



A Review on the online tools for the effective management of the engineering projects

R. Surya Kiran

Gitam University, Gandhinagar Campus, Rushikonda, Visakhapatnam -530045

Abstract

Purpose: There is a need to develop new and innovative methods for the STEM- Science, Technology, Engineering and Medical to ensure the very best results for the Owners /Clients /Customers /Users and in this regard now-a-days online calculators play a very crucial role altogether. This research paper makes the way into such an on-line study.

Approach: The approach that was involved for this paper was the collection of the necessary web-links for the solution of the various problems/questions which normally involve with the time and the cost as the major constraints.

Findings: From the solutions /resolutions and the dissolutions that were found, this could be concluded that this methodology could very well remove the time and the cost constraints altogether.

Implications: This online research paper calls for the study on the bonding of the Six Sigma with the Service Quality for the Engineering Project Management.

Originality: This research paper which is a completely an on-line one could proceed towards the UN-MANNED automation for the SYSTEMS Management.

Keywords On-Line Tools, Methodologies, Service Quality, Web-Links, Six Sigma, Constraints

Introduction

If a tree life cycle is considered, then the roots could correlate with the all the structured / semi-structured / un-structured problems with the structured / semi-structured / un-structured solutions / Resolutions / Dissolutions, then the lifecycle from the seed, plant, tree could be obtained only through the proper procedures i.e. with respect to the above the same could be very well worked out with the questionnaires as the methodology with the simultaneous result analysis to justify with either TRUE or FALSE , RIGHT or WRONG , YES or NO and ultimately going out for the Results / Conclusions / Discussions for the Generalisation . The same thing had been tried out in a different way in this paper and observations were analysed. The various stages which might be required parallel could be Research & Development, Learning & Development, Familiarization & Development and Growth & Development as the ultimate's for any unit would do call for the following items as the features from the CONCEPTUALISATION to the MAINTAINENCE stages (Conceptualisation-Engineering Design-Procurement of the Materials-Construction-Commissioning-Operations-Maintenance).

Table 1: Major Items required for the Unit Constructions

S No.	Item Name	S No.	Item Name
1	Sub-Structure	9	Kitchens
2	Structure	10	Water-Supply
3	Super-Structure	11	Electrical connections
4	Plastering	12	Plumbing connections



5	Flooring	13	Solar Power Back-Ups
6	Doors and Door Frames	14	Paintings
7	Windows and Window Frames	15	Communication systems
8	Toilets	16	Horizontal / Vertical Movements

The above mentioned could be very well simplified as noted down below:

Table 2: Sub-Items required for the Unit Constructions

S No.	Item Name	S No.	Item Name
1	RCC framed structures	14	Wall Tiles
2	9 inches thick outer-walls	15	Anti-Skid Tiles for the Bathrooms and Kitchens
3	4.5 inches inner-walls	16	Sanitary Fittings
4	Bricks	17	Plumbing
5	Internal Plastering with the Cement	18	Concealed Wiring
6	External Plastering with the Cement	19	Solar Powered Generators
7	External double coats of the weather shield painting	20	Solar Powered Water Lifting systems
8	Internal double coats of the emulsion coating	21	Solar Powered Common Area Lighting Systems
9	Door Frames	22	Rain-Water harvesting pits
10	Doors	23	Common Sewerage treatment plants
11	Window Frames	24	Solar Fencings
12	Windows	25	Fire –Fighting systems
13	Floor Tiles	26	R.O. Systems

Table 3: Research Questions

Research Methodology

The research methodology that was involved was to look out for the Web-Links in-order to solve /resolve /dissolve the above mentioned problems / questions that are as cited above keeping in the mind that the problems could be un-structured / semi-structured / structured.

Target	Situation - Related Problems / Questions with web links
Flooring	
1	How to calculate for the Carpet? http://www.calculatorpro.com/calculator/carpet-calculator/
2	How to calculate for the Concrete Slab? http://www.calculatorpro.com/calculator/concrete-slab-calculator/
3	How to calculate for the Deck Stains? http://www.calculatorpro.com/calculator/deck-stain-calculator/
4	How to calculate for the Flooring Cost? http://www.calculatorpro.com/calculator/flooring-cost-calculator/
5	How to calculate for the Tiles? http://www.calculatorpro.com/calculator/tile-calculator/
Materials Needed	
6	How to calculate for the Board Foot? http://www.calculatorpro.com/calculator/square-footage-calculator/
7	How to calculate for the Bricking? http://www.calculatorpro.com/calculator/bricking-calculator/
8	How to calculate for the Circular Room Painting in meters? http://www.calculatorpro.com/calculator/circular-room-paint-calculator/



9	How to calculate for the Concrete? http://www.calculatorpro.com/calculator/concrete-calculator/
10	How to calculate for the Concrete Columns? http://www.calculatorpro.com/calculator/concrete-column-calculator/
11	How to calculate for the Concrete Footings? http://www.calculatorpro.com/calculator/concrete-footing-calculator/
12	How to calculate for the Concrete Round Columns? http://www.calculatorpro.com/calculator/concrete-round-column-calculator/
13	How to calculate for the Concrete Slabs? http://www.calculatorpro.com/calculator/concrete-slab-calculator/
14	How to calculate for the Concrete Square Columns? http://www.calculatorpro.com/calculator/concrete-square-column-calculator/
15	How to calculate for the Concrete Step? http://www.calculatorpro.com/calculator/concrete-step-calculator/
16	How to calculate for the Gravel needed? http://www.calculatorpro.com/calculator/gravel-needed-calculator/
17	How to calculate for the quantity of paint needed in litres? http://www.calculatorpro.com/calculator/how-many-liters-of-paint-do-i-need-calculator/
18	How to calculate for the quantity of the Wall Paper needed? http://www.calculatorpro.com/calculator/how-much-wallpaper-do-i-need-calculator/
19	How to calculate for the Materials (Circle) needed? http://www.calculatorpro.com/calculator/material-needed-calculator/
20	How to calculate for the Materials (Triangle) needed? http://www.calculatorpro.com/calculator/material-needed-calculator-circle/
21	How to estimate for the Materials Volume? http://www.calculatorpro.com/calculator/material-needed-calculator-triangle/
22	How to calculate for the painting? http://www.calculatorpro.com/calculator/materials-volume-estimator/
23	How to calculate for the Pre-Mix concrete? http://www.calculatorpro.com/calculator/painting-calculator/
24	How to calculate for the Window Shade? http://www.calculatorpro.com/calculator/premix-concrete-calculator/
Miscellaneous	
25	How to calculate for the Compost Use? http://www.calculatorpro.com/calculator/window-shade-calculator/
26	How to calculate the cost per square foot? http://www.calculatorpro.com/calculator/compost-use-calculator/
27	How to calculate for the Excavation cost? http://www.calculatorpro.com/calculator/excavation-cost-calculator/
28	How to calculate for the HVAC Financing? http://www.calculatorpro.com/calculator/hvac-financing-calculator/
29	How to calculate for the LED Resistor? http://www.calculatorpro.com/calculator/led-resistor-calculator/
30	How to calculate for the Resistor? http://www.calculatorpro.com/calculator/resistor-calculator/
31	How to calculate for the Solar panel shadow? http://www.calculatorpro.com/calculator/solar-panel-shadow-calculator/
32	How to calculate for the Solar Power? http://www.calculatorpro.com/calculator/solar-power-calculator/



33	How to calculate for the Thin Bricks? http://www.calculatorpro.com/calculator/thin-brick-calculator/
34	How to calculate for the Wheel Chair Ramp? http://www.calculatorpro.com/calculator/wheelchair-ramp-calculator/

Table 4: Data Requirements

FLOORING	
Carpet	Width of the room (feet):Length of the room (feet):Width of the carpet roll (feet):
Concrete Slab	Width (ft.):Length (ft.):Thickness (in.):
Deck-Stain	Length of deck:Width of deck:Railing length:Railing height: Number of steps:Width of steps:
Flooring Cost	Cost per square foot:Size of area (in square feet):
Metric Tile	Total Area (Square Meters):Size of Tile (cm):
Tile	Total Square Footage:Size of Tile (inches):
Square Footage	Length of room:Width of room:
Materials	
Bricking	Length of surface (ft.):Height of surface (ft.):Linear Height of Corners (ft.):Round Up Percentage (10% recommended):
Circular Room Paint	Room Diameter (meters):Room Height (meters):# of Doors in Room:# of Windows in Room:
Concrete	Width (ft.):Length (ft.):Thickness (inches):
Concrete Column	Height of Column (in inches):Diameter of Column (in inches):
Concrete Footing	Depth in inches:Width in inches (or diameter if round): Length in inches (leave blank if round):
Concrete round Column	Diameter:Height:Units:
Concrete Slab	Width (ft.):Length (ft.):Thickness (in.):
Concrete Square	Width (in.):Length (in.):Height (in.):
Concrete Step	Number of Steps:Tread (in.):Riser (in.):Width (ft.):
Gravel Needed	Width (ft.):Length (ft.):Depth (inches):
How many litres of paint	Height of Walls (metres):Sum Total Length of Walls (metres): Number of Doors:Number of Windows:Number of coats of paint:
Wall Paper	Height of Walls (ft):Sum Total Length of Walls (ft):Number of Doors:Number of Windows:Width of wallpaper roll:
Material Needed	Width (ft):Length (ft):Depth (inches):
Material Needed –Circle	Diameter (ft): Depth (inches):
Material Needed – Triangle	Diameter (ft):Depth (inches):Side 1 (ft):Side 2 (ft):Side 3 (ft):Depth (inches):
Materials Volume Estimator	Depth (Inches/Centimeters):Length (Feet/Meters):Width (Feet/Meters):Area Type:Radius (Feet/Meters): Measurement Units:
Painting	Room Length (ft):Room Width (ft):Ceiling Height (ft):
Ready Mix Concrete	Height (ft):Length (ft):Thickness (in):
Window Shade	Width (inches):Width Fractional:Height (inches):Height Fractional:Price per Square Foot:
Miscellaneous	
Compost Use	Length of Area to Cover:Width of Area to Cover:Length/Width Unit:Depth Needed :Depth Unit:Bulk Density:Bulk Density Unit:
Excavation Cost	Length (ft):Width(ft):Depth(ft):Price per yard (\$):



HVAC Financing	Purchase Price:Financing Option:
LED Resistor	Supply Voltage:Forward Voltage:Forward Current (Amps - not mA):
Resistor	Stripe 1:Stripe 2:Stripe 3 (Multiplier):
Solar Panel	Height of Sun in ° (with 90° as noon):Solar Panel Angle: Panel Height:
Solar Power	Last Power Bill:Cost per kWh:Solar System Size:Hours of Peak Sunlight: Feed-In Tariff per kWh (optional):
Thin Brick	Length of surface:Height of surface:Linear Height of Corners:
Wheel Chair Ramp	Height Above Ground Level:

Discussions

This could be easily confirmed that that day is not far off when un-manned office automation systems would be developed wherein one command or the voice to text message is sufficient to generate the necessities for all the pre-execution things.

Directions for the future work

The future works could / might be made with the following features:

1. A website could be created wherein a link could be created to enter the details or features of the unit to be constructed and within the specified area and in result the link should automatically generate the below mentioned details:

- Probable Layouts for for the specified area.
- Cost-Estimation for the whole construction.
- Cost-Estimation for the sub-units.
- Time-Estimation required for the completion of the unit construction.

In short the results might be obtained with the 7 M's i.e. Man, Machine, Material, Money, Management, Methods and Measurement in the tabular fashion fulfilling the needs from the Conceptualisation stages to the Maintenance stages (Conceptualisation, Engineering Designs, Procurements, Constructions, Commissioning, Operations and Maintenance).

Only the conceptualisation in-terms of the features required for the units would be essential and the rest might be obtained / generated automatically. This kind of the creation of the websites could resolve /dissolve / solve the Un-structured / Semi-Structured / Structured problems ultimately.

References

1. www.cecalc.com
2. www.engineersedge.com
3. www.q-cogo.com
4. www.easycalculation.com
5. www.onlinecalculators.brainmeasures.com
6. www.blocklayer.com
7. www.calculatorsoup.com
8. www.calculatoredge.com
9. www.homes4india.com
10. www.building-cost.net
11. www.custombuildingproducts.com
12. www.webinfolist.com
13. www.easyaccountingsoftware.com
14. www.gofrugal.com
15. www.nayaone.com
16. www.sysinternals.com
17. www.drivegoogle.com



18. www.pdfcompressor.com
19. www.predator-usb.com
20. www.driveidentifier.com

Additional Information

From the survey and the expert opinions, this had been found that thorough soil test is a must before the launch of any of the construction works. The major thing is to test the safety bearing capacity of the soil to take or bear the loads. This is very important to remember that the capacity to bear the loads on the hilly areas and gravelly soils but close to the storm water drains is really poor. Boring the holes very deep to test the samples is very important and it is always essential to take the lowest load bearing capacity. The samples selected should always obey the national building codes and the sand is to be tested according to the IS 383. The sand should have the silt and the metal selected should be cubicle. The voids due to the improper compaction should not be greater than 2 percent. The compaction is to be very strong for the sustainability upto the life of 50 years otherwise the deterioration might begin from the first five years. Buildings where proper care is not taken, the voids could be as high as 7-8 percent leading to the corrosion in the first fifteen years. Epoxy steel [M30] with the high exposure to the marine weather conditions is advisable for the coastal belts and the surrounding zones / areas.

Some more listings of the Online Calculators for the Engineering Projects:

http://www.calculatoredge.com/index.htm#civil	
Convert Units of Mass, Length, and Area	http://www.calculatoredge.com/enggcalt/mass.htm
Convert Units of Temperature	http://www.calculatoredge.com/enggcalt/temp.htm
Air Flow Conversion Calculator	http://www.calculatoredge.com/optical%20engg/air%20flow.htm
Concrete Calculator	http://www.calculatoredge.com/civil%20engg%20calculator/concrete%20calculator.htm
Chemical Periodic Table	http://www.calculatoredge.com/optical%20engg/chemical%20periodic%20table.htm
Convert Units of Pressure	http://www.calculatoredge.com/enggcalt/pressure.htm
Cantilever Beam Calculator	http://www.calculatoredge.com/civil%20engg%20calculator/cantilever.htm
Slab Concrete Pour Calculator	http://www.calculatoredge.com/civil%20engg%20calculator/slab%20concrete%20pour.htm
Ready Mix Concrete Volume Calculator	http://www.calculatoredge.com/civil%20engg%20calculator/ready%20mix%20concrete%20volume.htm
Speed Distance Time Calculator	http://www.calculatoredge.com/civil%20engg%20calculator/Speed%20Distance%20Time.htm
Beam Deflection Calculators	http://www.calculatoredge.com/civil%20engg%20calculator/beam.htm
Roman to Standard Number Calculator	http://www.calculatoredge.com/enggcalt/roman.htm

