

ICS 01.040.27
CCS F 02

NB

**ENERGY INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

NB/T 20358.11-2018

Replacing NB/T 20358.11-2015

**Cost estimation of nuclear power plant construction project -
Part 11: Civil engineering for conventional island**

核电厂建设工程预算定额 第11部分：常规岛建筑工程

Issued on: December 10, 2018

Implemented on: April 1, 2019

Issued by: National Energy Administration of the PRC

Table of Contents

Volume description	1
Chapter 1 Earthwork and Rock Works	3
1.1 Manual earthwork and rock work	11
1.2 Mechanical earthwork	30
1.3 Mechanical rock work	46
1.4 Foundation pit support	61
Chapter 2 Ground Treatment Works	68
2.1 Pile foundation works	72
2.2 Ground treatment works	106
Chapter 3 Masonry Works	118
3.1 Brick and block masonry	121
3.2 Stone masonry	129
3.3 Pointing of stone walls	133
3.4 Other masonry	134
Chapter 4 Concrete and Reinforcement Works	135
4.1 Cast-in-place concrete works	136
4.2 Bedding courses and other items	156
4.3 Precast concrete works	160
4.4 Reinforcement works	187
Chapter 5 Metal Structure Works	204
5.1 Fabrication of metal structures	207
5.2 Installation of metal structures	223
5.3 Transport of metal members	235
Chapter 6 Roofing and Drainage Works	236
6.1 Roof waterproofing and drainage	239
6.2 Waterproofing and damp-proofing of walls and floors	254
Chapter 7 Anticorrosion and Thermal Insulation Works	270
7.1 Monolithic surface courses	272
7.2 Block surface courses	280
7.3 Thermal insulation layers	284
7.4 Anticorrosion	289
Chapter 8 Door and Window Works	292

8.1 Special doors	294
8.2 General doors	295
8.3 Windows	299
Chapter 9 Renovation and Decoration Works	302
9.1 Floor and ground finishing works	307
9.2 Wall and column finishing works	339
9.3 Ceiling finishing works	382
9.4 Handrails, railings and balustrades	399
Chapter 10 Painting and Coating Works	409
10.1 Painting of steel structures	412
10.2 Painting of plastered surfaces and wallpapering	416
10.3 Painting of doors and windows	418
10.4 Painting of timber surfaces	421
10.5 Coating works	423
Chapter 11 Structure Works	425
11.1 Concrete channels	428
11.2 Tanks and basins	429
11.3 Large-diameter prestressed reinforced concrete pressure pipes	432
Chapter 12 Plant Area Works	439
12.1 Road works	442
12.2 Fencing works	458
12.3 Retaining wall and slope protection works	460
12.4 Drainage ditch and pipeline works	462
12.5 Settlement and deformation monitoring devices	480
Chapter 13 Demolition and Sealing Works	482
13.1 Demolition works	485
13.2 Openings in members	497
13.3 Chasing of members	503
13.4 Sealing	505
13.5 Rebar planting and anchor bolts	512
Chapter 14 Measure Works	515
14.1 Formwork works	518
14.2 Scaffolding works	533
14.3 Construction dewatering	546

Foreword

This document was issued on 10 December 2018 by the National Energy Administration of the PRC and takes effect on 1 April 2019.

It is a NB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 01.040.27, Chinese classification F 02.

It replaces NB/T 20358.11-2015, which is superseded.

NB/T 20358 Cost estimation of nuclear power plant construction project, together with NB/T 20355 Cost norms for civil and installation works of the nuclear island of nuclear power plant construction projects, NB/T 20356 Cost norms for civil and installation works of the conventional island of nuclear power plant construction projects and NB/T 20357 Cost norms for machine-shift charges of nuclear power plant construction projects, makes up the series of nuclear power cost standards that support the budgeting and pricing of nuclear power construction projects.

NB/T 20358 Cost estimation of nuclear power plant construction project currently consists of 16 parts, composed as follows:

Part 1: Civil engineer for nuclear island.

Part 2: Decoration works for nuclear island.

Part 3: Steel structure works for nuclear island.

Part 4: Installation of process equipment for nuclear island.

Part 5: Installation of process piping for nuclear island.

Part 6: Installation of ventilation and air conditioning for nuclear island.

Part 7: Installation of electrical equipment for nuclear island.

Part 8: Installation of automation and control instrumentation for nuclear island.

Part 9: Installation of communication equipment for nuclear island.

Part 10: Anticorrosion and thermal insulation works for nuclear island.

Part 11: Civil engineer for conventional island.

Part 12: Installation of thermal equipment for conventional island.

Part 13: Installation of electrical equipment for conventional island.

Part 14: Commissioning works.

Part 15: Fabrication of modules and steel containment vessel.

Part 16: Assembly and erection of modules and steel containment vessel.

This part is Part 11: Civil engineer for conventional island of NB/T 20358 Cost estimation of nuclear power plant construction project (hereinafter referred to as this cost estimate). It was issued by Announcement No. 14 of 2018 of the National Energy Administration. The date of approval is 10 December 2018 and the date of implementation is 1 April 2019.

This part was proposed by the Nuclear Power Standardization Technical Committee of the energy industry.

This part is under the centralized administration of the Nuclear Industry Standardization Research Institute.

The main drafting organizations of this part are: China General Nuclear Power Engineering Co., Ltd.; China Nuclear Power Engineering Co., Ltd.; Electric Power Planning and Engineering Institute; China International Engineering Consulting Corporation; China Energy Engineering Group Co., Ltd.; China Electric Power Construction Group Co., Ltd.

The main drafters of this part are: Xu Dingxuan, Zhou Yunsheng, Huang Wenxiu, Li Bo, Wang Fang, Guo Ying, Zhang Jian, Zhang Li, Dong Ruilin, Yang Lirong, He Li, Jiang Renjun, Zhu Daguang, Ji Kai, Zhu Zhongnan, Wei Youlu, Yao Fuyong and Liu Kai.

This part replaces NB/T 20358.11-2015.

1 Scope

NB/T 20358.11-2018 is the Chinese budget estimation norm for the civil works of the conventional island of a nuclear power plant, the eleventh part of the NB/T 20358 series. It is not a technical standard but a price book, and that is precisely what makes it valuable to anyone outside China trying to understand what a Chinese nuclear project actually costs. A budget estimation norm fixes, for every unit of work, the quantity of labour, material and plant that the state considers necessary to perform it: so many labour hours and so much formwork per cubic metre of concrete of a given grade in a given location, so much per tonne of reinforcement, per square metre of finishing. Those figures are the basis on which the estimate is prepared, the tender limit is set and the final account is settled, and they are what a foreign contractor, supplier or analyst needs in order to read a Chinese nuclear cost estimate rather than guess at it. This volume covers the civil engineering of the conventional island - the turbine building and its associated structures, as distinct from the nuclear island covered by other parts of the series. Its fourteen chapters run through the whole trade sequence: manual and mechanical earthwork and rock work, foundation treatment and piling, concrete and reinforcement, masonry, structural steel, waterproofing and thermal insulation, floors and finishes, doors and windows, decoration, and the works of the site, together with the scaffolding, dewatering and other preliminary items. The document is issued as one of the sixteen parts of NB/T 20358, alongside the companion series NB/T 20355, 20356 and 20357 that cover the other stages of nuclear cost estimation. It was