

IFC import & export in Focus Anbud

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Focus Software AS

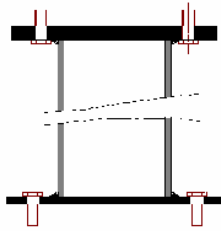
Focus Anbud

Specifications and tender documents

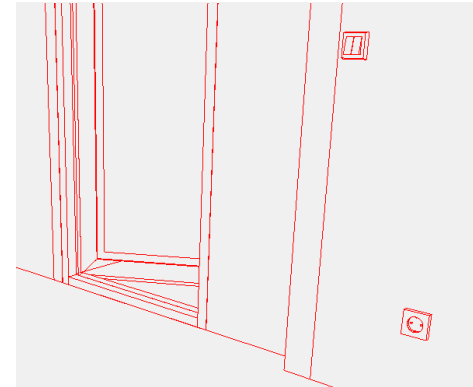
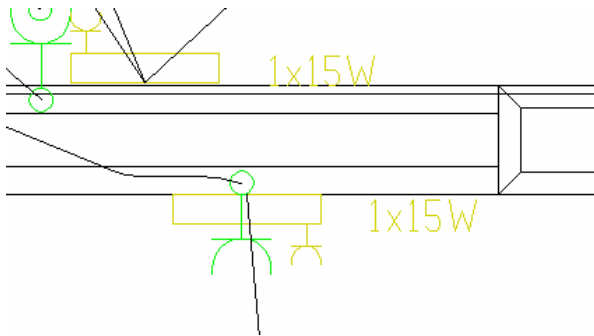
General Part

Technical specification

Focus Software AS	Idetektet 6. november 2000
Project: Eksempelprosjekt 4.6	Side: A - 1
Paragraph: ANBUDSINNBYDELSE	
A	<p><u>ANBUDSINNBYDELSE</u></p> <p>På vegne av Uthyggeren AS innbyr vi Dem herved til å gi anbud på:</p> <p>Uthyggersenteret Byggeveien 99 9999 Byggeland</p> <p>Anbudet skal gis på grunnlag av innhold og bestemmelser i de anbudsdokumenter som er listet opp i prosjektskrivelsen.</p> <p>Det vil ikke bli avholdt offisiell anbudsbehandling.</p> <p>Anbudsreglene fremgår av kap. F i prosjektskrivelsen.</p> <p>For å være med i anbudskonkurransen må anbudet være ankommet til:</p> <p>Konsulenten AS innen 1. august 1997 kl 12.00</p> <p>Anbudet skal være merket: Uthyggersenteret</p> <p>Det vil ikke bli holdt offisiell anbudsåpning.</p> <p>..... den 19.....</p> <p>Sign.</p>

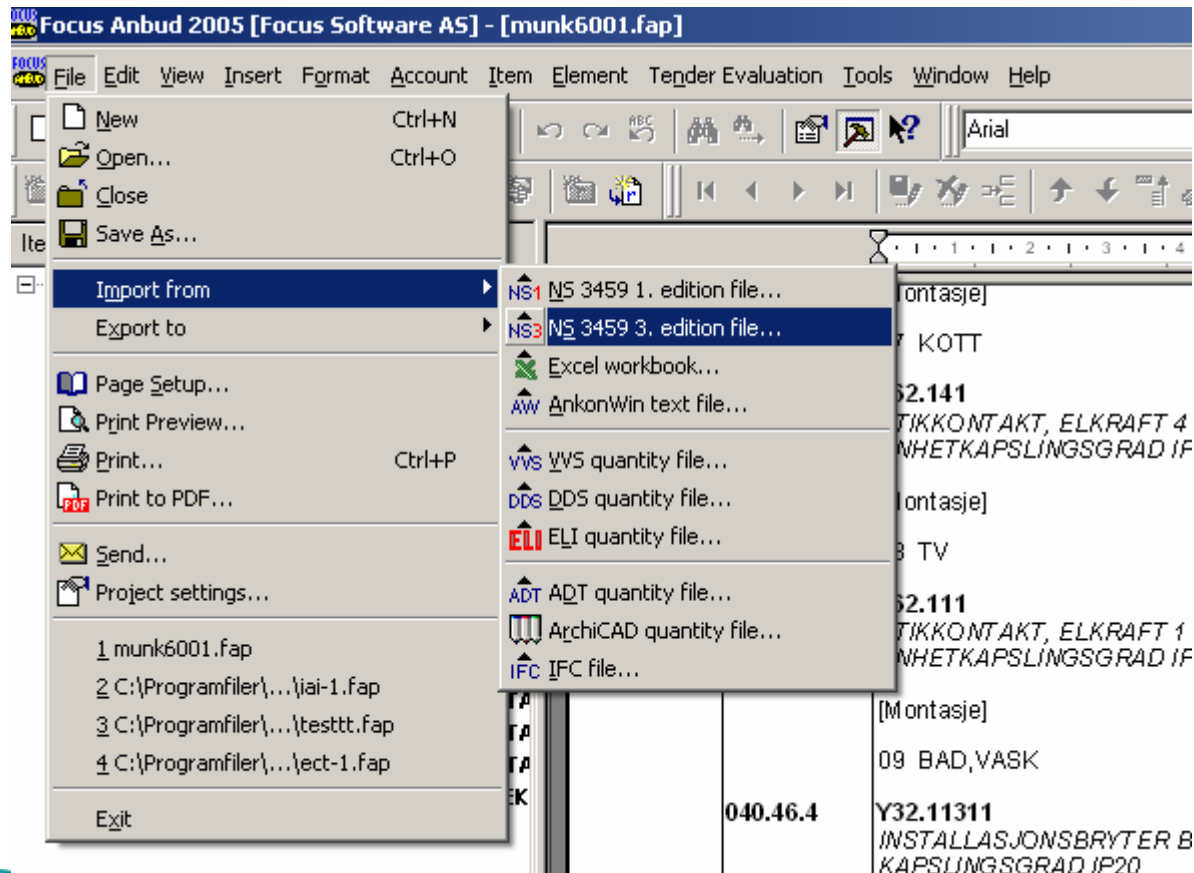
Focus Software AS	10. juni 2001				
Project: Eksempelprosjekt 4.6	Side: 07 - 1				
Chapter: 07 STEEL AND METALWORK					
Item no.	NS code/Text	Unit	Quantity	Price	Sum
07	<p><u>STEEL AND METALWORK</u></p> <p>Denne beskrivelse er basert på NS 3420 3. utgave.</p> <p>Kodene ved de spesifiserende tekstene viser til de bestemmelser i standarden som gjelder for de enkelte utførelser.</p> <p>Dette kapittel omfatter:</p> <p>07.22 Bæresystemer kr.</p>				
07.22	<p><u>Bearing elements</u></p>				
07.22.1	<p>P11.21 BJELKER AV VALSEPROFILER</p> <p>HE 300 B Med påsvetsat fotplate. Festes med bolter. Se tegning!</p> 				
		kg	1250,0	15,00	18750,00

Challenge



040.46.3	<p>Y62.111 STIKKONTAKT, ELKRAFT 1 UTTAK PER ENHETKAPSLINGSGRAD IP20</p> <p>[Montasje]</p> <p>09 BAD,VASK</p>	12	stk.	12	180,00	2 160,00
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What we have been used too



Overall schema

- Uses EXPRESS Data Manager toolkit from EPM (late bindings)
- EDM's C based API (SDAI) wrapped in ATL based COM library (early bindings)
- Handles large models

Imported objects

- Building Elements
 - Walls, Slabs, Columns, Beams
- Electrical and HVAC

Building elements

- Uses element reference for lookup in external element database
- External element database contains complete specification data for each element
- Walls (IfcWall, IfcWallStandardCase)
 - Element reference found in Pset_WallCommon
 - Area found in IfcElementQuantity or calculated from geometric representation
- Slabs (IfcSlab)
 - Element reference found in Pset_SlabCommon
 - Area found in IfcElementQuantity or calculated from geometric representation
- Columns (IfcColumn)
 - Element reference found in Pset_ColumnCommon
 - Length found in IfcElementQuantity or calculated from geometric representation
- Beams (IfcBeam)
 - Element reference found in Pset_BeamCommon
 - Length found in IfcElementQuantity or calculated from geometric representation
- Windows (IfcWindow)
 - Element reference found in Pset_WindowCommon
- Doors (IfcDoor)
 - Element reference found in Pset_DoorCommon

Electrical & HVAC

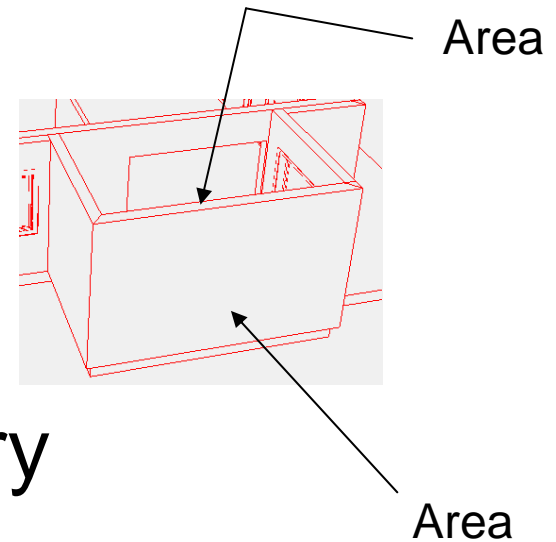
- Uses Pset_NS3420 for specification and cost estimating data
 - Defined by Data Design Systems and Focus Software
 - Passes on Electrical Data Code to cost estimating systems
 - Updates specification and cost estimating data
- Electrical (IfcElectricalDomain schema)
 - IfcCableCarrierfittingType
 - IfcCableCarriersegmentType
 - IfcElectricApplianceType
 - IfcElectricHeaterType
 - IfcJunctionBoxType
 - IfcLightFixtureType
 - IfcOutletType
 - IfcSwitchingDeviceType
- Building Controls (IfcBuildingControlsDomain schema)
 - IfcActuatorType
 - IfcSensorType

Electrical & HVAC cont.

- IfcAirTerminalType
- IfcAirToAirHeatRecoveryType
- IfcBoilerType
- IfcDamperType
- IfcDuctFittingType
- IfcDuctSegmentType
- IfcDuctSilencerType
- IfcFanType
- IfcFilterType
- IfcFireSuppressionTerminalType
- IfcFlowMeterType
- IfcHumidifierType
- IfcPipeFittingType
- IfcPipeSegmentType
- IfcPumpType
- IfcSpaceHeaterType
- IfcTankType
- IfcValveType
- Plumbing (IfcPlumbingFireProtectionDomain schema)
 - IfcSanitaryTerminalType
 - IfcWasteTerminalType

IfcElementQuantity

- Quantity rules
 - National variations
 - Wall – Opening
- Calculation from the geometry
 - Complex calculations
- Which quantity is correct
 - Depending on where you are in the building process and the purpose



Timeline

- Approx 4 weeks (effectively)
 - IFC model (using) 30%
 - Toolkit (using) 15%
 - Com library (implementing) 30%
 - Application (implementation) 25%