LOCAFI+

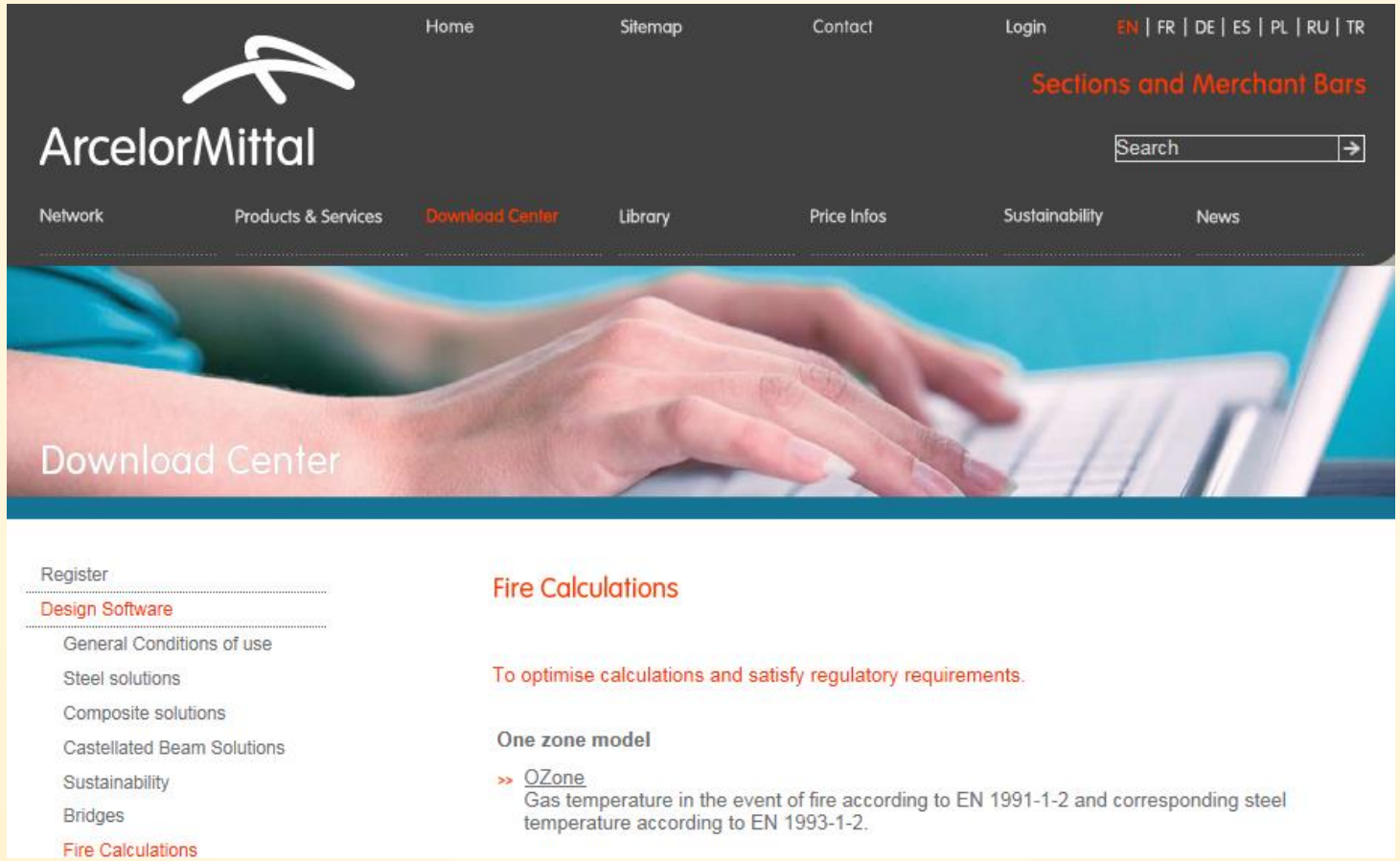
Temperatuur vertikaalses konstruktsioonielemendis kohaliku põlengu tingimustes

Leping n° 754072

5. Tarkvara

5. Tarkvara

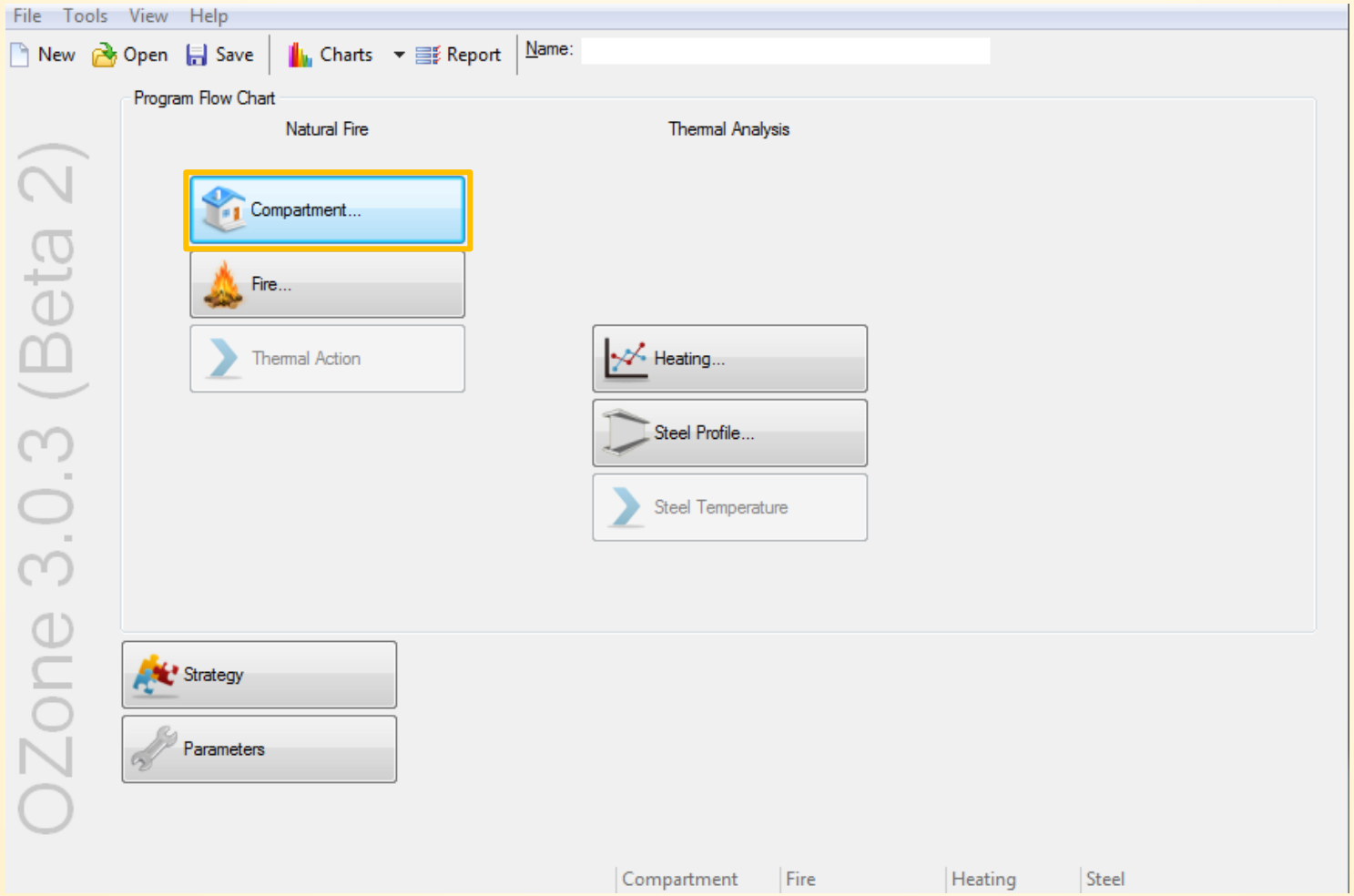
5.1. OZone sektsioon



http://sections.arcelormittal.com/download-center/design-software/fire-calculations.html

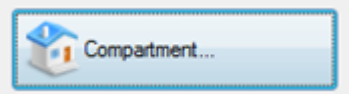
5. Tarkvara

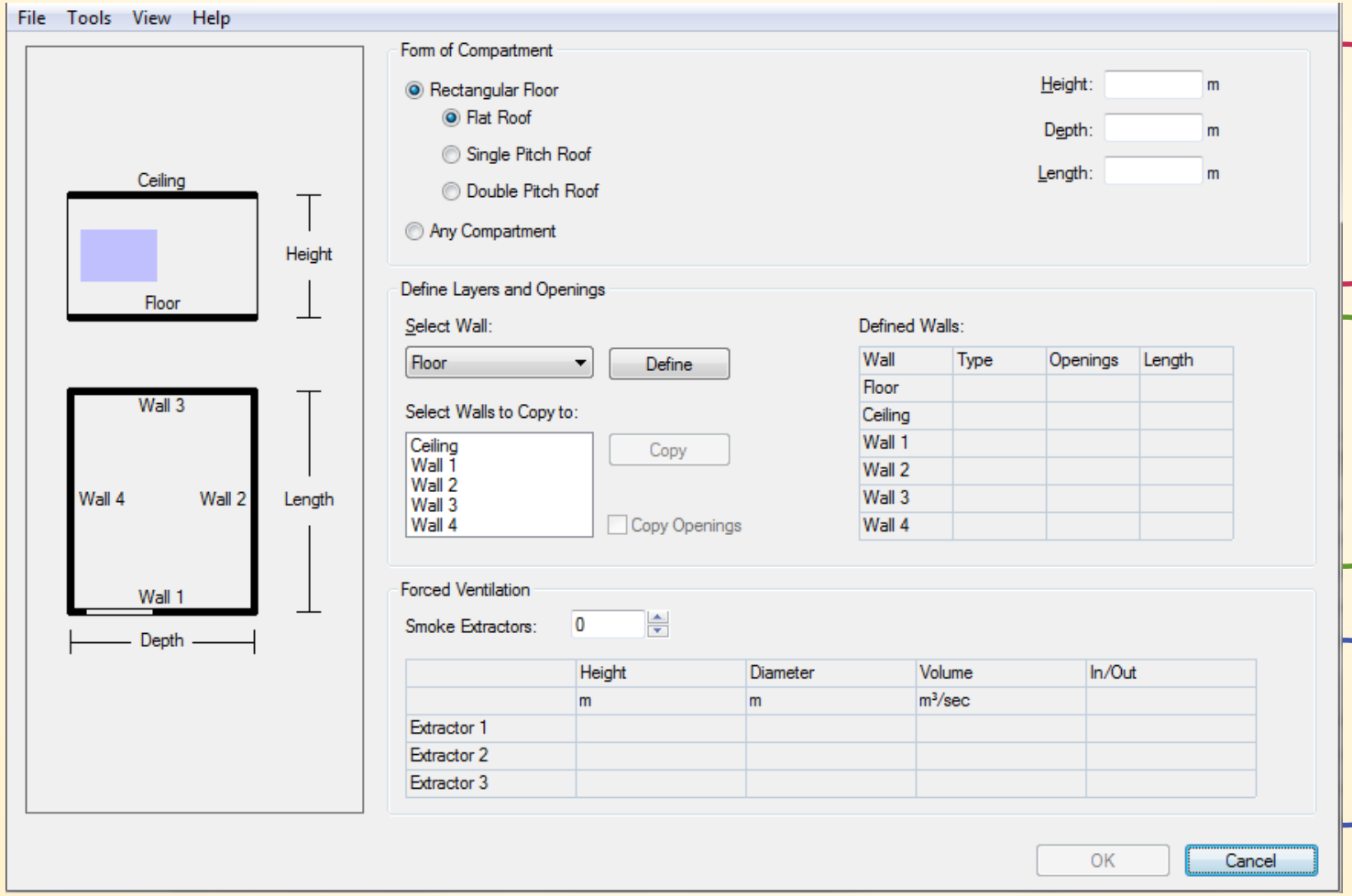
5.1. OZone sektsioon



5. Tarkvara

5.1. OZone sektsioon





Sektsiooni mõõtmed

Põranda, seinte ja lae omadused

Sundventilat-sioon (kui on)

5. Tarkvara

5.1. OZone sektsioon

File Tools View Help

Wall Length: 13 m

	Material	Thickness	Unit mass	Conductivity	Specific Heat	Rel Emissivity	Rel Emissivity
		cm	kg/m³	W/mK	J/kgK	Hot Surface	Cold Surface
Layer 1	Steel [EN1994-1-2]	0.1	7850	45	600	0.8	0.8
Layer 2	Glass wool _Rock wool	6	60	0.037	1030	0.8	0.8
Layer 3	Steel [EN1994-1-2]	0.1	7850	45	600	0.8	0.8
Layer 4							

Seinte kihtide omadused

Inside
Layer 1
Layer 2
Layer 3
Layer 4
Outside

Enter each layer on a single row in the table above (up to four layers). Just click in a cell and edit it's value. If not found in the list of materials you can define your own material, by filling in the apropriate cells. Define your layers starting from Layer 1 (Inside).

Define your openings if any (up to three openings in a single wall). Click in the desired cell and input your values. Start from Opening 1.

To delete or insert a row, right click on a row header and select the appropriate command from the popup menu.

	Sill Height Hi	Soffit Height Hs	Width	Variation	Adiabatic
	m	m	m		
Opening 1	0	4	4.2	Stepwise	no
Opening 2	0	2	1	Stepwise	no
Opening 3					

OK Cancel

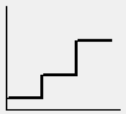
Avad

Parameters

Temperature Dependent Openings

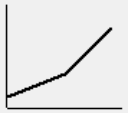
Temperature Dependent: 400 °C

Stepwise Variation



Temperature	% of Total Openings
°C	
20	10
400	50
500	100

Linear Variation



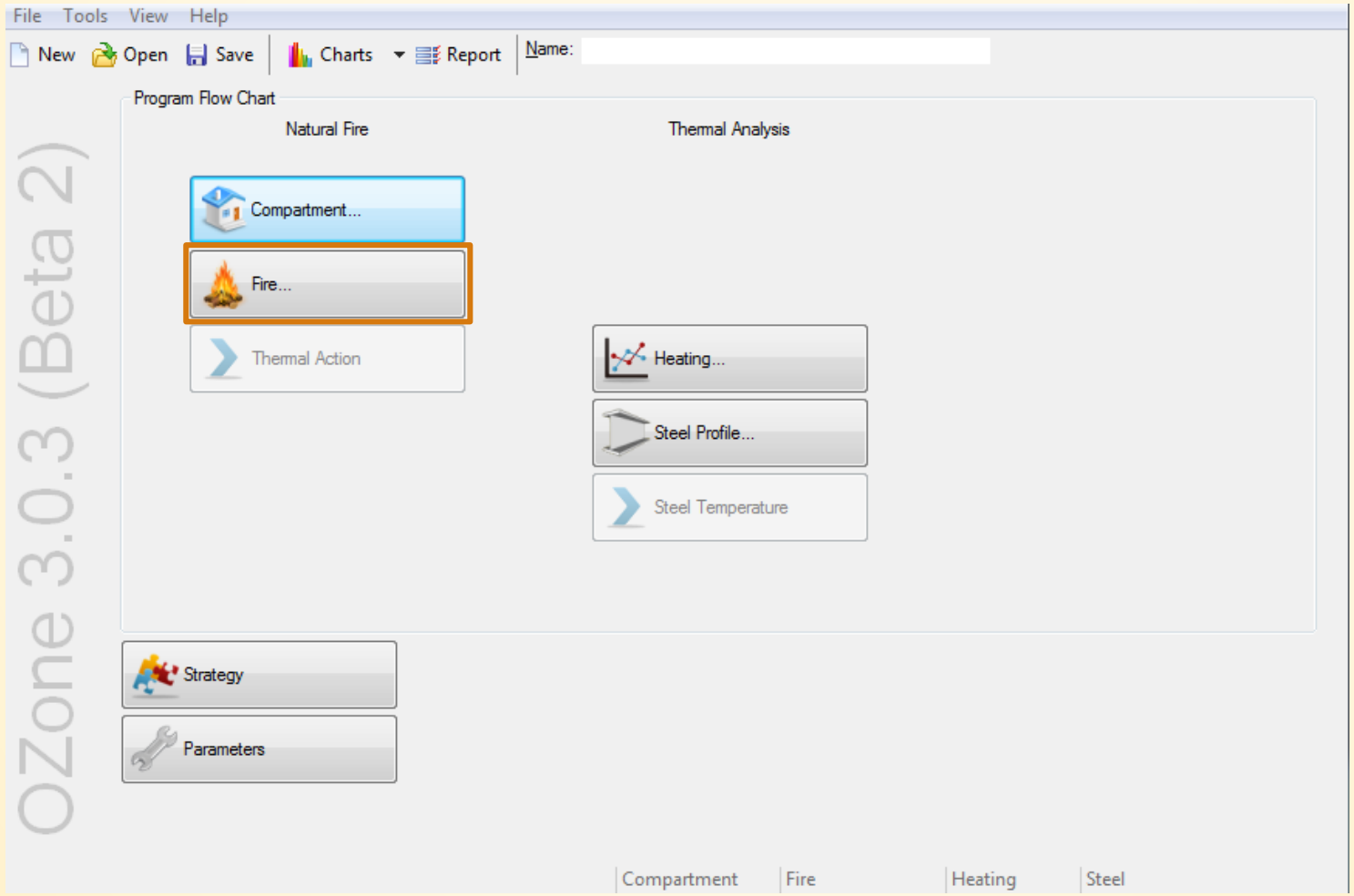
Temperature	% of Total Openings
°C	
20	10
400	50
500	100

Time Dependent Openings

Time	% of Total Openings
sec	
0	5
1200	100

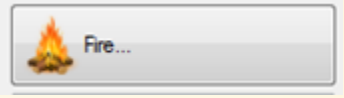
5. Tarkvara

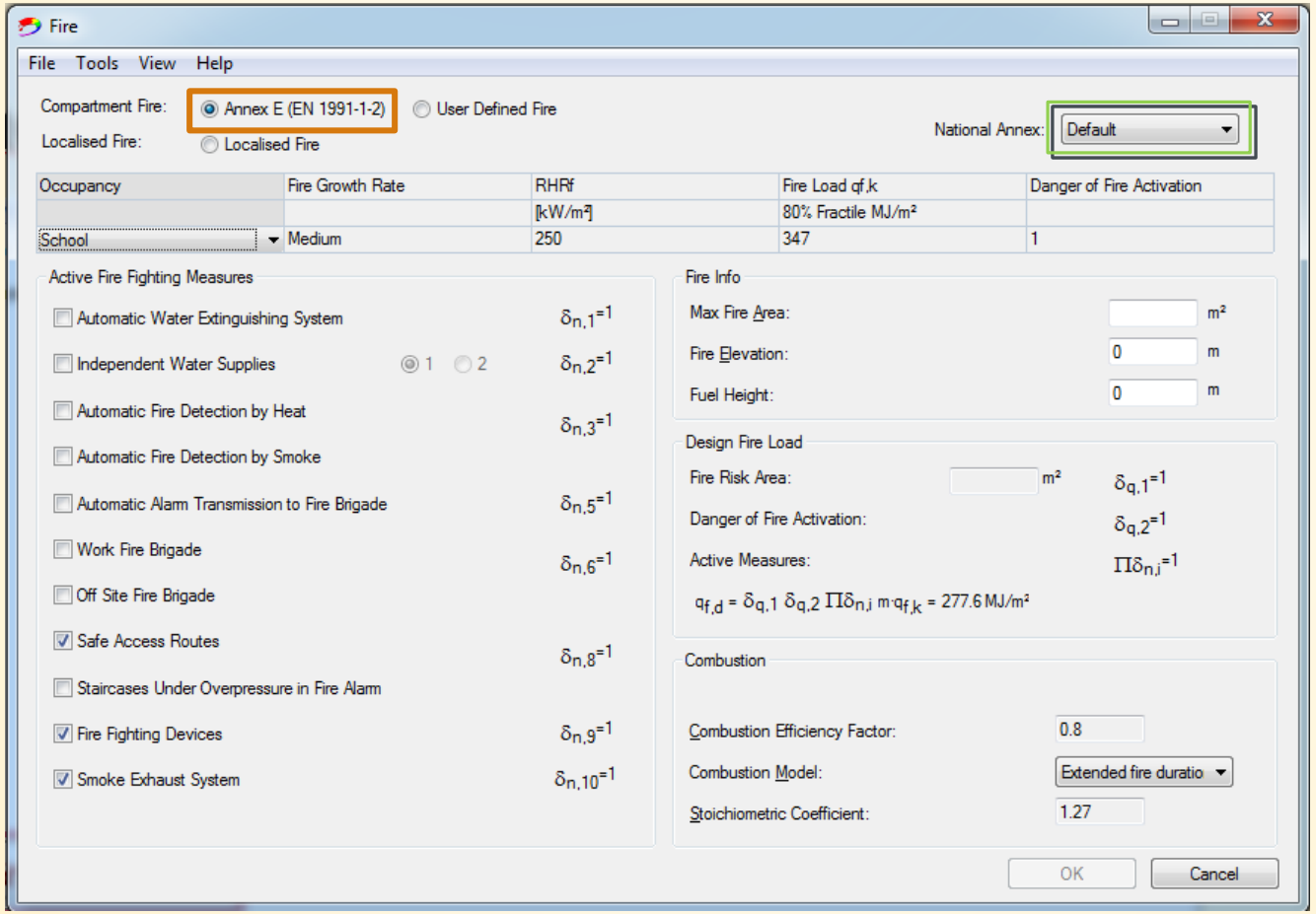
5.1. OZone sektsioon



5. Tarkvara

5.1. OZone sektsioon

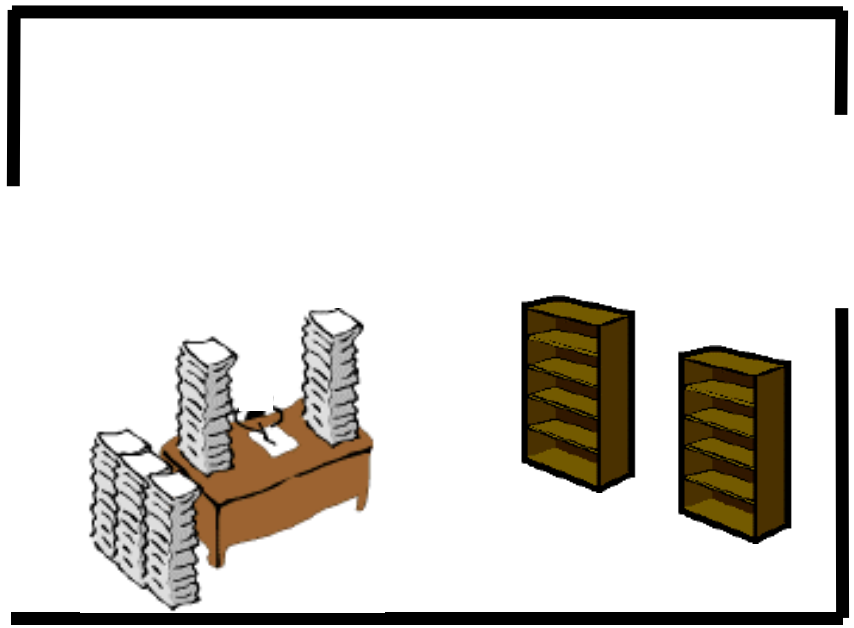




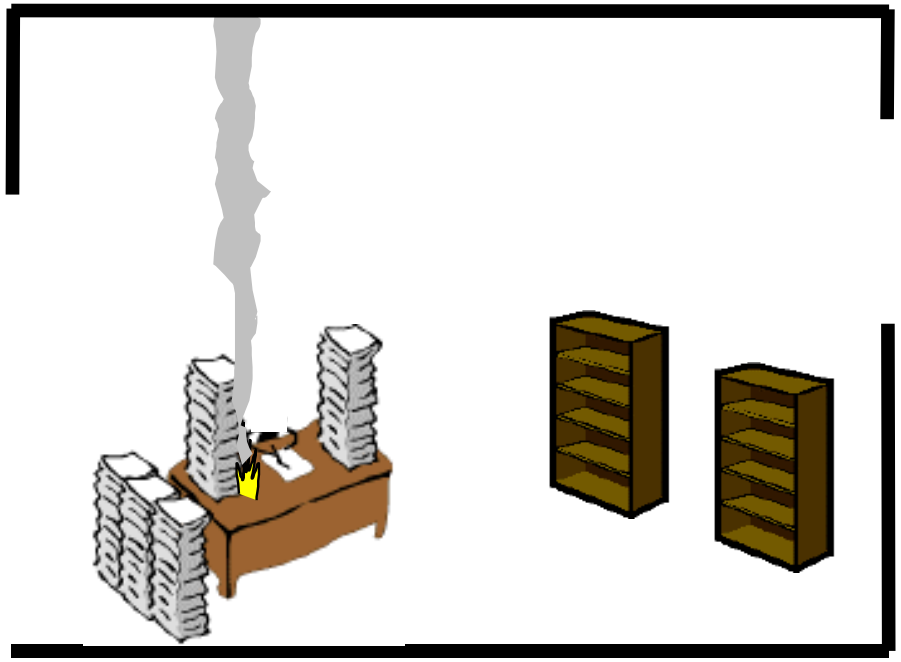
5. Tarkvara

5.1. OZone sektsioon

Enne põlengut



Süttimine

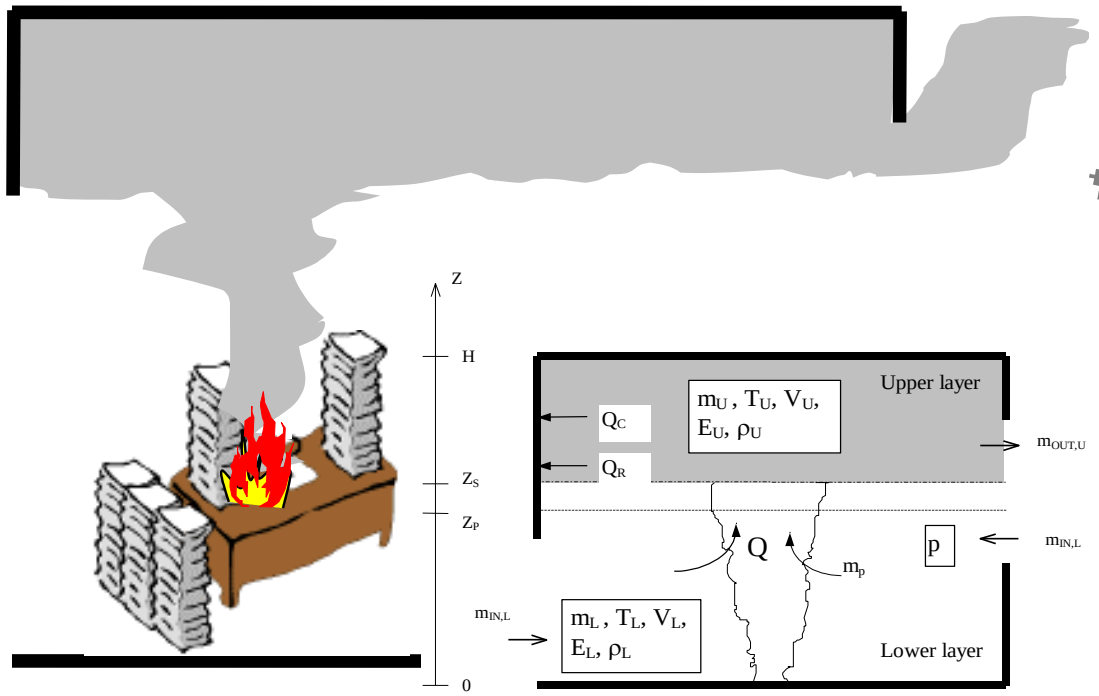


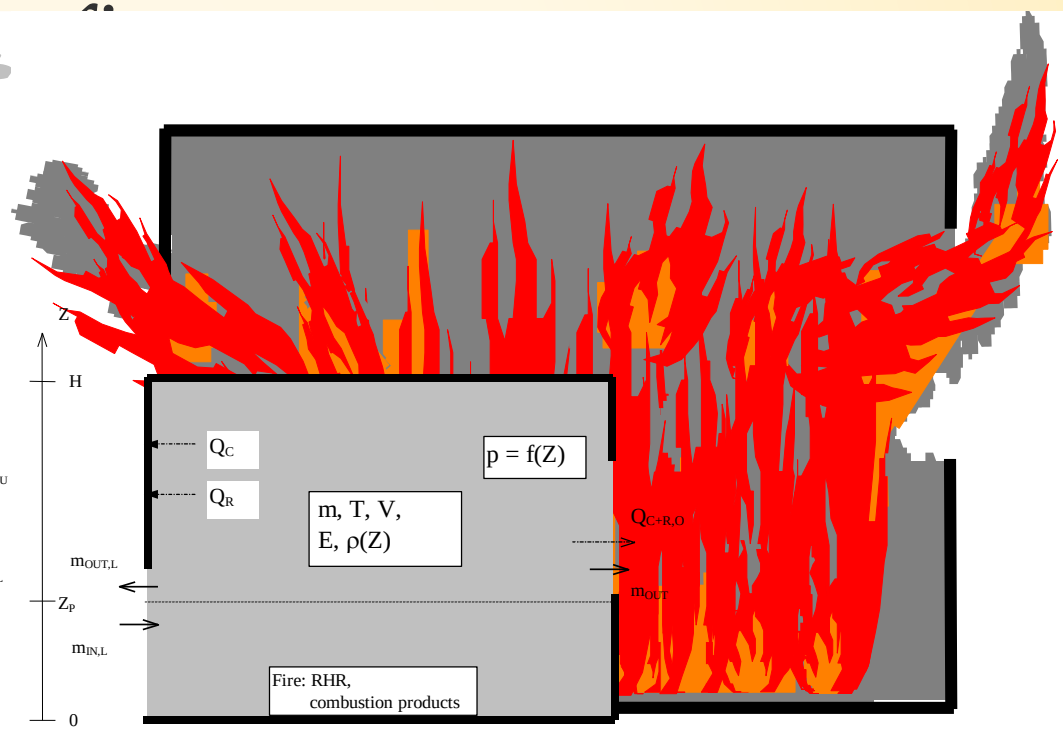
5. Tarkvara

5.1. OZone sektsioon

Kohalik põleng

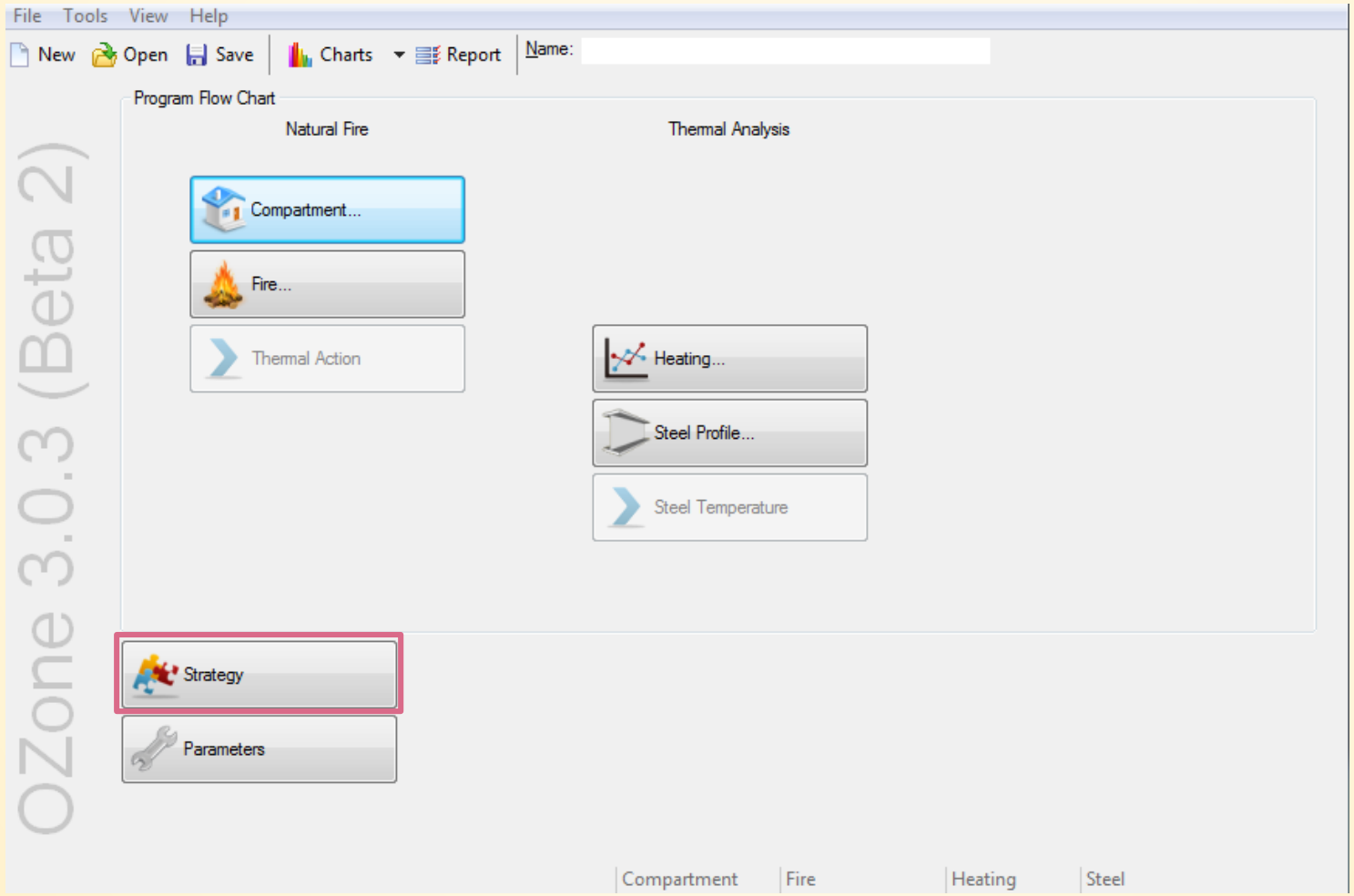
Lahvatusjärgne põleng





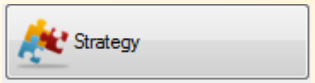
5. Tarkvara

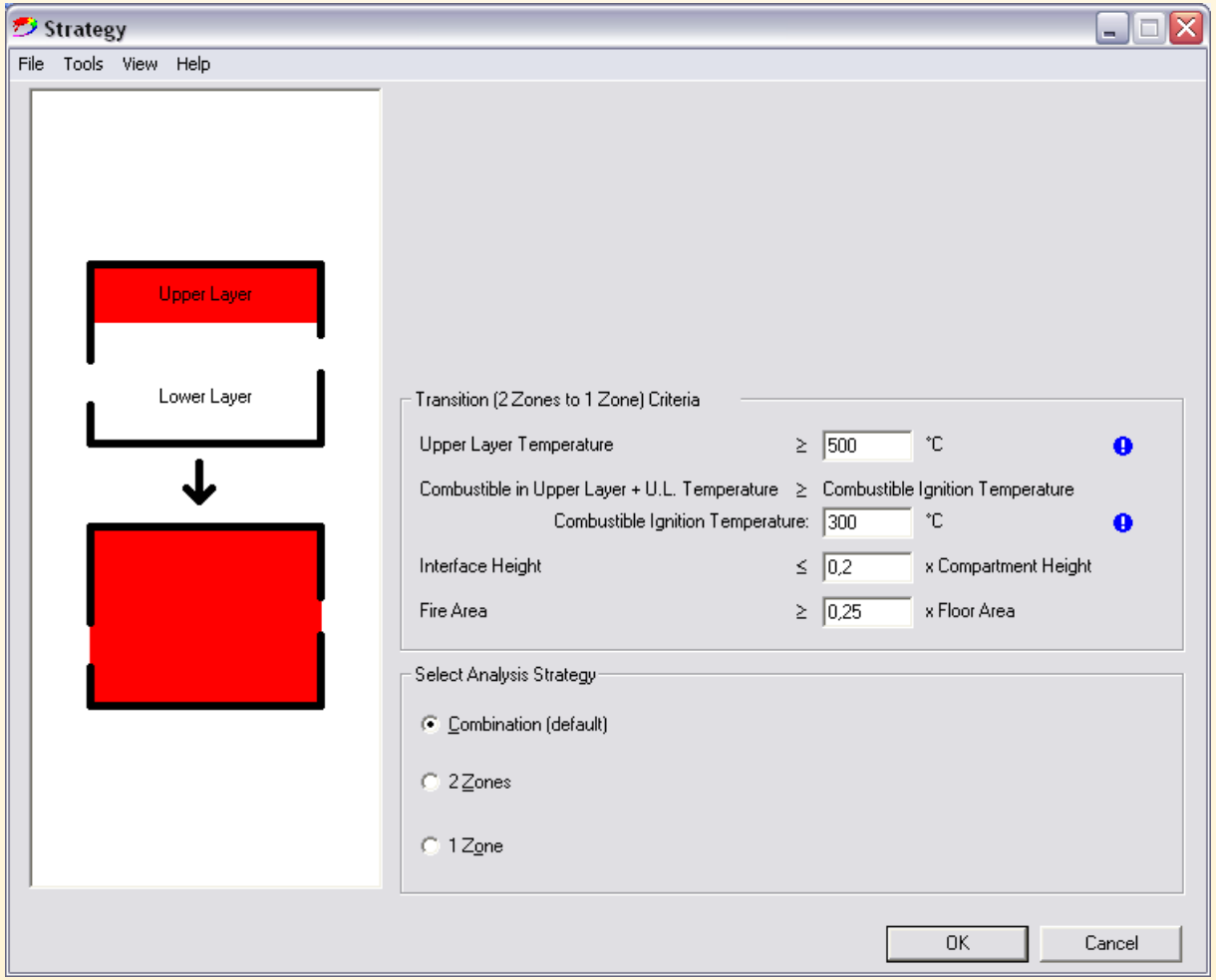
5.1. OZone sektsioon



5. Tarkvara

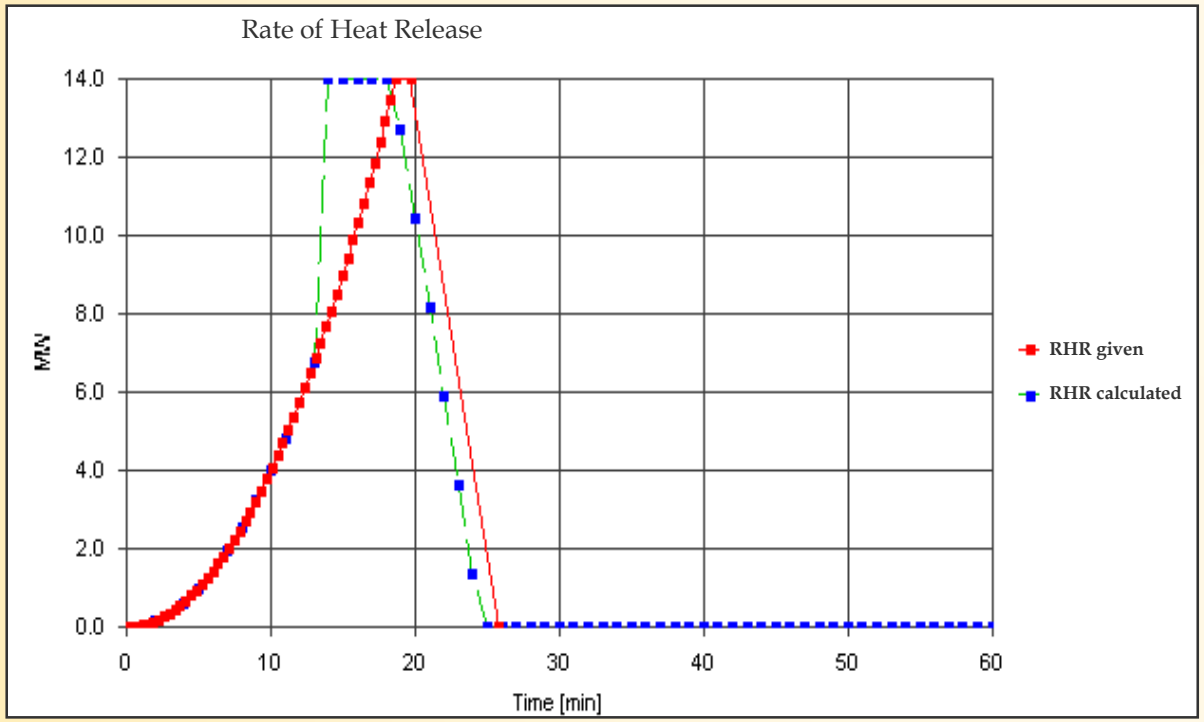
5.1. OZone sektsioon

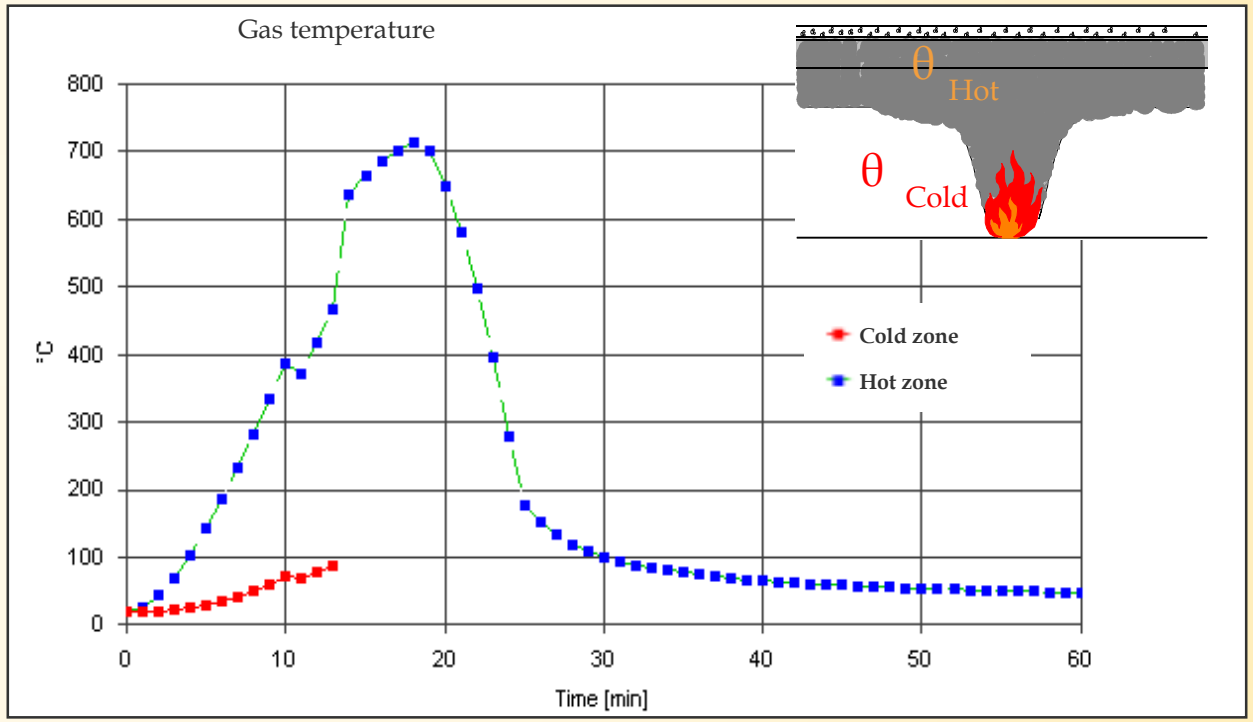




5. Tarkvara

5.1. OZone sektsioon

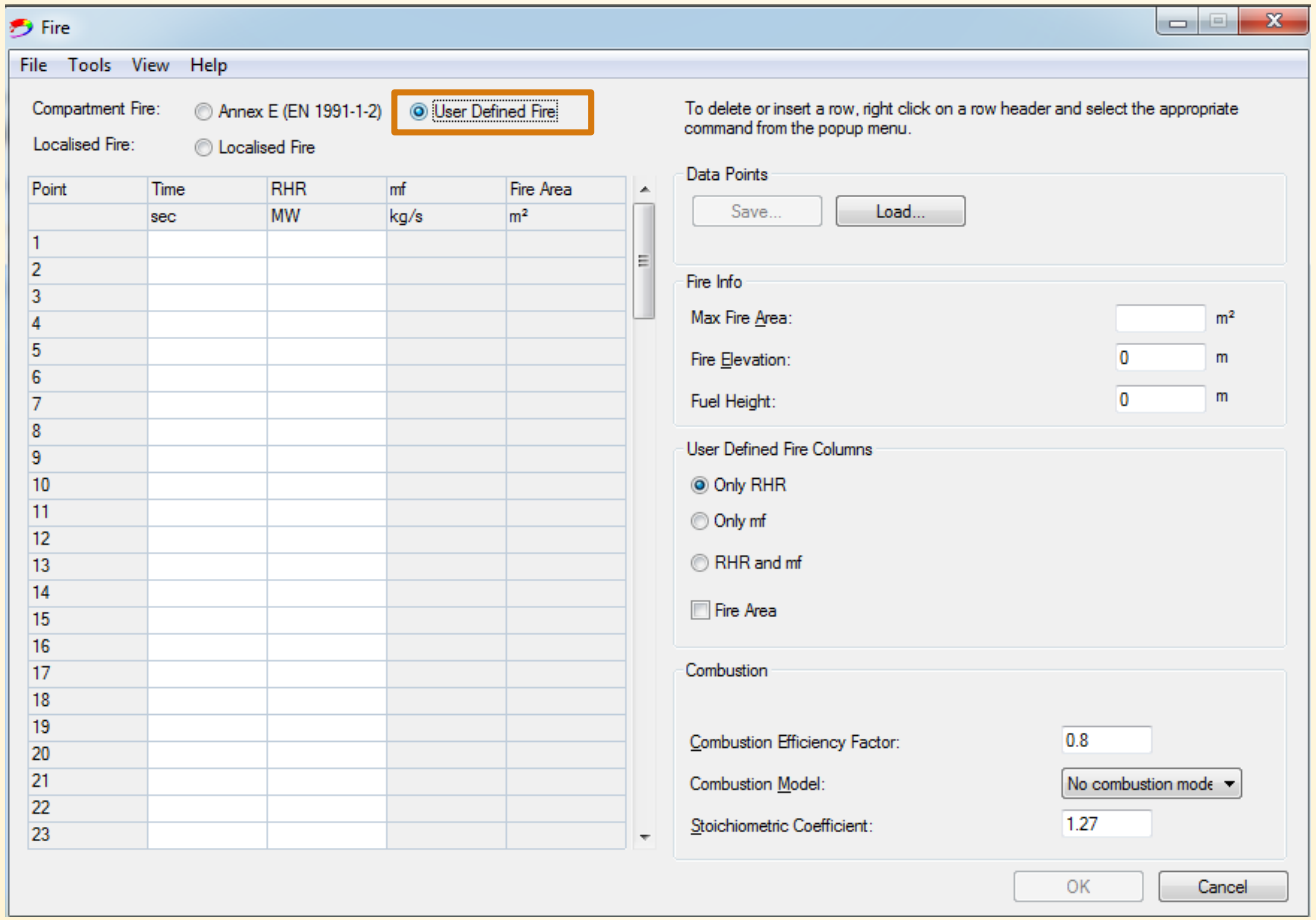




Pärast 13 minutit on kuuma tsooni temperatuur 500°C → Üleminek 2 tsoonilt 1 tsoonile

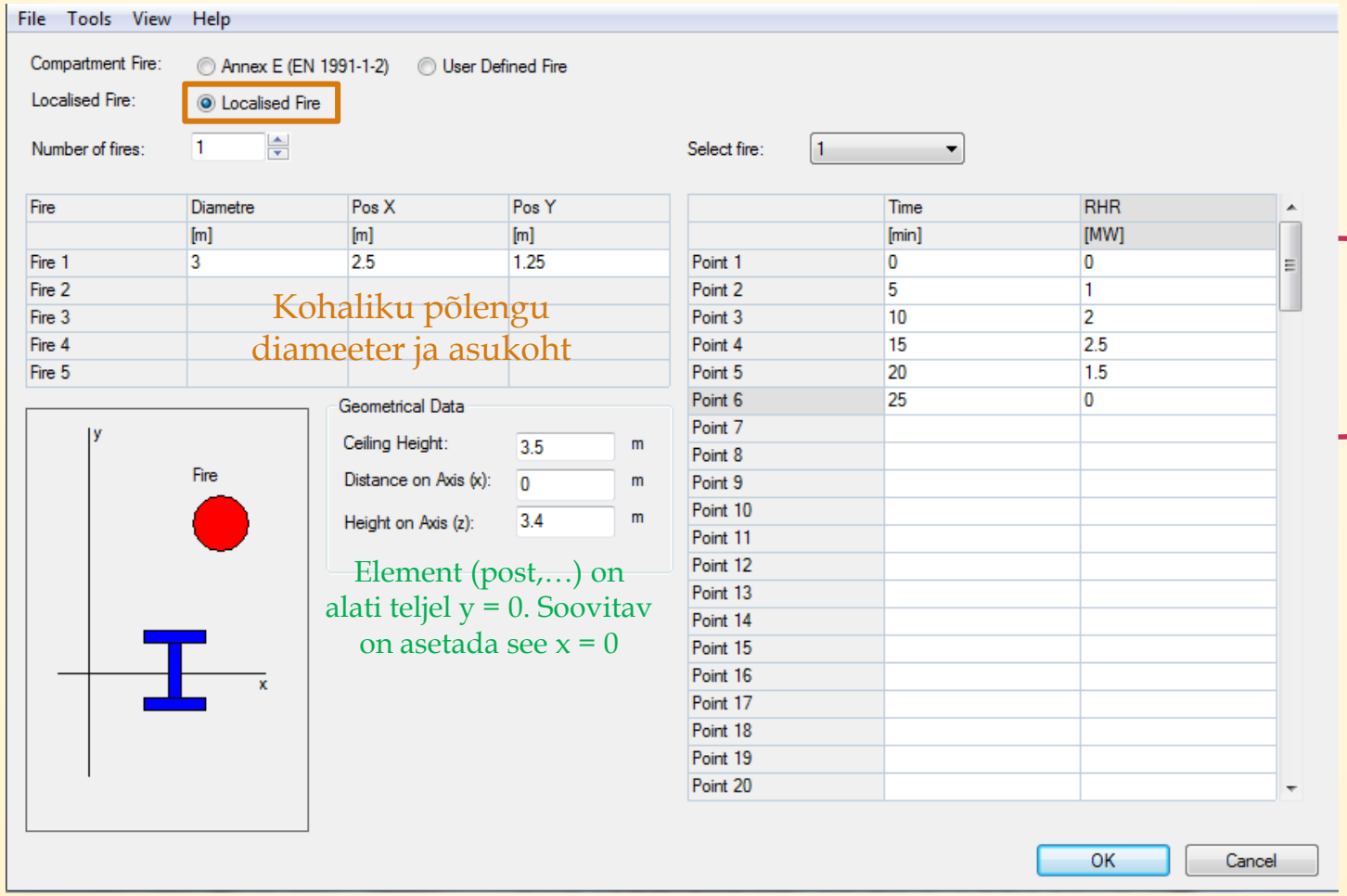
5. Tarkvara

5.1. OZone sektsioon



5. Tarkvara

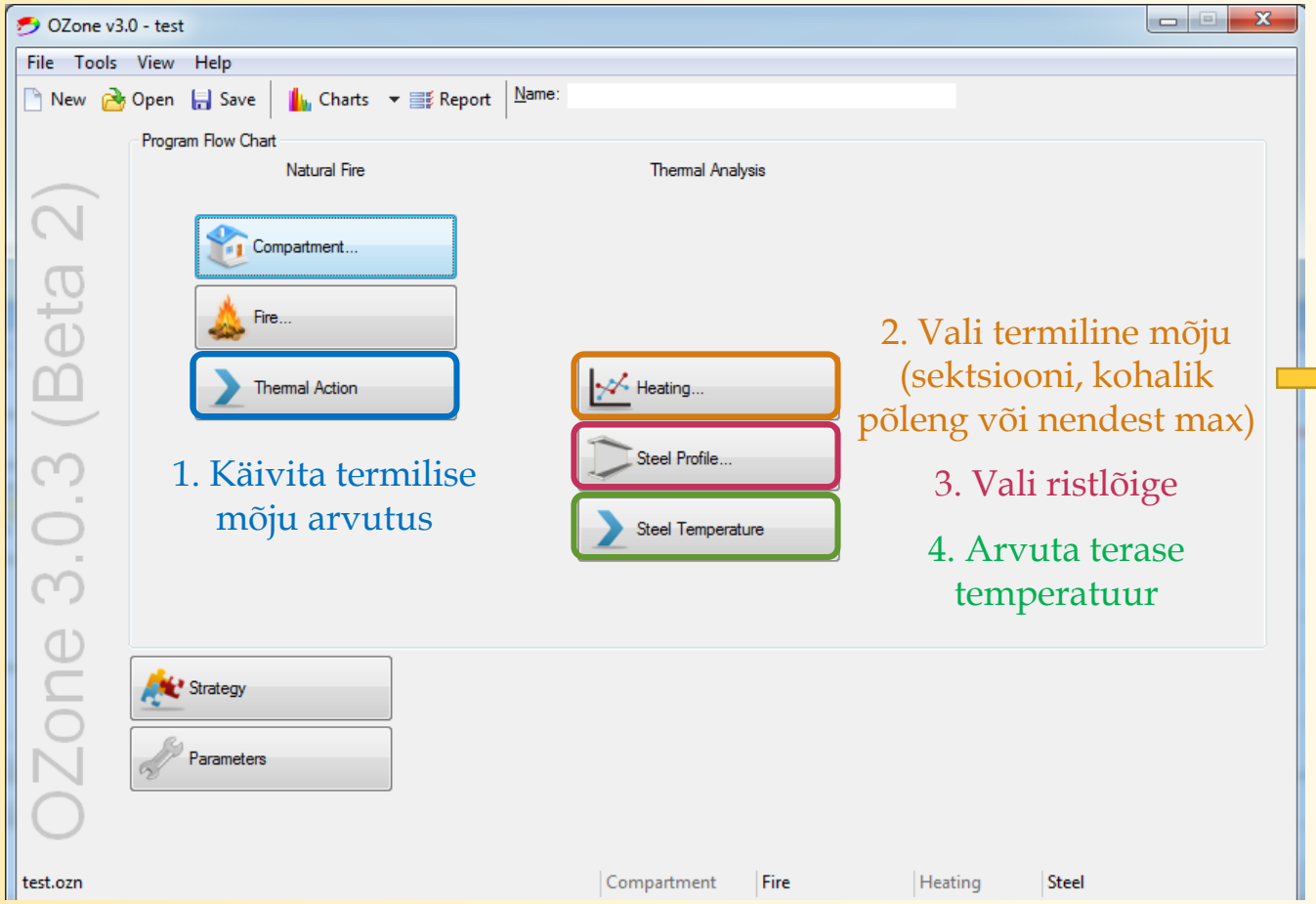
5.2. OZone kohalik põleng



RHR muutus ajas

5. Tarkvara

5.2. OZone kohalik põleng



1. Käivita termilise mõju arvutus

2. Vali termiline mõju (sektsiooni, kohalik põleng või nendest max)

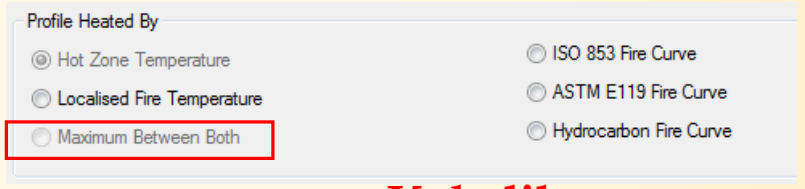
3. Vali ristlõige

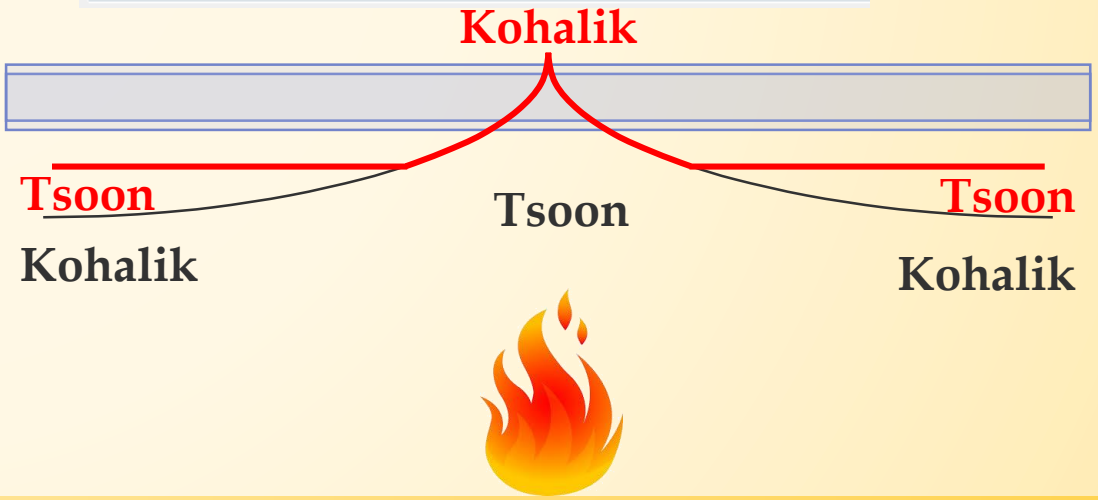
4. Arvuta terase temperatuur

EN 1991-1-2 § 3.3.2 (4)

Temperatuuri jaotuse täpsemaks määramiseks elemendis kohaliku põlengu puhul võib kombineerida kahetsoonilise mudeli ja kohaliku põlengu mudeli tulemusi.

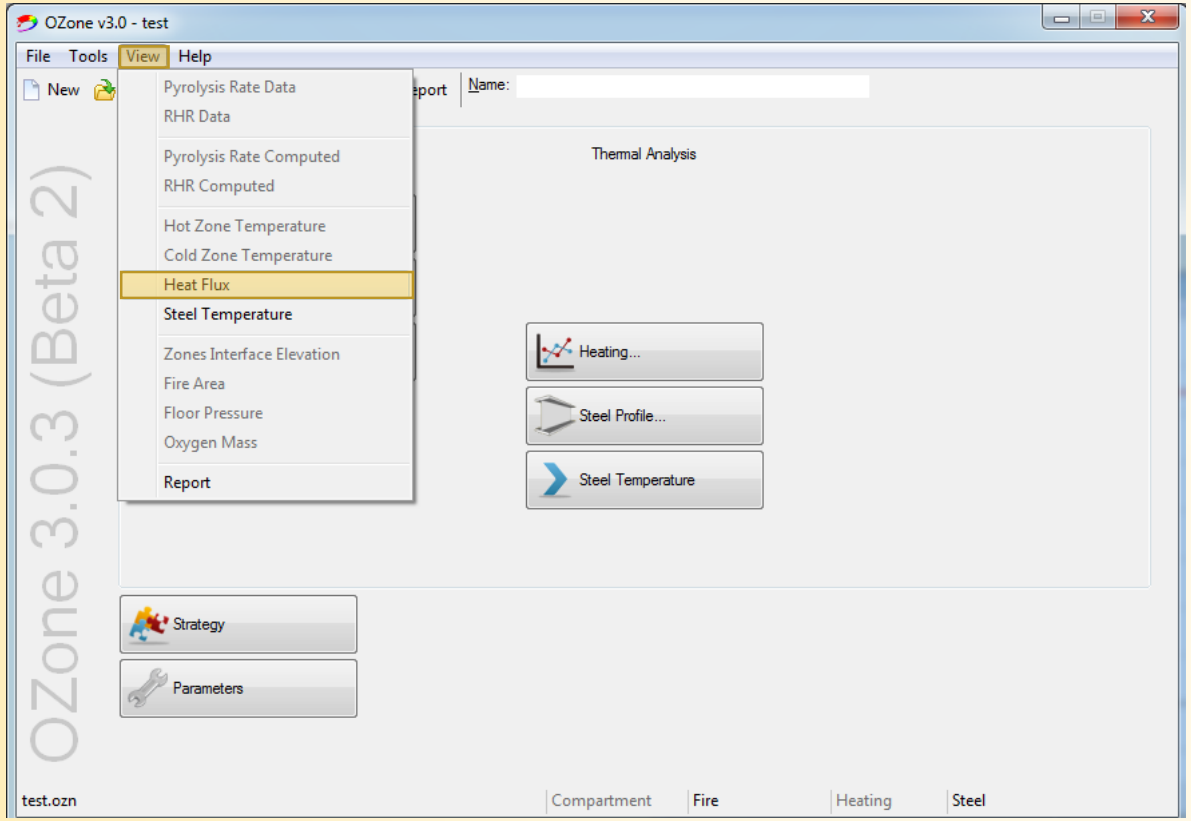
MÄRKUS Temperatuuri jaotuse määramisel elemendis võib kasutada mõlemast põlengumudelist saadud maksimaalset tulemust igas punktis.

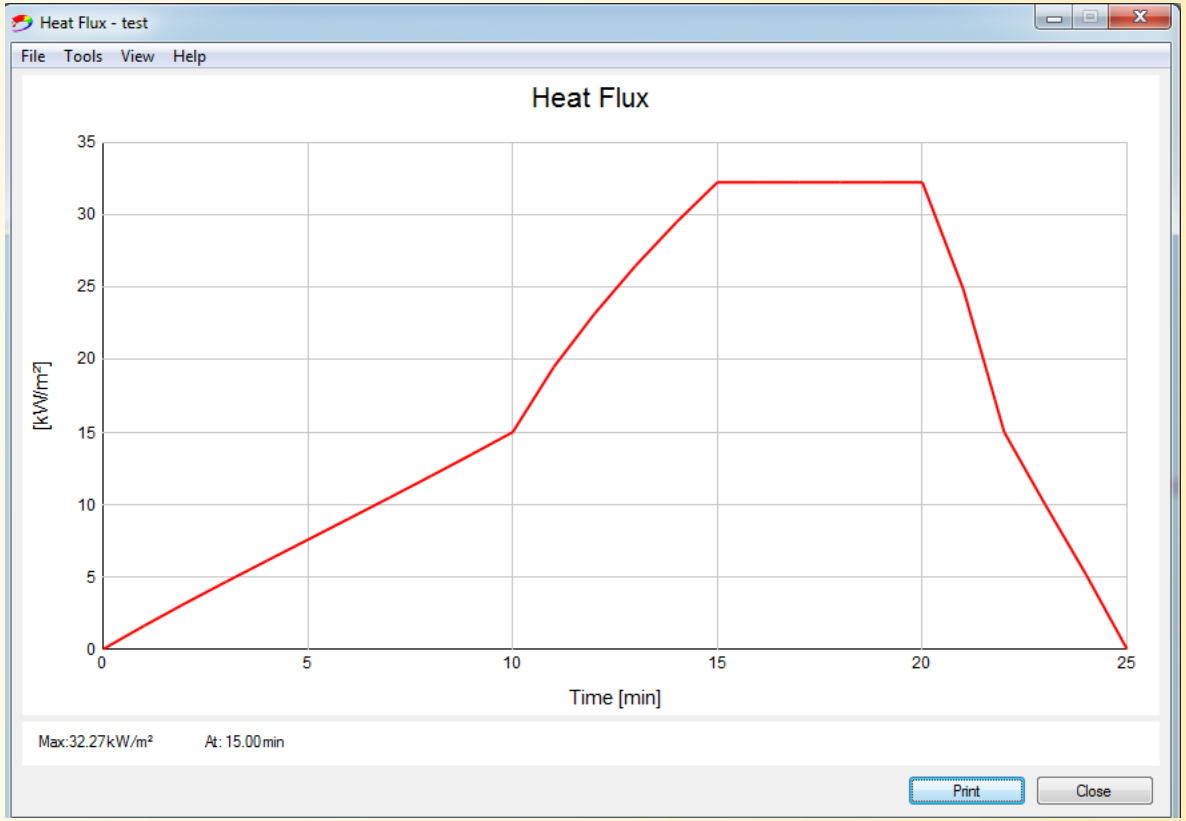




5. Tarkvara

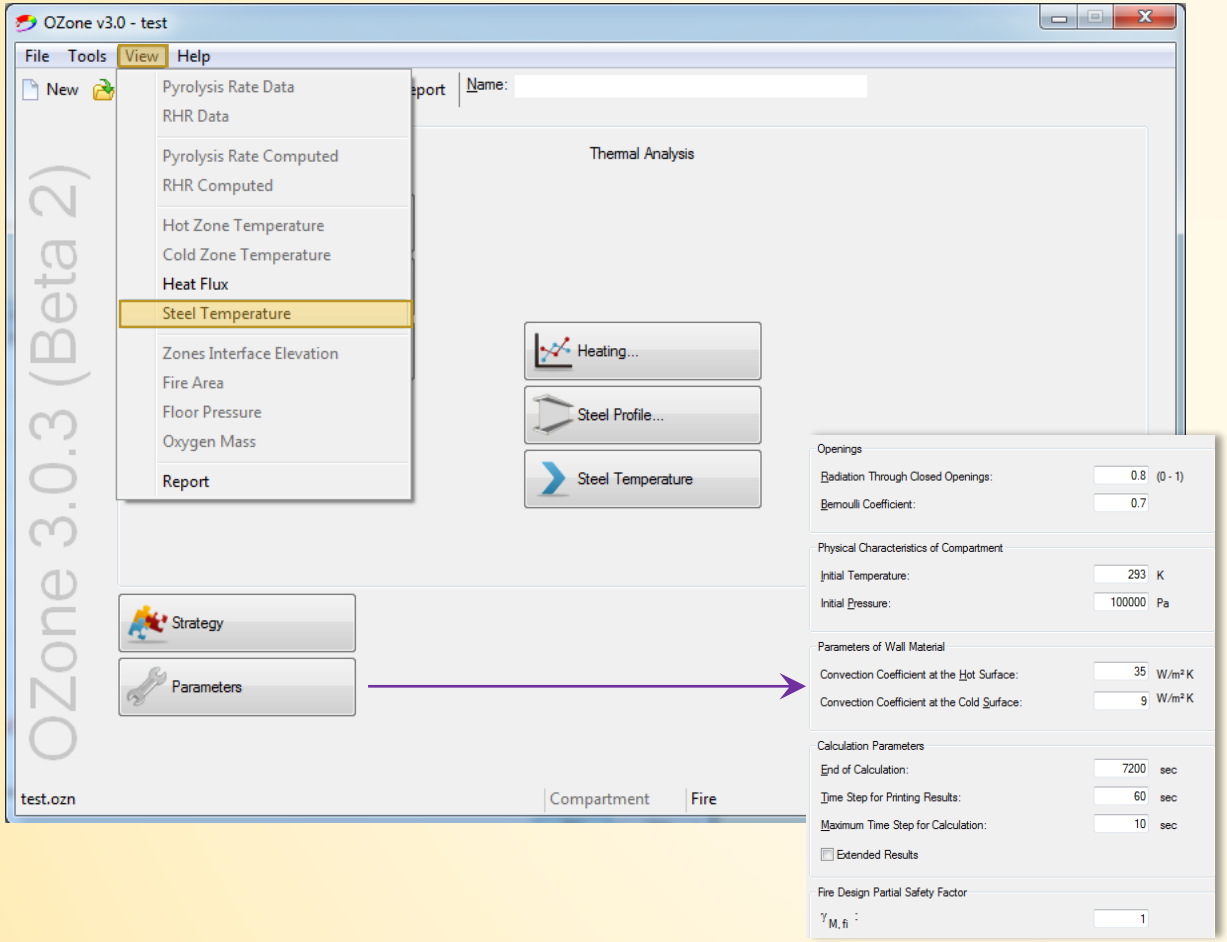
5.2. OZone Kohalik põleng

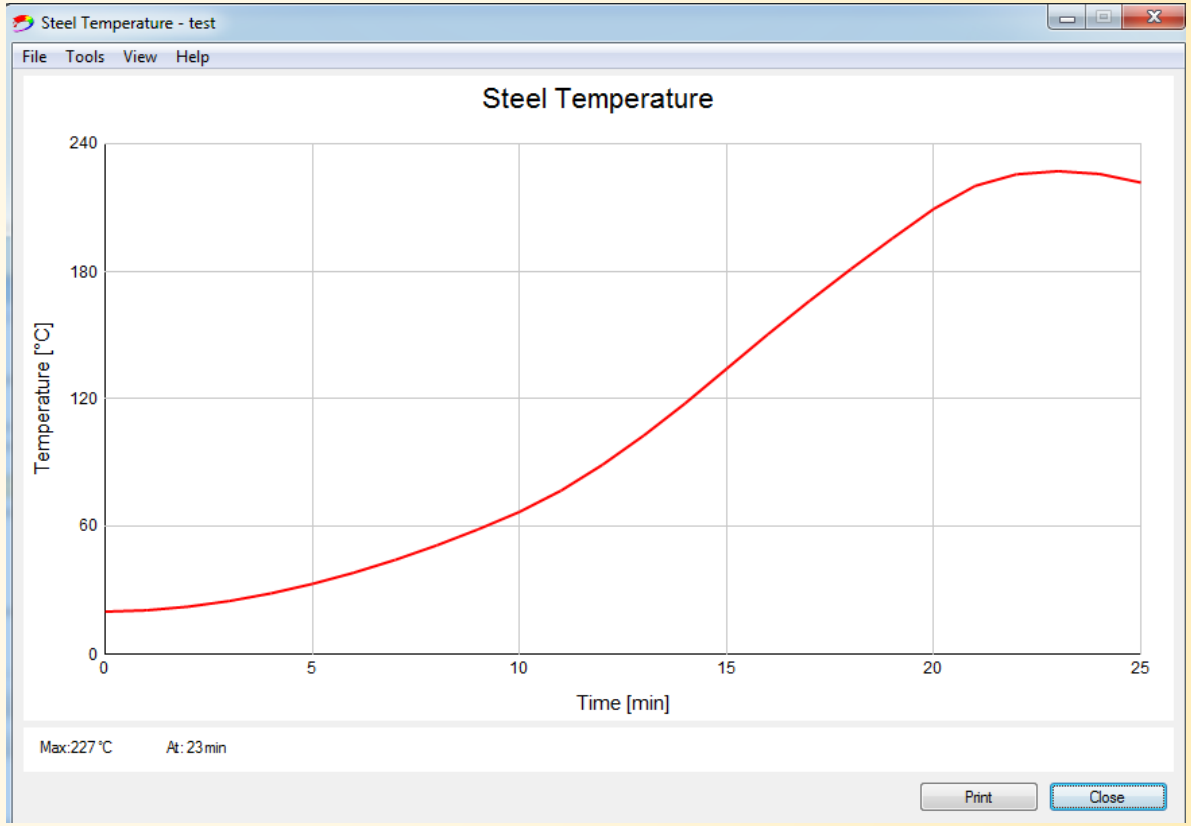




5. Tarkvara

5.2. OZone Kohalik põleng

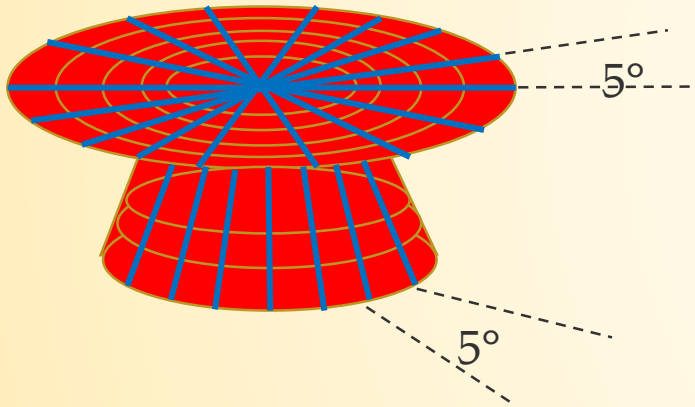




5. Tarkvara

5.3. SAFIR Kohalik põleng

Silinderleek (ulatub laeni)



- Geomeetriline meetod on rakendatud SAFIR tarkvaras (otsene soojusvahetus lõplike pindade vahel).
- Sellega genereeritakse mitteühtlane temperatuurijaotus vaadeldavates ristlõigetes.
- Igat tuleallikat kirjeldatakse asukohaga (x, y, z), kujuga (silinder või koonus), lae kõrgusega, diameetri muutusega ajas, RHR muutusega ajas.
- Mitme tuleallika puhul nende mõjud liidetakse, kuni maksimumväärtuseni 100 kW/m^2

Franssen, J.-M., & Gernay, T. (2017). Modeling structures in fire with SAFIR®: Theoretical background and capabilities. Journal of Structural Fire Engineering, 8(3), 300-323.

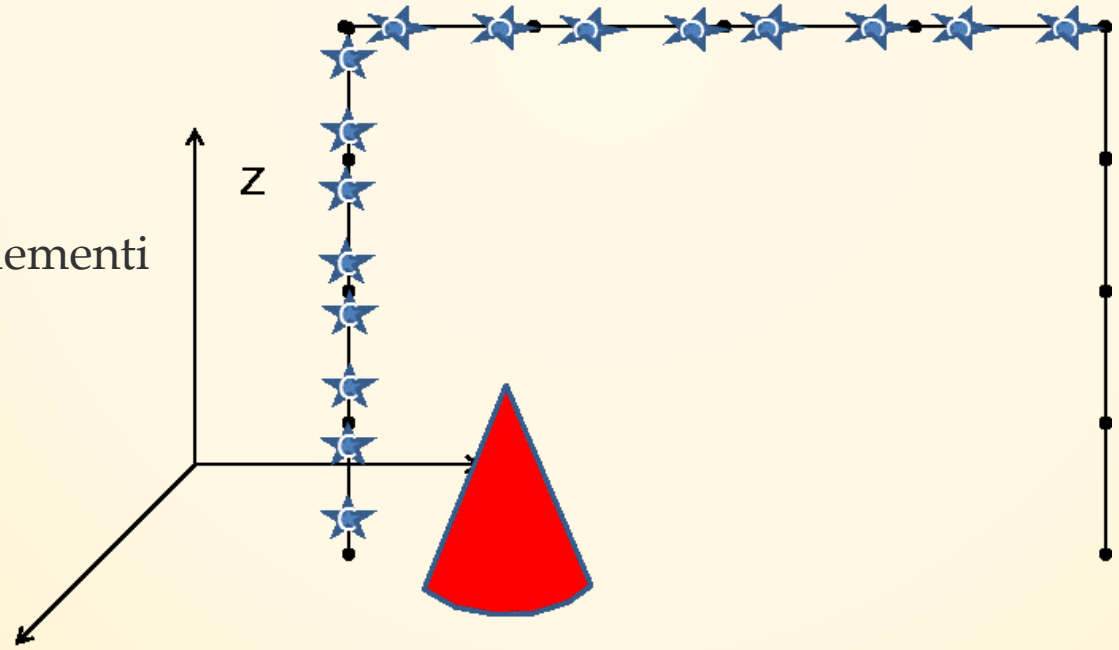
5. Tarkvara

5.3. SAFIR Kohalik põleng

- Iga talaelemendi (või koorikelemendi) iga Gaussi punkti jaoks on tehtud üks 2D termiline analüüs.

Sellel talal on 4 elementi => 8 Gaussi punkti

Sellel postil on 4 lõplikku elementi => 8 Gaussi punkti



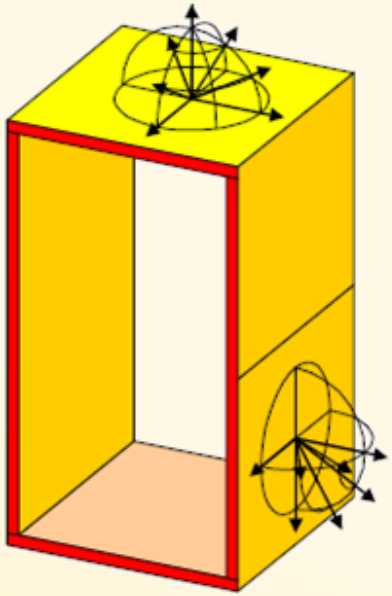
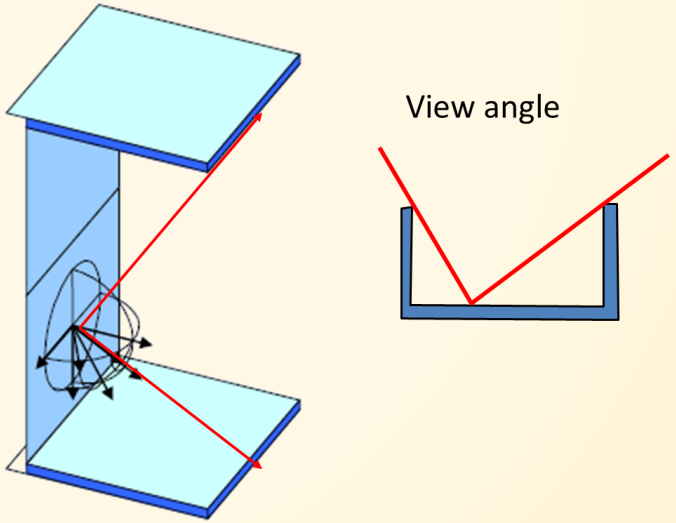
Seda posti ei soojendata

5. Tarkvara

5.3. SAFIR Kohalik põleng

- Nõgusa kuju puhul arvestatakse automaatselt varjeefektiga, kui ristlõige asub väljaspool leeki.

Kumer kuju



Nõgus kuju