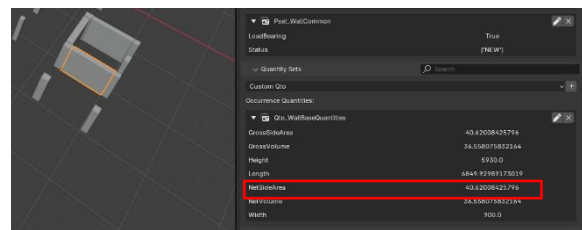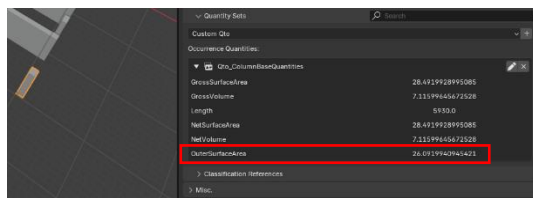*So first issue is that in the cost item definition template (csv file) , you can only choose 1 property when assigning and that property has to be an existing one within the standard Qto Pset. For example while using a filter query for all vertical elements (RC columns and Walls) the Qto Pset use different properties naming for the surface and as such cannot be used in the template. Ofcourse you could have a workaround to break these into discrete cost items but I was looking into a feature that would allow you to define multiple Pset_Name.Property and to have the algorithm loop over and match the corresponding value according to the Pset_Name.Property found (yikes too much of a resource hog???)*

Hierarchy	Identification	Name	Quantity	Unit	Contract Rate	Material Rate	Labor Rate	Subtotal	Property	Query
1	DB	Design and build								
2	DB.2.4	STRUCTURA								
3		Placa peste Parter GBA= 9.180 mp (+6.00)								
4		Execu?ie stalpi/ Columns execution								
5		Turnare beton C50/60- XC1- 0-16 mm- ciment conform plan- in stalpi/ Pouring concrete C50/60- XC1- 0-16 mm- plan according cement	m3	149,09					NetVolume	IfcColumn, IfcWall, location=Parter
5		Armatura BST 500 Clasa C in stalpi/ Steel Reinforcement BST500 class C in columns	m3	1,20					NetVolume	IfcColumn, IfcWall, location=Parter
5		Cofraje stalpi/ Verticla elements formwork -i	m2	33,60					OuterSurfaceArea, NetSideArea	IfcColumn, IfcWall, location=Parter
4		Execu?ie grinzi/ Frame beams execution								
5		Cofraje grinzi/ Beams formwork -inclusi	m2	33,60						
5		Turnare beton C35/45- XC1- 0-16 mm- ciment conform plan- in grinzi/ Pouring concrete C35/45- XC1- 0-16 mm- plan according cemen	m3	126,82						
5		Armatura BST 500 Clasa C/ Steel Reinforcement BST500 class C in beams	kgr	1,2						
4		Execu?ie pere?i nuclee si grinzi de cuplare/ Cores walls and beams execution								
5		Cofraje pereti/ Walls formwork -inclusi	m2	33,60						
5		Turnare beton C50/60- XC1- 0-16 mm- ciment conform plan- in pere?i/ Pouring concrete C50/60- XC1- 0-16 mm- plan according cement	m3	149,09						
5		Armatura BST 500 Clasa C/ Steel Reinforcement BST500 class C in walls	kgr	1,2						
4		Execu?ie placi- scari ?i atice/ Slabs and staircases execution								
5		Cofraje placi/ Slabs formwork -inclusiv procurare ?	m2	33,60						
5		Turnare beton C35/45- XC1- 0-16 mm- ciment conform plan- in placa/ Pouring concrete C35/45- XC1- 0-16 mm- plan according cement-	m3	126,82						
5		Armatura BST 500 Clasa C/ Steel Reinforcement BST500 class C in slabs	kgr	1,2						
5		Armatura pretensionata sau postensionata TPB ST1860 in placa/ Pretensioned or postensioned Reinforcement TPB ST1860 in slabs	kgr	5,00						

Figure 1 Multiple Properties in the property field

We cannot use multiple properties where the naming of the property differs from class to class. I.e. for IfcWall its "NetsideArea" whereas for IfcColumn its "OuterSurfaceArea" that need to be used to describe the quantity to be taken into account when Calculating formwork quantities for the Vertical Elements formworks cost item.

Figure 2: Resulting Quantities and assignments after importing the csv file with multiple properties

The workaround is to break the cost item in instances (see following capture) according to the elements and properties to be captured by the query, however this approach increases complexity in an already cumbersome Cost Breakdown structure.

Hierarchy	Identification	Name	Quantity	Unit	Contract Rate	Material Rate	Labor Rate	Subtotal	Property	Query
1	DB	Design and build								
2	DB.2.4	STRUCTURA								
3		Placa peste Parter GBA= 9.180 mp (+6.00)								
4		Execu?ie stalpi/ Columns execution								
5		Turnare beton C50/60- 0-16 mm- ciment conform plan- in stalpi/ Pouring concrete C50/60- XC1- 0-16 mm- plan according cement	m3		"149.09"				NetVolume	IfcColumn, IfcWall, location=Parter
5		Armatura BST 500 Clasa C in stalpi/ Steel Reinforcement BST500 class C in columns	m3		"1.2"				NetVolume	IfcColumn, IfcWall, location=Parter
5		Cofraje stalpi/ Columns formwork -i	m2		"33.6"				OuterSurfaceArea	IfcColumn, location=Parter
5		Cofraje stalpi/ Walls formwork -i	m2		"33.6"				NetSideArea	IfcWall, location=Parter
4		Execu?ie grinzi/ Frame beams execution								
5		Cofraje grinzi/ Beams formwork -inclusi	m2		"33.6"					
5		Turnare beton C35/45- XC1- 0-16 mm- ciment conform plan- in grinzi/ Pouring concrete C35/45- XC1- 0-16 mm- plan according cemen	m3		"126.82"					
5		Armatura BST 500 Clasa C/ Steel Reinforcement BST500 class C in beams	kgr		"1.2"					
4		Execu?ie pere?i nuclee si grinzi de cuplare/ Cores walls and beams execution								
5		Cofraje pereti/ Walls formwork -inclusi	m2		"33.6"					
5		Turnare beton C50/60- XC1- 0-16 mm- ciment conform plan- in pere?i/ Pouring concrete C50/60- XC1- 0-16 mm- plan according cement	m3		"149.09"					
5		Armatura BST 500 Clasa C/ Steel Reinforcement BST500 class C in walls	kgr		"1.2"					
4		Execu?ie placi- scari ?i atice/ Slabs and staircases execution								
5		Cofraje placi/ Slabs formwork -inclusiv procurare ?	m2		"33.6"					
5		Turnare beton C35/45- XC1- 0-16 mm- ciment conform plan- in placa/ Pouring concrete C35/45- XC1- 0-16 mm- plan according cement-	m3		"126.82"					
5		Armatura BST 500 Clasa C/ Steel Reinforcement BST500 class C in slabs	kgr		"1.2"					
5		Armatura pretensionata sau postensionata TPB ST1860 in placa/ Pretensioned or postensioned Reinforcement TPB ST1860 in slabs	kgr		"5"					

Figure 3 Breaking cost item in instances according to the element class to be captured

What could be suggested is to use an algorithm that queries the element for the presence of these properties (not only in the QSet) and register the corresponding value, i.e.

Name	Quantity	Unit	Contract Rate	Material Rate	Labor Rate	Subtotal	Property	Query
Design and build								
STRUCTURA								
Placa peste Parter GBA= 9.180 mp (+6.00)								
Execu?ie stalpi/ Columns execution								
Turnare beton C50/60- XC1- 0-16 mm- ciment conform plan- in stalpi/ Pouring concrete C50/60- XC1- 0-16 mm- plan according cement	m3		149,09				NetVolume	IfcColumn, IfcWall, location=Parter
Armatura BST 500 Clasa C in stalpi/ Steel Reinforcement BST500 class C in columns	m3		1,20				NetVolume	IfcColumn, IfcWall, location=Parter
Cofraje stalpi/ Verticla elements formwork -i	m2		33,60				Qto_ColumnBaseQuantities.OuterSurfaceArea, Qto_WallBaseQuantities.NetSideArea	IfcColumn, IfcWall, location=Parter

Figure 4: Property query with Pset Description

There could be a loop all around elements described in the query (selection) and an inner loop trying to match the property with the element property if it exists (resource hog!)

The second issue is that I could not use functions to describe the property quantity which could also rely in another Pset not a Qto one. I.e. In most of the cases we do not have time to model the rebar and for estimation purposes we rely on indices Kgr of rebar / m3 of concrete according to elements. This property can be introduced in Pset_ConcreteElementGeneral.ReinforcementVolumeRatio and using the NetVolume from the Qto Pset we could derive indirectly the rebar quantity.

So as the quote above mentions the use of "equations" is not available for the derivation of quantities indirectly from properties.

Figure 5: Properties that can be used for the calculation of Rebar Quantities
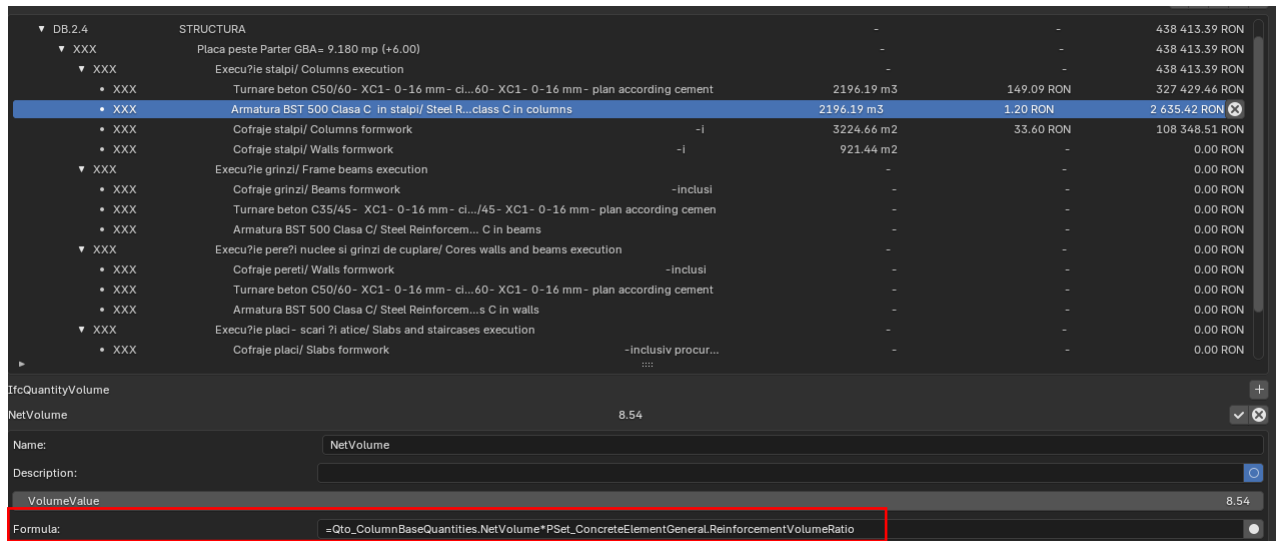
Figure 6: Use Of formula consisting of properties for the calculation of quantities

I have seen the analysis of using the material approach (through material density), but this approach falls short as types of elements contain different ratios of Rebar, i.e. Columns are around 150-160 Kgr/ m3, Slabs 100-120 Kgr/ m3, Beams 160-180 Kgr/m3 etc (depending always on the specifics of the analysis)

The third one is that It is still not clear to me of how I could implement the local Norms with resources in BONSAI, The workflow used is somewhat different. I.e a recipe contains all the resources and coefficients of use in order to produce 1 Unit of Measurement of the final product but from what I saw from @SigmaDimensions examples resource resources themselves are used and not the "Crew" or the "Subcontract" which I presume is what I am referring to with respect to recipes (line items) .

So, the local Norms is a way of calculation where you have a certain type of work result that includes the detail breakdown of resources (labor, equipment, material, etc) for creating/ generating / producing 1 unit of measurement (U.M.) of the described final product. I.e. if the Installation of the rebar (U.M. in Kgr) is the product, then the description of the Norm would be something like:

CC01A1			Installation of concrete steel reinforcements d<18mm in foundations with plastic spacers	kgr	
	3803128	Material	Ordinary soft wire D = 1.12 OL 32 s 889	kgr	0.010
	6719093	Material	Concrete m.plasti.pt poz.arm.in spacer for beams	Pcs	0.150
	11131	Labor	Concrete – Steel Fixer cat.3	hr	0.015
	19931	Labor	Assembly Construction service worker cat.3	hr	0.003
	11111	Labor	Concrete – Steel Fixer cat.1	hr	0.015

Would that mean that I have to generate something like the following picture in BONSAI?
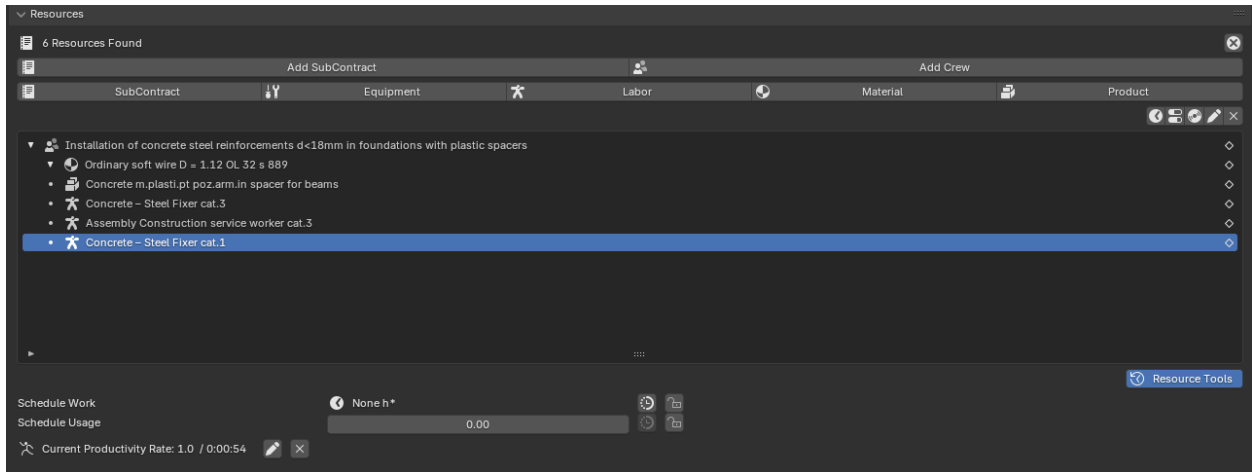
And then assign the "**Installation of concrete steel reinforcements d<18mm in foundations with plastic spacers**" as a resource to the cost item?