

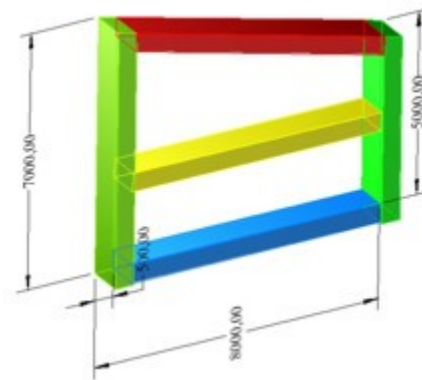
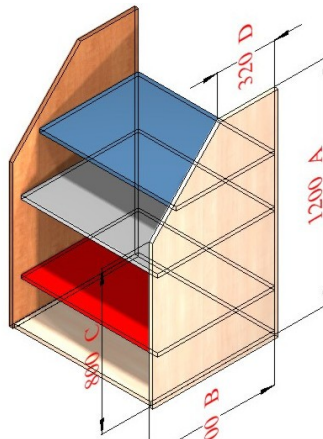
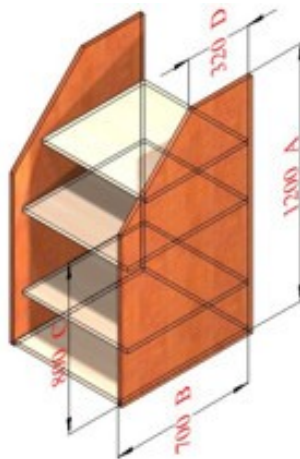
Cost and Price Estimation of Furniture Products Using CAD Module Applications

Ing. Eva Šebelová, Mendel University in Brno

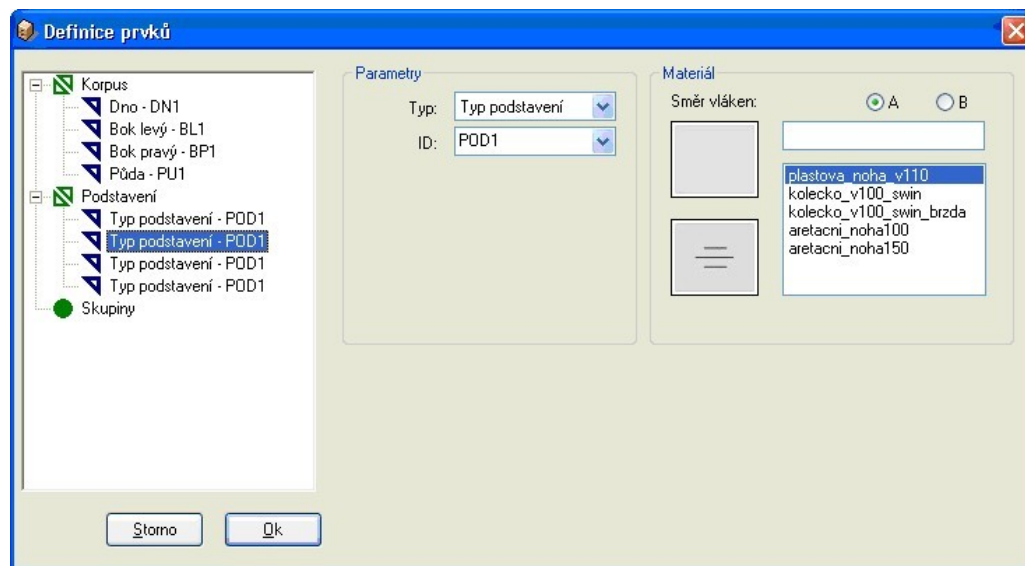
- Procedure of cost estimation for furniture products using a modular CAD system
- Different types of cost estimation processing
- Software analysis of TurboCAD and its extensions: DAEX Generator and DAEX CUT

- Price ranges, levels of sophistication
- Modules as a part of the program: direct modules or plug-ins
- TurboCAD is an affordable and variable CAD software
- Design, drafts, detailing parametric system
- 3D surface and solid modeling, photorealistic rendering in LightWorks environment
- Architectural and mechanical tools
- Extensive file support (3DS, DWG, DXF, JPG, SAT, IGS)

- Furniture libraries
- Editing size, material and modify the individual components
- Connecting the design, manufacture and trade
- Product modification as a library symbol



- Parametric nature of the system
- Changes are possible immediately by command
- Easy operation and orientation in space drawing
- Document export (CSV, XML)
- Default template drawing with working levels



<params> - Categories.xml

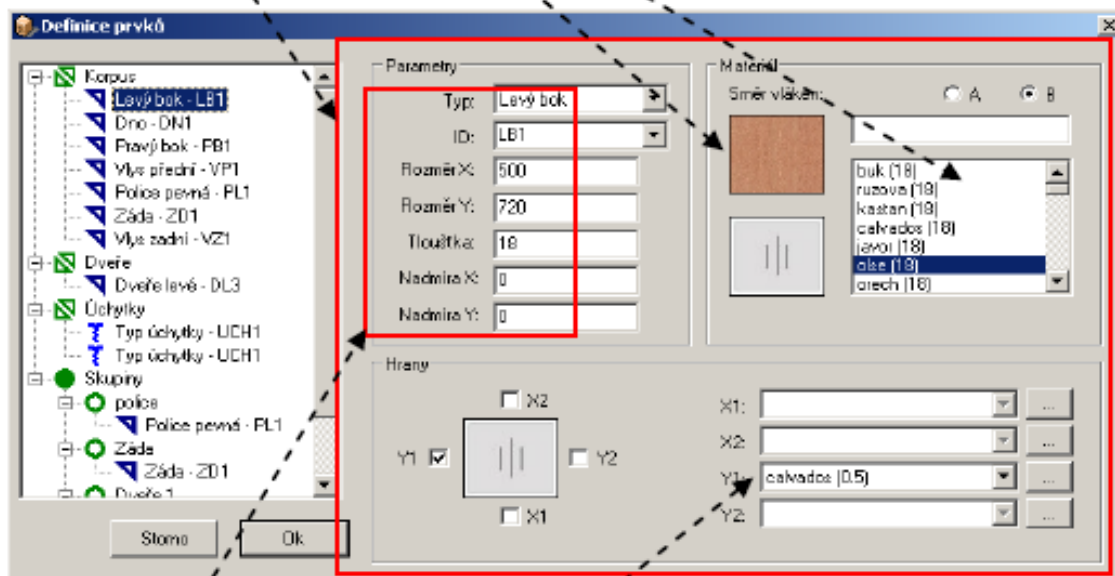
C:\Program Files\Spinar-software\DAEX-Generator\Data\Configs\

Olse_V.jpg

C:\Program Files\Spinar-software\DAEX-Generator\Images\MaterialsView

Materials.xml

C:\Program Files\Spinar-software\DAEX-Generator\Data\Configs\



Edges.xml

C:\Program Files\Spinar-software\DAEX-Generator\Data\Configs\

<parts> - Categories.xml

C:\Program Files\Spinar-software\DAEX-Generator\Data\Configs\

- DAEX CUT allows the specification of the parameters
- Definition of dimensions, direction of fibers, materials, decoration
- Link among DAEX Generator and DAEX CUT
- Import data into a spreadsheet editor and reflection in the manufacturing documents
- Flexible editor – change, add or delete
- Pre-created categories
- Detection of components
- Principle of modular assemblies

Daex CUT - [Objednávka]

Zakázky Číselníky Exp/Imp Zákazníci Nastavení Info Pomoc Konec

Přehled Příprava výroby Optimalizace

Výroba - nabídka Standardní sortiment **ŠPMAR SOFTWARE**

Nová Uložit Kopie JPG ICW Spotřeba Mat.náklady Kusovník A1 Kusovník A2 Kusovník B Kusovník C1 Zak.list A ... Zavřít

Číslo objednávky: NA08_000004_ Cenové provedení: Ze dne: 22. 1. 2007 Akce: Název: Stav 1: Nabídka

1 Kontakty a termíny **Položky - výroba** Poznámky a dohoda

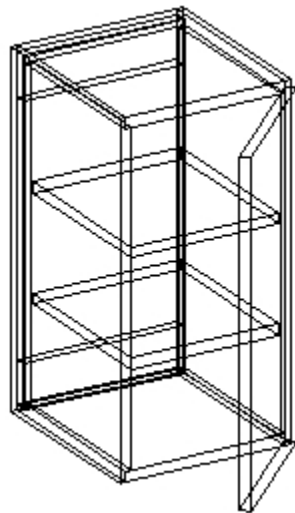
+Sestava +Prvek -Prvek +Prvek +Operace

#	Strom	Typ	TypM	ID	Název	Ks	Sum	Původ	X	Y	Z	NadX	NadY	XNP	YNP	TypM	Sr
1	+ S1	✓	✓	SN60L	SN60L	1	1		600	710	570	0	0	600	710	✓	
12	+ S2	✓	✓	SN60Z3T	SN60Z3T	1	1		600	710	570	0	0	600	710	✓	
27	+ S3	✓	✓	SNRK89L	SNRK89L	1	1		890	710	890	0	0	890	710	✓	
38	+ S4	✓	✓	HP80	HP80	1	1		800	720	300	0	0	800	720	✓	
49	- S5	✓	✓	HD40L	HD40L	1	1		400	720	300	0	0	400	720	✓	
50	+ S5s2	✓	✓	3DV1_396x716		1	1		396	716	18	0	0	396	716	✓	
52	- S5_p9	✓	□	PB1	Pravý bok - PB1	1	1		720	300	18	0	0	720	300	□	x
53	- S5_p10	✓	□	VK1	Víko - VK1	1	1		364	300	18	0	0	364	300	□	x
54	- S5_p11	✓	□	DN1	Dno - DN1	1	1		364	300	18	0	0	364	300	□	x
55	- S5_p12	✓	□	PL1	Police - PL1	1	1		364	285	18	0	0	364	285	□	x
56	- S5_p13	✓	□	PL2	Police - PL2	1	1		364	285	18	0	0	364	285	□	x
57	- S5_p14	✓	□	LB1	Levý bok - LB1	1	1		720	300	18	0	0	720	300	□	x
58	- S5_p15	✓	□	ZD1	Záda - ZD1	1	1		694	374	5	0	0	694	374	□	x
59	- S5_p16	✓	✓	UCH3	Typ úchvtek - UCH3	1	1		23	190	8	0	0	23	190	✓	x 22-UCH-0003

Spotřeba Mat.náklady Kusovník A1 Kusovník A2 Kusovník B Kusovník C1 Zak.list A Zak.list B Spotřeba(+O) Mat.nákl.(+O)

CAD module applications:

- cost estimation is based on 3D model
- modular assemblies using TurboCAD tools
- symbols, blocks and groups
- software upgrades

A screenshot of a software dialog box titled 'Parametry' (Parameters). It contains a table of parameters for a modular assembly, each with a text input field, a numeric value, and a dropdown arrow. To the right of the table are three buttons: 'OK', '+', and '-'.

Parametry	
Výška	600
Hloubka	330
Šířka	310
Rozložit	0
Úhel otevření	45
Počet polic	2

Generating cost estimations

- Datasheets of materials, fittings and other furniture components
- Work in pre-constructed template drawing
- Different levels
- Specification (material, thickness, decor, edges, direction of fibers, fittings)

The screenshot displays a software interface for configuring a kitchen cabinet door. It includes a 3D model of the door with red arrows indicating movement, a 'Parametry' (Parameters) section with input fields for ID, name, dimensions, and a dropdown for 'Protažení' (Extension), a 'Dveře' (Doors) list with '1.dveře' selected, a 'Doplňky' (Accessories) list with 'Kování' (Hardware) expanded, and a 'Úchytky' (Handles) list with 'úchytkaa3' selected. A 'Kategorie' (Category) dropdown is set to 'Kuchyně' (Kitchen), and there are buttons for 'Prvky' (Elements), 'Export', 'Vrtání' (Drilling), 'Storno' (Cancel), and 'Ok'.

Parametry

Identifikátor: HD60
Název: HD60
Šířka: 600
Výška: 720
Hloubka: 300
Protažení: 2. Varianta

Dveře

Bez dveří
1.dveře
2.dveře
3.dveře
4.dveře

Doplňky

Kování
NK-pant
Kolík
Podperka
Excentr
Konfirmat
Spotřebiče
Varná deska
Trouba

Úchytky

Bez Úchytky
úchytkaa1
úchytkaa2
úchytkaa3

Kategorie: Kuchyně

Prvky Export

Vrtání

Storno Ok

- Importing data into a spreadsheet DAEX CUT
- Each change is actively reflected in the documentation
- Cost estimation: material consumption and purchased components

MATERIÁLOVÉ NÁKLADY

NA10_000018_SSW

ID materiálu	Název materiálu	Mezisoučet:	Množství	Cena
— Délkový materiál				
42-18-1111	HRANIPEX HD 48403	15,00 Kč	24,16 m	362,34 Kč
Mezisoučet:				362,34 Kč
□ Plošný materiál				
21-05-4571	KRONOSPAN OR (4)	130,00 Kč	1,57 m2	204,10 Kč
21-18-4571	KRONOSPAN OR (18)	180,00 Kč	2,54 m2	456,84 Kč
Mezisoučet:				660,94 Kč
Celkem:				1 023,28 Kč

Calculation formula:

- direct costs:
 - direct material costs
 - direct labor
 - other direct costs

- overhead costs:
 - production costs
 - administrative costs
 - the cost of disposing

Price calculation:

$$P_w = C_p + P_p$$

P_w – price of the product

C_p – total costs of the product

P_p – profit

- CAD module applications - direct material costs
- Linking extensions with the accounting programs (POHODA, etc.)

CAD systems are integral part of the furniture production

- TurboCAD tools for all types of production
- software extensions

CAD module applications:

- material consumption
- entering costs manually
- export to accounting programs
- interconnection of applications.



Thank you for your attention