



# Material Schedule

## Useful tool for Effective Management of Building Project

Presented by QS. Chijioke Michael Iwuagwu

At the

**NIQS Workshop on Importance of Resource Schedule for  
Inclusive Development of the construction Industry**

On 29<sup>th</sup> -30<sup>th</sup> of March, 2021



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He is a Cost Estimator with Arab Contractors O.A.O Nigeria Ltd., and have over 10 years working experience using professional estimating packages and Computer Aided Takeoff Applications.

He is currently the BIM/ CAD Administrator and Instructor at Cadprofessional Systems Technology Limited with over 12 years software coaching experience with particular application to construction.

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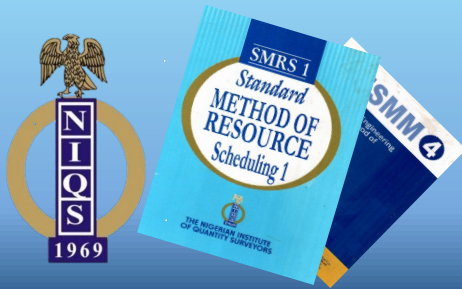




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S/NO	DESCRIPTION OF WORK	QTY	UNIT	RATE	AMOUNT
<u>Materials schedule and current prices of the listed construction resources as the 12th day of March, 2010</u>					
1	Laterite hardcore for filling	36.6	Load	35,000.00	1,281,000.00
2	Anti termite treatment solution	2	Litre	2,500.00	5,000.00
<b>Concrete works (125m<sup>3</sup>)</b>					
3	Cement	500	Bag	1,450.00	725,000.00
4	Sand	9.4	Load	16,500.00	155,100.00
5	Granite/ Chippings	18.75	Load	70,000.00	1,312,500.00
<b>Terrazzo floor finish (10m<sup>3</sup>)</b>					
7	Cement	28	Bags	1,450.00	40,600.00
8	Sand	0.8	Load	16,500.00	13,200.00
9	Granite/ Chippings	1.6	Load	70,000.00	112,000.00
<b>Reinforcement Bars</b>					
10	12mm diameter Bars (high yield steel)	148	Kg	1,230.00	182,040.00
11	8mm diameter Bars (mild steel)	42	Kg	900.00	37,800.00
12	BRC Mesh (3.5mx20m)	1	Nr	12,500.00	12,500.00
13	Binding wire	2	Roll	2,700.00	5,400.00
<b>Formworks</b>					
14	23x300x3600mm soft wood plank (Akp)	174	Nr	650.00	113,100.00
<b>Blocks</b>					
15	225mm Sandcrete hollow block	174	Nr	150.00	750,000.00
16	150mm Sandcrete hollow block	280	Nr	100.00	28,000.00
<b>Mortar (7.39m<sup>3</sup>)</b>					
17	Cement	51	Bag	1,450.00	73,950.00
18	Sand	1.5	Load	16,500.00	24,750.00
<b>Rendering (14m<sup>3</sup>)</b>					
19	Cement	98	Bag	1,450.00	142,100.00
20	Sand	2.8	Load	16,500.00	46,200.00
sub total					5,060,240.00

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- Sample of Material Schedule Sheet
- Steps to preparing Material Schedule
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# Introductions

Material Schedules is a document that focuses on the material composition of the project, showing the breakdown of the various materials and components needed to accomplish a building project from beginning to finish.

Material schedule are prepared using work quantities calculated from the building drawings and specification related to standard materials obtainable in the market.

Material Schedule shows the direct relationship between the project scope and design to the material cost, type, sizes and quantities

# Benefits of Material Schedule

- Material Schedule enables the active participation of client in the procurement process of materials and components.
- Material Schedule provide a flexible tool for both cost and quality control suitable in formal and informal procurement settings.
- Material Schedule provide a useful tool for implementing material management which helps to ensure that projection for materials costs are maintained or superseded.
- Material Schedule serves as an instrument that enables easy cashflow and budgeting for both the client and the contractor.
- Material schedule also provides a useful tool for both resource management and workplan.

# Samples of Material Schedule

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<b><u>Terrazzo floor finish (10m3)</u></b>					
7	Cement	28	Bags	1,450.00	40,600.00
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sub total					5,060,240.00

# Steps to Preparing Material Schedule

A major step towards preparing functional material schedule:

- IDENTIFY AND ESTABLISH THE WORK QUANTITY
- UNDERSTAND THE BUILDING/CONSTRUCTION PROCESS
- IDENTIFY WORK MATERIAL PROPORTION AND COMPONENTS
- UNDERSTAND MATERIAL CONVERSION FACTORS AND CONSTANTS
- ADJUSTMENTS TO COVER FOR WASTAGES/SHRINKAGE/BULKAGE

# Material Schedule in SMRS-1

The Standard Method of Resources Scheduling 1 (SMRS-1) is a standard document that provides a uniform basis for the scheduling of construction resources (labour, equipment, materials, capital etc).

The SMRS-1 offers tabulated guideline for preparation of a informal tendering document capable of showing the full extents, nature and knowledge of construction resources required on the project.

The SMRS-1 is a standard document used to prepare the **Construction Resources and Economy Schedule (CORES)**. Unlike the BESMM4, the SMRS-1 is suitable in informal procurement systems, and accommodates interests of Employer to participate and wield effective cost control throughout the entire procurement process.

# Sample of CORES

ITEM	BILL REF	WORK SECTION/DESCRIPTION	EMPLOYER'S RESPONSIBILITY					CONTRACTOR'S RESPONSIBILITY	
			MATERIALS	QTY	UNIT	PRICE	AMOUNT	Method Statement/ Charge	AMOUNT
		<b>1.11: INSITU CONCRETE WORKS</b>							
		<b>Grade 20 Concrete</b>						<b>1 Day</b>	
D	1.1.2/1	Mass Concrete; 250mm thick; In trench filling; Poured on or against earth or unblinded hard core (34 m3)	Cement	154	bag	3,000	462,000.00	2 gang @ 15,000	30,000.00
			Sharp Sand	1.28	trip	27,000	34,560.00	1 Conc mixer @ 30,000	30,000.00
			Granite	1.82	trip	185,000	336,700.00	1 Vibrator @ 5000	5,000.00
			Water	2670	litre	5	13,350.00	2 Barrow @ 500	1,000.00
								<b>1 Day</b>	
E	1.1.3/1	Mass Concrete; 150mm thick; In steps; Poured on or against earth or unblinded hard core (1 m3)	Cement	5	bag	3,000	15,000.00	2 Lab @ 2,500	5,000.00
			Sharp Sand	0.04	trip	27,000	1,080.00	1 Conc mixer @ 30,000	30,000.00
			Granite	0.05	trip	185,000	9,250.00	1 Vibrator @ 5000	5,000.00
			Water	79	litre	5	395.00	1 Barrow @ 500	500.00
		<b>Weak Concrete (1:10 - graded sub- base)</b>						<b>1 Day</b>	
F	2.1.1/1	Horizontal Work; less or equal to 300 thick; 50mm thickness in blinding; poured on or against earth or unblinded hard core (11 m3)	Cement	31	bag	3,000	93,000.00	1 gang @ 15,000	15,000.00
			Sharp Sand	0.52	trip	27,000	14,040.00	1 Conc mixer @ 30,000	30,000.00
			Granite	0.55	trip	185,000	101,750.00	1 Vibrator @ 5000	5,000.00
			Water	540	litre	5	2,700.00	2 Barrow @ 500	1,000.00

# Preparing Material Schedule

- Earthworks
- Concrete works
- Blockworks
- Formworks
- Reinforcement Bar
- Plaster and Rendering
- Tiling works
- Painting

MATERIALS	QTY	UNIT	PRICE	AMOUNT
Cement	154	bag	3,000	462,000.00
Sharp Sand	1.28	trip	27,000	34,560.00
Granite	1.82	trip	185,000	336,700.00
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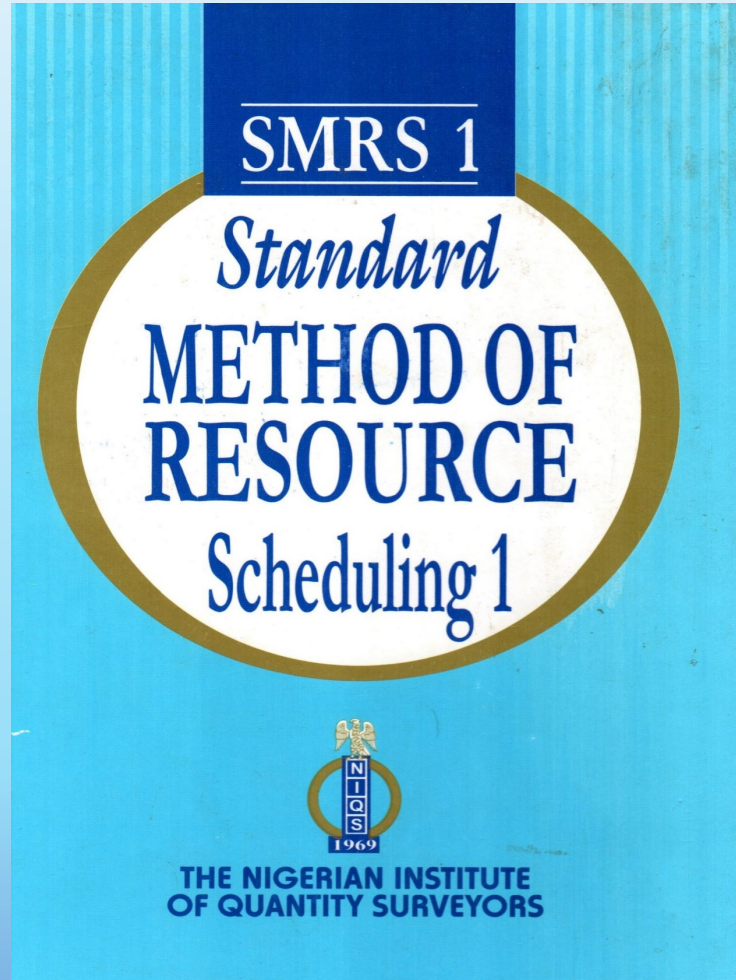
# Application in BIM Process

Using Autodesk Navisworks or any of the BIM compliant quantity takeoff application we can effectively carryout preparation of material schedule, seamless and smoothly as can be seen in the demonstration

# Conclusion

- As a wise man once said, counting the cost is an important aspect of building decision, and material schedule assists the construction promoters to count the material costs which never the less represents about 70% of the building cost.
- Understanding the project composition therefore is an asset to the project stakeholders, and material schedule offers a useful insight in presenting the material composition of the project which are used for critical project decisions like material purchases, cashflow planning and projection, quality control, work plan etc.

# Appreciation



Thanks for your wonderful patience and attention throughout this time, I will now wait for your questions if any.

