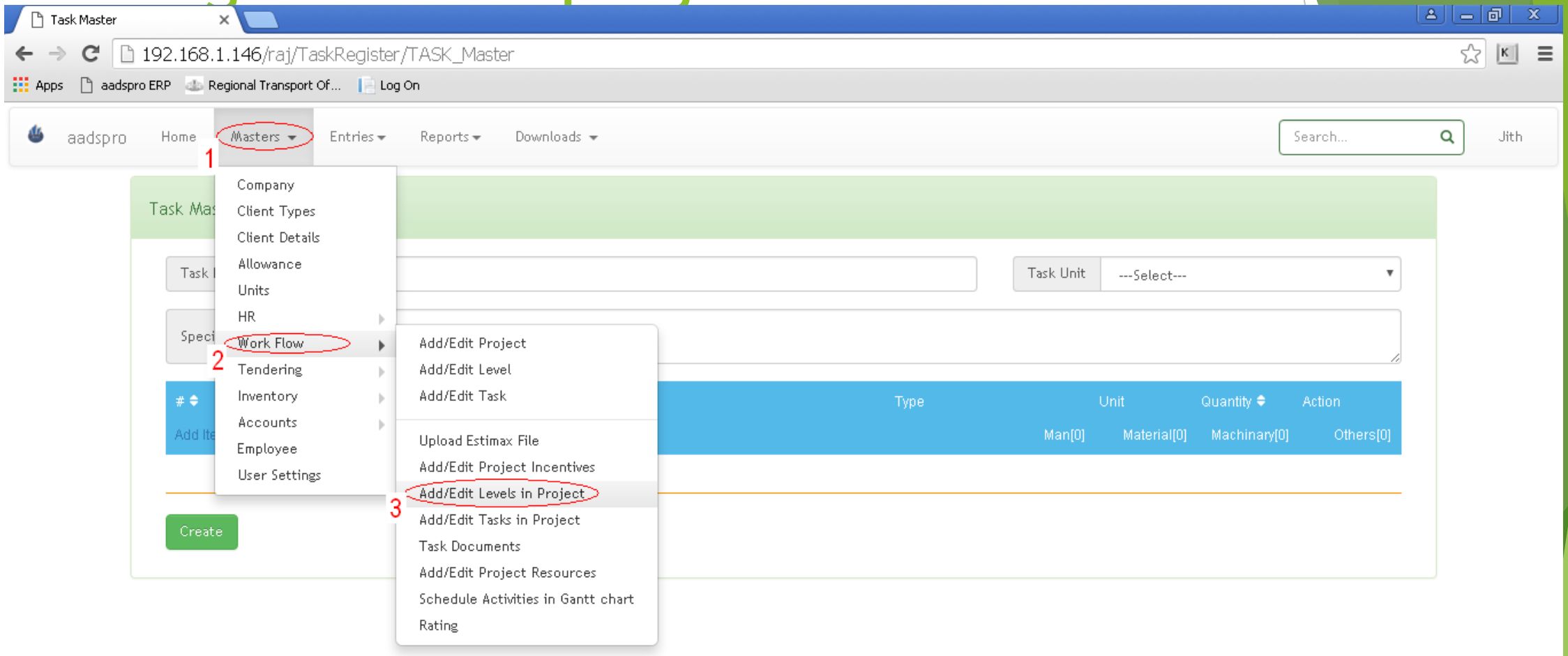
From Menu select – Masters – Work Flow - Add / Edit Task

Creating tasks



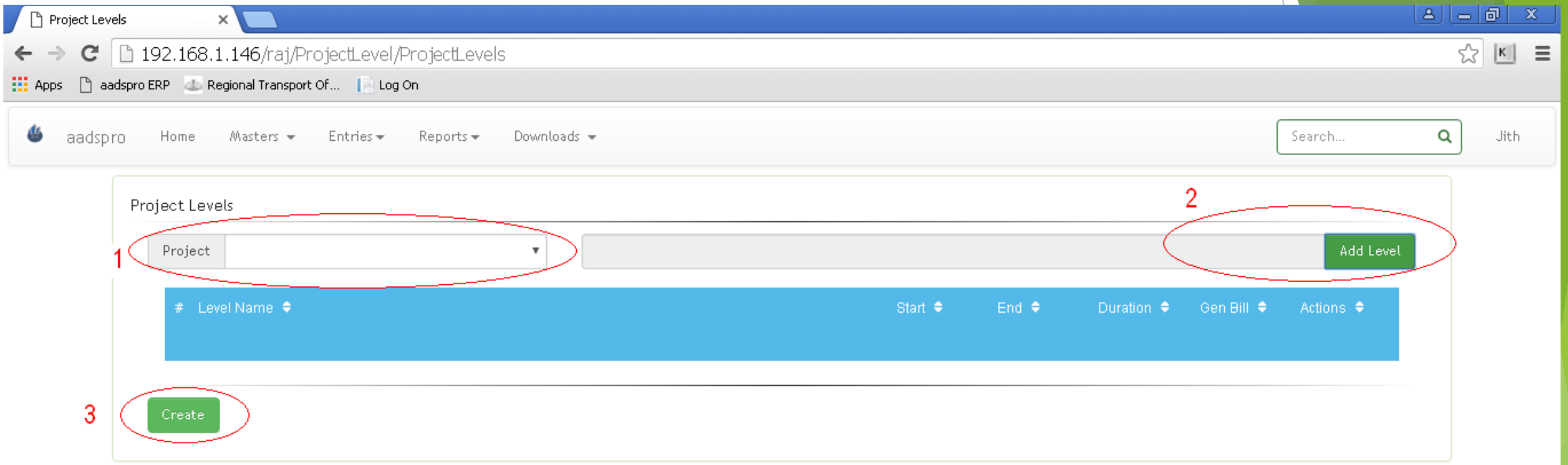
Add Task Details & Click Create

4. Adding levels in project



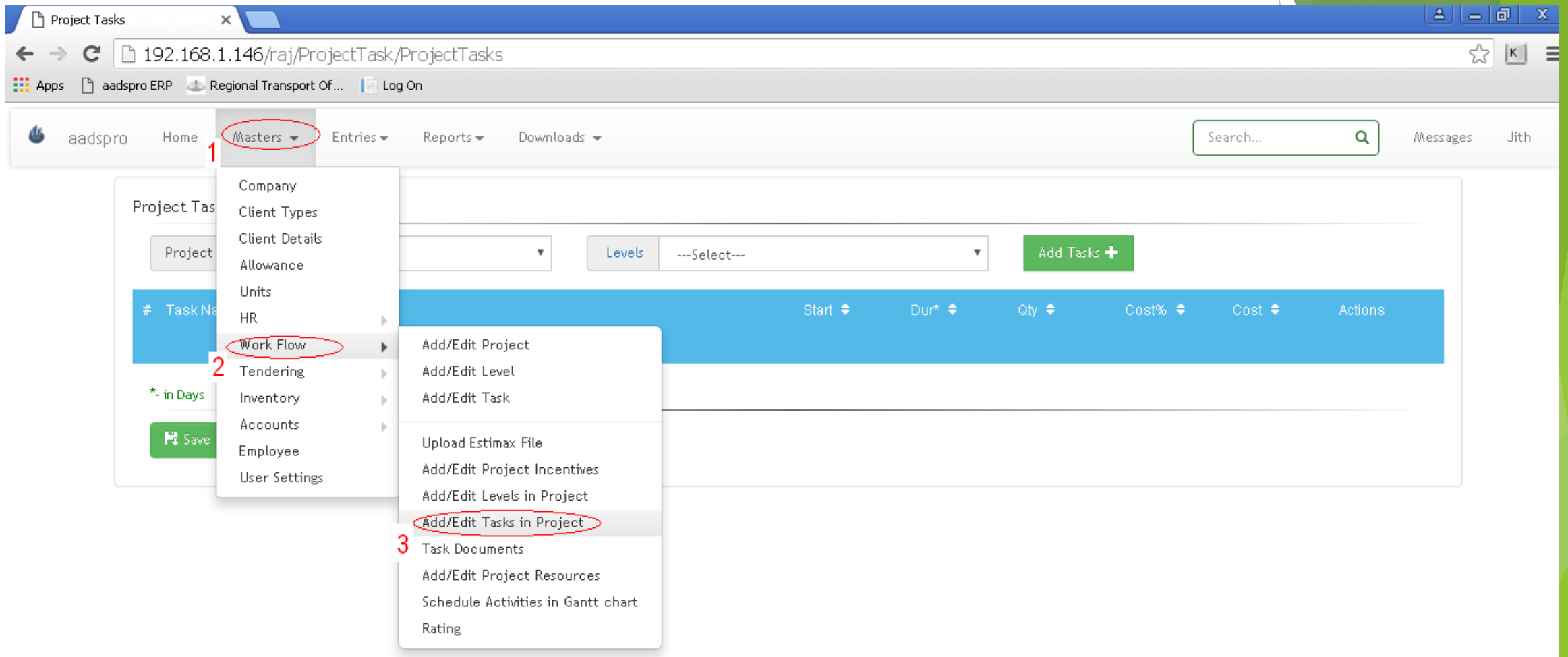
From Menu select – Masters – Work Flow - Add / Edit Levels in project

Adding levels in project



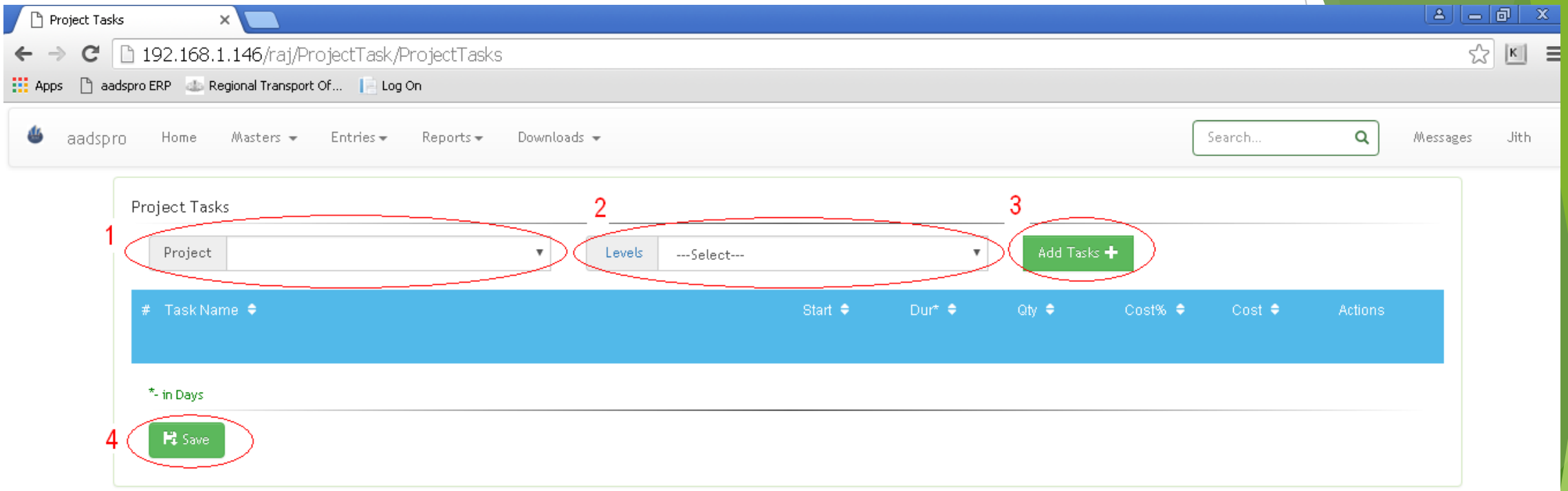
Select Project – Click Add levels & Select Levels – Click Create

5. Adding tasks in project



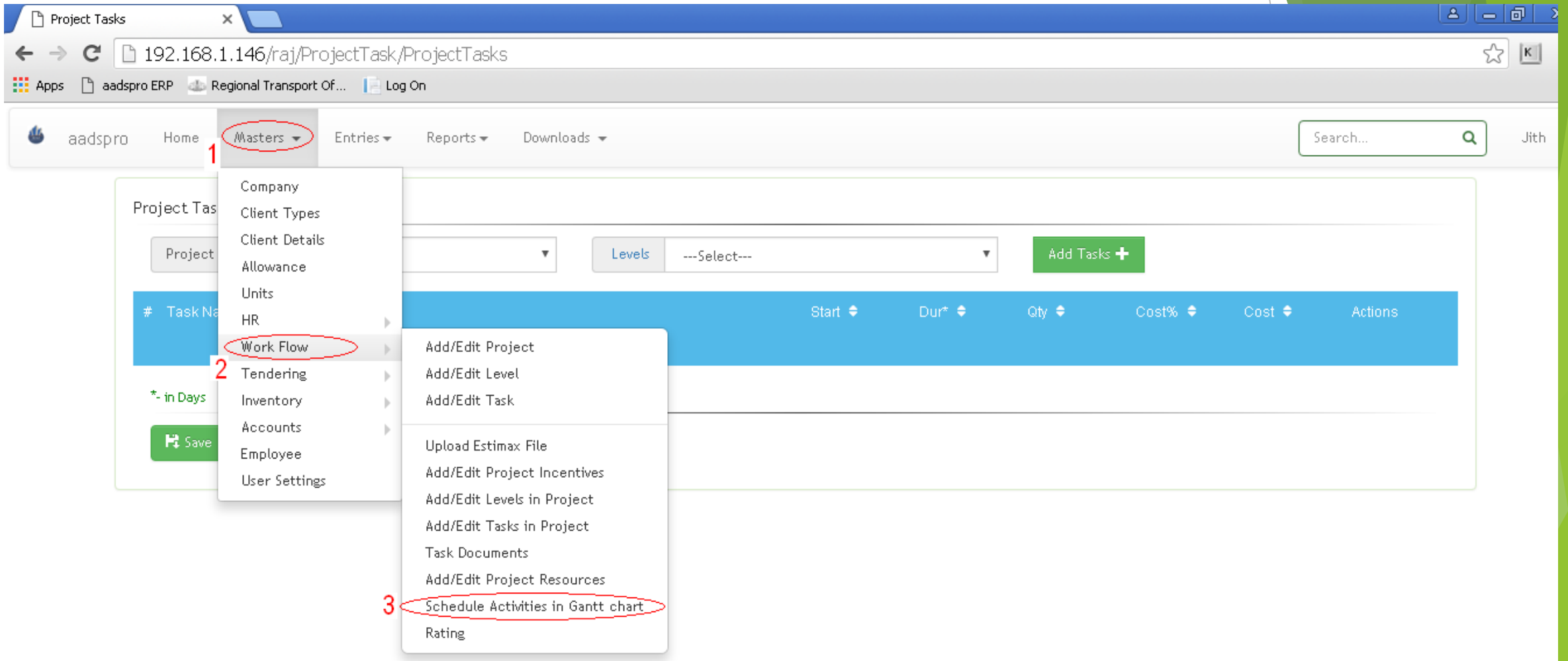
From Menu select – Masters – Work Flow - Add / Edit Tasks in project

Adding tasks in project



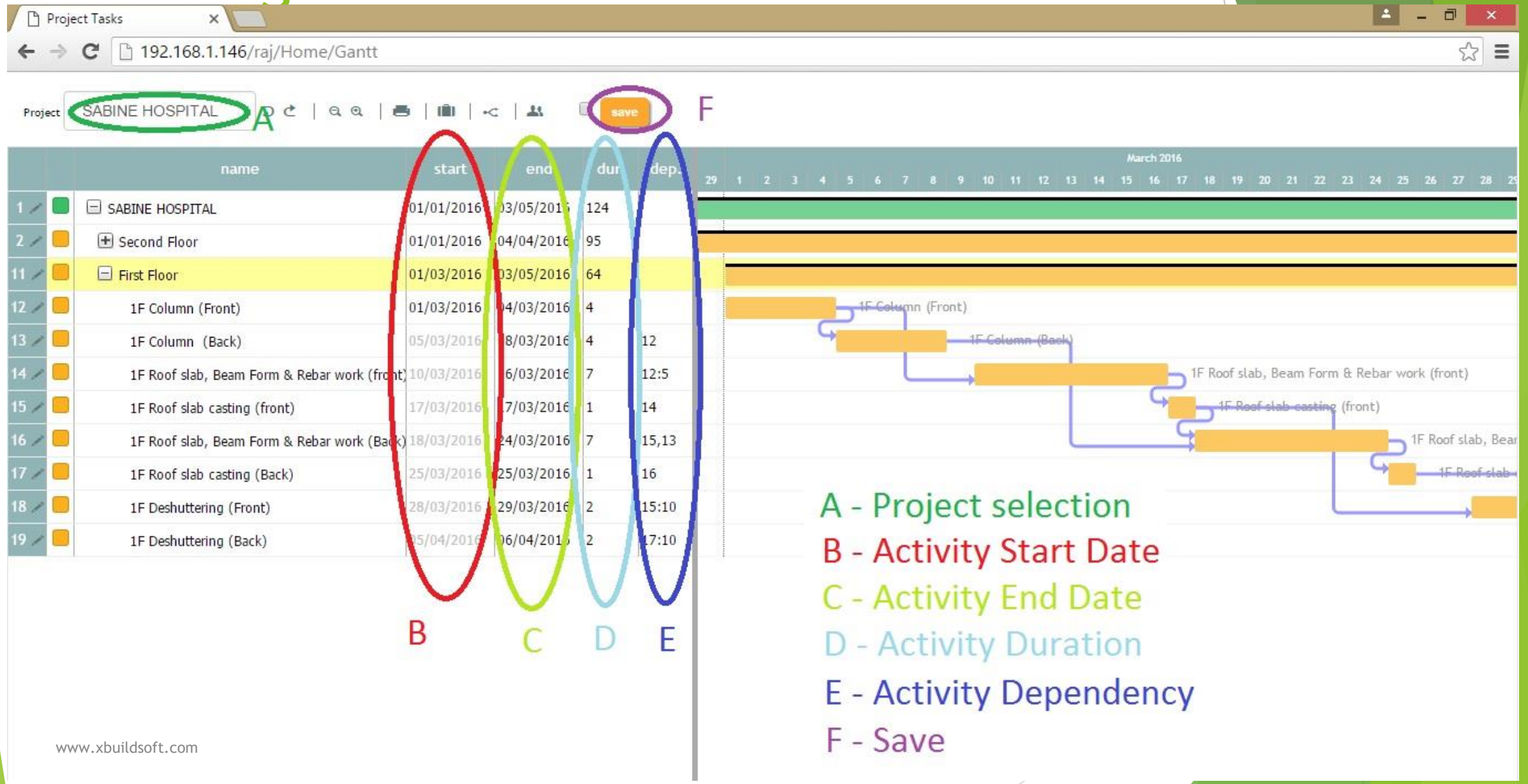
Select Project – Select Levels – Click Add tasks & Select Tasks – Click Save

6. Scheduling activities in Gantt chart



From Menu select – Masters – Work Flow – Schedule Activities in Gantt Chart

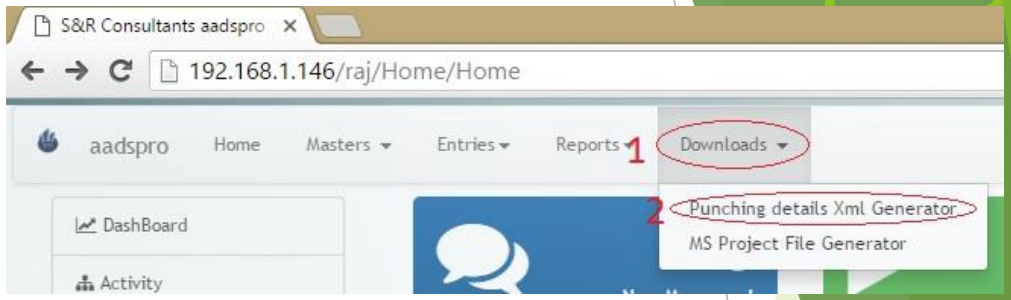
Scheduling activities in Gantt chart



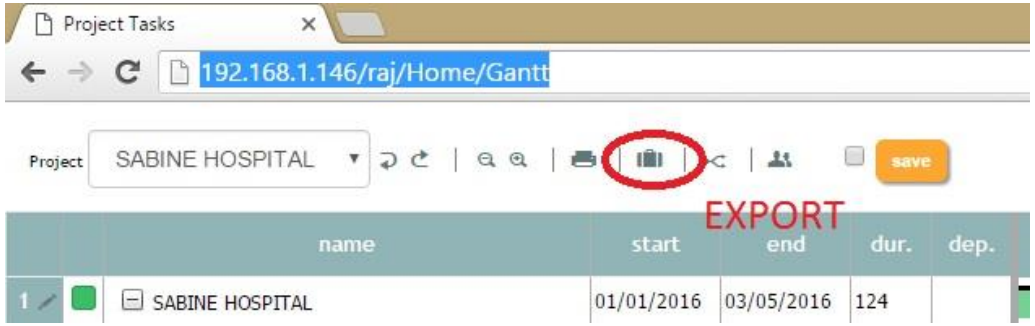
7. Exporting activities in Gantt chart to ms project

A. Download & install MS project File Generator from Menu – Downloads - MS project File Generator

A

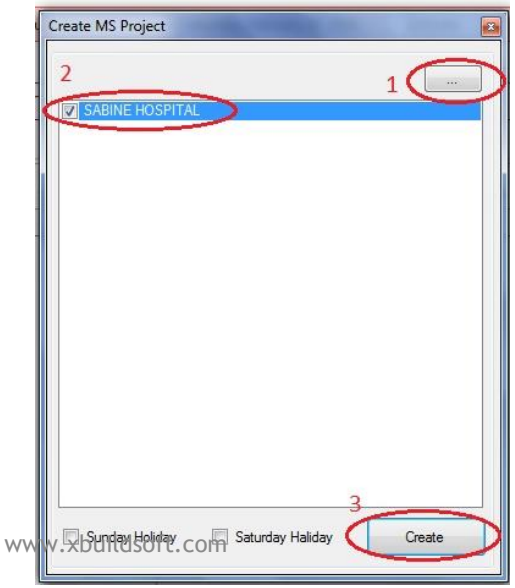


B



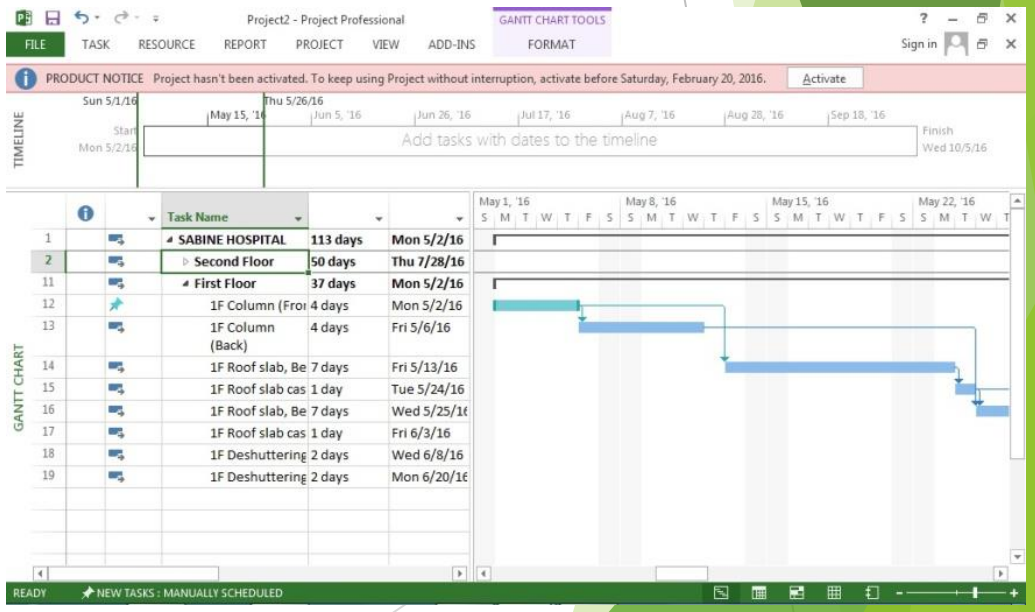
B. Click Export Icon to download the Gantt chart

C



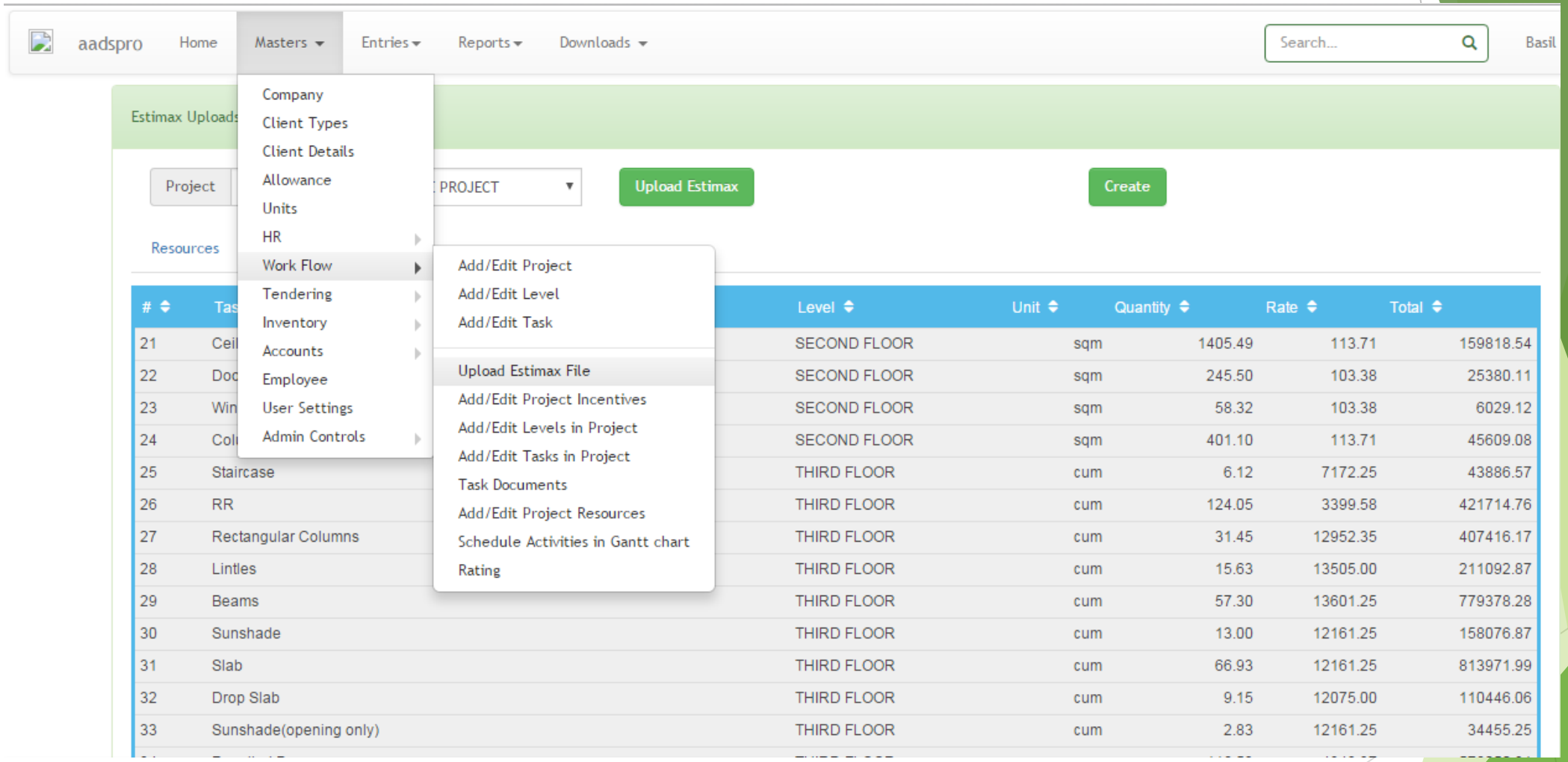
C. Use MS Project File generator to convert downloaded file to MS Project

D



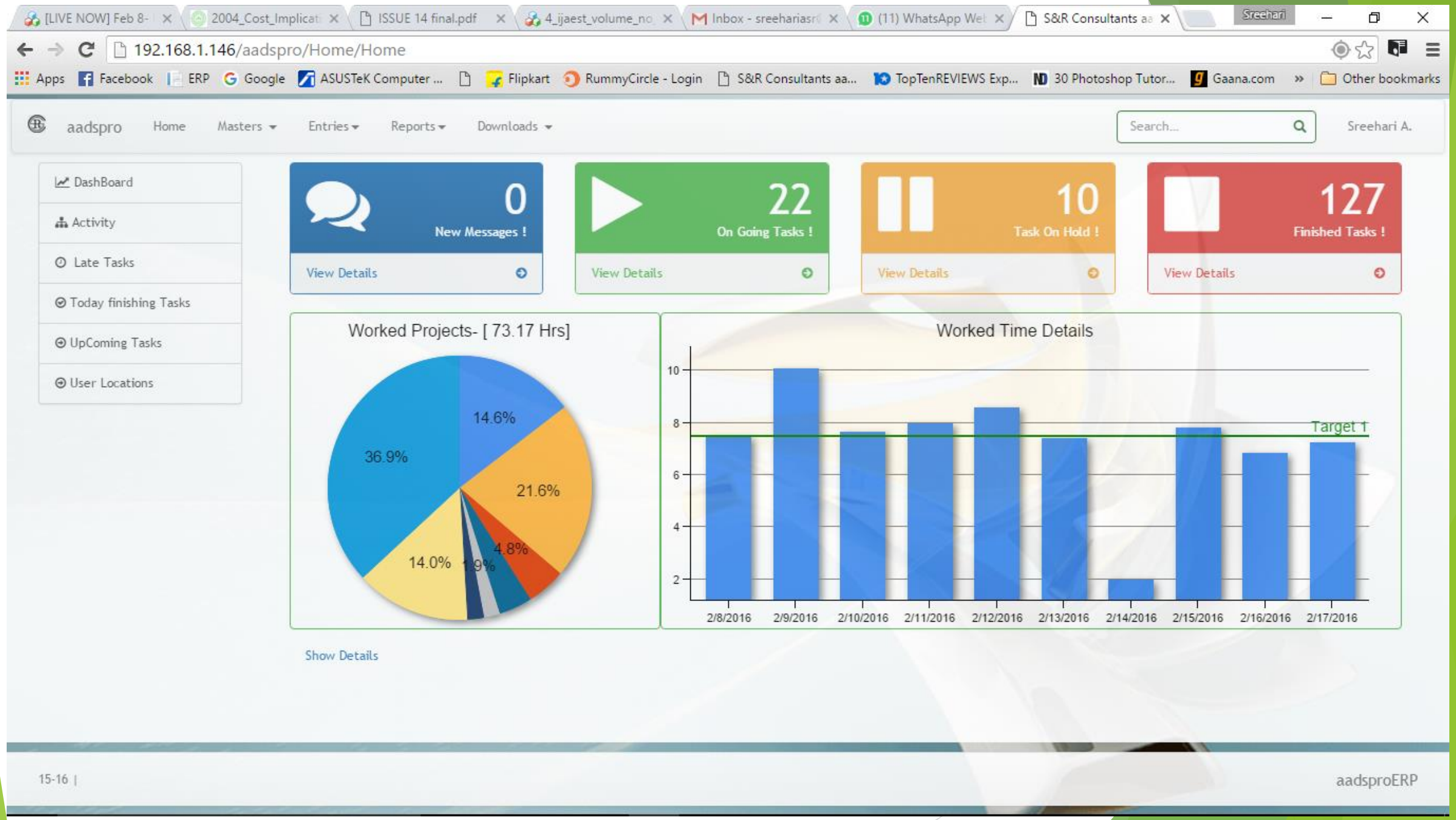
D. MS Project file created

8. Importing activities and resources from Extimax (.estx) File



From Menu select – Masters – Work Flow – Upload Estimax File

Inventory Module


[LIVE NOW] Feb 8-
2004_Cost_Implicati
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Inbox - sreehariasr
(11) WhatsApp We
S&R Consultants aa
Sreehari
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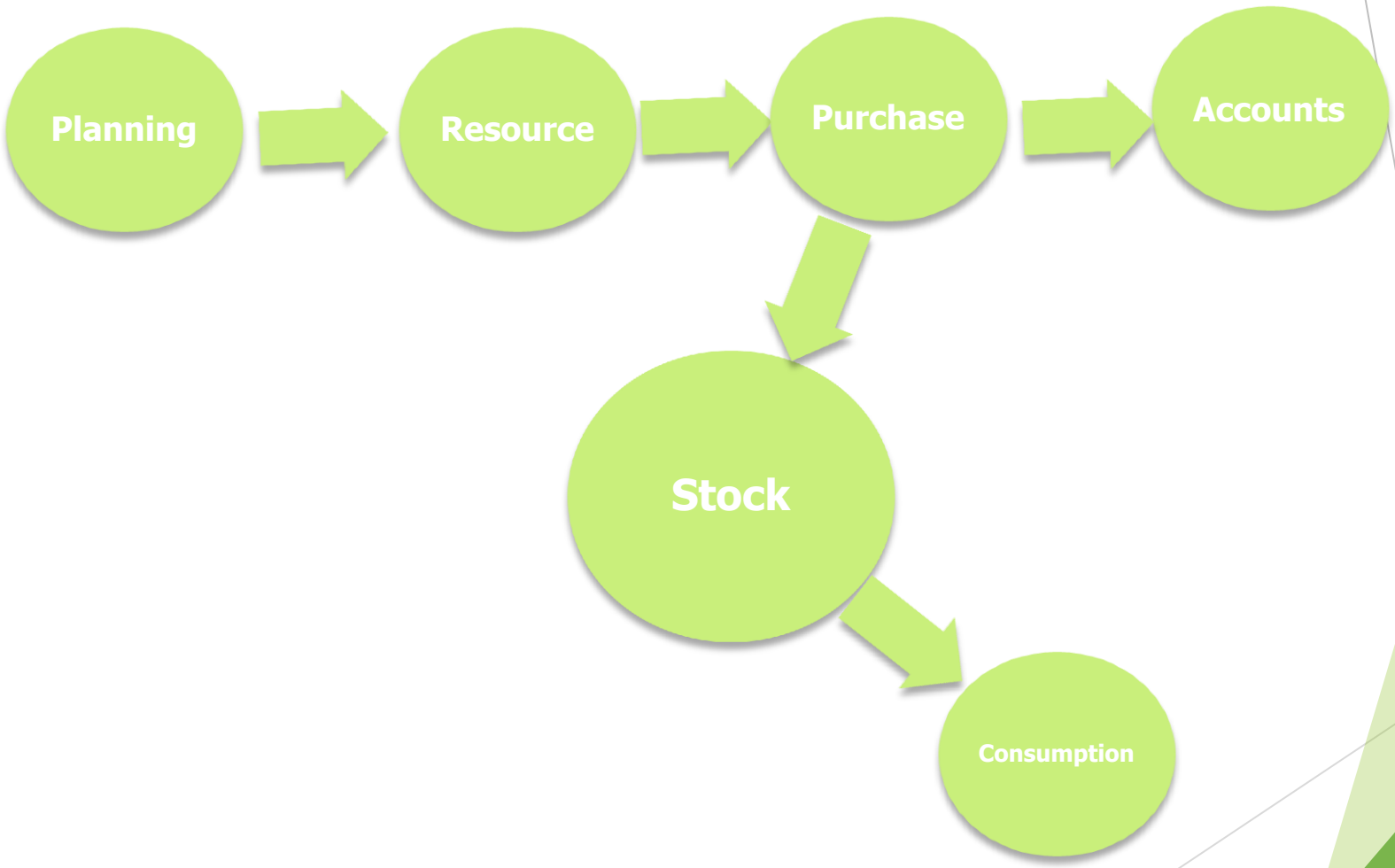
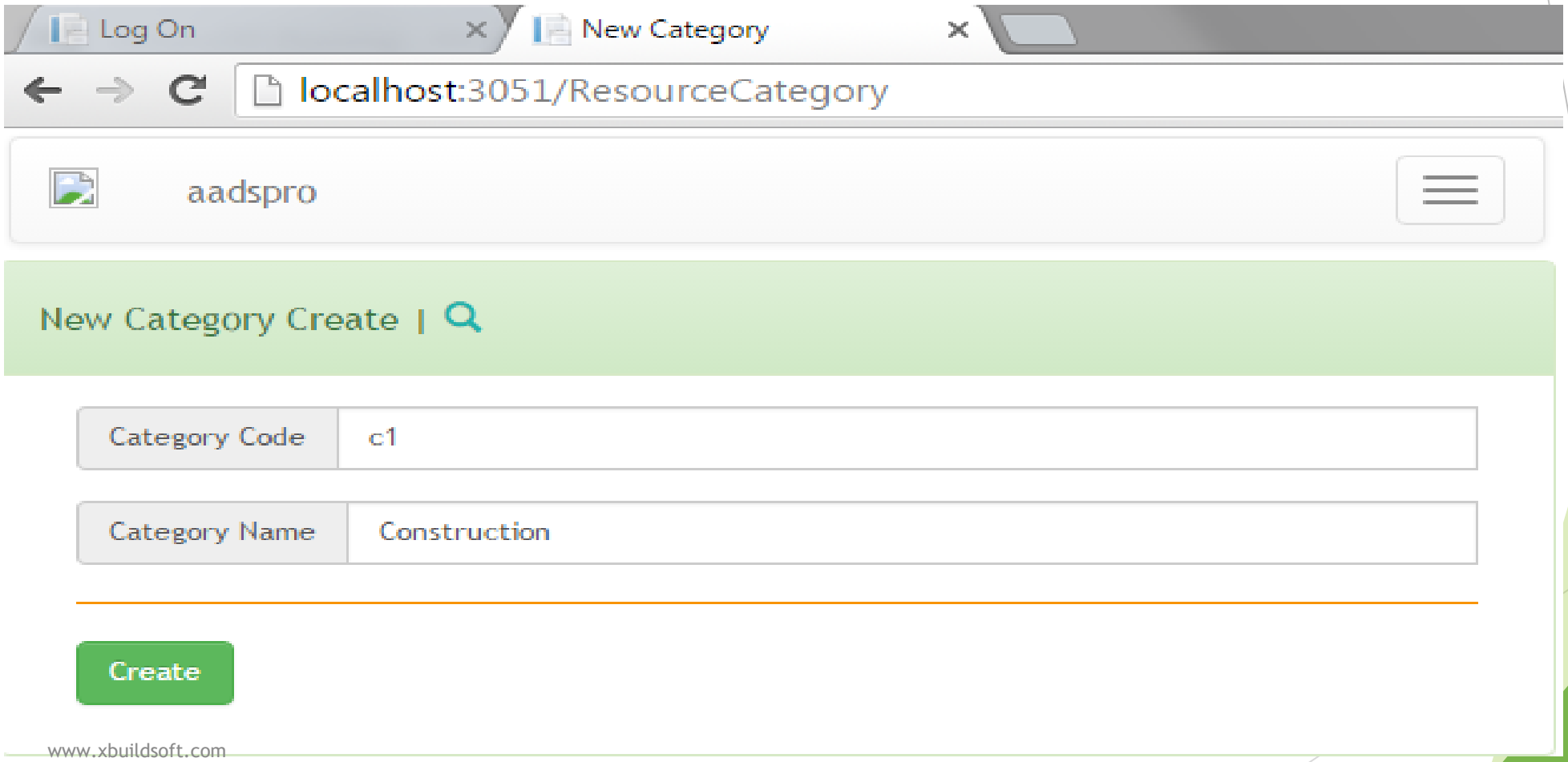
Facebook
ERP
Google
ASUSTeK Computer ...
Flipkart
RummyCircle - Login
S&R Consultants aa...
TopTenREVIEWS Exp...
30 Photoshop Tutor...
Gaana.com
Other bookmarks
aadspro
Home
Masters
Entries
Reports
Downloads
Search...
Sreehari A.
DashBoard
Activity
Late Tasks
Today finishing Tasks
UpComing Tasks
User Locations
0
New Messages !
View Details
22
On Going Tasks !
View Details
10
Task On Hold !
View Details
127
Finished Tasks !
View Details
Worked Projects- [73.17 Hrs]
14.6%
21.6%
4.8%
1.9%
14.0%
36.9%
Worked Time Details
10
8
6
4
2
Target 1
2/8/2016
2/9/2016
2/10/2016
2/11/2016
2/12/2016
2/13/2016
2/14/2016
2/15/2016
2/16/2016
2/17/2016
Show Details
15-16 |
aadsproERP

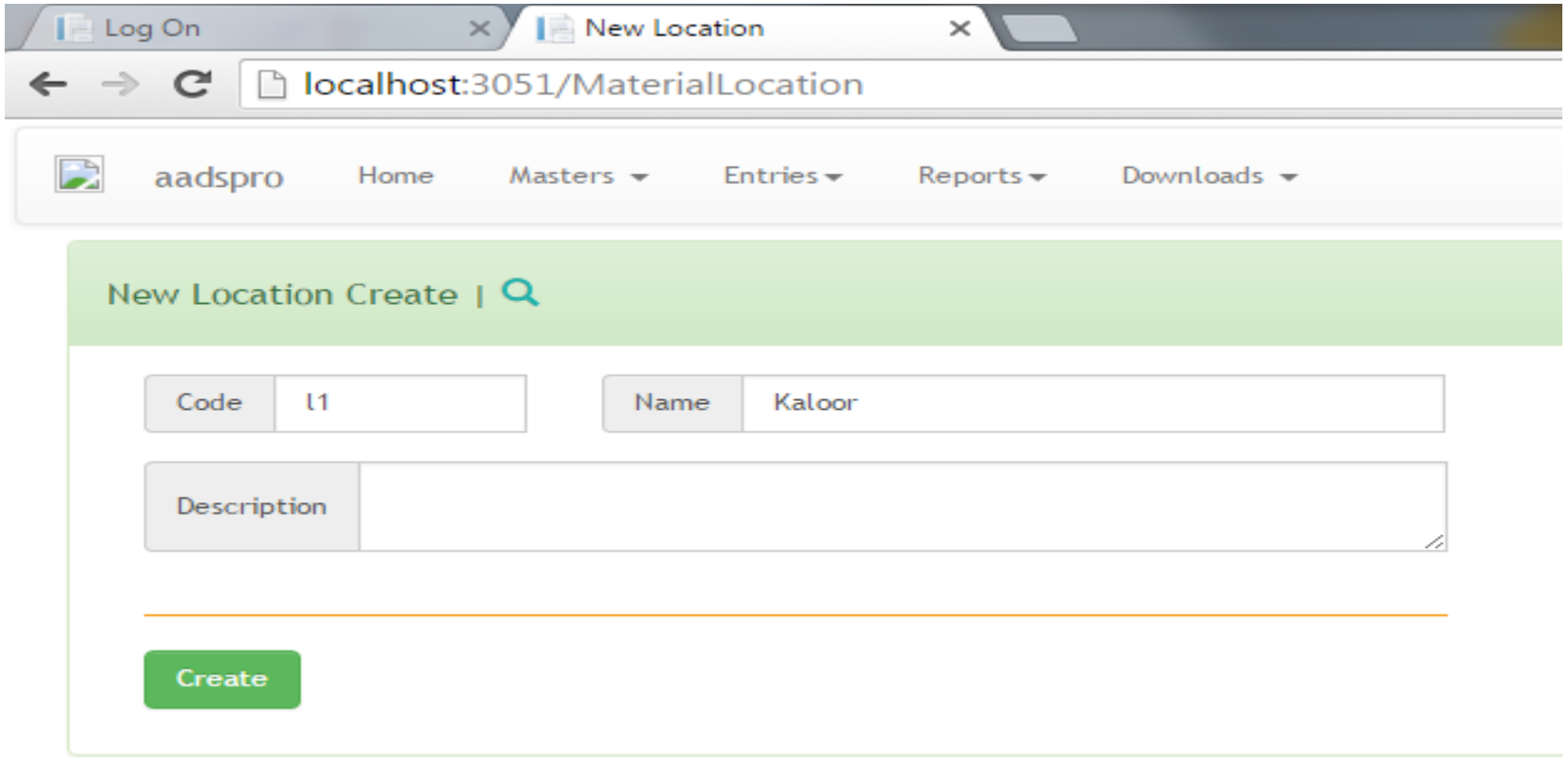
Data Flow



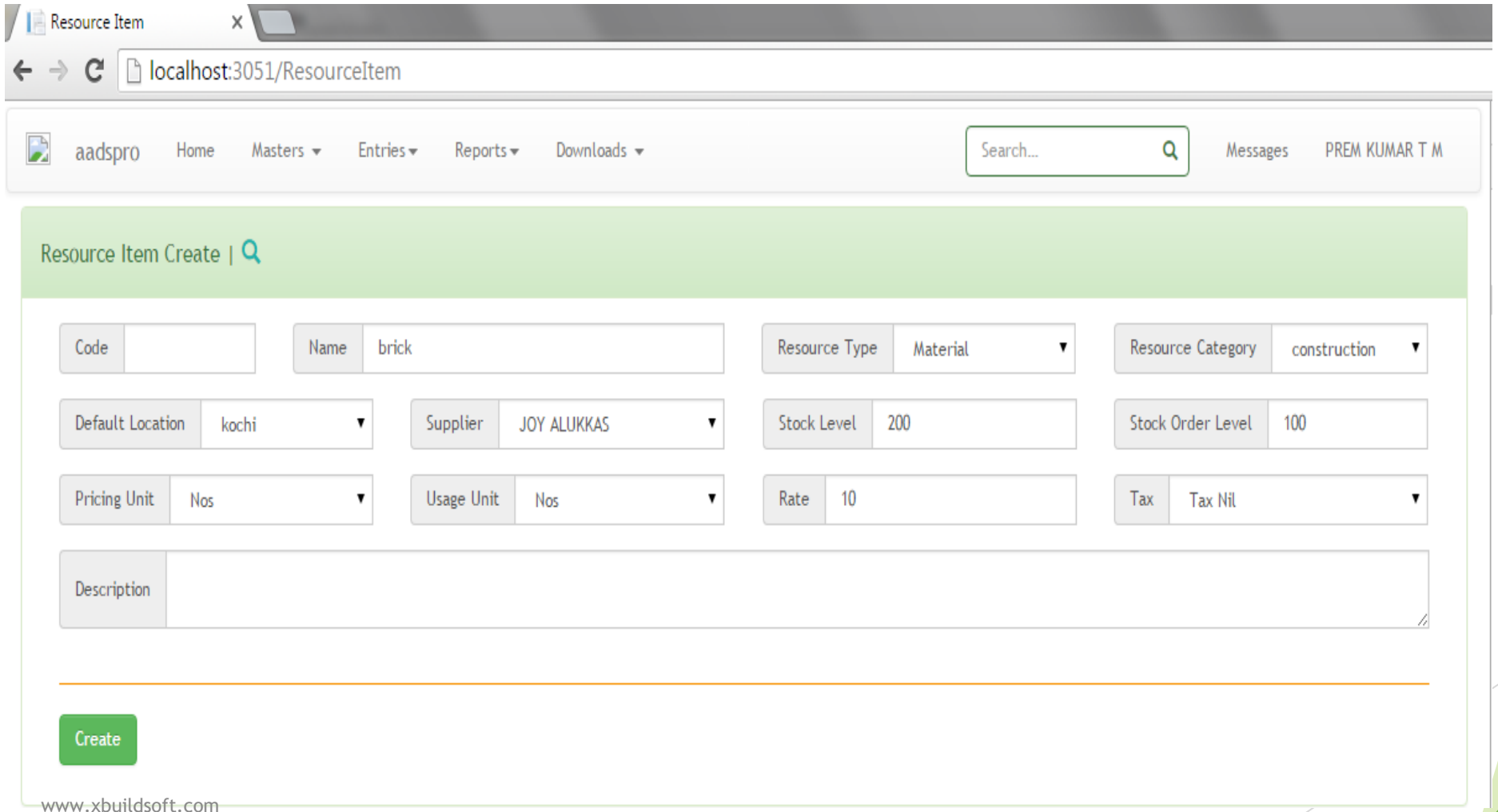
Resource Category



Resource Location

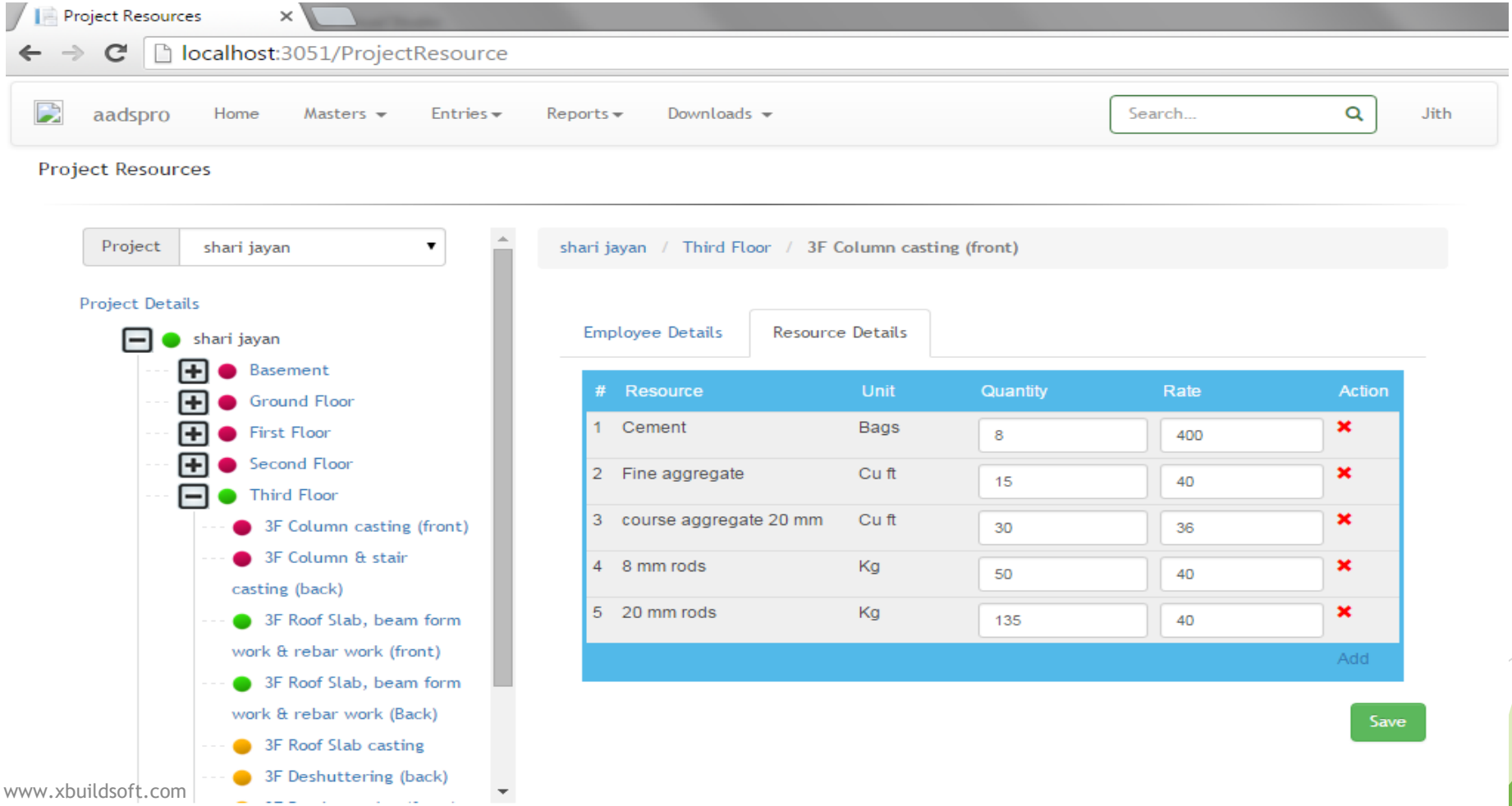


Resource Item



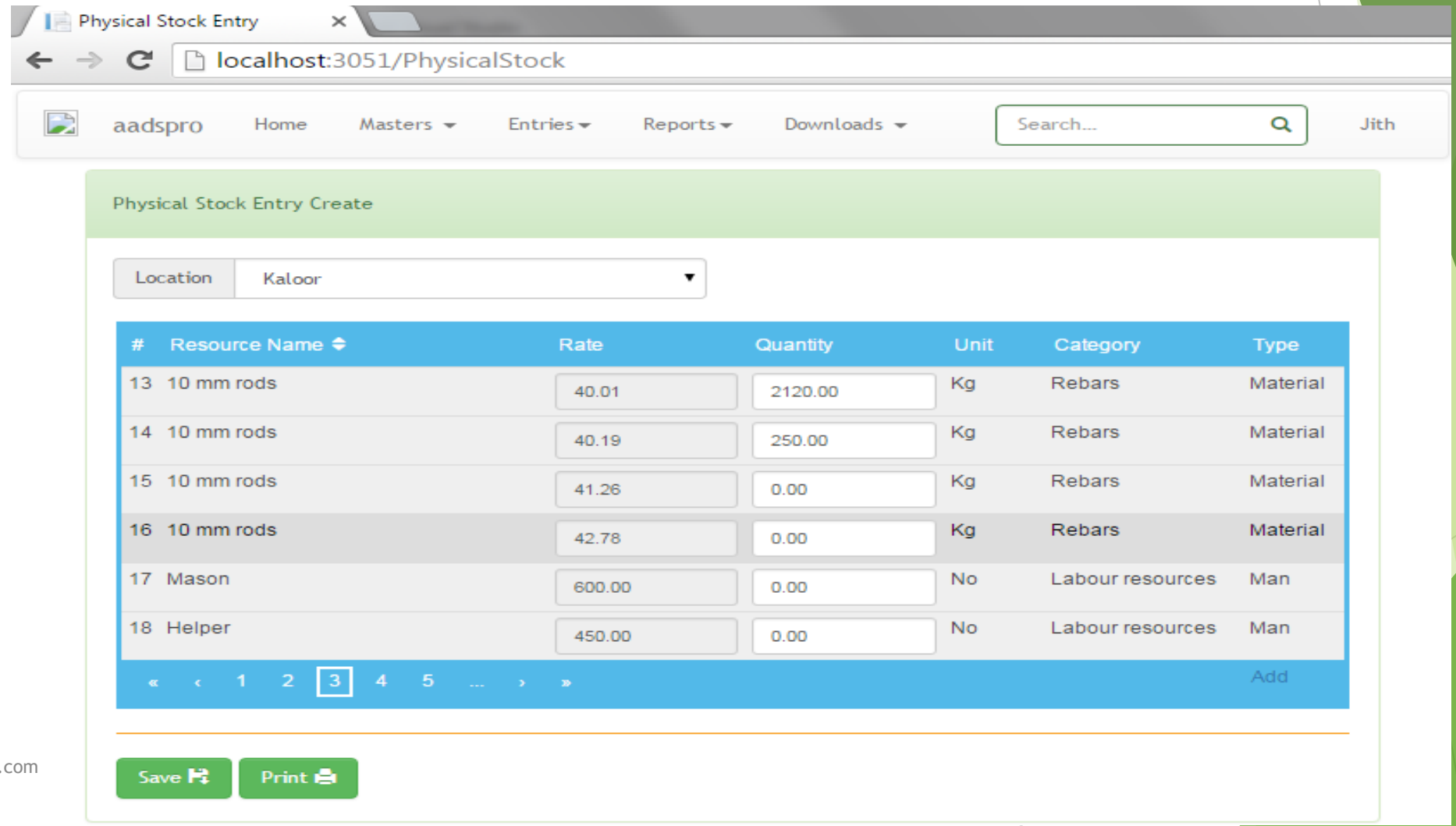
Project Resources

To add resource details for each task in a project



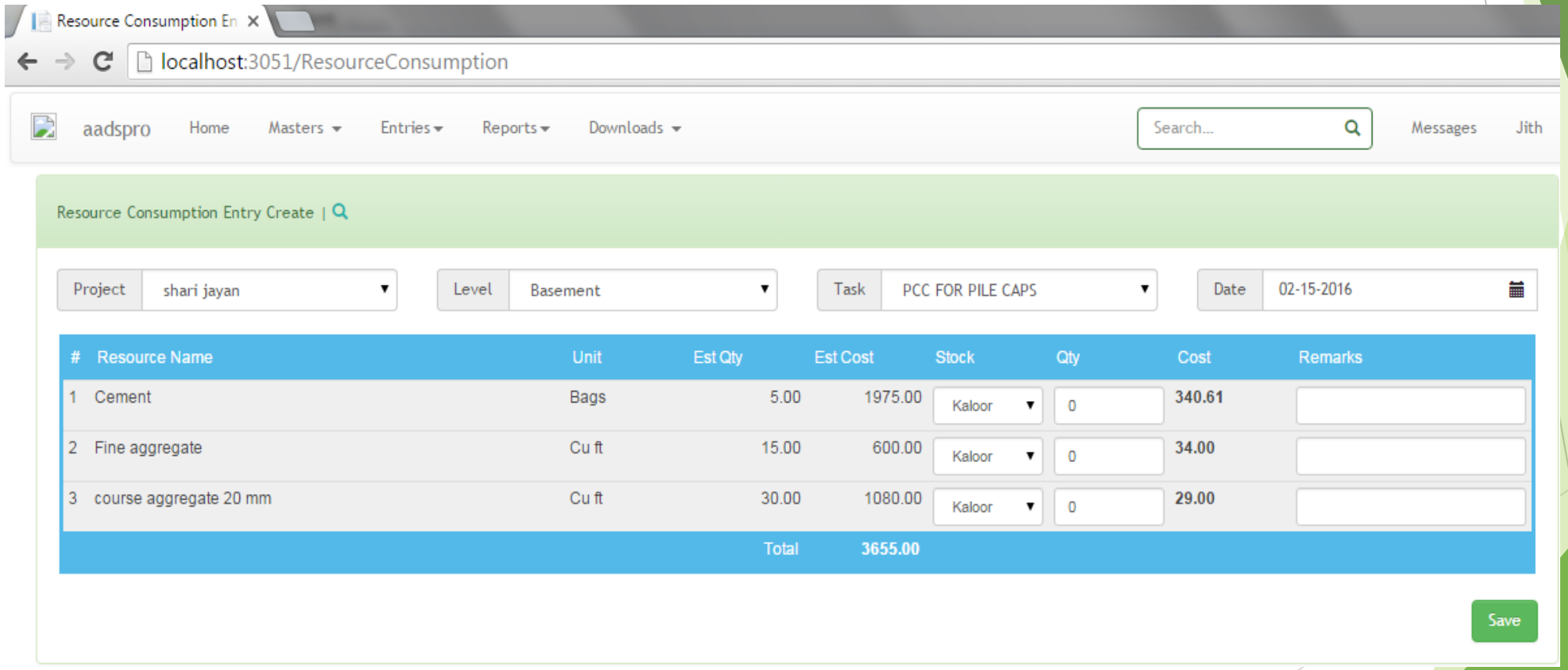
Physical Stock

To update stock of resources at specified location



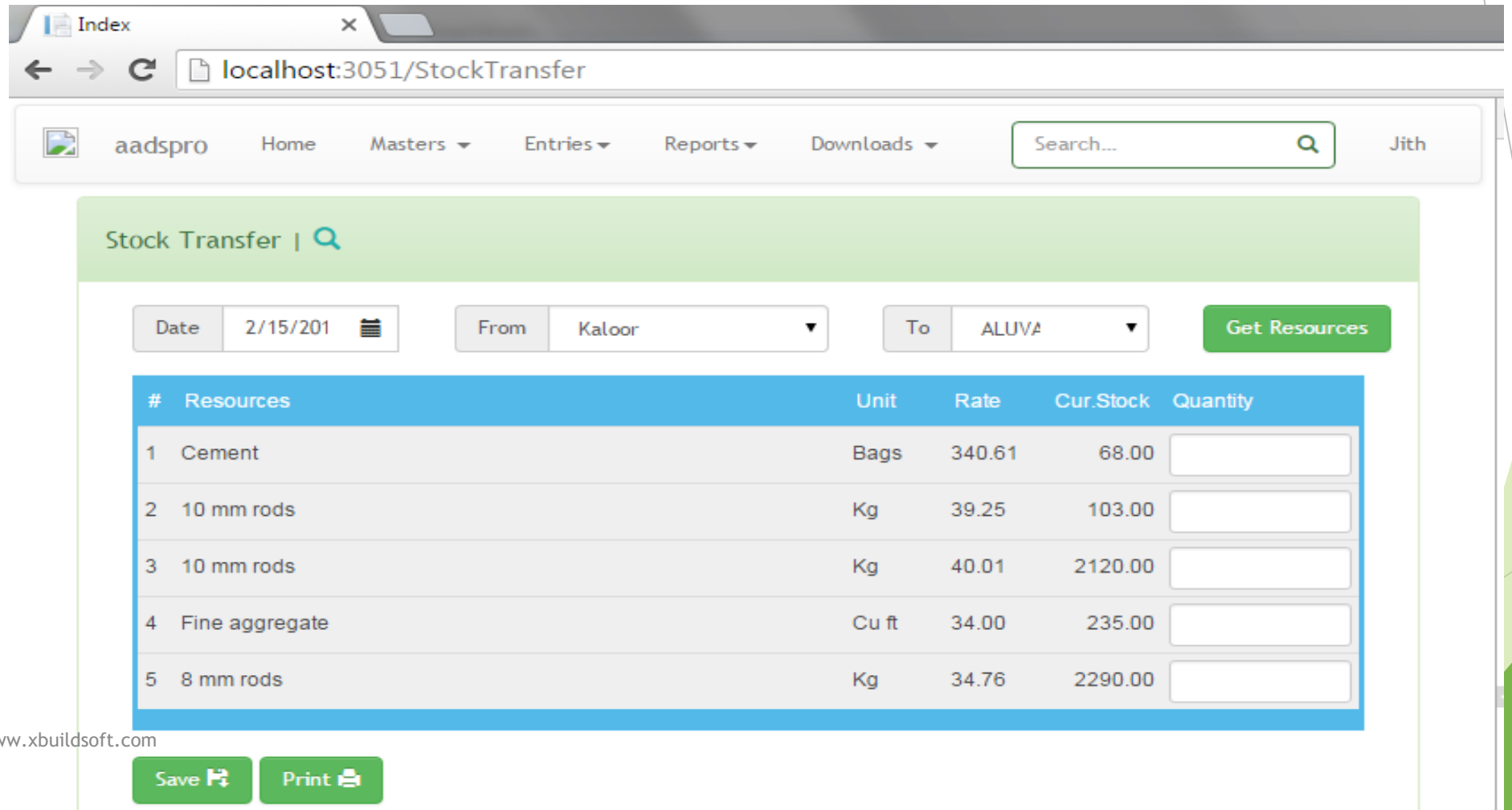
Resource Consumption

To provide consumed quantity of each resource for a task



Stock Transfer

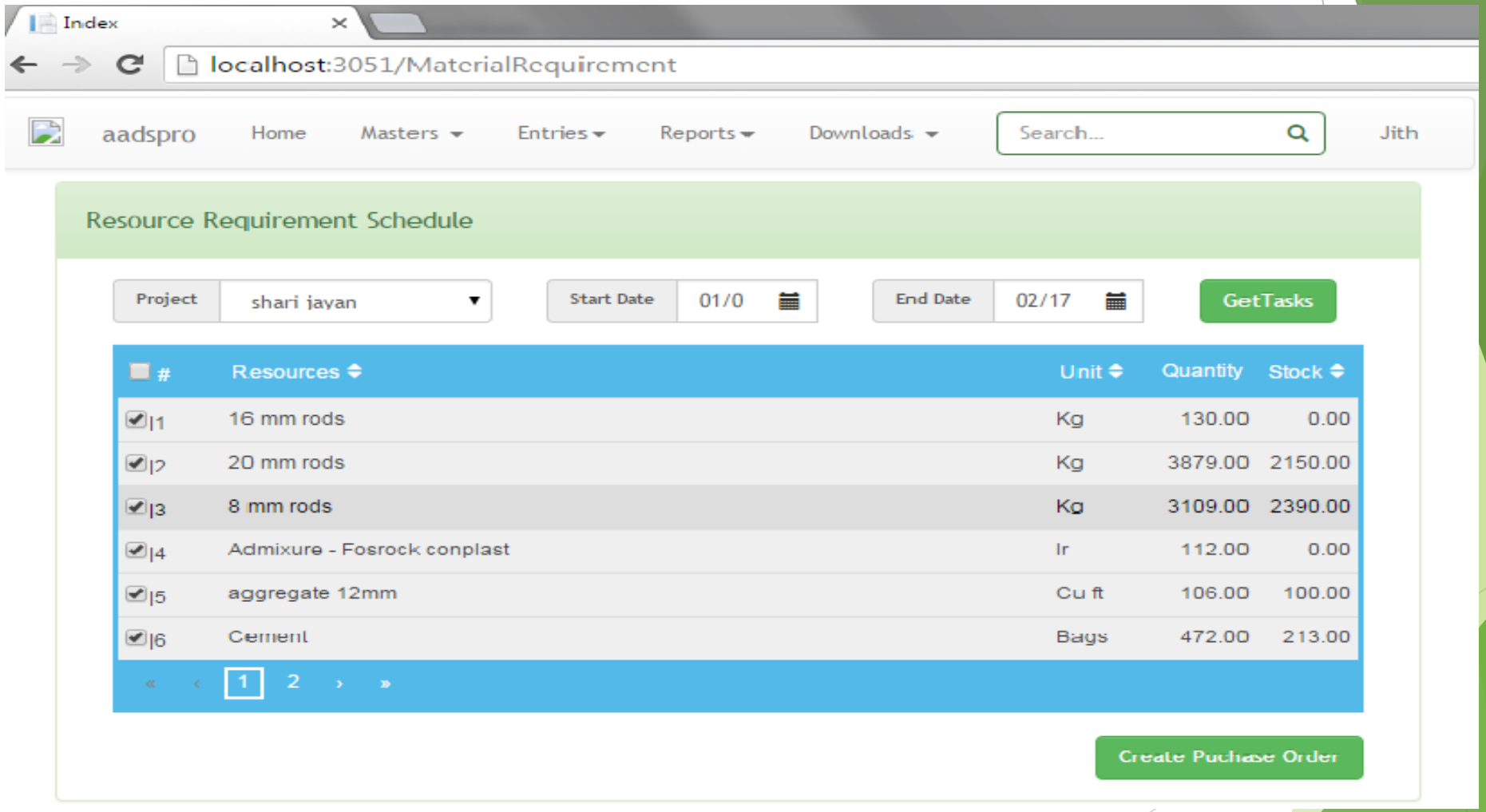
Transfer resources from one location to another location



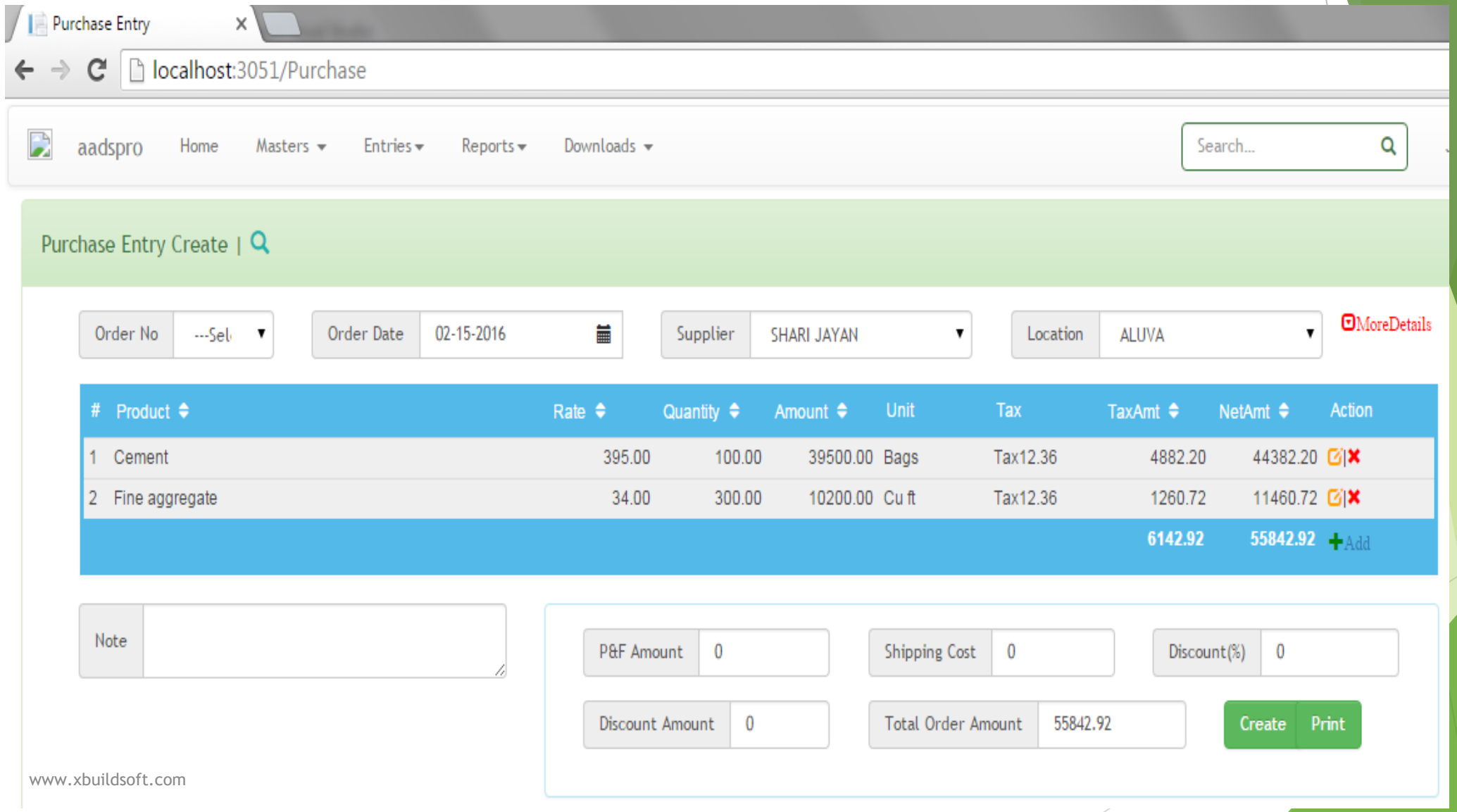
Resource Requirement Schedule

- Get a list of task to be completed in a specified period
- Get resource data required for each task
- Create a purchase order based on requirements

Resource Requirement Schedule



Purchase



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Reports

- Resource Requirement Report
- Stork Register based on each location.
- Consumption.
- Purchase Reports
- Transfer

And more …….

Stock Register

	Item Name	Date		Opening	Purchase	Consumption	Other	Curent Stock
1	⊞ Cement [Bags]							
				0.00	1065.00	952.00	45.00	68.00
2	⊞ 10 mm rods [Kg]							
				0.00	8443.00	6073.00		2370.00
3	⊞ Mason [No]							
				0.00				0.00
4	⊞ Helper [No]							
				0.00				0.00
5	⊞ Fine aggregate [Cu ft]							
				0.00	3765.00	3487.00		278.00
6	⊞ course aggregate 20 mm [Cu ft]							
				0.00	4155.00	3972.00		183.00
7	⊞ Admixure - Fosrock conplast [lr]							
				0.00	60.00	60.00		0.00
8	⊞ Shutter sheet [No]							
				0.00				0.00
9	⊞ Wooden Runners [No]							
				0.00				0.00

Estimated Vs Actual Cost details

Project: shari jayan — View — export

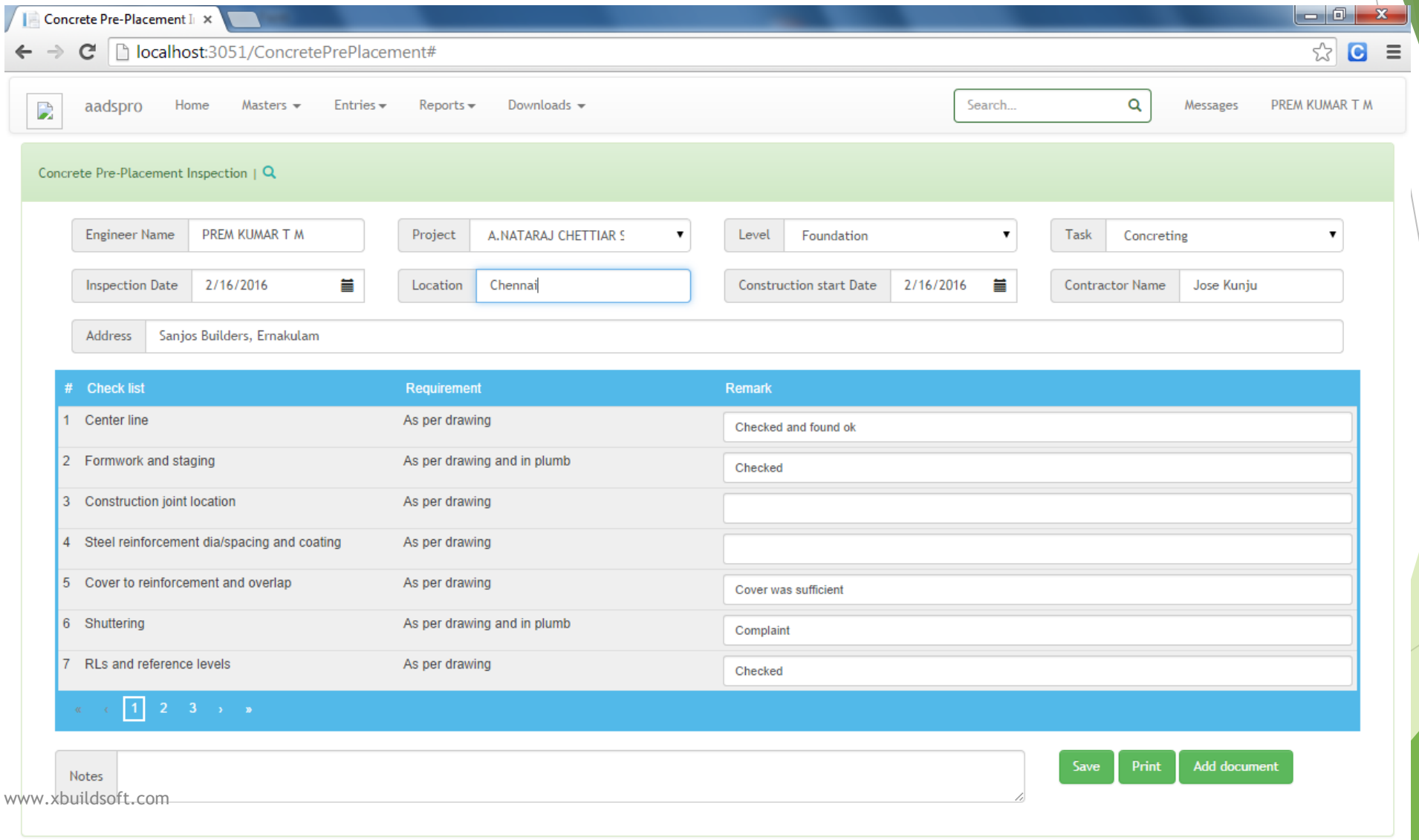
Resource Requirement Schedule

Date From : 12/1/2015 Date To : 2/18/2016

	Task Name	Qty
Project : shari jayan		
1 10 mm rods		
Level : First Floor		
1 1F Roof slab, Beam Form & Rebar work (Back)		99.95 Kg
		99.95 Kg
Level : Ground Floor		
1 GF Roof slab, Beam Form & Rebar work (back)		99.95 Kg
		99.95 Kg
Level : Second Floor		
1 2F Roof slab, Beam Form & Rebar work (Back)		99.95 Kg
		99.95 Kg
		299.86 Kg
2 12 mm rods		
Level : First Floor		
1 1F Roof slab, Beam Form & Rebar work (Back)		1.62 Kg
2 1F Roof slab, Beam Form & Rebar work (front)		1.92 Kg
		3.54 Kg
Level : Second Floor		
1 2F Roof slab, Beam Form & Rebar work (Back)		1.62 Kg
2 2F Roof slab, Beam Form & Rebar work (front)		1.92 Kg
		3.54 Kg

Quality Control

Concrete Pre-Placement Inspection



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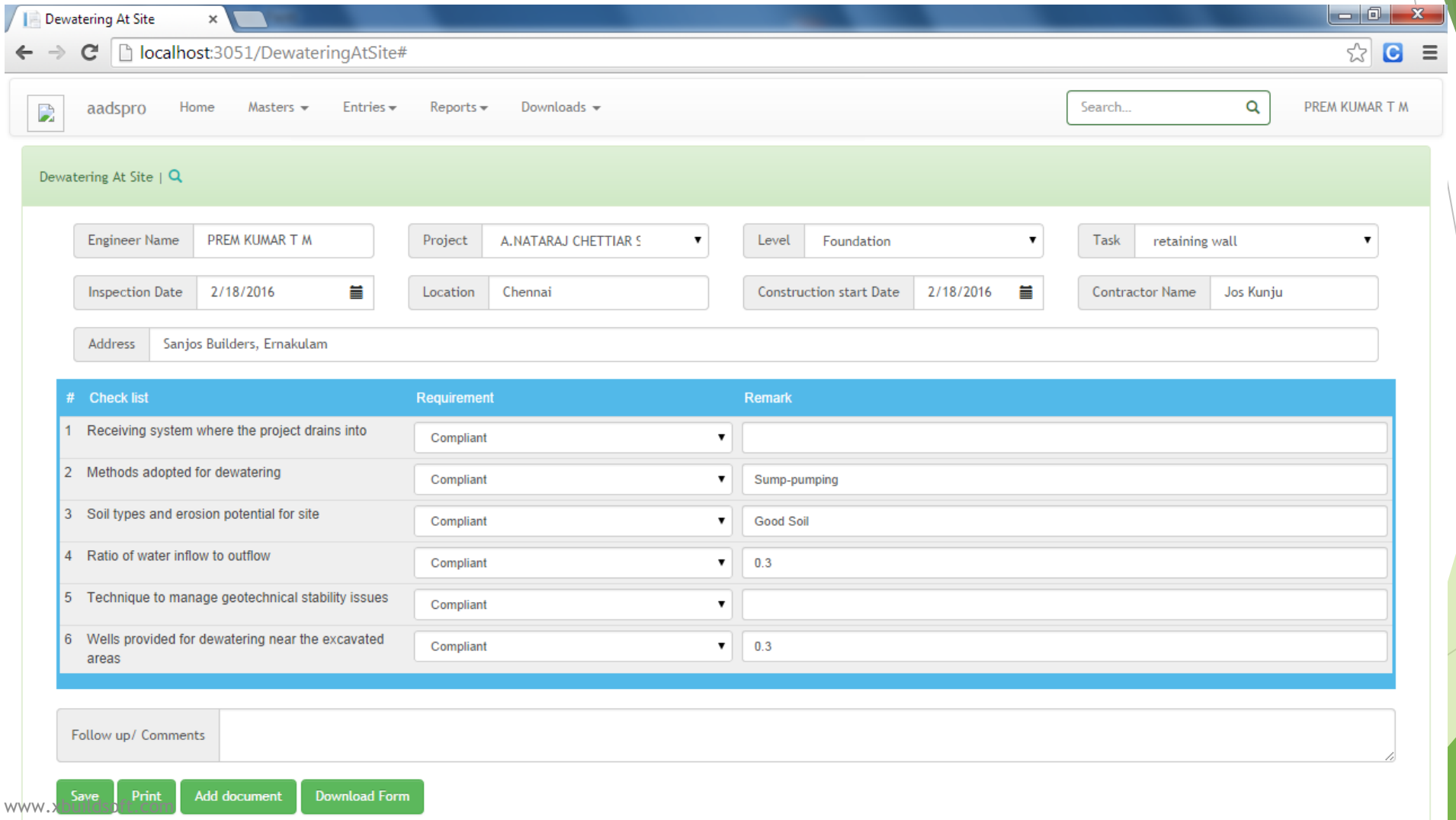
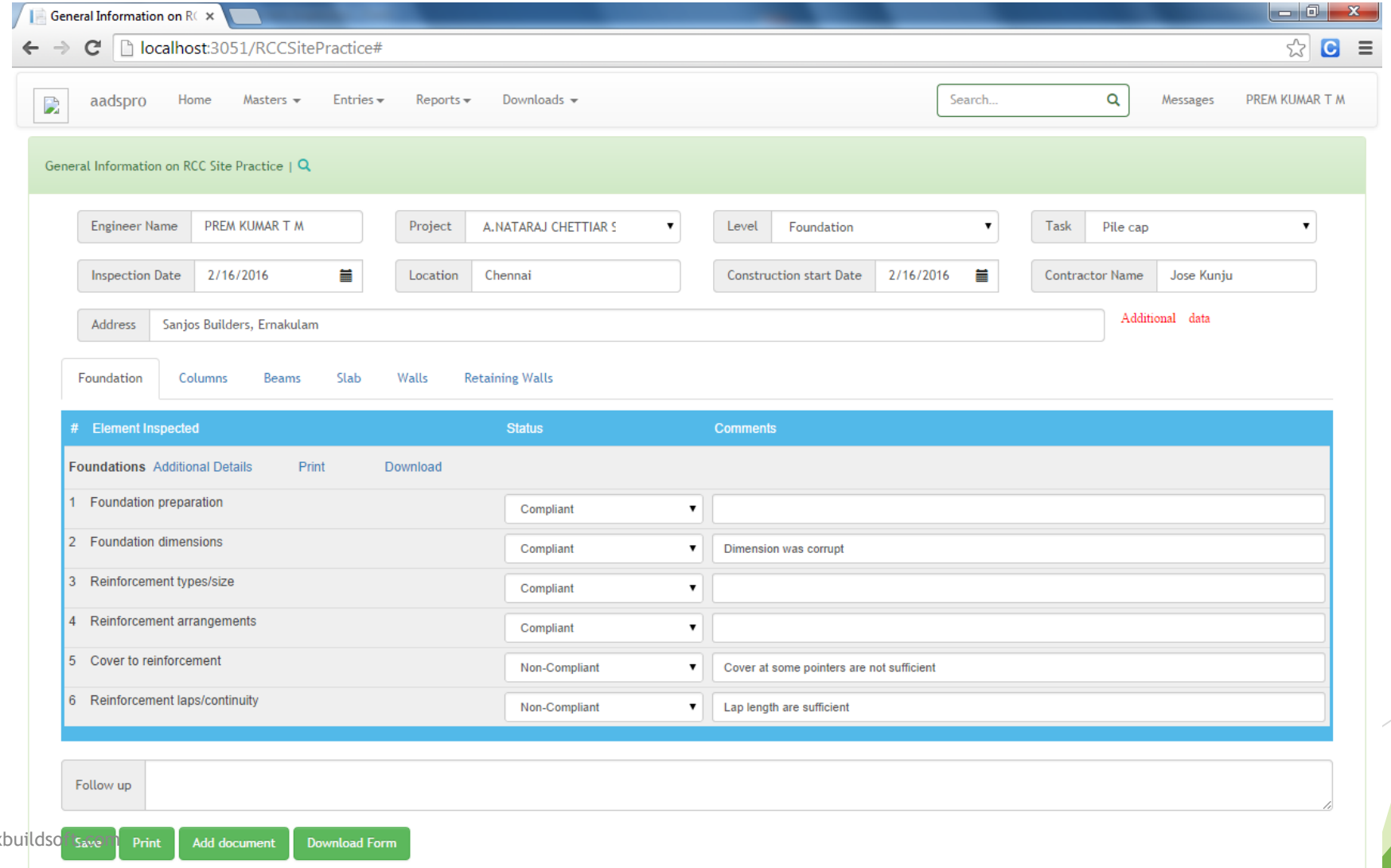
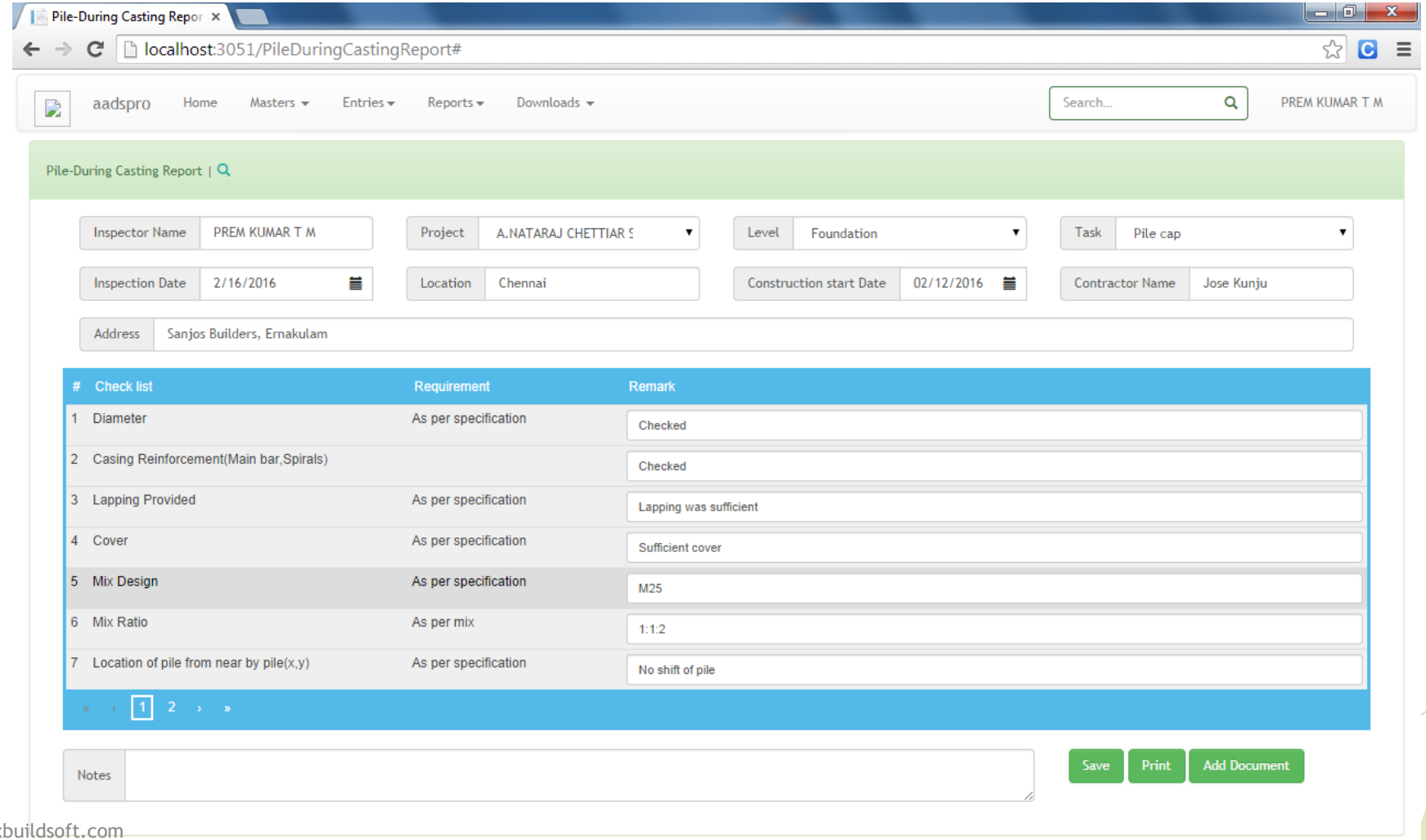
Dewatering At Site



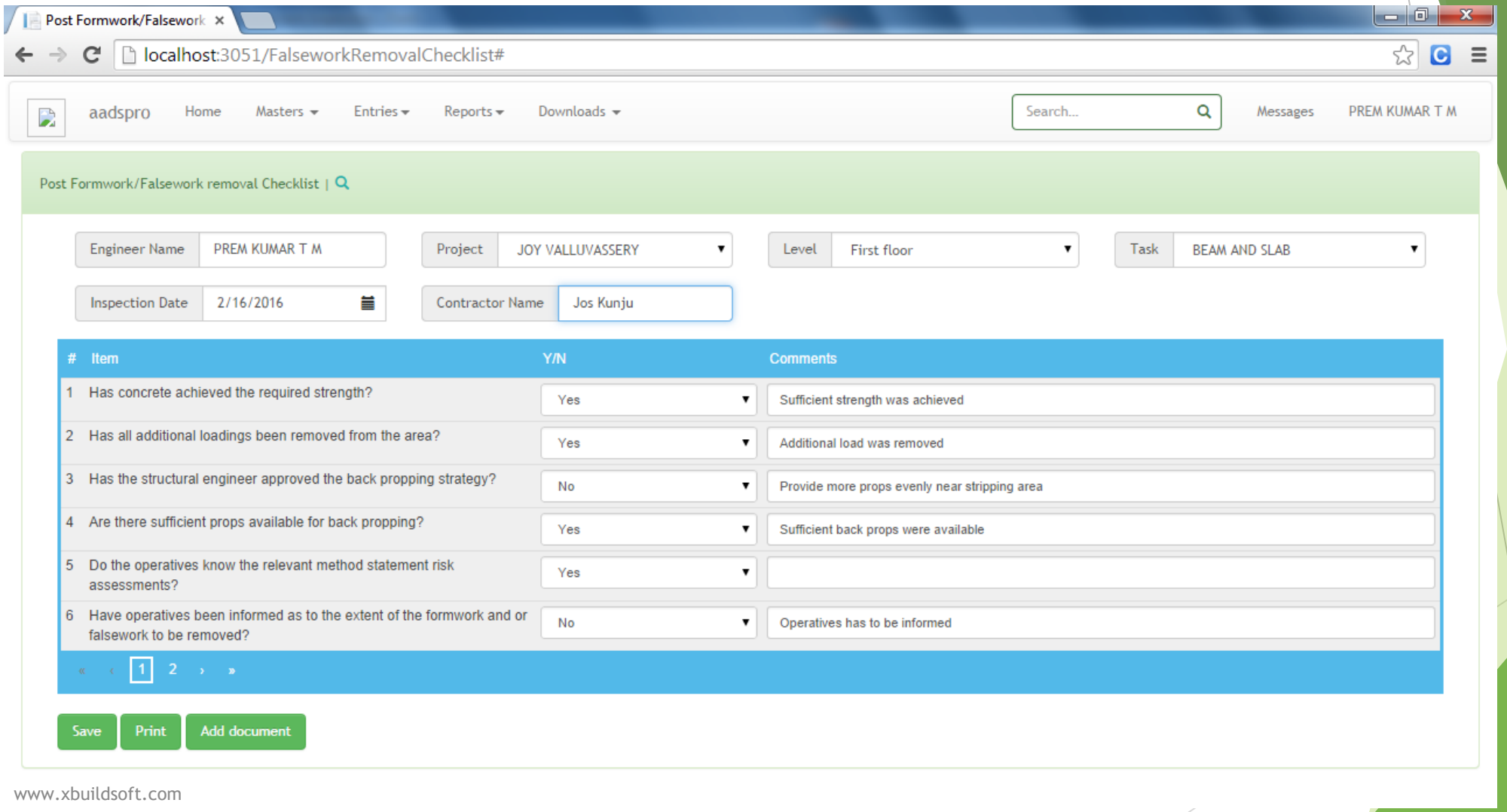
General Information on RCC Site Practice



Pile-During Casting Report



Post Formwork False work removal Checklist



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Accounts

Accounts Groups

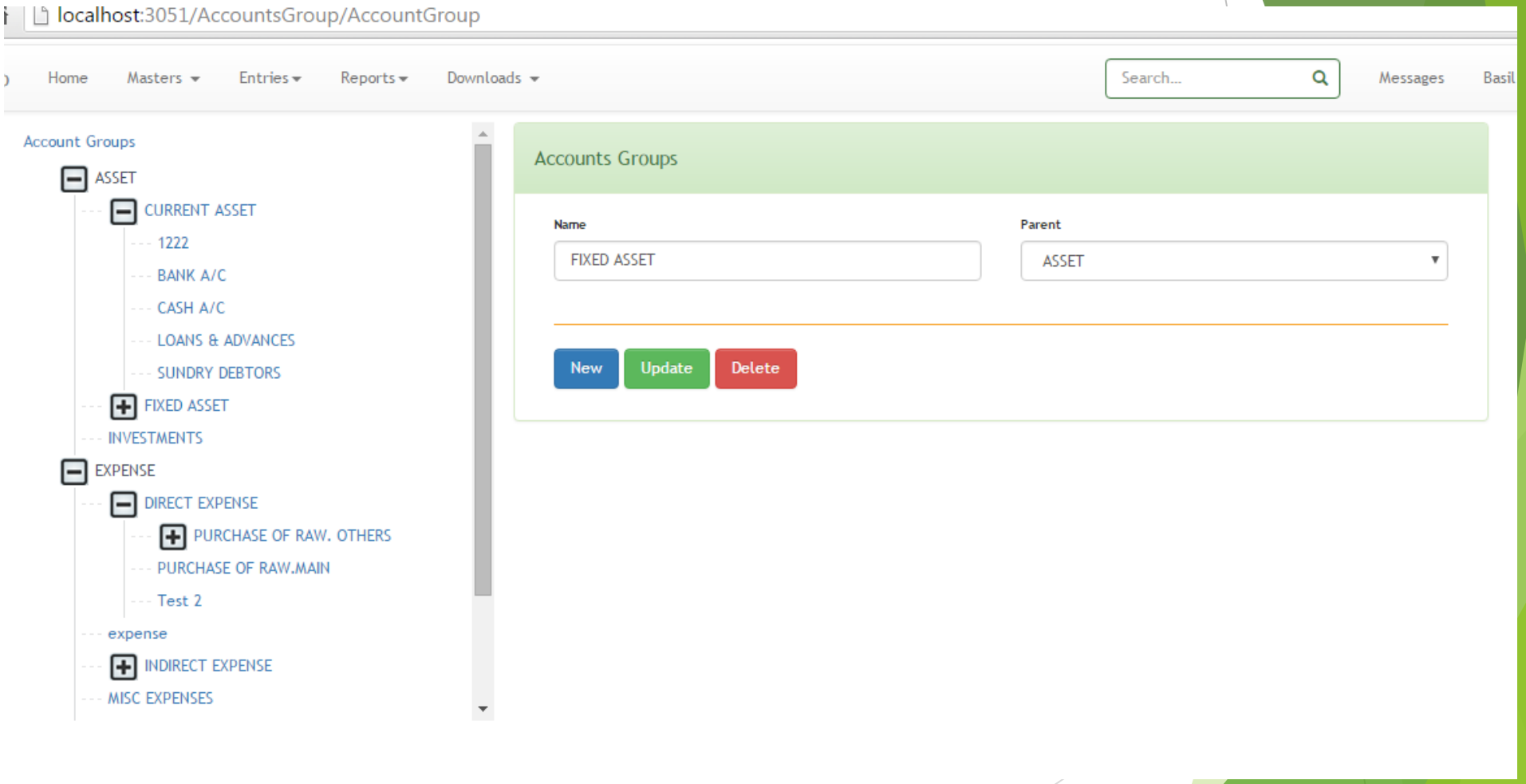
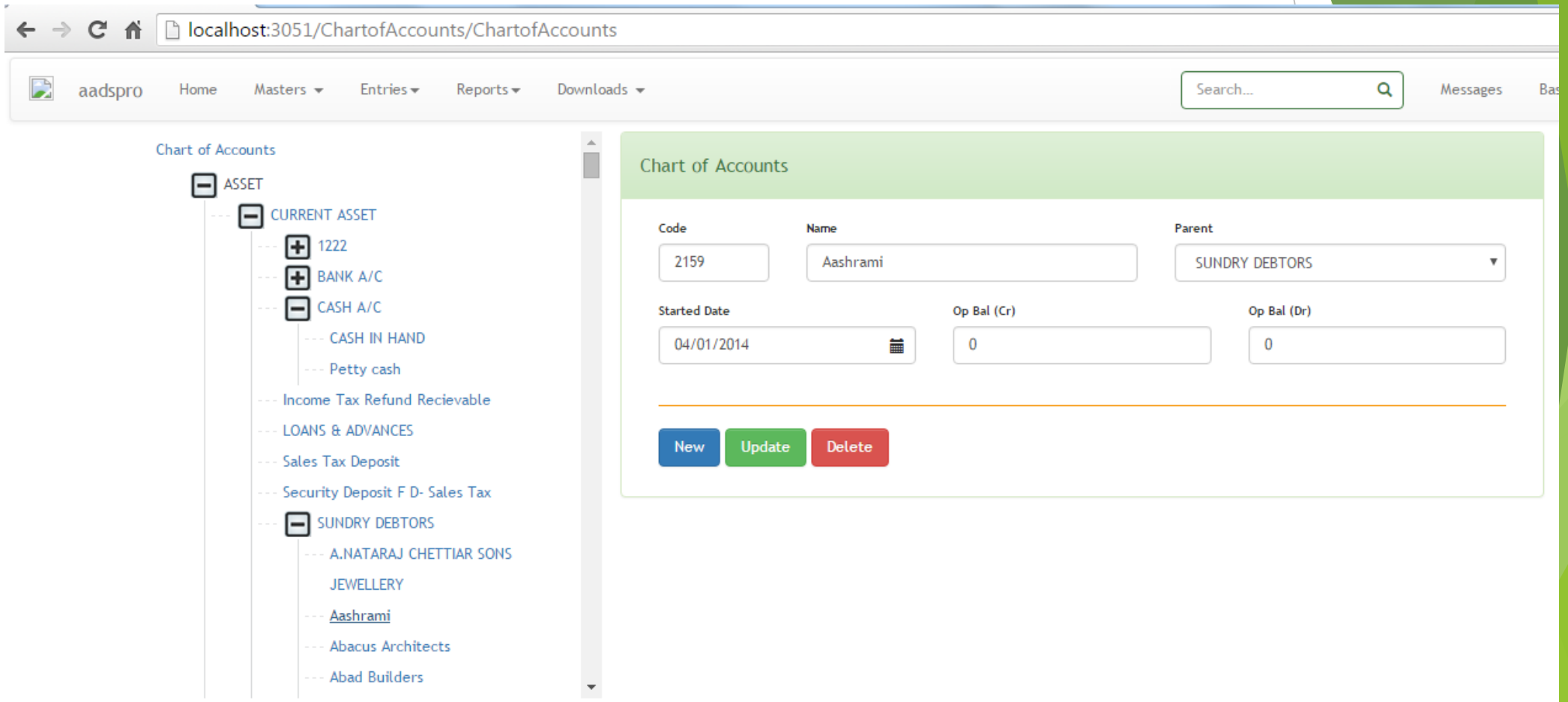
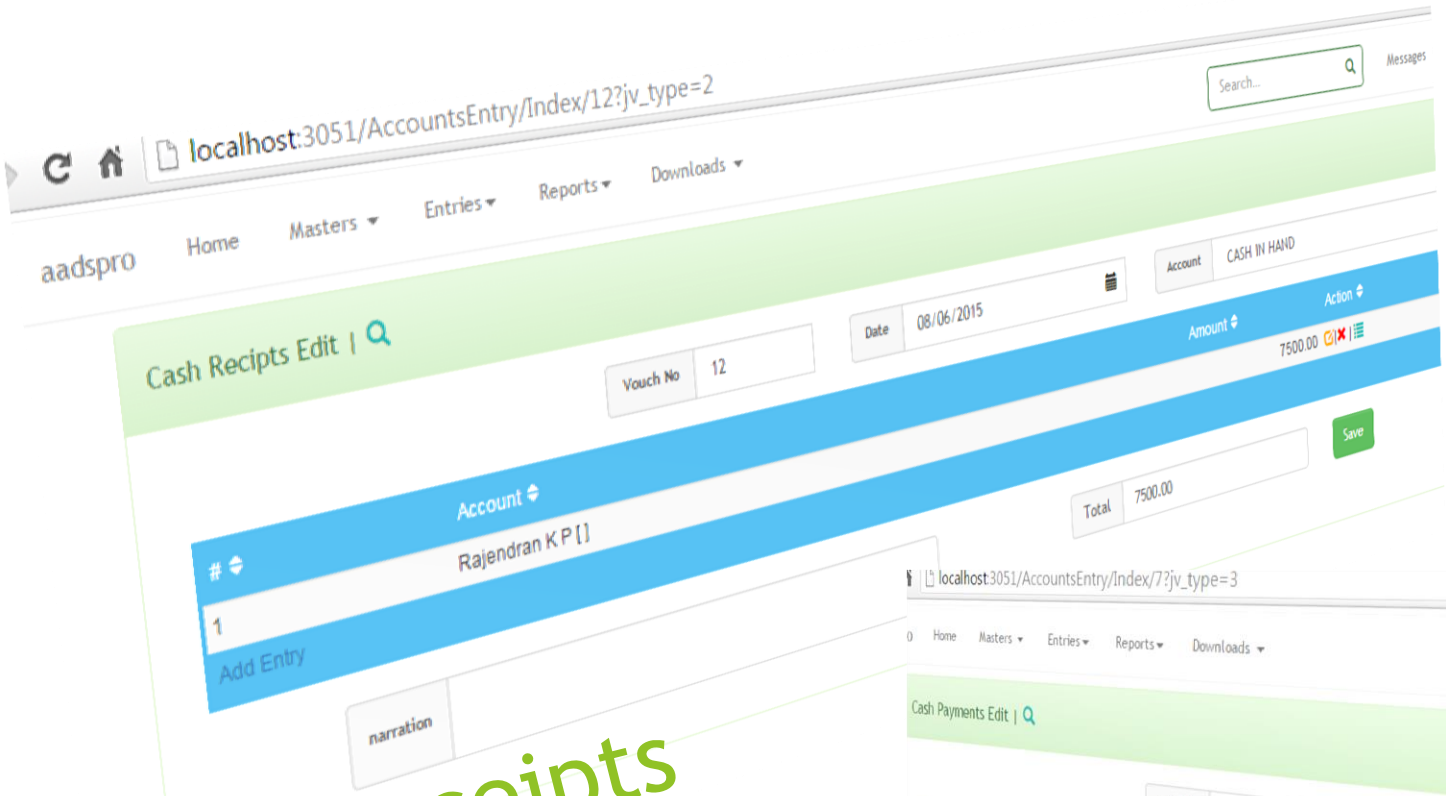


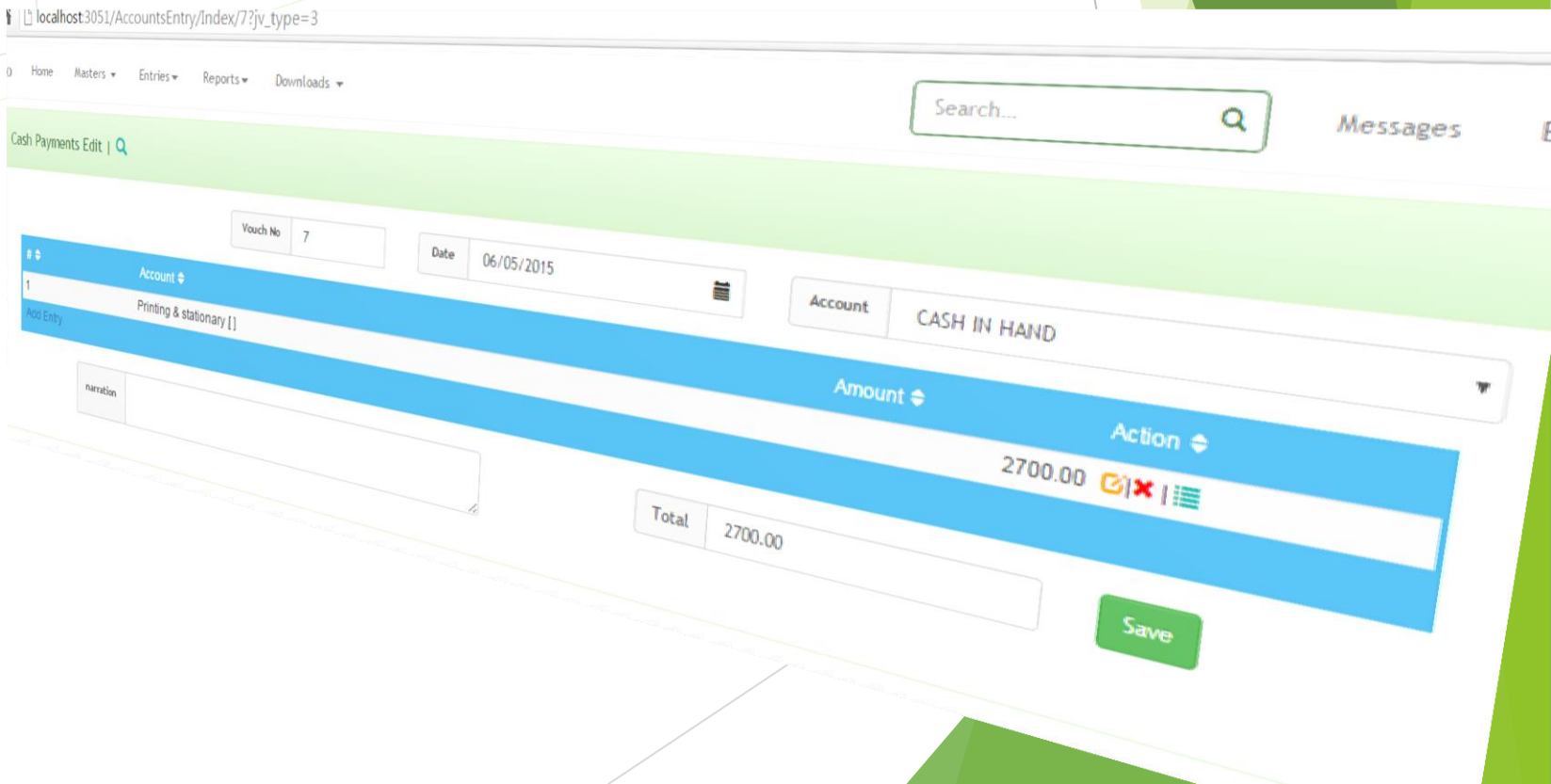
Chart of Accounts

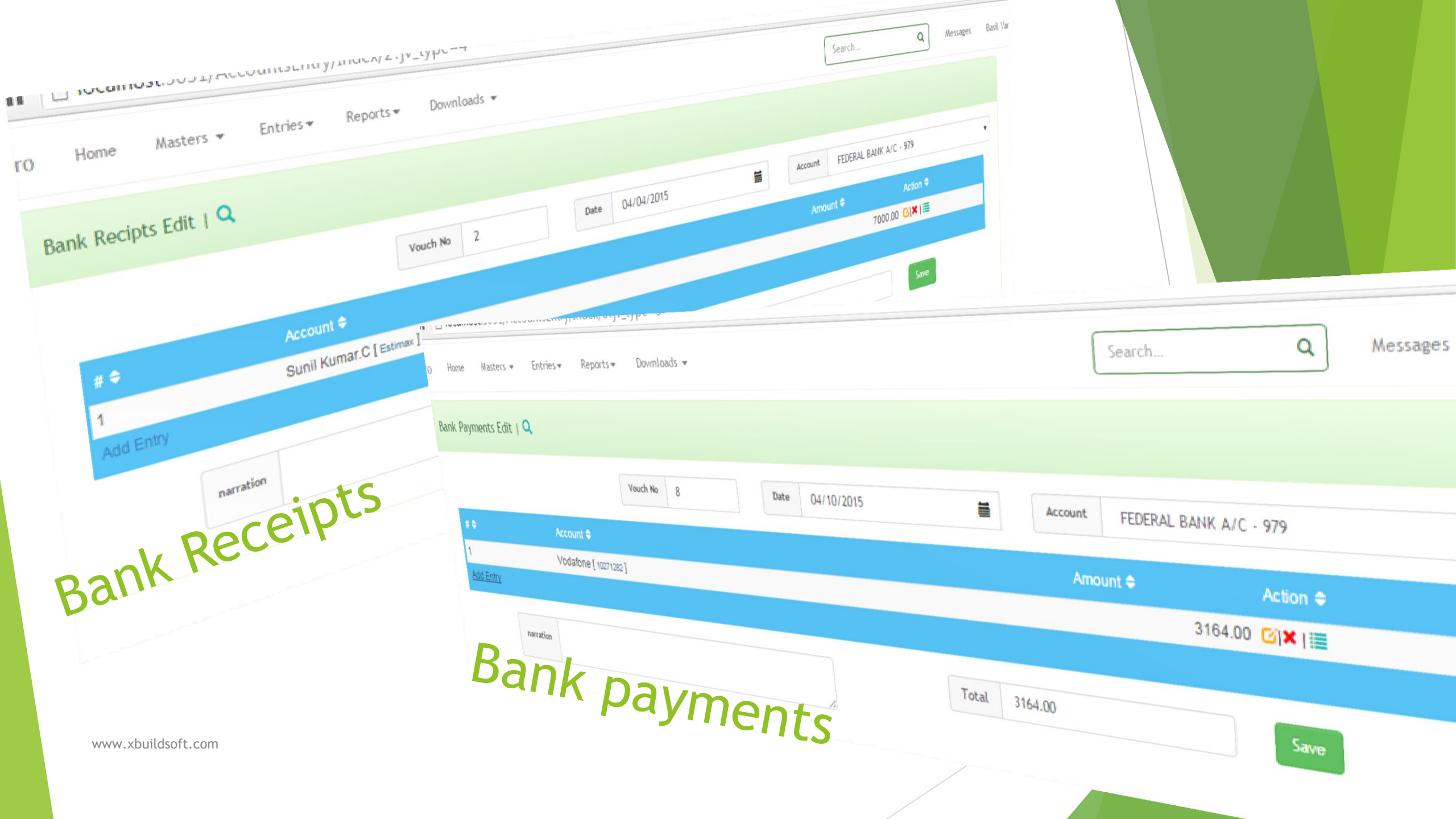


Cash Receipts

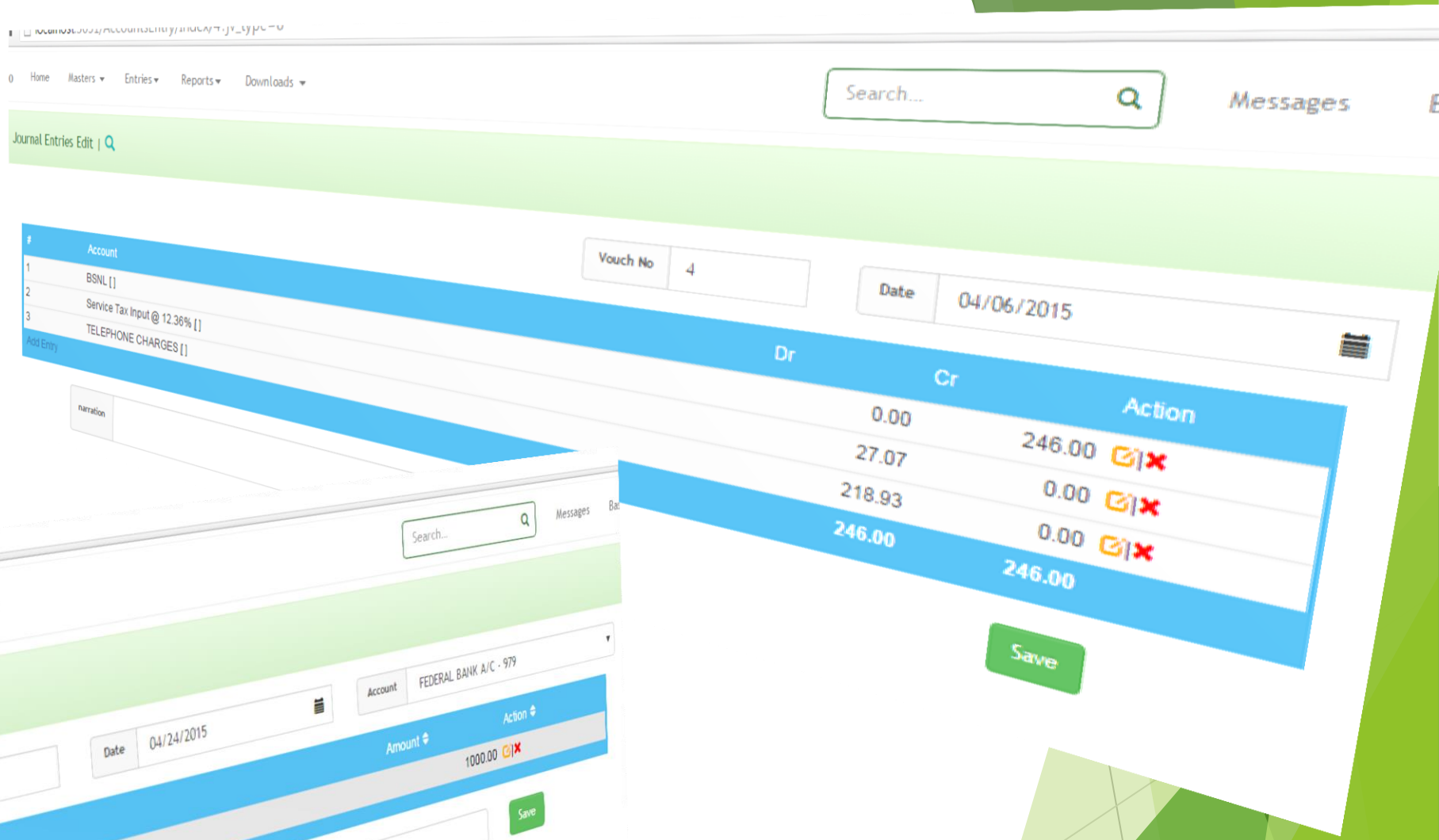


Cash payments

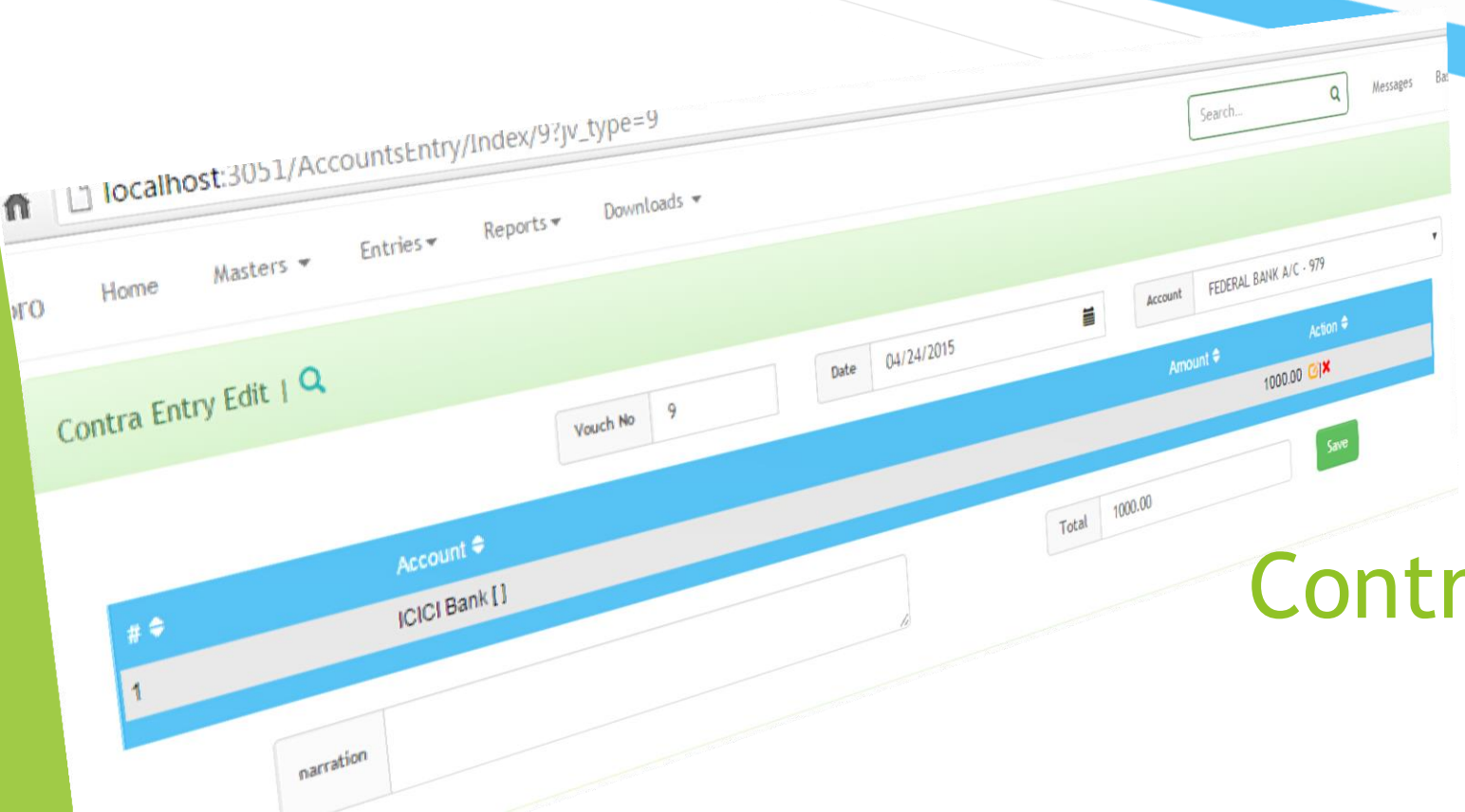



Home
Masters
Entries
Reports
Downloads
Bank Recipts Edit |
Vouch No
2
Date
04/04/2015
Account
FEDERAL BANK A/C - 979
Amount
Action
7000.00
Save
Account
Sunil Kumar.C [Estimax]
#
1
Add Entry
narration
Bank Receipts
Search...
Messages
Bank Payments Edit |
Vouch No
8
Date
04/10/2015
Account
FEDERAL BANK A/C - 979
Vodafone [10271282]
3164.00
Total
3164.00
Save
Bank payments

Journal Entries



Contra Entries

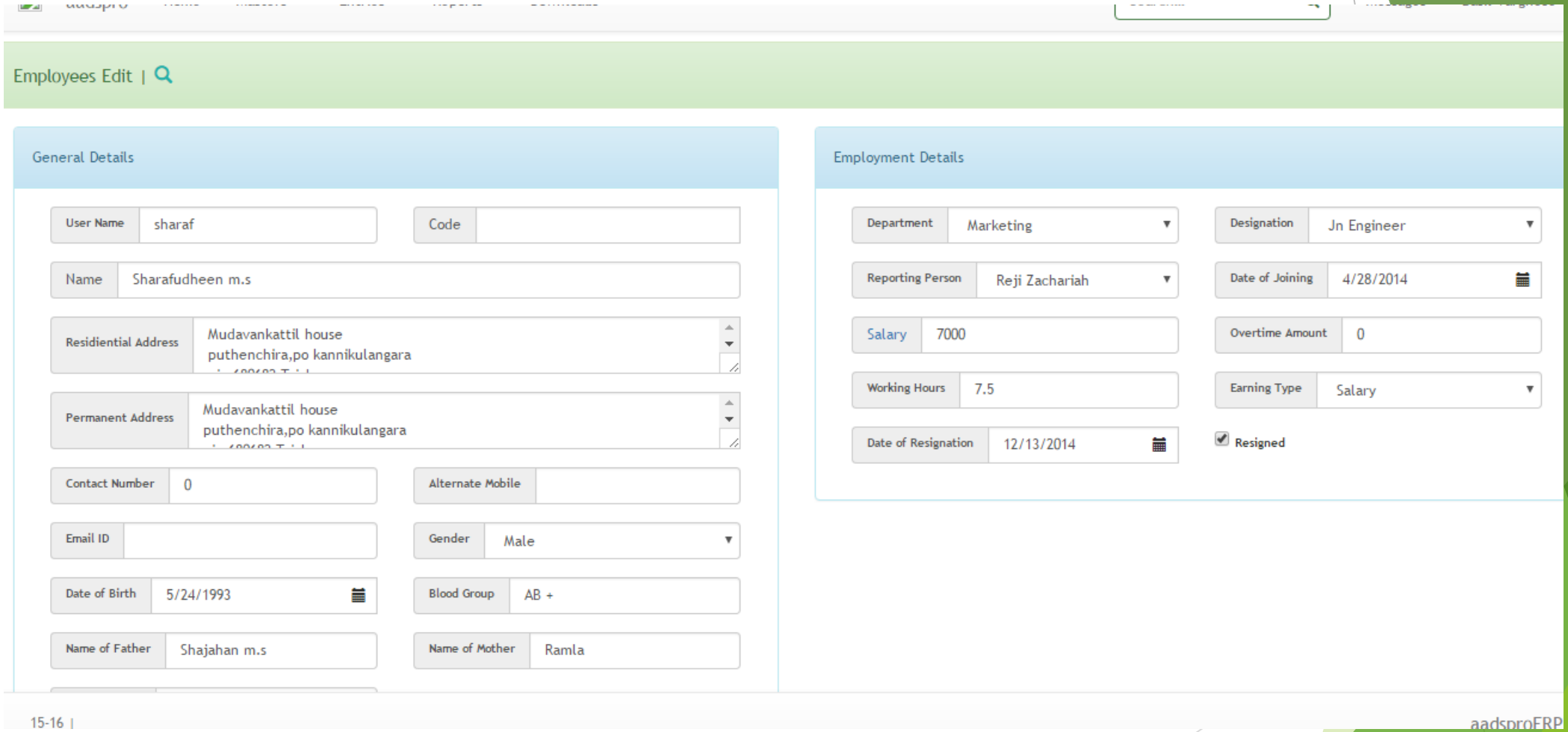


Accounting Reports

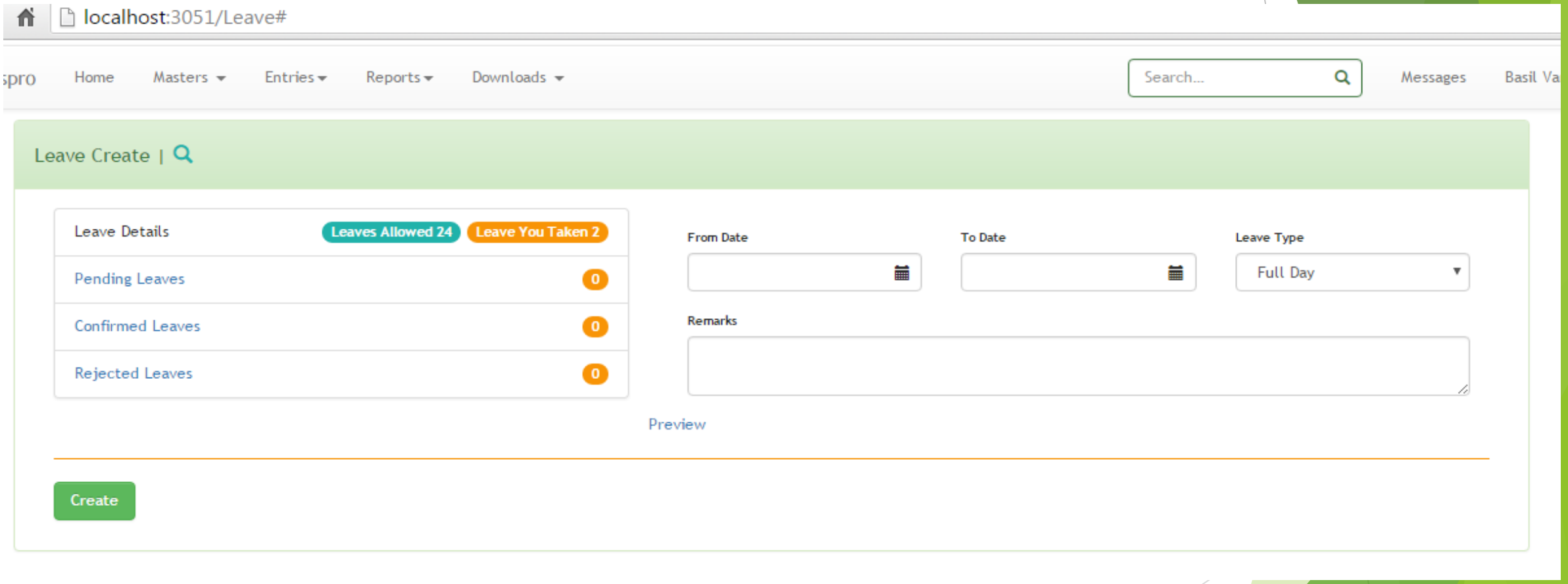
- Cash book
- Bank book
- Day book
- Ledgers
- Cash Flow
- Trial Balance
- Profit and loss account

HR Management

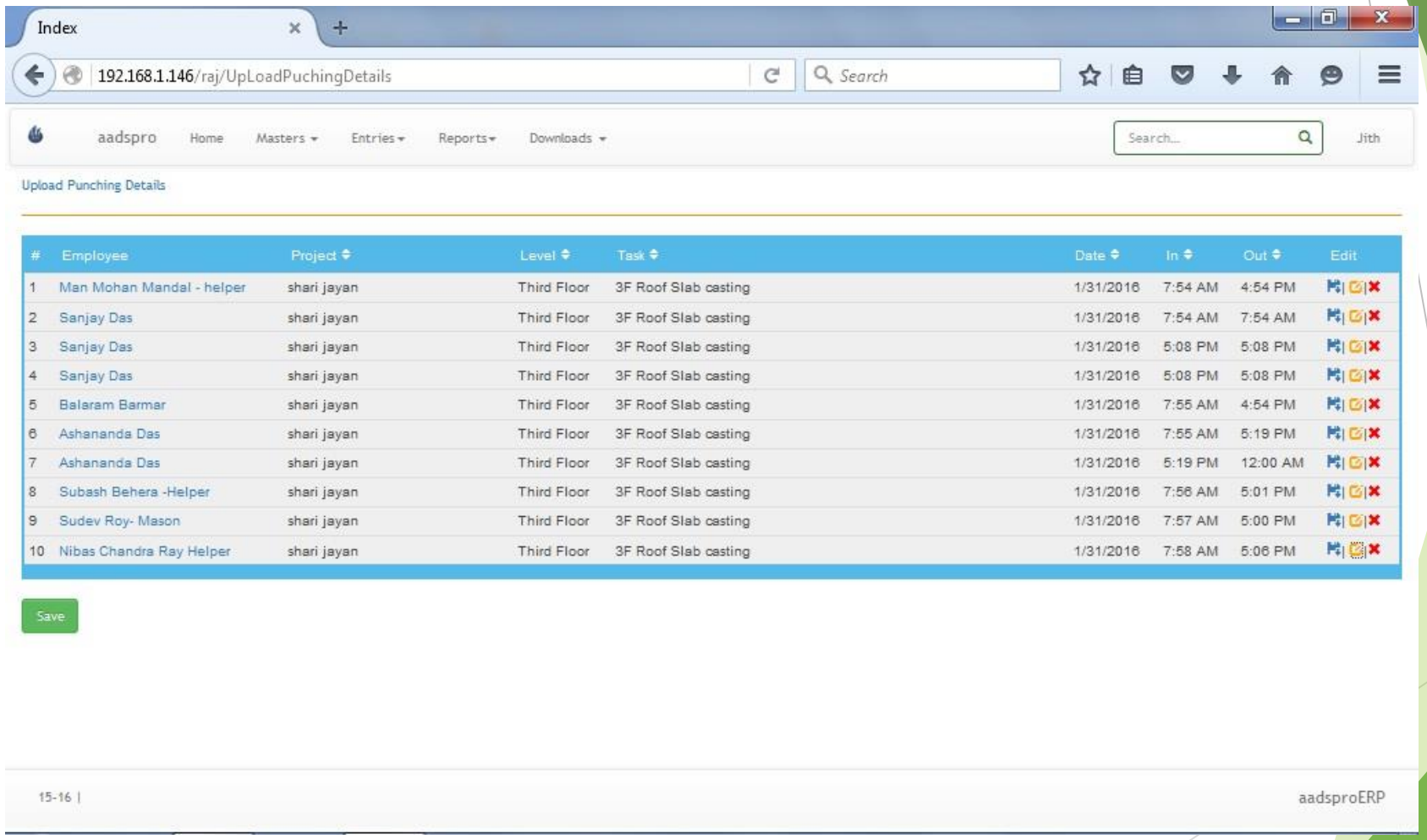
Employee Details



Leave Management



Integrate with punching machines



Salary and Wage Calculations

Salary Details Edit |

Month: January 201 | Total Days: 31 | Sundays: 5 | Holidays: 1 | Overtime%: 0 | Get Data

#	Employee	Basic	Leaves	Hrs/Day	Target	Worked	Gross	OT	OT Amt	Advance	Allowance	Deductions	Net	Action
1	Chandni Babu	12500.00	2	7.5	172.5	83.67	28682.59	0.00	0.00	0.00	0.00	0.00	28682.59	
2	Riya Joseph	10000.00	2	7.5	172.5	112	12484.08	0.00	0.00	0.00	0.00	0.00	12484.08	
3	VYSHNA K M	11000.00	2	7.5	172.5	113.42	12308.45	0.00	0.00	0.00	0.00	0.00	12308.45	
4	Liya Mathew	10000.00	1	7.5	180	133.08	9498.56	0.00	0.00	0.00	0.00	0.00	9498.56	
5	Sreehari A.	14000.00	1	7.5	180	159.08	20411.98	0.00	0.00	0.00	0.00	0.00	20411.98	
6	Veena T.G	9000.00	1	7.5	180	166.58	8329.17	0.00	0.00	0.00	0.00	0.00	8329.17	
7	Arun Varghese Oommen	10000.00	1	7.5	180	144.92	8050.93	0.00	0.00	0.00	0.00	0.00	8050.93	
8	clinton	8000.00	1	7.5	180	142.83	6341.18	0.00	0.00	0.00	0.00	0.00	6341.18	
9	Rindu	7000.00	1	7.5	180	161.33	6274.07	0.00	0.00	0.00	0.00	0.00	6274.07	
10	honey	7000.00	1	7.5	180	130.75	5084.72	0.00	0.00	0.00	0.00	0.00	5084.72	

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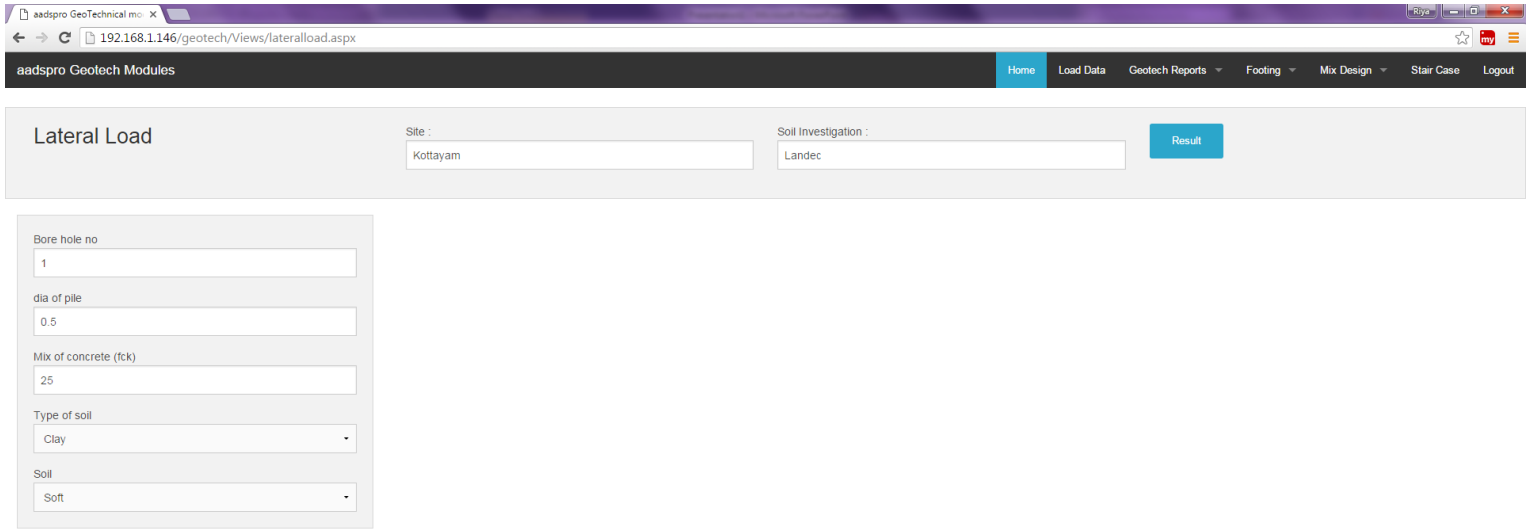
Save | Print

Geotechnical

Lateral Load



Reports

Site : Kottayam

Soil Investigation : Landec

Bore Hole NO : 1

ANALYSIS OF LATERALLY LOADED PILE

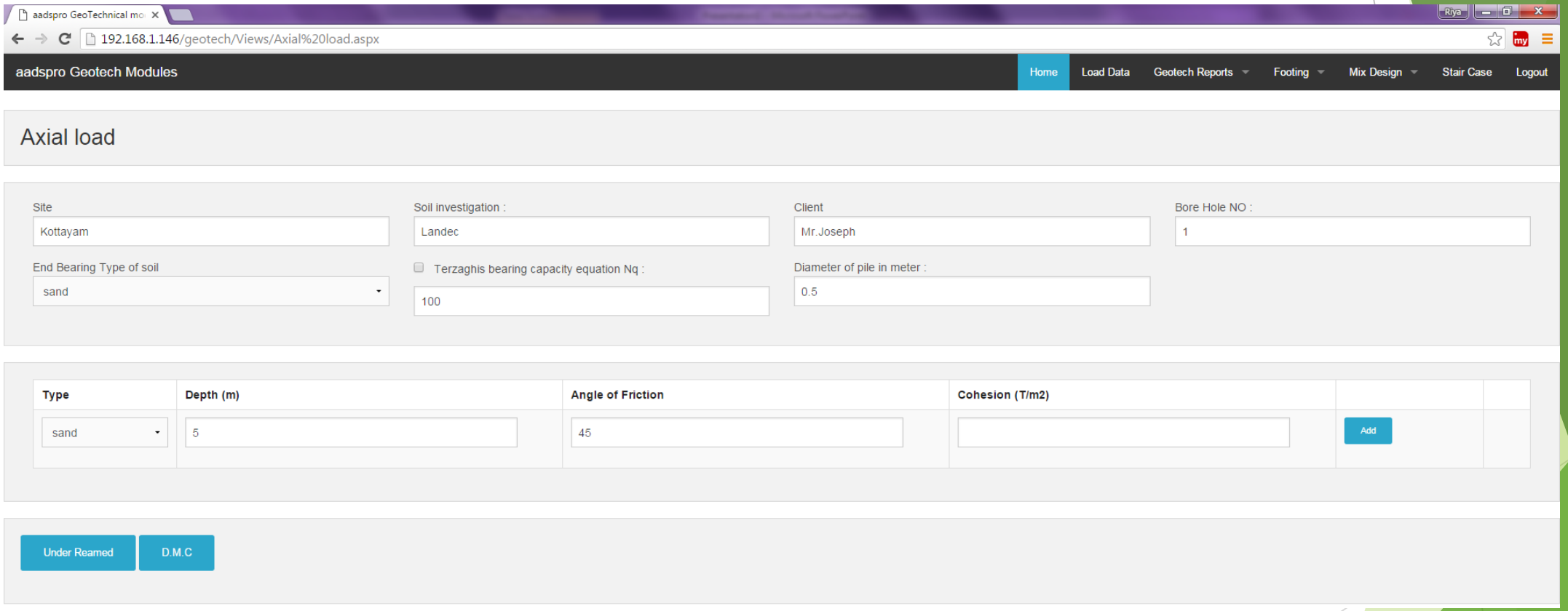
As per ANNEX C IS 2911 (Part 1 / Sec 2) : 2010

Diameter of pile = 0.5 m

Stiffness factor for piles in preloaded clays

Stiffness factor ,R in m	= (EI / KB) ^ 1/4
E	= 4700 (Fck) ^(1/2)
	= 4700 * 25 ^ (1/2)
	= 23500 MPa
I	= 3.14 * (D^4) / 64
	= 3.14 *(0.5) ^ 4 / 64
	= 0.00307 m4
Soil modulus , K	= (k1 / 1.5) * (0.3 / B)
k1	= Modulus of subgrade reaction
	=9 MN/m3
B	= Diameter of pile
	= 0.5 m
K	= (9 / 1.5) * (0.3 / 0.5)
	= 3.6
Stiffness factor,R	= ((E*I) / (K*D)) ^ 1/4
	= ((23500 * 0.00307) / (3.6 * 0.5)) ^ 1/4
	= 2.52 m
Embedded length, L	= 8 * D
	= 8 * 0.5

Axial Load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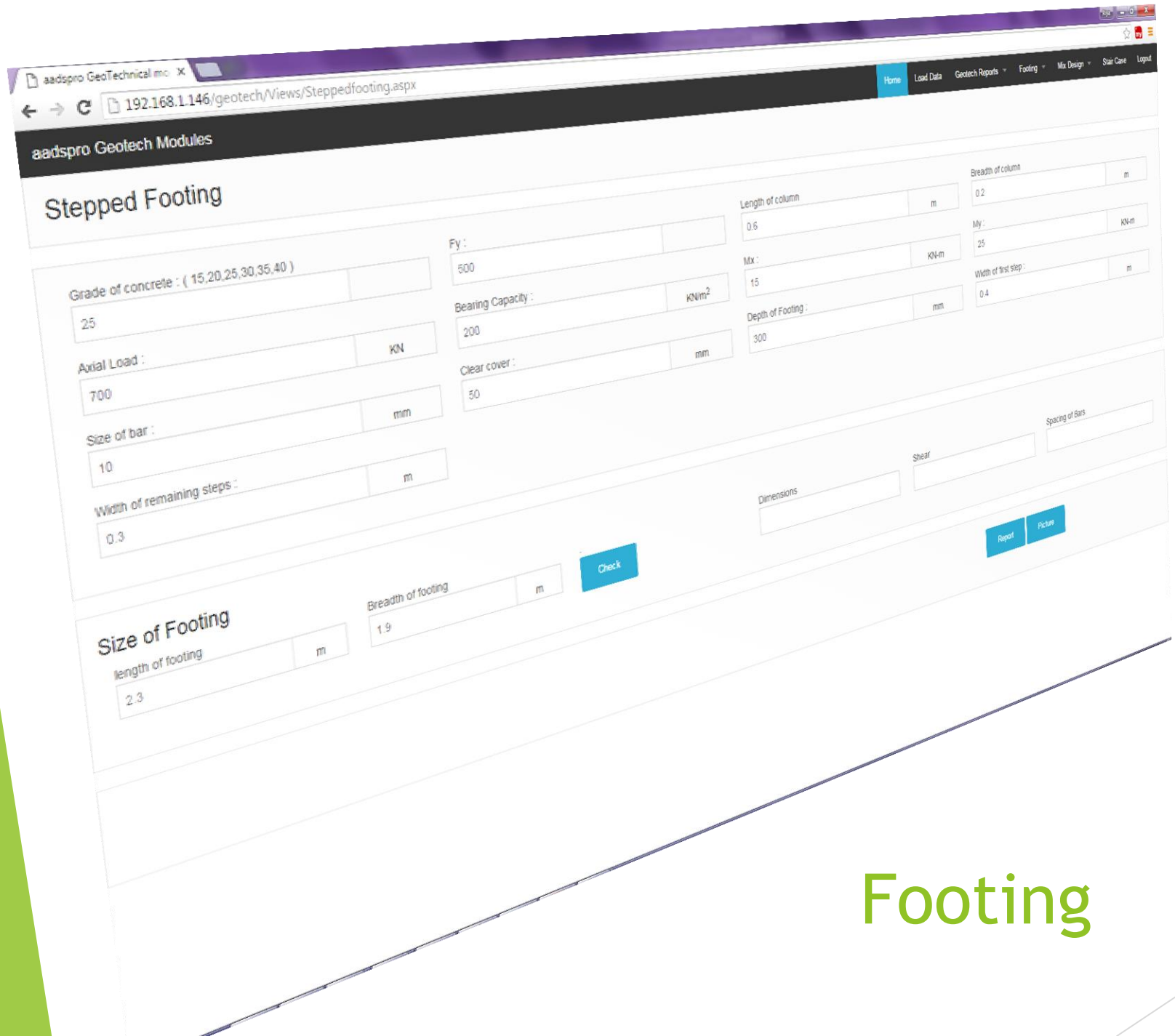
192.168.1.146/geotech/Views/Axial%20load.aspx
aadspro Geotech Modules
Home
Load Data
Geotech Reports
Footing
Mix Design
Stair Case
Logout
Axial load
Site
Kottayam
Soil investigation :
Landec
Client
Mr.Joseph
Bore Hole NO :
1
End Bearing Type of soil
sand
Terzaghis bearing capacity equation Nq :
100
Diameter of pile in meter :
0.5
Type
Depth (m)
Angle of Friction
Cohesion (T/m2)
sand
5
45
Add
Under Reamed
D.M.C



Design of a stepped footing of column size 0.6m x 0.2m. Axial load on the column is 700 KN. Safe bearing capacity of the soil is 200 KN/m2

Length of column = 0.6m

Breadth of column = 0.2 m

Grade of concrete = M 25

Grade of steel = Fe500

Axial load = 700 KN

Safe Bearing capacity = 200 KN/m2

Approximate weight of footing = 42 KN

Total load = 742 KN

Area of foundation required = 3.71 m2

Size of Footing

Length of footing = 2.3 m

Breadth of footing = 1.9 m

Area of footing = 4.37 m2

Mx = 15 KN-m My = 25 KN-m

Z= (2.3 * 1.9 * 1.9) / 6
= 1.68 m3

Zb = (1.9 * 2.3 * 2.3) / 6
= 1.38 m3

P/A = 700 / 4.37
= 160.18 KN/m2

Mx / Z = 15 / 1.68
= 8.93 KN/m2

My / Zb = 25 / 1.38
= 18.12 KN/m2

Maximum soil pressure = P/A + Mx/Z + My/Zb
= 160.18 + 8.93 + 18.12
= 187.23 KN/m2

Minimum soil pressure = P/A - Mx/Z - My/Zb
= 160.18 - 8.93 - 18.12
= 133.13 KN/m2

Footing

Mix Design Calculation

Method of calculating the quantity for **1** cubic meter of **M20** grade concrete

As per IS - 456 , P.23 , Table 9 , for 50 kg cement **250** kg of coarse and fine aggregate & **30** liters of water

Coarse aggregate (CA) + Fine aggregate (FA) = 250

Proportion of FA to CA is in the ratio of (1 : 2)

Quantity of FA = (1 / 3) * 250
= 83.33 kg

Quantity of CA = (2 / 3) * 250
= 166.67 kg

The proportion of [Cement : FA : CA : Water] - 50 : 83.33 : 166.67 : 30

By normalising we get - **1 : 1.67 : 3.33 : 0.6**

Weight of 1 m3 cocrete = 2400 kg

Therefor weight of 1 m3 concrete = 1 * 2400
= 2400 kg

Amount of cement required = 2400 * 1 / 6.6
= 363.64 kg

Amount of F.A required = 2400* 1.67 / 6.6
= 607.27 kg

Amount of C.A required = 2400* 3.33 / 6.6
= 1210.91 kg

Amount of water required = 2400* 0.6 / 6.6
= 218.18 liters

Therefor quantity for 1 m3 concrete of M20 grade concrete requires

Cement = 363.64 **kg**

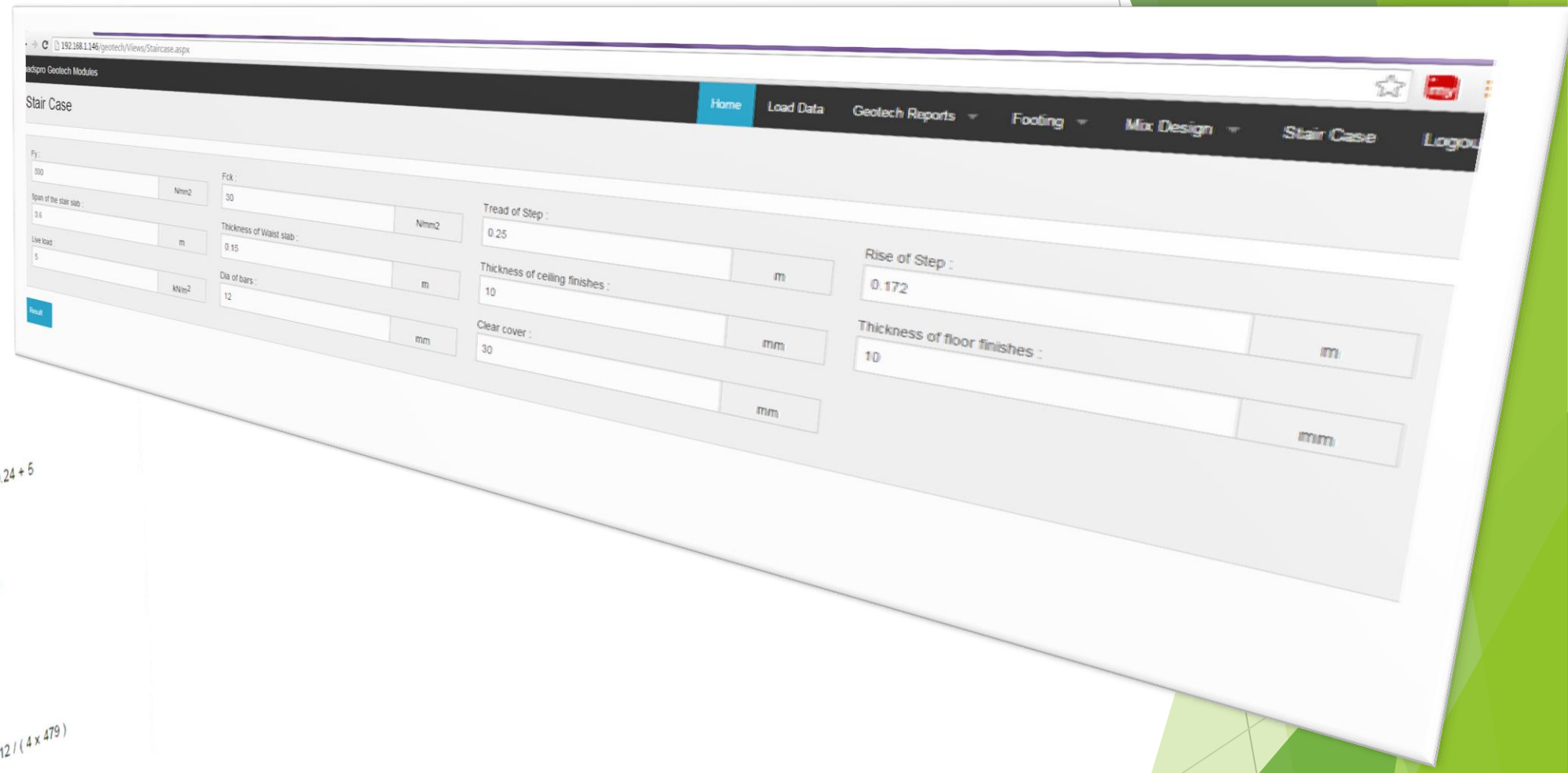
Fine Aggregate = 607.27 **kg**

Coarse Aggregate = 1210.91 **kg**

Water = 218.18 **L**

Stair Case

Tread of step	= 0.25 m
Rise of step	= 0.172 m
Span of the stair slab	= 3.6 m
Thickness of waist slab	= 0.15 m
Yeild Strength of concrete	= 500
Mix of concrete	= 30
Dead load of waist slabs	= 0.15 x 25 = 3.75 kN/m2
Thickness of finishes	= 10 mm
Ceiling finishes	= 10 x 24 = 0.24 kN/m2
Dead load of steps	= (0.172 / 2) x 25 = 2.15 kN/m2
Floor finishes	= 10 x 24 = 0.24 Kn/m2
Live Load	= 5 Kn/m2
Total Load	= 3.75 + 0.24 + 2.15 + 0.24 + 5 = 11.38 Kn
Factored load	= 11.38 x 1.5 = 17.07 Kn
Maximum Bending moment	= 17.07 x 3.6 x 3.6 / 10 = 22.12 Kn-m
Effective depth	= 0.15 - 0.006 - 0.03 = 0.114 m
Percentage of steel	= 0.42 %
Required Ast	= 479 mm2
Spacing	= 1000 x 3.14 x 12 x 12 / (4 x 479) ~ 235.99 mm
Provide 12 mm dia bars @ 200 mm c/c	
Provided Ast	= 1000 x 3.14 x 12 x 12 / (4 x 200) = 565.2 mm2



Thank You

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