



ÚJV Řež, a. s.



Divize ENERGOPROJEKT PRAHA

B	Filip Dufek	Ivan Holub	Jiří Petrů	SECOND EDITION	04/2020
A	Jakub Charvát	Ivan Holub	Jiří Petrů	FIRST EDITION	07/2019
Rev.	Prepared by	Reviewed by	Approved by	Description index	Date
Document submitted for acceptance: YES – NO Input document:					State: Preliminary
Name: <div style="text-align: center;"> EUROPEAN SPALLATION SOURCE Bill of quantities Part B – Civil part NIK 6.6#3 – Beamline for European Engineering Research </div>					
Document type: Report Confidentiality level: Internal Link: https://chess.ess.lu.se					
This document is the property of European Spallation Source and may be reproduced or redistributed only with his consent					
Building owner: 		Document number: ESS-1408067 Address: European Spallation Source – ERIC Box 176, S-221 00 Lund, Sweden		Approved by: <i>Name & Signature</i>	
In Kind Partner: 		Partner's Document number: Address: Ústav jaderné fyziky Akademie věd ČR, v. v. i. Řež 130, 250 68 Husinec – Řež, Czech Republic		Approved by: <i>Name & Signature</i>	
Contractor: 		Contractor's Document number: Address: NUVIA a.s. Modřínová 1094, 674 01 Třebíč, Czech Republic		Approved by: <i>Name & Signature</i>	
Format: A4				Number of pages: 16	



ÚJV Řež, a. s.

Divize  ENERGOPROJEKT PRAHA

 ÚJV Řež, a. s. Divize  ENERGOPROJEKT PRAHA		Office Na Žertvách 2247/29, 180 00 Praha 8		
		Managing dept. 2505	Processing dept. 2503	Discard label
Project name ESS - BEER		Object – operation unit CO101		Ordinal number 005
Contract name NIK 6.6#3 Beamline for European Engineering Research				
Documentation name Detail Design Part B - civil part CO101 – BEER Experimental cave and control hutch area BILL OF QUANTITIES				Copy number
Worked by Jakub Charvát	Head of processing department Ivan Holub	Date 04/2020	Pages in document 16	
Checked by Zdeněk Vaněček	Main project engineer Jiří Petrů	File 005_DD_BOQ_Civil part_r01.doc		
Project number 27-5356-30-001		Archive number EGP5043-F-180048		Index B Pg. 2/16



Content

1	Bill of quantities for part Experimental Cave.....	4
2	Bill of quantities for Control Hutch + Sample Preparation Area	10



1 BILL OF QUANTITIES FOR PART EXPERIMENTAL CAVE

Item number	Item description	Measurement unit	Quantity	Unit price [EUR without VAT]	Total price [EUR without VAT]
A.1	<p>Pre-cast reinforced concrete foundation panels</p> <p>Item A.1 includes:</p> <ul style="list-style-type: none">- complete supply and execution of pre-cast reinforced concrete construction from C 30/37, XC1 concrete- steel reinforcement B 500B- reinforced concrete density 2300 kg/m³- system of connection of the individual pre-cast parts described in technical report of civil part - document No. 5043-F-180584 (ESS – 0461627), chapter 5.1.4 – Connection of prefabricated components.- all other costs related to the complete execution of the Item A.1 (e. g. pre-production documentation, working drawings, transport of materials to the site, bracing during installation) <p>The pre-cast reinforced concrete foundation blocks (incl. list of panels) are shown in the drawing No.859-3-D-2019-0997 (ESS-1411346).</p>	m ³ kg pcs	77,75 178 822,00 45		
A.2	<p>Pre-cast reinforced concrete floor platform panels</p> <p>Item A.2 includes:</p> <ul style="list-style-type: none">- complete supply and execution of pre-cast reinforced concrete construction from C 30/37, XC1 concrete- steel reinforcement B 500B- reinforced concrete density 2300 kg/m³- system of connection of the individual pre-cast parts described in technical report of civil part - document No. 5043-F-180584 (ESS – 0461627), chapter 5.1.4 – Connection of prefabricated components- all other costs related to the complete execution of the Item A.2 (e. g. pre-production documentation, working drawings, transport of materials	m ³ kg pcs	24,92 56 900,00 11		



	<p>to the site, bracing during installation)</p> <p>The pre-cast reinforced concrete floor panels (incl. list of panels) are shown in the drawing No.859-3-D-2019-0994 (ESS-1411348).</p>				
A.3	<p>Pre-cast reinforced concrete peripheral wall panels</p> <p>Item A.3 includes:</p> <ul style="list-style-type: none">- complete supply and execution of pre-cast reinforced heavy concrete construction from C 30/37, XC1 concrete- steel reinforcement B 500B- reinforced heavy concrete density 3850 kg/m3- system of connection of the individual pre-cast parts described in technical report of civil part - document No. 5043-F-180584 (ESS – 0461627), chapter 5.1.4 – Connection of prefabricated components- all other costs related to the complete execution of the Item A.3 (e. g. pre-production documentation, working drawings, transport of materials to the site, bracing during installation) <p>The pre-cast reinforced concrete peripheral walls panels (incl. list of panels) are shown in the drawing No.859-3-D-2019-0995 (ESS-1411350).</p>	m3 kg pcs	157,13 604 977,29 69		
A.4	<p>Pre-cast reinforced concrete shielding partition wall panel</p> <p>Item A.4 includes:</p> <ul style="list-style-type: none">- complete supply and execution of pre-cast reinforced concrete construction from C 30/37, XC1 concrete- steel reinforcement B 500B- reinforced concrete density 2300 kg/m3- system of connection of the individual pre-cast parts described in technical report of civil part - document No. 5043-F-180584 (ESS – 0461627), chapter 5.1.4 – Connection of prefabricated components- all other costs related to the complete execution of the Item A.4 (e. g. pre-production documentation, working drawings, transport of materials	m3 kg pc	5,24 12 046,71 1		



	<p>to the site, bracing during installation)</p> <p>The pre-cast reinforced concrete peripheral walls panels (incl. list of panels) are shown in the drawing No.859-3-D-2019-0995 (ESS-1411350).</p>				
A.5	<p>Pre-cast reinforced concrete roof panels</p> <p>Item A.5 includes:</p> <ul style="list-style-type: none">- complete supply and execution of pre-cast reinforced concrete construction from C 30/37, XC1 concrete- steel reinforcement B 500B- reinforced concrete density 2300 kg/m³- system of connection of the individual pre-cast parts described in technical report of civil part - document No. 5043-F-180584 (ESS – 0461627), chapter 5.1.4 – Connection of prefabricated components- all other costs related to the complete execution of the Item A.5 (e. g. pre-production documentation, working drawings, transport of materials to the site) <p>The pre-cast reinforced concrete roof panels (incl. list of panels) are shown in the drawing No.859-3-D-2019-0996 (ESS-1411351).</p>	<p>m³ kg pcs</p>	<p>72,76 167 346,00 31</p>		
A.6	<p>Separation layer for separating the Experimental Cave from the floor in Experimental Hall 3 (E01)</p> <p>Item A.6 includes:</p> <ul style="list-style-type: none">- Complete supply and execution of the separation layer from the bitumen sheets – SBS modified, th. of 3,5 mm,- all other costs related to the complete execution of the Item A.6 (e. g. transport to the site and installation of the bitumen sheets on the floor in Experimental Hall 3 (E01).	<p>m²</p>	<p>47,79</p>		
A.7	<p>Steel locksmith's products in Experimental Cave</p> <p>Item A.7 includes products:</p> <ul style="list-style-type: none">- complete supply and execution of the in-built steel support structure (parts) for bridge crane, lining, indoor removable railing, and other auxiliary products:	<p>kg</p>	<p>3014,87</p>		



	<ul style="list-style-type: none">- 1/Z, weight: 88,06 kg- 2/Z, weight: 7,69 kg- 3/Z, weight: 6,45 kg- 5/Z, weight: 48,74 kg- 6/Z, weight: 30,89 kg- 7/Z, weight: 55,56 kg- 10/Z, weight: 210,40 kg- 11ab/Z, weight: 860,57+851,82 kg- 12/Z, weight: 11,68 kg- 13/Z, weight: 5,53kg- 15a/Z, weight: 152,59 kg- 15b/Z, weight: 50,95 kg- 15c/Z, weight: 31,75 kg- 15d/Z, weight: 24,18 kg- 19/Z, weight: 578,01 kg- two-layer epoxy coating,- all other costs related to the complete execution of the Item A.7 (e. g. transport of materials to the site, cutting, joining, welding, etc.). <p>The steel support structure for the bridge crane and other locksmith's in-built parts is shown in the drawing No. 5043-D-181795 (ESS-0461624).</p>				
A.8	<p>Single-wing door - dimension of 900/2000 mm (personal entrance to the Experimental cave)</p> <p><u>Item A.8 includes:</u></p> <ul style="list-style-type: none">- complete supply and execution of the single- wing door of dimension 900x2000 mm. Door frame: aluminium - Al, aluminium door wing unglazed (full), Surface finishing: komaxit, Fitting: ball/handle. Lock: magnetic lock connected on PSS,- all other costs related to the complete execution of the Item A.8 (e. g. transport of materials to the site, fixing and insulating material etc.). <p>The door see drawing No. 5043-D-181796 (ESS-0461629).</p>	pc	1,00		
A.9	<p>B₄C tiles – walls of Experimental Cave complete supply and execution</p> <p>The required ratio of epoxide / B₄C by weight is at least 1:1, or a slight predominance of B₄C . B₄C (boron carbide) in powder form with a particle size of up to 10 µm. The expected thickness of B₄C tiles is 8 mm and a size of 500 x 500 mm.</p>	m²	500,43		



	<ul style="list-style-type: none">- Inside walls (+10% reserve), 261,82 m2- Inside ceiling (+10% reserve), (Including surfaces of dismountable ceiling parts / panels), 126,24 m2- Inside floor (+10% reserve) (Pit for sample tower and transport shaft don't include surface finish with B4C containing tiles), 112,37 m2- complete supply and execution of the B4C tiles by item A.10 see below,- all other costs related to the complete execution of the Item A.9 (e. g. transport of materials to the site, fixing etc.).				
A.10	MS polymer mastic for bonding – walls and ceiling (spot bonding) MS polymer mastic For example: Type: UniFix Manufactured: Den Braven <ul style="list-style-type: none">- complete supply with item A.9 see above- all other costs related to the complete execution of the Item A.10 (e. g. transport of materials to the site etc.).	l	108,70		
A.11	Flexible screed on floor (fully glued) Inside floor – flexible screed For Example: Type: FX glue Quartz EXTRA, C2T Manufactured: Den Braven <ul style="list-style-type: none">- complete supply and execution of the item A.11,- all other costs related to the complete execution of the Item A.11 (e. g. transport of materials to the site etc.).	kg	449,48		
A.12	Leveling cement screed thickness up to 40 mm; 30 Mpa <ul style="list-style-type: none">- complete supply and execution of the item A.12,- all other costs related to the complete execution of the Item A.12 (e. g. transport of materials to the site etc.).	m3	4,10		



A.13	Levelling cement-based layer for concrete surfaces of floor thickness 3 mm <ul style="list-style-type: none">- complete supply and execution of the item A.13,- all other costs related to the complete execution of the Item A.13 (e. g. transport of materials to the site etc.).	m2	113,27		
A.14	Finishing of outer Experimental cave surfaces Note: the final choice of finish coating must be confirmed by the instrument user / owner before finalizing the EC structure! <ul style="list-style-type: none">- complete supply and execution of the item A.14,- all other costs related to the complete execution of the Item A.14 (e. g. transport of materials to the site etc.).	m2	616,88		



2 BILL OF QUANTITIES FOR CONTROL HUTCH + SAMPLE PREPARATION AREA

No. of item	Description of item	Measurement unit	Quantity	Unit price [EUR without VAT]	Total price [EUR without VAT]
B.1	<p>Steel supporting structure of the Control Hutch + Sample Preparation Area</p> <p><u>Item B.1 includes:</u></p> <ul style="list-style-type: none">- complete supply and execution of the steel construction of Control Hutch + Sample Preparation Area incl. coating (the supposed weight of paint per m2 of steel structure is 32 kg/m2 => 131,25 m2 of coating surfaces), anchoring elements and fasteners (total weight of the steel structure 4200,00 kg)- all other costs related to the complete execution of the Item B.1 (e. g. transport of materials to the site, cutting, joining, welding, etc.). <p>The steel structure see drawings No. 5043-D-181785 (ESS-0461613), No. 5043-D-181786 (ESS-0461617), No. 5043-D-181787 (ESS-0461618), No. 5043-D-181789 (ESS-0461614), No. 5043-D-181790 (ESS-0461615).</p>	kg	4200,00		
B.2	<p>Steel structure of staircase incl. railing for personal access to the Control Hutch</p> <p><u>Item B.2 includes:</u></p> <ul style="list-style-type: none">- complete supply and execution of the steel structure of staircase incl. railing and coating (40,0 m2 of coating surfaces), anchoring elements and fasteners (total weight of steel structure for staircase is 1215,42 kg + for railing is 107,06 kg)- all other costs related to the complete execution of the Item B.2 (e. g. transport of materials to the site, cutting, joining, welding, etc.). <p>The steel structure of the staircase incl. railing see drawings No. 5043-D-181792 (ESS-0461622), No. 5043-D-181793 (ESS-0461623), No. 5043-D-181795 (ESS-0461624).</p>	kg	1322,48		
B.3	<p>Ceiling and floor structure above the Sample Preparation Area</p> <p><u>Item B.3 includes:</u></p> <ul style="list-style-type: none">- complete supply and execution of the ceiling and floor structure in the whole	m2	36,92		



	<p>structure composition (see composition below),</p> <p>The composition of the ceiling and floor structure above the Sample Preparation Area:</p> <ul style="list-style-type: none">• Tread layer of floor – PVC, th. 3,0 mm,• Bearing layer – 2x OSB 3N board, th. 2 x 15 mm,• Impact (acoustic) insulation – mineral wool (MW) board, th. 20 mm,• Bearing layer – DTD board (chipboard plate), th. 16 mm,• Bearing layer – trapezoidal sheet, h. 40 mm,• Empty space in the level of ceiling beams I no. 140 th. 140 mm (Note: the steel beams are already included in Item B.1),• Installation space – hanging ceiling elements, th. 86 mm,• Cassette ceiling in raster (600/600 mm) – bearing profiles, mineral ceiling slabs, th. 15 mm. <p>- all other costs related to the complete execution of the Item B.3 (e. g. transport of materials to the site, scaffolding etc.).</p> <p>The ceiling and floor construction above the Sample preparation area see drawing No. 5043-D-181797 (ESS-0461628), No. 5043-D-181789 (ESS-0461614), No. 5043-D-181790 (ESS-0461615).</p>				
B.4	<p>Ceiling and floor structure above the Control room</p> <p><u>Item B.4 includes:</u></p> <ul style="list-style-type: none">- complete supply and execution of the ceiling and floor structure in the whole structure composition (see composition below), <p>The composition of the ceiling and floor structure above the Control room:</p> <ul style="list-style-type: none">• Bearing layer – DTD board (chipboard plate), th. 16 mm,• Bearing layer – trapezoidal sheet, h. 40 mm,• Empty space in the level of ceiling beams I140, th. 140 mm (Note: the steel beams are already included in Item B.1),• Installation space – hanging ceiling elements, th. 86 mm,• Cassette ceiling in raster (600/600 mm) – bearing profiles, mineral ceiling slabs, th. 15 mm. <p>- all other costs related to the complete execution of the Item B.4 (e. g. transport of materials to the site, scaffolding etc.).</p>	m2	42,32		



	The ceiling and floor construction above the Control room see drawing No. 5043-D-181797 (ESS-0461628), No. 5043-D-181789 (ESS-0461614), No. 5043-D-181790 (ESS-0461615).				
B.5	<p>External wall of the enclosure of Control Hutch + Sample Preparation Area</p> <p><u>Item B.5 includes:</u></p> <ul style="list-style-type: none">- complete supply and execution of the external wall of the enclosure in the whole structure composition (see composition below), <p>The composition of the external wall of the enclosure:</p> <ul style="list-style-type: none">• plasterboard with vinyl foil on the outer surface (e. g. Durafort), thickness. 12.5 mm,• mineral wool insulation th. 60 mm, between thin walled steel plate profiles,• plasterboard with vinyl foil on the outer surface (e. g. Durafort), thickness. 12.5 mm. <p>(total surface area of 246,415 m²)</p> <ul style="list-style-type: none">- all other costs related to the complete execution of the Item B.5 (e. g. transport of materials to the site, scaffolding etc.). <p>The structure is shown in drawings No. 5043-D-181786 (ESS-0461617), No. 5043-D-181787 (ESS-0461618), No. 5043-D-181789 (ESS-0461614), No. 5043-D-181790 (ESS-0461615).</p>	m²	246,42		
B.6	<p>Internal partitions in Control Hutch + Sample Preparation Area</p> <p><u>Item B.6 includes:</u></p> <ul style="list-style-type: none">- complete supply and execution of the internal partitions in the whole structure composition (see composition below), <p>The composition of the internal partition structure:</p> <ul style="list-style-type: none">• plasterboard with vinyl foil on the outer surface (e. g. Durafort), thickness 12.5 mm,• mineral wool insulation th. 60 mm, between thin walled steel plate profiles• plasterboard with vinyl foil on the outer surface (e. g. Durafort), thickness. 12.5 mm. <p>(total area of inner partitions 30,0 m²)</p> <ul style="list-style-type: none">- all other costs related to the complete execution of the Item B.6 (e. g. transport of materials to the site, scaffolding etc.). <p>The internal partition walls see drawings No. 5043-D-181786 (ESS-0461617), No. 5043-D-181787 (ESS-0461618).</p>	m²	23,00		



B.7	Sectional garage door with integrated door <u>Item B.7 includes:</u> <ul style="list-style-type: none">- complete supply and execution of sectional garage door with integrated door in the middle.- Clear dimension is 3500 x 2200 mm, dimension of integrated door is 900 x 1970 mm- Lamellas from extruded aluminium- Drive: inphase engine with gearbox 24 V, net connection alternate voltage 230 – 240 V, wattage 0,2 kW- Color: RAL 6032 For drawing see: No. 5043-D-181796 (ESS-0461629), No. 5043-D-181786 (ESS-0461617), No. 5043-D-181791 (ESS-0461626).	pc	1,00		
B.8	Window – dimension of 1200/1200 mm – 1/W (window in Control Hutch + Sample Preparation Area) <u>Item B.8 includes:</u> <ul style="list-style-type: none">- complete supply and execution of all 1200/1200 mm windows. Window frame: aluminum – Al Surface finishing: komaxit Glazing: double glass 4-16-4 mm Opening: fixed (unopenable) Total number of windows: 13 pcs- all other costs related to the complete execution of the Item B.7 (e. g. transport of materials to the site, fixing and insulating material etc.). The windows see drawings No. 5043-D-181786 (ESS-0461617), No. 5043-D-181787 (ESS-0461618), No. 5043-D-181789 (ESS-0461614), No. 5043-D-181790 (ESS-0461615), No. 5043-D-181791 (ESS-0461626), No. 5043-D-181796 (ESS-0461629).	pcs	13,00		
B.9	Window – dimension of 1000/1200 mm – 2/W (window in Control Hutch + Sample Preparation Area) <u>Item B.9 includes:</u> <ul style="list-style-type: none">- complete supply and execution of 1000/1200 mm window. Window frame: aluminium – Al Surface finishing: komaxit Glazing: double glass 4-16-4 mm Opening: fixed (unopenable) Total number of windows: 1 pc- all other costs related to the complete execution of the Item B.8 (e. g. transport of materials to the site, fixing and insulating material etc.). The windows see drawings No. 5043-D-181791	pc	1,00		



	(ESS-0461626), No. 5043-D-181796 (ESS-0461629).				
B.10	Single-wing door - dimension of 900/2200 mm (door in Control Hutch + Sample Preparation Area) <u>Item B.10 includes:</u> <ul style="list-style-type: none">- complete supply and execution of the single-wing door of dimension 900x2200 mm. Door frame: aluminium - Al Glazing: partially glazed, double glass 4-16-4 mm, dimension of glazing is 660x990 mm, in upper half of door wing, Surface finishing: komaxit, Fitting: handle/handle.- all other costs related to the complete execution of the Item B.9 (e. g. transport of materials to the site, fixing and insulating material etc.). The door see drawing No. 5043-D-181791 (ESS-0461626), No. 5043-D-181796 (ESS-0461629).	pc	1,00		
B.11	Single-wing door - dimension of 800/2000 mm (door in Control Hutch + Sample Preparation Area) <u>Item B.11 includes:</u> <ul style="list-style-type: none">- complete supply and execution of the single-wing door of dimension 800x2000 mm. Door frame: aluminium – Al, Without glazing, Surface finishing: komaxit, Fitting: handle/handle.- all other costs related to the complete execution of the Item B.10 (e. g. transport of materials to the site, fixing and insulating material etc.). The door see drawing No. 5043-D-181796 (ESS-0461629).	pc	1,00		
B.12	Double-wing door - dimension of 1300/2200 mm (door in Control Hutch + Sample Preparation Area) <u>Item B.12 includes:</u> <ul style="list-style-type: none">- complete supply and execution of the double-wing door of dimension 1300x2200 mm. Door frame: aluminium – Al, Without glazing, Surface finishing: komaxit, Fitting: handle/handle.- all other costs related to the complete execution of the Item B.11 (e. g.	pc	1,00		



	transport of materials to the site, fixing and insulating material etc.). The door see drawing No. 5043-D-181796 (ESS-0461629).				
B.13	Support frame for UPS system (locksmith's product) <u>Item B.13 includes:</u> <ul style="list-style-type: none">- complete supply and execution of the support frame. Frame is welded from L profiles 40/40/4 mm Surface finishing: Epoxy coating, RAL 9005- all other costs related to the complete execution of the Item B.13 (e. g. transport of materials to the site, fixing etc.) The frame see drawing No. 5043-D-181795 (ESS-0461624)	kg	6,96		
B.14	Socket box anchor profiles (locksmith's product) <u>Item B.14 includes:</u> <ul style="list-style-type: none">- complete supply and execution of the support profiles for socket box installation. Steel plate P4x260-50 Total number of profiles: 6 pcs- all other costs related to the complete execution of the Item B.14 (e. g. transport of components to the site etc.) Surface finishing: Epoxy coating, RAL 9005 The profiles see drawing No. 5043-D-181795 (ESS-0461624)	kg	2,70		
B.15	Protective barrier, tall (locksmith's product) <u>Item B.15 includes:</u> <ul style="list-style-type: none">- complete supply and execution of the protective tall (1 m height) barrier, Steel plate P6x150/150, steel tube 76,1x3 mm, mechanical anchor: 4 pcs per anchor plate P6 (total 12 pcs of anchors for 1 barrier), Total number of tall barrier: 2 pcs- all other costs related to the complete execution of the Item B.15 (e. g. transport of components to the site etc.)	kg	54,60		



	Surface finishing: Epoxy coating, RAL 9005, RAL 1028 The barrier see drawing No. 5043-D-181795 (ESS-0461624).				
B.16	Protective barrier, short (locksmith's product) <u>Item B.16 includes:</u> <ul style="list-style-type: none">- complete supply and execution of the protective tall (0,5 m height) barrier, Steel plate P6x150/150, steel tube 76,1x3 mm, mechanical anchor: 4 pcs per anchor plate P6 (total 12 pcs of anchors for 1 barrier), Total number of tall barrier: 2 pcs- all other costs related to the complete execution of the Item B.16 (e. g. transport of components to the site etc.) Surface finishing: Epoxy coating, RAL 9005, RAL 1028 The barrier see drawing No. 5043-D-181795 (ESS-0461624).	kg	30,80		