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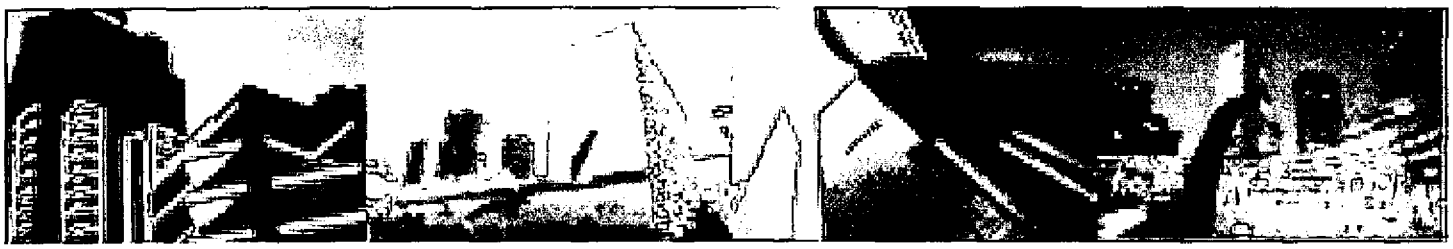
UNIDO Contract No.: 05/018
UNIDO Project No.: EG/CPR/99/G31
P.O. NO. 16000819

May, 2006

Energy Conservation And Greenhouse Gas Emissions Reduction In Chinese Township And Village Enterprises-Phase II

Brick Sector Replication Projects for Energy efficiency (4)

Final Report



To :
The United Nations Industrial Development Organization (UNIDO)

Prepared by
Energy and Environmental Development Consulting Limited (EED)

In association with
Sichuan Chengdu Yongxing Qiangcai Technical Consulting Limited (SCYQT)

北京中环恒远咨询有限公司
EED ENERGY AND ENVIRONMENTAL DEVELOPMENT CONSULTING LIMITED

May 26, 2006

To: Ms. M. Latrech
Contracts Officer
Procurement Services
Division of Administration
UNIDO
Wagraer Strasse 5
A-1220 Vienna, AUSTRIA

Subject: Final Report for Project No.: EG/CPR/99/G31 – Energy Conservation and GHG Emission Reduction in Chinese TVEs, Brick Sector Replication Projects for Energy Efficiency (4) (Contract No.: 05/018)

Dear Ms. M. Latrech,

According to contract signed between Energy and Environmental Development Consulting Limited (EED consulting) and UNIDO, EED consulting, in association with Sichuan Yongxing Qiangcai Technical Consulting Company, is pleased to submit its final report for the above mentioned project.

This report summarized what we have done and the outputs of the project from May 28, 2005 to May 22, 2006. As per the instruction provided in the contract, this report has the attachment as follows:

1. Monitoring and Evaluation Form
2. Installation and Test Report
3. Production and Energy Management System for Enterprises
4. Certificate of Acceptance
5. Invoice for the fifth payment request.

We remain standby to provide all necessary supporting documents required thereto upon your request.

We are looking forward to receiving your response to our report.

Sincerely yours,

Liu Xin Ph.D

Managing Director, EED Consulting

CC: Ms. Wang Guiling, Project director, PMO of TVEs project

Mr. Wang Hai, President, Hongyuan Company

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I Introduction

Township and village enterprises (TVEs) constitute a significant share of Chinese economic production and social welfare. TVEs also contribute significantly to local and global environmental problems. Energy Conservation and Greenhouse Gas Emissions Reduction in Chinese Township and Village Enterprises—Phase II is funded by the Global Environmental Fund (GEF). The aim of this project is to reduce greenhouse gas emissions in China by adoption of energy efficient technologies in TVEs in the brick, cement, metal-casting, and coking sub-sectors. The project intends to overcome key policy, market, technical, and financial barriers to the production, marketing, and adoption of energy efficient technologies in these sectors.

This subcontract, Brick Sector Replication Projects for Energy Efficiency (4), is intended to replicate the successful experiences and best practices of the pilot brick plants by implementing technology renovation to improve energy efficiency and product quality.

For project replication in the brick sector, UNIDO and the Project Management Office (PMO) of the Ministry of Agriculture have identified about 15 potential brick plants in Chengdu which are willing and qualified to participate in project replication. The scope of this subcontract will cover Sanli Shale Hollow Brick Ltd. and other 14 non-pilot brick plants in Chengdu, Sichuan province.

This report is the final report submitted to the United Nations Industrial Development Organization (UNIDO) by Energy and Environmental Development Consulting Limited (EED) in collaboration with Sichuan Chengdu Yongxing Qiangcai Technical Consulting Limited (SCYQT) as the contractor of Brick Sector Replication Projects for Energy Efficiency (4).

II Project summing-up

From the project kick-off on May 28, 2005, the contractor has provided the 15 brick plants with all consulting and engineering services required in the contract. The services include:

Task I: Consulting services

Activity 1: Project briefing meeting

Activity 2: Draft the work plan for phase I

Activity 3: Survey on Xinjin pilot plant, preliminary site investigation and the basic analysis for the assessment in 15 plants

Activity 4: Site investigation, assessment and communications on technology renovation with plant manager

Activity 5: Review and finalization of the renovation schemes

Activity 6: Draft feasibility study report and plant-wide management system framework

Activity 7: Revise feasibility study report and complete the first progress report

Task II: Engineering services

Activity 8: Engineering design, construction preparation, equipments selection and purchase

Activity 9: Construction supervision, technical trainings and draft second progress report

Activity 10: Equipments installation and test, management systems set-up, and the draft final report

Activity 11: Project summing-up and complete final report

By now, the contractor has finished all the consulting and engineering services required in the contract. The contractor organized 15 plants to visit the pilot enterprise to learn its advanced experiences on energy saving technology renovation and improving the production and management system. The contractor helped the plants complete the technology renovation design, construction and equipments purchase, installation and test. Now, the new energy saving equipments run well and ensure the normal production. The contractor assisted the plants in setting up the production and energy management system. Furthermore, the contractor conducted the training on energy saving technology and policy for the managers and technicians of 15 plants.

During the implementation of the project, the plants actualized the co-financing ratios they promised. The ratios are all higher than the lowest ratio requirement (4:1) and the highest reached 24.61:1. The financing investment of 15 plants is summarized in Table 1.

Table 1 The Financing Investment of 15 Plants

No.	Plant	Unit	Budget			Actual Cost			The Promised Ratio of Co-finance from Plant to UNIDO Capital	The Actual Ratio of Co-finance from Plant to UNIDO Capital
			Total	including		Total	including			
				UNIDO Capital	Co-finance		UNIDO Capital	Co-finance		
1	Xinjin Tangzhong Shale Construction Material Ltd	US$	66100.00	12000.00	54100.00	68632.00	12000.00	56632.00	4.51 : 1	4.72 : 1
		RMB: Yuan	536071.00	97320.00	438751.00	556605.52	97320.00	459285.52		
2	Xinjin Huayuan Shale Hollow Brick Plant	US$	139990.00	12000.00	127990.00	193855.23	12000.00	181855.23	10.67 : 1	15.15 : 1
		RMB: Yuan	1135318.90	97320.00	1037998.90	1572165.92	97320.00	1474845.92		
3	Xinjin Huangdu Shunyuan Shale Brick Plant	US$	73600.00	12000.00	61600.00	83845.00	12000.00	71845.00	5.13 : 1	5.99 : 1
		RMB: Yuan	596896.00	97320.00	499576.00	679982.95	97320.00	582662.95		
4	Xinjin Jinhua Gaofeng Machine-Making Brick Plant	US$	302000.00	12000.00	290000.00	307282.06	12000.00	295282.06	24.17 : 1	24.61 : 1
		RMB: Yuan	2449220.00	97320.00	2351900.00	2492057.51	97320.00	2394737.51		
5	Xinjin Dongsheng Shale Hollow Brick Plant	US$	73100.00	12000.00	61100.00	74690.00	12000.00	62690.00	5.09 : 1	5.22 : 1
		RMB: Yuan	592841.00	97320.00	495521.00	605735.90	97320.00	508415.90		
6	Xinjin Tongxing Construction Material Plant	US$	62100.00	12000.00	50100.00	72624.00	12000.00	60624.00	4.18 : 1	5.05 : 1
		RMB: Yuan	503631.00	97320.00	406311.00	588980.64	97320.00	491660.64		
7	Chengdu Pacific New Construction Material Ltd.	US$	69100.00	12000.00	57100.00	71074.00	12000.00	59074.00	4.76 : 1	4.92 : 1
		RMB: Yuan	560401.00	97320.00	463081.00	576410.14	97320.00	479090.14		
8	Chengdu Xinjin Xingsheng Shale Brick Ltd.	US$	65100.00	12000.00	53100.00	66934.00	12000.00	54934.00	4.43 : 1	4.58 : 1
		RMB: Yuan	527961.00	97320.00	430641.00	542834.74	97320.00	445514.74		
9	Shuangliu Gaofeng Shale Hollow Brick Plant	US$	60000.00	12000.00	48000.00	60242.00	12000.00	48242.00	4.00 : 1	4.02 : 1
		RMB: Yuan	486600.00	97320.00	389280.00	488562.62	97320.00	391242.62		
10	Shuangliu Changhong Shale Hollow Brick Plant	US$	61100.00	12000.00	49100.00	72975.00	12000.00	60975.00	4.09 : 1	5.08 : 1
		RMB: Yuan	495521.00	97320.00	398201.00	591827.25	97320.00	494507.25		
11	Sichuan Chengdu Sanli Shale Hollow Brick Ltd.	US$	62100.00	12000.00	50100.00	68761.00	12000.00	56761.00	4.18 : 1	4.73 : 1
		RMB: Yuan	503631.00	97320.00	406311.00	557651.71	97320.00	460331.71		
12	Shuangliu Liugong Huineng Shale Brick Plant	US$	140600.00	12000.00	128600.00	140819.00	12000.00	128819.00	10.72 : 1	10.73 : 1
		RMB: Yuan	1140266.00	97320.00	1042946.00	1142042.09	97320.00	1044722.09		
13	Shuangliu Jiancha Shale Brick Plant	US$	60500.00	12000.00	48500.00	69758.00	12000.00	57758.00	4.04 : 1	4.81 : 1
		RMB: Yuan	490655.00	97320.00	393335.00	565737.38	97320.00	468417.38		
14	Shuangliu Huayang Honghuo Shale Hollow Brick Plant	US$	61100.00	12000.00	49100.00	69115.00	12000.00	57115.00	4.09 : 1	4.76 : 1
		RMB: Yuan	495521.00	97320.00	398201.00	560522.65	97320.00	463202.65		
15	Sichuan Qionglai Honglin Brick Plant	US$	63100.00	12000.00	51100.00	72345.00	12000.00	60345.00	4.26 : 1	5.03 : 1
		RMB: Yuan	511741.00	97320.00	414421.00	586717.95	97320.00	489397.95		

1. Results

(1) Promotion of energy conservation and technical renovation in the 15 plants

The policy on prohibition of use of solid bricks was in implementation in Xinjin County and Shuangliu County before this project kicked off. At that time, all 15 plants witnessed the bad situation for the rising coal price, too high production cost and adjustment of product structure. Although the entrepreneurs realized that it's necessary to adopt energy saving technology, they didn't start the technical renovation considering the capital, technology and equipments. This project made an opportunity for 15 plants to conduct technical renovation. It provided the plants financial support, helped all plants to find out the problems existing in producing process and energy consumption, and proposed feasible renovation scheme and equipment purchase. It made the entrepreneurs decide to implement the technical renovation.

After the technical renovation, the production capacities of 15 plants increase 18% to 25%, and output reach 30 to 60 million bce per year. The energy consumption per unit product reduce to 1.20 to 1.33 tce per 10,000 bce, decreasing 32.93% averagely. The total energy consumption reduce 2,487.52 tce averagely, which exceed the target of 600 tce of average energy consumption reduction per year in the contract, and the most reduction is 5,425.29 tce. The total CO_2 emission is reduced 93,020.79 tons per year. The comparison of the energy consumption before and after the technical renovation is in Annex 1.

(2) Improvement of economic benefit and management of the 15 plants

The cost of unit product reduces 10 percent and the output increase over 15 percent after technical renovation, which brings high economic benefit. It is strengthened that the awareness of 15 plants on safe production, product quality, energy management and environmental protection through the training. The related systems are set up and the integrated management level is enhanced.

(3) Promotion of energy conservation and technical renovation in other plants

The plants selected in this project locate in three places including Xinjin County, Shuangliu County and Qionglai City. For the 15 plants achieve great energy saving results and economic benefit after the technical renovation, other plants are encouraged to conduct technical renovation, which is very helpful for the further replication of the project. 2 plants in Shuangliu County are planning to purchase 2 sets of energy saving brick-making equipments to improve the producing level and reduce the energy consumption. Furthermore, the local government set up special coordination organization to help plants remove the barriers to energy saving technology adoption. Local Policy Implementation Committee (LPIC) was founded in Shuangliu County. The member parties of LPIC include the Shuangliu SME Bureau and other related agencies. The brick making plants in Shuangliu founded the New Wall Material Industry Association voluntarily and the local government administrations were invited. The foundation of these two organizations will bring

perfect circumstances for the replication and adoption of energy saving technologies.

2. Experiences

(1) Wide communication with local governments and TVEs to help them understand the project fully

For it is the first time for many government officials and entrepreneurs to come into contact with the international project, it proves to be the biggest obstacle to the smooth implementation of the project that they don't understand the project objective, requirement and implementation process deeply. The contractor has actively publicized the project on many occasions such as training, field visits and activities conducted by other contractors. The contractor communicated with replication TVEs and local governments and helped them understand the project deeply.

(2) Surveys in the project implementation

Surveys should be conducted during project implementation to find the problems existing in producing process, technology, equipments and management. According to the survey results, project requirement and needs of plants, the practical technical renovation scheme is formulated. The first-hand materials on energy consumption should be gathered to ensure the exactness of calculation of the energy conservation and emission reduction after technical renovation.

3. Suggestions

(1) Promotion of technical renovation in more plants through the radiant effect of 15 replication TVEs

LPIC should carry out the preferential policies for replication TVEs to play their radiant effect and attract more TVEs to adopt energy saving technology. Thereafter, the energy efficiency of local industry will decrease and the GHG emission will be reduced.

(2) Contractor providing replication TVEs with further technical service and guidance

The contractor should set up long-term relationship with replication TVEs and provide them with technical service and guidance when they adopt further energy saving technology and develop new products. It will make the project sustainable in promotion local energy conservation.

III Activities conducted

From the project kick-off on May 28, 2005 to May 22, 2006, the contractor conducted the activities as following:

Activity 1: Project briefing meeting

Task members: Liu Xin, Wang Fugeng, Luo Jianping

Output: Specified work plan (Please see Annex 4.2 of the First Progress Report).

The project briefing meeting was held on May 28, 2005. The contractor reported the approaches, work plan and personnel arrangement, implementation methodology, and control measures to implement the contract. The briefing of this project is May 28, 2005 determined at this meeting and the duration is six months. The contractor promised that they would implement this project on time and contract price would not change. The work plan was specified at the meeting.

Activity 2: Draft the work plan for phase I

Task members: Liu Xin, Wang Fugeng, Luo Jianping

Output: Detailed work plan for phase I

From May 30 to June 3, 2005, the contractor listed the detailed responsibilities for each expert and team member and set up a sound operation and communication process to ensure the high work efficiency. Additionally, the contractor drafted the work plan in details for phase I to ensure the higher efficiency of project implementation.

Activity 3: Survey on Xinjin pilot plant, preliminary site investigation and the basic analysis for the assessment in 15 plants

Task members: Liu Xin, Wang Fugeng, Zhuang Wei, Luo Jianping, Wu Jianfang, Liu Guangdong, Zhang Ke

Output: Primary professional feedback

From June 6 to June 8, 2005, the contractor conducted a survey on the pilot enterprise, Sichuan Yongxing Shale Hollow Brick Ltd., to learn the experiences on renovation schemes selection and engineering design based on the actual conditions. Information on energy consumption before and after renovation, production and market was colleted. These experiences were the solid base of renovation in the 15 plants.

From June 9 to 12, 2005, the contractor visited SME Bureau, Office of Wall Materials Renovation, Science and Technology Bureau, Environmental Protection Bureau, Land and Resources Bureau of Xinjin Country and Shuangliu Country in Chengdu City. The objective was to collect information on related laws, regulations, and industrial rules, and find the production and market of local wall materials.

From June 13 to 17, 2005, the contractor visited the 15 brick plants selected in this project to know the conditions of technology and products, and analyzed the status of production, emission, technology and market for the 15 selected plants to make the preparation for the further site survey and assessment.

Activity 4: Site investigation, assessment and communications on technology renovation with plant manager

Task members: Liu Xin, Wang Fugeng, Zhuang Wei, Luo Jianping, Wu Jianfang, Liu Guangdong, Zhang Ke

Output: Draft technical renovation schemes

From June 20 to June 24, 2005, the contractor carried out investigations for the 15 plants to implement the plan-level assessment. The main contents included production processes, production technology and equipments, raw materials, consumption status of energy, products, outputs and marketing, financial status and management system.

From June 27 to July 1, 2005, the contractor carried out a comprehensive assessment and identified the issues and origins based on the investigation results and the project goals. The contractor designed technology renovation scheme for the 15 selected plants which suited the conditions of these plants, referring to the successful experience of pilot plants in terms of technology, equipment, and management.

From July 4 to 8, 2005, the contractor communicated and consulted with plant manager regarding the above assessment and designed technical renovation schemes and proposed a list of measures and investments to plant managements to upgrade the existing production technologies and equipments Additionally, the contractor fully considered the reasonable suggestions to ensure that the proposed renovation schemes would be fully agreed by the plant management.

Activity 5: Review and finalization of the renovation schemes

Task members: Liu Xin, Wang Fugeng, Peng Guangming, Zhuang Wei, Luo Jianping, Wu Jianfang, Peng Xueqiang, Liu Guangdong, Zhang Ke

Output: Technology renovation schemes

From July 11 to 13, 2005, the contractor organized experts to review and appraise the renovation scheme on the production progress, raw materials and energy saving, environmental impact and safety appraisal, etc. Meanwhile, the contractor solicited comments from 15 plants.

From July 14 to 15, 2005, technology renovation schemes were finalized based on the appraisal results as well as comments from enterprises and experts.

Activity 6: Draft feasibility study report and plant-wide management system framework

Task members: Liu Xin, Wang Fugeng, Peng Guangming, Zhuang Wei, Luo Jianping, Wu Jianfang, Peng Xueqiang, Liu Guangdong, Zhang Ke

Output: Draft feasibility study reports.

From July 18 to August 9, 2005, the contractor drafted the feasibility study reports for the 15 brick plants. During the process, the contractor identified the problems existing in daily business and set up a feasible plant-wide management system framework.

The major contents of feasibility study report include:

Chapter 1 Introduction

Chapter 2 Market forecasting and current energy resource

Chapter 3 Production scale and products

Chapter 4 Technical renovation measures

Chapter 5 Work plan

Chapter 6 Investment estimation and financial scheme

Chapter 7 Financial analysis

Chapter 8 Occupational safety and health

Chapter 9 Training

Chapter 10 Environmental impact assessment

Chapter 11 Conclusion and Recommendation

Activity 7: Revise feasibility study report and complete the first progress report

Task members: Liu Xin, Wang Fugeng, Peng Guangming, Zhuang Wei, Luo Jianping, Wu Jianfang, Peng Xueqiang, Liu Guangdong, Zhang Ke

Output: Feasibility study reports (see Part Two of First Progress Report), First Progress Report

From August 10 to 13, 2005, the contractor conducted survey at Xinjin County and Shuangliu Country to identify the comments from 15 plants on feasibility study report and plant-wide management system framework. The representatives from PMO were specially invited.

From August 15 to 18, 2005, the feasibility study reports were revised based on the consultation with PMO and 15 plants. After approving the reports, 15 plants subscribe the letter of confirmation.

From August 22 to 30, 2005, the contractor completed the first progress report to summarize the activities in the first phase.

Activity 8: Engineering design, construction preparation, equipments selection and purchase

Task members: Wang Fugeng, Peng Guangming, Luo Jianping, Wu Jianfang, Peng Xueqiang

Output: Shop drawings (see Annex 4.2 of Second Progress Report)

From September 5 to 6, 2005, the contractor organized experts to collect the baseline data and documents for the engineering design, including the new design standards.

From September 7 to 14, 2005, the contractor conducted engineering design in compliance with the latest industry standards and requirements, and the finalization of

the renovation schemes. The contractor clarified the shop drawings to plants on site, and to provide the technical assistance so as to make them understand the drawings thoroughly, assisted plants to prepare for the construction, including stating the type, standard and quantity of construction materials.

From September 7 to 16, 2005, the contractor assisted plants to select and purchase required equipments by bidding. The lists of equipments purchase are as follows (Note: the capital of purchasing equipment with * was from UNIDO entirely or partially.)

Table 2-1 Equipment Purchase List of Xinjin Tangzhong Shale Construction Material Ltd.

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Longquan Xiping Chaoyang Brick Machines Plant	2005.9.8	148,500	18,311
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-2 Equipment Purchase List of Xinjin Huayuan Shale Hollow Brick Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Vacuum extrusion brick machine	JZK50/45-30	Piece	1	Leshan Construction Material and Machine Plant	2005.9.10	373,200	46,017.26
2	Vertical cutting piece machine*	ZXb2000	Piece	1	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.7	9,900	1,220.72

Table 2-3 Equipment Purchase List of Xinjin Huangdu Shunyuan Shale Brick Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Longquan Xiping Chaoyang Brick Machines Plant	2005.9.14	148,500	18,311
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-4 Equipment Purchase List of Xinjin Jinhua Gaofeng Machine-Making Brick Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Jaw crusher	PEL250×400	Piece	1	Dujiangyan Casting Plant	2005.9.7	21,000	2,589.40
2	Hammer blow crusher*	PC-1200	Piece	1	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.15	122,740	15,134.40
3	Beater	SJ-4000	Piece	1	Leshan Brick Machine Plant	2005.9.12	43,000	5,302.10
4	Vacuum brick-making machine	JZK50/45-30	Piece	1	Leshan Brick Machine Plant	2005.9.12	420,000	51,787.92
5	Vertical cutting piece machine *	ZXB2000	Piece	1	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.15	9,280	1,144.27
6	Adobe-cutting machine	DW501-20	Piece	1	Leshan Brick Machine Plant	2005.9.12	21,500	2,651.05
7	Wind turbine	4-72•14#	Piece	1	Chengdu Wind Turbine Plant	2005.9.19	37,823	4,463.38

Table 2-5 Equipment Purchase List of Xinjin Dongsheng Shale Hollow Brick Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Leshan Jianping Machine Plant	2005.9.15	147,000	18,126
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-6 Equipment Purchase List of Xinjin Tongxing Construction Material Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Xinjin Cast Steel Plant	2005.9.12	147,600	18,200
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-7 Equipment Purchase List of Chengdu Pacific New Construction Material Ltd.

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Longquan Xiping Chaoyang Brick Machines Plant	2005.9.13	148,500	18,311
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-8 Equipment Purchase List of Chengdu Xinjin Xingsheng Shale Brick Ltd.

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Xinjin Cast Steel Plant	2005.9.14	147,600	18,200
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-9 Equipment Purchase List of Shuangliu Gaofeng Shale Hollow Brick Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Base and roof of brake		set	32	Chengdu Guangyuan Ltd.	2005.9.10	52,800	6,510
2	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-10 Equipment Purchase List of Shuangliu Changhong Shale Hollow Brick Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Longquan Tianping Machine Plant	2005.9.15	145,500	17,941
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-11 Equipment Purchase List of Sichuan Chengdu Sanli Shale Hollow Brick Ltd.

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Guangyuan Ltd.	2005.9.10	146,200	18,027
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-12 Equipment Purchase List of Shuangliu Liugong Huineng Shale Brick Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Wind turbine	4-72•14#	Piece	1	Chengdu Electric Engine Plant	2005.9.8	35,200	4,340
2	Transformer*	S9-400KVA	Piece	1	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.10	212,000	26,141
3	Flat vehicle	1000×800	Piece	500	Xinjin Tricycle Plant	2005.9.7	35,000	4,316
4	Infrared-thermoscope*	DHS-200	Piece	1	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.15	4,060	501

Table 2-13 Equipment Purchase List of Shuangliu Jiancha Shale Brick Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Anhui Fuyang Agricultural Machine Plant	2005.9.9	146,340	18,044
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-14 Equipment Purchase List of Shuangliu Huayang Honghuo Shale Hollow Brick Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Longquan Xiping Chaoyang Brick Machines Plant	2005.9.12	148,500	18,311
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Table 2-15 Equipment Purchase List of Sichuan Qionglai Honglin Brick Plant

No.	Equipment name	Specification	Unit	Quantity	Supplier	Consignment date	Cost	
							RMB:Yuan	Equivalent to US$
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Longquan Xiping Chaoyang Brick Machines Plant	2005.9.12	148,500	18,311
2	Electric and capacitance compensator*	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom	2005.9.12	48,680	6,002
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.	2005.9.11	3,500	432

Activity 9: Construction supervision, technical trainings and draft second progress report

Task members: Wang Fugeng, Peng Guangming, Luo Jianping, Wu Jianfang, Peng Xueqiang

Output: Training materials (see Annex 4.4 of Second Progress Report), Second Progress Report

From September 19 to October 20, 2005, the contractor organized related experts to conduct construction supervision and assistance in addressing the emerged issues on site during the construction. The plant managers and operators familiarized the whole processes and mastered the key quality control points with the help of experts; it is helpful to strengthen the production control and product quality control in regular production period. At the same time, the contractor supervised the co-financed fund arranged by the plant for this project through the supervision of project teams.

From September 21 to 25, 2005, the contractor compiled training materials.

From September 28 to 29, 2005, the contractor conducted the training on enterprises management, brick making techniques for the principal technician, managers and operators. The trainees' awareness on energy saving was strengthened and they had a deeper understanding on the development trend and technical level of brick making industry, which is helpful for the further replication of energy saving technology.

From October 21 to 25, 2005, the contractor drafted the Second Progress Report to summarize the activities in Phase II.

Activity 10: Equipments installation and test, management systems set-up, and the draft final report

Task members: Wang Fugeng, Luo Jianping, Peng Guangming, Peng Xueqiang

Output: Installation and Test Report, Production and Energy Management System, Draft Final Report

From October 28 to November 14, 2005, the contractor guided the 15 plants to install the purchased equipments based on the construction requirements. After all equipments were installed, the 2-day test for each equipment was carried out; then the 4-day test for the whole production line without load and the 5-day operation of whole production line for try were carried out. At last all equipments ran well. From November 14 to 18, the contractor finished the Installation and Test Report according to the new equipments installation and test in 15 plants.

From November 11 to 24, 2005, the contractor finalized the feasible plant-level production and energy management system for each plant based on the prior successful experience on pilot plants in management and the project progress, in view of the detail situation.

From November 21 to 27, 2005, the contractor summarized the progress of energy

saving renovation in all plants, including the renovation scheme, energy consumption and the financial investment, etc. All plants accepted the work conducted by the contractor and subscribed the Certificate of Acceptance.

From November 25 to December 25, 2005, the contractor formulated the Draft Final Report.

From December 26, 2005 to January 20, 2006, the contractor solicited the comments of PMO on the Draft Final Report and revised the report according to the comments.

Activity 11: Project summing-up and complete final report

Task members: Wang Fugeng, Liu Xin

Output: Final Report

From February 20 to May 22, 2006, the contractor drafted the final report according to the regular operation status, and project target fulfillment and the comments on the draft final report by UNIDO and PMO.

IV Annexes

Annex 1 Monitoring and Evaluation Form

Annex 2 Installation and Test Report

Annex 3 Production and Energy Management System for Enterprises

Annex 4 Certificate of Acceptance

Annex 1 Monitoring and Evaluation Form

No.	TVEs	Business Profile[1]	Technical Process and Major Energy-use Equipments[2]	EE Baseline									Proposed Technical Renovation [3]	Project Investment				Project Status	Anticipated Results								Energy Savings (tce/a.)	CO_2 emission Reduction (t/a.)	Remarks [1]
				Energy Type	Energy consumption (physical quantity)	Conversion Factor	Energy use (tce)	Energy Use/Unit Product	Output Before Renovation	Total energy use (tce)	CO_2 Coefficient	CO_2 Emissions (t/a.)		Total (RMB ¥10,000)	GEF (US$)	Others (RMB¥10,000)			Start-end date	Financial Evaluation			Production after renovation	Energy Use/Unit Product					
1	Xinjin Tangzhong Shale Construction Material Ltd.	It is located in Huangdu Village of Xinjin County in Chengdu. There are 165 employees currently. The leading products are shale hollow bricks and porous bricks.Its current fixed asset is more than RMB 4.5 million.	28-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	10,839.50	0.500	5,419.75	Coal: 1.83 tce/10,000 bce [2]	3,500	10,000 bce/a.	8,281.42	2.493	15,659.57	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	55.6606	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	2.16	year	4,200	10,000 common bricks/a.	Coal: 1.10 tce/10,000 bce			2,467.46	6,151.37	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	570.50	0.500	285.25	Power: 0.15 tce/10,000 bce								Entrustment Loan	0			IRR	49.09	%			Power: 0.11 tce/10,000 bce					
				Power/MWh	1,505.00	0.383	576.42									Self-Funding	45.9286			NPV	166.75	¥10,000								
				Sum total			6,281.42	C energy consumption[3] 1.79 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	232.83	¥1/tce			C energy consumption[2] 1.21 tce/10,000 bce					
2	Xinjin Huayuan Shale Hollow Brick Plant	It is located in Jinhua Village of Xinjin County in Chengdu. There are 150 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 1.5 million.	22-door annular kiln/ artificial drying Technical Process:Raw material-Hammer blow comminution-Beat up-Modeling-Stacking and burning once-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	4,040.00	1.000	4,040.00	Coal: 2.02 tce/10,000 bce [2]	2,000	10,000 bce/a.	4,388.53	2.493	10,940.61	(1) Build a storeroom; (2) Replace the vacuum brick-making machine; (3) Substitute vertical cutting piece machine for old cutting piece machine; (4) Rebuild a drying room; (5) Rebuild the stacking and burning once kiln to the 38-door stacking and burning twice kiln.	157.2186	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	3.03	year	6,000	10,000 common bricks/a.	Coal: 1.20 tce/10,000 bce			5,425.59	13,526.00	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	0.00	1.000	0.00	Power: 0.17 tce/10,000 bce								Entrustment Loan	0			IRR	39.56	%			Power: 0.09 tce/10,000 bce					
				Power/MWh	910.00	0.383	348.53									Self-Funding	147.4848			NPV	617.27	¥10,000								
				Sum total			4,388.53	C energy consumption[3] 2.19 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	204.46	¥1/tce			C energy consumption[2] 1.29 tce/10,000 bce					
3	Xinjin Huangdu Shunyuan Shale Brick Plant	It is located in Baisha Village of Xinjin County in Chengdu. There are 160 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 2.5 million.	32-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	11,715.42	0.506	5,928.00	Coal: 1.60 tce/10,000 bce [2]	3,900	10,000 bce/a	6,852.42	2.493	17,083.07	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	67.9983	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	2.43	year	4,700	10,000 common bricks/a.	Coal: 1.15 tce/10,000 bce			2,383.04	5,940.92	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	616.60	0.506	312.00	Power: 0.16 tce/10,000 bce								Entrustment Loan	0			IRR	43.24	%			Power: 0.10 tce/10,000 bce					
				Power/MWh	1,599.00	0.383	612.42									Self-Funding	58.2663			NPV	172.32	¥10,000								
				Sum total			6,852.42	C energy consumption[3] 1.76 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	289.33	¥1/tce			C energy consumption[2] 1.25 tce/10,000 bce					
4	Xinjin Jinhua Gaofeng Machine-Making Brick Plant	It is located in Jinhua Village of Xinjin County in Chengdu. There are 120 employees currently. The leading products were clay bricks. Its current fixed asset is more than RMB 2.5 million.	22-door annular kiln/ natural drying Technical Process:Raw material-Modeling-Cut into pieces-Cut adobe-Natural drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	7,891.36	0.486	3,835.20	Coal: 1.70 tce/10,000 bce [2]	2,400	10,000 bce/a.	4,456.87	2.493	11,110.98	(1) Shale materials will substitute for the clay materials for brick making. (2) Replace the non-vacuum brick-making machine from 360# to JZK50/45-30, adopting more advanced cutting-piece machines and cutting-adobe machines replacing current ones. (3) Artificial drying replaces the natural drying. (4) Dismantle the 22-door kiln and build a 24-door energy-saving kiln.	249.2058	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	3.69	year	3,600	10,000 common bricks/a.	Coal: 1.10 tce/10,000 bce			2,373.59	5,917.35	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	503.70	0.486	244.80	Power: 0.16 tce/10,000 bce								Entrustment Loan	0			IRR	23.59	%			Power: 0.10 tce/10,000 bce					
				Power/MWh	984.00	0.383	376.87									Self-Funding	239.4738			NPV	191.75	¥10,000								
				Sum total			4,456.87	C energy consumption[3] 1.86 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	317.69	¥1/tce			C energy consumption[2] 1.20 tce/10,000 bce					

No.	TVEs	Business Profile[1]	Technical Process and Major Energy-use Equipments[2]	EE Baseline									Proposed Technical Renovation [3]	Project Investment				Project Status	Anticipated Results										Energy Savings (tce/a.)	CO_2 emission Reduction (t/a.)	Remarks [1]
				Energy Type	Energy consumption (physical quantity)	Conversion Factor	Energy use (tce)	Energy Use/Unit Product		Output Before Renovation	Total energy use (tce)	CO2 Coefficient	CO2 Emissions (t/a.)		Total (RMB ¥10,000)	GEF (US$)	Others (RMB ¥10,000)			Start-end date	Financial Evaluation			Production after renovation		Energy Use/Unit Product					
5	Xinjin Dongsheng Shale Hollow Brick Plant	It is located in Huangdu Village in Xinjin Country in Chengdu. There are 120 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 3.0 million.	38-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	13,369.98	0.473	6,324.00	Coal:	1.70	tce/10,000 bce [2]	4,000	10,000 bce/a.	7,435.78	2.493	18,537.40	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	60.5736	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	2.41	year	4,700	10,000 common bricks/a.	Coal:	1.23	tce/10,000 bce	2,486.04	6,197.70	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	1,006.34	0.473	476.00	Power:	0.16	tce/10,000 bce							Entrustment Loan	0			IRR	34.39	%			Power:	0.10	tce/10,000 bce			
				Power/MWh	1,660.00	0.383	635.78										Self-Funding	50.8416			NPV	88.21	¥10,000								
				Sum total			7,435.78	C energy consumption [3]	1.88	tce/10,000 bce							Financial Assistance	0			Cost of energy saving[4]	258.23	¥1/tce			C energy consumption[2]	1.33	tce/10,000 bce			
6	Xinjin Tongxing Constructio n Material Plant	It is located in Huangdu Village in Xinjin Country in Chengdu. There are 130 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 3.0 million.	24-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	28,700.00	0.171	4,907.70	Coal:	1.72	tce/10,000 bce [2]	3,000	10,000 bce/a.	5,625.60	2.493	14,024.62	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	58.8981	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	2.03	year	5,400	10,000 common bricks/a.	Coal:	1.16	tce/10,000 bce	3,322.08	8,281.95	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	1,510.53	0.171	258.30	Power:	0.15	tce/10,000 bce							Entrustment Loan	0			IRR	63.89	%			Power:	0.10	tce/10,000 bce			
				Power/MWh	1,200.00	0.383	459.60										Self-Funding	49.1661			NPV	399.77	¥10,000								
				Sum total			5,625.60	C energy consumption [3]	1.88	tce/10,000 bce							Financial Assistance	0			Cost of energy saving[4]	204.16	¥1/tce			C energy consumption[2]	1.26	tce/10,000 bce			
7	Chengdu Pacific New Constructio n Material Ltd.	It is located in Huangdu Village in Xinjin Country in Chengdu. There are 168 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 3.0 million.	30-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	11,703.60	0.529	6,191.20	Coal:	1.72	tce/10,000 bce [2]	3,800	10,000 bce/a.	7,150.15	2.493	17,825.33	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	57.6410	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	2.23	year	4,400	10,000 common bricks/a.	Coal:	1.11	tce/10,000 bce	2,973.60	7,413.19	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	615.97	0.529	325.85	Power:	0.17	tce/10,000 bce							Entrustment Loan	0			IRR	50.09	%			Power:	0.10	tce/10,000 bce			
				Power/MWh	1,653.00	0.383	633.10										Self-Funding	47.9090			NPV	202.83	¥10,000								
				Sum total			7,150.15	C energy consumption [3]	1.88	tce/10,000 bce							Financial Assistance	0			Cost of energy saving[4]	246.74	¥1/tce			C energy consumption[2]	1.21	tce/10,000 bce			
8	Chengdu Xinjin Xingsheng Shale Brick Ltd	It is located in Puxing Village in Xinjin Country in Chengdu. There are 140 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 3.04 million.	28-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	23,878.74	0.214	5,110.05	Coal:	1.63	tce/10,000 bce [2]	3,300	10,000 bce/a.	5,922.48	2.493	14,764.74	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	54.2835	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	2.12	year	4,000	10,000 common bricks/a.	Coal:	1.17	tce/10,000 bce	2,070.76	5,162.41	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	1,256.78	0.214	268.95	Power:	0.16	tce/10,000 bce							Entrustment Loan	0			IRR	54.68	%			Power:	0.11	tce/10,000 bce			
				Power/MWh	1,419.00	0.383	543.48										Self-Funding	44.5515			NPV	231.42	¥10,000								
				Sum total			5,922.48	C energy consumption [3]	1.78	tce/10,000 bce							Financial Assistance	0			Cost of energy saving[4]	268.89	¥1/tce			C energy consumption[2]	1.26	tce/10,000 bce			

No.	TVEs	Business Profile[1]	Technical Process and Major Energy-use Equipments[2]	E E Baseline								Proposed Technical Renovation [3]	Project Investment				Project Status	Anticipated Results								Remarks [5]
				Energy Type	Energy consumption (physical quantity)	Conversion Factor	Energy use (tce)	Energy Use/Unit Product	Output Before Renovation	Total energy use (tce)	CO2 Coefficient	CO2 Emissions (t/a.)		Total (RMB ¥10,000)	GEF (US$)	Others (RMB ¥10,000)			Start-end date	Financial Evaluation			Production after renovation	Energy Use/Unit Product		Energy Savings (tce/a.)	CO_2 emission Reduction (t/a.)	
9	Shuangliu Gaofeng Shale Hollow Brick Plant	It is located in Huayang Village in Shuangliu Country in Chengdu. There are 125 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 3.8 million.	20-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	8,159.05	0.503	4,104.00	Coal: 1.80 tce/10,000 bce [2]	2,400 10,000 bce/a.	4,729.04	2.493	11,789.51	(1) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (2) Replace the seat and cover of brakes.	48.6563	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	1.85	year	3,000 10,000 common bricks/a.	Coal: 1.20 tce/10,000 bce		2,012.51	5,017.18	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	429.42	0.503	216.00	Power: 0.17 tce/10,000 bce								Entrustment Loan	0			IRR	62.86	%		Power: 0.10 tce/10,000 bce				
				Power/MWh	1,068.00	0.383	409.04									Self-Funding	39.1243			NPV	238.08	¥10,000						
				Sum total			4,729.04	C energy consumption[2] 1.97 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	240.49	¥1/tce		C energy consumption[2] 1.30 tce/10,000 bce				
10	Shuangliu Changhong Shale Hollow Brick Plant	It is located in Baisha Village in Shuangliu Country in Chengdu. There are 130 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 3.0 million.	20-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	7,798.79	0.497	3,876.00	Coal: 1.70 tce/10,000 bce [2]	2,400 10,000 bce/a	4,470.66	2.493	11,145.35	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	59.1827	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	1.94	year	3,000 10,000 common bricks/a.	Coal: 1.15 tce/10,000 bce		1,839.52	4,585.93	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	410.46	0.497	204.00	Power: 0.16 tce/10,000 bce								Entrustment Loan	0			IRR	59.25	%		Power: 0.10 tce/10,000 bce				
				Power/MWh	1,020.00	0.383	390.66									Self-Funding	49.4507			NPV	264.30	¥10,000						
				Sum total			4,470.66	C energy consumption[2] 1.86 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	247.43	¥1/tce		C energy consumption[2] 1.25 tce/10,000 bce				
11	Chengdu Sanli Shale Hollow Brick Ltd.	It is located in Huanglongxi Village in Shuangliu Country in Chengdu. There are 120 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 4.2 million.	22-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	8,792.82	0.500	4,396.41	Coal: 1.71 tce/10,000 bce [2]	2,700 10,000 bce/a.	5,048.68	2.493	12,586.36	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	55.7652	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	2.12	year	3,200 10,000 common bricks/a.	Coal: 1.10 tce/10,000 bce		2,144.90	5,347.23	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	462.78	0.500	231.39	Power: 0.16 tce/10,000 bce								Entrustment Loan	0			IRR	33.58	%		Power: 0.10 tce/10,000 bce				
				Power/MWh	1,098.90	0.383	420.88									Self-Funding	46.0332			NPV	77.81	¥10,000						
				Sum total			5,048.68	C energy consumption[2] 1.87 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	239.74	¥1/tce		C energy consumption[2] 1.20 tce/10,000 bce				
12	Shuangliu Liugong Huineng Shale Brick Plant	It is located in Jiancha Village in Shuangliu Country in Chengdu. There are 120 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 1.5 million.	22-door annular kiln/ natural drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Making adobe-Natual drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	7,825.74	0.505	3,952.00	Coal: 1.60 tce/10,000 bce [2]	2,600 10,000 bce/a.	4,568.28	2.493	11,388.71	(1) Adopt new felting technical approach to replace the old brick and felt inside the kiln, then enhance pressurization; adopt infrared thermoscope to monitor and control burning temperature; (2) Replace the current electric transformer; (3) Build artificial drying room with 10 paths.	114.2042	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	3.02	year	3,300 10,000 common bricks/a.	Coal: 1.18 tce/10,000 bce		1,564.30	3,899.79	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	411.88	0.505	208.00	Power: 0.16 tce/10,000 bce								Entrustment Loan	0			IRR	34.80	%		Power: 0.10 tce/10,000 bce				
				Power/MWh	1,066.00	0.383	408.28									Self-Funding	104.4722			NPV	225.54	¥10,000						
				Sum total			4,568.28	C energy consumption[2] 1.76 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	306.81	¥1/tce		C energy consumption[2] 1.28 tce/10,000 bce				

No.	TVEs	Business Profile[1]	Technical Process and Major Energy-use Equipments[2]	EE Baseline								Proposed Technical Renovation [3]	Project Investment				Project Status	Anticipated Results								Remarks [1]
				Energy Type	Energy consumption (physical quantity)	Conversion Factor	Energy use (tce)	Energy Use/Unit Product	Output Before Renovation	Total energy use (tce)	CO2 Coefficient	CO2 Emissions (t/a.)		Total (RMB ¥10,000)	GEF (US$)	Others (RMB ¥10,000)			Start-end date	Financial Evaluation			Production after renovation	Energy Use/Unit Product		Energy Savings (tce/a.)	CO_2 emission Reduction (t/a.)	
13	Shuangliu Jiancha Shale Brick Plant	It is located in Jiancha Village in Shuangliu Country in Chengdu. There are 100 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 4.55 million.	20-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product .Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	7,797.80	0.500	3,898.80	Coal: 1.71 tce/10,000 bce [2]	2,400 10,000 bce/a	4,476.28	2.493	11,159.36	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	56.5737	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	2.34	year	3,000 10,000 common bricks/a	Coal: 1.15 tce/10,000 bce	1,848.95	4,609.42	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	410.40	0.500	205.20	Power: 0.16 tce/10,000 bce								Entrustment Loan	0			IRR	47.09	%		Power: 0.10 tce/10,000 bce			
				Power/MWh	972.00	0.383	372.28									Self-Funding	46.8417			NPV	181.18	¥10,000					
				Sum total			4,476.28	C energy consumption[3] 1.57 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	245.83	¥1/tce		C energy consumption[3] 1.25 tce/10,000 bce			
14	Shuangliu Huayang Honghuo Shale Hollow Brick Plant	It is located in Huayang Village in Shuangliu Country in Chengdu. There are 175 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 3.2 million.	22-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	8,828.13	0.498	4,396.41	Coal: 1.71 tce/10,000 bce [2]	2,700 10,000 bce/a	5,056.95	2.493	12,608.98	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	56.0523	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	2.32	year	3,300 10,000 common bricks/a	Coal: 1.18 tce/10,000 bce	1,958.04	4,881.39	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	464.64	0.498	231.39	Power: 0.19 tce/10,000 bce								Entrustment Loan	0			IRR	48.21	%		Power: 0.10 tce/10,000 bce			
				Power/MWh	1,120.50	0.383	429.15									Self-Funding	48.3203			NPV	190.95	¥10,000					
				Sum total			5,056.95	C energy consumption[3] 1.87 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	269.23	¥1/tce		C energy consumption[3] 1.28 tce/10,000 bce			
15	Sichuan Qionglai Hongtin Brick Plant	It is located in Huilong Village in Qionglai City in Chengdu. There are 120 employees currently. The leading products are shale hollow bricks and porous bricks. Its current fixed asset is more than RMB 4.6 million.	24-door annular kiln/ artificial drying Technical Process:Raw material-Store material-Rough comminution-Further comminution-Store material-Beat up-Modeling-Cut into pieces-Cut adobe-Distribution-Drying-Burning-Finished product Major Energy-use Equipments:hammer blow crusher,beater,brick-making machine,blower	Internal combustive coal (t)	9,519.59	0.485	4,617.00	Coal: 1.71 tce/10,000 bce [2]	3,000 10,000 bce/a	5,595.35	2.493	13,949.20	(1) Install reactive power compensation for the inductance burthen; (2) Adopt new felting technical approach to replace the old brick and felt inside the kiln and strengthen the pressurizing; (3) Replace the hammer blow crusher from PC-800 to PC-1200.	58.6718	12,000	Commercial loan	0	All the services and activities required by the contract have been finished.	June 2005-May 2006	Payback period	2.35	year	3,700 10,000 common bricks/a	Coal: 1.11 tce/10,000 bce	2,442.43	6,088.97	With the data of 2004 as baseline, all data are from actual implementation situation of the project.
				External combustive coal (t)	1,057.73	0.485	513.00	Power: 0.16 tce/10,000 bce								Entrustment Loan	0			IRR	47.04	%		Power: 0.10 tce/10,000 bce			
				Power/MWh	1,215.00	0.383	465.35									Self-Funding	48.9398			NPV	188.06	¥10,000					
				Sum total			5,595.35	C energy consumption[3] 1.87 tce/10,000 bce								Financial Assistance	0			Cost of energy saving[4]	239.49	¥1/tce		C energy consumption[3] 1.21 tce/10,000 bce			
Total													1,210.7837	180,000		1064.8037								37312.79	93020.79	

Note:

1. Remarks: Please state and explain the source of baseline data.

2. bce: brick common equivalent

3. c energy consumption: comprehensive energy consumption

4. Formula for calculating cost of energy savings :

$$CE = \frac{Invest\dfrac{i(1+i)^n}{(1+i)^n-1} + (c_2 - c_1)\cdot P_2}{EF}$$

Legend:

CE—cost of energy savings, ¥1/tce;

Invest— Initial cost (¥)

i—Discount rate;

n— Project lifecycle (a.)

c_2-c_1-incremental cost per product. c_2 - cost per product after the renovation;c_1- cost per product before the renovation. (¥/10,000 bce)

P2 - annual output after the renovation, (¥/10,000 bce)

EF— annual energy savings (tce/a)

Annex 2 Installation and Test Report

Table of Contents

Installation and Test Report for

Xinjin Tangzhong Shale Construction Material Ltd.

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	28-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 28-door annular kiln

Change all old bricks in the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 3 doors with no change as they run well.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II The installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for electric and capacitance compensator

1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Installation and Test Report for

Xinjin Huayuan Shale Hollow Brick Plant

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated drying room	50m*2.4m	10
2	Renovated kiln	38-door	1
3	Vacuum brick-making machine	JZK50/45-30	1
4	Vertical cutting piece machine	ZXb2000	1
5	Store room	800m^2	1

The detailed installation and test procedures are as follows:

I The renovation and test for the 38-door kiln

Change all old bricks in the kiln in use of the new felting method

1. Detailed procedures:

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. Additionally, extend the original kiln with 22 doors to 38 doors. The wind path is built for a distance of 10 meters.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the

resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II Construction and test of the drying room

1. Construction

The drying room was constructed according the blueprint and using the cement to lay the bricks. The drying room with 50 meters' length and 2.4 meters' width has 10 drying path, which is manual drying room.

2. Test

(1)Adjust the wind temperature, ventilating volume and the workshop inner temperature and humidity.

(2)Adjust the damp ejecting holes based on the drying and humidity situation inside drying room.

All tests are fine and the drying room operates normally.

III The installation and test for vacuum brick-making machine

1. Installation

First, construct the installation base with concrete to reach the 100% intensity according to the blueprint. Second, install this equipment according to the installation requirement and fix it with concrete and fasten the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

IV Installation and test for vertical cutting piece machine

1. Installation

This equipment was installed on the ground between brick-making machine and

adobe-cutting machine. The center lines of the three equipments should be consistent. Fasten it by the expanding bolt and the installation is over.

2. Test

Examine the fixation of this equipment and all parts after installation and clean it. Run the equipment for try and if it's fine then it can operate normally.

V Building the storeroom

Build the storeroom with 40 meters' length, 20 meters' width and 15 meters' height in use of cement and brick.

Installation and Test Report for

Xinjin Huangdu Shunyuan Shale Brick Plant

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	32-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 32-door annular kiln

Change the old bricks in the 1^{st}-15^{th} door and 18^{th}-32^{nd} door in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 2 doors with no change as they run well.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II The installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for electric and capacitance compensator

1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Installation and Test Report for

Jinhua Gaofeng Machine-Making Brick Plant

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	New built energy saving kiln	24-door	1
2	Jaw crusher	PEL250×460	1
3	Hammer blow crusher	PC-1200	1
4	Beater	SJ-4000	1
5	Vacuum brick-making machine	JZK50/45-30	1
6	Vertical cutting piece machine	ZXB2000	1
7	Adobe-cutting machine	DW501-20	1
8	Renovated drying room	80m×1.5m	1

The detailed installation and test procedures are as follows:

I The new built energy-saving 24-door kiln

1. Construction

Remove the original kiln and re-build a new one with 4 meters' width and 2.7 meters' height using the new felting method. This new kiln has 24 doors with the 6 meters' door distance. The outline of the new kiln is arch.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to

improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The new built kiln runs normally with the test.

II Installation and test for jaw crusher

1. Installation

First, the installation position for the jaw crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the jaw crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

IV Installation and test for the beater

1. Installation

First, the installation position for the beater should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the beater according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

V Installation and test for the vacuum brick-making machine

1. Installation

First, the installation position for the vacuum brick-making machine should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the vacuum brick-making machine according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

VI Installation and test for vertical cutting piece machine

1. Installation

First, the installation position for the vacuum brick-making machine should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the vacuum brick-making machine according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

VII Installation and test for the adobe-cutting machine

1. Installation

This equipment should be installed on the ground behind the vertical cutting piece machine and lower than it by 5-10 millimeters. The central line of the brick-making machine and cutting piece machine should be consistent. After fixing the position, fasten it by the expanding bold. The installation is over.

2. Test

Examine the fixation of each part and lube. Run it without loading for try. Then run it with brick-making machine and vertical cutting piece machine jointly. All equipments run well, and then it can be operated for normal production.

VIII Construction and test of the drying room

1. Building the drying room

According to the blueprint, construct the drying room with 80 meters' length and 1.5 meters' width using the brick and cement. The drying room has two brick walls with 24 meters' length. Its ground is a heat scattering bed. The drying room has a cover and a ventilation path with 1.5 meter height and 1 meter's width.

2. Test

Adjust temperature and humidity by adjusting the ventilation volume and recycle process.

All tests are fine and the drying room can be operated normally.

Installation and Test Report for

Xinjin Dongsheng Shale Hollow Brick Plant.

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	36-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 36-door annular kiln

Change the old bricks in the 1^{st}-20^{th} door, 22^{nd}-28^{th} door, 30^{th}-36^{th} kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 2 doors with no change as they run well.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II The installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for electric and capacitance compensator

1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Installation and Test Report for

Xinjin Tongxing Construction Material Plant

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	24-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 24-door annular kiln

Change all old bricks in the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 3 doors with no change as they run well. The

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II The installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for electric and capacitance compensator

1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Installation and Test Report for

Chengdu Pacific New Construction Material Ltd.

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	30-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 30-door annular kiln

Change the old bricks in the 1^{st}-8^{th} door and 11^{th} -30^{th} door of the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 2 doors with no change as they run well.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II The installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for electric and capacitance compensator

1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Installation and Test Report for

Chengdu Xinjin Xingsheng Shale Brick Ltd.

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	28-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 28-door annular kiln

Change the old bricks in the 1^{st}-17^{th} door and 21^{st}-28^{th} door of the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 3 doors with no change as they run well.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II The installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for electric and capacitance compensator

1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Installation and Test Report for

Shuangliu Gaofeng Shale Hollow Brick Plant

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	20-door	1
2	Infrared-thermoscope	DHS-200	1
3	Brake seat and cover	500mm	32

The detailed procedures are as follows:

I Pressurizing and test for the 20-door annular kiln

Change all old bricks in the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 3 doors with no change as they run well. Additionally, the kiln cover on five doors was removed and was rebuilt; Repair the ventilation path and smoke path.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

II Testing for infrared thermoscope

After one month's tryout, it runs well.

III Renovation for wind brake seat and cover

1. Remove 32 original wind brake seats and install the new ones using the cement slurry.

2. Install the 32 covers and test them.

After the try, all run well.

Installation and Test Report for

Shuangliu Changhong Shale Hollow Brick Plant

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	20-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 20-door annular kiln

Change all old bricks in the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 3 doors with no change as they run well.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II The installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for electric and capacitance compensator

1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Installation and Test Report for

Chengdu Sanli Shale Hollow Brick Ltd.

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	22-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 22-door annular kiln

Change all old bricks in the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 3 doors with no change as they run well. The ventilation path with 13 meters long was repaired.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II Installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for electric and capacitance compensator

1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Installation and Test Report for

Shuangliu Liugong Huineng Shale Brick Plant

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	22-door	1
2	Drying room	60m*1.4m	10
3	Infrared thermoscope	DHS-200	1
4	Transformer	S9-400KVA	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 22-door annular kiln

Change all old bricks in the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. 20-meter long ventilation path was repaired.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II Building the new drying room and test

1. Building the new drying room

According to the blueprint, construct the drying room with 60 meters' length and 1.4 meters' width using the brick and cement. The drying room has 10 tunnel ventilation paths.

2. Test

(1) Adjust the wind temperature, ventilating volume and the workshop inner temperature and humidity.

(2) Adjust the damp ejecting holes based on the drying and humidity situation inside drying room.

All tests are fine and the drying room can be operated normally.

III Installation and test for transformer

1. Installation

Based on the technical requirement, this equipment should be installed on a flat with 1.5 meters' height. The installation position was set according to the production process. The flat was built by brick and cement and install the equipment after the flat is dry fully.

2. Test

The technical specialist examined all parts after the installation and ensured all is fine. Then carry out the test run for two hours and it is normal. At last, operate transformer with loading for 8 hours and all runs well.

Installation and Test Report for

Shuangliu Jiancha Shale Brick Plant

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	20-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 20-door annular kiln

Change all old bricks in the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 3 doors with no change as they run well. Additionally, the kiln cover on the 15th and 16th doors were removed and rebuilt; Repair the ventilation path and smoke path with 15 meters long.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to

improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II The installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for electric and capacitance compensator

1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Installation and Test Report for

Shuangliu Huayang Honghuo Shale Hollow Brick Plant

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	22-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 22-door annular kiln

Change all old bricks in the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 3 doors with no change as they run well. The ventilation path and smoke path with 21.5 meters was removed and new built.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II The installation and test for the hammer blow crusher

1. Installation

First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

2. Test

Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

III Installation and test for electric and capacitance compensator

1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Installation and Test Report for

Sichuan Qionglai Honglin Brick Plant

This report is for the installation and test of following equipments:

No.	Item	Specification	Quantity
1	Renovated kiln	24-door	1
2	Hammer blow crusher	PC-1200	1
3	Electric and capacitance compensator	BCMJ—5000	10
4	Infrared-thermoscope	DHS-200	1

The detailed installation and test procedures are as follows:

I Pressurizing and test for the 24-door annular kiln

Change all old bricks in the kiln in use of the advanced kiln maintenance technique and new felting method.

1. Detailed procedures

On the kiln inner side, remove the old bricks with 1.5 m width every 1.5 m distance, and then lay the new bricks, until all old bricks are changed as new ones. There are 3 doors with no change as they run well. The ventilation with 17.6 meters long was repaired.

2. Test

(1) Ignition

a. Set the ignition brick and placing the dry adobe in over 5 doors of the kiln;

b. Build the ignition hearth, and putting the firewood and coal into the hearth.

c. Ignition. Open three to five wind brakes near to the ignition hearth before ignition. The first wind brake should be upper than others. Start the blower and ignite it.

d. After ignition, block the intake under the hearth with paper. After warming-up and burning with strong flame to the temperature rising to the burning point of coal in the adobe, throw coal through the fire hole. When the burning areas reach 10-12 lines of bricks, close the ignition hearth to end the ignition and shift to the normal burning.

(2) Warming- up

The temperature of warming-up is slowly up. The use mode of wind brake is like a bridge. The adobes are laid as the upper closer and the lower looser; the outer closer and the inner looser; the inturned closer and the outturned looser. Reduce the resistance of steam in the kiln and fully use the taking out force of the blower to improve the burning progress.

(3) Burning

Control the burning temperature by frequent burning, frequent examination and frequent throwing a small quantity of coal to avoid production of burnt bricks.

(4) Heat preservation and cooling control

After the burning, the three doors are the heat preservation zone cooled gradually. Open the kiln doors with three times for each door to avoid any rapid cooling which bring impact on the product quality.

The repaired kiln runs normally with the test.

II The installation and test for the hammer blow crusher

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First, the installation position for the hammer blow crusher should be ascertained based on the technical requirement. Second, construct the installation base with concrete to reach the 100% intensity according to the design of the installation base. Third, install the hammer blow crusher according to the installation requirement and fixing it with concrete and fastening the floor bolt. The installation is over.

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Examine the fixation of each part after the installation and cleaning this equipment. Draw the driving strap manually and making sure all is fine, and then run the equipment for one hour without load. If it runs well then test it with heavy load for about three hours. It runs normally and then for normal production.

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1. Installation

The electric and capacitance compensator is installed in the electric box of equipments. It is parallel connected with the electromotion current line of equipment through several wires. (Note: the power should be cut off during the installation.)

2. Test

Carry out the particular examination after the installation and then operate the compensator without load and then with load. The ten compensators run well after test.

IV Test for infrared thermoscope

After one month's tryout, it runs well.

Annex 3 Production and Energy Management System for Enterprises

Table of Contents

Production and Energy Management System for Xinjin Tangzhong Shale Construction Material Ltd.

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

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Issue 2

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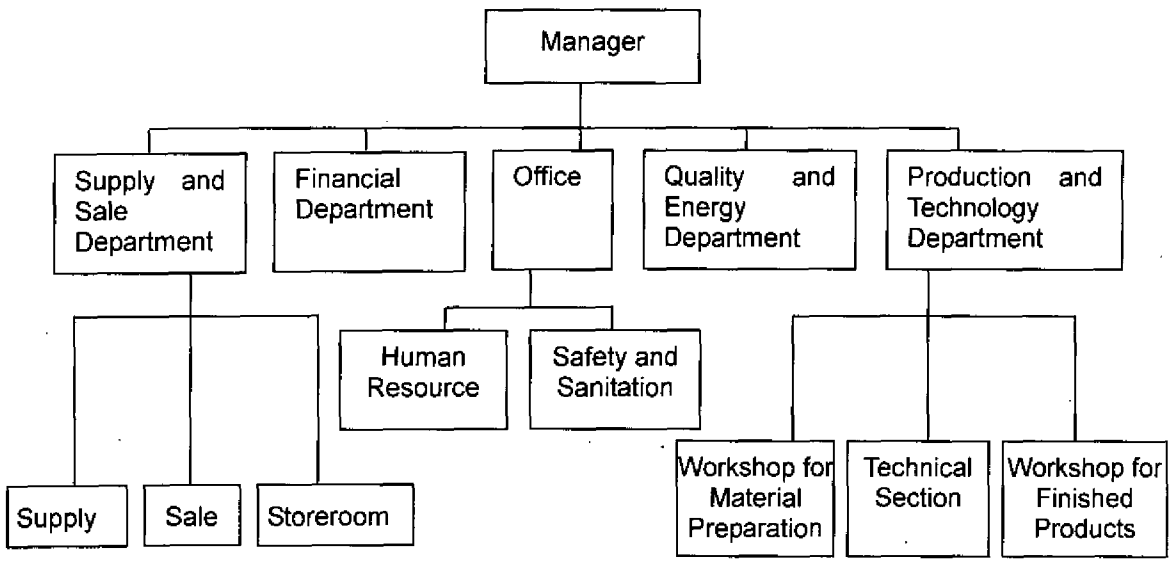

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

The enterprise implements the quality management systems including quality control

system, quality assurance system and equipment management system and so on.

Issue 5 Quality control system

All activities during raw materials, rough comminuting, further comminuting, molding, adobe, burning, desiccation and finished product must be conducted according to the standard manipulation regulations. Only if raw materials, accessorial materials, semi-manufactured products and finished products meet all established quality standard, those can enter into next production process so that waster ratio can be reduced.

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The employees in charge of different procedures of production process should assure that products produced in their procedure meet the quality and specification standard. If some quality problems occur in products, when the reasons are found out, the employee in charge of that procedure and his department should compensate for it according to corresponding loss.

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The full-time quality checker should be assigned by Quality and Energy Department. The checker is in charge of routine check and spot-check for raw materials, semi finished products and final products according to quality standard so that the unqualified raw materials can not be used in the enterprise, unqualified semi finished products can not enter into next process, and the unqualified finished products can not leave the enterprise. Quality checker should make check notes, especially for quality problems found and their solving measures. Furthermore, the improved products should be checked up by the checker again.

Chapter 3 Energy Management System

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According to the national regulations and local development program on energy use, the enterprise should improve energy structure and enhance energy efficiency to reduce the greenhouse gas emission.

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The full-time energy controller should be assigned by Quality and Energy Department who knows the responsibilities, operation regulations for all process, energy consumption of main energy-consumption equipments, the energy consumption indicators and their test measures.

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Energy controller should formulate energy management plan for enterprise including absolute amounts of energy use, total energy consumption and ration of energy

consumption of unit product. The energy controller should compile monthly energy-consumption tables according to actual production and energy consumption.

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The enterprise should adopt management measures on the energy consumption under ration according to the energy management plan, and improve energy efficiency meanwhile by equipment improvement, production process innovation and training for staff to reduce the energy consumption to the lowest level.

Issue 13

The enterprise should install measure and monitoring system for energy consumption for the accurate and quantitative management. The energy controller should periodically gather and analyze the data on energy consumption according to different energy consumption indicators.

Chapter 4 Environment Management System

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The enterprise formulates environmental guideline aiming to reduce the pollutants prior to enhancing the efficiency of energy and resources in order to improve production process and reduce pollutants.

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In the process of transporting, loading and unloading raw materials and products, effective measures should be taken and responsible system should be established to reduce the dust and its spread between the enterprise and outer environment or among workshops inner enterprise. Full-time personnel should be assigned to collect and recycle the dust. For the unqualified products such as transmutative and damaged bricks from production process, they should be recycled and reused or disposed by special measures.

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The enterprise should treat wastewater aiming at main pollution indicators such as suspended solid, water temperature and so on in order to make the discharged wastewater meet national and regional standards for wastewater discharged. At the same time, awareness of saving water should be reflected in respect of production process and management to improve the efficiency of industrial water utilization and reduce the cost of water.

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The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Xinjin Huayuan Shale Hollow Brick Plant

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct their responsibilities respectively.

Issue 2

The enterprise should carry out target management, quality control system and energy management system. Income distribution inner the enterprise should be combined with production quality and energy consumption.

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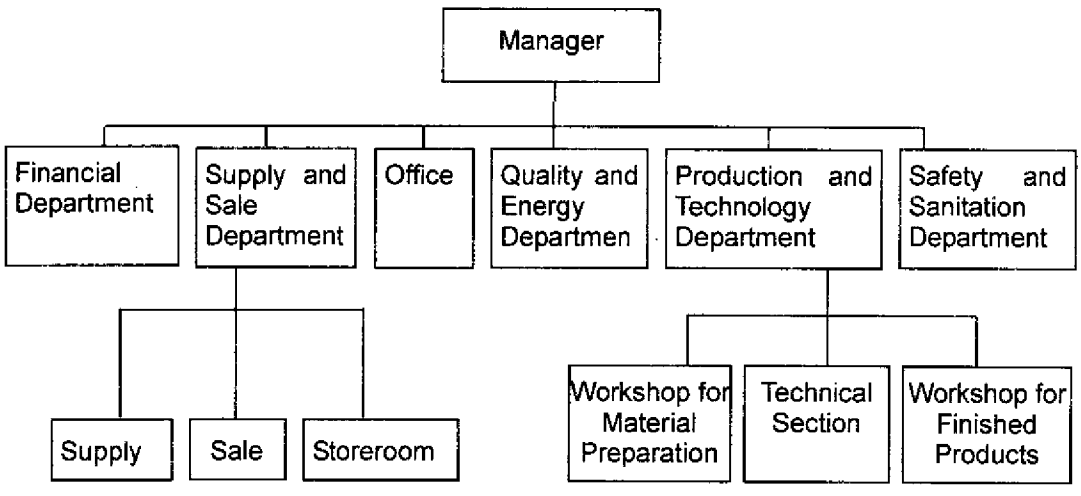

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

The enterprise implements the quality management systems including quality control

system, quality assurance system and equipment management system and so on.

Issue 5 Quality control system

All activities during raw materials, rough comminuting, further comminuting, molding, adobe, burning, desiccation and finished product must be conducted according to the standard manipulation regulations. Only if raw materials, accessorial materials, semi-manufactured products and finished products meet all established quality standard, those can enter into next production process so that waster ratio can be reduced.

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The employees in charge of different procedures of production process should assure that products produced in their procedure meet the quality and specification standard. If some quality problems occur in products, when the reasons are found out, the employee in charge of that procedure and his department should compensate for it according to corresponding loss.

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The full-time quality checker should be assigned by Quality and Energy Department. The checker is in charge of routine check and spot-check for raw materials, semi finished products and final products according to quality standard so that the unqualified raw materials can not be used in the enterprise, unqualified semi finished products can not enter into next process, and the unqualified finished products can not leave the enterprise. Quality checker should make check notes, especially for quality problems found and their solving measures. Furthermore, the improved products should be checked up by the checker again.

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Chapter 4 Environment Management System

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In the process of transporting, loading and unloading raw materials and products, effective measures should be taken and responsible system should be established to reduce the dust and its spread between the enterprise and outer environment or among workshops inner enterprise. Full-time personnel should be assigned to collect and recycle the dust. For the unqualified products such as transmutative and damaged bricks from production process, they should be recycled and reused or disposed by special measures.

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The enterprise should treat wastewater aiming at main pollution indicators such as suspended solid, water temperature and so on in order to make the discharged wastewater meet national and regional standards for wastewater discharged. At the same time, awareness of saving water should be reflected in respect of production process and management to improve the efficiency of industrial water utilization and reduce the cost of water.

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The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

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The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Xinjin Huangdu Shunyuan Shale Brick Plant

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

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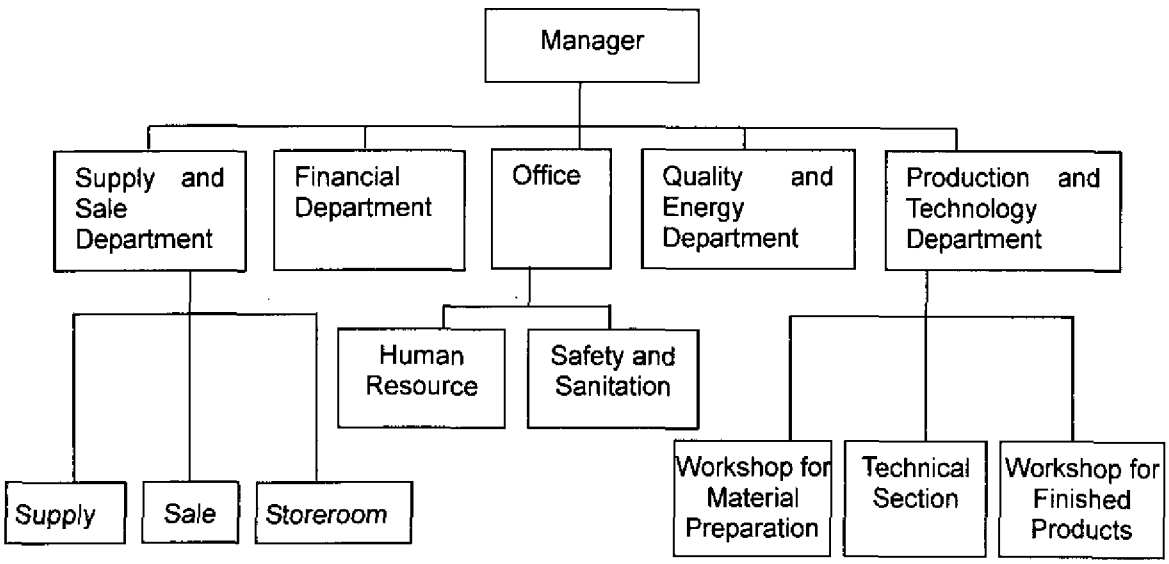

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

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Production and Energy Management System for Xinjin Jinhua Gaofeng Machine-Making Brick Plant

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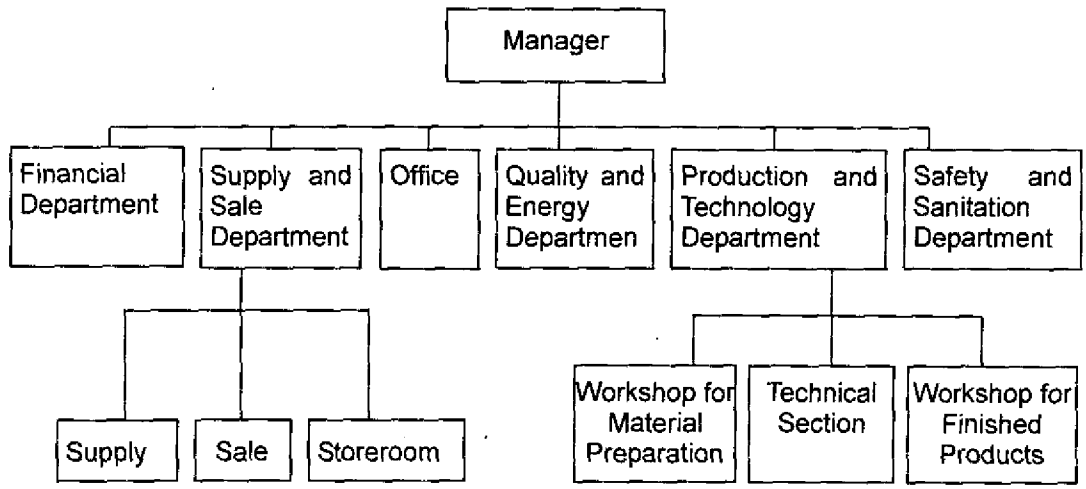

Figure 1 Organizational Structure of Management System for Enterprise

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Production and Energy Management System for Xinjin Dongsheng Shale Hollow Brick Plant

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

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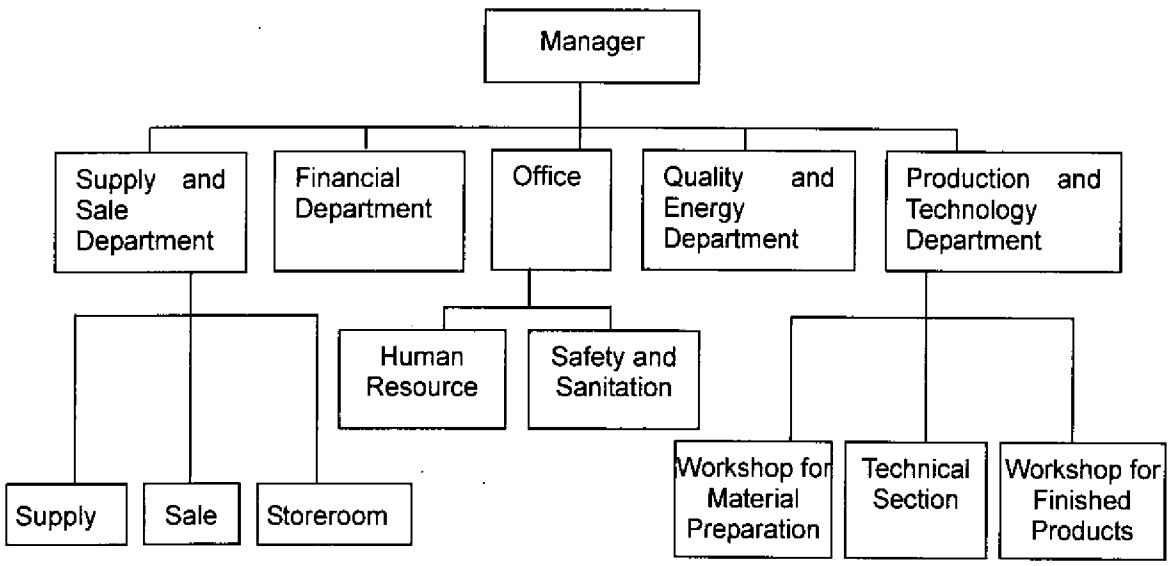

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

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The enterprise should install measure and monitoring system for energy consumption for the accurate and quantitative management. The energy controller should periodically gather and analyze the data on energy consumption according to different energy consumption indicators.

Chapter 4 Environment Management System

Issue 14

The enterprise formulates environmental guideline aiming to reduce the pollutants prior to enhancing the efficiency of energy and resources in order to improve production process and reduce pollutants.

Issue 15 Management on solid waste

In the process of transporting, loading and unloading raw materials and products, effective measures should be taken and responsible system should be established to reduce the dust and its spread between the enterprise and outer environment or among workshops inner enterprise. Full-time personnel should be assigned to collect and recycle the dust. For the unqualified products such as transmutative and damaged bricks from production process, they should be recycled and reused or disposed by special measures.

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Issue 17 Management of noise abatement

The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Xinjin Tongxing Construction Material Plant

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct their responsibilities respectively.

Issue 2

The enterprise should carry out target management, quality control system and energy management system. Income distribution inner the enterprise should be combined with production quality and energy consumption.

Issue 3

The manager should take charge of product quality and energy management of the enterprise overall. Quality and Energy Department is under the charge of manager directly to be responsible for the quality control, quality assurance and energy management. Principal of Quality and Energy Department should undertake the quality and energy management responsibility to ensure the establishment, implementation and maintenance of the Quality and Energy Management System (hereinafter referred to as "System"), and informing the manager of the achievement and improvement demand of the System.

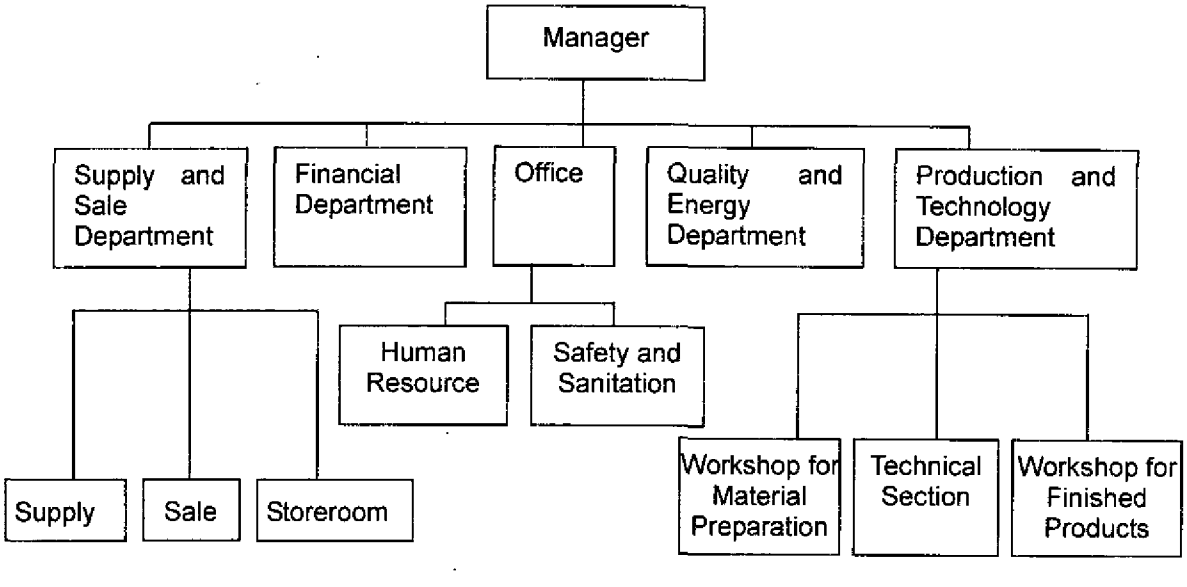

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

The enterprise implements the quality management systems including quality control

system, quality assurance system and equipment management system and so on.

Issue 5 Quality control system

All activities during raw materials, rough comminuting, further comminuting, molding, adobe, burning, desiccation and finished product must be conducted according to the standard manipulation regulations. Only if raw materials, accessorial materials, semi-manufactured products and finished products meet all established quality standard, those can enter into next production process so that waster ratio can be reduced.

Issue 6 Quality assurance system

The employees in charge of different procedures of production process should assure that products produced in their procedure meet the quality and specification standard. If some quality problems occur in products, when the reasons are found out, the employee in charge of that procedure and his department should compensate for it according to corresponding loss.

Issue 7 Equipment management system

All equipments should be managed by the personnel who are specially assigned for it. It is strictly prohibited to use equipments in other workshop (group) without approval of the group leader.

Equipments should be maintained, repaired and examined to ensure normal use. Equipments should be operated complying with regulation, and the operation beyond prescribed temperature, pressure and load are prohibited. The employee who takes charge of equipments maintaining should formulate the plan for maintain, examine safety operation and repair regularly.

Issue 8 Quality check system

The full-time quality checker should be assigned by Quality and Energy Department. The checker is in charge of routine check and spot-check for raw materials, semi finished products and final products according to quality standard so that the unqualified raw materials can not be used in the enterprise, unqualified semi finished products can not enter into next process, and the unqualified finished products can not leave the enterprise. Quality checker should make check notes, especially for quality problems found and their solving measures. Furthermore, the improved products should be checked up by the checker again.

Chapter 3 Energy Management System

Issue 9

According to the national regulations and local development program on energy use, the enterprise should improve energy structure and enhance energy efficiency to reduce the greenhouse gas emission.

Issue 10

The full-time energy controller should be assigned by Quality and Energy Department who knows the responsibilities, operation regulations for all process, energy consumption of main energy-consumption equipments, the energy consumption indicators and their test measures.

Issue 11

Energy controller should formulate energy management plan for enterprise including absolute amounts of energy use, total energy consumption and ration of energy

consumption of unit product. The energy controller should compile monthly energy-consumption tables according to actual production and energy consumption.

Issue 12

The enterprise should adopt management measures on the energy consumption under ration according to the energy management plan, and improve energy efficiency meanwhile by equipment improvement, production process innovation and training for staff to reduce the energy consumption to the lowest level.

Issue 13

The enterprise should install measure and monitoring system for energy consumption for the accurate and quantitative management. The energy controller should periodically gather and analyze the data on energy consumption according to different energy consumption indicators.

Chapter 4 Environment Management System

Issue 14

The enterprise formulates environmental guideline aiming to reduce the pollutants prior to enhancing the efficiency of energy and resources in order to improve production process and reduce pollutants.

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Issue 17 Management of noise abatement

The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Chengdu Pacific New Construction Material Ltd

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct their responsibilities respectively.

Issue 2

The enterprise should carry out target management, quality control system and energy management system. Income distribution inner the enterprise should be combined with production quality and energy consumption.

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The manager should take charge of product quality and energy management of the enterprise overall. Quality and Energy Department is under the charge of manager directly to be responsible for the quality control, quality assurance and energy management. Principal of Quality and Energy Department should undertake the quality and energy management responsibility to ensure the establishment, implementation and maintenance of the Quality and Energy Management System (hereinafter referred to as "System"), and informing the manager of the achievement and improvement demand of the System.

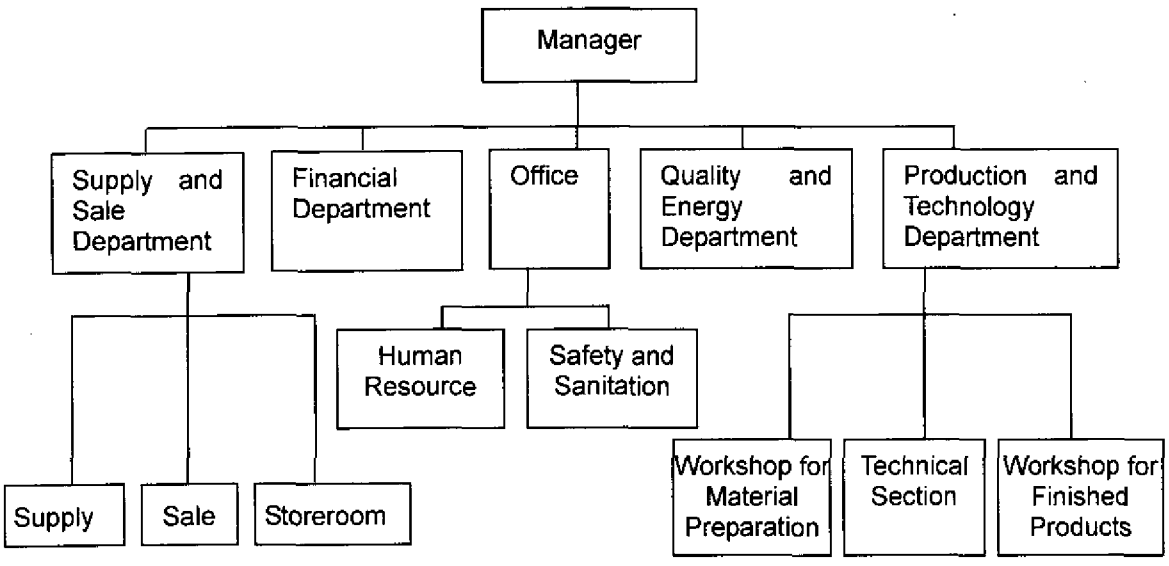

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

The enterprise implements the quality management systems including quality control

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Chapter 3 Energy Management System

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According to the national regulations and local development program on energy use, the enterprise should improve energy structure and enhance energy efficiency to reduce the greenhouse gas emission.

Issue 10

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Chapter 4 Environment Management System

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Issue 17 Management of noise abatement

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Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Chengdu Xinjin Xingsheng Shale Brick Ltd.

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct their responsibilities respectively.

Issue 2

The enterprise should carry out target management, quality control system and energy management system. Income distribution inner the enterprise should be combined with production quality and energy consumption.

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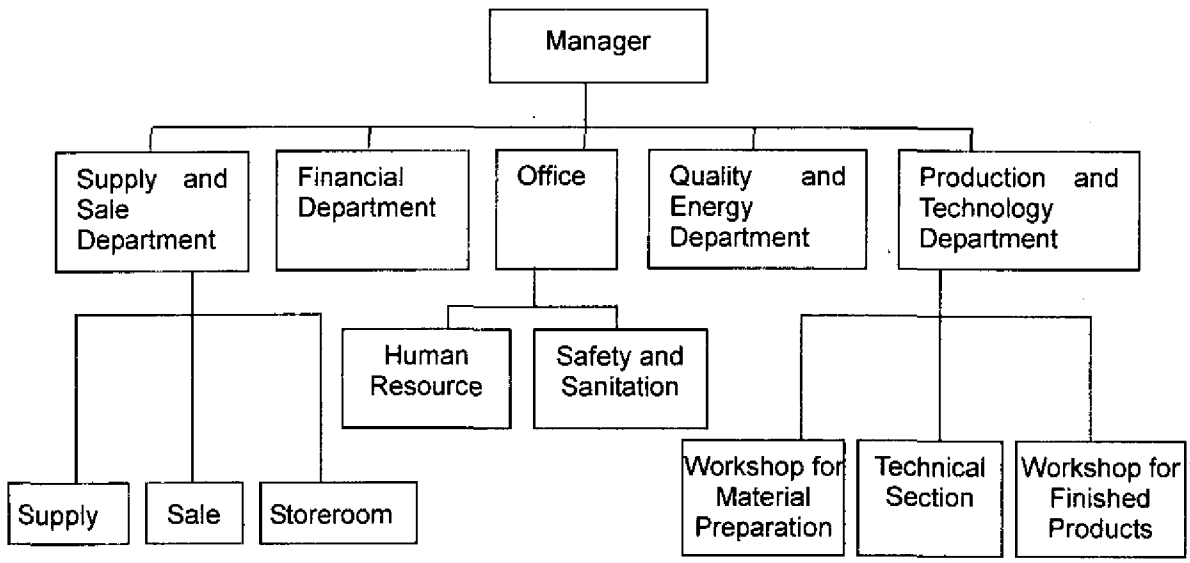

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

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Chapter 3 Energy Management System

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Issue 10

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Chapter 4 Environment Management System

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The enterprise formulates environmental guideline aiming to reduce the pollutants prior to enhancing the efficiency of energy and resources in order to improve production process and reduce pollutants.

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Issue 17 Management of noise abatement

The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Shuangliu Gaofeng Shale Hollow Brick Plant

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct their responsibilities respectively.

Issue 2

The enterprise should carry out target management, quality control system and energy management system. Income distribution inner the enterprise should be combined with production quality and energy consumption.

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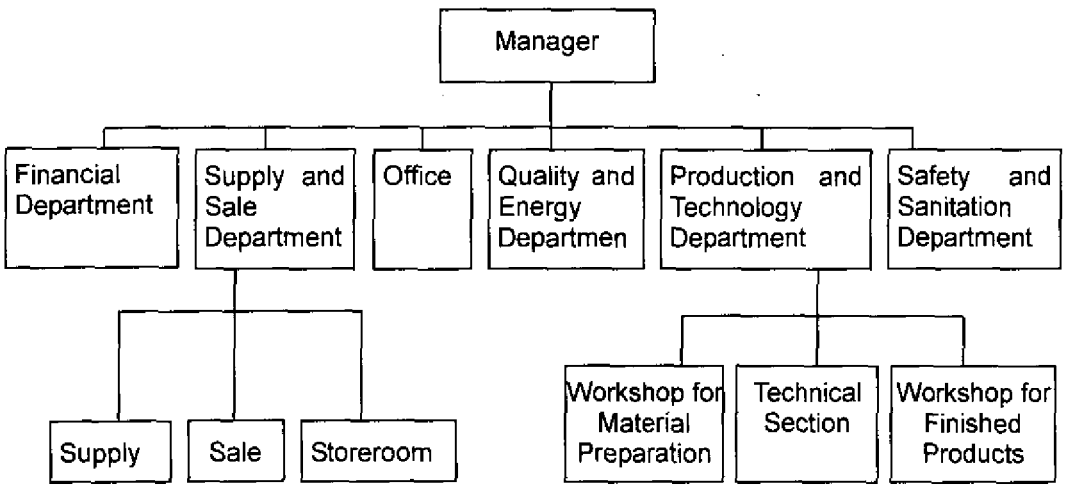

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

The enterprise implements the quality management systems including quality control system, quality assurance system and equipment management system and so on.

Issue 5 Quality control system

All activities during raw materials, rough comminuting, further comminuting, molding, adobe, burning, desiccation and finished product must be conducted according to the standard manipulation regulations. Only if raw materials, accessorial materials, semi-manufactured products and finished products meet all established quality standard, those can enter into next production process so that waster ratio can be reduced.

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Chapter 3 Energy Management System

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According to the national regulations and local development program on energy use, the enterprise should improve energy structure and enhance energy efficiency to reduce the greenhouse gas emission.

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The full-time energy controller should be assigned by Quality and Energy Department who knows the responsibilities, operation regulations for all process, energy consumption of main energy-consumption equipments, the energy consumption indicators and their test measures.

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Chapter 4 Environment Management System

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The enterprise formulates environmental guideline aiming to reduce the pollutants prior to enhancing the efficiency of energy and resources in order to improve production process and reduce pollutants.

Issue 15 Management on solid waste

In the process of transporting, loading and unloading raw materials and products, effective measures should be taken and responsible system should be established to reduce the dust and its spread between the enterprise and outer environment or among workshops inner enterprise. Full-time personnel should be assigned to collect and recycle the dust. For the unqualified products such as transmutative and damaged bricks from production process, they should be recycled and reused or disposed by special measures.

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The enterprise should treat wastewater aiming at main pollution indicators such as suspended solid, water temperature and so on in order to make the discharged wastewater meet national and regional standards for wastewater discharged. At the same time, awareness of saving water should be reflected in respect of production process and management to improve the efficiency of industrial water utilization and reduce the cost of water.

Issue 17 Management of noise abatement

The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Shuangliu Changhong Shale Hollow Brick Plant

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct their responsibilities respectively.

Issue 2

The enterprise should carry out target management, quality control system and energy management system. Income distribution inner the enterprise should be combined with production quality and energy consumption.

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The manager should take charge of product quality and energy management of the enterprise overall. Quality and Energy Department is under the charge of manager directly to be responsible for the quality control, quality assurance and energy management. Principal of Quality and Energy Department should undertake the quality and energy management responsibility to ensure the establishment, implementation and maintenance of the Quality and Energy Management System (hereinafter referred to as "System"), and informing the manager of the achievement and improvement demand of the System.

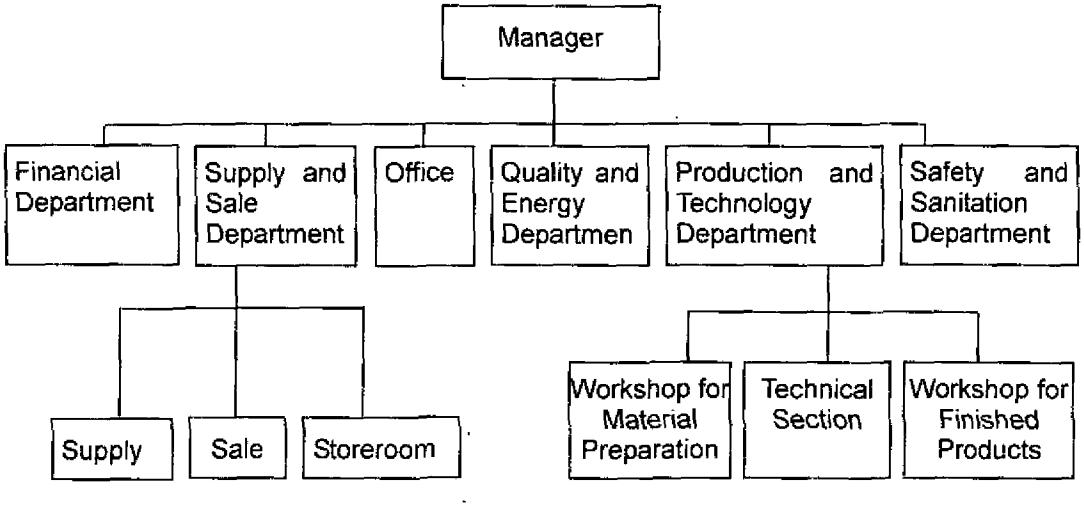

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

The enterprise implements the quality management systems including quality control system, quality assurance system and equipment management system and so on.

Issue 5 Quality control system

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Chapter 5 Training system

Issue 18

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Production and Energy Management System for Chengdu Sanli Shale Hollow Brick Ltd.

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct *their responsibilities respectively.*

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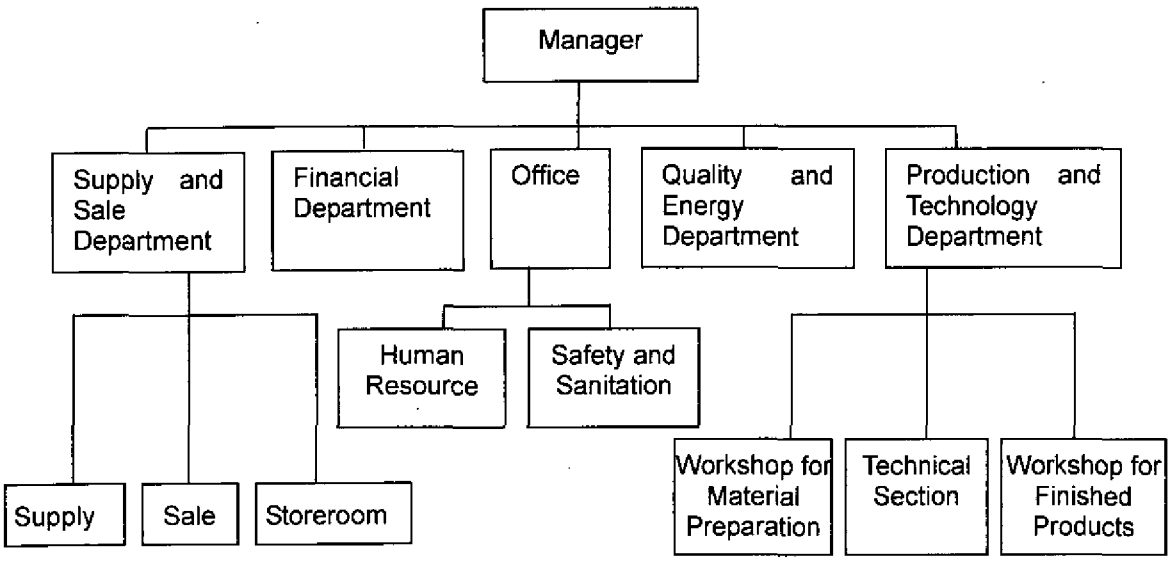

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

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The full-time quality checker should be assigned by Quality and Energy Department. The checker is in charge of routine check and spot-check for raw materials, semi finished products and final products according to quality standard so that the unqualified raw materials can not be used in the enterprise, unqualified semi finished products can not enter into next process, and the unqualified finished products can not leave the enterprise. Quality checker should make check notes, especially for quality problems found and their solving measures. Furthermore, the improved products should be checked up by the checker again.

Chapter 3 Energy Management System

Issue 9

According to the national regulations and local development program on energy use, the enterprise should improve energy structure and enhance energy efficiency to reduce the greenhouse gas emission.

Issue 10

The full-time energy controller should be assigned by Quality and Energy Department who knows the responsibilities, operation regulations for all process, energy consumption of main energy-consumption equipments, the energy consumption indicators and their test measures.

Issue 11

Energy controller should formulate energy management plan for enterprise including absolute amounts of energy use, total energy consumption and ration of energy

consumption of unit product. The energy controller should compile monthly energy-consumption tables according to actual production and energy consumption.

Issue 12

The enterprise should adopt management measures on the energy consumption under ration according to the energy management plan, and improve energy efficiency meanwhile by equipment improvement, production process innovation and training for staff to reduce the energy consumption to the lowest level.

Issue 13

The enterprise should install measure and monitoring system for energy consumption for the accurate and quantitative management. The energy controller should periodically gather and analyze the data on energy consumption according to different energy consumption indicators.

Chapter 4 Environment Management System

Issue 14

The enterprise formulates environmental guideline aiming to reduce the pollutants prior to enhancing the efficiency of energy and resources in order to improve production process and reduce pollutants.

Issue 15 Management on solid waste

In the process of transporting, loading and unloading raw materials and products, effective measures should be taken and responsible system should be established to reduce the dust and its spread between the enterprise and outer environment or among workshops inner enterprise. Full-time personnel should be assigned to collect and recycle the dust. For the unqualified products such as transmutative and damaged bricks from production process, they should be recycled and reused or disposed by special measures.

Issue 16 Management on waste water

The enterprise should treat wastewater aiming at main pollution indicators such as suspended solid, water temperature and so on in order to make the discharged wastewater meet national and regional standards for wastewater discharged. At the same time, awareness of saving water should be reflected in respect of production process and management to improve the efficiency of industrial water utilization and reduce the cost of water.

Issue 17 Management of noise abatement

The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Shuangliu Liugong Huineng Shale Brick Plant

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct their responsibilities respectively.

Issue 2

The enterprise should carry out target management, quality control system and energy management system. Income distribution inner the enterprise should be combined with production quality and energy consumption.

Issue 3

The manager should take charge of product quality and energy management of the enterprise overall. Quality and Energy Department is under the charge of manager directly to be responsible for the quality control, quality assurance and energy management. Principal of Quality and Energy Department should undertake the quality and energy management responsibility to ensure the establishment, implementation and maintenance of the Quality and Energy Management System (hereinafter referred to as "System"), and informing the manager of the achievement and improvement demand of the System.

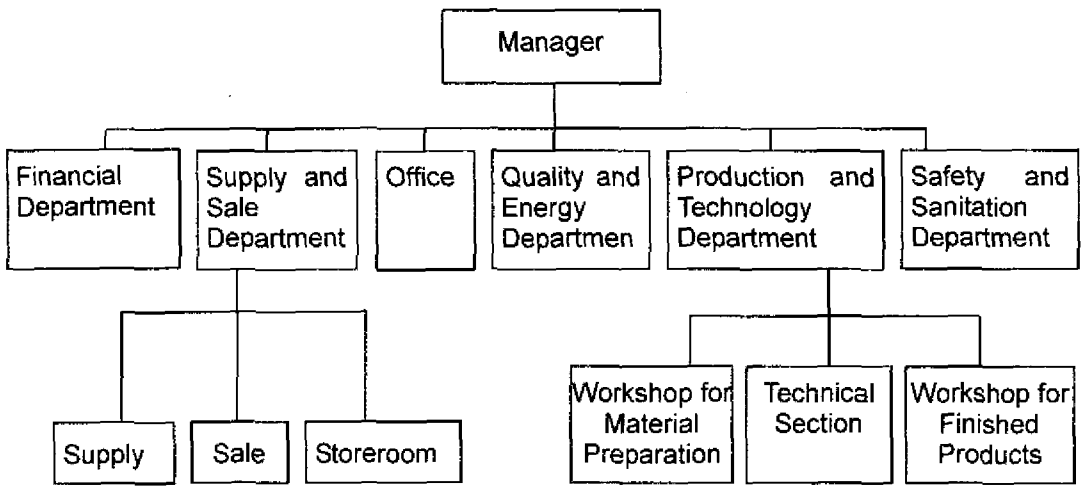

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

The enterprise implements the quality management systems including quality control system, quality assurance system and equipment management system and so on.

Issue 5 Quality control system

All activities during raw materials, rough comminuting, further comminuting, molding, adobe, burning, desiccation and finished product must be conducted according to the standard manipulation regulations. Only if raw materials, accessorial materials, semi-manufactured products and finished products meet all established quality standard, those can enter into next production process so that waster ratio can be reduced.

Issue 6 Quality assurance system

The employees in charge of different procedures of production process should assure that products produced in their procedure meet the quality and specification standard. If some quality problems occur in products, when the reasons are found out, the employee in charge of that procedure and his department should compensate for it according to corresponding loss.

Issue 7 Equipment management system

All equipments should be managed by the personnel who are specially assigned for it. It is strictly prohibited to use equipments in other workshop (group) without approval of the group leader.

Equipments should be maintained, repaired and examined to ensure normal use. Equipments should be operated complying with regulation, and the operation beyond prescribed temperature, pressure and load are prohibited. The employee who takes charge of equipments maintaining should formulate the plan for maintain, examine safety operation and repair regularly.

Issue 8 Quality check system

The full-time quality checker should be assigned by Quality and Energy Department. The checker is in charge of routine check and spot-check for raw materials, semi finished products and final products according to quality standard so that the unqualified raw materials can not be used in the enterprise, unqualified semi finished products can not enter into next process, and the unqualified finished products can not leave the enterprise. Quality checker should make check notes, especially for quality problems found and their solving measures. Furthermore, the improved products should be checked up by the checker again.

Chapter 3 Energy Management System

Issue 9

According to the national regulations and local development program on energy use, the enterprise should improve energy structure and enhance energy efficiency to reduce the greenhouse gas emission.

Issue 10

The full-time energy controller should be assigned by Quality and Energy Department who knows the responsibilities, operation regulations for all process, energy consumption of main energy-consumption equipments, the energy consumption indicators and their test measures.

Issue 11

Energy controller should formulate energy management plan for enterprise including absolute amounts of energy use, total energy consumption and ration of energy consumption of unit product. The energy controller should compile monthly

energy-consumption tables according to actual production and energy consumption.

Issue 12

The enterprise should adopt management measures on the energy consumption under ration according to the energy management plan, and improve energy efficiency meanwhile by equipment improvement, production process innovation and training for staff to reduce the energy consumption to the lowest level.

Issue 13

The enterprise should install measure and monitoring system for energy consumption for the accurate and quantitative management. The energy controller should periodically gather and analyze the data on energy consumption according to different energy consumption indicators.

Chapter 4 Environment Management System

Issue 14

The enterprise formulates environmental guideline aiming to reduce the pollutants prior to enhancing the efficiency of energy and resources in order to improve production process and reduce pollutants.

Issue 15 Management on solid waste

In the process of transporting, loading and unloading raw materials and products, effective measures should be taken and responsible system should be established to reduce the dust and its spread between the enterprise and outer environment or among workshops inner enterprise. Full-time personnel should be assigned to collect and recycle the dust. For the unqualified products such as transmutative and damaged bricks from production process, they should be recycled and reused or disposed by special measures.

Issue 16 Management on waste water

The enterprise should treat wastewater aiming at main pollution indicators such as suspended solid, water temperature and so on in order to make the discharged wastewater meet national and regional standards for wastewater discharged. At the same time, awareness of saving water should be reflected in respect of production process and management to improve the efficiency of industrial water utilization and reduce the cost of water.

Issue 17 Management of noise abatement

The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Shuangliu Jiancha Shale Brick Plant

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct their responsibilities respectively.

Issue 2

The enterprise should carry out target management, quality control system and energy management system. Income distribution inner the enterprise should be combined with production quality and energy consumption.

Issue 3

The manager should take charge of product quality and energy management of the enterprise overall. Quality and Energy Department is under the charge of manager directly to be responsible for the quality control, quality assurance and energy management. Principal of Quality and Energy Department should undertake the quality and energy management responsibility to ensure the establishment, implementation and maintenance of the Quality and Energy Management System (hereinafter referred to as "System"), and informing the manager of the achievement and improvement demand of the System.

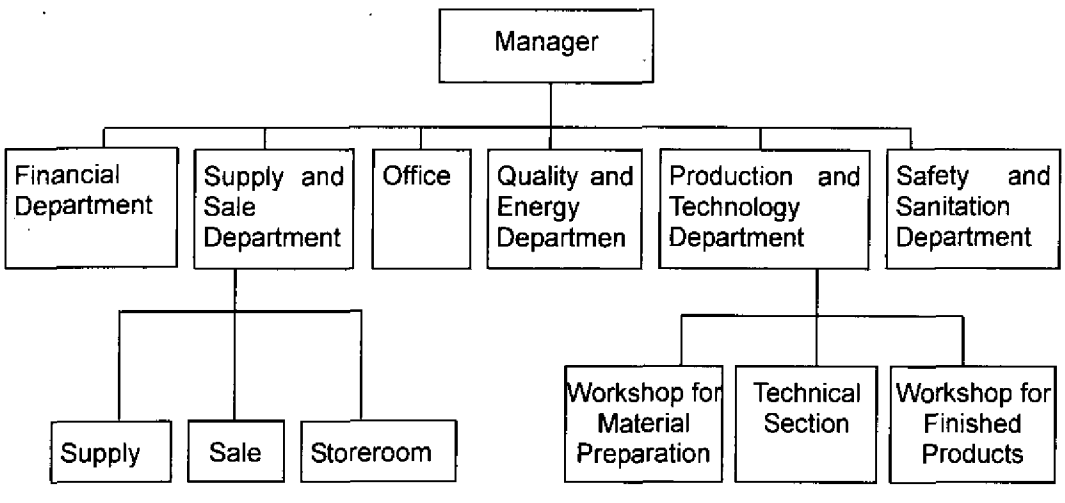

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

The enterprise implements the quality management systems including quality control system, quality assurance system and equipment management system and so on.

Issue 5 Quality control system

All activities during raw materials, rough comminuting, further comminuting, molding, adobe, burning, desiccation and finished product must be conducted according to the standard manipulation regulations. Only if raw materials, accessorial materials, semi-manufactured products and finished products meet all established quality standard, those can enter into next production process so that waster ratio can be reduced.

Issue 6 Quality assurance system

The employees in charge of different procedures of production process should assure that products produced in their procedure meet the quality and specification standard. If some quality problems occur in products, when the reasons are found out, the employee in charge of that procedure and his department should compensate for it according to corresponding loss.

Issue 7 Equipment management system

All equipments should be managed by the personnel who are specially assigned for it. It is strictly prohibited to use equipments in other workshop (group) without approval of the group leader.

Equipments should be maintained, repaired and examined to ensure normal use. Equipments should be operated complying with regulation, and the operation beyond prescribed temperature, pressure and load are prohibited. The employee who takes charge of equipments maintaining should formulate the plan for maintain, examine safety operation and repair regularly.

Issue 8 Quality check system

The full-time quality checker should be assigned by Quality and Energy Department. The checker is in charge of routine check and spot-check for raw materials, semi finished products and final products according to quality standard so that the unqualified raw materials can not be used in the enterprise, unqualified semi finished products can not enter into next process, and the unqualified finished products can not leave the enterprise. Quality checker should make check notes, especially for quality problems found and their solving measures. Furthermore, the improved products should be checked up by the checker again.

Chapter 3 Energy Management System

Issue 9

According to the national regulations and local development program on energy use, the enterprise should improve energy structure and enhance energy efficiency to reduce the greenhouse gas emission.

Issue 10

The full-time energy controller should be assigned by Quality and Energy Department who knows the responsibilities, operation regulations for all process, energy consumption of main energy-consumption equipments, the energy consumption indicators and their test measures.

Issue 11

Energy controller should formulate energy management plan for enterprise including absolute amounts of energy use, total energy consumption and ration of energy consumption of unit product. The energy controller should compile monthly

energy-consumption tables according to actual production and energy consumption.

Issue 12

The enterprise should adopt management measures on the energy consumption under ration according to the energy management plan, and improve energy efficiency meanwhile by equipment improvement, production process innovation and training for staff to reduce the energy consumption to the lowest level.

Issue 13

The enterprise should install measure and monitoring system for energy consumption for the accurate and quantitative management. The energy controller should periodically gather and analyze the data on energy consumption according to different energy consumption indicators.

Chapter 4 Environment Management System

Issue 14

The enterprise formulates environmental guideline aiming to reduce the pollutants prior to enhancing the efficiency of energy and resources in order to improve production process and reduce pollutants.

Issue 15 Management on solid waste

In the process of transporting, loading and unloading raw materials and products, effective measures should be taken and responsible system should be established to reduce the dust and its spread between the enterprise and outer environment or among workshops inner enterprise. Full-time personnel should be assigned to collect and recycle the dust. For the unqualified products such as transmutative and damaged bricks from production process, they should be recycled and reused or disposed by special measures.

Issue 16 Management on waste water

The enterprise should treat wastewater aiming at main pollution indicators such as suspended solid, water temperature and so on in order to make the discharged wastewater meet national and regional standards for wastewater discharged. At the same time, awareness of saving water should be reflected in respect of production process and management to improve the efficiency of industrial water utilization and reduce the cost of water.

Issue 17 Management of noise abatement

The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Shuangliu Huayang Honghuo Shale Hollow Brick Plant

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct their responsibilities respectively.

Issue 2

The enterprise should carry out target management, quality control system and energy management system. Income distribution inner the enterprise should be combined with production quality and energy consumption.

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The manager should take charge of product quality and energy management of the enterprise overall. Quality and Energy Department is under the charge of manager directly to be responsible for the quality control, quality assurance and energy management. Principal of Quality and Energy Department should undertake the quality and energy management responsibility to ensure the establishment, implementation and maintenance of the Quality and Energy Management System (hereinafter referred to as "System"), and informing the manager of the achievement and improvement demand of the System.

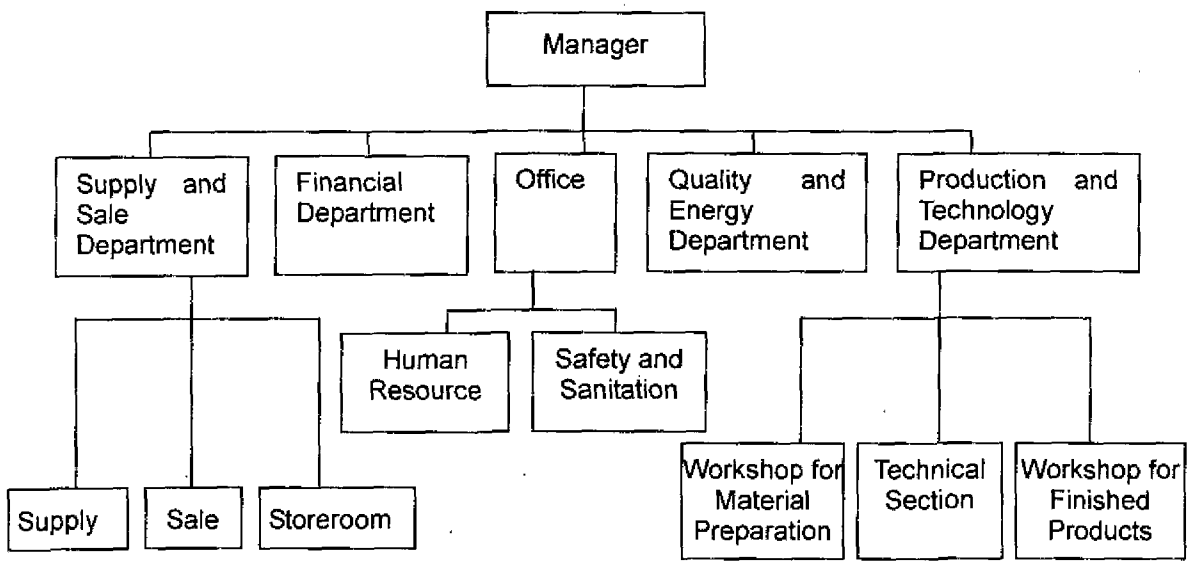

Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

The enterprise implements the quality management systems including quality control

system, quality assurance system and equipment management system and so on.

Issue 5 Quality control system

All activities during raw materials, rough comminuting, further comminuting, molding, adobe, burning, desiccation and finished product must be conducted according to the standard manipulation regulations. Only if raw materials, accessorial materials, semi-manufactured products and finished products meet all established quality standard, those can enter into next production process so that waster ratio can be reduced.

Issue 6 Quality assurance system

The employees in charge of different procedures of production process should assure that products produced in their procedure meet the quality and specification standard. If some quality problems occur in products, when the reasons are found out, the employee in charge of that procedure and his department should compensate for it according to corresponding loss.

Issue 7 Equipment management system

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Issue 8 Quality check system

The full-time quality checker should be assigned by Quality and Energy Department. The checker is in charge of routine check and spot-check for raw materials, semi finished products and final products according to quality standard so that the unqualified raw materials can not be used in the enterprise, unqualified semi finished products can not enter into next process, and the unqualified finished products can not leave the enterprise. Quality checker should make check notes, especially for quality problems found and their solving measures. Furthermore, the improved products should be checked up by the checker again.

Chapter 3 Energy Management System

Issue 9

According to the national regulations and local development program on energy use, the enterprise should improve energy structure and enhance energy efficiency to reduce the greenhouse gas emission.

Issue 10

The full-time energy controller should be assigned by Quality and Energy Department who knows the responsibilities, operation regulations for all process, energy consumption of main energy-consumption equipments, the energy consumption indicators and their test measures.

Issue 11

Energy controller should formulate energy management plan for enterprise including absolute amounts of energy use, total energy consumption and ration of energy

consumption of unit product. The energy controller should compile monthly energy-consumption tables according to actual production and energy consumption.

Issue 12

The enterprise should adopt management measures on the energy consumption under ration according to the energy management plan, and improve energy efficiency meanwhile by equipment improvement, production process innovation and training for staff to reduce the energy consumption to the lowest level.

Issue 13

The enterprise should install measure and monitoring system for energy consumption for the accurate and quantitative management. The energy controller should periodically gather and analyze the data on energy consumption according to different energy consumption indicators.

Chapter 4 Environment Management System

Issue 14

The enterprise formulates environmental guideline aiming to reduce the pollutants prior to enhancing the efficiency of energy and resources in order to improve production process and reduce pollutants.

Issue 15 Management on solid waste

In the process of transporting, loading and unloading raw materials and products, effective measures should be taken and responsible system should be established to reduce the dust and its spread between the enterprise and outer environment or among workshops inner enterprise. Full-time personnel should be assigned to collect and recycle the dust. For the unqualified products such as transmutative and damaged bricks from production process, they should be recycled and reused or disposed by special measures.

Issue 16 Management on waste water

The enterprise should treat wastewater aiming at main pollution indicators such as suspended solid, water temperature and so on in order to make the discharged wastewater meet national and regional standards for wastewater discharged. At the same time, awareness of saving water should be reflected in respect of production process and management to improve the efficiency of industrial water utilization and reduce the cost of water.

Issue 17 Management of noise abatement

The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Production and Energy Management System for Sichuan Qionglai Honglin Brick Plant

This management system is constituted to enhance the enterprise's management ability, improve product quality, reduce energy consumption and achieve the enterprise's sustainable development.

Chapter 1 Management Mode

Issue 1

The enterprise should establish the management system (shown in Figure 1) to ensure the departments such as production, supply and sale, finance, human resource, safety, quality and energy management divide the work clearly and conduct their responsibilities respectively.

Issue 2

The enterprise should carry out target management, quality control system and energy management system. Income distribution inner the enterprise should be combined with production quality and energy consumption.

Issue 3

The manager should take charge of product quality and energy management of the enterprise overall. Quality and Energy Department is under the charge of manager directly to be responsible for the quality control, quality assurance and energy management. Principal of Quality and Energy Department should undertake the quality and energy management responsibility to ensure the establishment, implementation and maintenance of the Quality and Energy Management System (hereinafter referred to as "System"), and informing the manager of the achievement and improvement demand of the System.

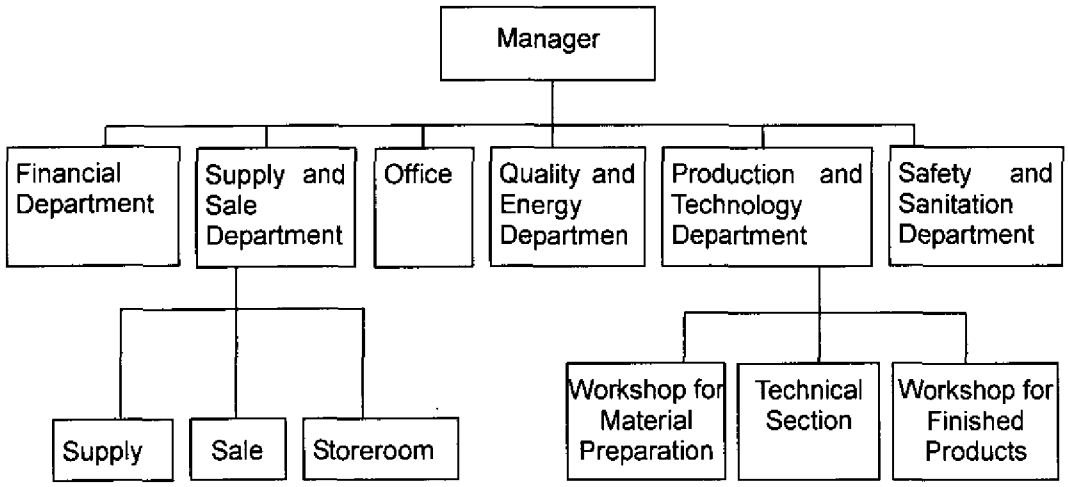


Figure 1 Organizational Structure of Management System for Enterprise

Chapter 2 Quality Management System

Issue 4

The enterprise implements the quality management systems including quality control system, quality assurance system and equipment management system and so on.

Issue 5 Quality control system

All activities during raw materials, rough comminuting, further comminuting, molding, adobe, burning, desiccation and finished product must be conducted according to the standard manipulation regulations. Only if raw materials, accessorial materials, semi-manufactured products and finished products meet all established quality standard, those can enter into next production process so that waster ratio can be reduced.

Issue 6 Quality assurance system

The employees in charge of different procedures of production process should assure that products produced in their procedure meet the quality and specification standard. If some quality problems occur in products, when the reasons are found out, the employee in charge of that procedure and his department should compensate for it according to corresponding loss.

Issue 7 Equipment management system

All equipments should be managed by the personnel who are specially assigned for it. It is strictly prohibited to use equipments in other workshop (group) without approval of the group leader.

Equipments should be maintained, repaired and examined to ensure normal use. Equipments should be operated complying with regulation, and the operation beyond prescribed temperature, pressure and load are prohibited. The employee who takes charge of equipments maintaining should formulate the plan for maintain, examine safety operation and repair regularly.

Issue 8 Quality check system

The full-time quality checker should be assigned by Quality and Energy Department. The checker is in charge of routine check and spot-check for raw materials, semi finished products and final products according to quality standard so that the unqualified raw materials can not be used in the enterprise, unqualified semi finished products can not enter into next process, and the unqualified finished products can not leave the enterprise. Quality checker should make check notes, especially for quality problems found and their solving measures. Furthermore, the improved products should be checked up by the checker again.

Chapter 3 Energy Management System

Issue 9

According to the national regulations and local development program on energy use, the enterprise should improve energy structure and enhance energy efficiency to reduce the greenhouse gas emission.

Issue 10

The full-time energy controller should be assigned by Quality and Energy Department who knows the responsibilities, operation regulations for all process, energy consumption of main energy-consumption equipments, the energy consumption indicators and their test measures.

Issue 11

Energy controller should formulate energy management plan for enterprise including absolute amounts of energy use, total energy consumption and ration of energy consumption of unit product. The energy controller should compile monthly

energy-consumption tables according to actual production and energy consumption.

Issue 12

The enterprise should adopt management measures on the energy consumption under ration according to the energy management plan, and improve energy efficiency meanwhile by equipment improvement, production process innovation and training for staff to reduce the energy consumption to the lowest level.

Issue 13

The enterprise should install measure and monitoring system for energy consumption for the accurate and quantitative management. The energy controller should periodically gather and analyze the data on energy consumption according to different energy consumption indicators.

Chapter 4 Environment Management System

Issue 14

The enterprise formulates environmental guideline aiming to reduce the pollutants prior to enhancing the efficiency of energy and resources in order to improve production process and reduce pollutants.

Issue 15 Management on solid waste

In the process of transporting, loading and unloading raw materials and products, effective measures should be taken and responsible system should be established to reduce the dust and its spread between the enterprise and outer environment or among workshops inner enterprise. Full-time personnel should be assigned to collect and recycle the dust. For the unqualified products such as transmutative and damaged bricks from production process, they should be recycled and reused or disposed by special measures.

Issue 16 Management on waste water

The enterprise should treat wastewater aiming at main pollution indicators such as suspended solid, water temperature and so on in order to make the discharged wastewater meet national and regional standards for wastewater discharged. At the same time, awareness of saving water should be reflected in respect of production process and management to improve the efficiency of industrial water utilization and reduce the cost of water.

Issue 17 Management of noise abatement

The enterprise should take measures to reduce noise to meet national and regional environmental standard on noise. Meanwhile, the enterprise should arrange the layout of workshop reasonably, take measures to reduce noise and protect working safety in order to guarantee health of workers.

Chapter 5 Training system

Issue 18

The enterprise should evaluate the employees' awareness on safe production, environment and energy-saving. Based on the evaluation results, training on safe production, environmental protection and energy saving technology are conducted to improve the ability of employees and enhance their awareness on energy saving and environmental protection.

Annex 4 Certificate of Acceptance

Table of Contents

Certificate of Acceptance

This plant, Xinjin Tangzhong Shale Construction Material Ltd., accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Longquan Xiping Chaoyang Brick Machines Plant
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 42,000,000 bce per year after technical renovation; qualified rate is improved to 96%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.21 tce per 10,000 bce, and total energy consumption reduces 2,467.46 tce per year. Carbon dioxide emissions reduce 6,151.37 tons per year.

Signature of the legal representative: 

Date: 05/15/2006

Certificate of Acceptance

This plant, Xinjin Huayuan Shale Hollow Brick Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Vacuum extrusion brick machine	JZK50/45-30	Piece	1	Leshan Construction Material and Machine Plant
2	Vertical cutting piece machine	ZXb2000	Piece	1	Xinjin Yongxing Construction Assistance Materials Salesroom

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 60,000,000 bce per year after technical renovation; qualified rate is improved to 94%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.29 tce per 10,000 bce, and total energy consumption reduces 5,425.59 tce per year. Carbon dioxide emissions reduce 13,526.00 tons per year.

Signature of the legal representative: 郭秉全

Date: 05/15/2006

Certificate of Acceptance

This plant, Xinjin Huangdu Shunyuan Shale Brick Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Longquan Xiping Chaoyang Brick Machines Plant
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 47,000,000 bce per year after technical renovation; qualified rate is improved to 96%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.25 tce per 10,000 bce, and total energy consumption reduces 2,383.04 tce per year. Carbon dioxide emissions reduce 5,940.92 tons per year.

Signature of the legal representative:

Date: 05/15/2006

Certificate of Acceptance

This plant, Xinjin Jinhua Gaofeng Machine-Making Brick Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Jaw crusher	PEL250×400	Piece	1	Dujiangyan Casting Plant
2	Hammer blow crusher	PC-1200	Piece	1	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Beater	SJ-4000	Piece	1	Leshan Brick Machine Plant
4	Vacuum brick-making machine	JZK50/45-30	Piece	1	Leshan Brick Machine Plant
5	Vertical cutting piece machine	ZXB2000	Piece	1	Xinjin Yongxing Construction Assistance Materials Salesroom
6	Adobe-cutting machine	DW501-20	Piece	1	Leshan Brick Machine Plant
7	Wind turbine	4-72•14#	Piece	1	Chengdu Wind Turbine Plant

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 36,000,000 bce per year after technical renovation; qualified rate is improved to 98%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.20 tce per 10,000 bce, and total energy consumption reduces 2,373.59 tce per year. Carbon dioxide emissions reduce 5,917.35 tons per year.

Signature of the legal representative: 李东久

Date: 05/15/2006

Certificate of Acceptance

This plant, Xinjin Dongsheng Shale Hollow Brick Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Leshan Jianping Machine Plant
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 47,000,000 bce per year after technical renovation; qualified rate is improved to 96%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.33 tce per 10,000 bce, and total energy consumption reduces 2,486.04 tce per year. Carbon dioxide emissions reduce 6,197.70 tons per year.

Signature of the legal representative: 

Date: 05/15/2006

Certificate of Acceptance

This plant, Xinjin Tongxing Construction Material Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Xinjin Cast Steel Plant
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 54,000,000 bce per year after technical renovation; qualified rate is improved to 97%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.26 tce per 10,000 bce, and total energy consumption reduces 3,322.08 tce per year. Carbon dioxide emissions reduce 8,281.95 tons per year.

Signature of the legal representative: 温七喜义

Date: 05/15/2006

Certificate of Acceptance

This plant, Chengdu Pacific New Construction Material Ltd., accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

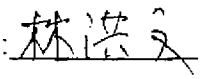
3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Longquan Xiping Chaoyang Brick Machines Plant
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 44,000,000 bce per year after technical renovation; qualified rate is improved to 96%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.21 tce per 10,000 bce, and total energy consumption reduces 2,973. 60 tce per year. Carbon dioxide emissions reduce 7,413.19 tons per year.

Signature of the legal representative: 

Date: 05/15/2006

Certificate of Acceptance

This plant, Chengdu Xinjin Xingsheng Shale Brick Ltd., accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

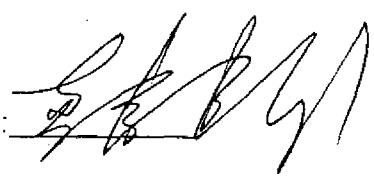
3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Xinjin Cast Steel Plant
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 40,000,000 bce per year after technical renovation; qualified rate is improved to 98%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.28 tce per 10,000 bce, and total energy consumption reduces 2,070.76 tce per year. Carbon dioxide emissions reduce 5,162.41 tons per year.

Signature of the legal representative: 

Date: 05/15/2006

Certificate of Acceptance

This plant, Shuangliu Gaofeng Shale Hollow Brick Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

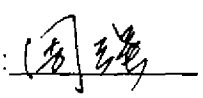
3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Brake seat and brake cover		set	32	Chengdu Guangyuan Ltd.
2	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 30,000,000 bce per year after technical renovation; qualified rate is improved to 97%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.30 tce per 10,000 bce, and total energy consumption reduces 2,012.51tce per year. Carbon dioxide emissions reduce 5,017.18 tons per year.

Signature of the legal representative: 

Date: 05/15/2006

Certificate of Acceptance

This plant, Shuangliu Changhong Shale Hollow Brick Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

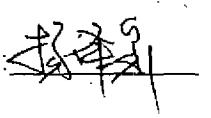
3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Longquan Tianping Machine Plant
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 30,000,000 bce per year after technical renovation; qualified rate is improved to 97%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.25 tce per 10,000 bce, and total energy consumption reduces 1,839.52 tce per year. Carbon dioxide emissions reduce 4,585.93 tons per year.

Signature of the legal representative: 

Date: 05/15/2006

Certificate of Acceptance

This plant, Sichuan Chengdu Sanli Shale Hollow Brick Ltd., accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Guangyuan Ltd.
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 32,000,000 bce per year after technical renovation; qualified rate is improved to 96%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.20 tce per 10,000 bce, and total energy consumption reduces 2,144.90 tce per year. Carbon dioxide emissions reduce 5,347.23 tons per year.

Signature of the legal representative: _____

Date: 05/15/2006

Certificate of Acceptance

This plant, Shuangliu Liugong Huineng Shale Brick Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Wind turbine	4-72•14#	Piece	1	Chengdu Electric Engine Plant
2	Transformer	S9-400KVA	Piece	1	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Flat vehicle	1000×800	Piece	500	Xinjin Tricycle Plant
4	Infrared-thermoscope	DHS-200	Piece	1	Xinjin Yongxing Construction Assistance Materials Salesroom

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 33,000,000 bce per year after technical renovation; qualified rate is improved to 97%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.28 tce per 10,000 bce, and total energy consumption reduces 1,564.30 tce per year. Carbon dioxide emissions reduce 3,899.79 tons per year.

Signature of the legal representative:

Date: 05/15/2006

Certificate of Acceptance

This plant, Shuangliu Jiancha Shale Brick Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Anhui Fuyang Agricultural Machine Plant
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 30,000,000 bce per year after technical renovation; qualified rate is improved to 97%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.25 tce per 10,000 bce, and total energy consumption reduces 1,848.95 tce per year. Carbon dioxide emissions reduce 4,609.42 tons per year.

Signature of the legal representative: _____

Date: 05/15/2006

Certificate of Acceptance

This plant, Shuangliu Huayang Honghuo Shale Hollow Brick Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

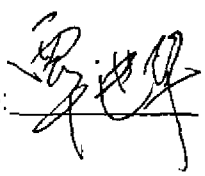
3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Longquan Xiping Chaoyang Brick Machines Plant
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 33,000,000 bce per year after technical renovation; qualified rate is improved to 95%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.28 tce per 10,000 bce, and total energy consumption reduces 1,958.04 tce per year. Carbon dioxide emissions reduce 4,881.39 tons per year.

Signature of the legal representative: 

Date: 05/15/2006

Certificate of Acceptance

This plant, Sichuan Qionglai Honglin Brick Plant, accepts the consulting and engineering services provided by the contractor. Detailed contents are as follows:

1. The contractor finished the Feasibility Study Report for the energy-saving technical renovation (see the First Progress Report) for our plant, and finalized the technical renovation schemes and the ratio of co-financing from the plant to the UNIDO project contribution.

2. Managers and technicians in our plant attended the training on energy-saving technology, policy and safe operation conducted by the contractor; it made us have deeper understanding on this project, the energy saving awareness has been enhanced and we have more comprehensive understanding on the development trend and technology of brick-making industry.

3. We accept the equipments purchased with the assistance of the contractor. The list of equipments purchase is as follows:

No.	Equipment	Specification	Unit	Quantity	Supplier
1	Hammer blow crusher	PC-1200	Piece	1	Chengdu Longquan Xiping Chaoyang Brick Machines Plant
2	Electric and capacitance compensator	BCMJ—5000	Piece	10	Xinjin Yongxing Construction Assistance Materials Salesroom
3	Infrared-thermoscope	DHS-200	Piece	1	Chengdu Kefa Machine and Engine Equipment Ltd.

4. The contractor instructed our plant to install new equipments, and conduct the tests after for each equipment and the whole production line without load, and then operate the whole production line for try. At last all equipments ran well and meet the requirement for production.

5. The contractor conducted construction supervision and assistance in solving the emerged issues on site during the construction. After the test run, the whole production process runs well.

6. After the test run, the production capability of our plant can reach 37,000,000 bce per year after technical renovation; qualified rate is improved to 99%. Coal and power consumption decreases greatly. Energy consumption per unit product decreases to 1.21 tce per 10,000 bce, and total energy consumption reduces 2,442.43 tce per year. Carbon dioxide emissions reduce 6,088.97 tons per year.

Signature of the legal representative:

Date: 05/15/2006