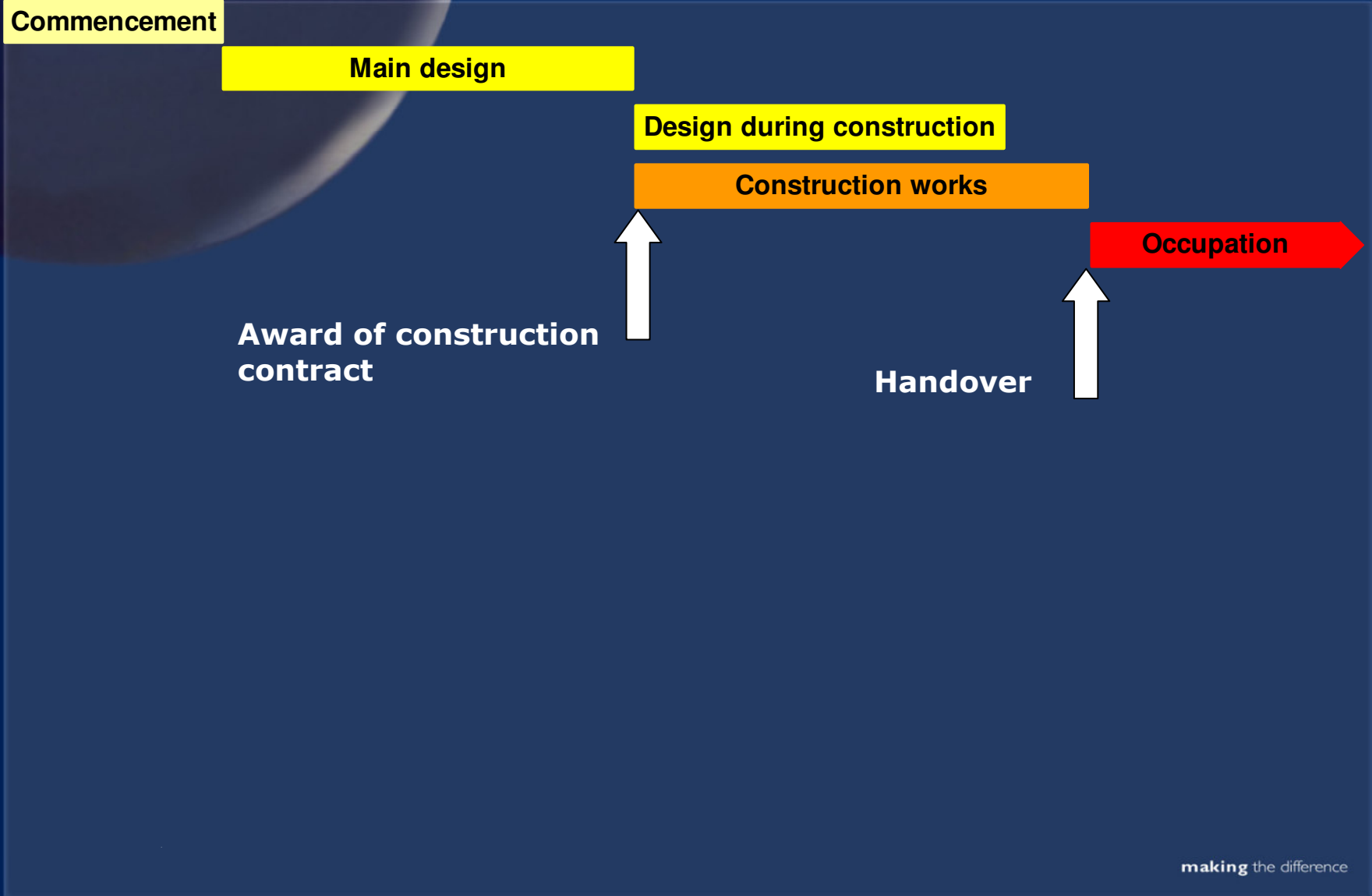
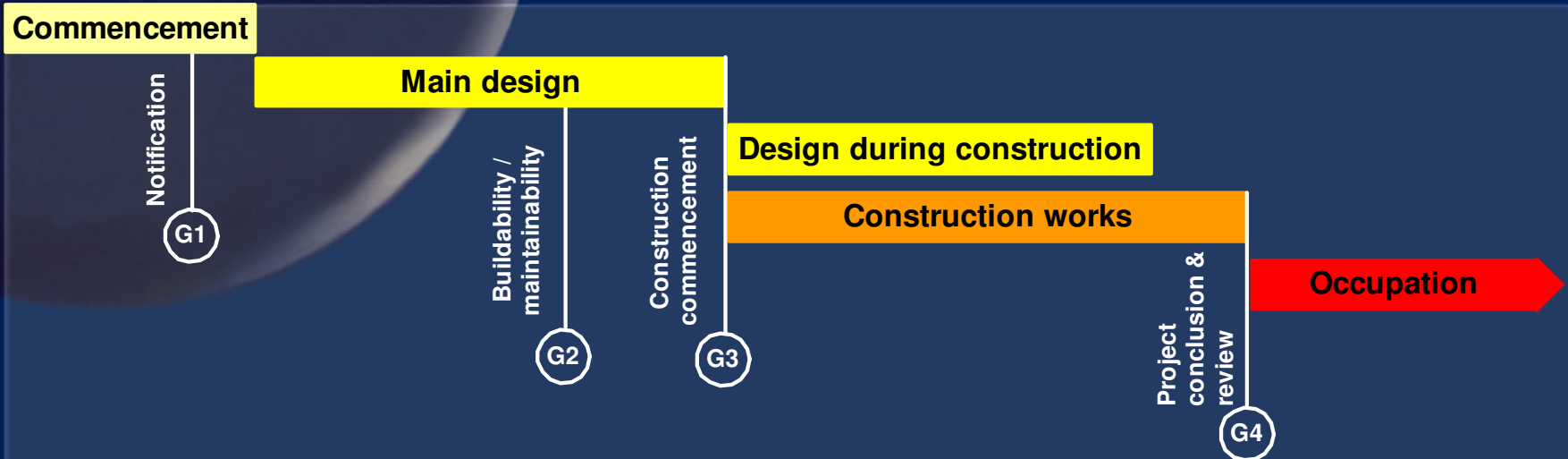


Construction Regulations (CDM / CHSW) Revision Consultation Event

Graeme Walker
Turner & Townsend Management Solutions





Gateway 1 – Notification.

Gateway 2 – Buildability / maintainability.

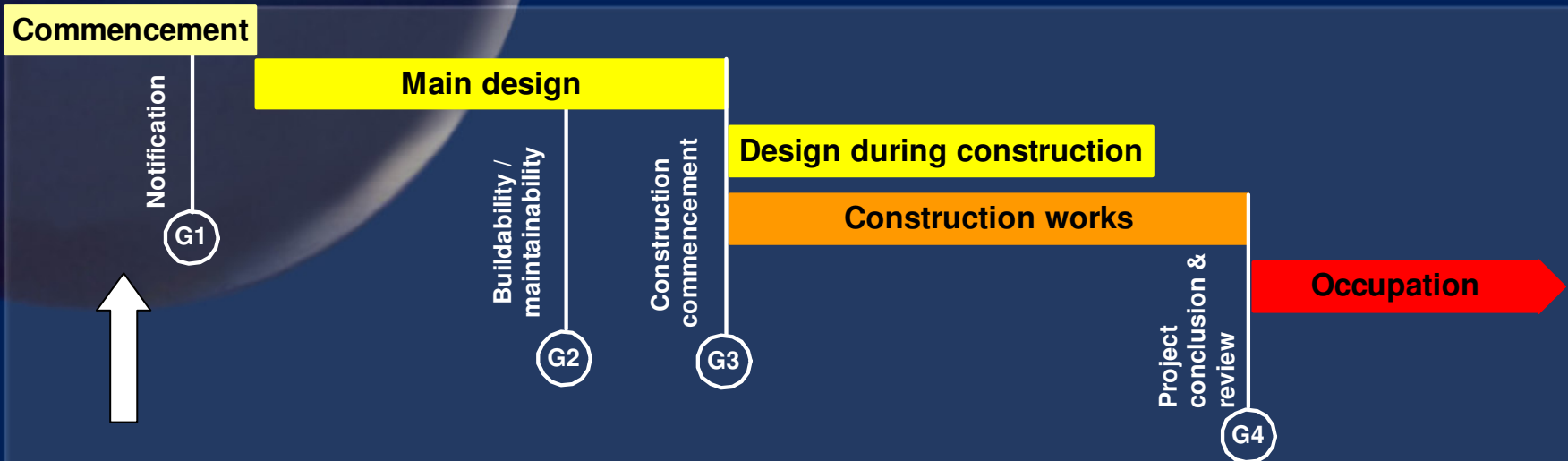
Gateway 3 – Construction commencement.

Gateway 4 – Project conclusion & review.

- When deciding what you need to do to comply with these Regulations your focus should always be on action to **reduce and manage risks**.
- Any paperwork produced must help with **communication and risk management**. It is not a worthwhile end in itself.
- Pointless paperwork is, at best a waste of effort and at worst a dangerous distraction from the real business of **risk reduction and management**.

- The key aim of CDM²⁰⁰⁶ is to integrate health and safety into the management of the project and to encourage everyone involved to work together to:
 - improve the planning and management of projects from the very start.
 - identify risks early on so that they can be eliminated or reduced at the design or planning stage and the remaining risks can be properly managed.
 - target effort where it can do the most good in terms of health and safety.
 - discourage bureaucracy.

- Health and safety is one part of a much larger picture and it rarely makes sense to address it in isolation.
- HSC's aim is for health and safety to be integrated into normal management and working procedures, not treated as a bolt-on extra.

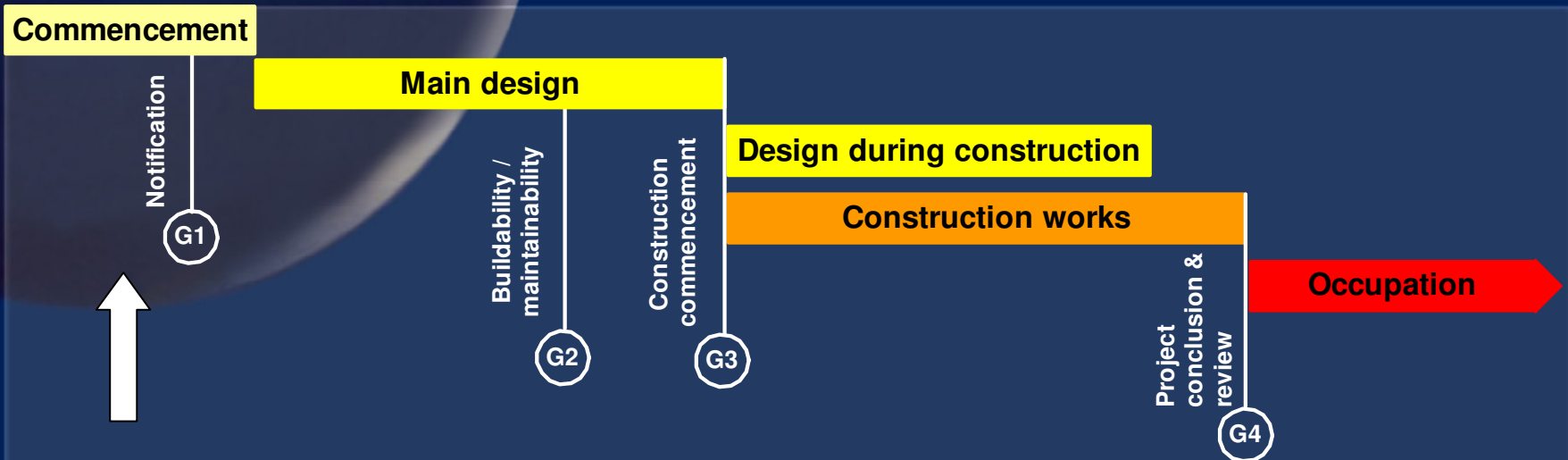


Client

- Assess whether the project is notifiable:
 - duration > 30 working days.
 - involving > 500 person days.
- Number of workers is no longer a criteria within the CDM Regs.

Non-notifiable work

- Although a written plan is not required for non-notifiable projects apart from demolition work, other **high risk work** must be well planned and managed.
- High risk work includes work involving:
 - significant structural alterations.
 - deep excavations, particularly in unstable or contaminated ground.
 - unusual working methods or safeguards.
 - ionising radiation or other significant health hazards.
 - nearby high voltage powerlines.
 - a risk of falling into fast flowing water.
 - diving.
 - explosives.
 - heavy or complicated lifting operations.



Client

- Appoint a competent co-ordinator at the start of the design work:
 - to advise the client.
 - assist them with their duties.

- Co-ordinator – to create an empowered and key advisor to the client, and pivotal figure in ensuring an effective and cohesive project team.

“There can be significant advantages in having a completely independent co-ordinator because their advice is not coloured by other practical or financial interests. However they may combine this work with another role, for example, project manager, designer or principal contractor as long as the co-ordinator is competent and has sufficient independence to carry out their tasks effectively.”

Co-ordinators need good interpersonal skills and a sound knowledge of:

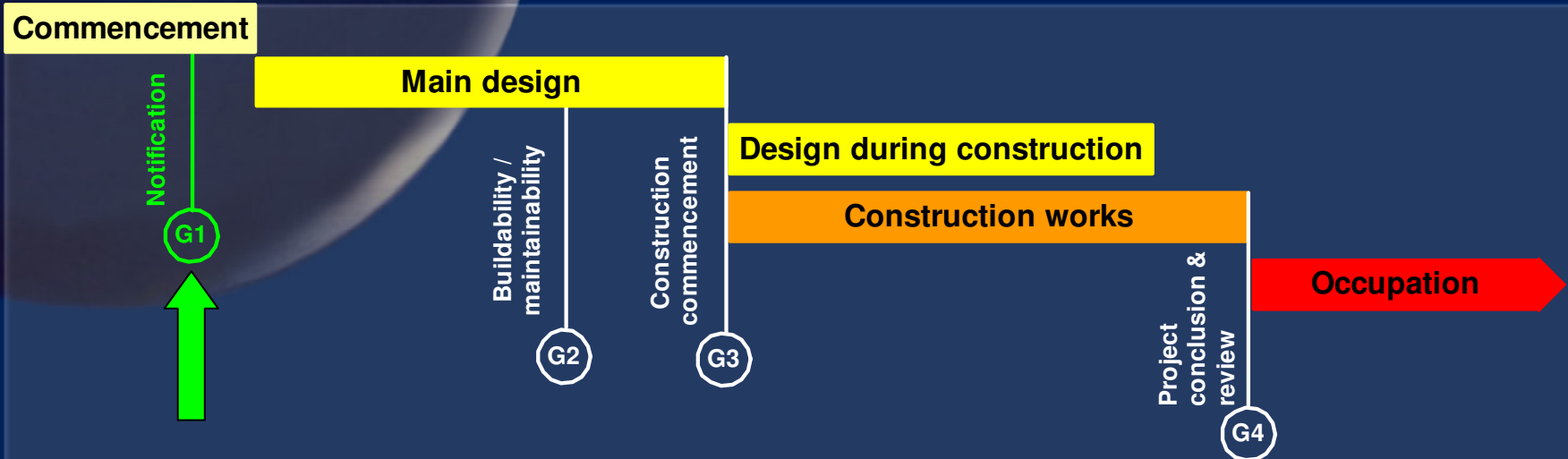
- health and safety in construction work;
- the design process;
- other aspects of planning and preparation for construction work, and
- site processes.

relevant to the project and future maintenance, refurbishment or demolition. The size and complexity of the project determines whether an individual is capable, and has the resources to carry out all of the work required.

Government challenged the construction industry to do something to improve health and safety, and the Institution identified the need to benchmark health and safety standards for construction professionals. The ICE Health & Safety Register is the outcome.

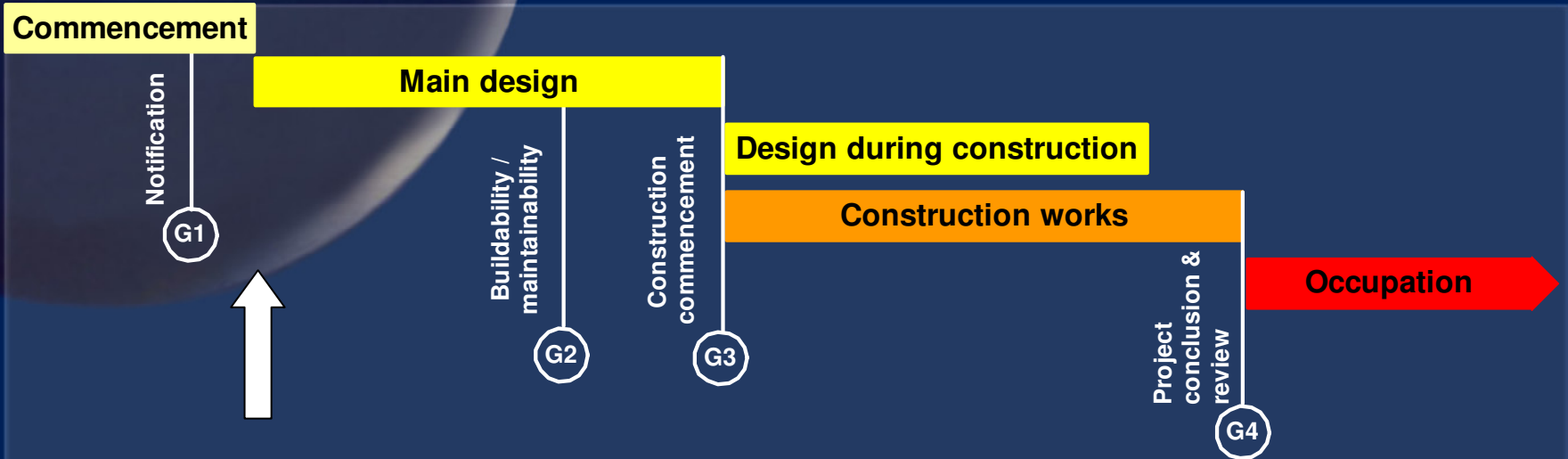
Admittance to the Register is achieved through a three-step process involving an application, interview and an "open book" written assignment. Applicants will need a sound working knowledge of the relevant regulations and design processes, plus experience of the site processes likely to be involved in construction, maintenance, refurbishment or demolition.

The Register is open to all professionally qualified members of the construction industry (eg ICE, RIBA, IStructE, RICS CIBSE) with at least 10 years experience.



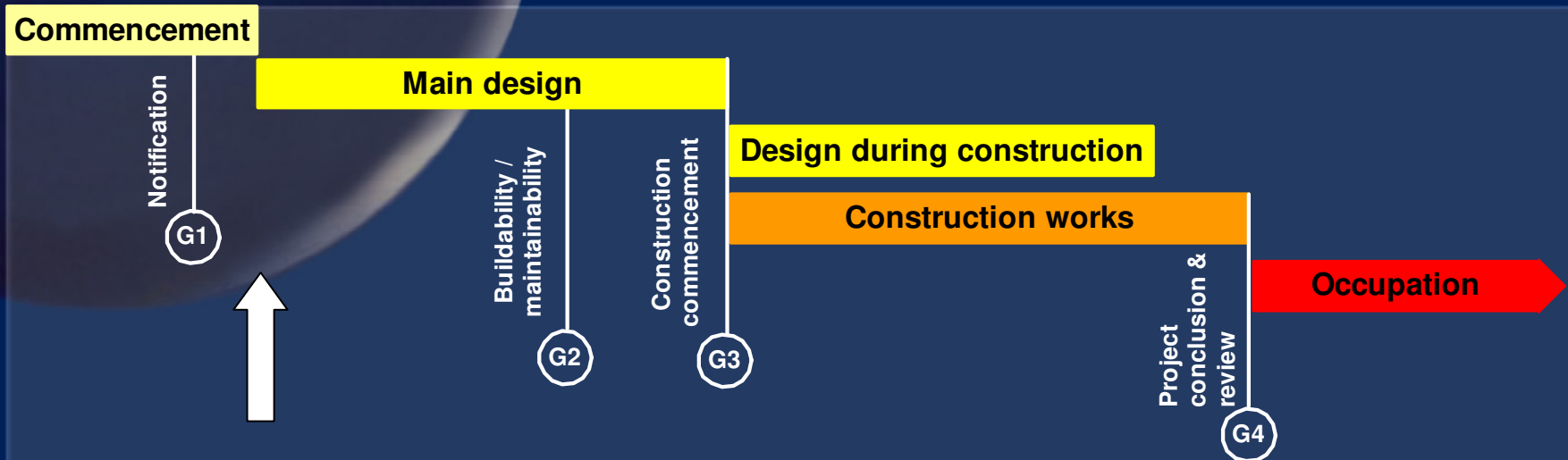
Client or co-ordinator

- Notify the HSE before design work begins.



Co-ordinator

- Agree the structure and format of the health and safety file with the client.



Client

- Appointment of competent designers.

Co-ordinator

- Advise the client on the competence and resources.
- Reissue F10 form - name and address of designer(s).

Best practice designers have:

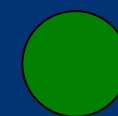
- a clear policy endorsed at board level on the management of health and safety;
- an established programme for health and safety training and Continuing Professional Development;
- A system to demonstrate that design staff have a good understanding of the construction process and a working knowledge of key health and safety guidance;
- hazard and risk information in their practice library concerning products regularly used or specified;
- established systems for design reviews at key stages of the design process;
- lists of products and processes (e.g. green / amber / red) which they wish to encourage / discourage or even ban from their designs and specifications.



- Pre-tender health and safety plan not to be issued until detailed structural surveys, asbestos surveys, etc. completed
- Scabbling of concrete ('stop ends', etc);
- Demolition by hand-held breakers of the top sections of concrete piles (pile cropping techniques are available);
- The specification of fragile rooflights and roofing assemblies;
- Processes giving rise to large quantities of dust (dry cutting, blasting etc.);
- On-site spraying of harmful particulates;
- The specification of structural steelwork which is not purposely designed to accommodate safety nets;
- Designing roof mounted services requiring access (for maintenance, etc), without provision for safe access (eg. barriers).



- Internal manholes in circulation areas;
- External manholes in heavy used vehicle access zones;
- The specification of “lip” details (i.e. trip hazards) at the tops of pre-cast concrete staircases;
- The specification of shallow steps (i.e. risers) in external paved areas;
- The specification of heavy building blocks i.e. those weighing > 20kgs;
- Large and heavy glass panels;
- The chasing out of concrete / brick / blockwork walls or floors for the installation of services;
- The specification of heavy lintels (the use of slim metal or concrete lintels being preferred);
- The specification of solvent-based paints and thinners, or isocyanates, particularly for use in confined areas;
- Specification of curtain wall or panel systems without provision for the tying of scaffolds;
- Specification of blockwork walls >3.5 metres high and retarded mortar mixes.



- Adequate access for construction vehicles to minimise reversing requirements (one-way systems and turning radii);
- Provision of adequate access and headroom for maintenance in plant rooms, and adequate provision for replacing heavy components;
- Thoughtful location of mechanical / electrical equipment, light fittings, security devices etc. to facilitate access and away from crowded areas;
- The specification of concrete products with pre-cast fixings to avoid drilling;
- Specify half board sizes for plasterboard sheets to make handling easier;
- Early installation of permanent means of access, and prefabricated staircases with hand rails;
- The provision of edge protection at permanent works where there is a foreseeable risk of falls after handover;
- Practical and safe methods of window cleaning (eg. from the inside);
- Appointment of a Temporary Work Coordinator (BS 5975);
- Off-site timber treatment if PPA- and CCA-based preservatives are used (Boron or copper salts can be used for cut ends on site).

Safety in design

www.safetyindesign.org

Safety in Design

SiD sets benchmarking standards through CIC for designers in the built environment



Design best practice

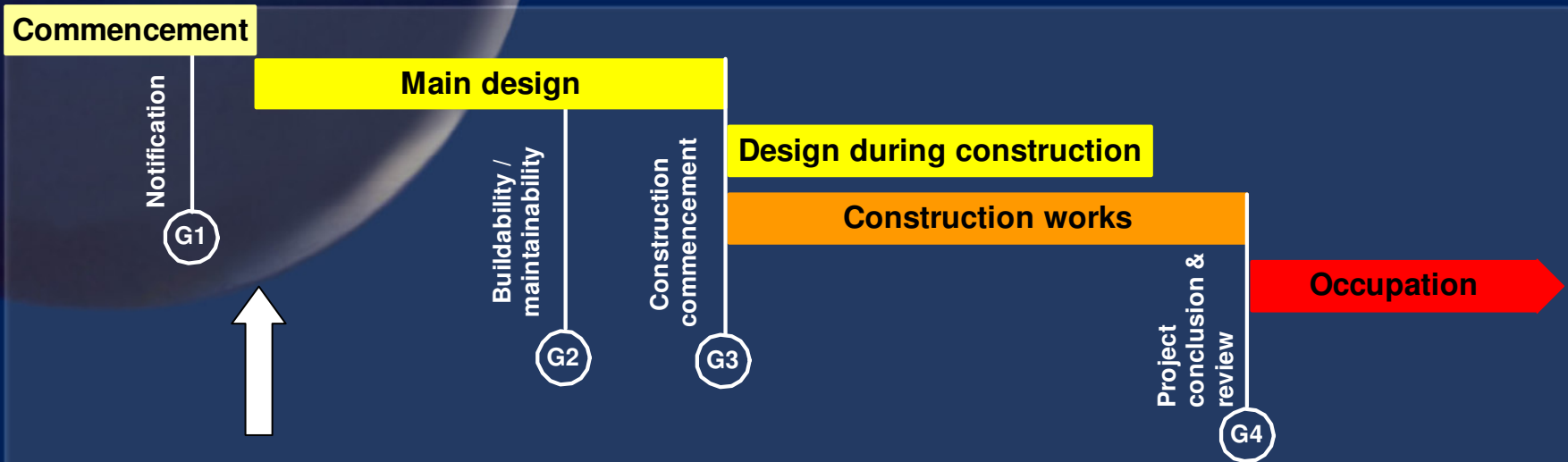
www.dbp.org.uk



Health and Safety Executive Designers Can Do More

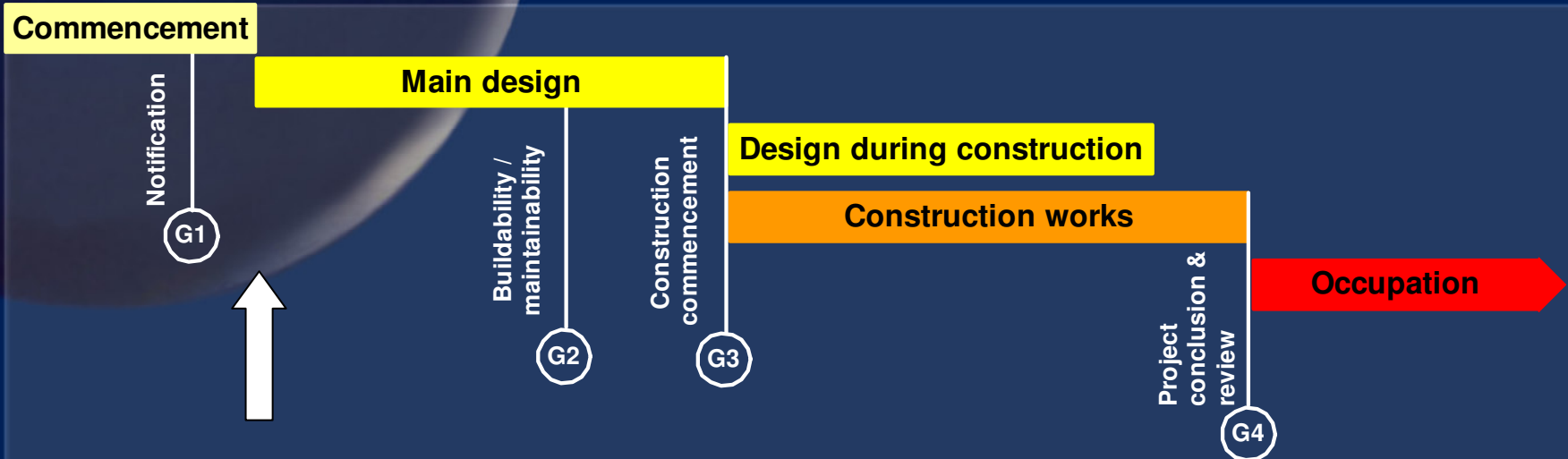
www.hse.gov.uk/Construction/Designers/index/htm





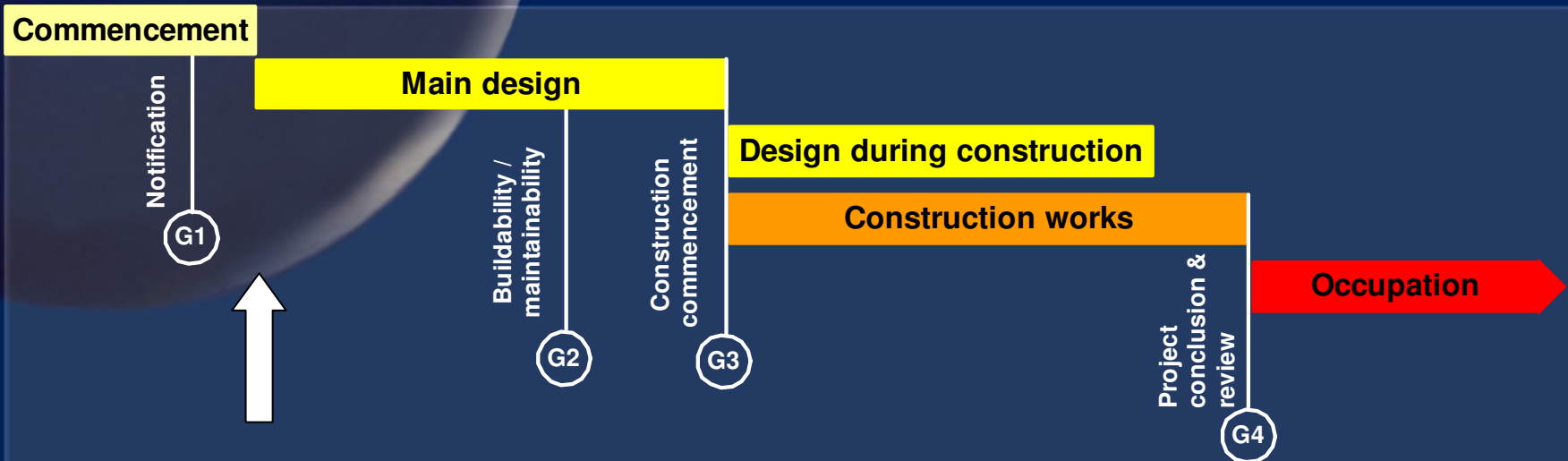
Designers

- Check that the client has appointed a co-ordinator.
- The project has been notified by the HSE.
- Must not start design work unless the above have been carried out.



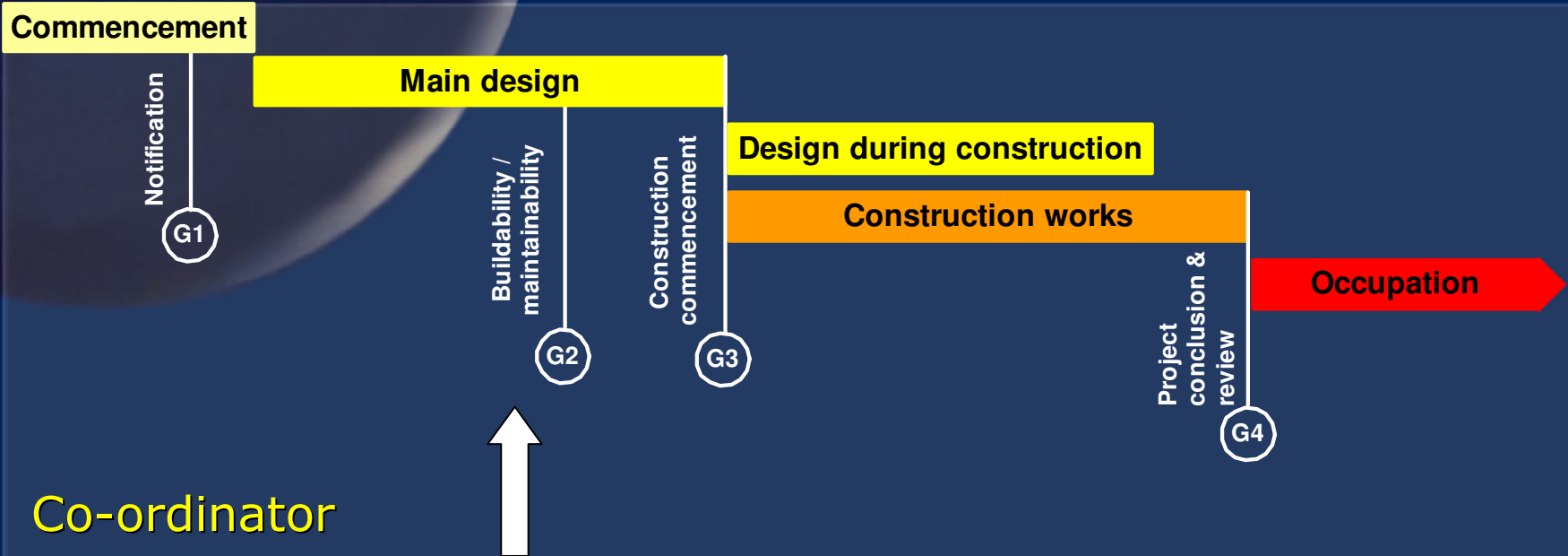
Client

- Provide the co-ordinator with information.
- Must not leave it to contractors to discover hazards.



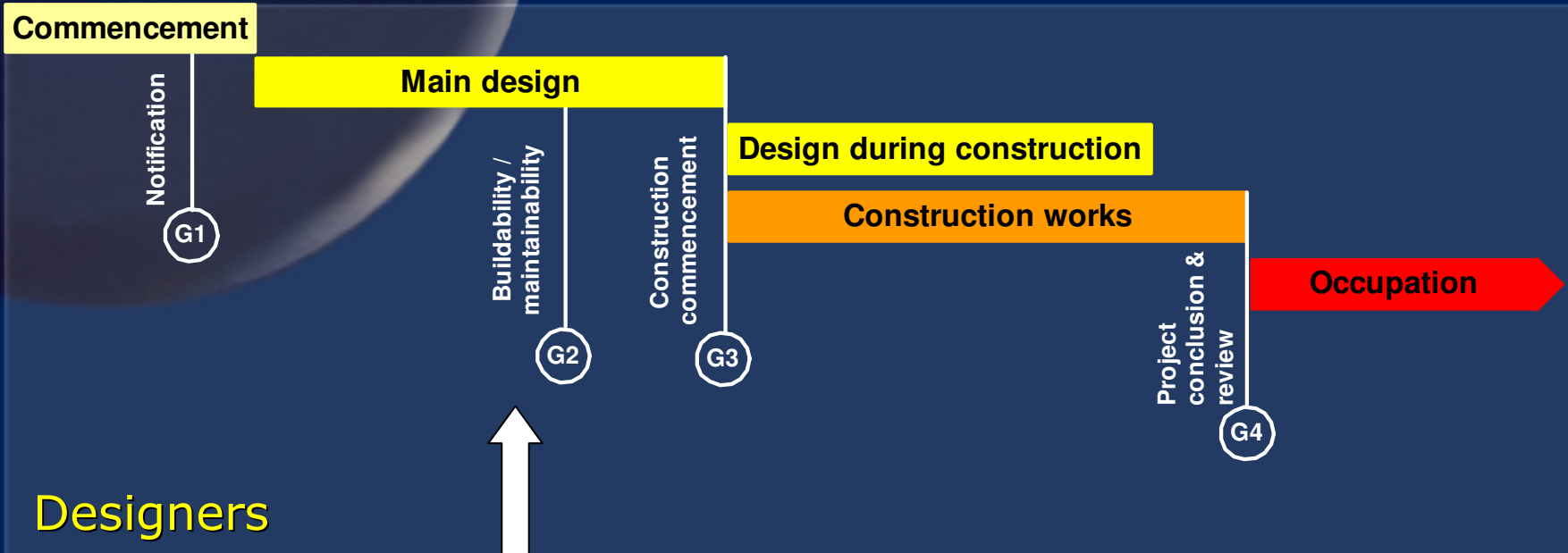
Co-ordinator

- Manage the flow of information
 - Locate the information needed for the designers and contractors.
 - Advise the client if surveys need to be commissioned to fill significant gaps.



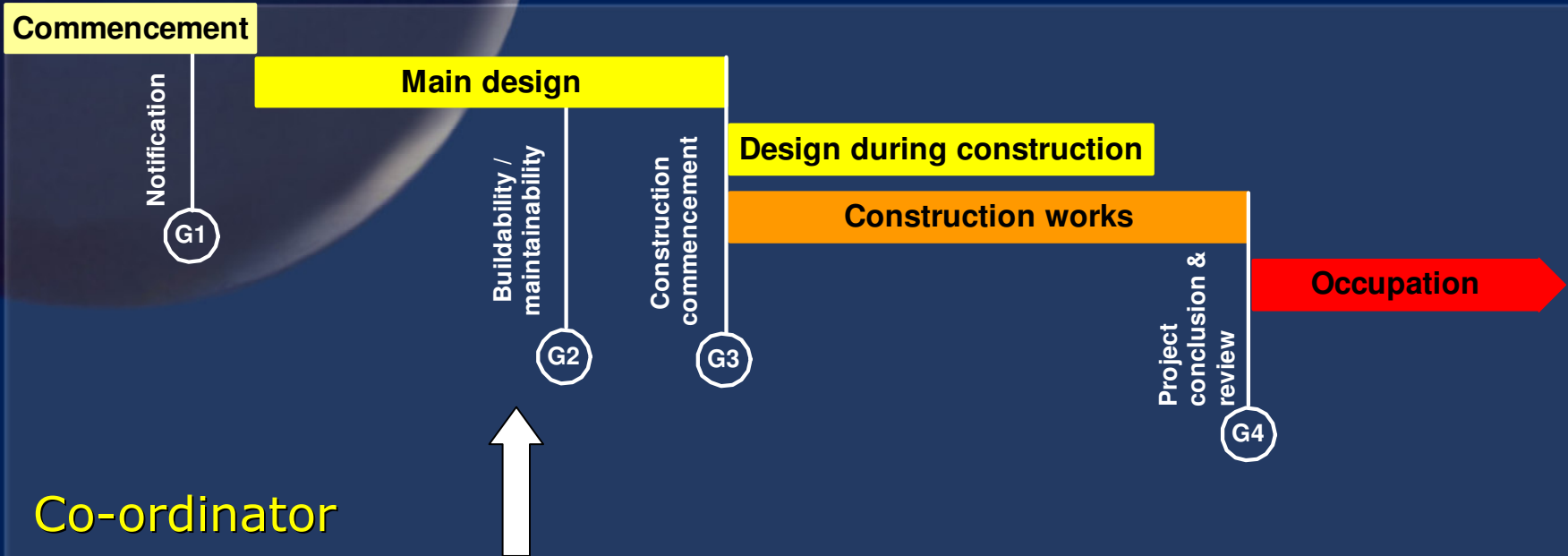
Co-ordinator

- Monitoring
 - Calling design and wider team meetings.
 - Checking the suitability of information prepare by designers.
 - Checking flow of information forming the H&S file.

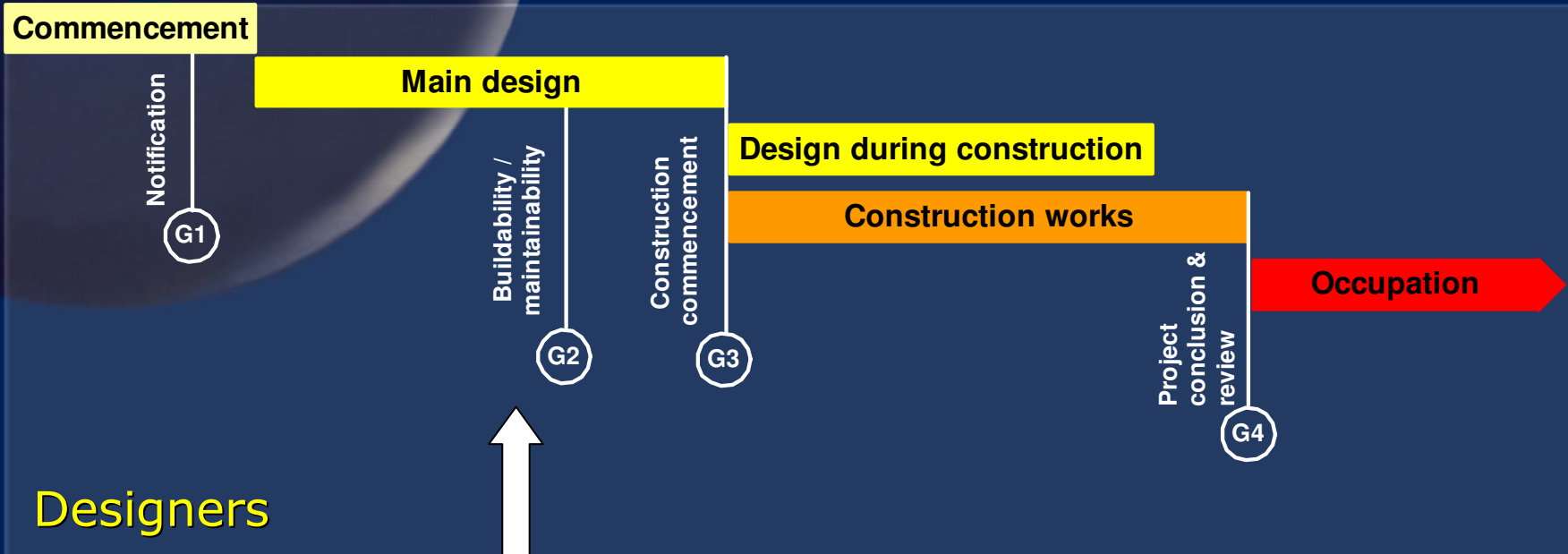


Designers

- Design for other than construction activities.
 - Need to consider the safety of users of workplaces.
 - Use of the workplace, private roadways and pedestrian routes, cleaning and maintenance of permanent fixtures and fittings.
 - Be competent to design workplaces to comply with other health and safety requirements – particularly the Workplace Regulations.

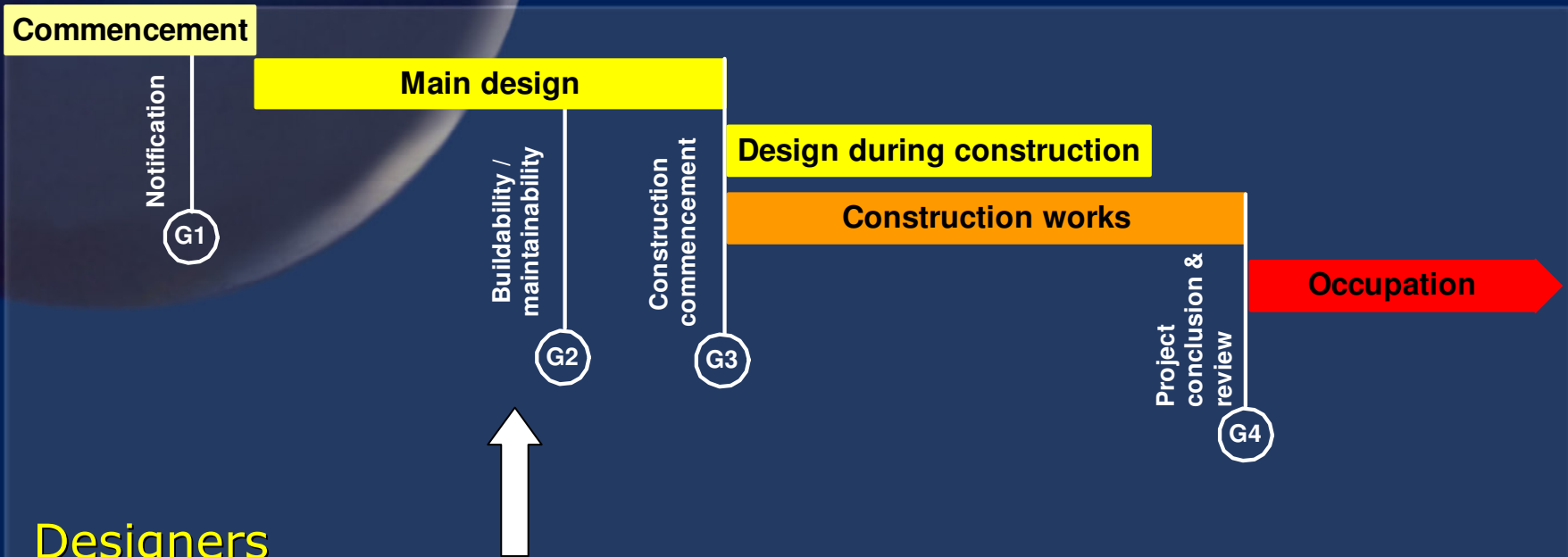


- Manage the flow of information
 - Identify and extract information.
 - Weed out irrelevant information.
 - Assemble information – Information Pack.



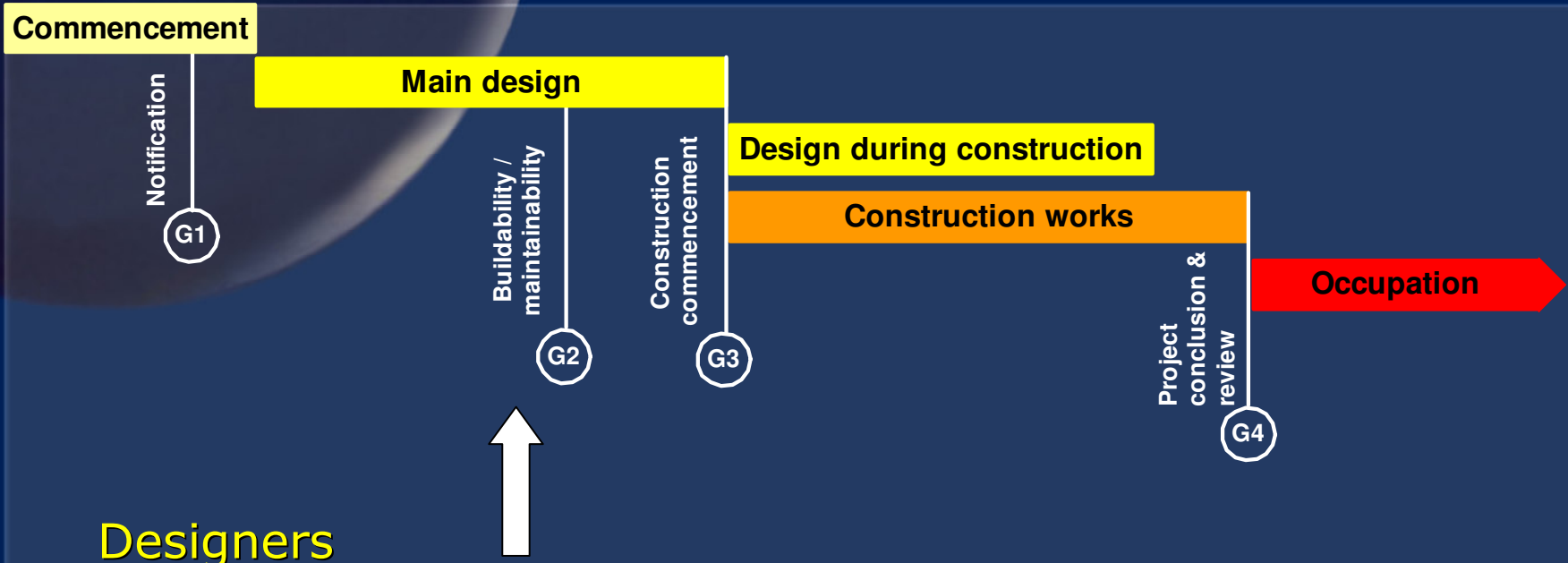
Designers

- Information
 - Pointless to complete design and then do a risk assessment.
 - Information to identify and manage remaining risks:
 - must be project specific.
 - generic risk assessment is pointless.
 - Must provide information about significant hazards, not spell out all hazards and assumptions.



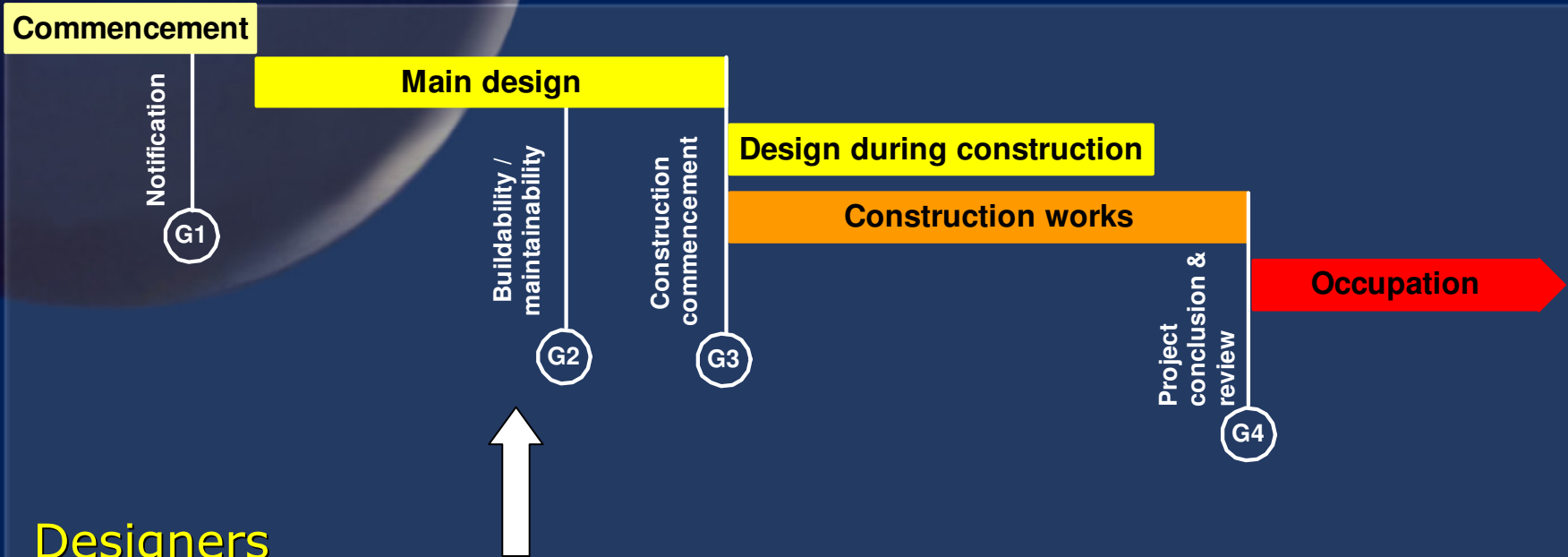
Designers

- Information
 - Significant hazards are not necessarily those that involve the greatest risks, but those, including health risks that are:
 - not likely to be obvious to a competent contractor or other designers.
 - unusual.
 - likely to be difficult to manage effectively.



Designers

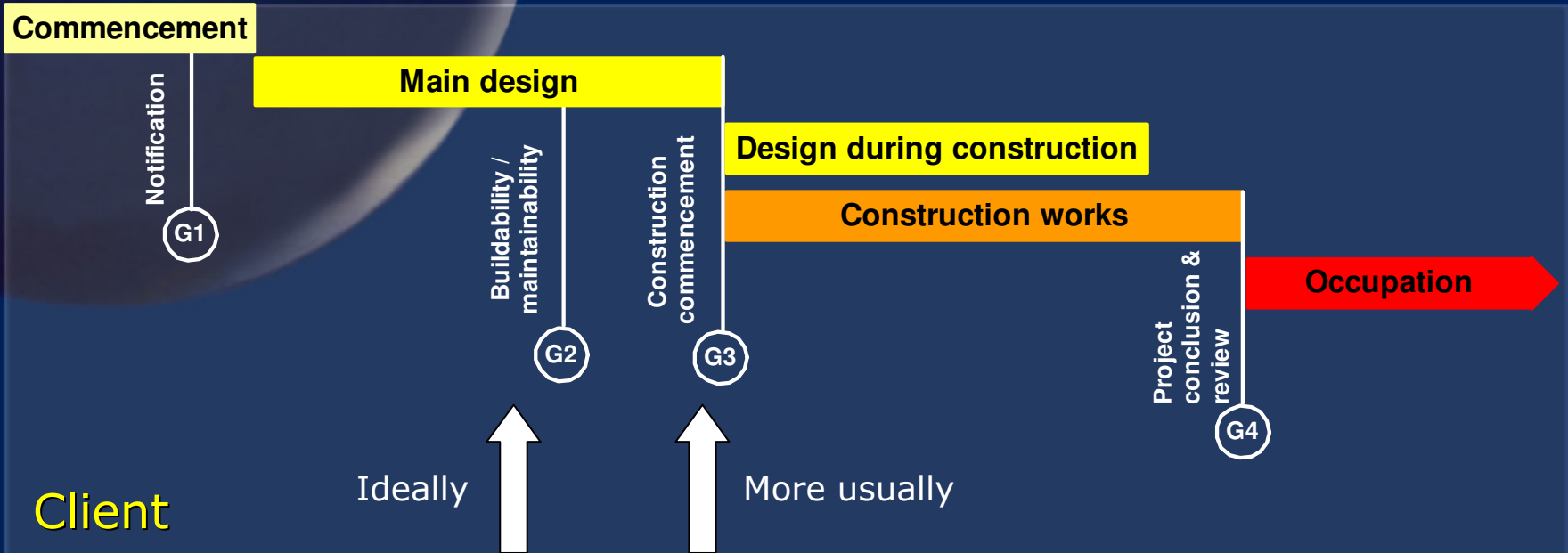
“Designers are not legally required to keep records of the process through which they achieve a safe design, commonly known as Design Risk Assessment (DRA). This has led to the production of large amounts of paperwork listing generic hazards and risks, most of which are well known to the contractors and are not significant in any sense.”



Designers

- Information should be
 - Brief, clear and precise:**
 - notes on drawings.
 - risk register.
 - suggested construction sequence.
 - hazard log.

Hazardous Activity	Residual Hazard	Information provided for hazard control (illustrative)
Erecting Floor Steelwork.	Falling from height off unguarded edges.	<p>60.3 x 5 CHSs provided at 3m c/c on perimeter beams for insertion of 48.3 mm of edge protection posts.</p> <p>Safety nets may be used (but see below). Note: storey height only 3.7 m.</p> <p>Staircase in A/B, 4/5 designed as freestanding between floors and may be used for access.</p> <p>Holes in beam & column flanges provided as anchorages for lanyards (but see above re. Clearances).</p>
	Premature collapse of structural component.	<p>Erection loads must not exceed 1.5 kN/m² anywhere.</p> <p>Safety nets may not be attached to beams with lateral section properties < 305 x 102 x 33 UBs.</p> <p>All perimeter trusses and vertical bracing to be in place before work starts.</p>
	Handling of heavy components. Cranes.	<p>Perimeter trusses max weight = 1000 kg. When lifting, angle between the slings should not exceed 300 to avoid buckling of section.</p> <p>Other main floor steel sections are 54 kg/m, with a maximum piece weight of 351 kg (Sling angle: any permitted).</p> <p>Space (for cranes) clear of services at building along north and south perimeter. Assumed position gives max. lifting radius = 19 m and max. lifting height = 20 m. (Note: Overhead power lines to east side of building! See Drg. No. xxx).</p> <p>Ground conditions: See SI Report, Ref. xx (Page xx).</p> <p>CoG of beams specified to be marked by fabricator (will change if temporary edge protection attached before lifting).</p> <p>Shelf angles provided on main columns only.</p> <p>All bolts 20 mm diameter.</p> <p>Deliveries: See sheet x of y.</p>
	Electric shock. Overhead power.	<p>Note: Overhead power lines 10 kV at SE corner of site, crossing site at approx .450 5m in from site south boundary (See Drg. No. xxx).</p>



Client

- Should appoint a principal contractor – if possible early enough for them to advise on buildability and maintainability.
- The principal contractor must be appointed as soon as the client knows enough about the project to select a suitable contractor.

Contractors Health & Safety Assessment Scheme

www.chas.gov.uk



Constructionline

www.constructionline.co.uk



Construction Skills Certification Scheme

www.cscs.uk.com

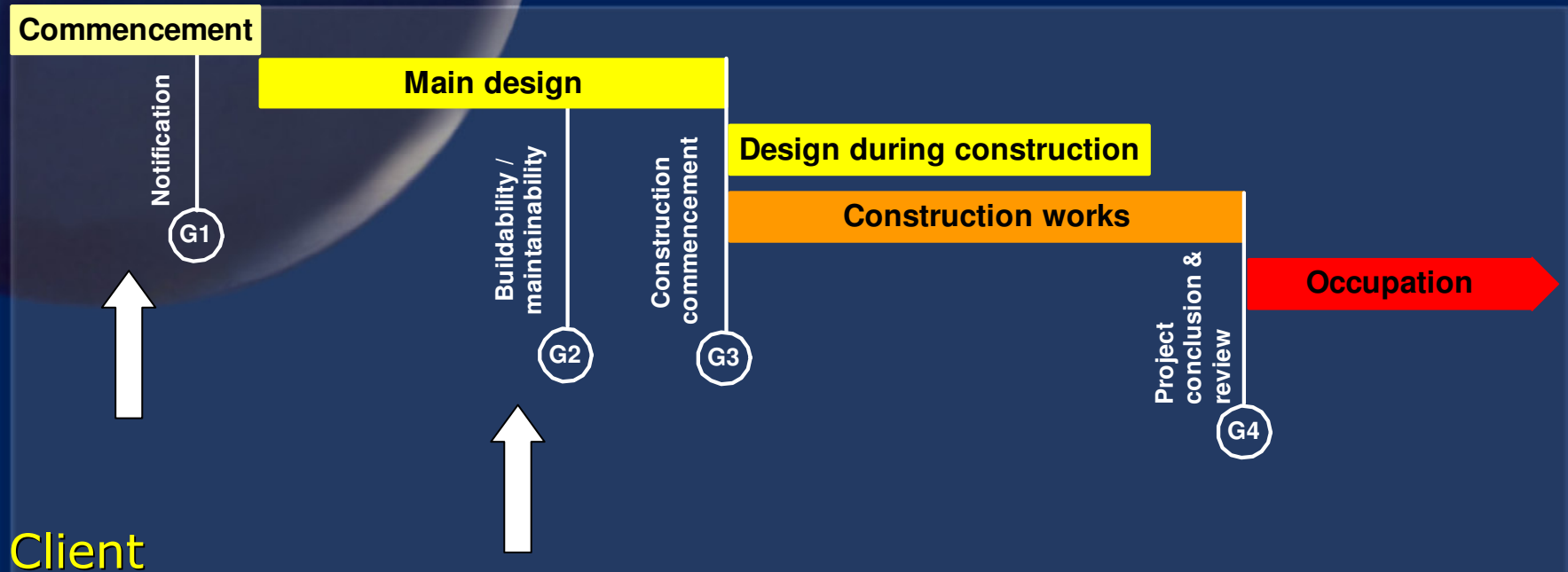


Considerate Constructors Scheme

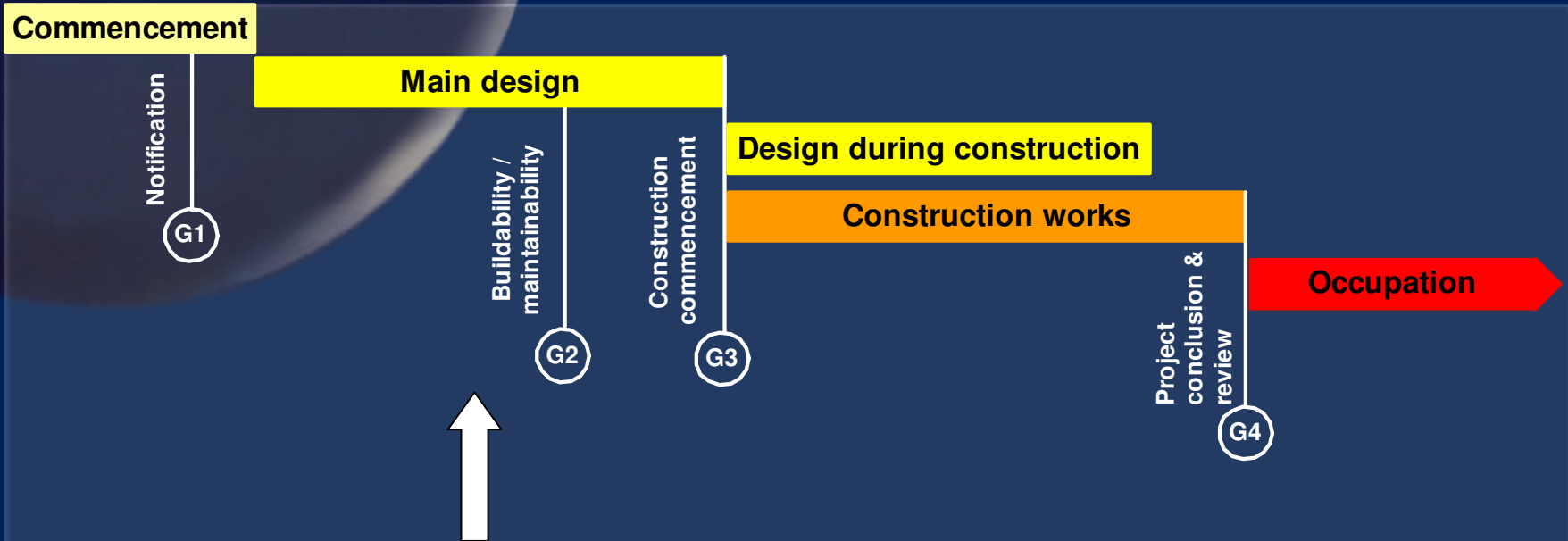
www.considerateconstructorsscheme.org.uk



making the difference

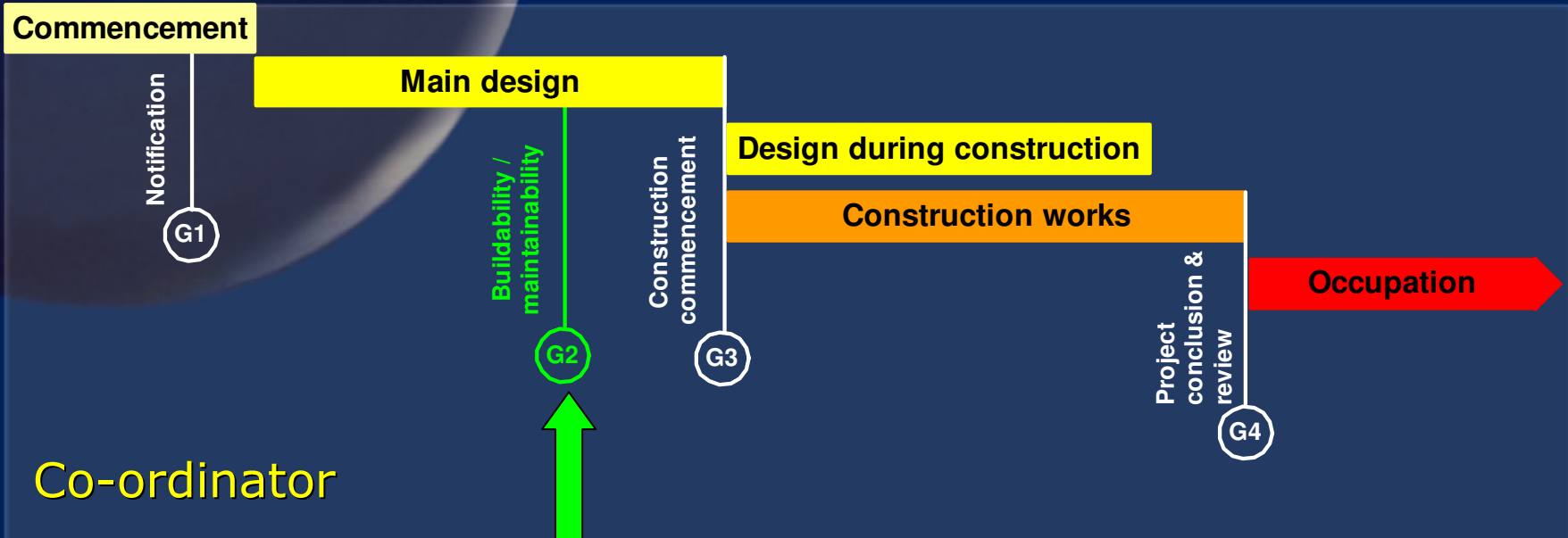


“If a client does not make these appointments they are legally liable for the work that the co-ordinator and principal co-ordinator should do, as well as for not making the appointments.”



Client or co-ordinator

- Notify the HSE of details of the principal contractor.

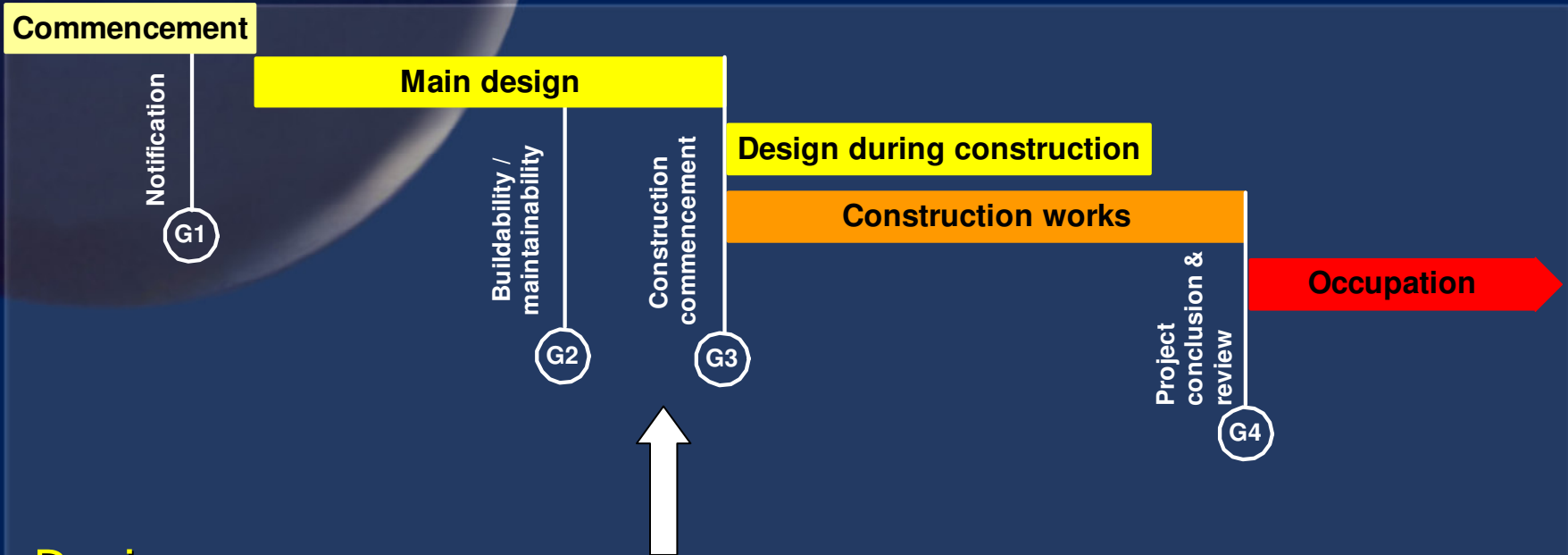


Co-ordinator

- Legal responsibility only extends to health & safety aspects of design.
- Benefits if practicality and cost relating to buildability, maintainability and usability are also reviewed.

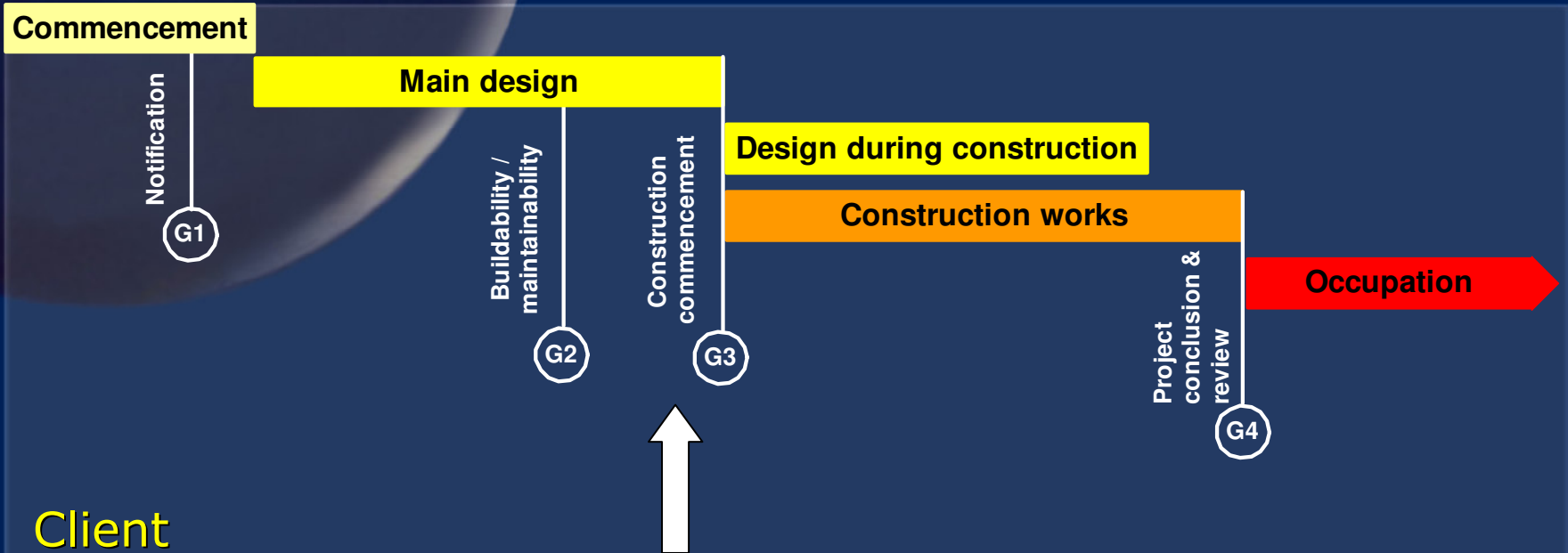
Designer

- Other considerations e.g. cost, fitness for purpose, aesthetics buildability, maintainability and environmental impact.



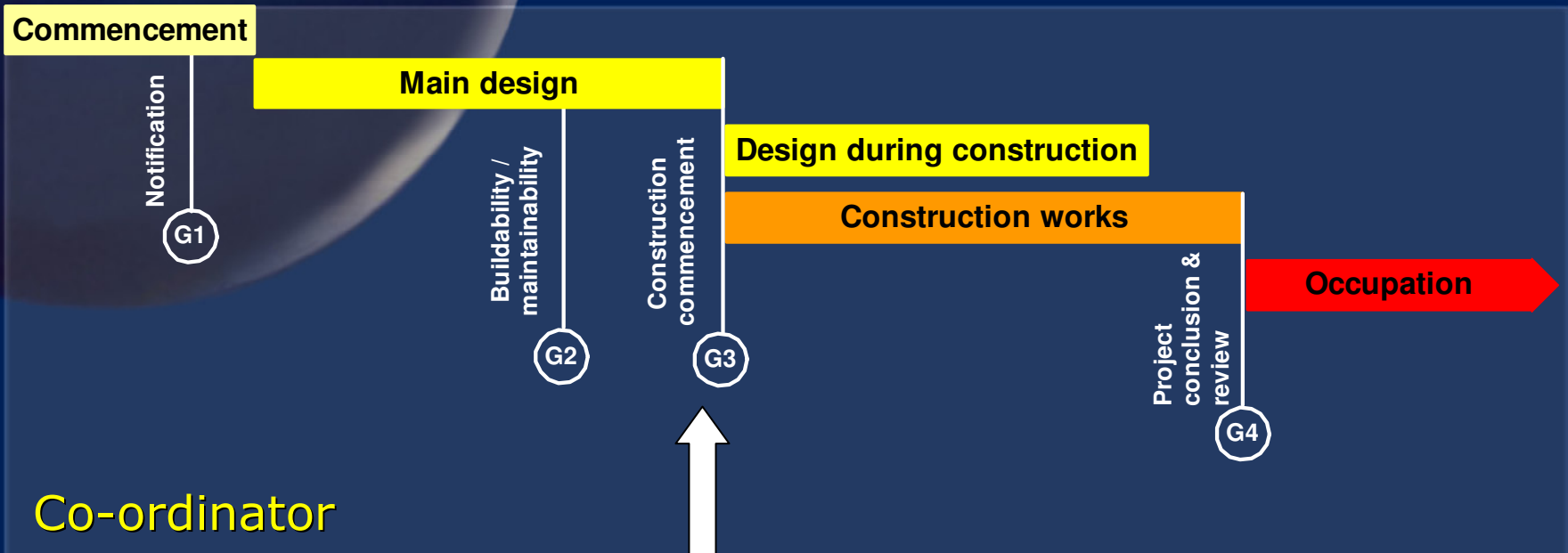
Designers

- Designers need to provide the person preparing the health and safety file with relevant information. They must not wait until the end of the project.



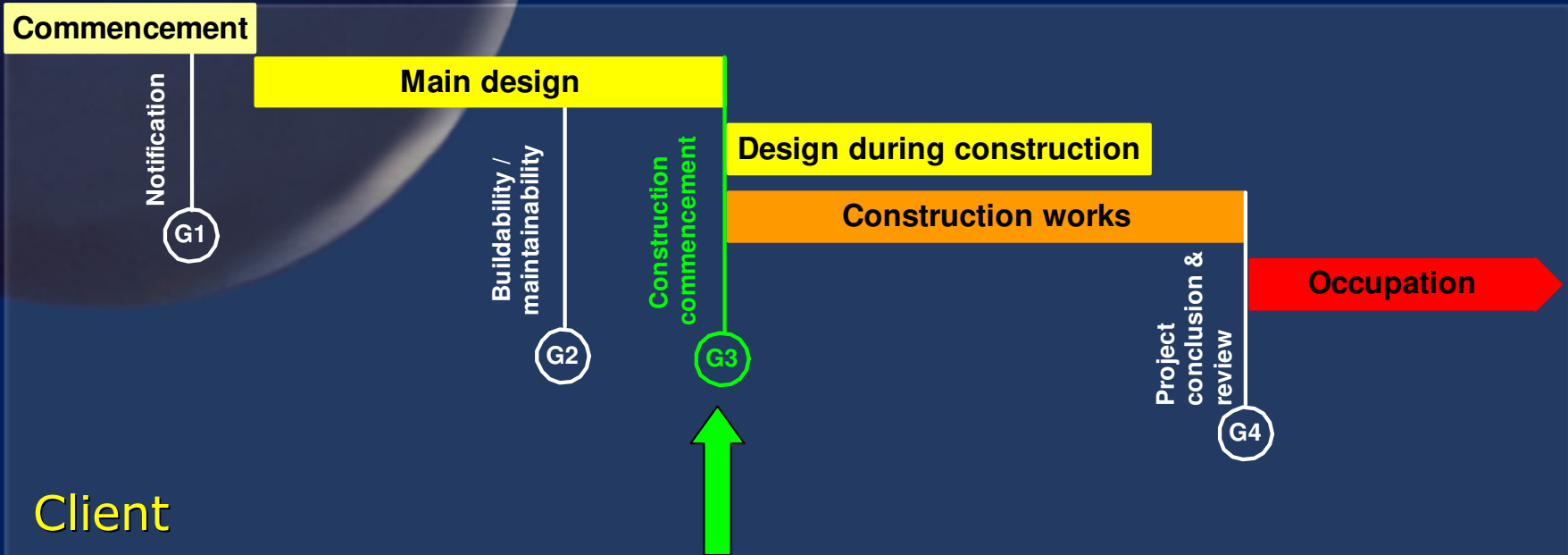
Client

- Advise principal contractor (and directly appointed contractors) of the minimum notice to start construction works.



Co-ordinator

- Should be able to do or arrange:
 - obtaining drawings from utilities of relevant underground services, verifying and marking them out.
 - arranging for water, electricity, sewage and other services to be provided to the site.

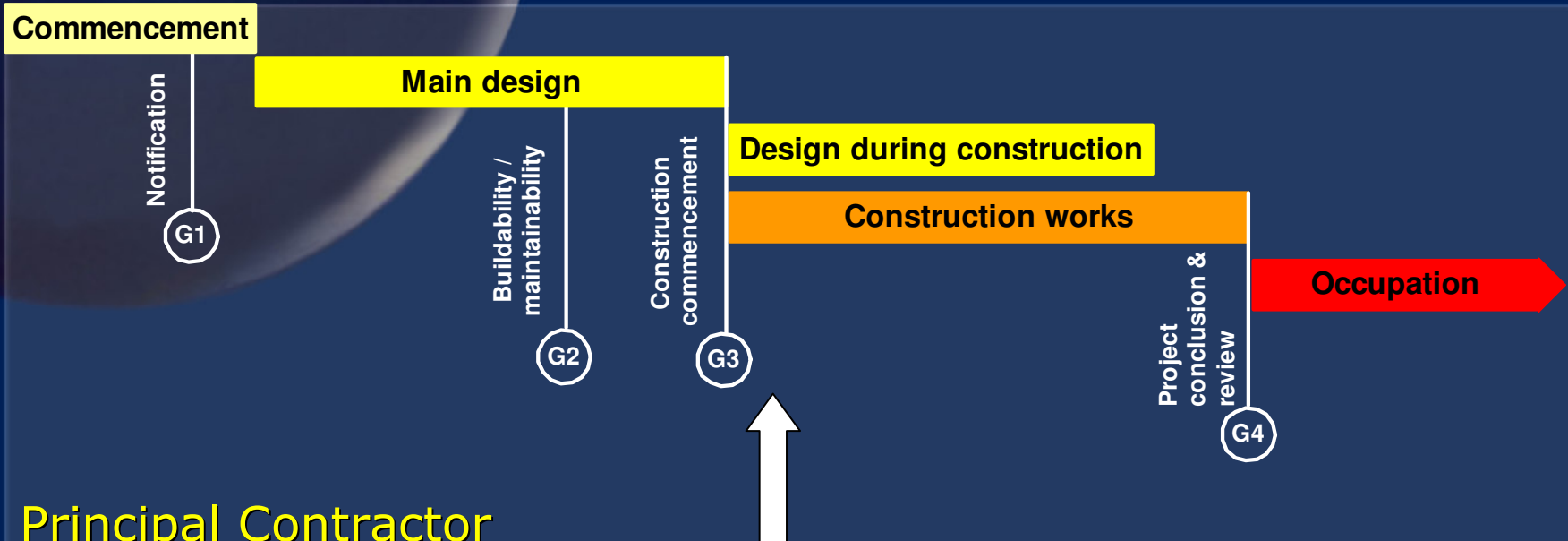


Client

- Ensure that the construction phase does not start until:
 - principal contractor has prepared a suitable health and safety plan.
 - there are suitable welfare facilities.

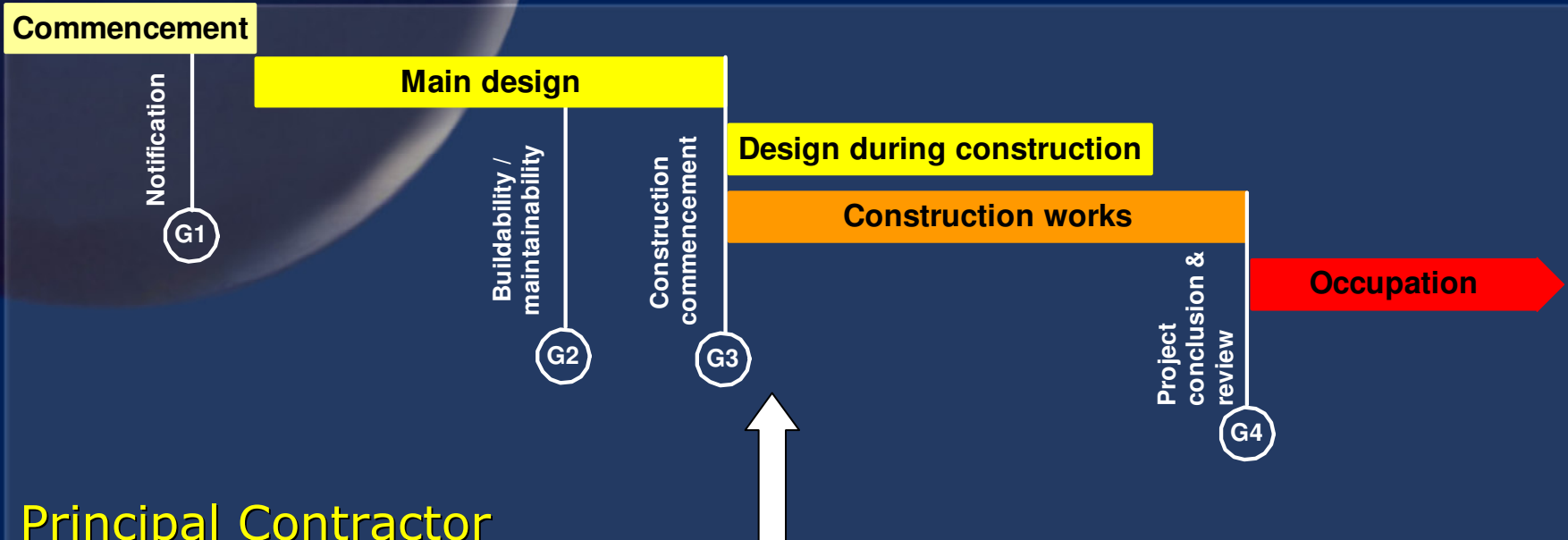
Co-ordinator

- Advise the client on the above.



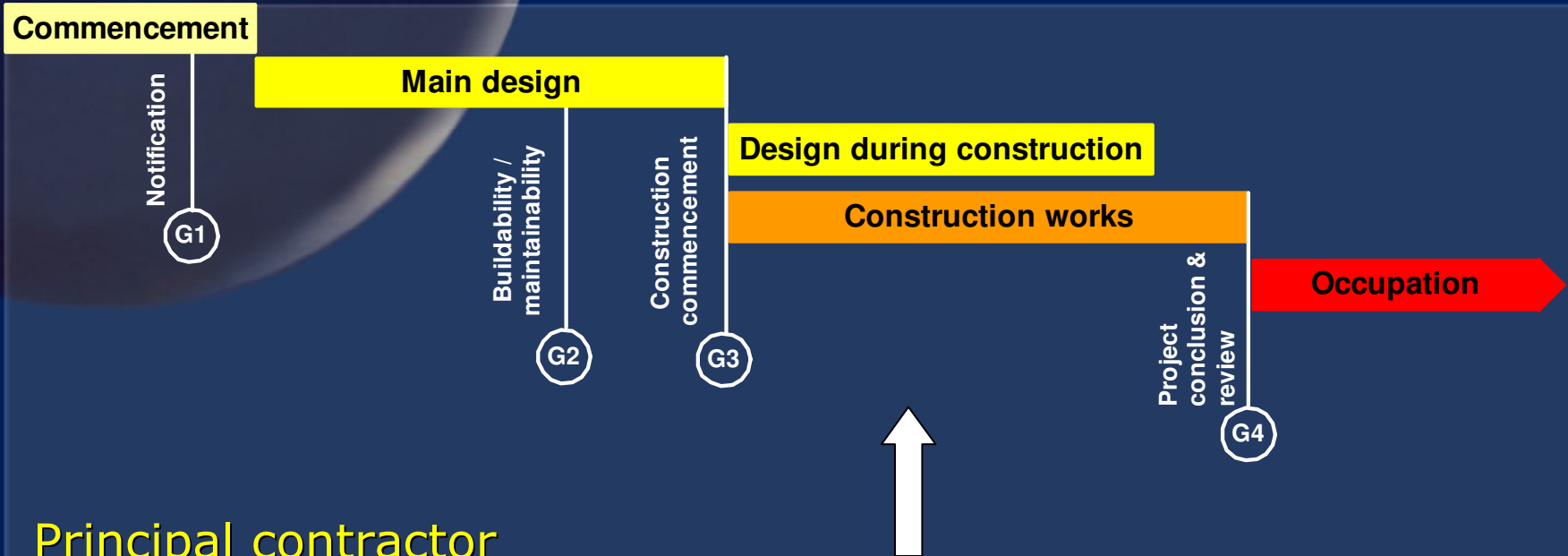
Principal Contractor

- Language.
 - for employees with little or no understanding of spoken or written English, employers need to make special arrangements.
 - these include providing translation, using interpreters and replacing written notices with clear symbols or diagrams.



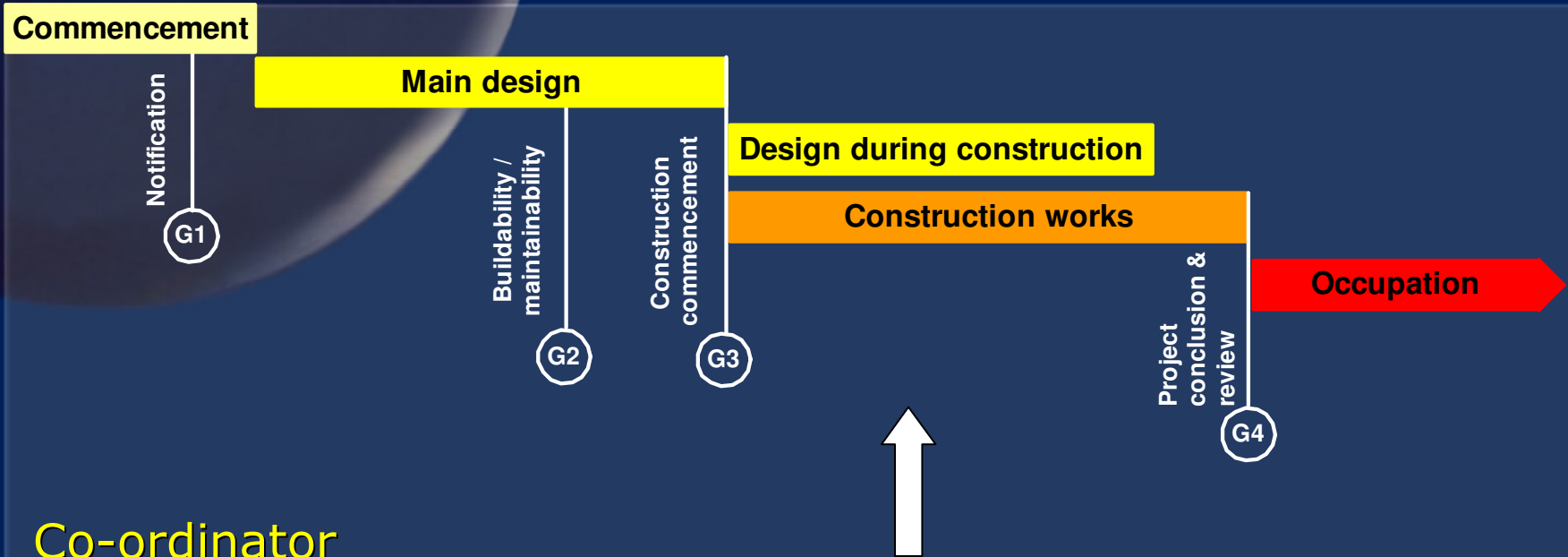
Principal Contractor

- Inductions.
 - are a way of providing workers with the specific information they need to know the particular arrangements and risks related to a specific site.
 - pointless if everyone switches off because they have heard it all before or they cannot understand what they are told.

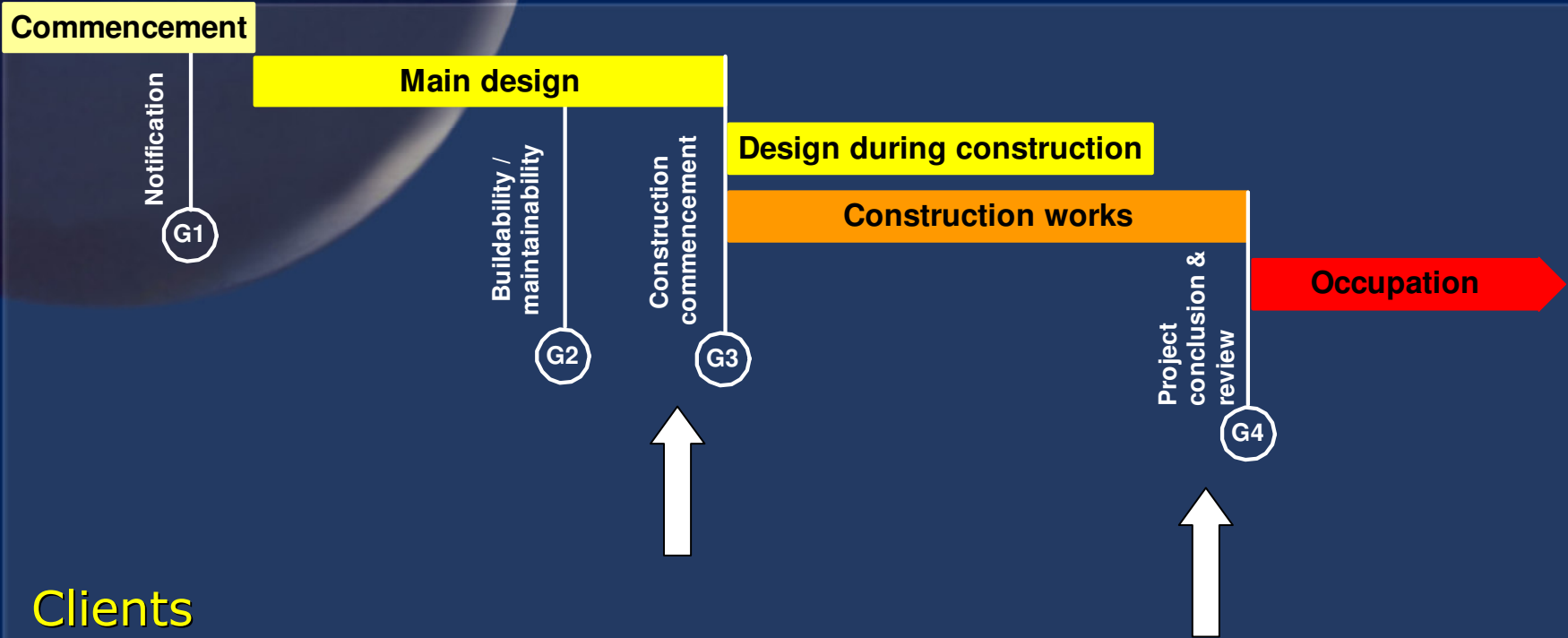


Principal contractor

- Design and preparation work is often not complete at the start of the construction phase.
- Designers should be encouraged to discuss their proposals with the co-ordinator.
- Health & safety plan is developed as the information becomes available.

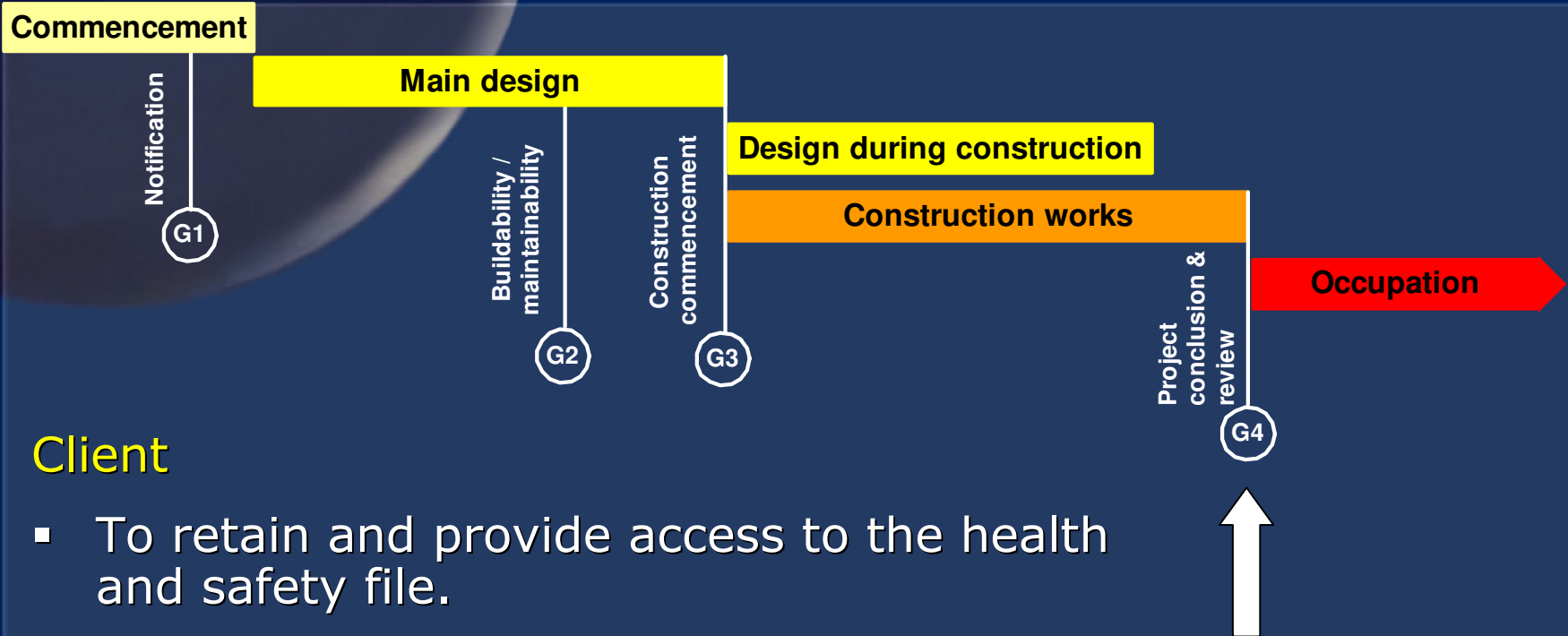


- Liaise with the principal contractor about design developments and changes during the construction phase.
- Ensure designers (including those engaged by a contractor and contractors themselves) co-operate and designs comply with the CDM Regs.
- Use integrated teams as a framework.



Clients

- May need to provide incentives or include requirements in contracts to ensure that information is given to the co-ordinator immediately after the relevant design or construction work is completed.



Client

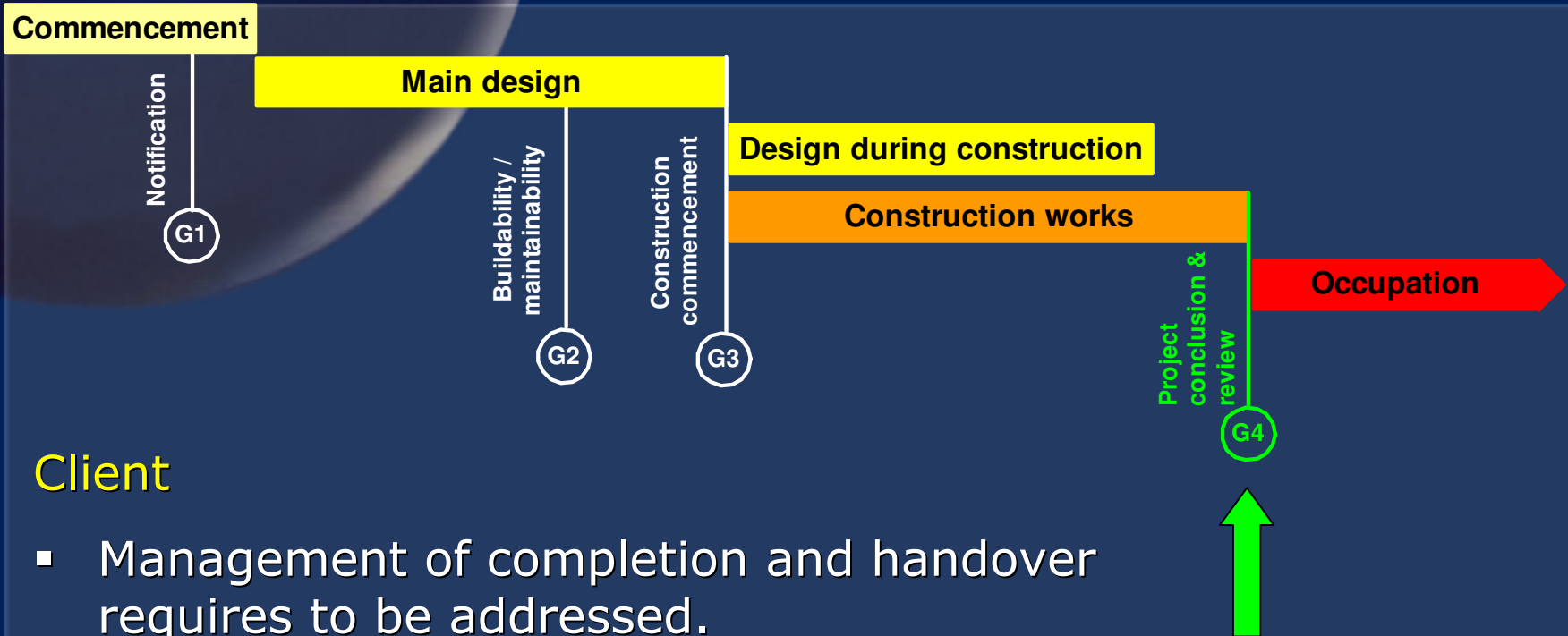
- To retain and provide access to the health and safety file.

Co-ordinator

- To provide any information needed for the health and safety file.

Non notifiable projects

- No reference is made to the health and safety file.



Client

- Management of completion and handover requires to be addressed.
 - Rare for all construction work to be completed before handover.
 - Clients sometimes assume control when construction works still remain.
 - Tempting to cut back on management.
 - Risks due to presence of non construction workers.

Potential pitfalls

Consultative document 12

- The HSC understands that, although there is a clear desire for better Regulations, industry culture is the biggest hindrance to progress, and we cannot directly change this by the law.

- Although this Consultative Document focuses on the proposed legal changes, we must not lose sight of the need to promote changes in attitudes and behaviour within the industry. Without such changes, no set of regulations can achieve the step-change in health and safety that we want to see.

Potential pitfalls

Consultative document 12

- The HSC understands that, although there is a clear desire for better Regulations, industry culture is the biggest hindrance to progress, and we cannot directly change this by the law.

Consultative document 22

- Clients' attitudes and approach ("cheapest and quickest") was seen as the second biggest hindrance to progress – industry's culture being the first.

Consultative document 23

- Fragmentation and associated adversarial attitudes encouraged people to pass risk down the supply chain – often to those that were least able to actually reduce or manage risk.

ACOP and Guidance.
Guidance only.

The new CDM Regulations will set the framework for how health and safety is managed on sites for years to come.

Please engage in the consultation process.