

Constraint Satisfaction: Scaffolding

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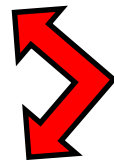
**Workface Planning Conference 2011
Calgary, Alberta
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Constraint Elements

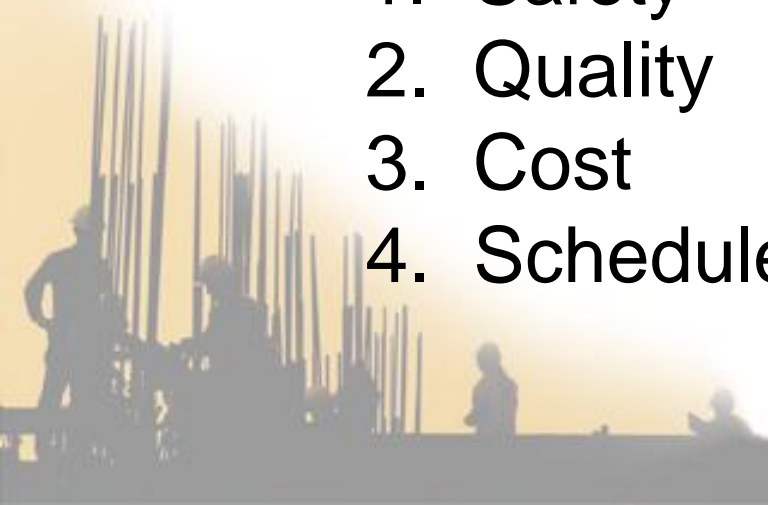
Client Perspective

- Scaffold is the foundation for successful execution for others work

1. Safety
2. Quality
3. Cost
4. Schedule



Interchangeable depending on Client



Constraint Elements

Safety

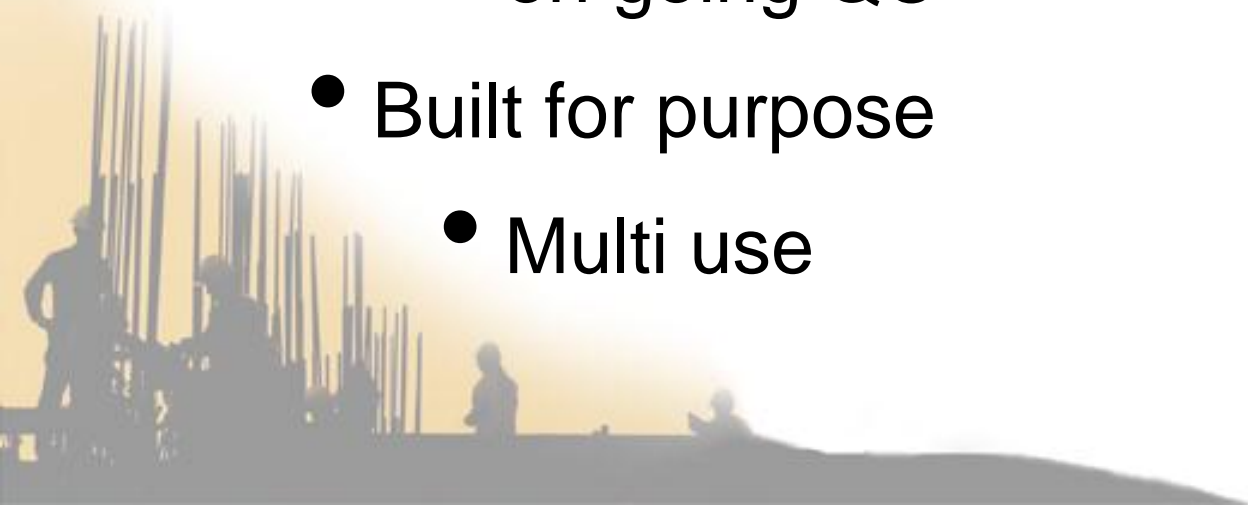
- Ensuring safety of scaffold provider
- Ensuring safety of scaffold user



Constraint Elements

Quality

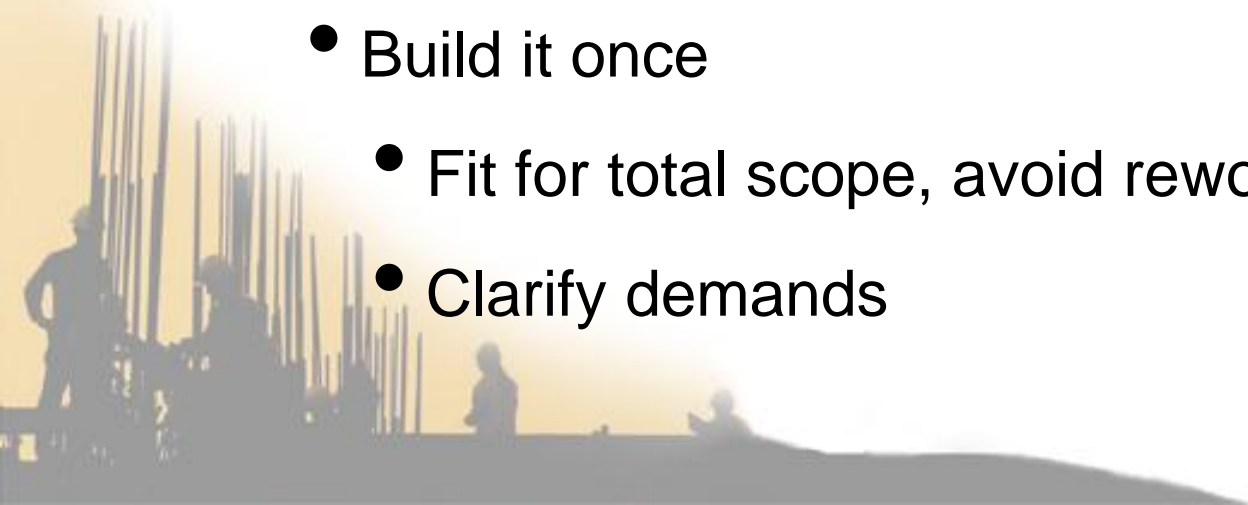
- Scaffold integrity
 - QC and tagging
 - on going QC
- Built for purpose
 - Multi use



Constraint Elements

Cost

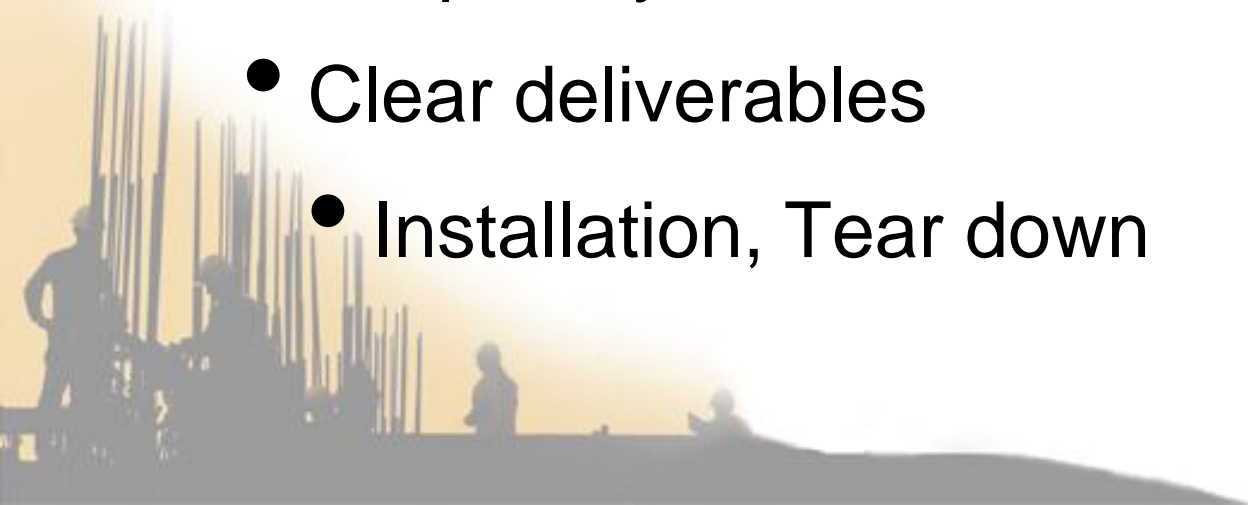
- Alternatives to scaffolding
 - Rope Assess, man lifts, steps/ladders
 - Horses, portable shields
- Build it once
 - Fit for total scope, avoid rework
 - Clarify demands



Constraint Elements

Schedule

- Preplanning (WFP)
- aligning with other parties
 - priority, schedule and scope
- Clear deliverables
- Installation, Tear down

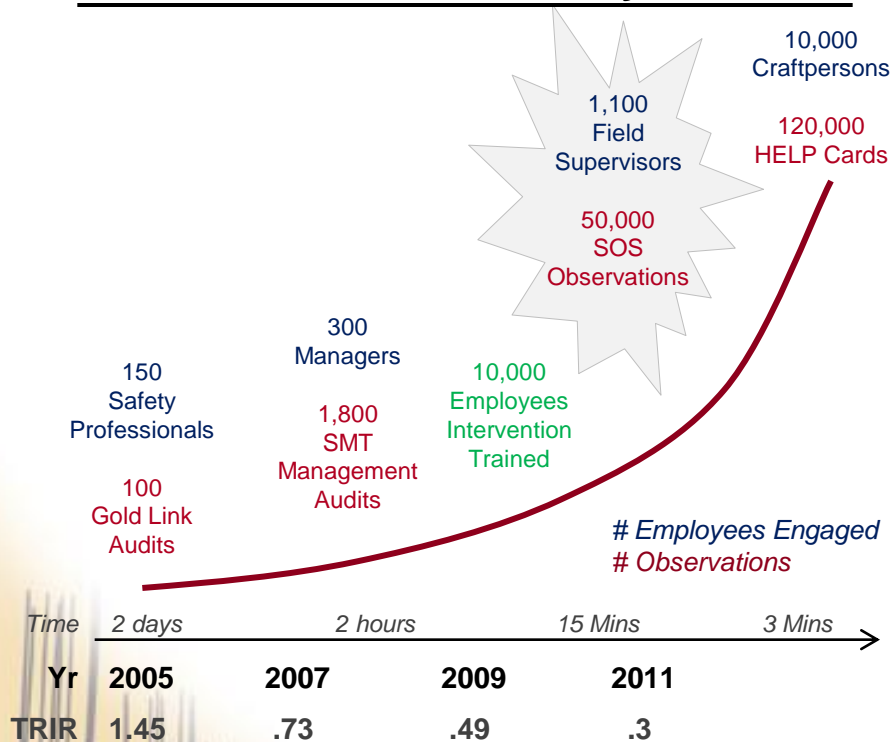


Holistic Operational Model



Safety Observation System (SOS)

Building an Observation / Intervention-based Safety Culture



SOS is part of Aluma's evolution to ...

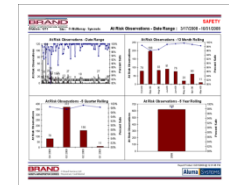
- Engage entire workforce in Site Safety
- Drive proactive Risk Management
- Collect data for focused Safety improvement
- Reduce Incidents through Observation / Intervention
- Objectively Measure our Safety Culture

SOS Program

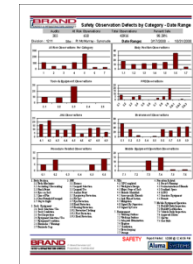
5-Step Overview / Advantages

1. Setup & Train Site Team on SOS
2. Conduct Observations using standard 7-Area Form

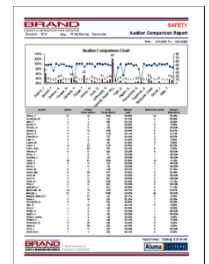
3. Enter Observation data in SOS database
4. Review Reports / Trends



Observation Trends



At-Risk Behaviors
& Conditions



Supervisor
Comparisons

5. Develop Action Plans addressing At-Risk Trends

Advantages

- Proactive Identification of At-Risk Behaviors
- At-Risk Trend Analysis (At Site, Brand-wide, Over Time)
- Assists in developing focused safety improvements
- Formalizes managing 'bottom of the Incident Pyramid'
- Measuring Intervention and Supervisor accountability

Total Cost Savings

Wrench Time Improvements

Boiler Founding Sys:

Reduces one shift in I&D

Open center Boiler:

Saves 25% on T&M

Metal Toe-board:

60% on T&M

Floating Boiler Deck:

Saves 75% on labor & 85% on material

Boiler Bracket:

Eliminates entire scaffold lane

Clamp on Leg:

Reduces 4 peices & 50% on labor

Guardrail Base:

Increases safety & productivity

Heavy Leg:

Capacity increase 66%, 50% reduction in material

Plank Infill:

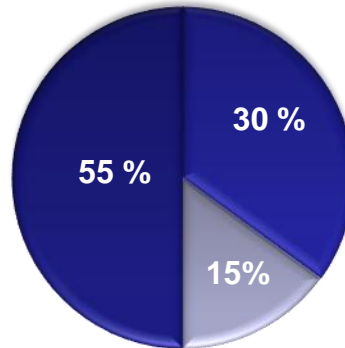
Eliminate wires and saves 50% on Labor

Generator Deck:

Reduces cycle time by two days

Aerogel Insulation:

70% on labor & 30% on material



Indirect Overhead Cost-Savings

Multi-craft:

Reduces 45% of OH

SIMS:

Overall 5% + increase in project productivity

BrandNet:

Most advanced Scaffold Management, Estimating, Scheduling & Forecasting

Profield & P6:

Superior resource allocation and cost tracking

New Carts/Scaffold Mobile Yards:

Reduces labor hours by bringing material closer to units

Non-Wrench Time Improvements

Schedule Of Discounts:

Prepaid or Net 10 Terms..1% to 1.5% Saving

Client Overhead /Craft Reductions- Multi-craft:

- Over 7.5% Savings!
- Reduces 200 Plus Permits Per Year Per Craft over 1% savings

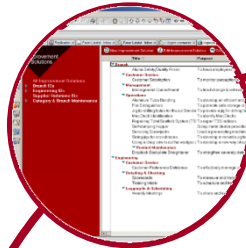
Contractor Execution Premiums / Productivity

Reduces craft support personnel, maximize craft ... 10% Savings!

Execution Excellence - Product Quality Management System

Quality Improvement Reporting

Documented problems, solutions and corrective actions allowing multi-user input to continuously control and improve quality



Vendor Qualification Program

Rigorous evaluation process to ensure delivery of high quality products



Field Assembly & Maintenance Manuals

A series of instructions to assemble, service, and repair rental equipment in a consistent manner. Point-of-use continual inspections assure compliant materials.



Vendor Audits

Periodic auditing to ensure compliance to established manufacturing guidelines



6-Sigma Quality Improvement

Quality Manual / ISO

Product Testing

*Recorded Execution Excellence - Product Quality Management System
In-house testing of components and assemblies using industry best practices for load testing assures maximum safety and productivity*



Lot Tracking

Traceability Stamps on every piece of equipment for tracking to implement corrective / preventive measures when needed

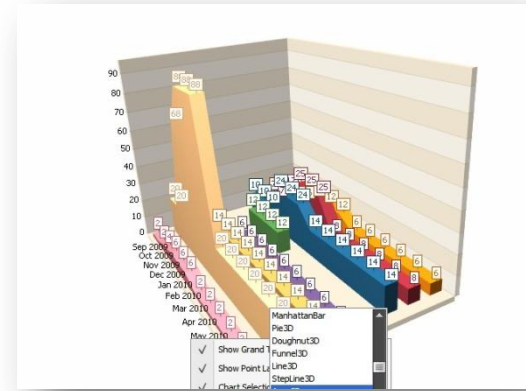
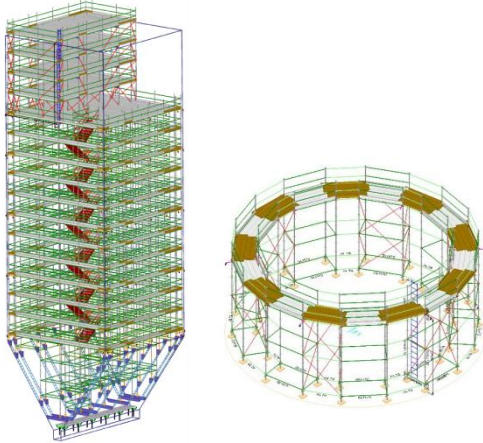


A Commitment to Excellence

BrandNet - Scheduling

Scaffold Industry's most Advanced Software

Scaffold Design – Estimation - Planning & Forecasting - Project Management



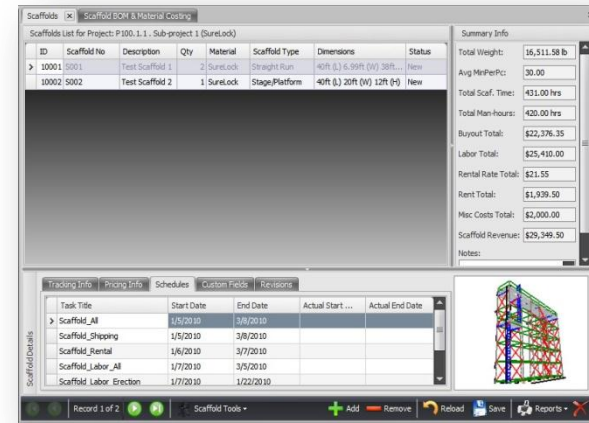
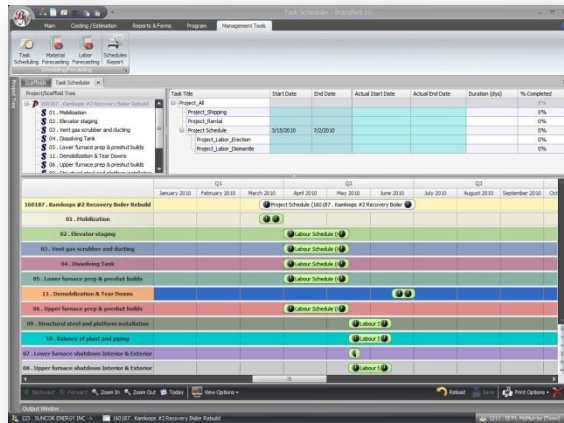
1. Scaffold Design

- Supports all types of scaffold
- Designs with simple parameter inputs
- Accommodates any configuration
- Easy to design/change...deck levels, guardrails, ladders, toe-boards, cages at various heights
- Accommodates towers, straight runs, inside /outside circular, birdcage, redcross etc designs
- 3D design capabilities

2. Estimation

- Detailed Material and Labor costing estimates at project and scaffold Level
- Labor rate packages estimates with varying crew mixes
- Detailed reports

BrandNet - Scheduling



3. Planning & Forecasting

- **Material Forecasting** on component quantities, weight or total time for duration of project and for each time interval
- **Labor Forecasting** on man-power requirements for the duration of project and for each time interval
- Gantt charts, task tree table, forecasting charts
- Ability to integrate forecasting data to customer project management software

4. Project Management

- Comprehensive schedule and plan for scaffold erection and dismantling
- Ability to break down entire project into smaller projects
- Detail and summary reports on all project level.... BOM, Count Sheet, Labor Timesheet, Bottom-line, Scope of Work.
- Accountability & comparisons with actuals vs estimates