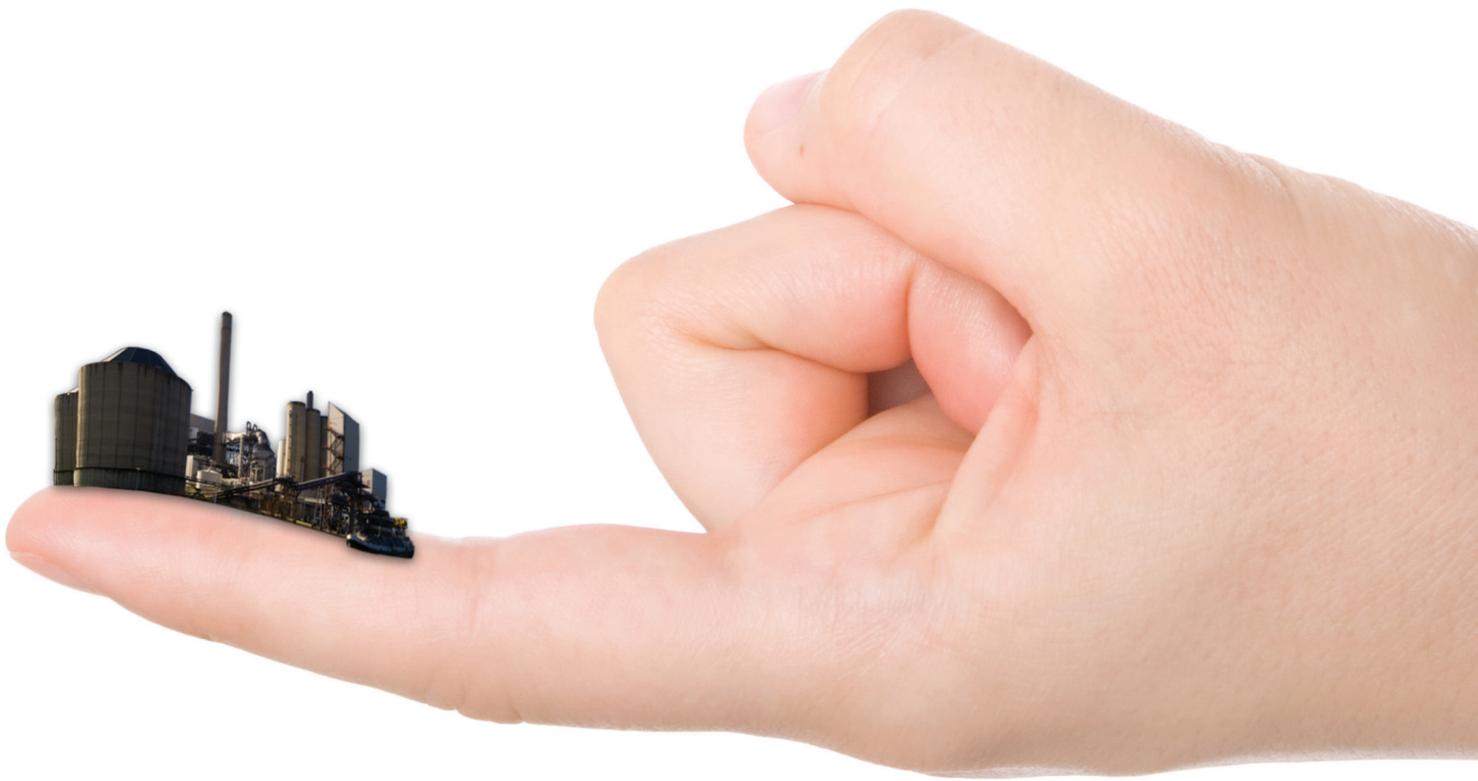


INTERGRAPH CADWORX & ANALYSIS SOLUTIONS



CAU2015 *Express*
AGENDA

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CAU2015 Express - The Indian Tour

March 23 - Mumbai - Grand Hyatt Mumbai
March 25 - Chennai - Hyatt Regency Chennai
March 27 - New Delhi - Hyatt Regency Delhi



THE TRUE POWER OF 3D PLANT DESIGN

INTERGRAPH® CADWORX 2015

- **Enjoy the benefits:** Quicker, shorter learning curve and start-up time, fast turnaround, up to 30 % faster modeling and design.
- **Use the features:** Routing of mitered elbows now possible, male and female needle valves included, a brand new ISOGEN® setup interface.
- **Have it all:** Intelligent piping, steel modeling, ISOGEN Isometrics, HVAC laser trace & scan capabilities, walkthrough visualizations.

For more information visit <http://www.intergraph.com/global/eu/go/cadworx.aspx>



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CAU2015 EXPRESS - MARCH 2015

9.00 - 9.30	Registration			
9.30 - 10.00	Welcome and Keynote			
TRACKS	CADWorx®	CAESAR II®	PV Elite®	GT STRUDL®
10.00 - 11.30	Creating 2D Drawing Deliverables	F=KX: How Piping System Response to Load is Calculated in CAESAR II	Welded Joint Efficiency	GT STRUDL Top 5 Differentiators & CAD Modeler 2015
11.30 - 11.45	Break			
11.45 - 13.15	The Power of Custom Fields	Resolving Non-linear Convergence Issues in CAESAR II	Vessel Supports	Rigorous Response Spectrum Seismic Analysis
13.15 - 14.15	Lunch			
14.15 - 15.45	Migrating to I-Configure in CADWorx Plant Professional	When The Computed Stress Range Varies: Applying Existing B31.3 rules and in CAESAR II and a New Piping Code Proposal	Vibration and Seismic Analysis	Non-linear Analysis and its Consequences on Steel Frame Design
15.45 - 16.00	Break			
16.00 - 16.45	Importing Intelligent CADWorx P&ID Data in Your Model and Isometric Drawings (Part 1)	Analyzing Effects of Soil Parameters on Buried Pipe Analysis and Comparing Analysis Methods using CAESAR II	What's New in PV Elite 2015	Model Error Detection, Instabilities, Member Design & Smoothing (Part 1)
16.45 - 17.30	Importing Intelligent CADWorx P&ID Data in Your Model and Isometric Drawings (Part 2)	Effect of CAESAR II Structural Modelling on Static and Seismic Analysis	Building Thinner Vessels using ASME Section VIII Division 1 with CC 2695	Model Error Detection, Instabilities, Member Design & Smoothing (Part 2)



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ABSTRACTS

CADWORX

Creating 2D Drawing Deliverables - *by Sonia Delgadillo*

Deliverables are an essential part of any project execution, and 2D drawing generation can be extensive especially when there is unfamiliarity with any given work process and tools. AutoCAD Sheet Sets, although often overlooked, is a tool that helps organize and maintain 2D drawing deliverables – it is a simple Sheet Set that manages sections, plans and elevations, whether skewed or orthogonal. In some projects, a basic CADWorx 2D representation is sufficient. In others, a more robust viewing capability is required. That's when the CADWorx VIEWBOX command provides advanced viewing and clipping functionality. Using the right tools in CADWorx can reduce unnecessary project hours spent producing and managing these deliverables. Join us and make sure you are working as efficiently as possible.

The Power of Custom Fields - *by Sonia Delgadillo*

Take full advantage of the extensibility of using CADWorx custom fields by joining this session, which will cover powerful methods in which data can be leveraged. Discover common applications of custom fields in the specs, model, database, reports, and isometrics. Attending this session will give you the necessary knowledge to develop your own strategy to introduce custom fields as part of your workflow and be able to develop your own unique implementation.

Migrating to I-Configure in CADWorx Plant Professional - *by Manohar Boddu*

I-Configure allows you to create and manage isometric directories, projects and styles that are used by CADWorx Plant Professional for generating Isometric drawings automatically. With the new Isogen Control Panel (ICP) in I-Configure you will see how easy it is to customize, configure and create Isometric drawings to your own specifications. You will also see how you can convert old Isogen projects created in Project Manager (PipeMan) to the new I-Configure project without losing old data.

Importing Intelligent CADWorx P&ID data in Your Model and Isometric Drawings - *by Manohar Boddu*

In this track you will see the workflow benefits between CADWorx Plant model and CADWorx P&ID, how the process line list from CADWorx P&ID can be imported into your model, linking P&ID components in the 3D piping model, and how process line data can be populated through ISOGEN automatically.



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CAESAR II

F=KX: How Piping System Response to Load is Calculated in CAESAR II - by David Diehl

This rather basic concept, $F=KX$, is the heart of CAESAR II. Every piping system component in your model is represented as a simple beam in bending using a stiffness matrix; all system boundaries are represented as stiffness vectors. The position of every node in your piping system (X) is then determined using this combined, global stiffness matrix (K) for each loading condition (F). This presentation will walk you through this process and give you a direct path from your input screen to the displacement report in CAESAR II. Such an understanding will be instrumental in setting your expectations from your CAESAR II analysis.

Resolving Non-linear Convergence Issues in CAESAR II - by David Diehl

CAESAR II input includes many non-linear restraint conditions that you may find in the field – liftoff supports, gaps and restraints, friction. In some situations, the interaction of these non-linear conditions and the applied system loads cannot be resolved by iterating through linear assumptions found in the linear, $F=KX$, approach. What do you do then? This session will explain these non-linear convergence issues in CAESAR II and present an approach to resolve the problem.

When the computed stress range varies: Applying existing B31.3 rules in CAESAR II and a new piping code proposal - by Mandeep Singh

Evaluating expansion stress range is, by far, the most common use of CAESAR II. The piping codes establish a limit for this single, calculated stress range to protect against fatigue failure over a planned number of stress cycles. However, the approach is not so clear when there is more than one stress range involved – as in when a CAESAR II model has more than one thermal set for evaluation. B31.3 offers a form of Miner's Rule in equation (1d) to calculate an equivalent number of cycles but its application can prove to be an accounting mess. This presentation will introduce CAESAR II's cumulative fatigue evaluation as simple yet comprehensive satisfaction of this code requirement, and will expand to introduce a proposed B31 approach to address fatigue assessment in high cycle situations such as wave loading on piping in offshore structures.

Analyzing Effects of Soil Parameters on Buried Pipe Analysis and Comparing Analysis Methods using CAESAR II - by Gaurav Bhende

This topic covers the basics of buried pipe analysis and the significance of various soil parameters and their effect on results. The ASME paper, to be presented at the International Oil & Gas Pipeline Conference - 2015 (IOGPC2015) authored by Gaurav shall be discussed. Attendees shall be provided with the relevant handouts which outline solutions of buried pipe analysis using the CAESAR II basic method and the American Lifeline Alliance Method.

Effect of CAESAR II Structural Modeling on Static and Seismic Analysis - by Gaurav Bhende

This topic covers the basics of the CAESAR II structure module; hand calculations showing consistency with CAESAR II results about structure deflection; how to modify site specific spectra for analysis; and comparison of results with the pipe model considering 'support as rigid' and 'support as structure'. Comparison between loads on supports due to static and dynamic analysis and factors affecting it will be discussed.



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PV ELITE

Welded Joint Efficiency - *by Ray Delaforce*

As weld joint efficiency is not generally well understood, this presentation aims to dispel some of the misunderstandings associated with the subject. Applying the correct joint efficiency is also economically important, because the degree of radiography must be applied in conjunction with the selection of a joint efficacy. Join this session to find out more.

Vessel Supports - *by Ray Delaforce*

There are a variety of ways of supporting a vessel, yet some pressure vessel codes do not address this situation. This presentation is a broad overview of these methods, and will discuss some of the key principles behind their design.

Vibration and Seismic Analysis - *by Ray Delaforce*

Earthquakes are almost inevitable in certain parts of the world. In such an event, the ability of the structure (i.e., a pressure vessel) to maintain its integrity is imperative in order to prevent safety and economic issues. This presentation attempts to simply yet accurately show the principals involved in maintaining structure integrity, and demonstrate the use of PV Elite in performing this analysis.

What's New in PV Elite 2015 - *by Rahul Jagannath Malaviya*

This topic will cover the latest features of PV Elite 2015, such as the new 3D PDF modeler; the latest improvements to CodeCalc; and enhancements to the Output Processor. Join this presentation to find out the latest updates for PV Elite in 2015!

Building Thinner Vessel Using ASME Section VIII Division 1 with CC 2695 - *by Rahul Jagannath Malaviya*

More information to follow soon.



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GT STRUDL

GT STRUDL Top 5 differentiators (B. Muniraja) & GT STRUDL CAD Modeler - by Mitch Sklar

Top 5 program differentiators of why you should be using GT STRUDL instead of your current structural analysis packages will be highlighted. In this session we will look various strategies and techniques to help model more efficiently with fewer assumptions.

CAD Modeler 2015 (add-on to AutoCAD®) creates a GT STRUDL Input File graphically and sends it to the main instance of GT STRUDL. Analysis is performed in GT STRUDL (background mode) and then results are available for reading through the GT Menu option of GT STRUDL or back in the CAD Modeler. This session will demonstrate the step-by-step building of a three dimensional structure.

Rigorous Response Spectrum Seismic Analysis with GT STRUDL - by Dr. Leroy Z. Emkin

Standard Response Spectrum seismic analysis procedures have limited capabilities to account for Periodic and Rigid mode responses. GT STRUDL has incorporated the Gupta and Lindley-Yow mode superposition methodologies which provide a far more rational procedure to account for Periodic and Rigid mode responses.

This session will discuss the theoretical basis of the Gupta methodology and other GT STRUDL features that enable structural engineers to perform seismic analysis and design in a highly efficient engineering workflow environment.

Nonlinear Geometric Stability Analysis and its Impact on Steel Frame Design - by Dr. Leroy Z. Emkin

The use of nonlinear geometric stability analysis in the design of steel frame structures is becoming more popular throughout the world. However, what is not well known are the consequences of nonlinear analysis on engineering workflow, time, and cost. This session will discuss a variety of important GT STRUDL features that can be used to mitigate such consequences by improving structural engineering workflow, and by reducing increases in engineering time and cost.

Model Error Detection, Instabilities, Member Design & Smoothing - by Mitch Sklar

GT STRUDL can detect initial rigid body instabilities and provide information regarding the conditions that resulted in instability. In this session we will demonstrate alternative procedures to compute and identify the locations of these rigid body instabilities where most structural analysis programs cannot.

Structural engineering is a result dependent process, meaning design decisions often depend on the review and evaluation of previous results. Following review and demands driven by the stakeholders, modifications, additions, changes, and deletions are often required. In this session we will demonstrate strategies for member design; reanalysis of the current design; review and evaluate against the design criteria; possible alternate designs; and redesign if the relevant design criteria is not met.



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KEYNOTE SPEAKER

William "Billy" Rasco is the Vice President Global Sales of Intergraph CADWorx & Analysis Solutions. William brings with him more than 14 years of experience in sales management plus additional experience as an instructor/piping designer of oil, gas and chemical systems. His most recent position before joining COADE was Sales Manager for ECAD Inc in Midland, Texas. During his 12-plus years with ECAD, Rasco managed the national sales office and also provided client training, consultation and new technology implementations. Prior to ECAD, Rasco worked for CEL/ECAD in Dallas, Texas, as an instructor/piping designer using ADEV, Rebis and AutoCAD products and where he developed company standards, specifications and best work practices to help the company reach its engineering and design goals. His duties at Intergraph include managing the company's global dealer channel, which currently includes Intergraph Global Network Partners and resellers covering 58 countries and six continents.



INSTRUCTORS - FOR ENGINEERS BY ENGINEERS

CADWORX



Sonia Delgadillo is a CADWorx Applications Specialist for the Intergraph CADWorx & Analysis (ICAS) team in Houston, Texas. Sonia joined the ICAS team in January 2009, and is primarily responsible for the Intergraph CADWorx products. Her focus is to help further the technical skills of plant designers and mechanical engineers in their use of design and analysis application systems. She started teaching designers, engineers, owner operators, and EPC firms in 2004 and enjoys empowering users to develop and implement best practices to improve their effectiveness.

Manohar Boddu works for Hexagon Capability Center India Pvt. Ltd. (formerly Intergraph Consulting Pvt. Ltd.) as a Technical Manager, and is primarily responsible for pre-sales demos/business development and post-sales training and support on CADWorx products. Manohar has vast experience in conducting technical presentations/demonstrations and training on Intergraph CADWorx Plant Design Suite to customers. He is a CADWorx enthusiast, and loves to support our customers and dealers using his knowledge about the products. Manohar has successfully helped many customers in India embrace CADWorx as their mainstream plant design software.



CAESAR II AND PV ELITE



David Diehl graduated with a BSME from Lehigh University, Pennsylvania, USA in 1976. Upon graduation he took a post as a Dynaflex technical support representative for Auton Computing in New York City. After four years David relocated to Houston, Texas providing mainframe-based piping system analysis services. In 1986, he took a position at Intergraph CADWorx & Analysis Solutions (COADE, Inc.) introducing and selling CAESAR II, the world's first PC-based pipe stress analysis package. While at ICAS, David earned his Professional Engineering license, served as the CAESAR II product manager, is now the lead instructor for CAESAR II, and manages all training for ICAS. For the last ten years Dave has participated in the B31.3 Section Committee and is the former chair of the Design Task Group there. He also serves as a Director of SPED – the Society of Piping Engineers and Designers.



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With a Master's Degree in Mechanical Engineering from Rice University, **Mandeep Singh** started his career with the Intergraph CADWorx & Analysis Solutions group in 1998. He has experience as a senior developer for both Intergraph PV Elite and Intergraph CAESAR II. Mandeep is currently the Product Manager of CAESAR II and is actively involved in the engineering, development and support of the product. He works with customers to get their requirements, and channel them to the development team and presents sessions and seminars on new developments in the software. Mandeep is currently a member of ASME and is working towards his certification as a Professional Engineer (PE).



Gaurav Bhende is an external consultant for ImageGrafix. With almost 14 years of experience in the oil and gas, process and petrochemical industries he started the engineering consultancy PROTTON ENGINEERING in 2015, which provides specialized solutions in piping/pipelines stress analysis (static and dynamic) and design. Gaurav has been conducting corporate trainings in leading EPC companies since 2009. He has presented white papers in international conferences, including ASME conferences and played a key role in establishing and leading stress engineering groups in WorleyParsons, Abu Dhabi and Mott MacDonald, Mumbai. He is a Member of the American Society of Mechanical Engineers and a Member of the Institute of Engineers – India. He was also awarded first prize in the “Drivers of Success” competition in 2011 and 2012, hosted by Intergraph, and participated in HxGN Live 2013 as a speaker on the topic “Effect of Modeling Supports with CII’s Structural Module on Static and Seismic Analysis”.

Ray Delaforce has a career that spans over 50 years and has had the opportunity to travel to many regions and experience the varied ways in which people approach their design engineering problems. In the past, as a certified vessel inspector, he has always attempted to merge pragmatism with design requirements to help customers achieve efficient and safe designs. This has allowed him to expand his horizons and gain a well-rounded perspective on a number of industry subject matters.

Ray has often spoken and instructed at a number of leading industry events and conferences, and is a registered PrTech (Mech) - Professional Technologist Mechanical with The Engineering Council of South Africa (ECSA). He is currently working as an Engineer for Intergraph PV Elite.



Rahul Jagannath Malaviya is the Product Manager for Plant Design Solutions at ImageGrafix Engineering Services Pvt. Ltd. He holds a Bachelor of Technology in Mechanical Engineering from Noida Institute of Eng. and Tech. (N.I.E.T.) . Rahul is a seasoned Piping and Static Equipment Engineer with 10 years of experience as a piping engineer and pressure vessel engineer. He is responsible for product demonstrations, training and end user support for CAESAR II, PV Elite & TANK Software.



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GT STRUDL



Mitchell Sklar is a registered professional engineer with extensive project background and situational knowledge of design, analysis, and construction. He has over 25 years of evaluative expertise (Structural, Pipe Stress, and Finite Element Analysis), as well as project management, and construction management experience in the design and analysis of commercial and industrial vertical structures, along with stress analysis and design of high temperature/high pressure piping systems.

Mitchell is currently our resident GT STRUDL, CAESAR II, PV Elite, and TANK Analysis Solutions Expert with managing responsibility of analysis & design support for the sales team and developing the business strategy of the Structural/CAE Applications and support a global product utilization.

Dr. Leroy Emkin is a registered Professional Engineer and former Professor of Civil/Structural Engineering at Georgia Tech. Dr. Emkin was the Founder and Co-Director of the Computer Aided Structural Engineering ("CASE") Center at Georgia Tech, and is currently Executive Technical Director, GT STRUDL at Intergraph Corporation's Process, Power & Marine Division. Dr. Emkin's expertise is in the areas of structural systems engineering, linear and nonlinear static and dynamic analysis, large-scale engineering software development, and nuclear power industry Quality Assurance and Quality Control regulations and procedures as they apply to structural engineering software.



B. Muniraja is a registered Chartered Engineer & Valuer, with extensive experience in providing computerized software solutions to complex structural engineering problems. He has formerly worked as a Country Manager for a GT STRUDL authorized dealer in India and has served an Indian engineering fraternity by providing technical support and training on engineering software and complete solutions. Mr Muniraja has over 20+ years of experience in Structural Modelling, Static, Dynamic, and Finite Element analysis for industrial applications, and has acted as a consultant by providing engineering solutions for reputed projects in India. He is currently heading ANM Construction Technologies by providing complete reinforcement solutions for the Indian Construction Industry and is a consultant for GT STRUDL, Image Graphics Engineering Services Pvt. Ltd.



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VENUE DETAILS



MUMBAI - MARCH 23

Grand Hyatt Mumbai is a 5-star hotel seamlessly connected to all of the airports in Mumbai.

Address: Off Western Express Highway, Santacruz East, Mumbai - 400055, India

How to get there: Only a 10 minute drive from the Domestic Airport and the Mumbai International Airport.



CHENNAI - MARCH 25

Hyatt Regency Chennai is an authentic 5-star hotel located in the heart of Chennai on the iconic Anna Salai.

Address: 365 Anna Salai, Teynampet, Chennai, Tamil Nadu - 600 018, India

How to get there: The hotel is just a 20 minute drive from the international airport and a 15 minute drive from the central station.



NEW DELHI - MARCH 27

Hyatt Regency Delhi is one of the finest 5-star hotels in Delhi which is located in the city's central business district.

Address: Hyatt Regency Delhi, Bhikaiji Cama Place, Ring Road, New Delhi - 110 066, India

How to get there: A 20 minute drive from the Indira Gandhi International Airport.