



Outline

- CCC Introduction & Overview
- Project Control for Mega Construction Projects
 - Challenge & Strategy
 - Development History
 - CCT as CCC IT Arm...
 - Current Technology Platforms
 - Change Management
 - International Involvement & Recognition
 - Collaboration with Universities
- Snapshots & Video
- Q/A

Company Introduction

- Consolidated Contractors Company (CCC) was originally formed in 1952 in Lebanon
- CCC, based in Athens, Greece, currently employs approximately 114,000 people in its worldwide operations
- CCC is a ISO 14001 and OHSAS 18001 certified company with the highest Commitment to HSE
- CCC is an ISO 9001:2008 certified company
- CCC is predominately a construction company, providing project management, engineering, procurement and construction
- Currently ranked 18th in ENR Top International Contractors (2011)

Top 225 International Contractors

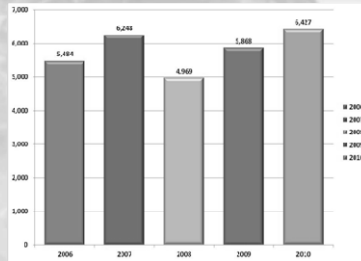
ENR Engineering News-Record

The Top 225

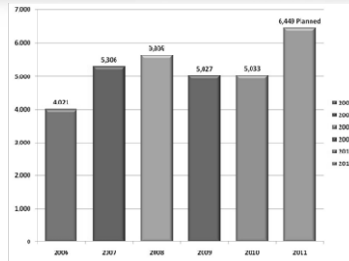
RANK	2010 REVENUE (\$ MIL.)	2011 NEW CONTRACTS (\$ MIL.)	GENERAL BUILDING	MFG.	POWER	WATER SUPPLY	SEWER / WASTE	INDUS. / PETROLEUM	TRANSPORTATION	HAZARDOUS WASTE	TELECOM
1	21,424.7	26,977.2	38	1	2	6	3	3	47	0	4
2	16,357.6	45,113.0	12	0	8	3	6	9	52	1	3
3	12,000.0	19,714.0	0	0	0	0	0	0	71	26	0
4	12,023.0	36,871.0	13,275.0	28	0	5	1	1	90	0	8
5	11,023.3	14,626.5	18,250.0	48	3	4	4	3	20	0	2
6	11,004.0	12,100.8	13,990.0	0	0	0	0	0	99	0	0
7	11,004.0	17,100.4	27,380.0	16	0	6	0	0	63	13	0
8	10,070.0	12,777.0	12,440.0	21	0	2	4	4	5	40	0
9	7,840.0	8,060.0	8,230.0	0	0	0	0	0	100	0	0
10	7,017.8	18,093.8	25,410.5	31	3	3	2	4	1	35	0
11	7,194.2	46,413.7	60,860.0	0	1	0	1	2	1	94	1
12	6,862.4	20,631.0	23,388.1	0	0	28	0	6	27	39	0
13	6,324.3	10,780.8	10,681.4	26	0	11	0	2	44	23	0
14	5,903.5	7,945.1	7,252.0	25	0	8	4	0	46	12	0
15	5,877.4	10,930.8	15,653.2	4	0	11	14	1	13	56	0
16	5,800.4	8,431.4	5,640.4	96	0	0	0	0	3	1	0
17	5,433.0	9,809.0	11,120.0	46	0	0	0	0	34	0	0
18	5,364.7	5,236.3	5,427.9	14	0	1	19	0	45	21	0
19	5,161.1	12,400.4	12,359.3	95	0	3	0	3	0	30	0
20	4,873.7	48,860.0	12,015.7	82	0	1	1	1	0	14	0
21	4,824.7	4,490.0	4,868.0	16	0	0	0	2	1	77	0
22	4,284.2	4,326.0	7,670.0	0	0	0	0	0	100	0	0
23	4,308.9	8,875.5	15,879.4	10	0	38	0	0	39	8	0
24	4,810.0	15,883.3	20,668.0	22	0	45	5	1	0	26	0
25	3,688.0	10,510.0	27,875.0	51	0	0	2	4	10	7	1

CCC Sales & Revenue (US\$ Millions)

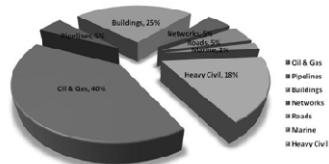
Total CCC Sales



Total Revenue Managed by CCC



Actual Sales Last Five Years by Segment



PROJECT CONTROL FOR MEGA CONSTRUCTION PROJECTS CHALLENGES & OPPORTUNITIES

Software Challenge

- CCC utilizes off-the-shelf software in the EP function as well as scheduling such as PDS 2D/3D, Intools, Primavera, Marian, etc.
- CCC has developed its own construction control software for the management of site activities.
 - Lack of integrated Oil & Gas site management software in the market
 - Flexibility, each project is unique and our clients always have different requirements.
 - Openness, CCC needs to integrate with its EP partner's systems

Project Control Strategy

- Reliant Pull-Driven Technique optimize supply chain rather than sub optimization
 - Assure availability of resources before start of activity.
 - Emphasize productivity through the full work chain vs. individual activities
 - Prevent sub-optimization
- Proper Project Work Breakdown Structure
 - Project/Area/ sub area/ fragnet /activity/object/operation
- Integrated EPC schedule with Emphasis on Handover and Construction Activities. (effective supply chain)
- 3D model built or with WBS in mind
- Early on Cooperation with the Partners/ EDI definition.
- 3 Month Look Ahead Schedule/ Material forward plan
- 3 weeks Look Ahead Schedule

Development History

- NCR 1970s until mid 1980s
 - Developed core business applications on NCR-mini computers. Included: accounting , HR, payroll, estimation, budgeting, and cost control.
- 1980s
 - PC Revolution
 - Networks
 - Migration of applications to VAX and then to PCs
 - Early version of Talisman developed in Kuwait
- 1989 to 1998
 - Full Talisman Issued
 - Pyramid/ Timesheet: The full project control suite completed with perpetual enhancement to cover all disciplines and all segments

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Development History (cnt'd)

- 1999 to 2004
 - CCT Established
 - VBC & C3D development initiated in parallel with traditional applications
 - VBC Release 1 was completed January 2002
- 2004 to 2007
 - Established of BIM Center to service high quality building segment/GIS
 - VBC as a Development Platform released (ECM/BPM)
 - Preliminary vertical applications stated to trickle out
 - Beta Releases of C3D; tested on project environment around 2007
 - KM Initiative started

Development History (cnt'd..)

- 2007 to-date
 - Full implementation of VBC and C3D in CCC projects
 - Extending BIM Center services to include infrastructure segment
 - Surveying, GPS, Earthwork calculation etc.
 - Creation of Simulation Department
 - Development of Earthwork simulator/ Development of Crew Optimization Simulator (CIFE)
 - Private Cloud Initiated with 4 applications over 40 projects
 - Initiation of BI Center and Release of Pilot Applications (Green Initiative, etc.)
 - Dashboard (RIA) Development and Deployment (V8); migrating all reporting from all applications to Dashboard.
 - Issued Handheld based pipeline control system (Talisman Backend) in response to high cost of data entry in Australia
 - Design, Development, & Successful implementation of multitude of Business App. on top of VBC

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CCT as CCC IT Arm...

- CCT is a 10 year old company that was founded to develop tip of the art IT Solutions
- CCT based in Beirut near some of the top universities in Lebanon & the Middle East.
- CCT has grown to host around 50 top software developers, architects, & technology evangelists
- CCT has delivered solutions to its customers in the construction field as well as related industries, that have been deployed successfully in projects & operations all over the world.
- CCT has partnered with several universities and R&D communities in the USA and Europe (www.stanford.edu, www.fiatech.org, www.wfmc.org, etc.)

CCT COMPUTERS & COMMUNICATION technology

Current Technology Platform @ CCC

- Object Oriented Project Data repository facilitating class definitions and relations between classes.
- BPM: Workflows, Rich clients and document centric applications with RIA portal.
- ECM: this framework is used to capture, manage, store, and deliver content and documents to the end users related to organizational processes.
- 3D and visual oriented applications / reporting: 3D tools are excellent report generators, linking 3D models to a multitude of data, colorizing the models as per different statuses & providing it to the user for review or possible action.
- Automatic data acquisition and collection on sites using handhelds and RFID
- Business Intelligence (Data warehousing, OLAP technologies, Web based Dashboards & intelligent reporting).

Current Technology Platform @ CCC (cnt'd..)

- Corporate Dashboard: Using Rich Internet Application Technologies; Dashboard is a customizable solution for knowledge workers that consolidate personal, team, departmental, project, corporate and even external information in a one-single-portal. It brings a consolidated view of an organization's knowledge source to the end user and provides immediate access to key business information.
- Electronic Data Interface, process industry accelerated implementation of standardized data connectivity between all computerized systems (IFC/ISO & Semantic web).
- (AI) based systems & simulation. 4D Tools as well as actual simulation of activities and use of Rule based systems to optimize construction activities such as earthwork, construction activities coordination as well as construction equipment fleet distribution. CCT is researching the use of AI technologies in developing shop drawings extracted and integrated with the 3D model.
- Fleet Management & Online Tracking/Monitoring System

Change Management

- Effective Communications informing various stakeholders of the reasons for the change, benefits, etc.
- Continuous training and skills upgrading scheme for the organization.
- Clear technology road map and meaningful business engagement
- Align employees to overall strategic direction of the organization.
- Monitoring of the implementation and fine-tuning as required.
- Marketing IT efforts and continuously demystifying its role through clear communication of its value and ROI
- Etc.

International Involvement & Recognition

- FIATECH: is an industry consortium that provides global leadership in identifying and accelerating the development, demonstration and deployment of fully integrated and automated technologies to deliver the highest business value throughout the life cycle of all types of capital projects. FIATECH members bring expertise from a variety of endeavors: some build large assets – refineries, power plants, health care facilities, large commercial and public buildings, infrastructure, and manufacturing facilities. Others are leading providers of engineering, design, procurement, and construction services. Members also include top academic, research organizations and some of the most influential technology providers in the world . <http://www.fiatech.org> .
- Member of the Board of Advisors

International Involvement & Recognition (cnt'd)

- CETI Award: Celebration of Engineering & Technology Innovation
- Fiotech established the CETI Award – Celebration of Engineering and Technology Innovation – in 2006 to promote and showcase significant achievements in technology research, development and implementation in the capital projects industry. The CETI Award is given annually to organizations that have conducted new and emerging technology implementations as well as to individuals who have made significant strides in advancing innovation in research & development.

CETI Award

Zuhair Haddad

Zuhair Haddad, of Consolidated Contractors Company, has made possible many advanced automated delivery practices to Fiotech from the progressive delivery platform that he leads in CCC. He continues to be an leader and contributor to Fiotech. He currently is involved in the ISO 15926 Project Information Flow and in iRing activities.

International Involvement & Recognition (cnt'd)

- IPLOCA
- About IPLOCA: International Pipeline and Offshore Contractors Association (IPLOCA) is an organization of leading global players in pipeline construction. IPLOCA mission is to promote, foster and develop the science and practice of constructing onshore and offshore pipelines, and associated works. IPLOCA members main focus is on onshore and offshore pipelines and their construction, manpower issues, training, new technologies, safety and the environment. <http://www.iploca.org>
- Active Member of the Novel Construction Group

International Involvement & Recognition (cnt'd)

- ENCORD: ENCORD is Europe's forum for industry-led research, development and innovation in the construction sector. The 5D Initiative, founded and working as an independent think tank and task force within the ENCORD Virtual Construction Platform.
- 5D Initiative announced that collaboration with Autodesk, Bentley, CCT, RIB and Tekla is moving forward to incorporate pragmatic requirements for a 5Di solution, which is the amplification of BIM solutions for contractors to ensure higher process integration from very early design, engineering, fabrication and construction to operation & maintenance.
- http://www.encord.org/wp-content/uploads/2011/05/20111005_5Di-Press-Release.pdf

PRESS RELEASE

The 5D Initiative enters into a process of more intensive cooperation with Autodesk, Bentley, CCT, RIB and Tekla in order to develop new BIM software solutions that fit needs of European contractors.

Based on the strategic discussions over the past 2 years, the 5D initiative moves forward by taking pragmatic steps together with Autodesk Inc (Autodesk), Bentley Systems Incorporated (Bentley), Computers and Communication Technology International (CCT), RIB Software AG (RIB) and

International Involvement & Recognition (cnt'd)

- CIFE: Center for Integrated Facility Engineering - STANFORD UNIVERSITY
- The CIFE mission is to be the world's premier academic research center for Virtual Design and Construction of Architecture - Engineering - Construction (AEC) industry projects ... to support exceptionally reliable engineering and management practices to plan, design, construct and operate sustainable facilities. <http://cife.stanford.edu/>
- Member of the Technical Advisory Board.

Collaboration with Universities

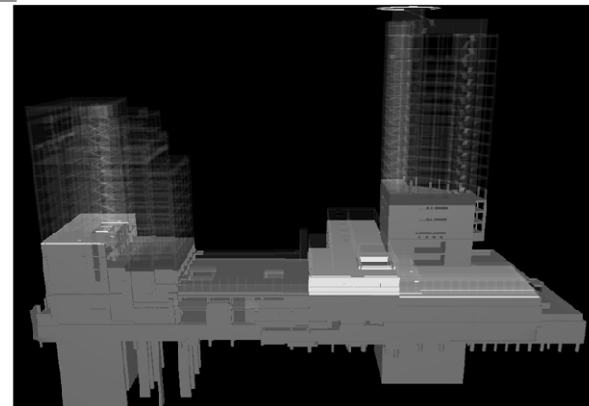
- Stanford
- AUB
- LAU
- Etc..

Snapshots & Video
Award!

C3D as a 3D Viewer

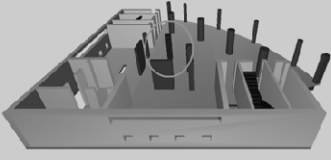


C3D - Visual Progress Reports



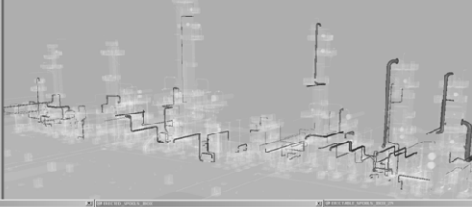
Percentage	Color
0-25	
25-50	
50-75	
75-99	
100	

C3D as a 3D Viewer – Material Quantities (Column)



Code	Description	Unit	Quantity (Bolt)
3203011-17	Formwork Class (9) For Columns: isolated regular shaped, circular	m ²	8.129
3203011-2-17	Steel reinforcement bars grade 4080 4 high grade 4	kg	388.0
3203011-4-18	80MTI CONCRETE Castable Grade 5018 Columns	m ³	5.24

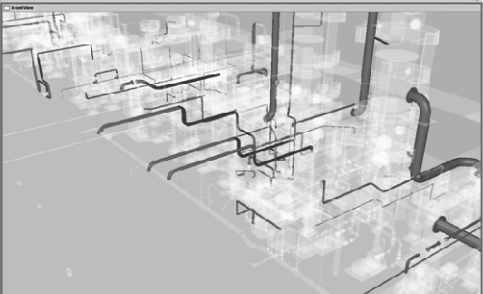
Evaluate – Spool Erectability
 Spools in Green: Erected Spools.
 Spools in Red: Erectable Spools. (Status fabricated & Connecting Spools that are Already Erected)



Code	Description	Unit	Quantity (Bolt)
3203011-17	Formwork Class (9) For Columns: isolated regular shaped, circular	m ²	8.129
3203011-2-17	Steel reinforcement bars grade 4080 4 high grade 4	kg	388.0
3203011-4-18	80MTI CONCRETE Castable Grade 5018 Columns	m ³	5.24

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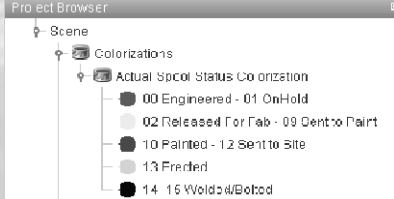
Evaluate – Erectability (Close-up View)



Code	Description	Unit	Quantity (Bolt)
3203011-17	Formwork Class (9) For Columns: isolated regular shaped, circular	m ²	8.129
3203011-2-17	Steel reinforcement bars grade 4080 4 high grade 4	kg	388.0
3203011-4-18	80MTI CONCRETE Castable Grade 5018 Columns	m ³	5.24

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Evaluate – Spools Status Colorize Spools by Actual Status

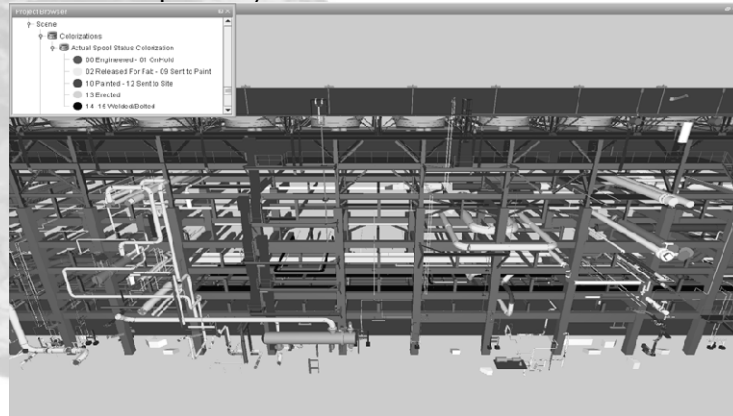


Code	Description	Unit	Quantity (Bolt)
3203011-17	Formwork Class (9) For Columns: isolated regular shaped, circular	m ²	8.129
3203011-2-17	Steel reinforcement bars grade 4080 4 high grade 4	kg	388.0
3203011-4-18	80MTI CONCRETE Castable Grade 5018 Columns	m ³	5.24

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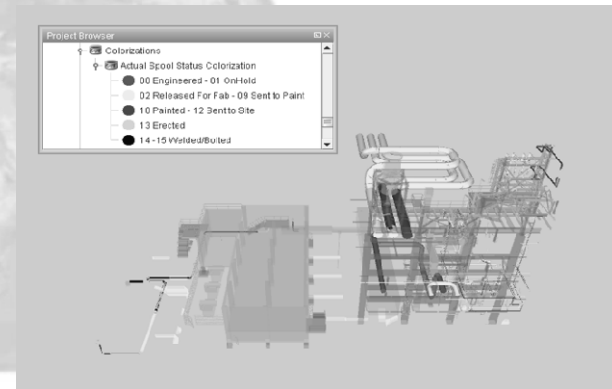
Evaluate – Spools Status

Colorize Spools by Actual Status



Evaluate – Spools Status

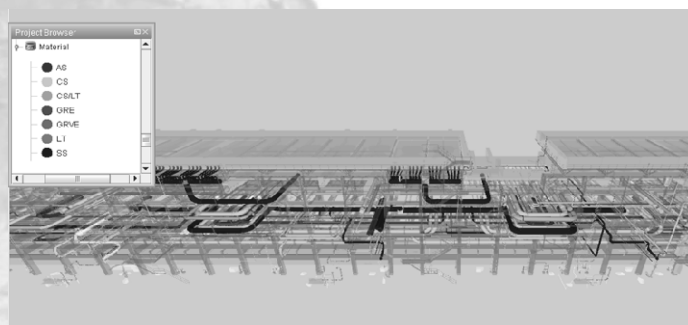
Colorize Spools by Actual Status



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Evaluate – Material Types

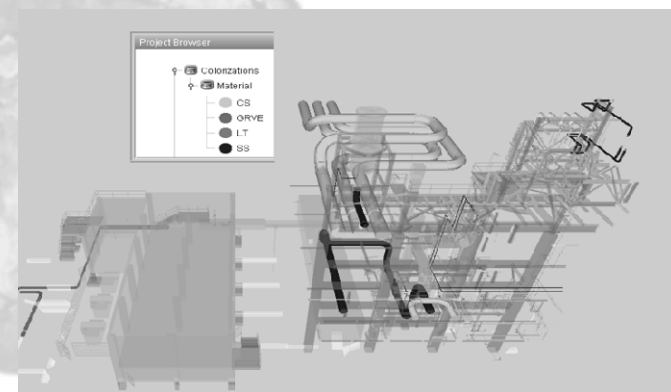
Colorize Spools by Material Type



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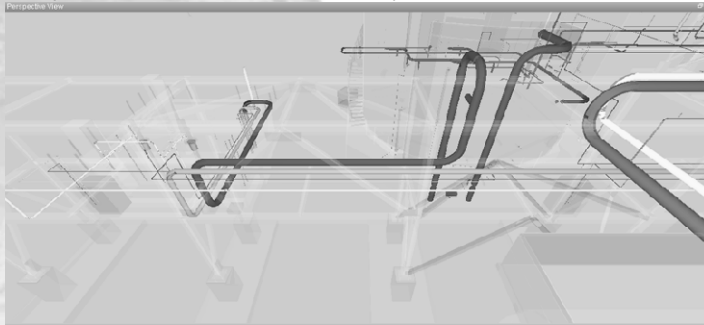
Evaluate – Material Types

Colorize Spools by Material Type



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Testpacks Limits Colorization – HGCE Project



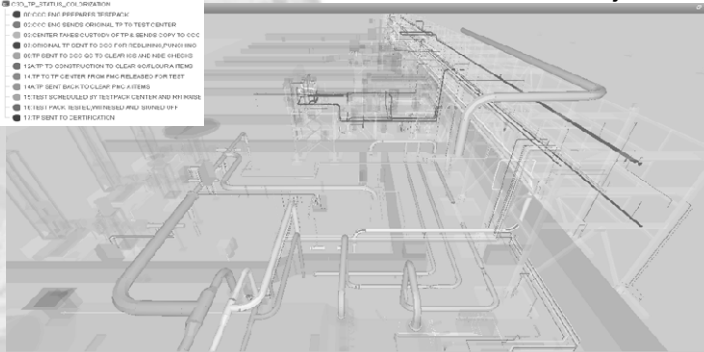
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Testpack Status Colorization - HGCE Project



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Testpack Status Colorization - HGCE Project



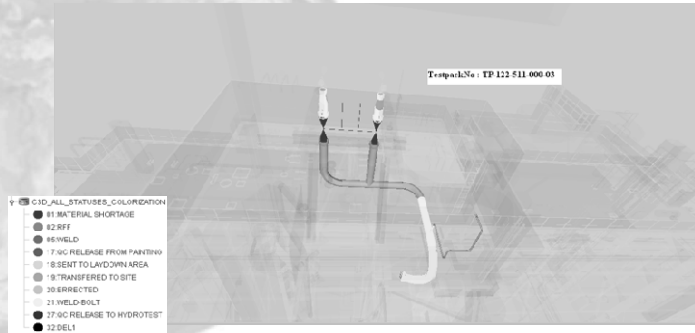
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Testpack Pending Punchlist Items Report–HGCE Project

UNCLASSIFIED OPERATIONAL INFORMATION (CONFIDENTIALITY CAN BE COMPROMISED BY DISCLOSURE OF THIS REPORT)					
Punchlist					
ITEM NO.	DATE	STATUS	ACTIVITY	REMARKS	ITEM DESCRIPTION
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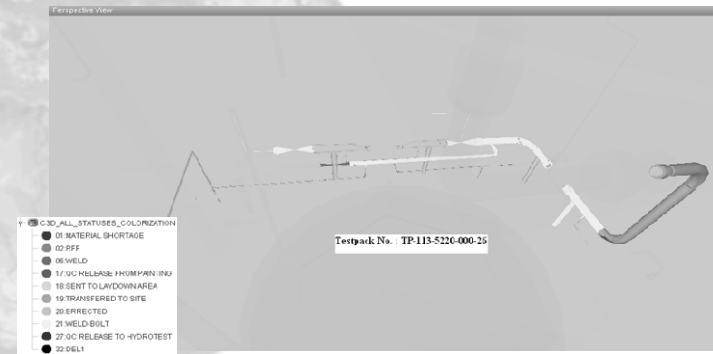
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Spool Status Colorization within Testpack – HGCE Project



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Spool Status Colorization within Testpack – HGCE Project



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