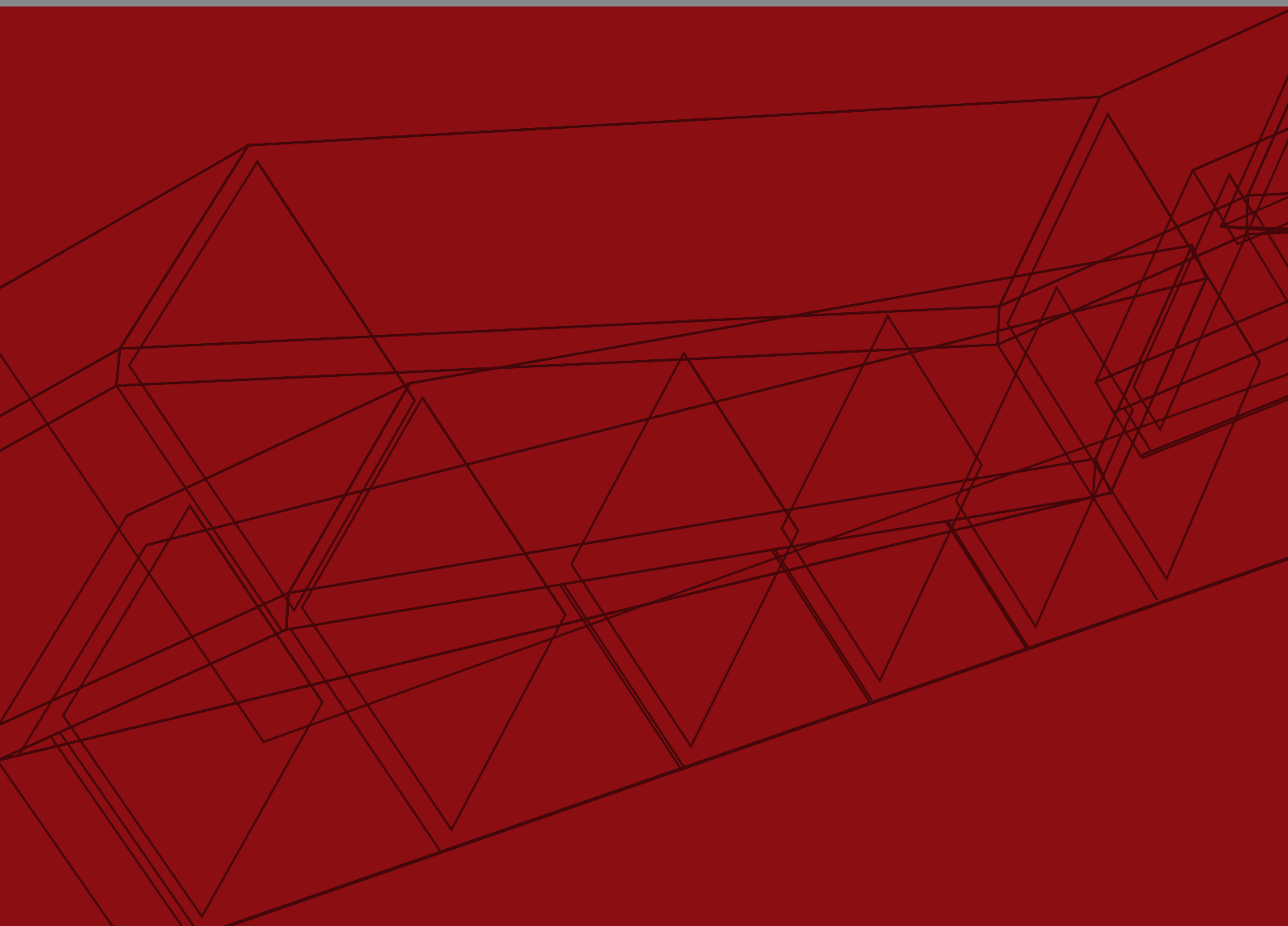


GEI-2A



GRUPO EUROPEO DE INGENIERIA AGROALIMENTARIA Y AMBIENTAL

METHODOLOGY AND WORKING METHOD





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DESCRIPTION OF THE METHODOLOGY AND WORKING METHOD

1. THE GEI-2A PHILOSOPHY

- To create a service that benefits the client.
- To give added value to the project.

2. TECHNOLOGICAL GOALS RELATING TO PRODUCTION

Advanced and sufficiently proven technological approaches are sought which comply with all current legal requirements (technical-sanitary regulations and on production safety and hygiene) and environmental requirements and which achieve high product quality. The current technical and sanitary regulations, both local and national, governing this type of installations must be observed.

3. TECHNOLOGICAL GOALS RELATING TO INSTALLATIONS AND SERVICES

Energy production systems will be implanted which permit the maximum rationalisation of energy consumptions.

Achieving this goal depends necessarily on reaching a high degree of centralisation of systems. All of this must contribute to achieving minimal maintenance and operation costs.

The current sanitary regulations governing the matter must be observed.

4. DESIGN GOALS

GEI-2A's conception of the planning of the industrial project will be conditioned by the following points:

PRODUCTIVITY

- Synchronisation between the unitary operations within the process in order to maintain a continuous flow whenever possible.
- This entails a search for balance between the capacities of the different operations of manufacture, storage, packaging and shipping, with the aim of preventing bottlenecks.
- Creation of product flows as short and linear as possible.
- Maximum automation of transfers between operations.
- Reduction of intermediate steps throughout the process for efficient organisation.

FLEXIBILITY

- Flexible workshops oriented to producing various products according to the emergence of new requirements.
- Organisation of space that permits modifications to the process.
- Structure and conception of the installations in modular and easily modifiable forms.
- Flexibility of the units, making it possible to modify certain operations.



DESCRIÇÃO DA METODOLOGIA E FORMA DE TRABALHO

CLEAN ATMOSPHERE

Increasing importance is given to the absence of microbial contamination in the product during the production process, which ensures longer life, a better appearance and prestige as a quality product. In addition, the image of a clean factory that has no difficulties in passing health inspections is increasingly helpful in selling the product.

- To tend towards the concept of *white industry*.
- Notion of '*moving forward*.'
- Separation of *clean and dirty ambiances*.
- Avoiding *crossings* of materials in the various stages of production.
- Physical separation between processing operations and other associated operations (washing, machine shop, technical galleries for passage of networks).
- Maximum reduction of elements that contaminate during the process, along with efficient and economic wastewater treatment.
- Presumably the plant will have technical galleries underneath the slab flooring of a minimum height of 1.5 meters for easy access, with passage above the ceiling panels of workshops and other rooms. This will necessitate a prefabricated-type construction, almost certainly in concrete with considerable height between floors.

ECONOMY

- Calculation of real quotations, with materials with an optimal price-quality ratio.
- Technical-economic study of the bids to select the most advantageous in all aspects.
- Negotiation with the bidding companies to achieve the best prices without losing quality or specifications.
- Information and processing of the most appropriate official grants and subsidies for each requirement.

SAFETY

- Active and passive fire protection.
- The safest possible design of the factory.
- Safety in working operations, regulations on occupational safety and hygiene and occupational hazards.
- Acoustic, bacteriological, isothermal and fire protection and environmental safeguards.

SUSTAINABILITY

- As far as possible, every effort will be made to use recyclable, sustainable materials of certified origin and to contract companies who guarantee tidiness, cleanliness and recycling during the works.
- Preference will be given to energy and construction solutions with low environmental impact and reduced ecological footprint.



METHODOLOGY AND PHASES OF THE SERVICE

PHASE 1: DATA COLLECTION

The necessary meetings will be held to collect the required data, acquire full knowledge of the project to be carried out, analyse the target investment and conduct a SWOT analysis.

With these data, a summary of the fundamental factors and a preliminary plan will be drafted.

PHASE 2: MASTER PLAN

Goals of the Master Plan Phase

To create an industrial instrument adapted to the requirements of the factory.

Firstly, the desired programme must be defined correctly and the terrain and any existing building must be analysed in the initial data collection visit.

To this purpose, the conception studies must be conducted taking the following points into account in the first data collection meetings held on-site:

- The terrain and its limitations.
- The existing machinery that has to be transferred.
- The technical and economic limitations.
- The operational limitations.
- The limitations deriving from the health regulations (regional, national and European).
- The flows of raw materials, secondary materials, products in progress, personnel, boxes, packaged product, etc.
- Possible enlargements.
- The location of offices and accesses.
- The best possible use of all existing items.

The Master Plan comprises the initial phase of the Preliminary Project, growths by volumes of production and work phases, definition of work priorities and timing by phases.

PHASE 3: PRELIMINARY PROJECT

Before the project is commenced, a preliminary project will be drawn up giving a general definition of the fundamental concepts of the project, which will serve as the basis for the correct design of the plant.



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The scope of the services is as follows:

- Preparation of 2 or 3 alternative layouts, justifying the surface areas of each room and advantages and disadvantages of each one.
- Layout plan of rooms.
- Master plan of future enlargements.
- Brief description of the foreseen civil engineering works and finishes.
- Brief description of the installations.
- Preliminary description of the processing machinery.
- Itemised budget.

Definition of tasks

Following the definition of the programme, **GEI-2A** will conduct a conception study to respond to the economic, technical, logistical and operational limitations, etc.

Various working meetings must be programmed between the **CLIENT** and the Works Manager (in his/her capacity as industrial interlocutor) to decide on the definitive plans and specifications. The solutions that **GEI-2A** will propose will be supported by technical-economic studies.

The final PRELIMINARY PROJECT dossier will be a technical and economic document containing, among other items:

- a) The programme of the project.
- b) The study of the project with itemised technical memorandum.
- c) The provisional planning of the execution studies and tasks to determine the pre-financing of the operations.
- d) A technical specification or memorandum listing all the selected specifications for both the materials and the machinery or special devices.
- e) An estimation of the necessary investments for operation (construction, cooling, heating, plumbing, ventilation, electricity, specialised devices, environment, IT systems, logistics and production) (see enclosed list).
- f) The plans of implantation, location, distribution, sections, façades.
- g) The general planning of the studies and works.

PHASE 4: BASIC PROJECT

This part of the services originates in the preliminary project, which will include the definition of a general solution regarding the installations, the machinery and the design of the buildings, by means of coordination with the **CLIENT**, meetings and on-site visits to the works.

Basically, it will contain the following documents:



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Memorandum

This will include at least:

- Surface areas constructed.
- Programme of requirements.
- Description of solution adopted.
- Description of installations.
- Description of processing machinery.
- Certification of compliance with fire prevention regulations.
- Compliance with municipal by-laws and regulations of the industrial estate.

Graphic documentation

- Informative plans.
- Site plan.
- Descriptive plans of the Project:
 - 0. Distribution plan.
 - 1. Plan of covered plant if there are new zones.
 - 2. General elevation plans if there are new zones.
 - 3. Cross-section plans if there are new zones.
 - 4. Installation network diagrams.
 - 5. Machinery implantation plan.

Budget

With global estimation of each item, trade work or technology.

PHASE 5: BIDDING PROJECT

Following the agreement with the **CLIENT** on the Basic Project, **GEI-2A** will prepare the bidding projects, which will include the necessary information and documents for requesting and comparing the bids (memorandums and plans).

The project will request the basic solution in order for the bids to be comparable, and will leave open the possibility of presenting alternatives with solutions that add improvements and adapt to the bidder's specific techniques. These improvements, once approved, will be included in the executive project, thereby achieving the following:



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- Having budgets closely conforming to reality.
- Avoiding errors of interpretation in using some of the solutions submitted.
- Reducing lead times.

The documents it includes are similar to those of the execution project which are described in the corresponding section.

All the solutions and variants will be analysed in comparison with the basic solution. The quality of the materials used must comply with the health and safety regulations currently in force.

For the companies' consultation, the **CLIENT** will establish a list of companies by corporations who are in a position to submit bids.

At the end of this phase, the project will be delivered in AutoCAD on CD support for presentation with the local engineers who are to sign the project.

In this phase, **GEI-2A** will work with the **CLIENT's** local team of architects or engineers.

There follows a model table for making a prior evaluation with the **CLIENT**, which will serve as the target investment.



MODEL OF ITEMISED BUDGET

G.E.I.-2.A

PROJECT

DATE:

PRELIMINARY BUDGET IN USD

APPROX. SURF. = (ground floor) + (first floor) = m²

CIVIL ENGINEERING		Thousands SOLES	Thousands USD	Thousands €
Item n° 1	EARTHWORKS – EXTERIOR PAVING - GARDENS			
Item n° 2	BRICKWORK			
Item n° 3	METAL-CONCRETE STRUCTURE			
Item n° 4	ROOF – WATERPROOFING – CLOSURE			
Item n° 5	ISOLAMENTO E PORTAS ISOLADORAS			
Item n° 6	METALWORK			
Item n° 7	ALUMINIUM METALWORK – GLAZING			
Item n° 8	WOODWORK – FALSE CEILINGS			
Item n° 9	SPECIAL FLOORINGS			
Item n° 10	STANDARD FLOORS AND PAVINGS			
Item n° 11	PAINTWORK			
Item n° 12	OFFICE FURNITURE			
Subtotal Civil Engineering		0	0	0
TECHNICAL INSTALLATIONS				
Item n° 21	COOLING – CLIMATISATION AND AIR-CONDITIONING			
Item n° 22	FLUIDS: HEATING, PLUMBING, VENTILATION, AIR CONDITIONING, SANITARY HOT WATER, COLD WATER, DESCALED WATER, CONDENSED STEAM AND RETURN WATER, FOAM PRESSURE WASHING, GAS			
Item n° 23	ELECTRICITY – INT. EXT. LIGHTING WIRING			
Item n° 24	GENERATOR SET			
Item n° 25	TELEPHONY, VOICE & DATA, MEGAPHONY, TV CIRCUIT.			
Item n° 26	ALARM AND SECURITY SYSTEMS – VIDEO ENTRYPHONE, ACCESS CONTROL, FIRE DETECTION			
Subtotal Technical Installations		0	0	0
PRODUCTION MATERIAL				
Item n° 31	UNLOADING MAINTENANCE			
Item n° 32	CLEANING AND CALIBRATION MATERIAL			
Item n° 33	SKINNING MACHINERY			
Item n° 34	PACKAGING MACHINERY			
Item n° 35	INTERNAL TRANSPORT			
Item n° 36	COLLECTION OF BY-PRODUCTS			
Item n° 37	TREATMENT OF BY-PRODUCTS			
Item n° 38	SANITARY AND HYGIENIC MATERIAL (WASHBASIN, BOOT-WASHER, LOCKERS, ETC.)			
Item n° 39	ASSORTED EQUIPMENT			
Item n° 40	WEIGHING DEVICES			
Item n° 41	PROCESSING MACHINERY			
Item n° 42	PACKAGING AND WRAPPING MACHINERY			
Item n° 43	STORAGE SYSTEMS			
Item n° 44	LOADING BAY EQUIPMENT AND FAST DOORS			
Item n° 45	ELEVATORS			
Item n° 46	INDUSTRIAL I.T. EQUIPMENT			
Item n° 47	WATERTIGHT CARTS/CONTAINERS			
Subtotal Production Material		0	0	0
WASTEWATER TREATMENT				
Item n° 51	PRE-TREATMENT OF WASTEWATER			
Item n° 52	TREATMENT PLANT			
Subtotal Wastewater Treatment				
TOTAL		0	0	0



PHASE 6: CONTRACTING ASSISTANCE

In this phase, the work to be carried out by **GEI-2A** will consist of:

- Drafting of Dossier of Technical and Administrative Requirements.
- Launch of the bidding process.
- Drafting of a technical-economic report.
- Adjudication.

Below we set out the contents of each of the defined working areas.

Drafting of Dossier of Technical Requirements:

- Planning and methodology of how to carry out the contracting assistance.
- Preparation of documentation.
- Support for the **CLIENT** in defining the bidding procedure.
- Incorporation of technical and administrative clauses.
- Selection, jointly with the **CLIENT**, of the contracting packages and the contractors bidding in each package.

Launch of the bidding process:

- Request for bids.
- Monitoring of the bidding process.
- Clarifications to bidders during the bid preparation phase.
- Meetings with bidders to report on any variations which may affect the evaluation, with the purpose of homogenising the bids submitted.

The companies will forward their bids to the **CLIENT** in duplicate.

Once the bids have been opened, **GEI-2A** will be given a copy of the admitted bids to examine them and draw up a technical report.

Drafting of a technical-economic report:

- Reception of bids.
- Analysis of bids.
- Verification of compliance with requirements.
- Unification of bids.
- Drafting of comparative tables.
- Preparation of comparative technical-economic report.

This technical report may include 3 companies per batch, who will be called and received jointly by the two parties to carry out the latest technical adaptations and thus obtain the best execution conditions in terms of deadlines and prices.



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Adjudication:

- Support for the **CLIENT** in the negotiation.
- Support for the **CLIENT** in the drafting of the definitive contract, including the possible preparation of draft contracts for modification and/or approval by the **CLIENT**.
- If the scope of the project is considerable, we recommend contracting companies of a high technical level both for the civil engineering work and for the installations and machinery.

The adjudication of all the batches will preferably be conducted at the same time in order to respect the coordination of works and not to affect the general planning.

At the end of this phase, the plans of each batch or item will be updated in accordance with the supplier or solution finally selected, as the Execution Project or a detail project.

PHASE 7: EXECUTION PROJECT

Once the suppliers of each batch have been selected, the execution project will be prepared, including any improvements incorporated by the suppliers in collaboration with the engineering firm.

The bidding and execution project will include the following documents:

Memorandum

This will describe the modifications of civil engineering works and the various installations, design criteria, sitings, etc.

Graphic documentation

- Plans of civil engineering works.

These will be drawn up by third parties on the basis of the plans of the Basic Project.

- Plans of installations.

These will contain plant distribution diagrams and plans of the following installations, according to the requirements of each building. In all the installation plans, special attention will be given to compliance with the **CLIENT's** needs and flexibility of use.



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Energia eléctrica

- Transformation centre.
- Diagrams of electrical control panels.
- Ground connection network.
- Low-voltage distribution networks.
- Normal and emergency lighting.
- Positions of switches, push-buttons, etc.
- Power grid of plants, indicating normal and specific consumptions.
- TV aerial connection network.
- Telephone and data networks.

Sanitation

The new systems will be adapted to the existing ones.

- Connections and drains.
- Standpipes and horizontal distribution.
- Water networks.
- Drains for rainwater and wastewater.
- Treatment plant.

Fire protection

- Fire hydrant network.
- Portable extinguishing devices, distribution of extinguishers.
- Fixed extinguishing devices.
- Regulatory signposting.

Climatisation and ventilation

- Production system.
- Units.
- Conducts and grilles.
- Electrical and control installations.

Dossier of Conditions

The Dossier of Conditions will include all the prescriptions on measurements, qualities and other characteristics of the materials used in executing the project, which, if they cannot be stated in the plans, must be expressed for the complete definition of each element. This description must be broad enough to fix all the particular conditions of the various elements that make up the project to be carried out, and will cover the legal, economic and technical aspects.

The technical aspects will include the following sections:



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- Metal/concrete structure
- Roofs and terraces
- Concrete
- Heating, climatisation
- Brickwork
- Plumbing
- Occupational health and safety
- Quality control programme
- Electricity

Status of measurements and budget

The total budget of the works, with detailed measurements and fully itemised prices, with their partial sums by chapters and total price of the project.

PHASE 8: WORKS MANAGEMENT

This section includes the assistance given to the works management through visits by GEI-2A technicians, including the necessary office work as a consequence of the visits. Minutes will be taken of each visit.

The Works Management includes the following tasks:

- Verification of the services provided by the companies by means of general coordination. The companies will be liable for any mistakes or acts of negligence they may commit.
- Drafting and verification of the general working plan.
- Organisation of coordination meetings.
- Control and supervision of the services provided by the companies, with a monthly report (meeting on-site).
- Verification of the monthly situation of the companies, with accounting of budget control and preparation and verification of certifications of payment, which will be forwarded to the **CLIENT** signed by the contractor and the technical works manager of **GEI-2A**, S.L.
- Organisation of receptions and drafting of the corresponding certificates.
- Within the works monitoring scheme, the appointment of a works engineer, who will make periodical on-site visits.
- At the end of this phase, **GEI-2A** S.L. will draw up the dossier for possible homologation, with sanitary circuits, hygienic material, registers, temperatures, etc.
- Delivery in duplicate of all the plans "as built," operation manuals and guarantee documents. The works management task may cause the cost of the engineering service to vary considerably, which is the reason why bids are made in accordance with frequency of site visits or on-site presence.



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At the end of this phase, the start-up and/or personnel training services will optionally be carried out.

PHASE 9: START-UP ASSISTANCE

In general, **GEI-2A** takes responsibility for the works and installations being ready for start-up of the units, working in coordination with the suppliers. Alternatively, **GEI-2A** can carry out complementary tasks such as:

- Training of personnel.
- Definition of new products.
- Definition of new packages.
- Others.

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