

Monza, 24 Luglio 2014

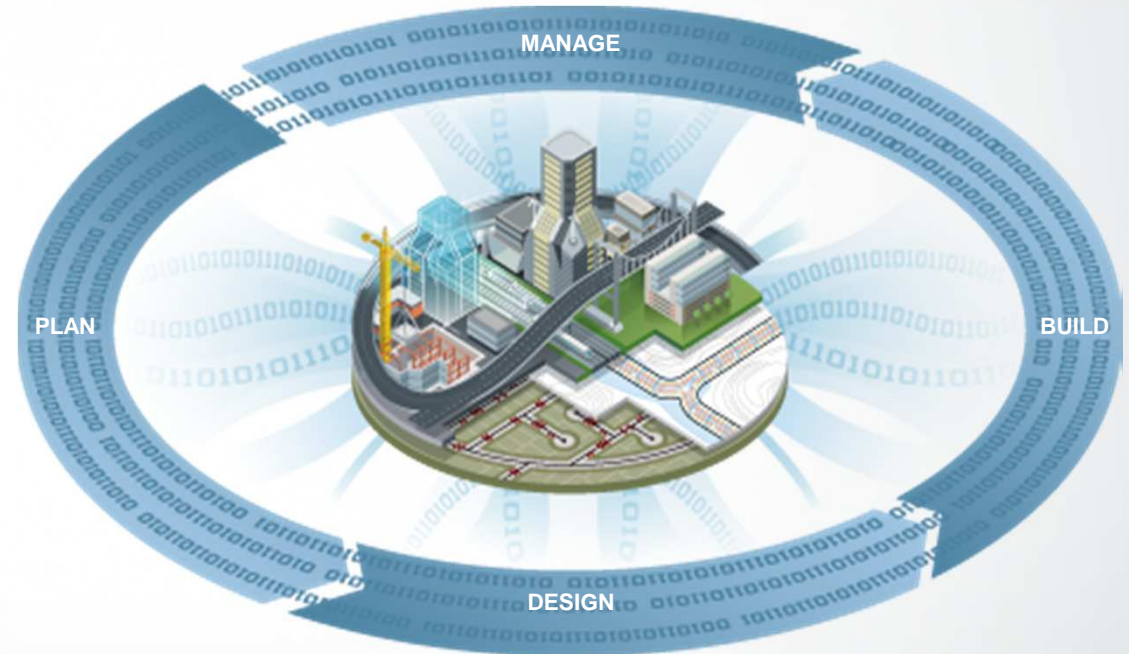
Il BIM nel processo edilizio: architettura, strutture e impianti. *Progettare, costruire e mantenere.*

Cesare Caoduro

BIM Senior Technical Specialist - Construction

Il Building Information Modeling sta trasformando il mercato AEC perchè costituisce un processo 3D intelligente basato sulla modellazione

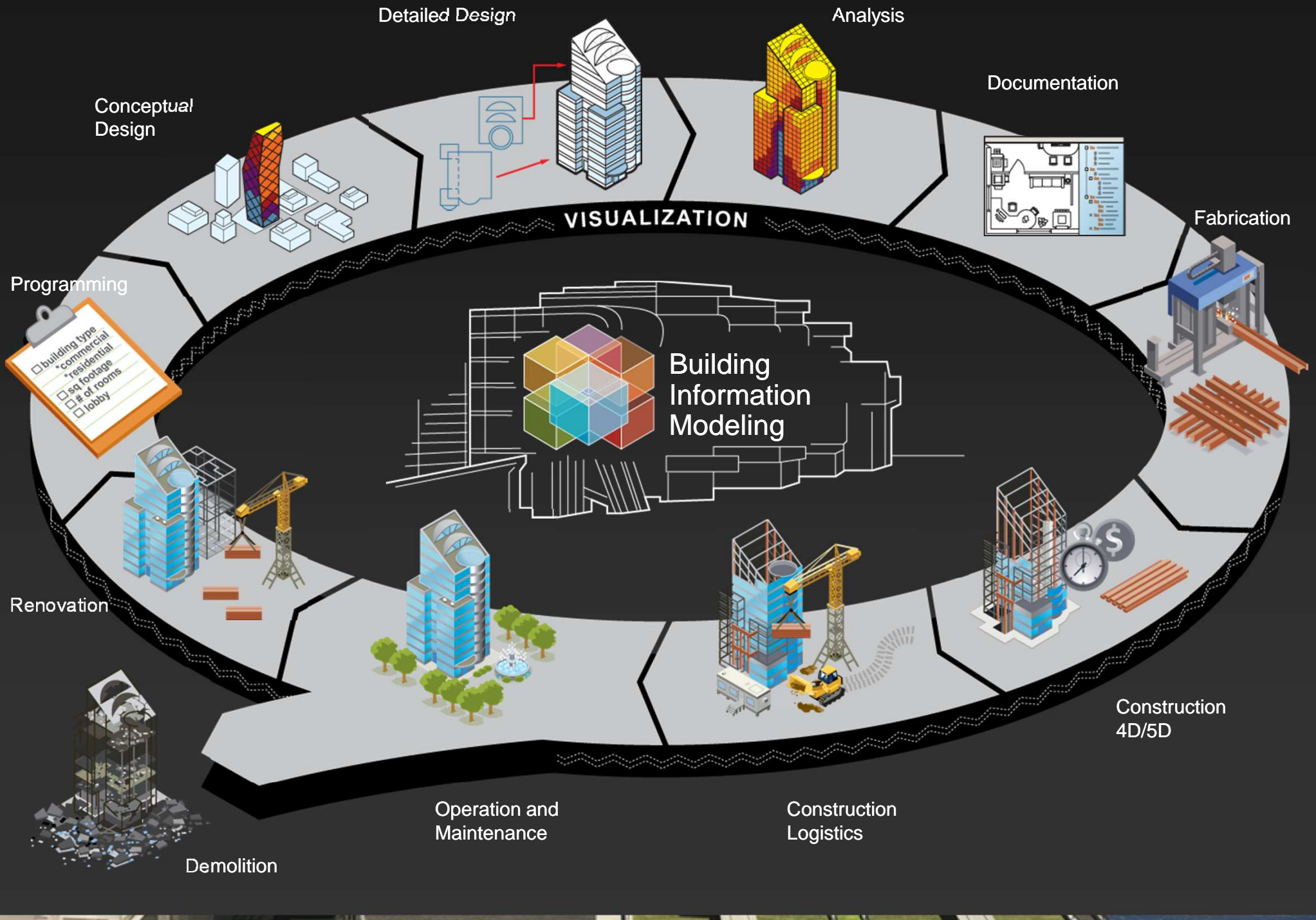
I prodotti Autodesk AEC costituiscono un passo fondamentale nell'evoluzione da una metodologia tradizionale basata su disegno ad una progettazione basata su modello ***riguardante tutte le fasi di vita del progetto***



Building Information Modeling: *un nuovo approccio progettuale*

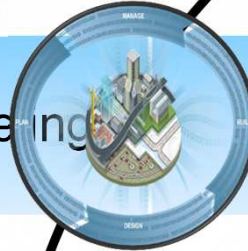
Definizione:

il BIM è una *metodologia di lavoro* che presuppone la creazione e l'utilizzo di *informazioni computabili coordinate e internamente coerenti* relative al progetto di un edificio in tutte le fasi di vita del progetto.



Industry Trends

Building Information Modeling



How will changes in the global economy – it's form, function, success and failure affect Construction...?

Globalization



What of *"Tomorrow's People"* – how will they play, live and work; what will their cities be like, how will the digital generation shape Construction...

Green Mandates



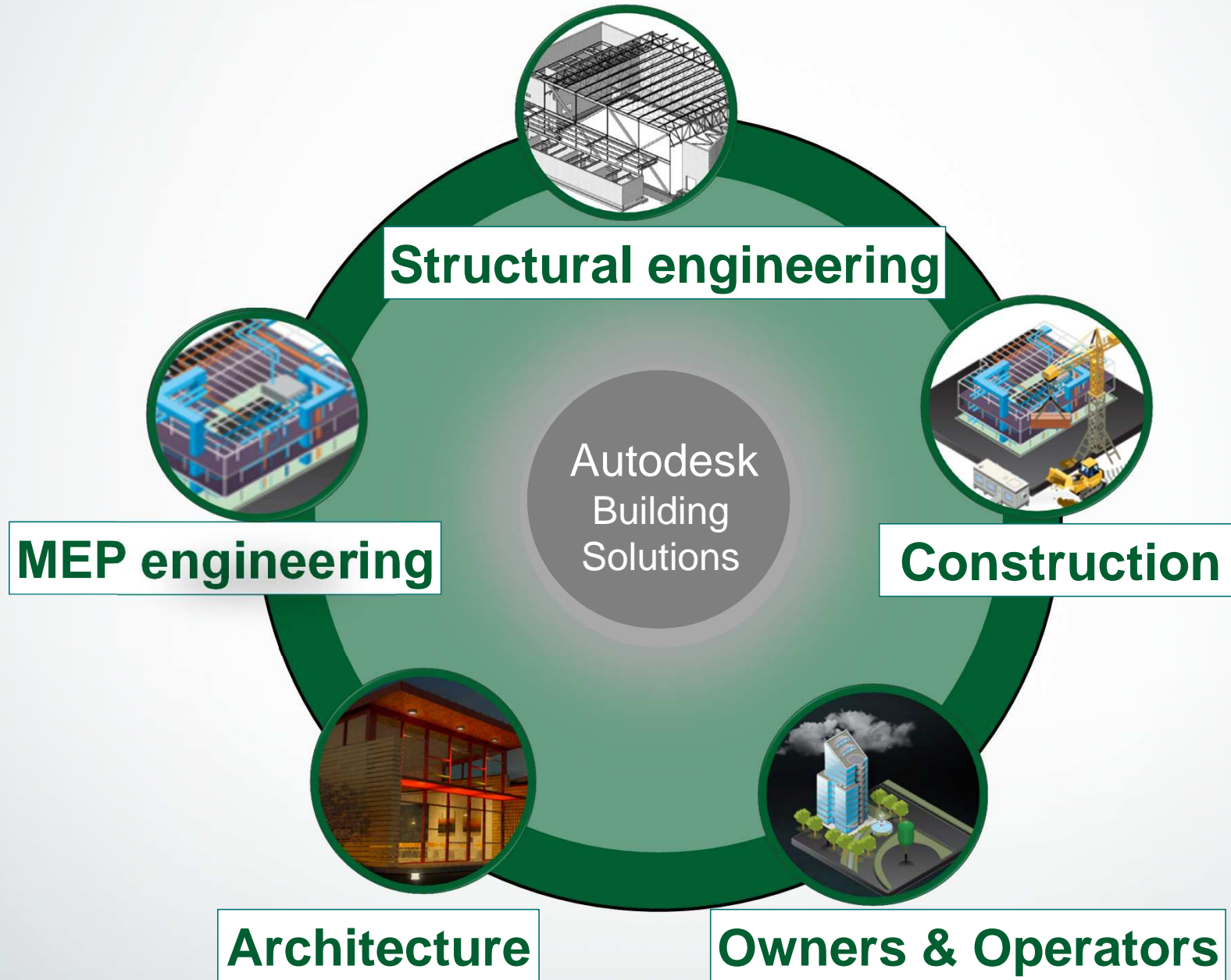
How will Construction address the infrastructure challenges of the growing global community and do that in a responsible manner...?

Integrated Project Delivery



From the death of data, through the rise of information, to the age of knowledge...!

BIM – Nuovo Approccio alla Progettazione



Autodesk Solution

3DS Max Design
Produce compelling visualizations to market your designs

Showcase
Transform your designs into immersive, interactive presentations



AutoCAD
Design and share drawings in the DWG™ file format

AutoCAD Verticals
Versions of AutoCAD specifically created for building

Revit Family
Create better buildings with intelligent 3D-model based design

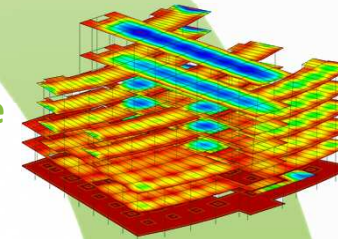
Autodesk ReCap
Autodesk ReCap allows architects, engineers and contractors to create intelligent 3D data from laser scans and captured photos.



Visualize

Design

Analyze



Revit Family
Building Information Modeling for architects, engineers and contractors

Navisworks
Simulate project sequencing to better coordinate your project sites

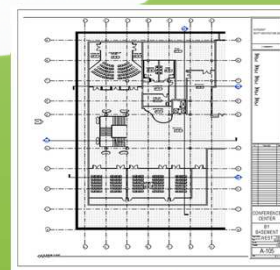
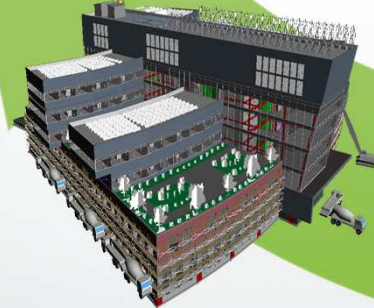


Build

Document

Navisworks
Integrate 3D models and multi-format data, help coordinate designs and resolve conflicts.

Autodesk ReCap
Autodesk ReCap contractors to verify actual construction against their digital models



AutoCAD
More Accurately document and share drawings in the DWG™ file format

AutoCAD Verticals
Efficient documentation with versions of AutoCAD specifically created for building

Revit Family
Keep your project documentation coordinated and consistent with Building Information Modeling



Architettura



Architettura

EMEA CHANNEL SUMMITS FY14



Il flusso di lavoro Architettonico

Il processo di progettazione



Le attività

Schizzare piante
Schizzare prospetti
Schizzare prospettive

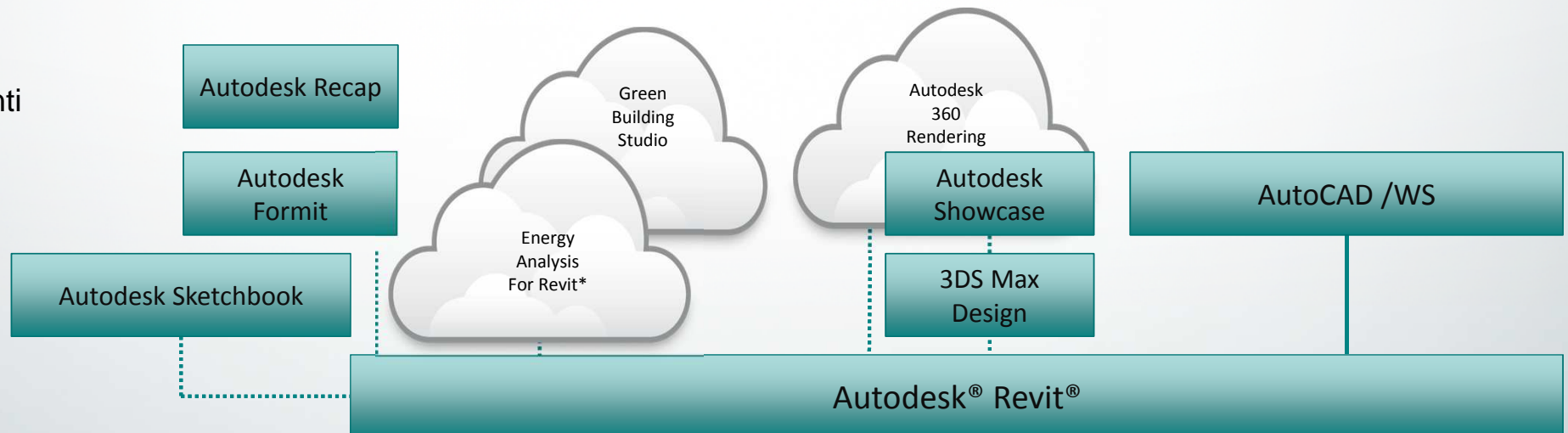
Creare masse
Creare un modello energetico
Condurre analisi concettuali energetiche
Calcolare il consumo di CO2 e acqua

Sviluppare un modello 3D
Creare un rendering iniziale

Esplorare alternative
Sviluppare animazioni
Finalizzare il rendering
Finalizzare le animazioni

Produrre formati DWG secondo le richieste

Gli strumenti Autodesk



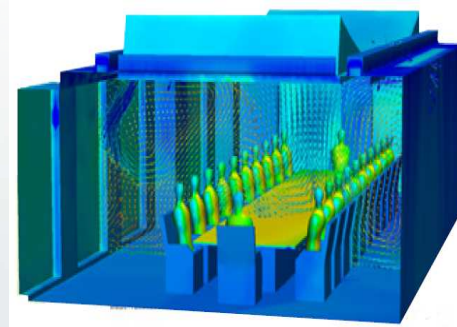
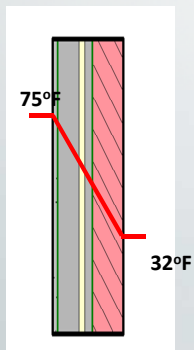
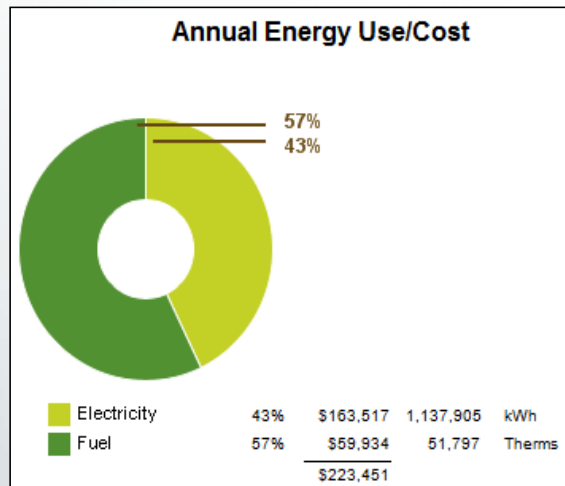
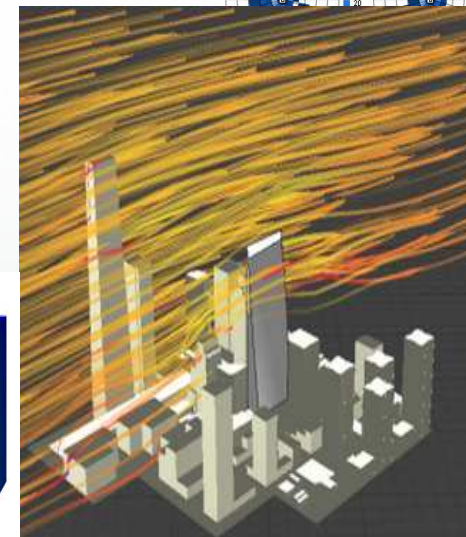
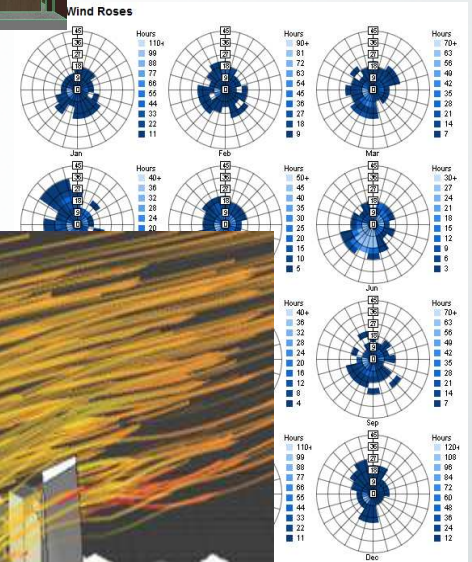
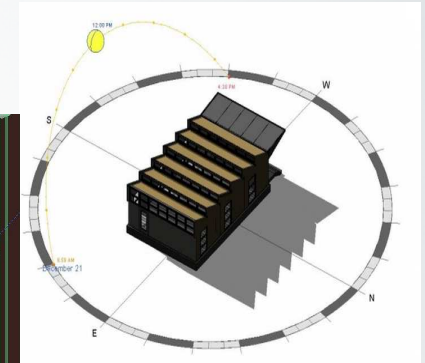
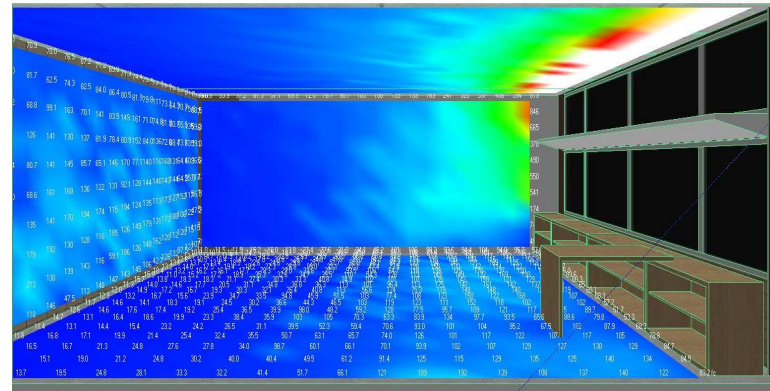
#. Analisi della performance energetica

Che cosa si intende per Analisi delle Prestazioni?

BPA è un **processo** che comporta l'applicazione di **software di modellazione e simulazione** che fornisce intuizioni univoche in una vasta gamma di **problemi di qualità ambientale e energetica** durante **l'intero ciclo di vita dell'edificio**, al fine di contribuire a **fornire prestazioni superiori a costi inferiori con maggiore certezza.**

Portfolio Autodesk nel settore energetico

Ecotect
 Green Building Studio
 Vasari
 3DS Max Design
 Simulation CFD
 Falcon Revit Add-in
 Revit MEP Heating & Cooling Load Calculations
 Revit Energy Analysis



Standard e norme di riferimento



BREEAM[®]

greenstar



ANSI/ASHRAE Standard 90.1-2007
(Supersedes ANSI/ASHRAE/IESNA Standard 90.1-2004)
Includes ANSI/ASHRAE/IESNA Addenda listed in Appendix F

ASHRAE STANDARD

Energy Standard for Buildings Except Low-Rise Residential Buildings

I-P Edition

See Appendix F for approval dates by the ASHRAE Standards Committee, the ASHRAE Board of Directors, the IESNA Board of Directors, and the American National Standards Institute.

This standard is under continuous maintenance by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. The change submittal form, instructions, and deadlines may be obtained in electronic form from the ASHRAE Web site, <http://www.ashrae.org>, or in paper form from the Manager of Standards, The latest edition of an ASHRAE Standard may be purchased from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2306. E-mail: orders@ashrae.org. Fax: 404-321-5478. Telephone: 404-636-8400 (worldwide), or toll free 1-800-527-4723 (for orders in US and Canada).

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www.iesna.org

ANSI
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www.ansi.org

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www.ashrae.org

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HM Government

The Building Regulations 2000

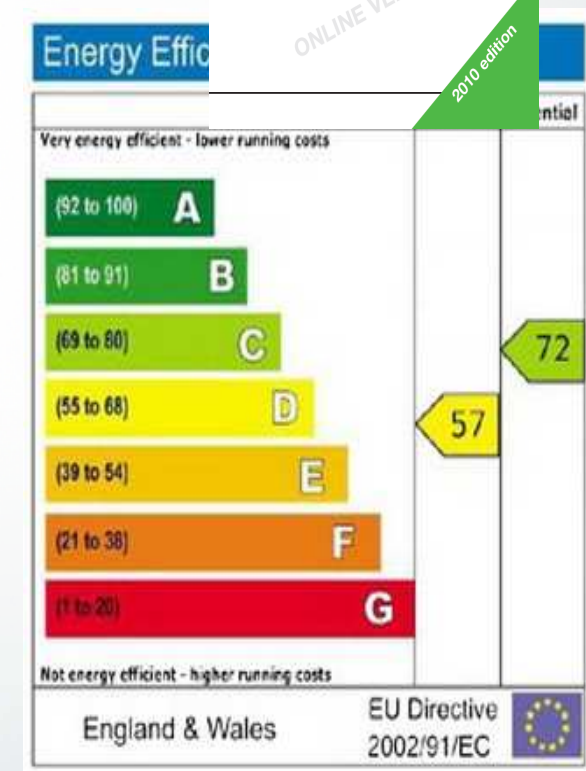
Conservation of fuel and power

L2A

APPROVED DOCUMENT

L2A Conservation of fuel and power in new buildings other than dwellings

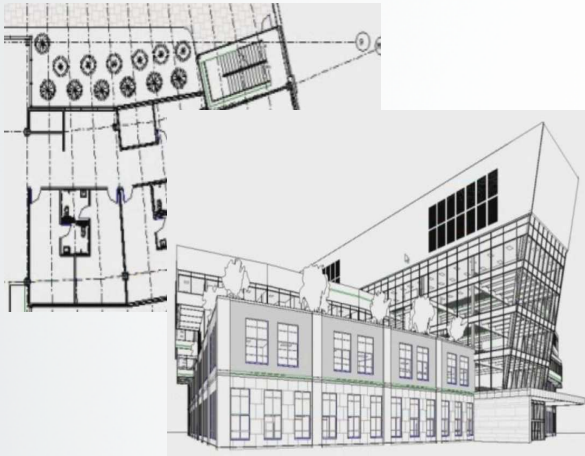
Coming into effect 1 October 2010



Perchè una analisi energetica?

– Sfide e opportunità

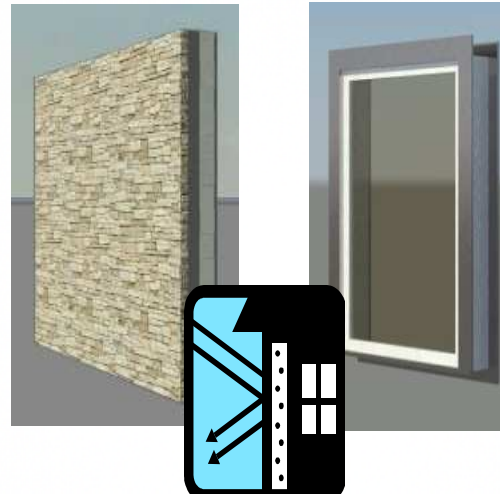
Forma



Area Forma Orientamento

Ombreggiatura Finestratura

Materiali

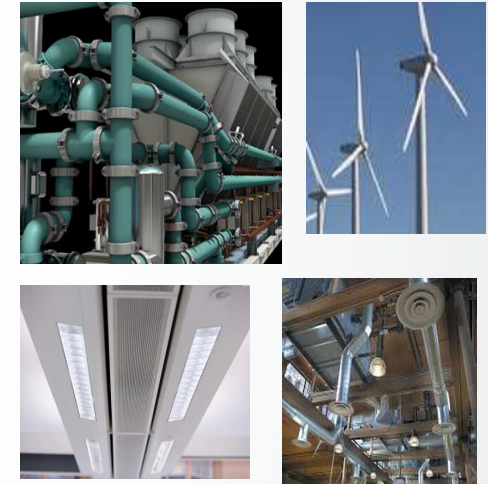


Isolamento

Controllo solare

Massa termica Ermeticità

Impianti



Impianti meccanici Illuminazione

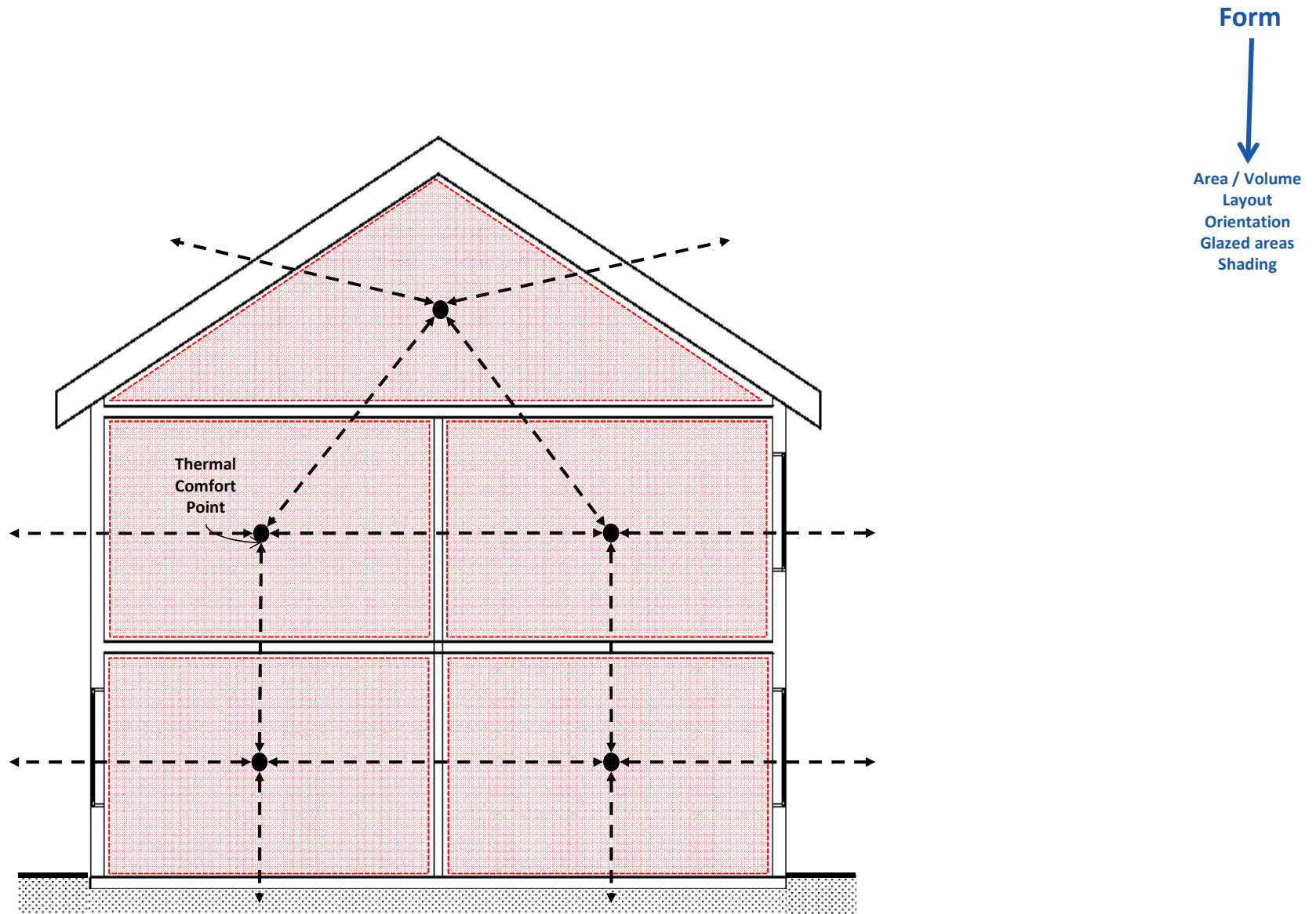
Potenza Rinnovabili Controlli

Componenti chiave della progettazione energetica

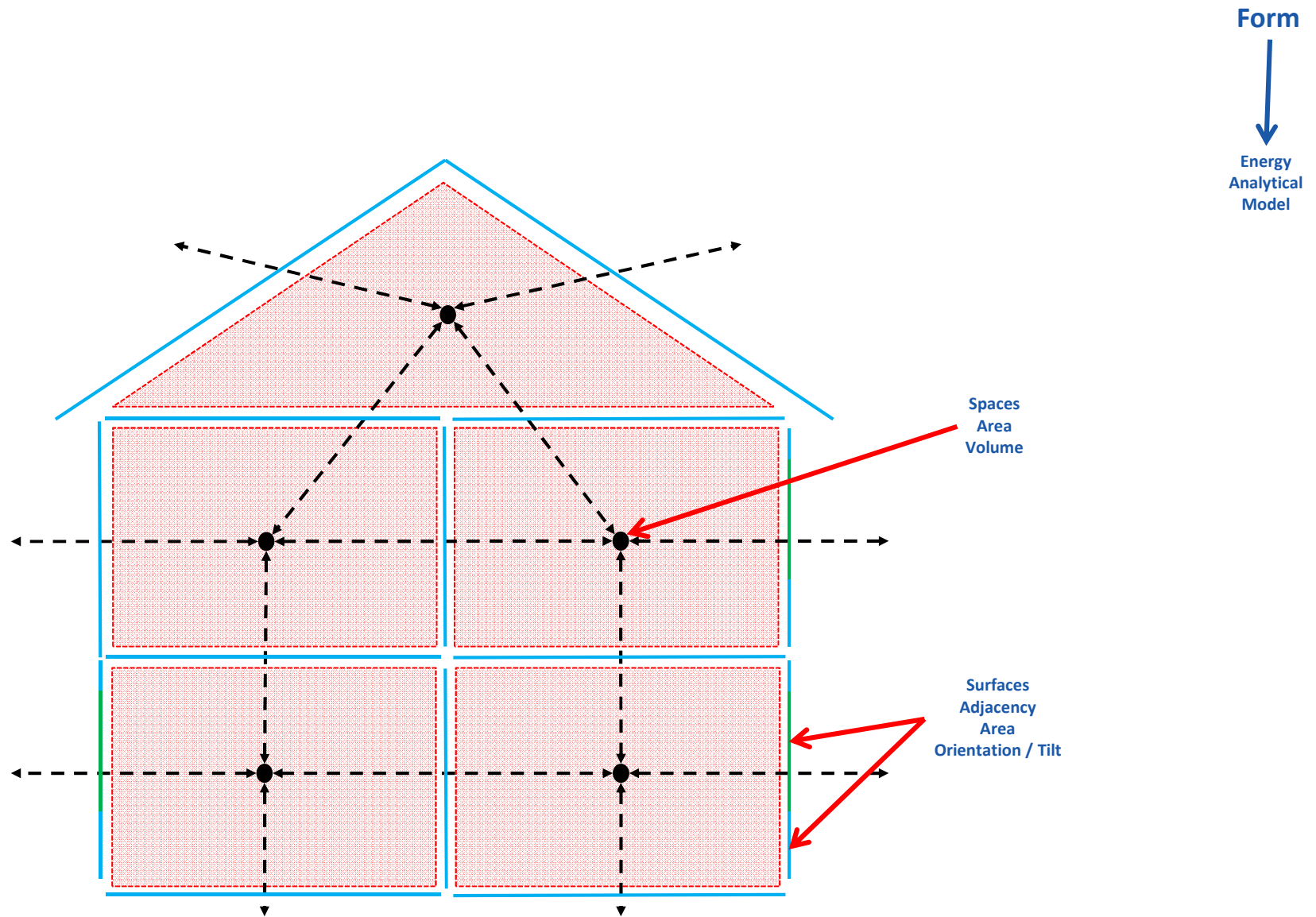
*** Virtualmente tutti impattano l'utilizzo energetico quindi sono elementi chiave per l'analisi***

Cosa intendiamo noi per Energy Analysis (EA)?

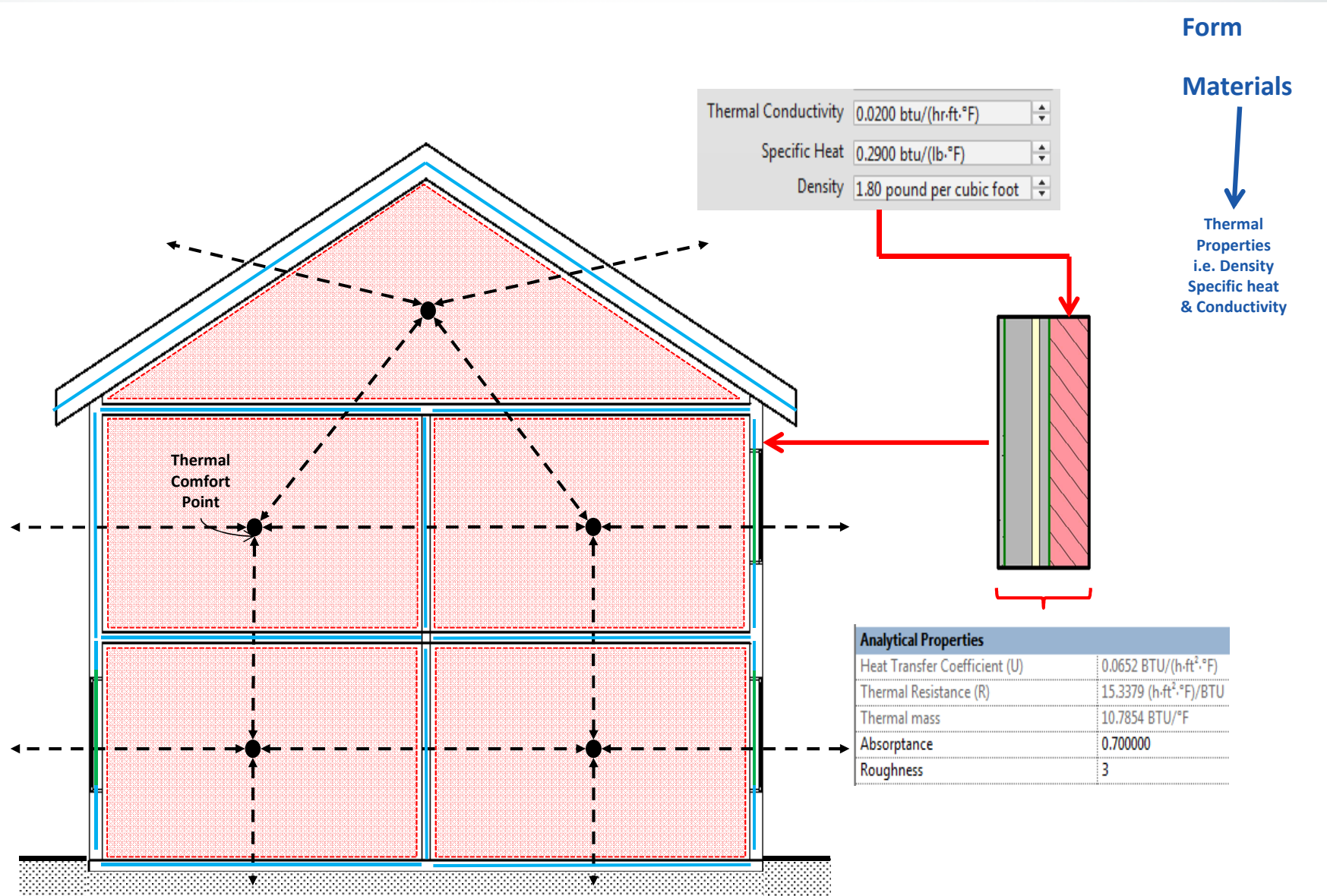
Componenti di una simulazione energetica dinamica



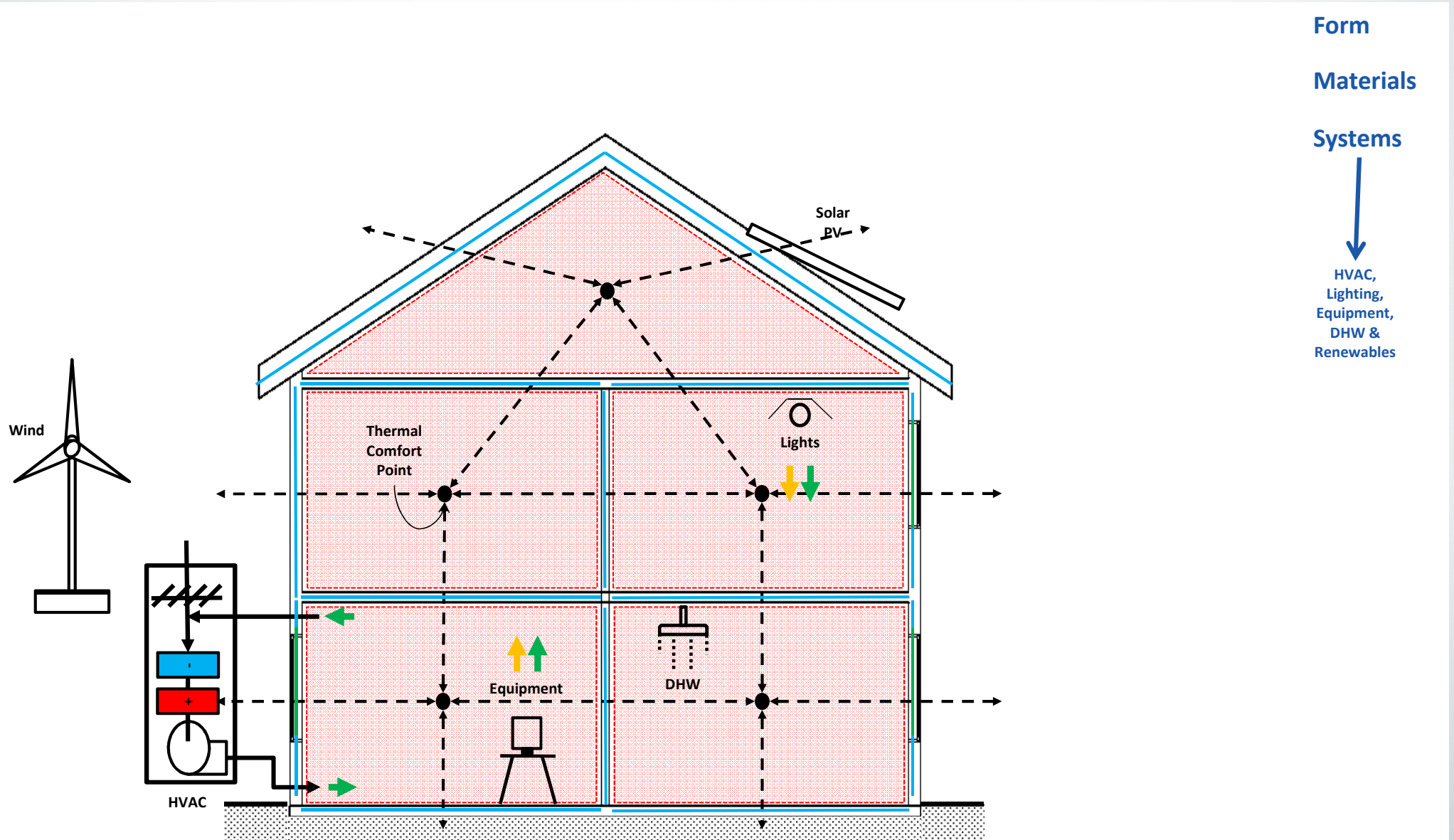
Componenti di una simulazione energetica dinamica



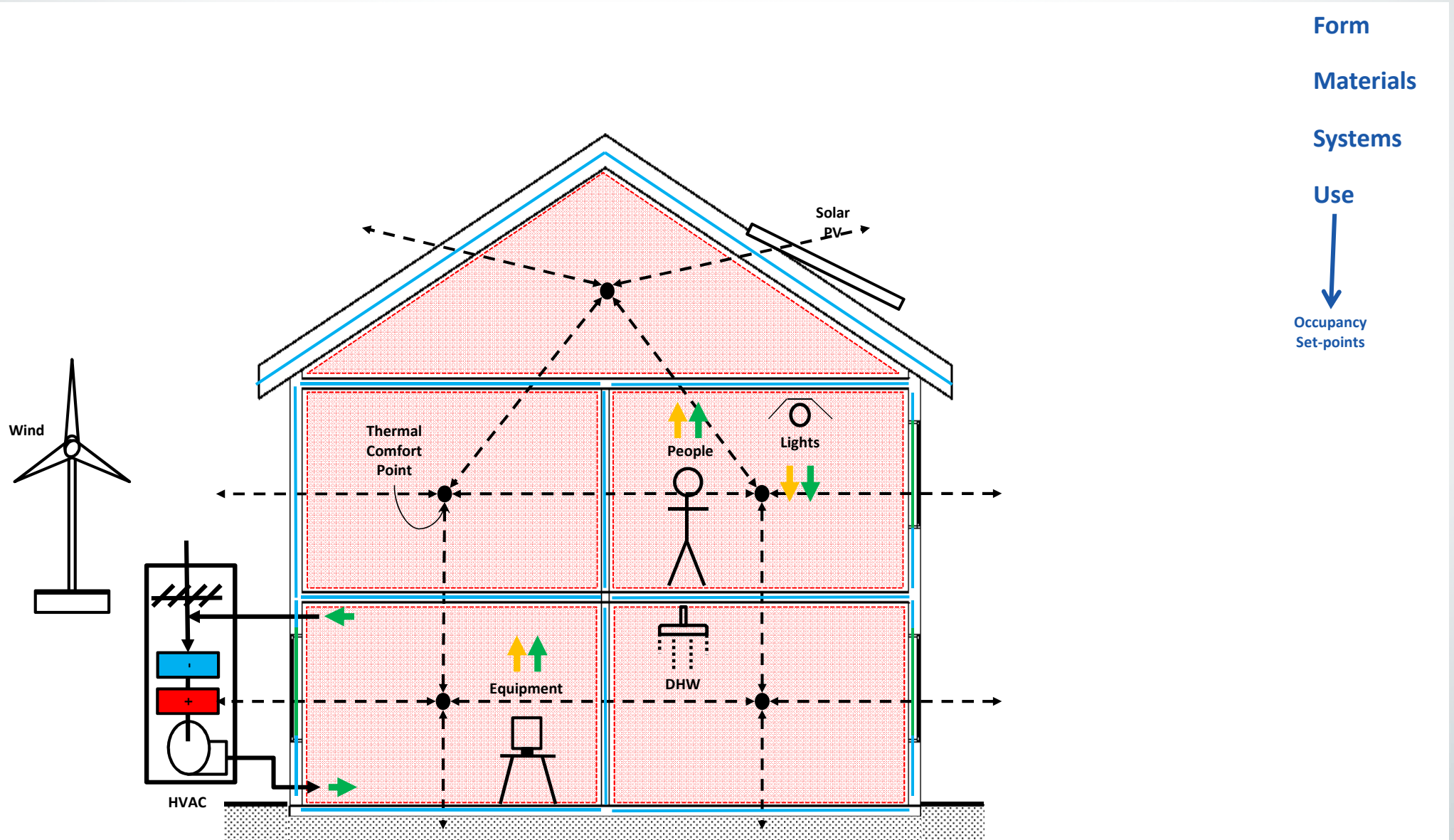
Componenti di una simulazione energetica dinamica



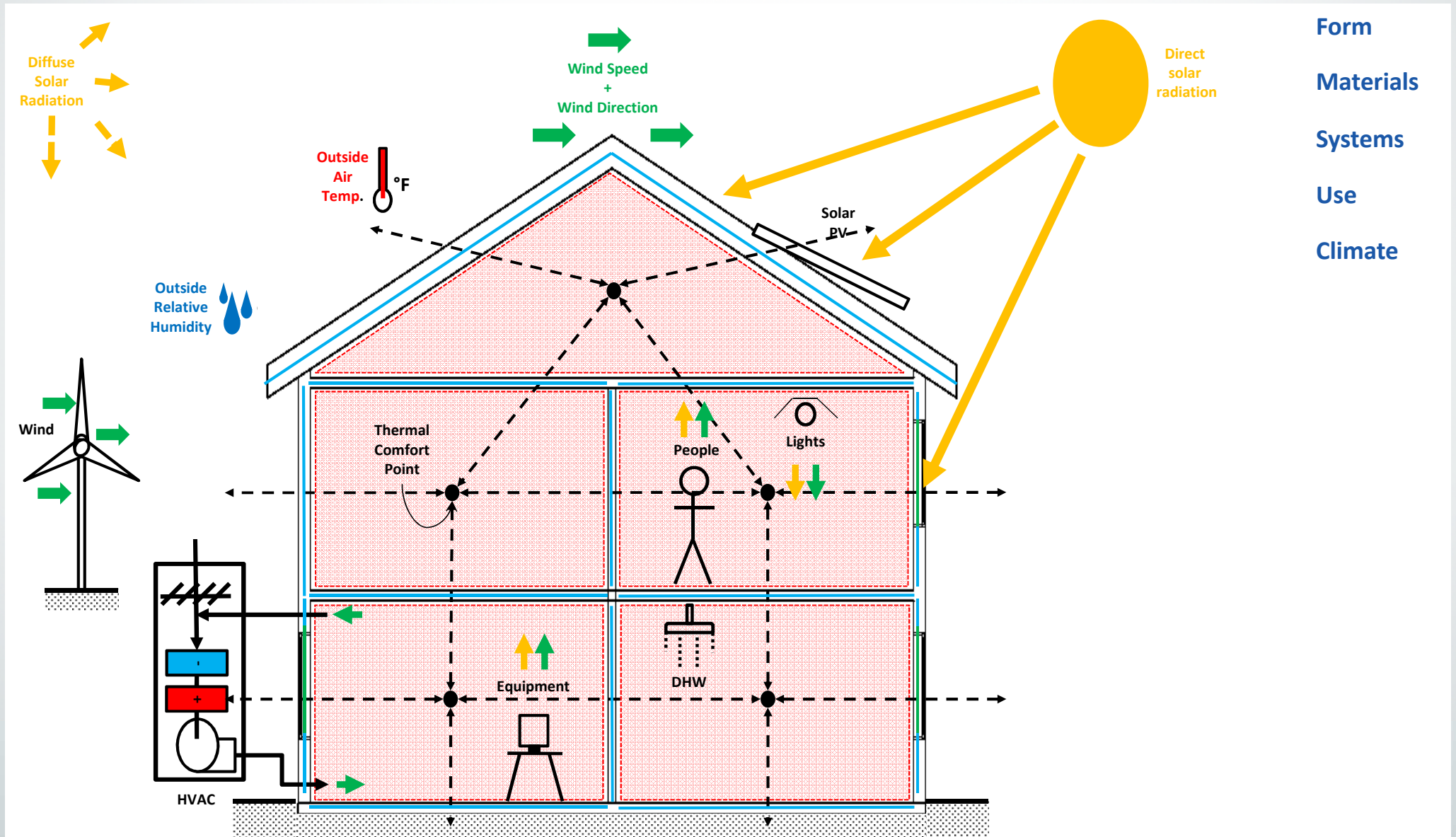
Componenti di una simulazione energetica dinamica



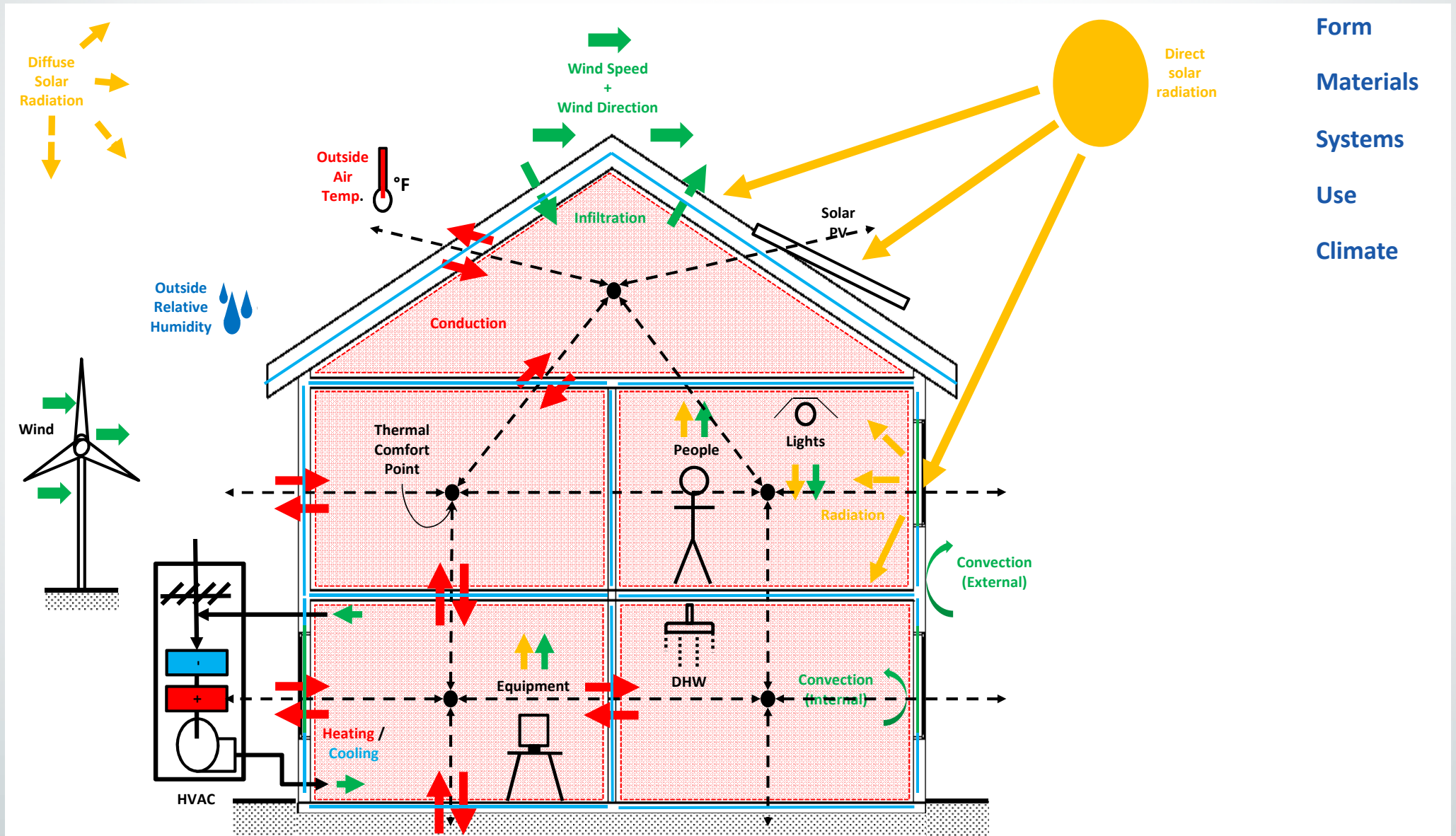
Componenti di una simulazione energetica dinamica



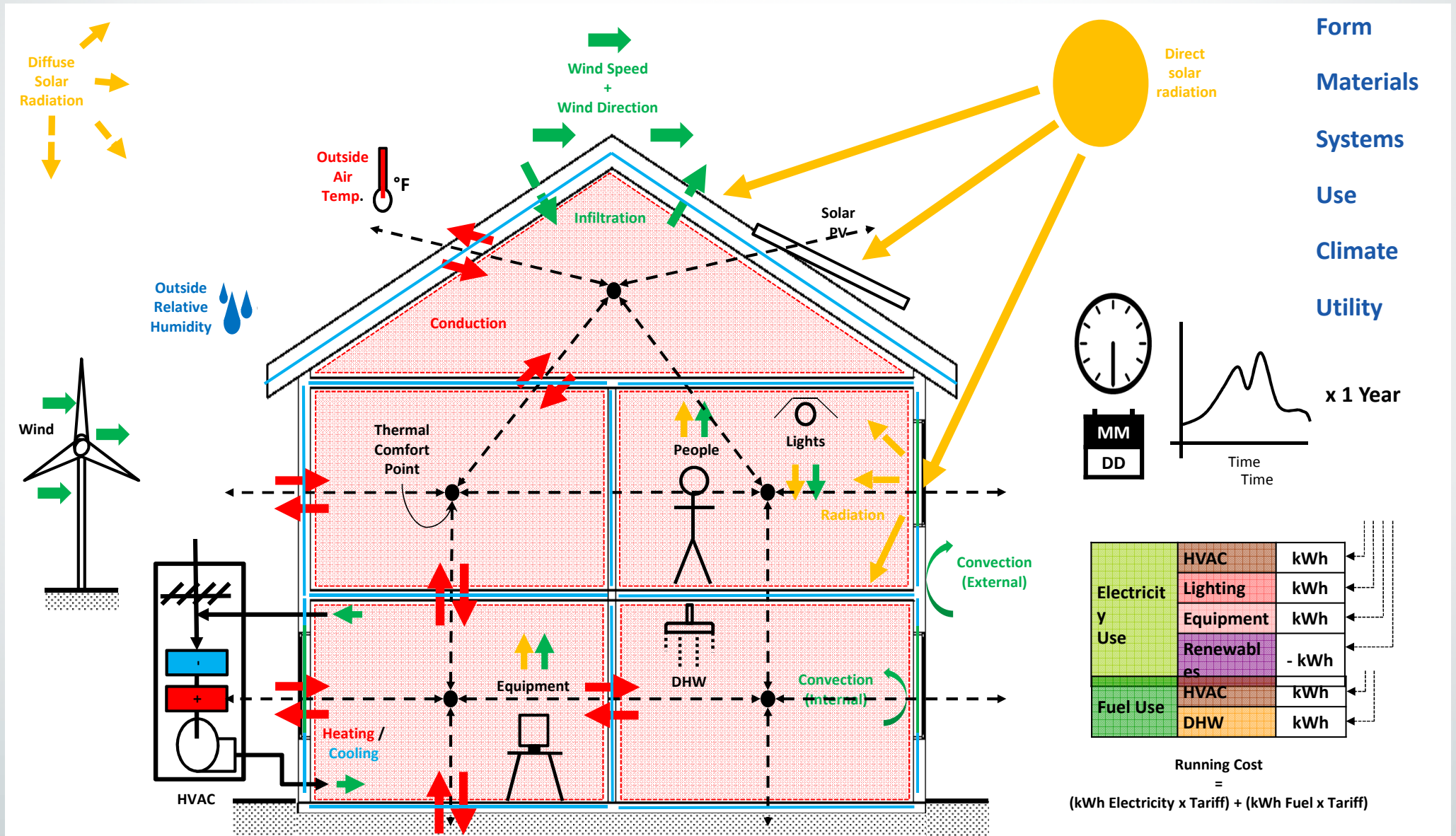
Componenti di una simulazione energetica dinamica



Componenti di una simulazione energetica dinamica

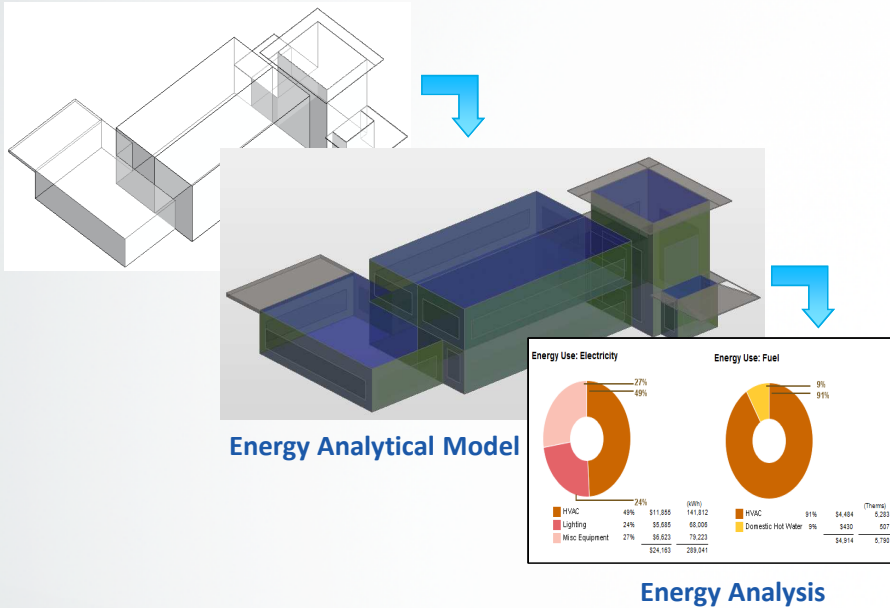


Componenti di una simulazione energetica dinamica

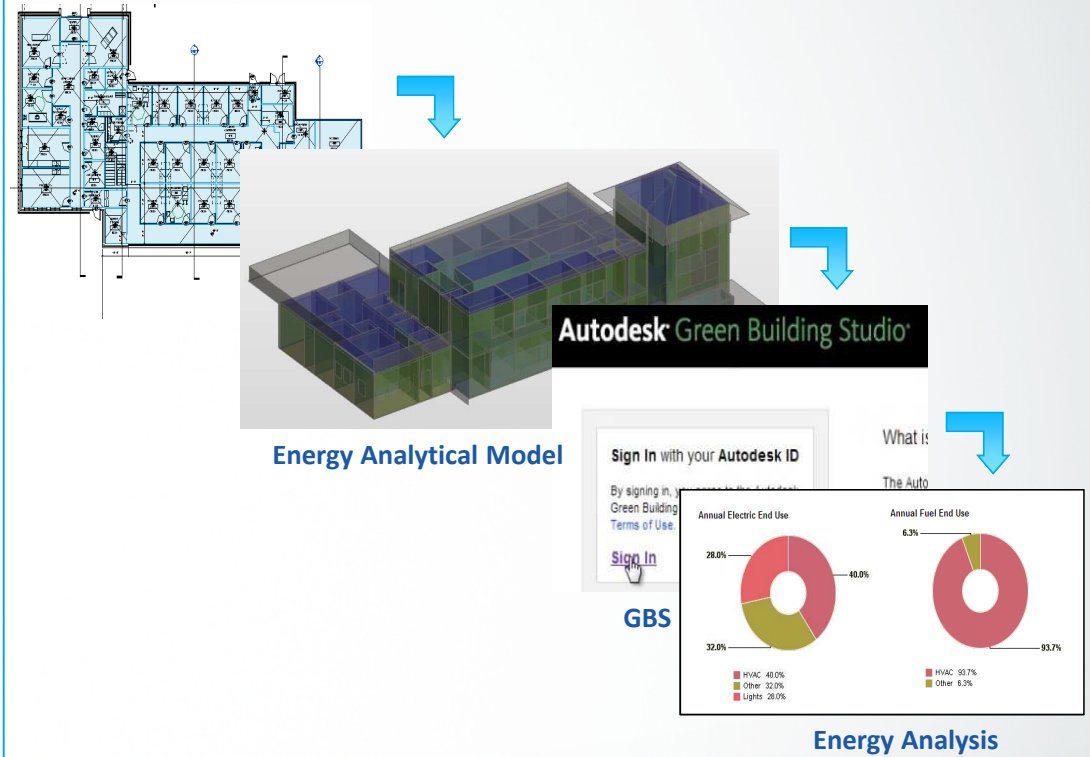


Caratteristiche e workflow delle tipologie di analisi energetiche

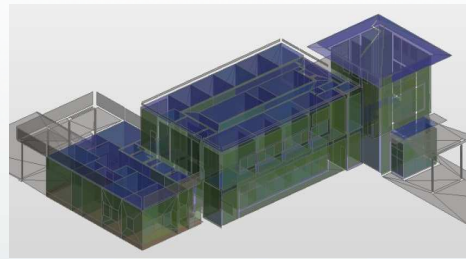
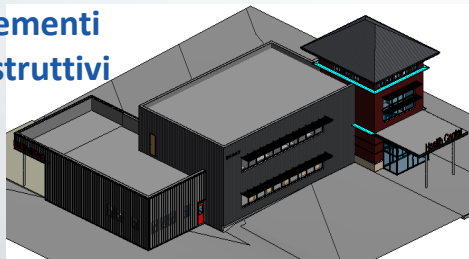
Elementi di massa concettuali



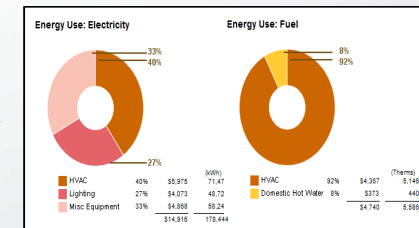
Elementi stanza, area



Elementi costruttivi



Energy Analytical Model

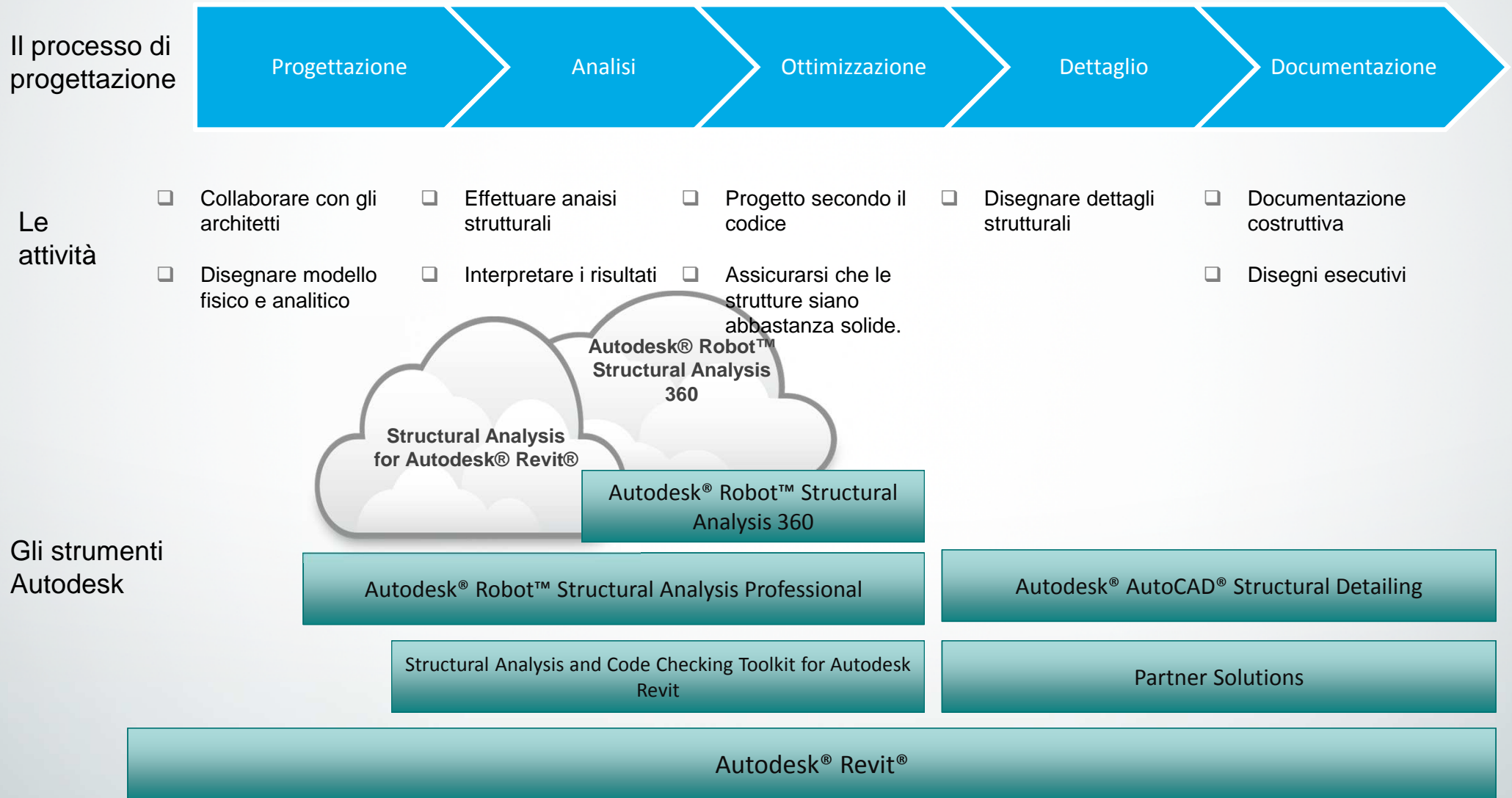




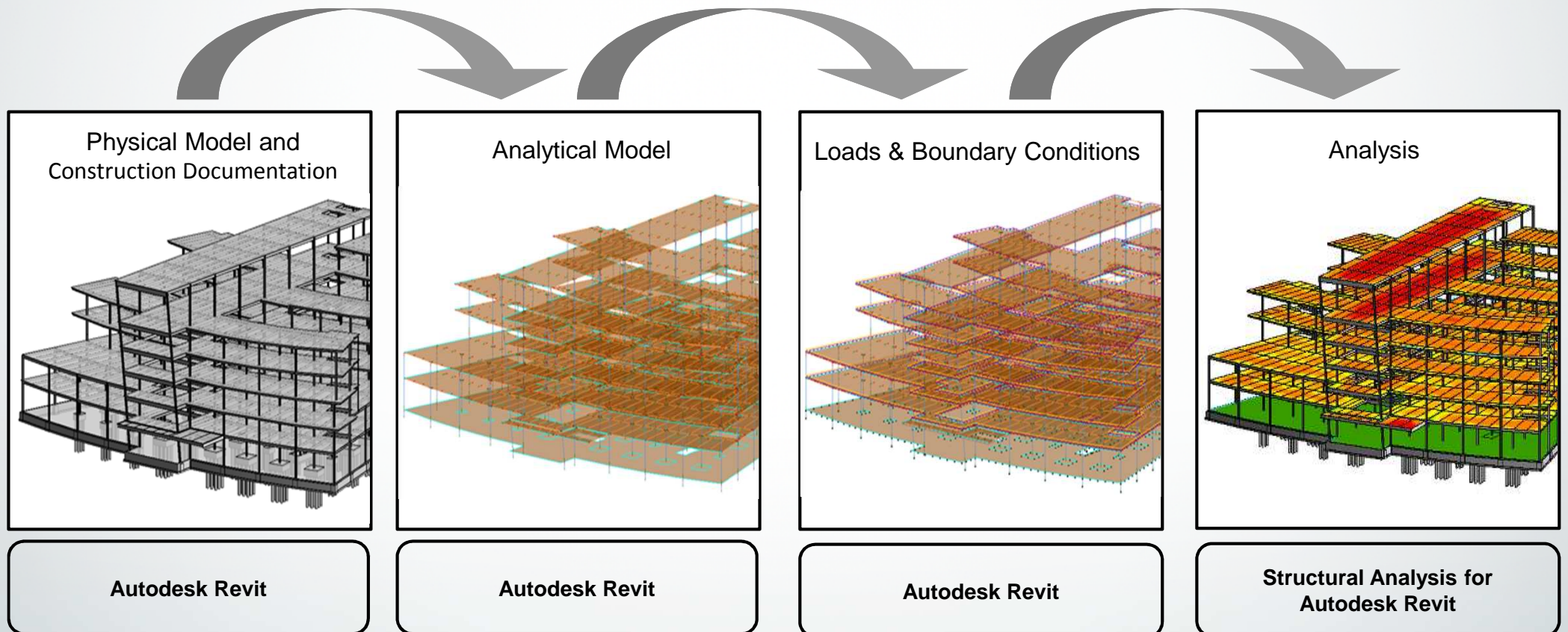
Ingegneria strutturale



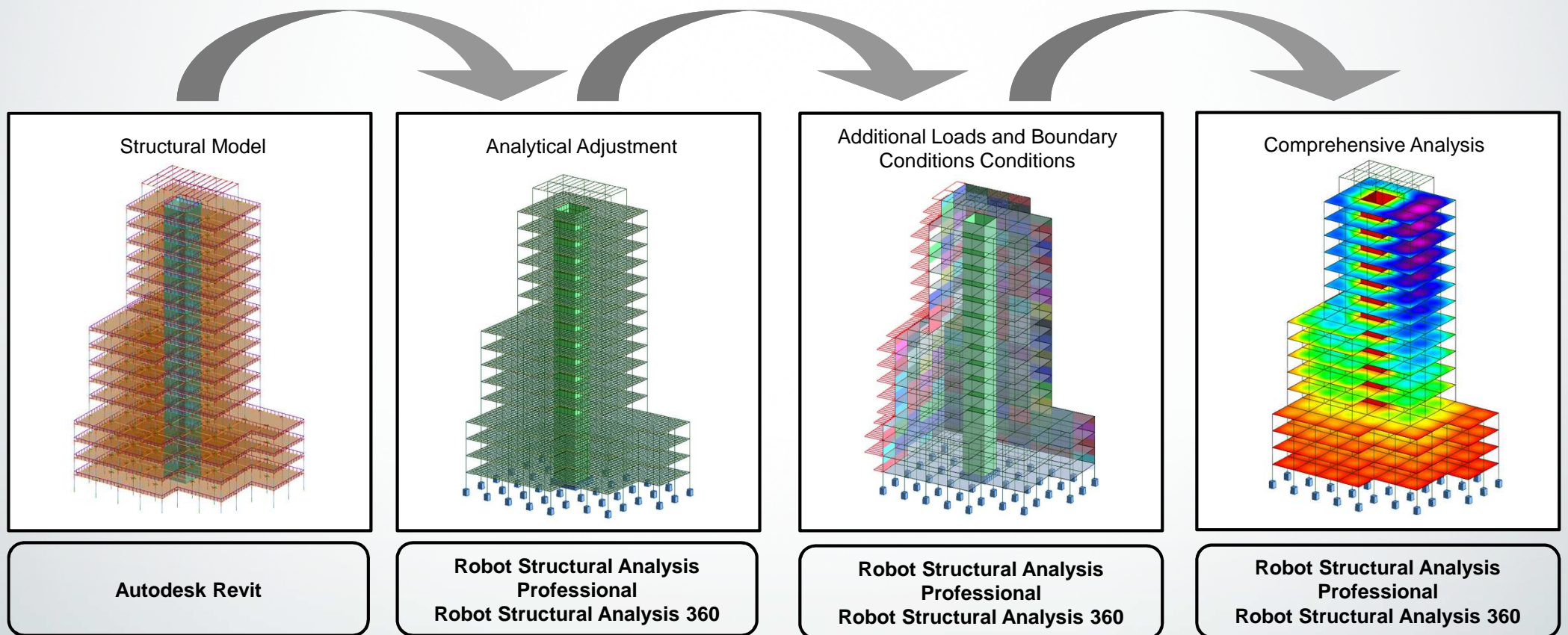
Il flusso di lavoro Strutturale



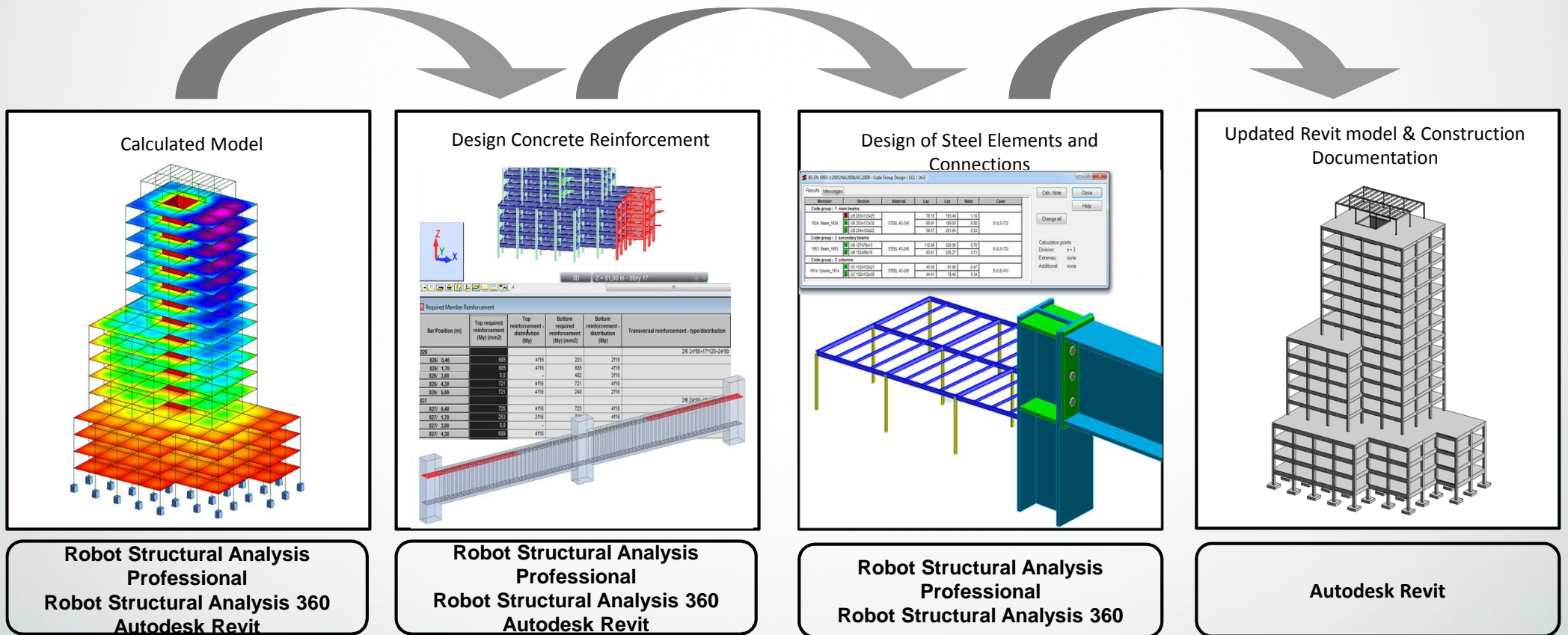
Il flusso di lavoro Strutturale preliminare



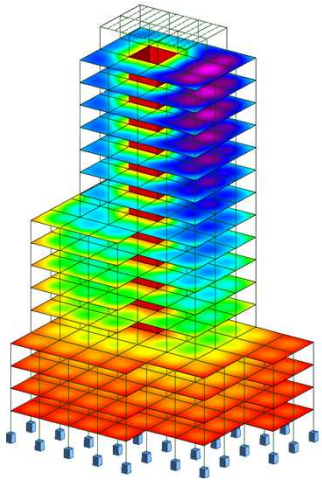
Il flusso di lavoro Strutturale avanzato e di dettaglio



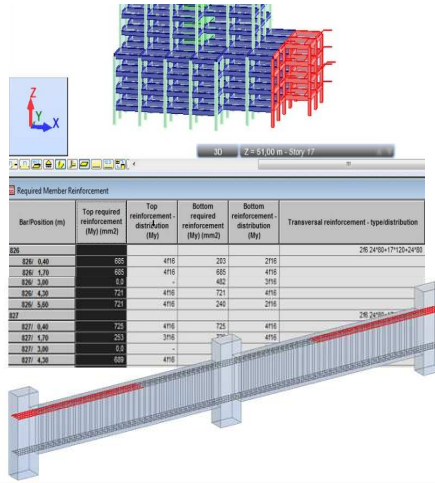
Il flusso di lavoro Strutturale di progetto e ottimizzazione



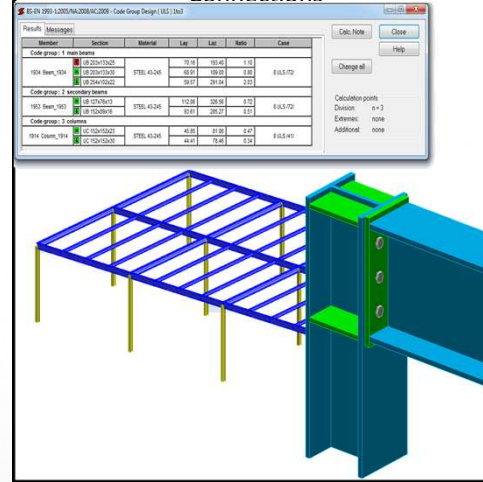
Calculated Model



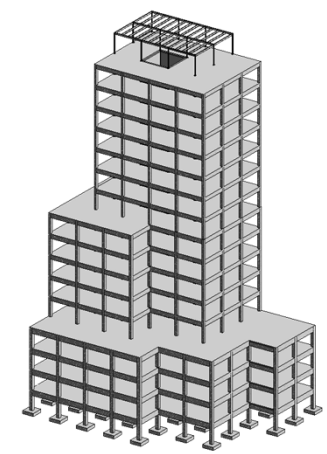
Design Concrete Reinforcement



Design of Steel Elements and Connections

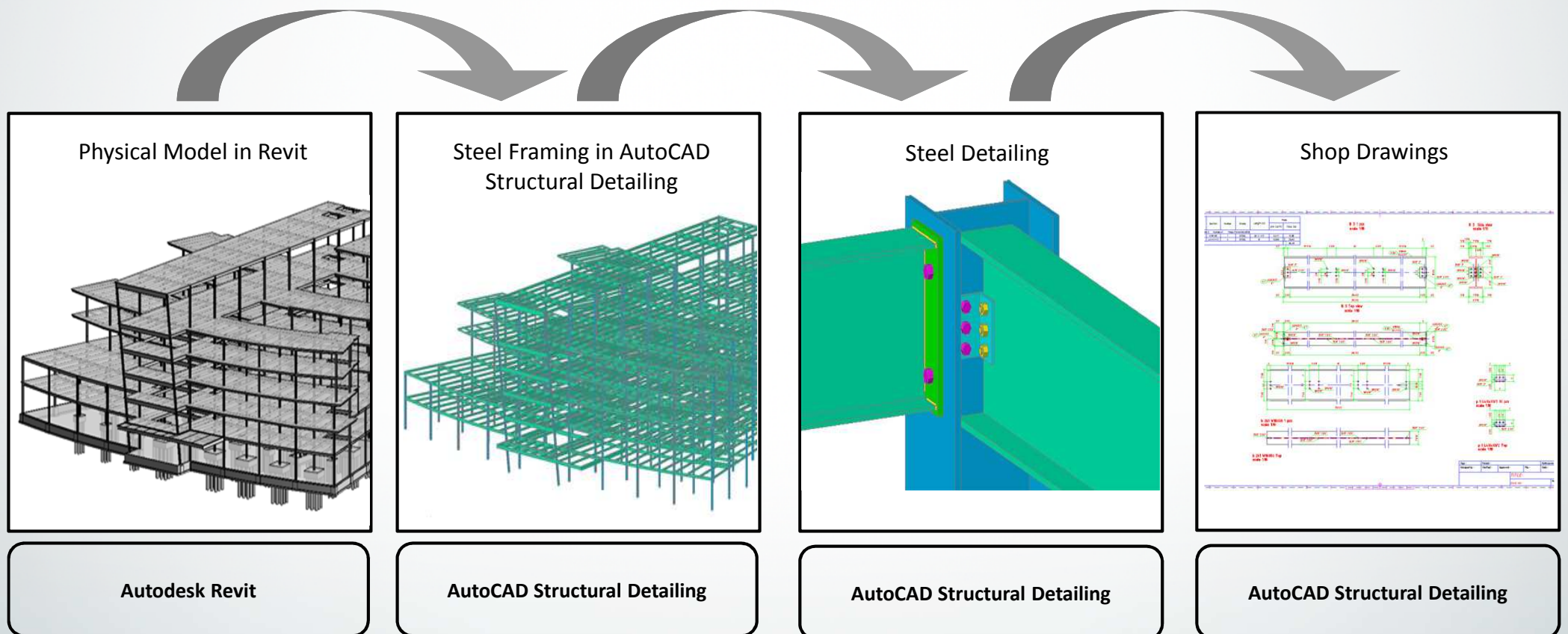


Updated Revit model & Construction Documentation

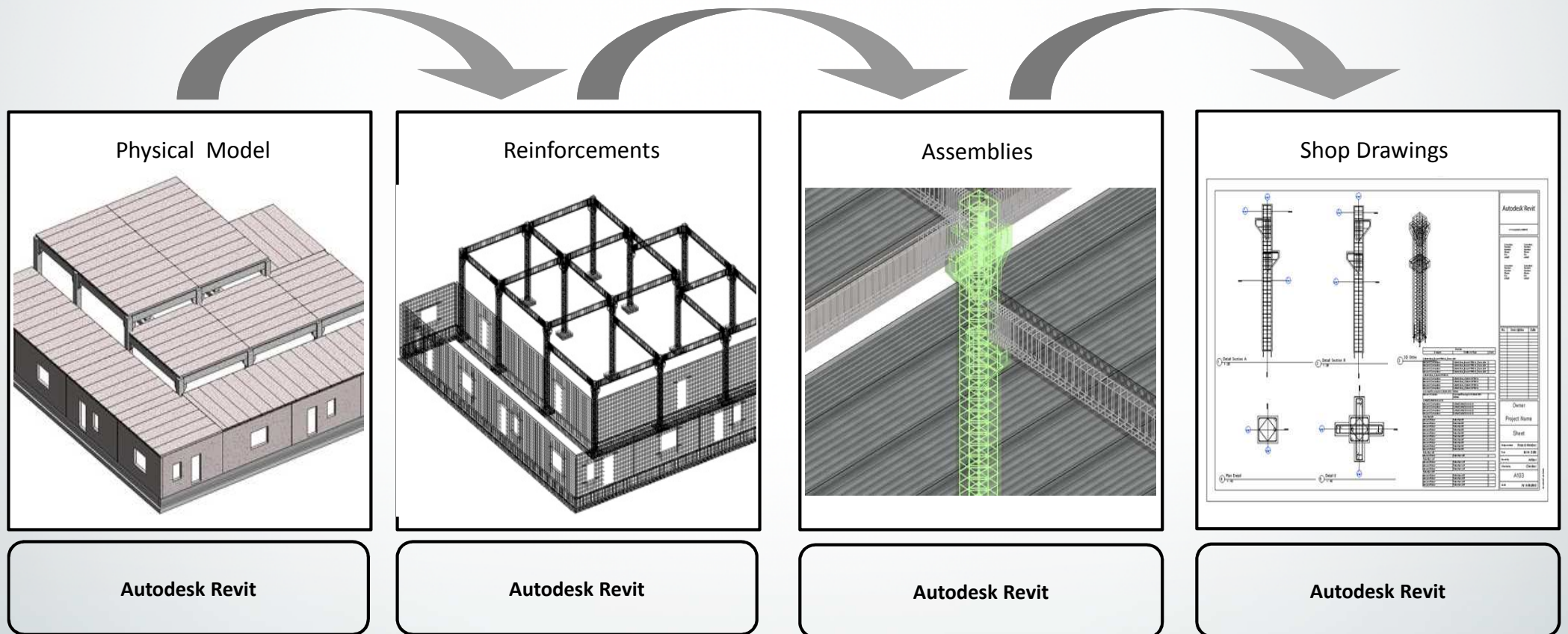


Autodesk Revit

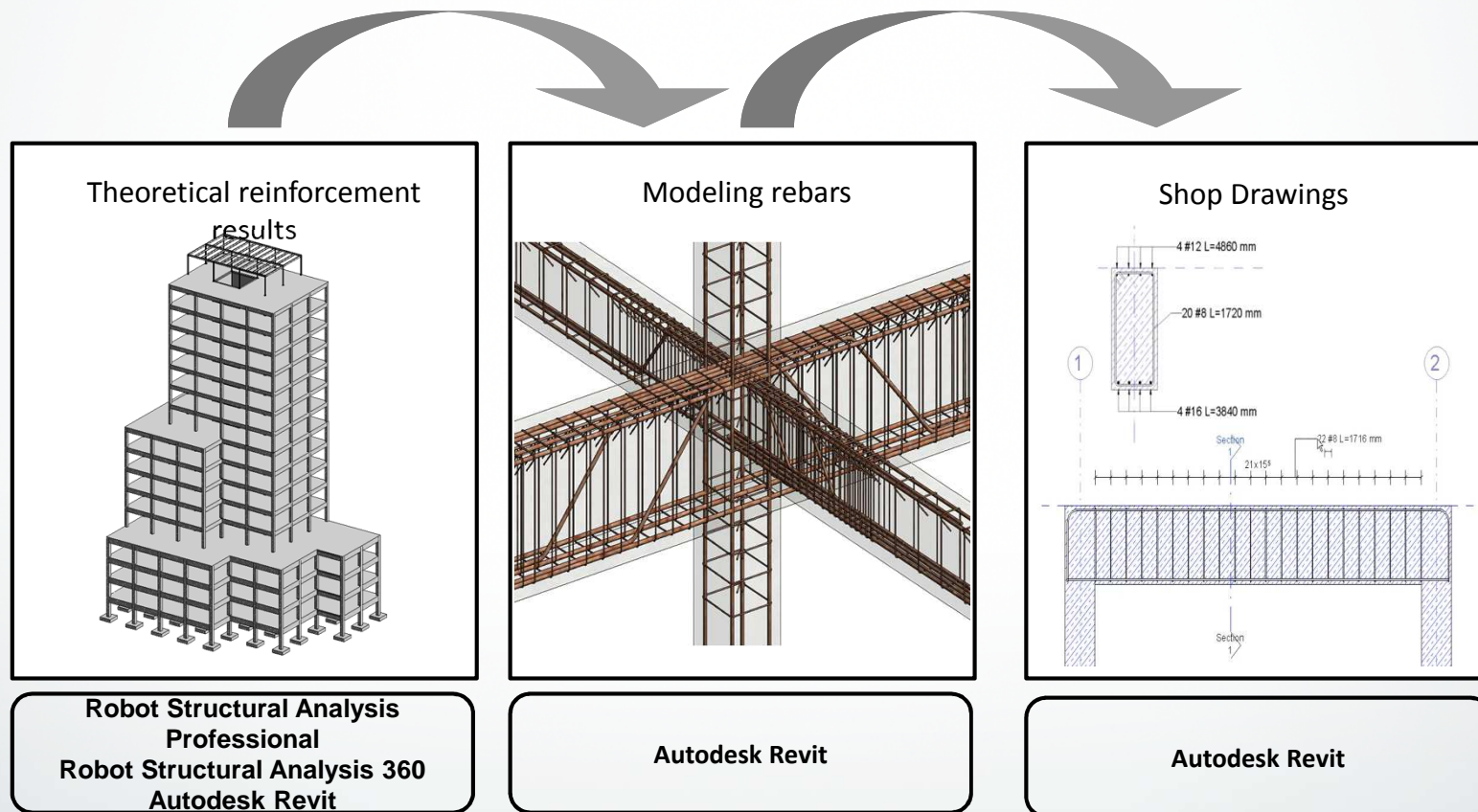
Il flusso di lavoro Strutturale esecutivo per acciaio



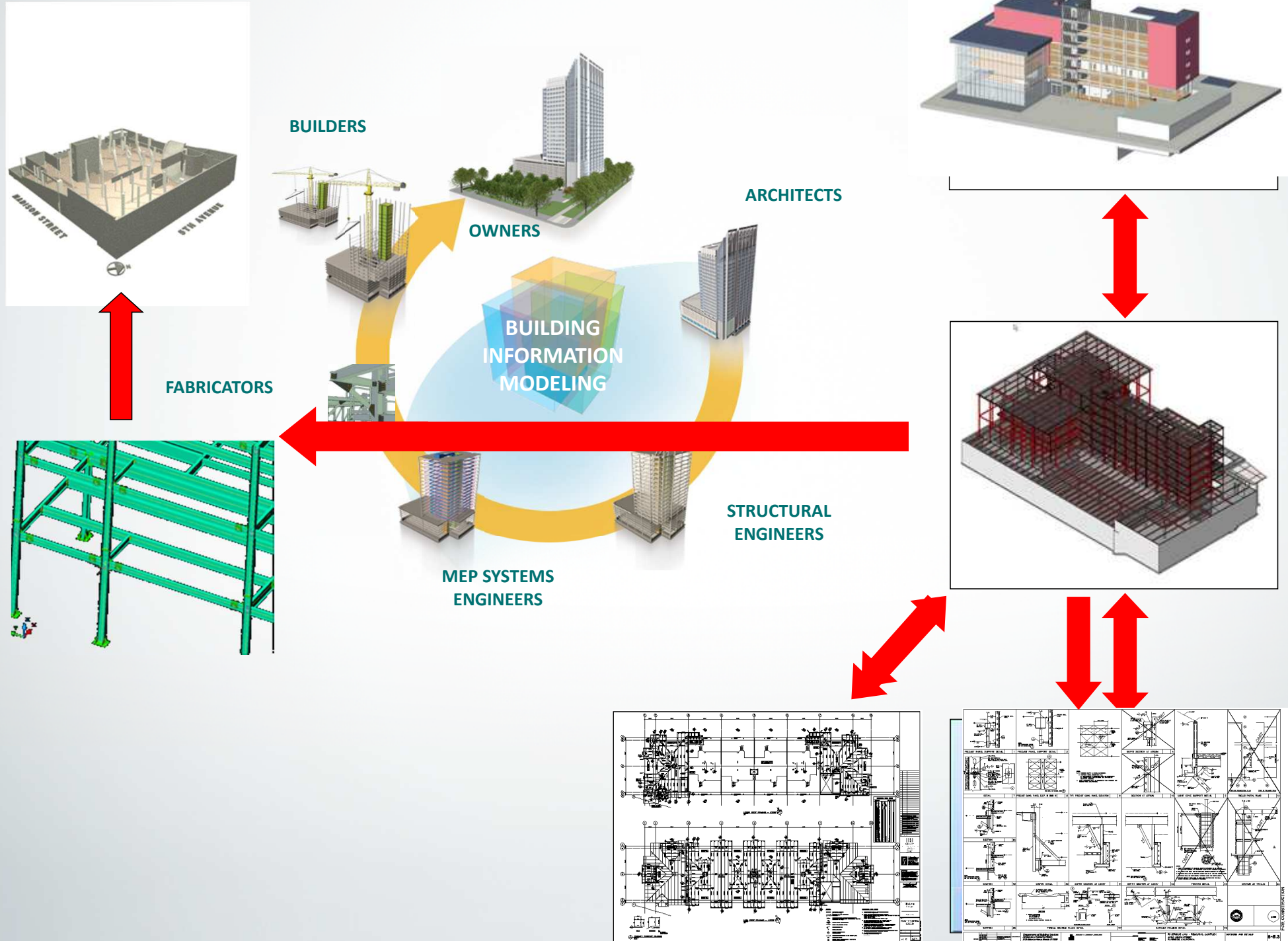
Il flusso di lavoro Strutturale esecutivo per prefabbricato



Il flusso di lavoro Strutturale esecutivo per CA



BIM for Structures





Ingegneria impiantistica



MEP Business

Industry Trends

*“...il BIM è attualmente usato dal **50%** delle aziende in USA e dal **36%** in Europa”*

*“...il **90%** dei committenti crede che il BIM avrà un ruolo sempre più preponderante nei prossimi anni”*

References:

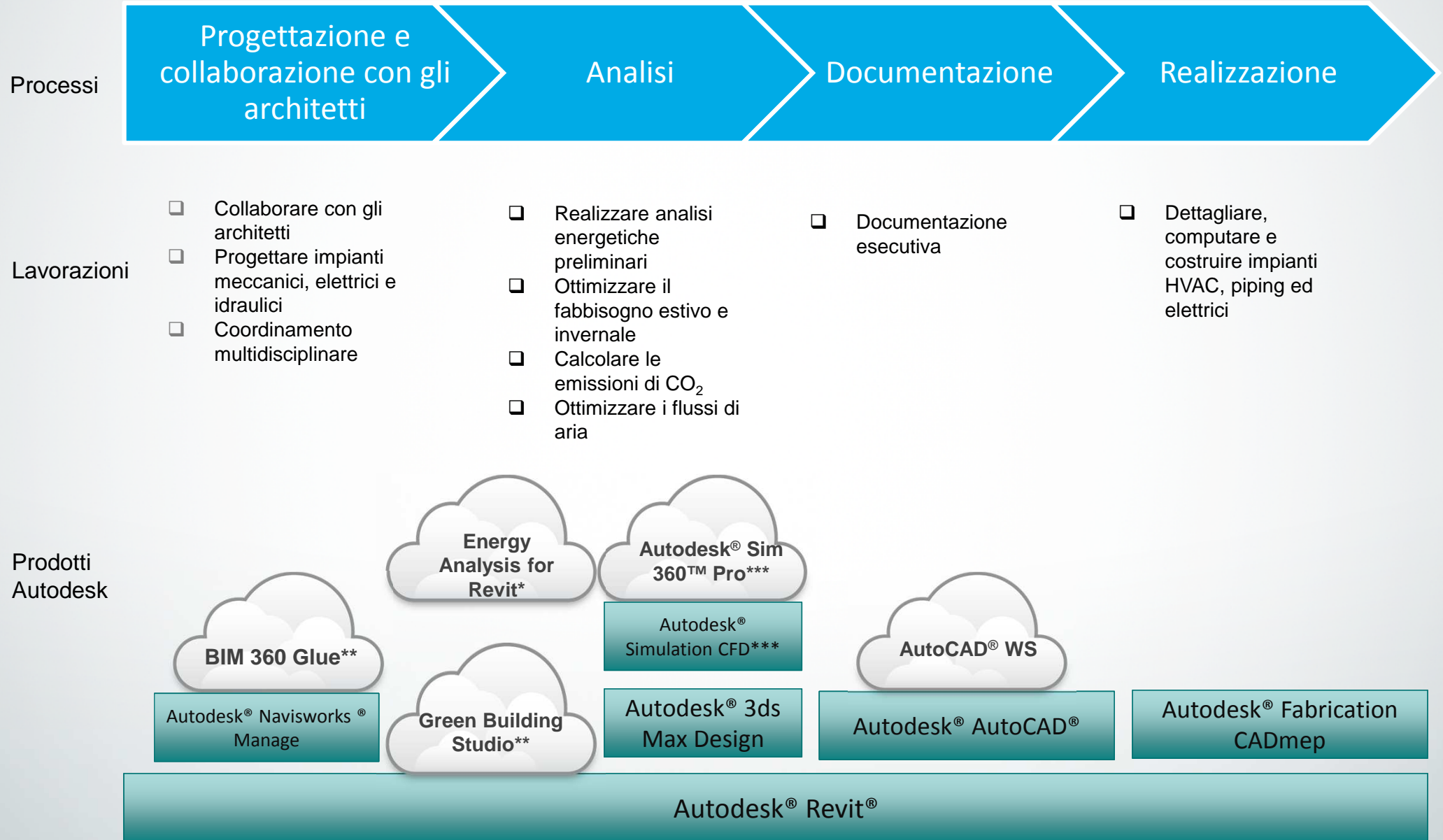
“The Business Value of BIM: Getting Building Information Modeling to the Bottom Line”, McGraw Hill Construction

“The Business Value of BIM in Europe: Getting Building Information Modeling to the Bottom Line”, McGraw Hill Construction

“Prefabrication and Modularization: Increasing Productivity in the Construction Industry”, McGraw Hill Construction



Progettazione impiantistica



Progettazione e collaborazione con gli architetti : Workflow meccanico

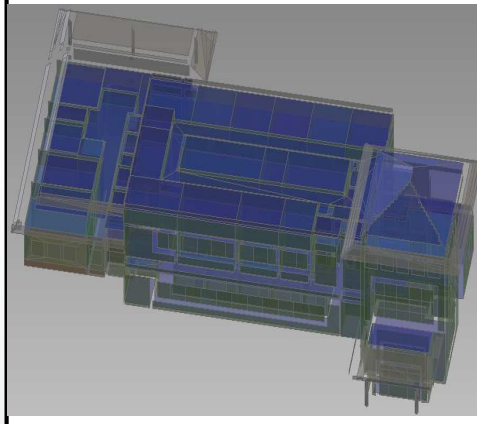


Coordinamento con gli architetti



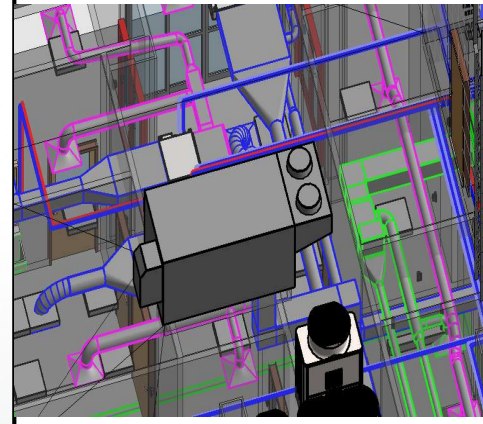
Autodesk Revit / AutoCAD
MEP

Simulazione preliminare Energetica / Carichi estivi e invernali/ CFD



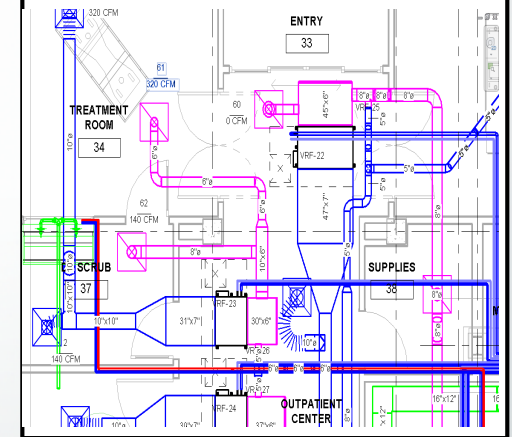
Autodesk Revit / Energy
Analysis for Revit /
Simulation 360 Pro

Progettazione e coordinamento di impianti meccanici e idrico/sanitari



Autodesk Revit / AutoCAD
MEP / Navisworks Manage /
BIM 360 Glue

Documentazione di progetto



Autodesk Revit / AutoCAD
MEP

Progettazione e collaborazione con gli architetti : Workflow elettrico



Coordinamento con gli architetti

Autodesk Revit / AutoCAD MEP

Progettazione e coordinamento di impianti elettrici e di illuminazione

Autodesk Revit / AutoCAD MEP / Navisworks Manage / BIM 360 Glue

Analisi illuminotecnica

Autodesk 3ds Max Design

Documetazione e reportistica

Branch Panel: LP1

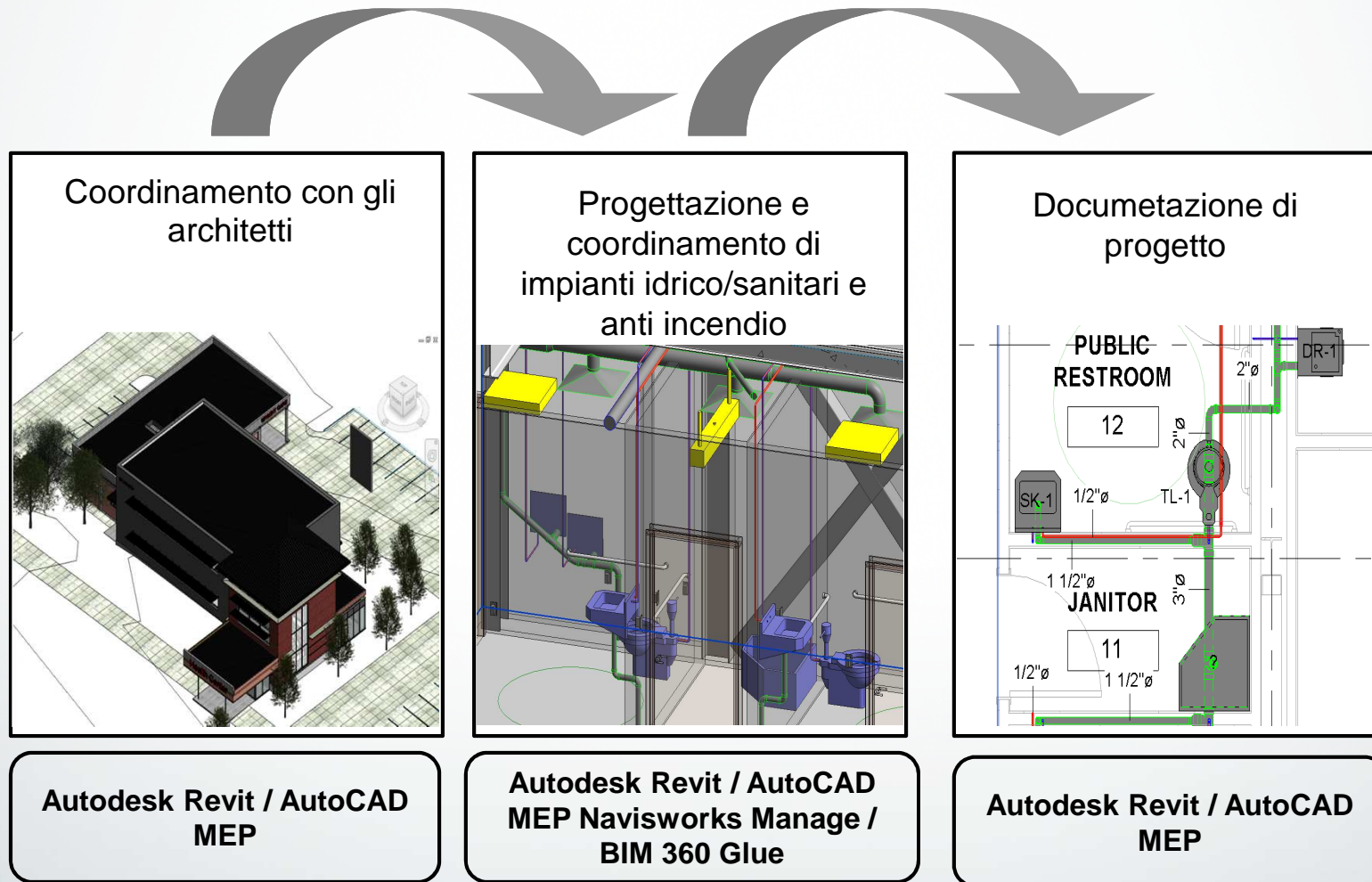
Location: ELECTRICAL 14 Vols: 120/0/8 Wye
 Supply From: T1 Phases: 3
 Mounting: Surface Wires: 4
 Enclosure: Type 1
 A.I.C. Rating: Mains Type: MCB Rating: 600 A

Notes:

CKT	Circuit Description	Tripp	Poles	A	B	C	Poles	Tripp	Circuit Description	CKT
LP1.1	Lighting - Hospital Wing 1	20 A	1	837	051			1	20 A Lighting	LP1.2
LP1.2	Lighting - Hospital Room 48	20 A	1		130	120		1	20 A Lighting - Hospital Room 24, 23, 20, 19, 1	LP1.4
LP1.3	Lighting - Hospital PA BENT COORDINATOR R	20 A	1			204	630	1	20 A Lighting - Hospital Room 22, 25, 26, 16, 18	LP1.6
LP1.7	Lighting - Hospital Room 26, 27, 28, 29, 30	20 A	1	630	120			1	20 A Receptacle Room 4, 1, 2	LP1.8
LP1.11	Receptacle Room 9, 4, 1	20 A	1	144	162			1	20 A Receptacle Room 21, 19, 17, 14	LP1
LP1	Receptacle Room 8, 5, 23	20 A	1		126	224		1	20 A Receptacle Room 27, 22, 25, 9	LP1
LP1	Receptacle Room 29, 26, 30, 16, 19, 20	20 A	1	210	162			1	20 A Receptacle Room 30, 16, 8, 4, 19, 12, 11	LP1
LP1	Receptacle Room 54	20 A	1		108	234		1	20 A Receptacle Room 47, 48, 44, 36	LP1
LP1	Receptacle Room 46, 44, 43, 42, 38	20 A	1			216	108	1	20 A Receptacle Room 34, 37	LP1
LP1	Receptacle Room 49, 39, 35	20 A	1	162	0 VA			2	20 A Other	LP1
LP1	Other	20 A	2		0 VA	0 VA				LP1
LP1	Lighting - Hospital Room 40, 38, 36, 43, 37	20 A	1	186	640			1	20 A Lighting - Hospital Room 35, 38, 34, 33	LP1
LP1										LP1
LP1										LP1
LP1										LP1
LP1										LP1
LP1										LP1
LP1										LP1
LP1										LP1
LP1										LP1
LP1										LP1
LP1										LP1
Total Load: 13578 VA 8997 VA 10838 VA Total Amps: 89 A 75 A 83 A										
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals						
Lighting - Exterior	540 VA	125.00%	600 VA							
Lighting - Hospital	10788 VA	40.00%	4315 VA							
Other	0 VA	0.00%	0 VA							
Receptacle	1860 VA	75.00%	1490 VA							
				Total Conn. Load: 51185 VA						
				Total Est. Demand: 10160 VA						
				Total Code: 187 A						

Autodesk Revit / AutoCAD MEP

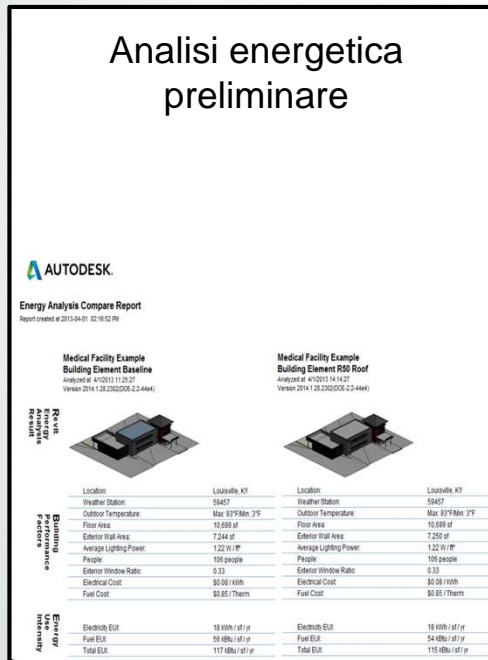
Progettazione e collaborazione con gli architetti : Workflow idraulico



Analisi: Workflow

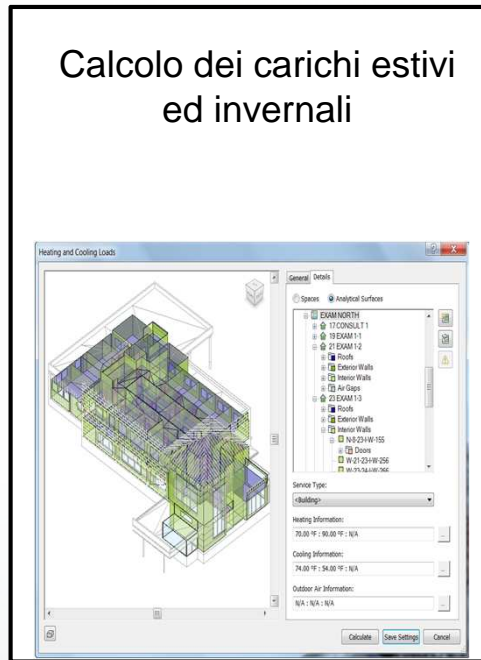


Analisi energetica preliminare



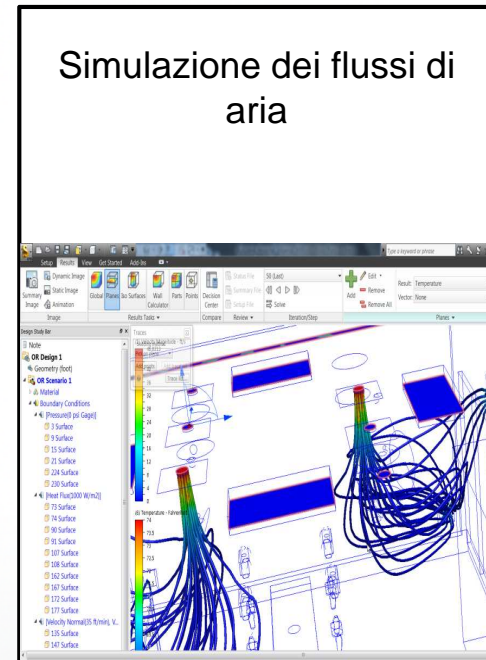
Autodesk Revit / Energy Analysis for Revit

Calcolo dei carichi estivi ed invernali



Autodesk Revit / via gbXML

Simulazione dei flussi di aria



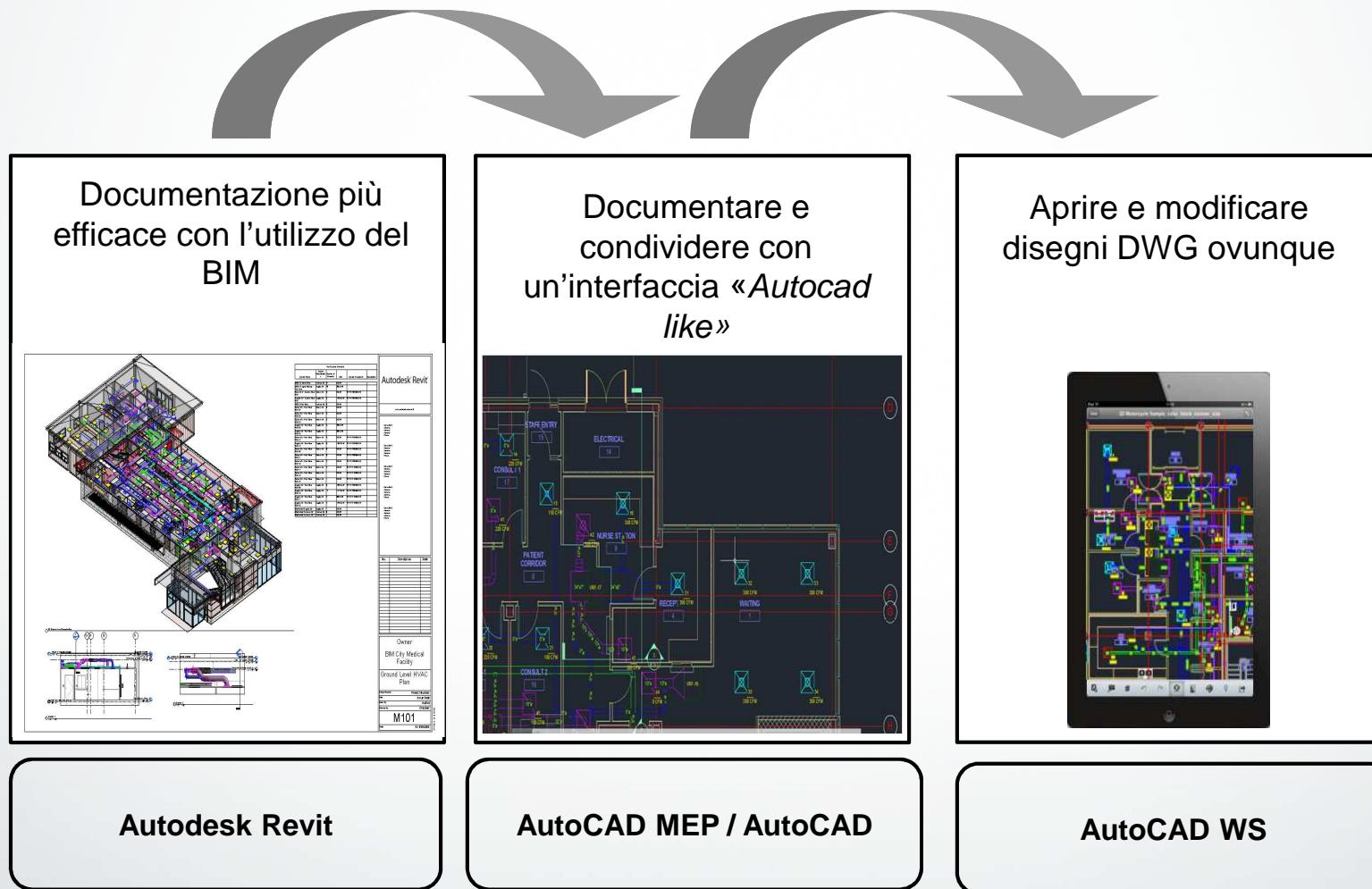
Autodesk Simulation CFD / Simulation 360 Pro

Analisi illuminotecnica puntuale



Autodesk 3ds Max Design

Documentazione: Workflow

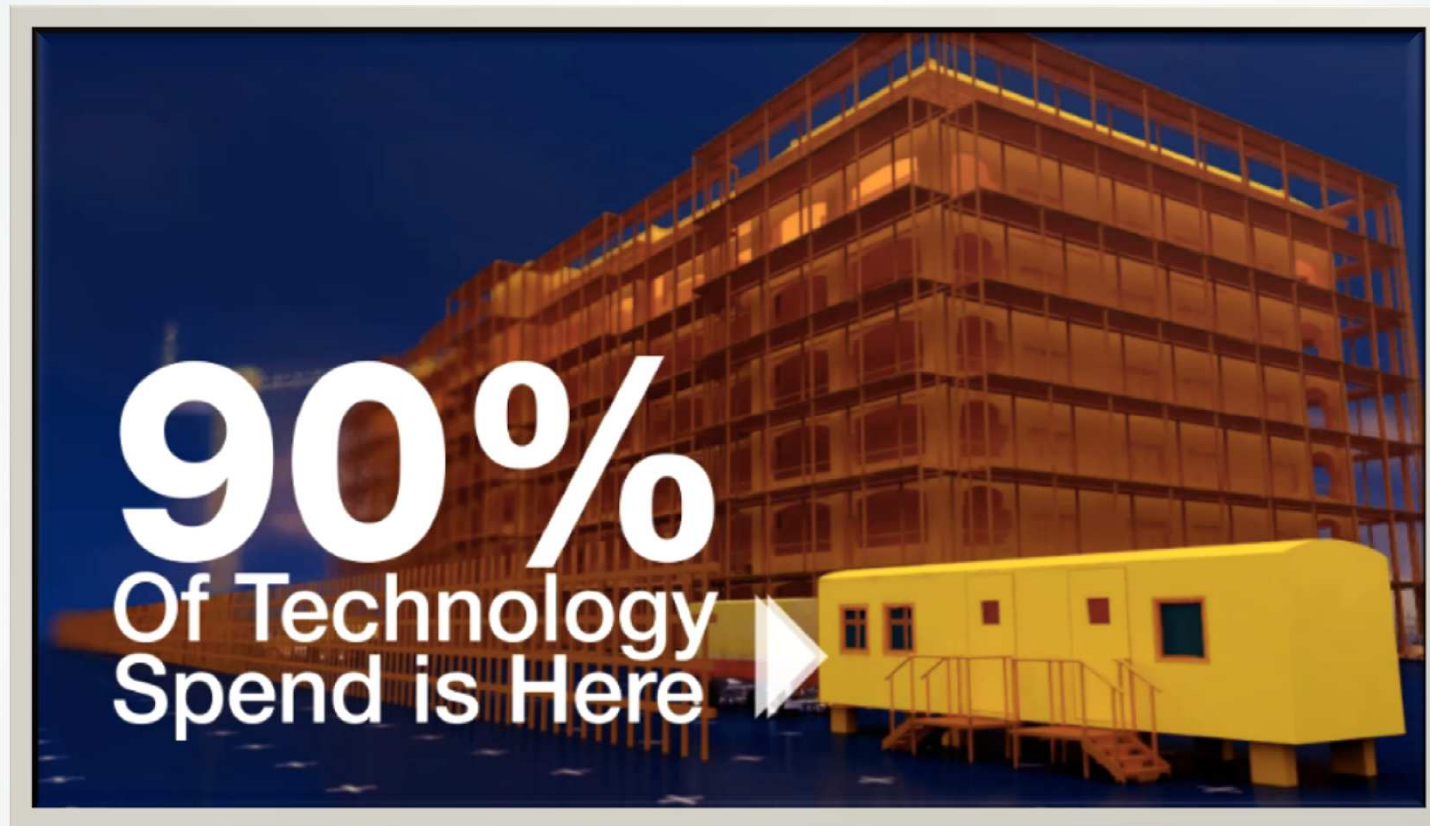




Costruzioni



Collaborazione multidisciplinare in cantiere



- Oltre il **75%** dei costi di costruzione avvengono in cantiere; ciononostante solo il **10%** del software è nato per il cantiere

Source: FMI

Valore della proposta

- Acquisire conoscenze per migliorare la costruzione
- Accedere prontamente ai contenuti di progetto
- Creare dati BIM per la gestione delle interferenze, analisi costruttive e fabbricazione
- Migliorare sostenibilità e risparmio
- Adottare processi e procedure più efficienti

Add Comment

Break floor slabs into poors

Status: New

OK Cancel

Clash Detective

Return Air Area B Last Run: Wednesday, January 04, 2012 4:49:26 PM
Clashes - Total: 3 (Open: 3 Closed: 0)

Name	Status	Clashes	New	Active	Reviewed	Approved	Resolved
Return Air Area B	Done	3	3	0	0	0	0

Rules Select Results Report

New Group Assign Re-run Test

Level	Status	Level	Grid Intersection	Found
Level 5	New	Level 5	R2-RK	16:49:26 04
Clash3	New	Level 5	R2-RK	16:49:26 04
Clash5	New	Level 5	R8-RJ	16:49:26 04
Clash8	New	Level 5	R5-RK	16:49:26 04
Clash9	New	Level 5	R5-RK	16:49:26 04
Clash11	New	Level 5	R5-RK	16:49:26 04
Clash15	New	Level 5	R8-RJ	16:49:26 04
Level 4	New	Level 4	R2-RK	16:49:26 04
Clash1	New	Level 4	R2-RK	16:49:26 04
Clash4	New	Level 4	R8-RJ	16:49:26 04
Clash13	New			
Clash14	New			
Level 3	New			

Autodesk Navisworks Clash Report

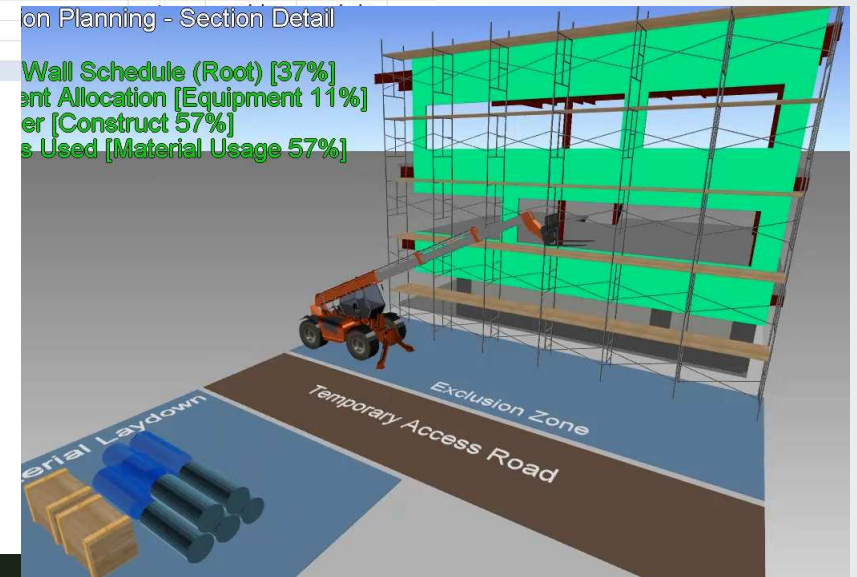
Ducts Vs Steel	Tolerance	Clashes	New	Active	Reviewed	Approved	Resolved	Type	Status
0,001m	394	0	394	0	0	0	0	Hard	OK

Image	Clash Name	Status	Distance	Grid Location	Description	Date Found	Assigned To	Clash Point	Item 1		Item 2					
									Item ID	Layer	Item Name	Element Category	Item ID	Layer	Item Name	Element Category
	Revit Switchback	Active	-0.06	LN-9 : Level 1	Hard	2012/2/9 16:0:26	MEP	x:24.94, y:133.53, z:5.94	Element ID: 384924	Level 2 Steel - TOS	Metal - ASTM A992	Solid Structural Framing	Element ID: 732516	Level 1	Round Duct	S
	New Group	Active	-0.58	R7-RP : Level 5	Hard	2012/2/9 16:0:26		x:37.39, y:118.54, z:24.63	Element ID: 335925	Level 6 Steel - TOS	Metal - ASTM A992	Solid Structural Framing	Element ID: 728418	Level 5	Rectangular Duct	S
	Clash397	Active	-0.00	R1-RE : Level 4	Hard	2012/2/9 16:0:26		x:69.17, y:61.31, z:20.05	Element ID: 329379	Level 5 Steel - TOS	Metal - ASTM A992	Solid Structural Framing	Element ID: 765711	Level 4	1.5 D	S
	Clash396	Active	-0.00	L4-LE : Level 3	Hard	2012/2/9 16:0:26		x:2.94, y:90.35, z:15.17	Element ID: 329340	Level 4 Steel - TOS	Metal - ASTM A992	Solid Structural Framing	Element ID: 770468	Level 3	Round Duct	S
	Clash395	Active	-0.00	L4-LE : Level 4	Hard	2012/2/9 16:0:26		x:2.41, y:90.41, z:20.05	Element ID: 329340	Level 5 Steel - TOS	Metal - ASTM A992	Solid Structural Framing	Element ID: 726459	Level 4	45 Degree	S
	Clash394	Active	-0.00	L4-LE : Level 3	Hard	2012/2/9 16:0:26		x:2.41, y:90.41, z:20.05	Element ID: 329340	Level 4 Steel - TOS	Metal - ASTM A992	Solid Structural Framing	Element ID: 726459	Level 3	45 Degree	S

Valore della proposta

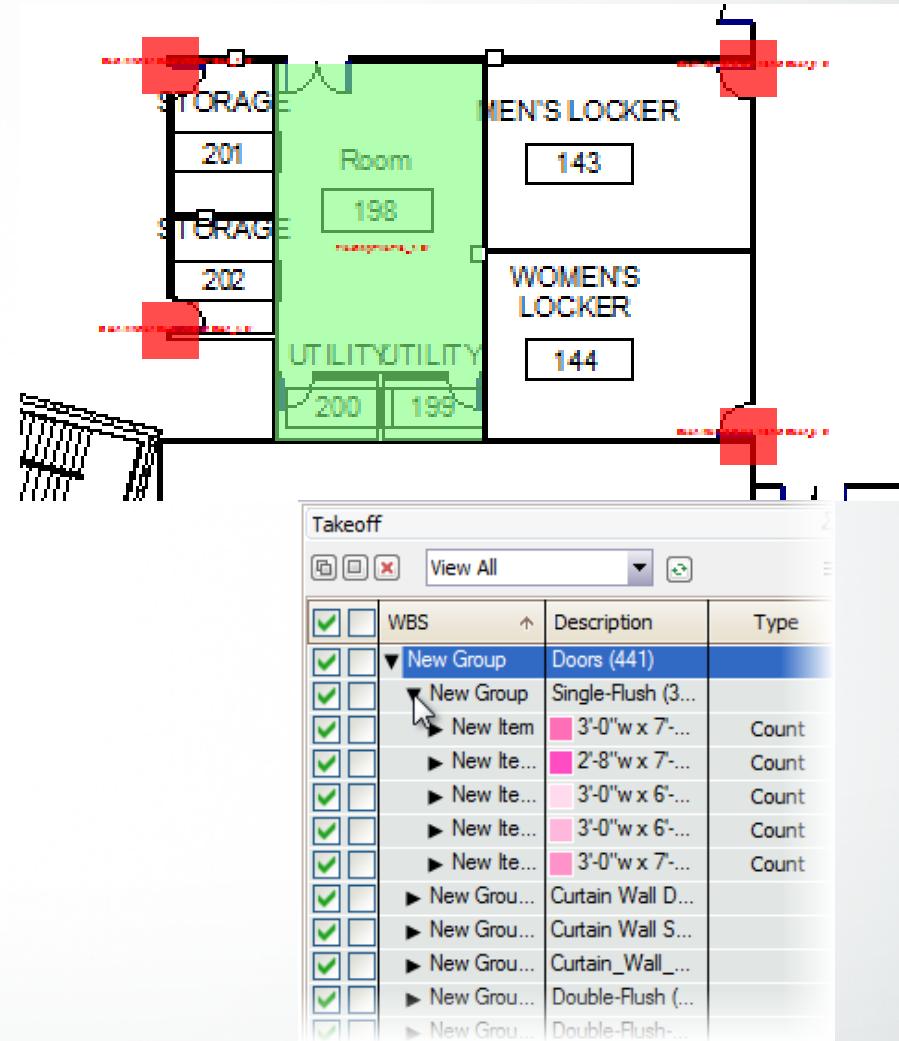
- Migliorare la pianificazione e il coordinamento
- Valutare e quantificare rapidamente l'impatto delle modifiche per i fornitori e per l'intero progetto
- Esplorare soluzioni alternative

Task Name	Duration	Start	Finish	Predecessors
Mobilize & Secure Site	10 days	Mon 6/4/12	Fri 6/15/12	
Hospital Construction	516 days	Mon 6/18/12	Mon 6/9/14	
Area A: Center Core	476 days	Mon 6/18/12	Mon 4/14/14	
Foundations	90 days	Mon 6/18/12	Fri 10/19/12	
Shell	246 days	Mon 9/10/12	Mon 8/19/13	
Interiors	316 days	Mon 12/3/12	Mon 2/17/14	
Services	336 days	Mon 12/31/12	Mon 4/14/14	
Elevators	80 days	Mon 12/31/12	Fri 4/19/13	68
Plumbing	226 days	Mon 1/14/13	Mon 11/25/13	
HVAC	140 days	Mon 1/14/13	Fri 7/26/13	
HVAC Equipment	60 days	Mon 1/14/13	Fri 4/5/13	46
Ductwork - Mains & Branches	60 days	Mon 4/8/13	Fri 6/28/13	83
Air Diffusers	20 days	Mon 7/1/13	Fri 7/26/13	84
Fire Protection/Sprinklers	60 days	Mon 5/6/13	Fri 7/26/13	84SS+20
Electrical				
Equipment				
Furnishings				
Area B: East Side				



Valore della proposta

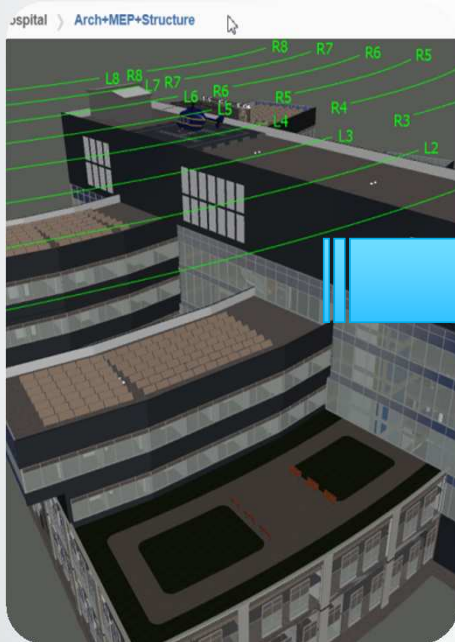
- Quantificare meglio per aiutare i proprietari a prendere decisioni
- Basarsi su informazioni non appena rese disponibili
- Utilizzare dettagli su misurazioni e materiali per produrre quantificazioni precise
- Supportare modelli grandi e complessi



Ottimizzazione progettuale per la fase costruttiva

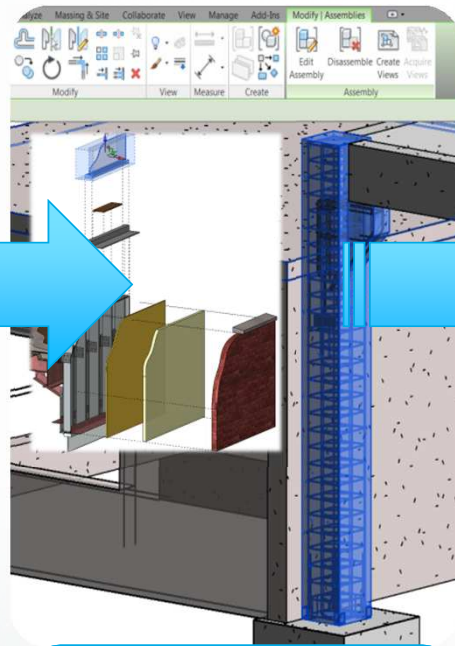
Autodesk Data Management and Collaboration / Autodesk 360

Acquire and Review the Design Model



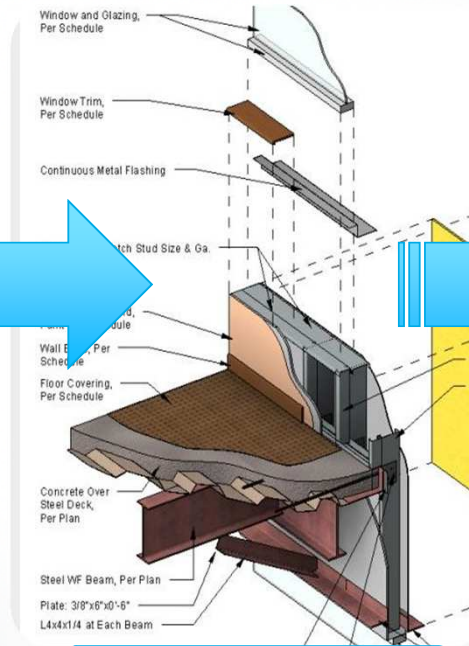
Autodesk 360/
Buzzsaw/Autodesk
Revit/Autodesk
Navisworks

Create Constructability Detail



Autodesk Revit

Extend Design Data for Construction



Autodesk Revit

Organize and Manage Data/Model



Autodesk
Navisworks

Rispettare i tempi di consegna

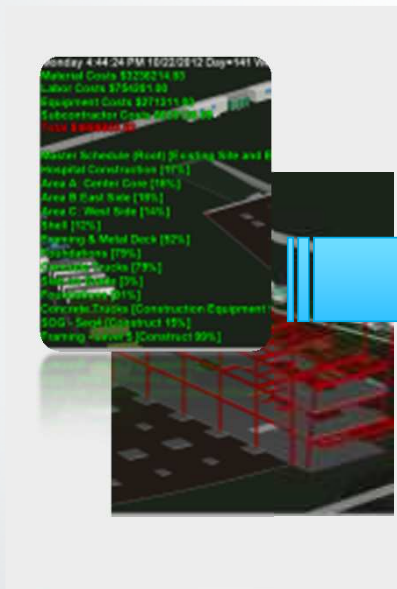
Autodesk Data Management and Collaboration / Autodesk 360

Work Sequencing

5D Analysis

Scheduling Analysis

Logistical Coordination



Task	Est. Cost	Final Cost
Labor Cost	496,701.00	273,811.00
Equipment Cost	12,000.00	35,987.00
	472,201.00	235,324.00
	125,550.00	25,487.00
	72,200.00	
	36,000.00	

Task	Start	Finish	Duration	Resources	Location	WBS
Excavation	01/01/2012	01/01/2012	1 Day	Excavator	Site	1.1
Foundation	01/02/2012	01/02/2012	1 Day	Foundation Crew	Site	1.2
Structural Steel	01/03/2012	01/03/2012	1 Day	Structural Steel	Site	1.3
Roofing	01/04/2012	01/04/2012	1 Day	Roofing Crew	Site	1.4
Interior Finishes	01/05/2012	01/05/2012	1 Day	Interior Finishes	Site	1.5
Final Inspection	01/06/2012	01/06/2012	1 Day	Final Inspection	Site	1.6



Autodesk
Navisworks
Autodesk Revit

Autodesk
Navisworks

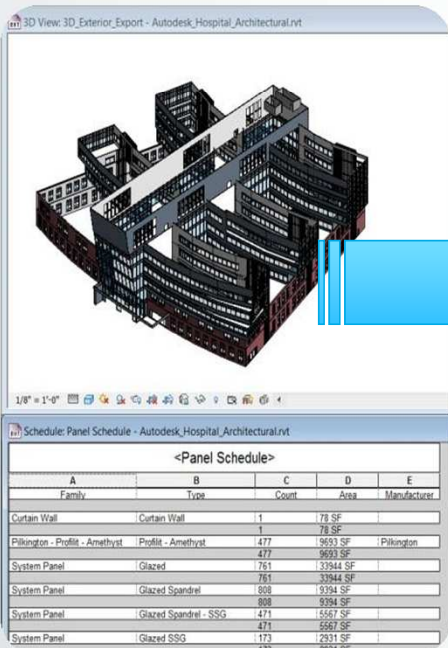
Autodesk
Navisworks,
3rd Parties

Autodesk Revit,
Autodesk
Navisworks,
Autodesk Inventor

Estendere la progettazione alla stima dei costi

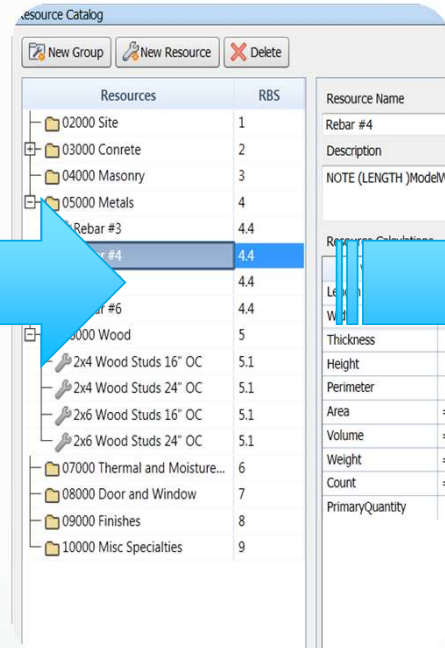
Autodesk Data Management and Collaboration / Autodesk 360

Managing Design Information



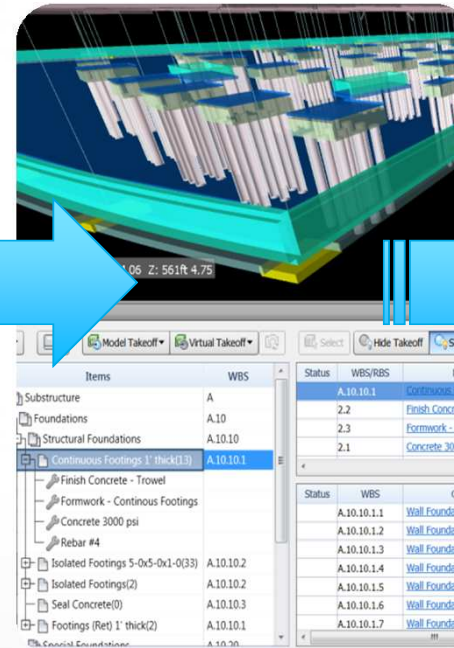
Autodesk Revit

Item & Resource Management



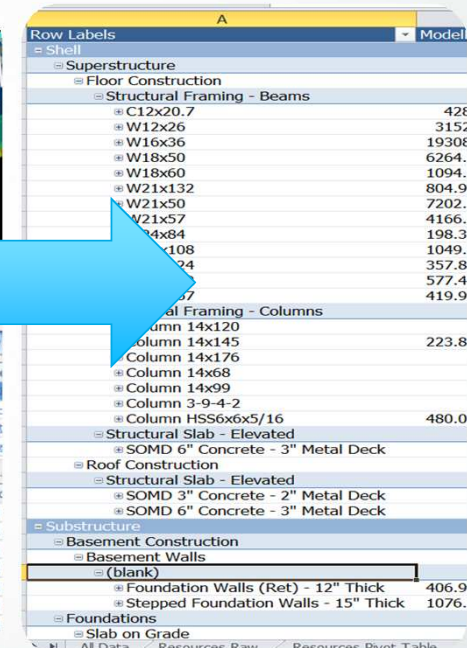
Autodesk Navisworks

Model Based Quantification



Autodesk Navisworks

Change Analysis & Reporting

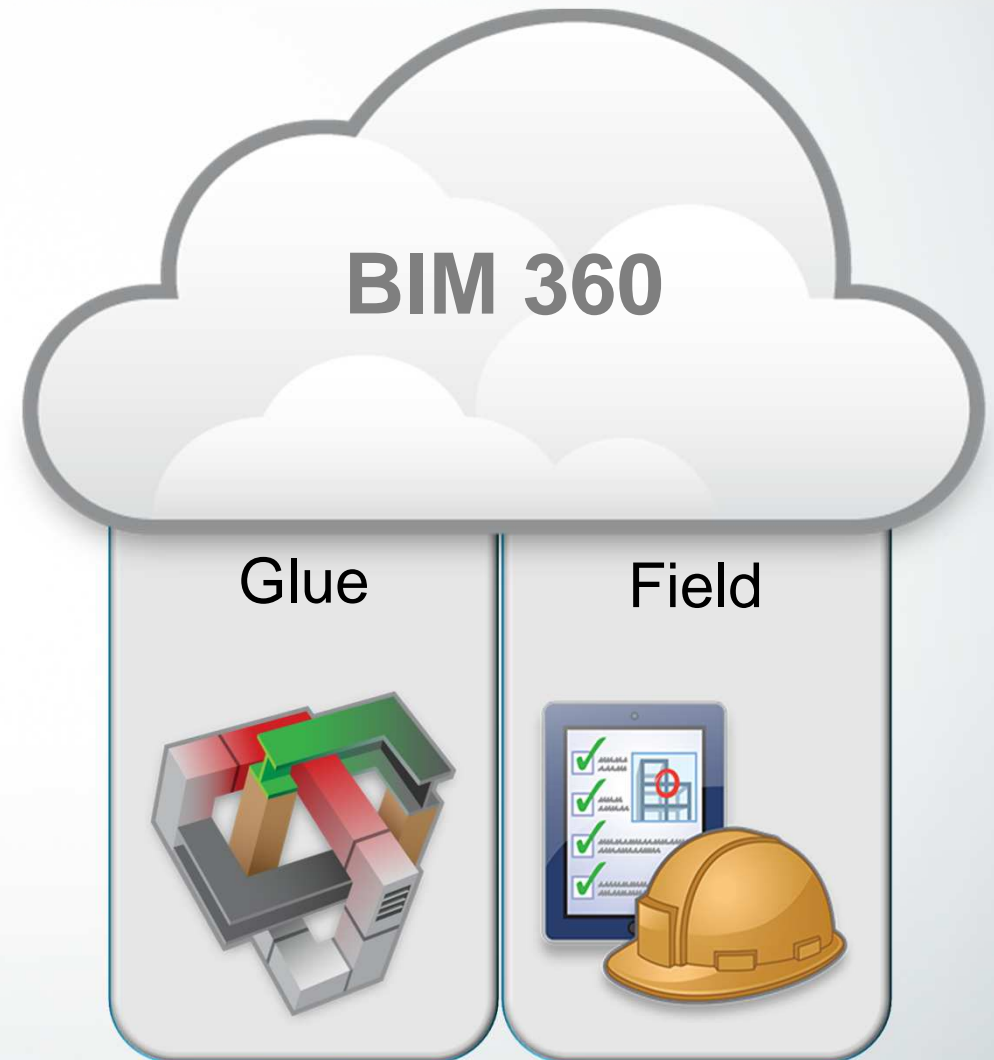


Autodesk Navisworks/
3rd Parties

BIM 360 Glue

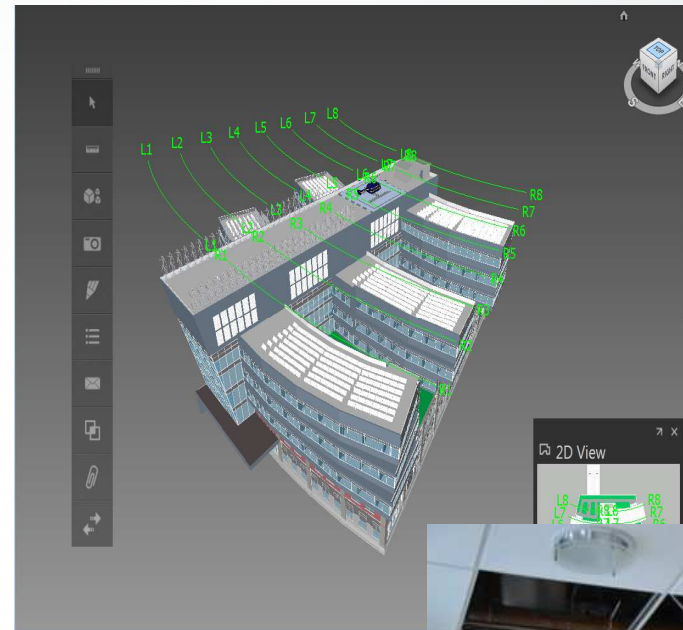
Autodesk BIM 360

Offre informazioni digitali complete, precise, coordinate, condivise per tutto il ciclo di vita del progetto per chiunque ne abbia bisogno, quando ne ha bisogno, ovunque si trovi.



Problematiche

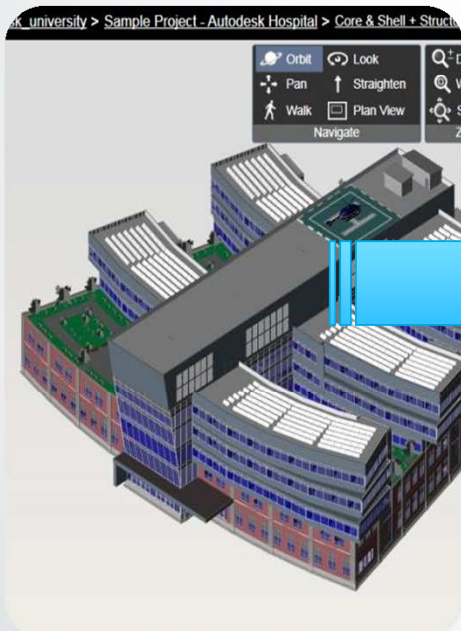
- Modelli molteplici per coordinare le differenti discipline
- Mancanza di collaborazione tra team estesi e distribuiti
- Mancanza di progetto, analisi e simulazioni coordinate
- Aumento di tempi e costi a causa di conflitti ed errori irrisolti
- Processi di business non collegati al BIM
- Operatori con accesso limitato al BIM



Collaborazione con team multidisciplinari

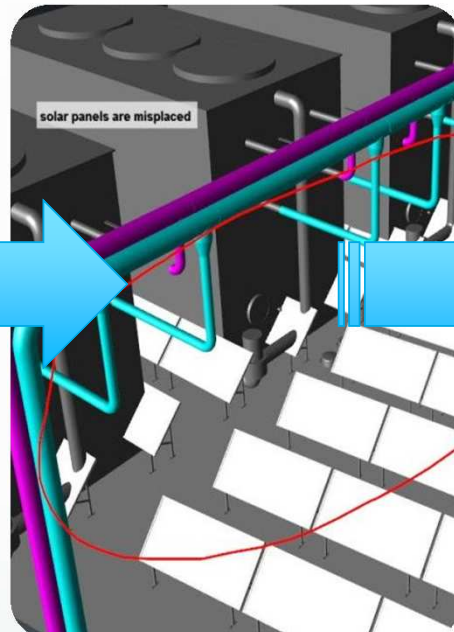
Autodesk Data Management and Collaboration / Autodesk 360

View and Analyze the Coordination Model



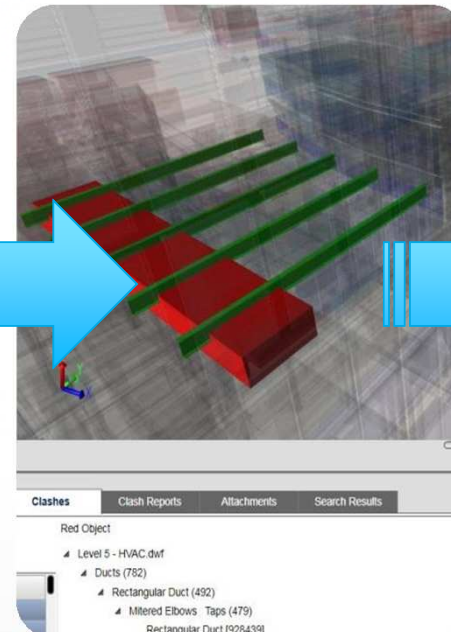
Autodesk BIM 360
Glue

Collaborate & Review Multidiscipline Model



Autodesk BIM 360
Glue

Find, Assign and Resolve Conflicts



Autodesk BIM 360
Glue/Autodesk Revit

Share Model for Downstream Uses



Autodesk BIM 360
Glue/Autodesk
Navisworks/BIM 360
Glue Mobile

BIM 360 Glue Mobile App

Accesso da ogni luogo

Online e offline

Navigazione immersiva

Proprietà di viste di modello

Validazione delle misure del modello



BIM 360 Field

Clienti Autodesk BIM 360 Field

A/E

AECOM
Gensler

HMFH Architects, Inc.

ARQUITECTONICA

TRITON
DESIGN
GROUP

KLING STUBBINS

TK&A

MCA
ARCHITECTS

ELKUS | MANFREDI
ARCHITECTS

A|H|A
CONSULTING
ENGINEERS
Atlanta • Boston • Washington, DC

HMFH Architects, Inc.
Architecture • Programming
Master Planning

POLSHEK
PARTNERSHIP ARCHITECTS LLP

CHAN KRIEGER & ASSOCIATES
ARCHITECTURE and URBAN DESIGN

Contractors / CMs

SKANSKA

Turner
Building the Future

Balfour Beatty
SIEMENS

**Barton
Malow**

Gilbane

CLAYCO
THE ART & SCIENCE OF BUILDING

PKS
SINCE 1988

Kiewit

ROSENDIN
ELECTRIC

JE JACOBS

BOND

SWINERTON
INCORPORATED

SUFFOLK

**HUNTER
ROBERTS**
CONSTRUCTION GROUP

VAUGHN
CONSTRUCTION

WEITZ

**BRASFIELD
& GORRIE**

KITCHELL
Program/Construction Management

WT
WHITING-TURNER

Shaw

DPR
Construction Inc.

MCCARTHY

STRUCTURETONE

ROBINS & MORTON

S
SHIEL SEXTON COMPANY, INC.

PLANT

OKLAND
CONSTRUCTION

Layton
CONSTRUCTING WITH INTEGRITY

DIMEO

Austin

CF JORDAN
CONSTRUCTION

KINSLEY
CONSTRUCTION

CONSIGLI
Est. 1905

BATSON-COOK
CONSTRUCTION

**CLANCY
& THEYS**
CONSTRUCTION COMPANY

ARELLANO

TOCCI

ZACHRYVAUGHN LAYTON

WALSH BROTHERS
Since 1911
Promises kept from one generation to the next

Coastal

DB/CON
CONSTRUCTION
INCORPORATED

Owners / Developers

Dow AgroSciences

GSA

MSG

KAISER PERMANENTE

Disney

KAISER PERMANENTE

Abbott
A Promise for Life

City of Hope

TJPA
TRANSBAY JOINT POWERS AUTHORITY

MTA

NTA

acciona

Taubman

Marriott

SEALY

THE RITZ-CARLTON

jetBlue
AIRWAYS

HYATT

LOS ANGELES UNIFIED SCHOOL DISTRICT
BOARD OF EDUCATION

HARVARD

Bank of America

**HYPERION
DEVELOPMENT
GROUP**

Boston Properties

**NORTHPOINT
REALTY DEVELOPMENT
SOUTHPOINT**

**NEW BOSTON
FUND, INC.**
Real Estate Investment Funds

BIM 360 Field rivoluziona la messa in servizio e consegna dei documenti per la qualità, la sicurezza e la gestione

Cosa facciamo:




Quality Programs



Safety Programs



Documents to the field



Commissioning & Handover:
Field BIM®


Come lo facciamo:



Online & Mobile
Document Library with
Mark-up



Checklists with
Company-wide
Templates



Issues & Tasks for
Work to Complete, Punch
& More



Operations &
Analytical
Reporting


Key Technologies:

Cloud Computing




Unlimited Users
& Files

Mobility (Also disconnected)



iPad
Smartphones

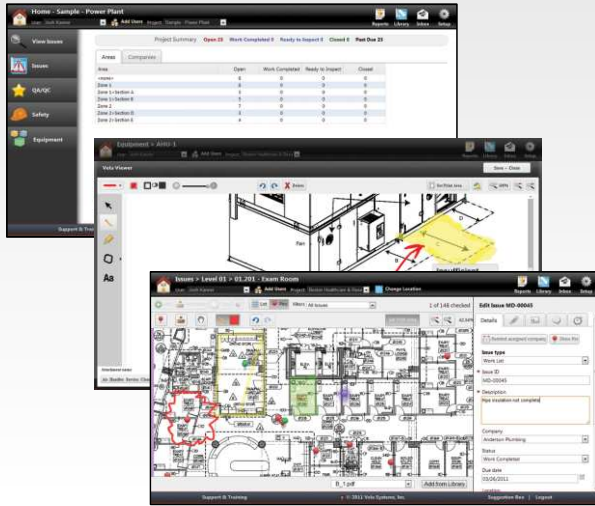
Web Access



Anyone with Internet- Access
Can Use System

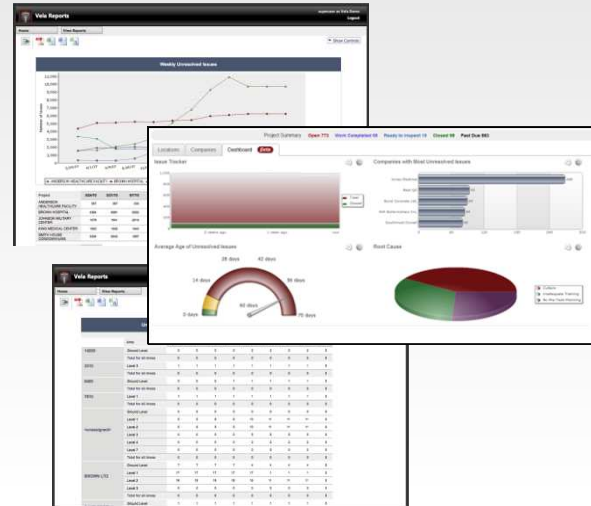
Componenti di BIM 360 Field

Servizio Web



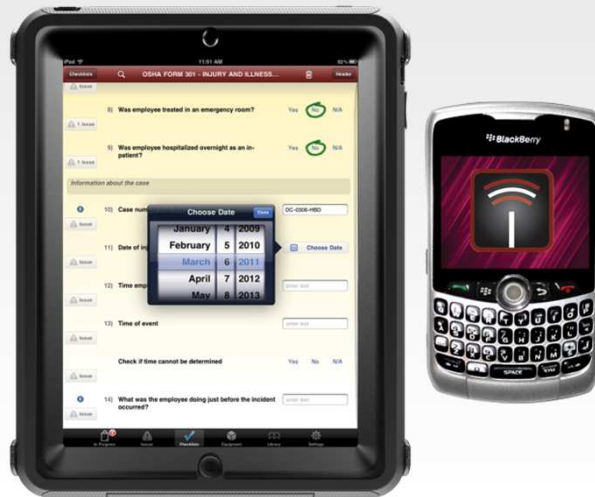
- Web-based accessibile da qualsiasi dispositivo
- Cloud-servers
- Disponibile per appaltatori, subappaltatori, proprietari, progettisti

Report



- Web-based- Accessible on any device
- Cloud-servers
- Dati in tempo reale, dashboards & email in tempo reale

Mobile



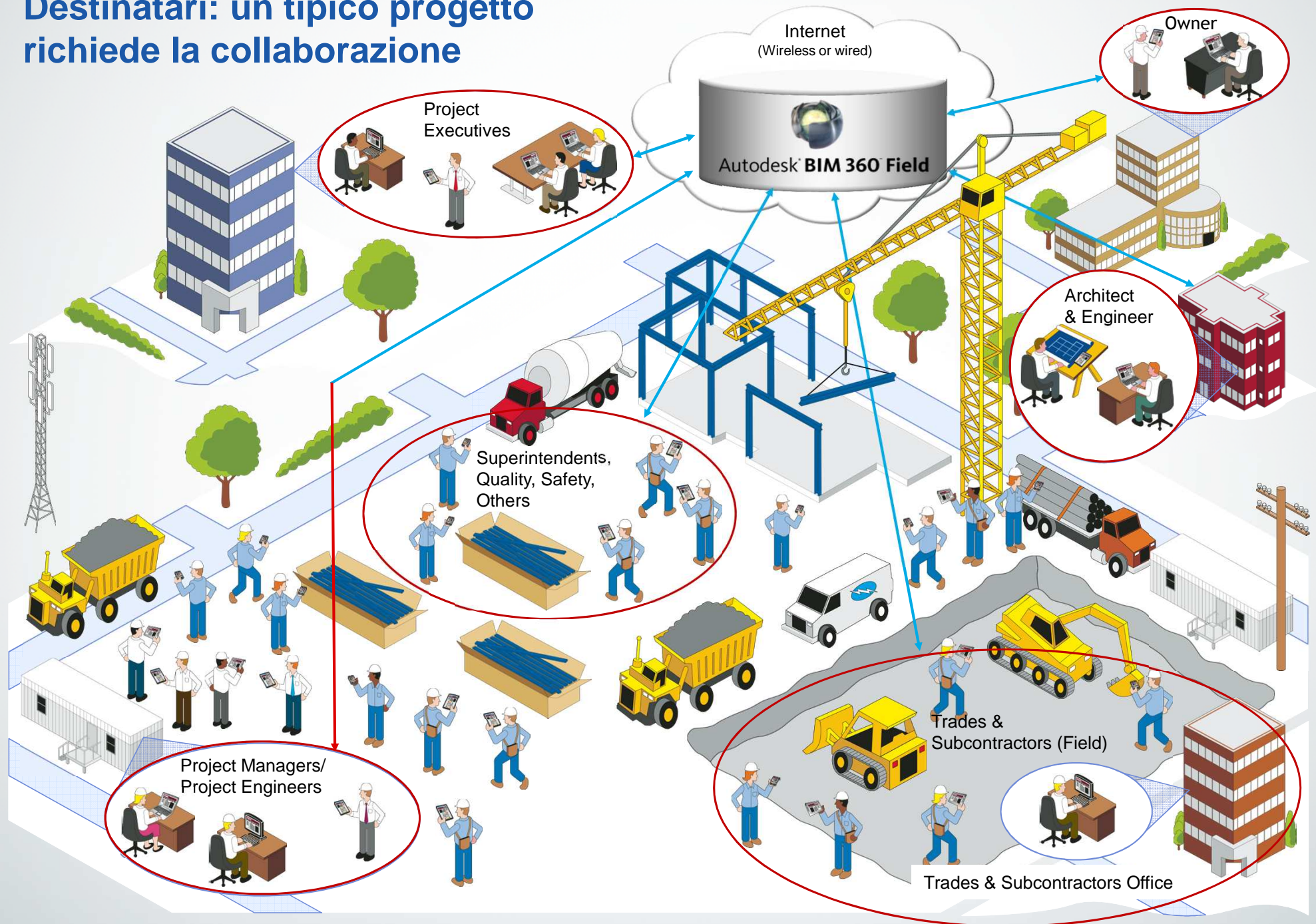
- iPad app & phone con email
- Sincronizzazione
- Funzionamento offline: connettività non necessaria

Field BIM™



- Includes Field BIM-Data & -Interactive
- Supporta la visualizzazione on-line su iPad di modelli BIM e di dati

Destinatari: un tipico progetto richiede la collaborazione

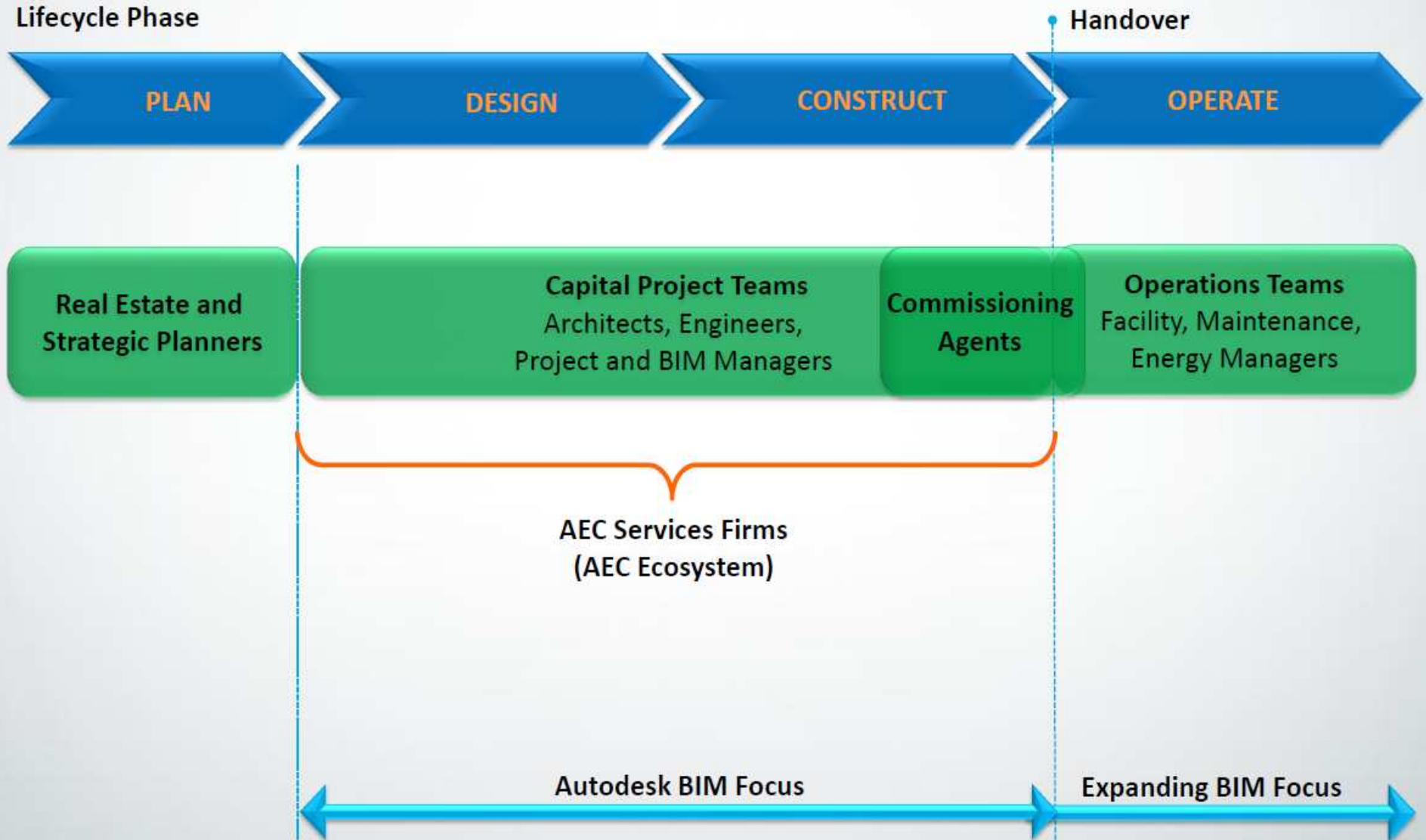




Operation and Maintenance



Building Owners | Stakeholder Segmentation



Why lifecycle costs are important to Owners



Building Lifecycle Cost

What's trending recently...



"Money for BIM to come from addressing Lifecycle Costs"

Sept 2012



Industry News

09/19/2012

A Facility Owner's Guide: Leverage the "I" in BIM Project Delivery

BIMFORUM

BIM for Facilities Management

October 2012

IFMA International Facility Management Association Empowering Facility Professionals Worldwide

MEMBERSHIP PROFESSIONAL DEVELOPMENT EVENTS COMMUNITY KNOWLEDGE BASE PUBLICATIONS

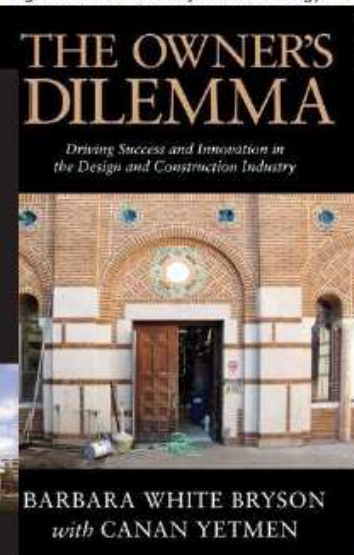
Browse by Category

- Research, Benchmarks & Surveys
- FM Forecasts
- FM Surveys
- FM Research
- Benchmarks Exchange: BEX
- FM Glossary

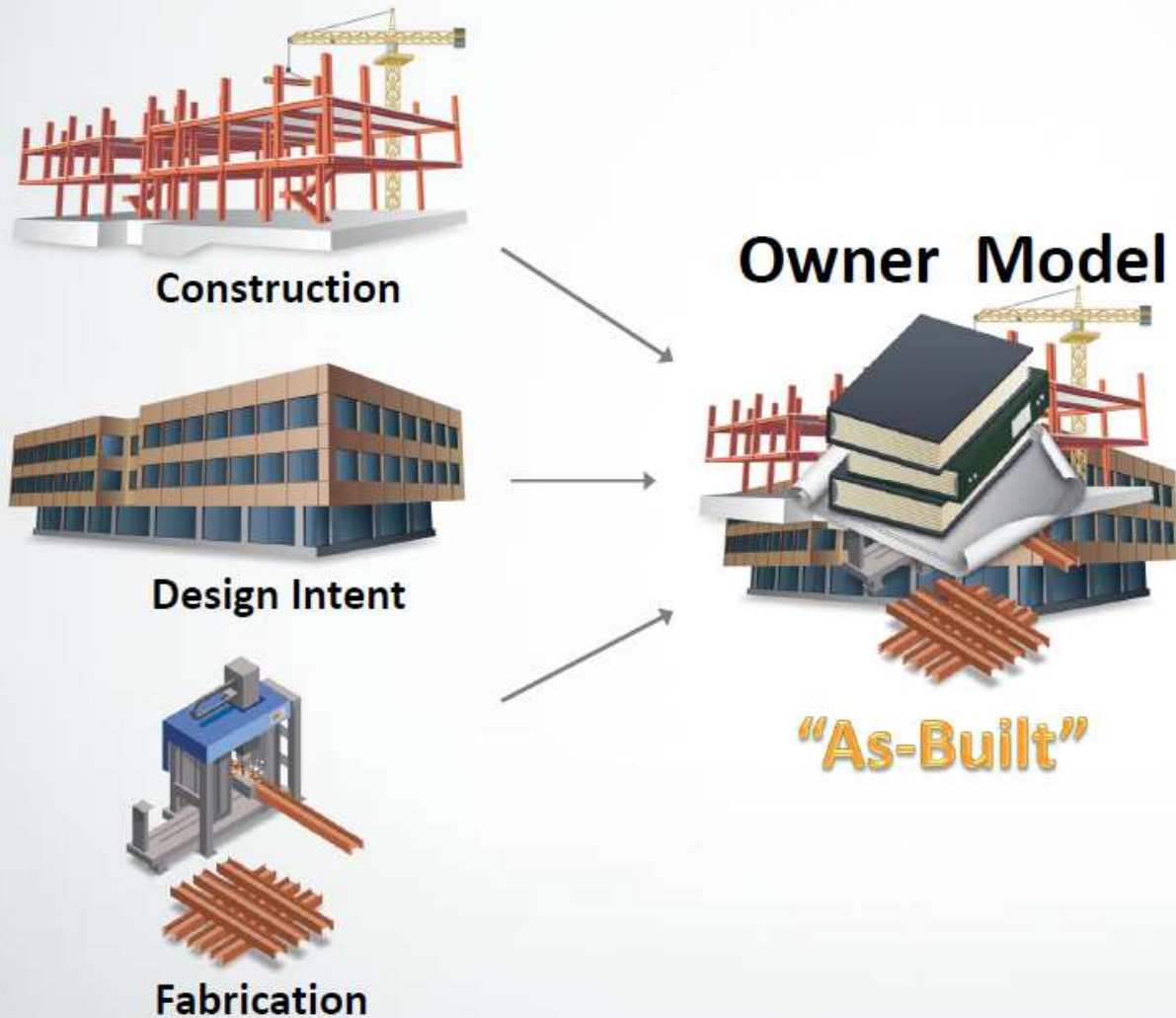
BIM session highlights from Facility Fusion 2012

Posted On: Aug 28, 2012

Building Information Modeling has emerged as a revolutionary new technology in the facility industry and is dramatically changing the way facilities are managed. IFMA's Facility Fusion conference provided attendees with the opportunity to better understand the technology and its impact on facilities.



Building Owner/O&M challenges illustrated...



Design & Construct

Handover

Operate

Building Owner/O&M challenges illustrated...



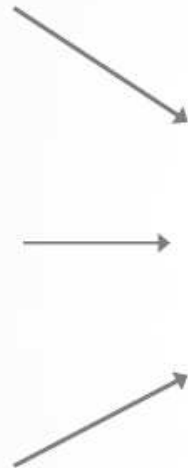
Construction



Design Intent



Fabrication



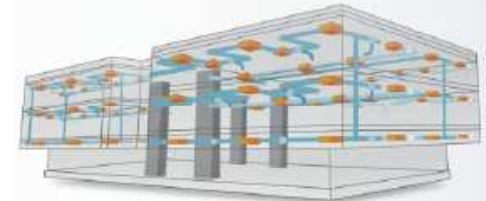
Owner Model



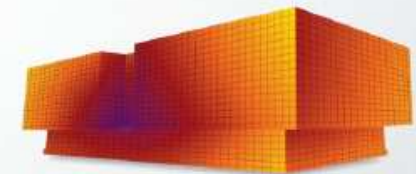
"As-Built"



Space Management



Maintenance Mgmt.



Energy Performance

Design & Construct

Handover

Operate

Building Owner/O&M challenges illustrated...



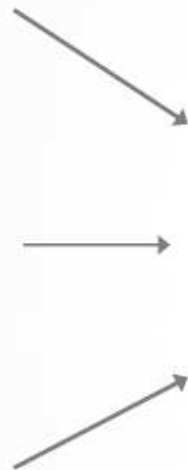
Construction



Design Intent



Fabrication



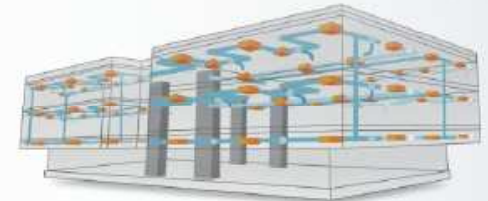
Owner Model



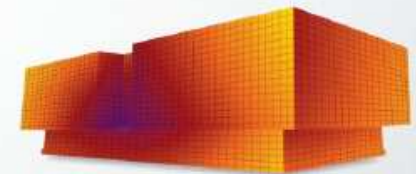
"As-Built"



Space Management



Maintenance Mgmt.



Energy Performance

Design & Construct

Handover

Operate

Building Owner/O&M Opportunity



Construction



Design Intent



Fabrication

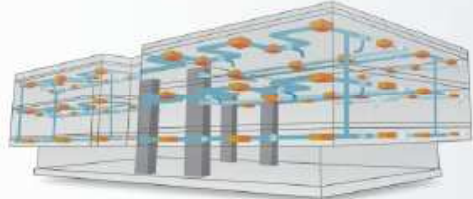
Owner Model



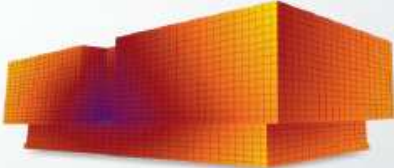
"As-Maintained"



Space Management

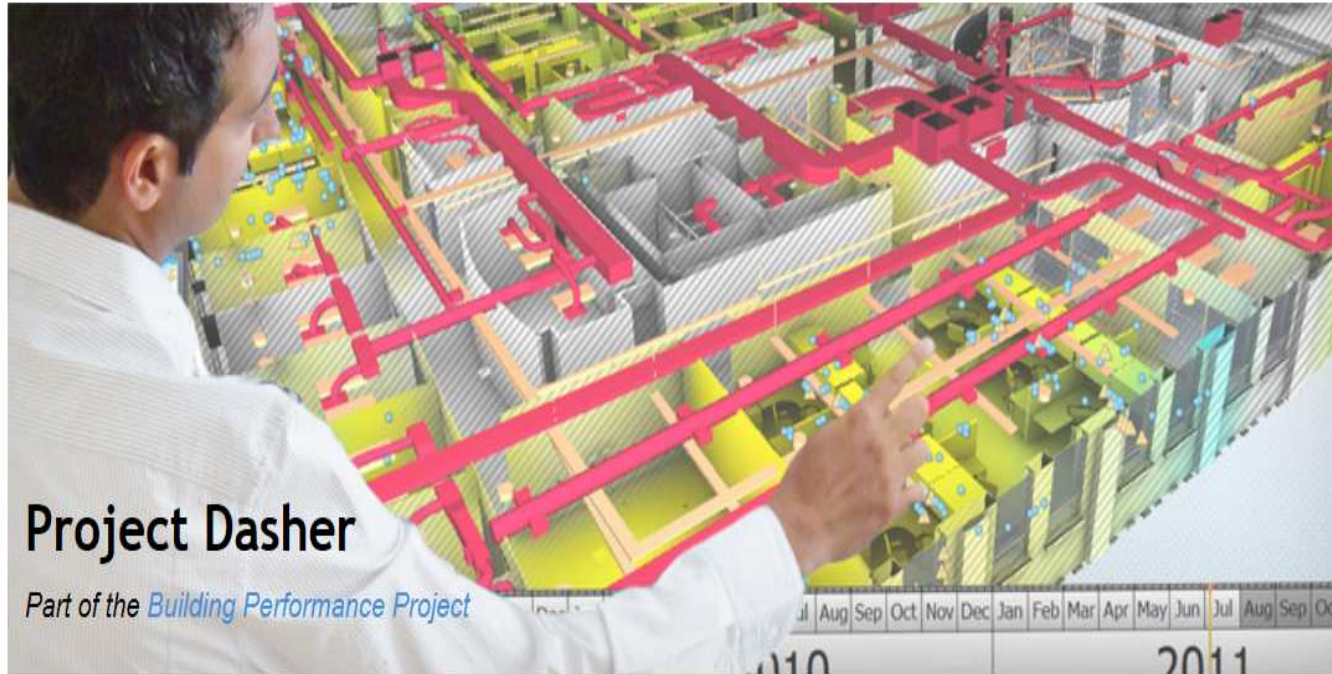


Maintenance Mgmt.



Energy Performance





Project Dasher

Part of the [Building Performance Project](#)

Project Dasher is an Autodesk research project using a BIM-based platform to provide building owners with greater insight into real-time building performance throughout the life-cycle of the building.

Building Information Modeling (BIM) is an intelligent model-based process that provides insight for creating and managing building projects faster, more economically, and with less environmental impact. Using meter and sensor data, Project Dasher extends the value of BIM to the life-cycle of the building by integrating BIM data and building instrumentation to provide building owners with more insight into how existing buildings perform in real time.

**Vi ringraziamo per la
vostra attenzione**

