HCAA Practice Notes

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PRACTICE NOTES

ANNEXURES

PRACTICE NOTE 1.01

FORWARD TO DESIGN COMMISSIONS

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

1. PURPOSE

This series of practice notes are designed to assist the Hydraulic Services Consultant to produce a document for their client which outlines clearly their responsibilities under specific types of commissions.

Each practice note details an industry accepted list of objectives the Hydraulic Services Consultant should carry out to fulfil their design commission.

The series of Practice notes will offer the client security in the knowledge that the objectives identified have been based on an Industry standard, endorsed by the HCAA (National), which represents the Professional Industry of Hydraulic Services Consultants.

2. BACKGROUND

The Hydraulic Services Consultant and Client may differ in their understanding of the description and the extent of services to be included in a design commission.

The difference of opinion of the final objectives being delivered by the consultant ultimately leads to discussions on the scope of work tendered. Most outcomes have proven that the client and the consultant interpret brief and scope of work differently.

A committee was formed by the HCAA to identify the various forms of commissions and the quality and extent of services and design elements that should be included in a design commission to satisfy both the client's needs and those of the Project.

By identifying types of design commissions and describing the design services that are expected to be provided within the design commission, a better understanding will be achieved between the Client and Hydraulic Services Consultant, resulting in improved relationships and a superior result for the Project.

Included in this Section is a summary of the common types of design commissions and the minimum design services that might be expected from the Hydraulic Services Consultant to satisfy the requirements of the Project.

Complex projects may require design services in addition to those listed under each commission type. The agreement between the Client and the Hydraulic Services Consultant should identify the complete range of the required design services.

The agreement with the Client for the basis of the fee commission must always be in writing.

Failure to identify in writing the complete range and extent of services included in the commission can lead to disputes as to the interpretation of what services are included in the fee.

Obtain the written agreement from the Client agreeing to the scope of services and the applicable fee before commencing the work.

PRACTICE NOTE 1.04

MASTER PLANNING COMMISSION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

1. PURPOSE

This practice note is designed to identify the range of design services included within a Master Planning Commission.

2. BACKGROUND

When a Client is preparing a Master Plan for a Project the design team needs to be informed of the impact the existing Authority services has on the Master Plan and any limitations on the Authorities to provide services to the development. This may include any statutory requirements that may reflect on costs and planning.

Depending on the extent of detailing within the Master Plan, the design team may require information on spatial requirements for major plant and equipment.

Energy conservation, water reuse schemes and information for carbon credits may also be required for the final report.

3. MASTERPLANNING

The recommended minimum inclusions for a Commission to produce a Master Plan should at least include the following:

1. Review of Client's Brief.
2. Visit to site.
3. Services search for Authority sewer mains, water mains, stormwater mains and gas mains that may impact on the development.
4. Strategy for the relocation of Authority services where necessary.
5. Preliminary application to Authorities to determine their requirements to supply services to the project.
6. Preliminary application to Authorities for the connection of services to the site.
7. Attendance at meetings during the master planning process.
8. Identify opportunities for water reuse, energy conservation and carbon credits
9. Preparation of a final report.

Optional requirements for the commission as agreed with the client may include:

1. Advice on spatial requirements for major plant and equipment
2. Advice on budget allowances
3. Application to authorities for services connections

End of Practice Note 1.02

PRACTICE NOTE 1.03

PROJECT DESIGN BRIEF COMMISSION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the range of design services included within a commission to prepare a Design Brief for the calling of design tenders for a Project.

1. BACKGROUND

It is becoming common practice for Clients to call tenders for Design Commissions.

Most Clients do not have the in house skills to prepare the technical components of a Project Design brief.

A commission to prepare a Project Design brief should at least cover the range and quality of services, appropriate design standards, documentation standards, interpretation of the requirements of the project and a description of the designer's responsibilities

An independent Hydraulic Services Consultant is often commissioned to prepare the technical aspects of the Hydraulic Services Design Brief.

2. PREPARATION OF DESIGN BRIEFS

The recommended minimum inclusions for a Commission to produce a Project Design Brief should at least include the following:

1. Review of Client's Brief.
2. Visit to site.
3. Services search for Authority sewer mains, water mains, stormwater mains gas mains that may impact on the Project.
4. Strategy for the relocation of Authority services where necessary.
5. Preliminary application to Authorities to determine their requirements to supply services to the project.
6. Preliminary application to Authorities for the connection of services to the site.
7. Identify opportunities for water reuse, energy conservation and carbon credits
8. Required Design Standards.
9. Required Documentation Standards.
10. List of Authorities having jurisdiction over the works
11. Performance requirements of the key element for each service
12. Technical requirements for calling of Design Submissions

Optional requirements for the commission as agreed with the client may include:

1. Advice on spatial requirements for major plant and equipment
2. Advice on budget allowances
3. Application to authorities for services connections
4. Advice on Black water recycling
5. Advice on Grey water recycling
6. Advice on Energy Conservation
7. Advice on Carbon Credits

Refer to Annexure 1A *Design Briefs*

End of Practice Note 1.03

PRACTICE NOTE 1.04

DESIGN AND CONSTRUCT CONTRACT COMMISSION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the range of design services included within a commission for the preparation of documents for a Design and Construct Tender.

1. BACKGROUND

Clients may request the installing contractor to include the design component within the cost of installing the works.

The HCAA is of the opinion that Design and Construct contracts are not always in the best interests of the Project as the design can often be cost driven rather than the design being prepared in the best interests of the project. Design and Construct type contracts appear to be more common where the Client and the Developer are of the same entity.

A Design and Construct contract is generally adopted for a "Fast Track" project as a contractor is able to commence on site whilst the design is being completed to suit the nature of the conditions.

A set of documents are required so that a Tenderer can prepare a Design and Construct tender for the Client.

The Hydraulic Services Consultant is engaged to prepare a preliminary Design and Specification which identifies all the issues that might influence the cost of works to be installed.

Included with the preliminary design should be a Project Design Brief to cover the design and approval responsibilities for the project.

Project Design Briefs are covered under Annexure 1A.

2. DESIGN AND CONSTRUCT CONTRACTS

The recommended minimum inclusions for a Design and Construct Commission should at least include the following:

1. Review of Client's Brief.
2. Visit to site.
3. Services search for Authority sewer mains, water mains, stormwater mains gas mains that may impact on the development.
4. Strategy for the relocation of Authority services where necessary.
5. Application to Authorities to determine their requirements to supply services to the project.
6. Application to Authorities for the availability of Authority services to the site.
7. 1:100 Scale Drawings.

8. Brief Specification
9. Design Brief
10. Parameters for Design and operation of the services
11. Attendance at preliminary design meetings
12. Part coordination of major pipe runs and plant
13. Space requirements for plant and equipment
14. Supply of 6 sets of printed documents
15. Supply of CAD files.

Optional design services might include:

1. Preparation of budget estimates.
2. Review of design documents prepared by Design and Construct Contractor.
3. Review of workshop drawings
4. Quality control inspections during construction.
5. Negotiation with Authorities for relocation or supply of Authorities services to site.
6. Design of required upgraded or relocated authorities services.
7. Advice on Black water recycling
8. Advice on Grey water recycling
9. Advice on Energy Conservation
10. Advice on Carbon Credits
11. Contract Documentation
12. Review of As Installed drawings
13. Review of Design calculations prepared by Contractor
14. Review of materials, plant and equipment proposed by Contractor

Refer to Annexure 1B for *Design and Construct Drawings*

Refer to Annexure 1C for *Design and Construct Specifications*

End of Practice Note 1.04

PRACTICE NOTE 1.05

DESIGN AND DOCUMENTATION COMMISSION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the range of design services included within a Design and Documentation commission for a project.

1. BACKGROUND

A Design and Documentation commission is the preferred form of commission to engage the Hydraulic Services Consultant.

The Hydraulic Services Consultant is normally commissioned at the commencement of the design process and is responsible for the production of the drawings and specification documents suitable for inclusion in the tender Contract documents for the Project.

The documents should reflect the requirements of the Project Brief, satisfy the requirements of the Project, be in accordance with Authorities requirements and incorporate all appropriate Australian Standards and current best practices.

The Hydraulic Services Consultant will normally certify the design as compliant with appropriate statutory authority's requirements.

2. DESIGN AND DOCUMENTATION COMMISSION

The recommended minimum inclusions for a Design and Documentation Commission should at least include the following:

1. Review of Client's Brief. (If no Client brief available, prepare a return brief.)
2. Visit to site.
3. Assessment of Authority sewer mains, water mains, stormwater mains, gas mains that may impact on the development.
4. Negotiation with Authorities for the relocation of Authority services as necessary.
5. Application to Authorities for the connection of services to the site.
6. Budget Estimates
7. Conceptual layout plans
8. Hydraulic Services Calculations
9. 1:100 Scale Drawings.
10. 1:50 Scale drawings of typical wet areas, ducts and plant.
11. Pipe Sizing
12. Diagrammatic layouts of each service
13. Water Conservation
14. Energy Conservation

15. Advice on carbon credits
16. Complete Specification
17. Attendance at design meetings
18. Part coordination of major pipe runs and plant during design
19. Certification of design as compliant with Statutory Authority requirements
20. Supply of 6 sets of printed documents
21. Supply of CAD files.

Optional design services might include:

1. Quality inspections during construction
2. Review of workshop drawings prepared by contractor
3. Design of the relocation of Authorities services
4. Grey Water Recycling
5. Black Water Recycling
6. Rainwater Harvesting
7. Irrigation Systems
8. Budget Estimates

Refer to Annexure 1D for *Complete Design Drawings*

Refer to Annexure 1E for *Complete Design Specification*

End of Practice Note 1.05

PRACTICE NOTE 1.06

SITE INSPECTION COMMISSION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the range of services for a Site Inspection commission.

1. BACKGROUND

A commission to inspect the services during the construction process would normally be combined with the Design Commission.

Inspection of the works should be limited to observing compliance with the intended design and commenting on the general standard of the installed works.

Because the inspection of works is normally only part time the Inspection Commission cannot guarantee that all of the installed works comply with the Australian Standards and Contract Documents.

The frequency of site inspections is to be determined between the Client and the Hydraulic Services Consultant and will be influenced by the complexity and size of the project.

The installing contractor is required to certify the completed works as required by the Principal Certifying Authority (PCA)/Local Authority as in accordance with the contract documents and Australian Standards.

The works should not be handed over to the Client until the commissioning procedures are completed.

Avoid if possible stating that the installation is fit for purpose as Professional Indemnity policies often exclude cover for liability which result from a fit for purpose warranty.

2. SITE INSPECTION COMMISSION

The recommended minimum inclusions for a Site Inspection Commission should at least include the following:

1. Review of Client's Brief.
2. Review of Design Documents
3. Site Inspections.
4. Review of testing procedures
5. Attendance at site meetings on a needs basis
6. Approval of Samples
7. Review of workshop drawings prepared by the Contractor
8. Inspection Reports
9. View normal and emergency operations of the completed installation
10. Witnessing functional tests

11. Review of As Installed drawings prepared by the Contractor
12. Review of Maintenance Manuals prepared by the Contractor
13. Defects inspection report on completion

Optional site inspection services might include:

1. Regular attendance at site meetings
2. Special visits to the works of the Contractor or materials Supplier
3. Contract Administration
4. Preparation of Maintenance Manuals and Schedules
5. Preparation of As Built drawings
6. Assessment of percentage of work complete for progress claims
7. Design Variations

Refer to Annexure 1F for *Site Inspections*

End of Practice Note 1.06

PRACTICE NOTE 1.07

WORKSHOP DRAWINGS COMMISSION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the range of design services included within a commission for the preparation of Workshop Drawings for the project.

1. BACKGROUND

The Hydraulic Services Consultant who designed the Project is often approached by the successful installing contractor to prepare Workshop Drawings on his behalf.

Similarly he may be commissioned to prepare workshop drawings for the installing contractor on a project where he was not the principal Hydraulic Services Consultant.

The practice of accepting the commission to prepare Workshop drawings for a project on which the Hydraulic Services Consultant has been engaged as the head consultant may be considered a 'conflict of interest". The HCAA would recommend the Hydraulic Services Consultant advise the original client of the engagement to ensure full disclosure.

2. WORKSHOP DRAWINGS

The recommended minimum inclusions for a Workshop Drawing Commission should at least include the following:

1. Review of design documents.
2. Review of workshop drawings procedures for the project.
3. Preparation of 1:100 workshop drawings.
4. Preparation of 1:50 scale drawings of Ducts, Plant rooms and Valve rooms
5. Attendance at site co-ordination meetings.
6. Co-ordination with other engineering services.
7. Co-ordination with latest Architectural drawings.
8. Copies of drawings for distribution.

Refer to Annexure 1G for *Workshop Drawings*

End of Practice Note 1.07

PRACTICE NOTE 1.08

TECHNICAL DUE DILIGENCE REPORT COMMISSION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the range of design services included within a commission for the preparation of Technical Due Diligence Reports.

1. BACKGROUND

A client who intends to purchase a building will require a Technical Due Diligence report on the condition of the building and services.

The Technical Due Diligence report prepared by the Hydraulic Consultant should cover the number and type of services, condition of each service and compliance with current codes.

Associated with the report may be a requirement to prepare an asset register to identify all the component parts of the installation.

The asset register should record the condition of each component part, life expectancy and estimated replacement cost.

As the report may be used to assess the costs associated with the upgrade of the building it is important to ensure that it is accurate. Any assumptions must be clearly identified when compiling the report. The author is expected not only to have the experience to assess the condition of services he has seen but also to comment on services he ought to have seen during his inspections.

As a general caution ensure that your Professional Indemnity policy covers you for a Technical Due Diligence Report.

2. TECHNICAL DUE DILIGENCE REPORTS

The recommended minimum inclusions in a Commission to prepare a Technical Due Diligence report should at least include the following:

1. Review of client's brief
2. Inspections of site
3. Client Meetings
4. Detailed investigation of services
5. Assessment of condition of services and plant
6. Preparation of report on the installation
7. Review of existing records held by the building owner
8. Availability of authorities Services for the site
9. Compliance of existing installation with current Australian Standards and Authorities Codes and requirements.
10. Search of Authorities records for information on existing services.

Optional involvement required might include:

1. Administration of contractor to expose services for inspection
2. Obtaining samples for analysis
3. Asset management register for condition of services and equipment
4. Visual review of existing pipe work including CCTV camera.

Refer to Annexure 1I for *Due Diligence Reports*

Further Reading:
The Property Council of Australia Publication "Guide to Due Diligence" - March 2003

End of Practice Note 1.08

PRACTICE NOTE 1.09

EXPERT WITNESS REPORT COMMISSION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the range of design services included within a commission for the preparation of Expert Witness Reports.

1. BACKGROUND

An expert witness report may be required where a failure has occurred and the client has claimed for damages against another party or where a claim is lodged against an insurance policy including a Home Warranty Insurance claim.

An expert witness is expected to have knowledge, as defined by Industry standard, to determine the cause of failure and to prepare an unbiased report suitable for use in Court.

Opinions expressed in a report must be able to be substantiated by reference to appropriate documents or subjected to a scientific analysis of the causation of events leading to the failure.

It is desirable but not necessary for an expert witness to have training in Court procedures, particularly when he or she is to be cross examined by an opposition Barrister.

2. EXPERT WITNESS REPORTS

The recommended minimum inclusions for an Expert Witness Report are as follows:

1. Review of Client's brief.
2. Briefing with legal personnel
3. Review of all available material.
4. Inspection of the site.
5. Detailed inspection of failed parts.
6. Exhaustive research to determine cause of failure
7. Testing of component parts as necessary
8. Photographs and records of the installation and failed parts
9. Knowledge of all legislative issues associated with the installation
10. Knowledge of procedures for preparation of an expert witness report
11. Preparation of a report in accordance with court procedures

Optional involvement required might include:

1. Attendance at arbitration
2. Attendance at Court

Refer to Annexure 1H for *Expert Witness Reports*

End of Practice Note 1.09

PRACTICE NOTE 1.10

AUTHORITIES SERVICES DESIGN AND RELOCATION COMMISSION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify a range of issues involved on a commission for Authorities Services Design and Relocation.

1. BACKGROUND

Authorities often outsource the design of their reticulation systems to appropriately qualified and experienced Hydraulic Services Consultants.

Hydraulic Services Consultants carrying out this work must meet stringent Quality Assurance procedures set down by the respective Authority and in addition show that they are experienced to carry out this work.

They will be required to carry out the work in accordance with all relevant Australian Standards and the particular design standards adopted by the Authority.

2. AUTHORITIES SERVICES DESIGN AND RELOCATION

The recommended minimum inclusions for an Authorities Services Design and Relocation commission should at least include the following:

1. Review of Client's Brief
2. Site inspection
3. Search for the existence of all services adjacent to the proposed new main services.
4. Determine the location of street services.
5. Design of new or relocated mains
6. Specification for the construction of the works
7. Inclusion of all OHS requirements
8. Quality Assurance plan for the works
9. Supply of six sets of Tender Documents necessary for the calling of tenders.
10. Review of tenders received for the works.
11. Preparation of Final As Installed Drawings

Optional involvement required might include:

1. Supervision of the works
2. Contract administration
3. Project Management

End of Practice Note 1.10

ANNEXURE 1A

DESIGN BRIEFS

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This appendix identifies the recommended procedures for the preparation of design briefs.

1 BACKGROUND

Design briefs are required to set the design parameters for a project and form the basis for the design commission on the project. The brief can be prepared by the Client with in house design capabilities or may be prepared by a Hydraulic Services Consultant on behalf of the Client. The Design Brief is normally used by the Clientto engage a Hydraulic Services Consultant for the Project.

2 DESIGN BRIEFS

A Hydraulic Services Design Brief should, as a minimum, include the following:-

1. Information of the site, including survey plans.
2. Information on the proposed project, including preliminary / sketch plans.
3. Details on the Client, and other relevant parties.
4. Details of the clients objectives for the development i.e. to establish the minimum quality outcomes in the design.
5. Request for Consultants insurance details.
6. A list of required systems, to be included within the Hydraulic Services, i.e.
   - Sanitary plumbing and drainage
   - Sewage pumping
   - Subsoil drainage, including pumping
   - Stormwater drainage, including pumping
   - Downpipes
   - Rainwater harvesting and reuse
   - Grey water collection, treatment and reuse
   - Black water collection, treatment and reuse.
   - Advice re carbon credits.
   - Cold (drinking) water
   - Hot and warm water
   - Fire hydrants
   - Fire hose reels
   - Natural or LP gas – including appliances
   - Fixtures and faucets (tapware).
   - Fire sprinkler supply
   - Window drenchers
   - Automatic fire sprinklers
   - Portable fire extinguishers
   - Automatic fire detectors

7. Any special arrangements for site visits.
8. Current architectural plans and any other relevant information i.e. structural, mechanical etc. as available.
9. Time table for design process, including "milestones".
10. Required CAD systems, standard sheet sizes, drafting standards, drawing references.
11. Any required specification/standard reference.
12. Required extent of coordination.
13. Arrangement / time frame for payment of fees.
14. Required meetings, during design process.
15. Required documentation i.e.
    - Standardised drawing and specification formats.
    - Drawings (plans, details, schematics, scales etc.)
    - Specification
16. Any required input re:
    - Selecting tenderers
    - Calling of tenders, including supply of documents
    - Vetting of tenders; recommending a contractor
17. Notes that Hydraulic Service documentation should be accurate, to enable tendering without the need for any other references.
18. Details of required "Contacts and lines of communication" during design phase.
19. That hydraulic service designs to include
    - Complete information re public utilities within areas affected by any hydraulic service (system).
    - Assessment of any public utility that may impact on the site and/or any hydraulic service (system).
    - Co-ordination of any relevant hydraulic service (system) with public utilities.
    - Negotiations with relevant Authority regarding the relocation or upgrade of any relevant public utility.
    - Arrangements with relevant Authority for connections to relevant public utility, i.e. sewers, stormwater drains, water mains, gas etc.
    - Design brief to define methods of payment for such works.
    - Obtain pressure information on relevant public utilities (i.e. watermains, gas mains etc.)
20. That Hydraulic Services Consultant to obtain Authorities certificate for provision of services and associated costs
21. Design brief to define methods of payment for provision of authority's services.
22. Certification of hydraulic service designs, on completion.
23. Six sets of documents.
24. CAD files, on completion.

ANNEXURE 1B

DESIGN AND CONSTRUCT DRAWINGS

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the recommended drawings for inclusion in a Design and Construct Contract.

1 BACKGROUND

Design and Construct Drawings are required to call tenders from a Contractor to enter into a Design and Construct type contract for the Project. The Design and Construct Drawings are usually prepared by a Hydraulic Consultant.

2 DESIGN AND CONSTRUCT DRAWINGS

Design and construct drawings are required in conjunction with the design and construct "performance" specification as part of the set of documents for the Hydraulic Services component of a Design and Construct package.

The Design and Construct Drawings show the general extent, arrangement and scope of hydraulic services works and normally include the following documents:

- Title Sheet.
- Legend and Note Sheet (May be incorporated ontitle sheet)
- Site Plan
- Plan of each basement level.
- Ground floor plan.
- Plan of each non typical floor.
- Plan of typical floors.
- Plant room floors
- Roof plan.

Documentation Standards (Generally for all drawings)

Design drawings should be prepared in accordance with Australian Standard AS 1100 series for drawing standards with preference in CAD format.

Each drawing should at least include the following:

Title Block (except title sheet) incorporating the following

- Client name
- Project Name
- Architects Name
- Hydraulic Services Consultant's name, ABN, address and contact details
- Site Address
- QA check box(issued for, drawn by, checked by, sign off, dates)
- Drawing Number and Revision number
- Hydraulic Consultant's Job No and Sheet number.
- Scale.
- Graphic Bar Scale
- Reference Drawings e.g. Architectural, Engineering

Site Plan

Site plans should incorporate the following:

- Site Boundaries.
- Building footprint.
- Adjacent Authorities Services.
- On site Authority services.
- Connections to Authorities Services.
- Conceptual design of diversion of Authority Services (subject to authority approval).
- Reference to Geotechnical report.
- Contour or Ground Levels.
- Location of site services required for project.
- Invert levels on in-ground drainage piping.
- Pipe grades and pipe sizes for in-ground drainage piping.
- Location and size of pits.
- Location of isolating valves for pressure piping.
- Fire Brigade booster connection location.
- Location of Authority meter locations.
- Identify overland flood path.

Basement Floor Plans

Basement floor plans should incorporate the following:

- Sub floor drainage of lowest basement slab
- Drainage of lowest basement floor slab
- Provision of pumped sewer drainage facilities where required.
- Trade waste disposal facilities
- Pit locations
- Clearance allowances for suspended horizontal piping
- Invert levels for in ground piping
- Pipe grades and sizes for in ground drainage piping
- Conceptual drainage of plant rooms
- Preliminary coordination with structural elements and other services where known

Ground Floor Plans

Ground Floor plans should incorporate the following:

- Connection to site services
- Invert levels on drainage lines
- Size and grade of drainage lines
- Check ground floor fixtures for protection from sewage surcharge.
- Ground levels
- Authorities' services passing under or adjacent to building envelope.
- Location of isolating valves
- Identification of all pipe riser locations
- Space allowances for horizontal services
- Identification of fixtures and equipment
- Preliminary coordination with structural elements and other services where known

Non Typical Above Ground Floor Plans

Individual plans should be drawn up for each level that is considered as a non typical floor.

Plans should incorporate the following:

- Conceptual drainage of arrangement
- Identification of fixtures and equipment
- Identification of all pipe riser locations
- Space allowances for horizontal services
- Preliminary coordination with structural elements and other services where known
- Location of isolating valves

Typical Above Ground Floor Plans

Typical floor plans should be drawn for repetitive floors.

Plans should incorporate the following:

- Conceptual drainage arrangement
- Identification of fixtures and equipment
- Identification of all pipe riser locations
- Space allowances for horizontal services
- Location of isolating valves
- Preliminary coordination with structural elements and other services where known

Plant Room Floor Plans

The plant room floor plan should include plant and equipment spatial allowances required for Hydraulic services and provision of schematic conceptual connection layouts to other plant and equipment requiring connection to Hydraulic Services.

Plans should incorporate the following:

- Identification of fixtures and equipment
- Conceptual schematic connection of fixtures and equipment to services
- Spatial allowance provision for pumps, tanks, hot water heaters and other plant and equipment required for Hydraulic Services
- Identification of all pipe riser locations
- Space allowances for horizontal services
- Preliminary coordination with structural elements and other services where known
- Location of isolating valves
- Treatment of any trade wastes

Roof Plan

The roof plan should nominate the required roof drainage system including overflows to prevent entry of roof water into building for storm events up 1:100 year frequency

Plans should incorporate the following:

- Identification of gutters and roof outlets
- Provision of overflows
- Connection to roof water drainage system
- Location of hydraulic services roof penetrations

ANNEXURE 1C

DESIGN AND CONSTRUCT SPECIFICATION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the recommended inclusions in a Specification for a Design and Construct Contract.

1 BACKGROUND

Design and Construct Specifications are required to call tenders from a Contractor to enter into a Design and Construct type contract for the Project. The Design and Construct Specification accompanies the Design and Construct Drawings and are prepared by a Hydraulic Services Consultant.

2 DESIGN AND CONSTRUCT SPECIFICATION

The Design and Construct Specification is to be read in conjunction with the design documents provided at tender. The purpose of the specification is to provide the contractor with minimum guidelines to:

- Complete the concept design to a standard capable of issuing a "for construction" set of drawings.
- Provide minimum parameters to complete the design to comply with the relevant Standards and Codes of practices.
- Provide minimum parameters to complete the design to comply with the clients brief and intent.

The intent of the design and construct specification is to allow the Contractor flexibility to nominate materials and install the works in a manner which is in general reflection of the tender drawings provided.

The specification should also provide a broad outline of the limitations to be implemented by the Contractor during the full design process that are imposed beyond the guidelines of AS3500 and can include the following inputs:

- Geotechnical reports
- Acoustic reports
- Traffic reports
- Specific site restraints
- Client lessee/lessor briefs
- Flood study results
- Building and architectural constraints

The specification is required to advise the Contractor of all known site specific limitations associated with the project to enable the completion of the design drawings without introducing unknown elements which could potentially lead to a claim on the latent conditions of contract.

3 SPECIFICATION INPUTS

The format of the design and construct specification can vary in content; however the following main headings are generally included:

Scope of works

This section allows the specification writer to clearly define the scope of work involved in each trade of the overall Hydraulic project. Its purpose is to provide a descriptive outline of the volume of works the Contractor is to allow for.

The Scope of Works section in this document allows the specification writer to complete the "design picture" which coupled with the schematic design provides a clear start and finish point for the Contractor to submit a competitive tender.

The contractor should be reminded of the level of coordination and design consideration in preparing the design drawings. The specification can include a clause to the following effect:

- *The contractor is required to provide a full "Construction Issue" set of co-ordinated documents prior to installing any works on site.*

- *The hydraulic "Construction Issue" documents shall include all elements of co-ordination required to install the works without conflict or misinterpretation of the DA conditions, Head Contract specification, Building Code of Australia, Australian Standards or other Codes and Regulations pursuant to the Head Contract or this specification.*

Preliminaries

This section in the specification outlines the legal conditions under which the Hydraulic Contract is established. The specification writer must ensure that the terminology is in line with the Head Contract and there is an understanding of which entity is engaging the Hydraulic Contractor.
The Preliminaries Section of the Hydraulic specification generally compliments the same section in the Head Contract and should not contradict the contractual obligations expected of the Hydraulic Contractor.

Technical

This section in the specification outlines the minimum guidelines the Contractor uses to determine the make and type of materials that can be used in the installation.

The specification writer can use broad descriptions when detailing equipment or materials to allow the Contractor to explore the market and install the most economic and compliant services.

As this type of Specification generally enables the Hydraulic Contractor to nominate complying materials and equipment to suit market conditions, this section should be clear when directing the Contractor to specific materials, equipment or conditions that are essential to be installed or designed to under this Contract.

Schedules

The Schedule section of the specification can be used to identify any pieces of equipment the specification writer recommends the contractor to use in the project. It is the general intent of this type of contract to allow the contractor to make the decision about equipment and materials based on the performance parameters established in this specification.

This part of the specification can also provide template documents to be filled in by the contractor at tender time.

The information requested can include:

1. Certificates of Insurance Currency
2. Details of project personal
3. Examples of similar types of projects
4. A trade breakdown of the Hydraulic tender.

ANNEXURE 1D

COMPLETE DESIGN DRAWINGS

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the recommended requirements for the preparation of the Complete Design Drawings.

1 BACKGROUND

Complete Design Drawings are required for the traditional form of engagement whereby the Hydraulic Services Consultant is responsible for the Design and Documentation of all the services under his/her commission.

2 COMPLETE DESIGN DRAWINGS

Design drawings are required in conjunction with the specification as part of the set of tender documents for the Hydraulic Services component of the tender documents for the main contract.

The Design Drawings show the extent and scope of works and normally include the following documents:

- Title Sheet
- Legend and Note Sheet (May be incorporated on titlesheet
- Plan of each basement level
- Ground floor plan
- Plan of each non typical floor
- Plan of typical floors
- Plant room floors
- Roof plan
- Diagrammatic layout for each service
- Plan details of plant and equipment considered necessary to identify specific items

Documentation Standards (Generally for all drawings)

Design drawings should be prepared in accordance with Australian Standard AS 1100 series for drawing standards with preference to CAD format.

Each drawing should at least include the following:

Title Block (except title sheet) incorporating the following:

- Client name
- Project Name
- Architect's Name
- Hydraulic Services Consultant's name, ABN, address and contact details
- Site Address
- QA check box(issued for, drawn by, checked by, sign off, dates)
- Drawing Number and Revision number
- Hydraulic Consultant's Job No and Sheet number
- Scale
- Graphic Bar Scale

Site Plan

Site plans should incorporate the following:

- Site Boundaries
- Building foot print
- Adjacent Authorities Services
- On site Authority services
- Connections to Authorities Services
- Diversion of Authority Services
- Reference to Geotechnical report
- Contour or Ground Levels
- Location of site services required for project
- Invert levels on all in ground drainage piping
- Pipe materials, grades and pipe sizes for in ground drainage piping
- Location and size of all pits
- Location of isolating valves for pressure piping
- Fire Brigade booster connection location
- Location of Authority meter locations
- Identify overland flood path

Basement Floor Plans

Basement floor plans should incorporate the following:

- Sub floor drainage of lowest basement slab
- Drainage of lowest basement floor slab
- Provision of pumped sewer drainage facilities where required
- Trade waste disposal facilities
- Pit locations
- Check for flooding risks from entry points
- Clearances for suspended horizontal piping
- Protection for vertical pipe risers
- Invert levels for in ground piping
- Pipe materials, grades and sizes for in ground drainage piping
- Drainage of plant rooms
- Risk management assessment for any failed piping
- Coordination with structure and other services

Ground Floor Plans

Ground Floor plans should incorporate the following:

- Review of overland flood path and effect on building openings
- Connection to site services
- Invert levels on all drainage lines
- Size and grade of all drainage lines
- Check groundfloor fixtures for protection from sewage surcharge
- Ground levels
- Authorities' services passing under or adjacent to building envelope
- Location of all isolating valves
- Any offsets in service piping
- Identification of all pipe riser locations
- Space allocation for horizontal services
- Identification of fixtures and equipment
- Connection of fixtures and equipment to services
- Coordination with structure and other services

Non Typical Above Ground Floor Plans

Individual plans should be drawn up for each level that is considered as a non typical floor.

Plans should incorporate the following:

- Identification of fixtures and equipment
- Connection of fixtures and equipment to services
- Identification of all pipe riser locations
- Space allocation for horizontal services
- Any offsets in service piping
- Coordination with structure and other services
- Connection of fixtures and equipment to services
- Location of all isolating valves

Typical Above Ground Floor Plans

Typical floor plans should be drawn for repetitive floors.

Plans should incorporate the following:

- Identification of fixtures and equipment
- Connection of fixtures and equipment to services
- Identification of all pipe riser locations
- Space allocation for horizontal services
- Any offsets in service piping
- Coordination with structure and other services
- Connection of fixtures and equipment to services
- Location of all isolating valves
- Any minor variance to typical floor plan
- Coordination with structure and other services

Plant Room Floor Plans

The plant room floor plan should include all plant and equipment required for Hydraulic services and connection to other plant and equipment requiring connection to Hydraulic Services.

Plans should incorporate the following:

- Identification of fixtures and equipment
- Connection of fixtures and equipment to services
- Provision of pumps, tanks, hot water heaters and other plant and equipment required for Hydraulic Services
- Identification of all pipe riser locations
- Space allocation for horizontal services
- Any offsets in service piping
- Coordination with structure and other services
- Location of all isolating valves
- Risk assessment for flooding of plant rooms and floors below
- Treatment of any trade wastes
- Coordination with structure and other services

Roof Plan

The roof plan should incorporate the required roof drainage system including overflows to prevent entry of roof water into building for storm events up 1:100 year frequency.

Plans should incorporate the following:

- Identification of gutters and roof outlets
- Provision of overflows
- Connection to roof water drainage system
- Location of hydraulic services roof penetrations

Diagrammatic Drawings

Diagrammatic layouts are required to document the design concepts and pipe sizes required for each individual service provided by the Hydraulic Services Consultant.

Plans should incorporate the following:

- Identification of each service
- Identification of each pipe riser with plan drawings
- Pipe sizes of all risers, offsets and major branch runs
- Design principles
- Required positions of expansion joints and any major pipe restraints
- Fixture numbers connected to each service

Detail Drawings

Detailed drawings are required to further explain the connections to plant and equipment. The extent of detail and scale of drawings shall be adequate for tender purposes. It is anticipated that further details shall be prepared by the successful tenderer during the construction process prior to installation.

Drawings should incorporate the following:

- Detail of plant and equipment
- Method of connecting services to plant and equipment
- Weight consideration for support structure
- Space allocation for the plant and equipment

Coordination of Services

The level of coordination required in a complete design commission should enable the contractor to reasonably install the pipework and equipment required under the contract. It is accepted that there will be on site coordination issues which will arise. The contractor would be expected to coordinate these elements under their contract with the installation of mechanical equipment and ductwork resulting from the workshop drawings produced by the mechanical contractor.

It is reasonable to expect that the complete design drawings have been coordinated with other engineering disciplines engaged to provide tender documents for the project. The coordination aspect of the design drawings however would be superseded once the Contractors have commenced producing their own “workshop drawings” if required under their Contract.

ANNEXURE 1E

COMPLETE SPECIFICATION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the recommended procedures for the preparation of the Complete Specification.

1 BACKGROUND

The Complete Specification is required for the traditional form of engagement whereby the Hydraulic Services Consultant is responsible for the Design and Documentation of all the services under his commission.

2 COMPLETE SPECIFICATION

The complete specification is to be read in conjunction with the full design documentation provided at tender. The purpose of the specification is to provide the contractor with:

- Specific information and detail to be able to provide a conforming tender.
- Sufficient guidelines to install, commission and handover the hydraulic services contract.
- Specific schedules identifying all pieces of equipment and material required on the project

The intent of the complete specification is to deliver all the known variables to the contractor at tender time. There should be generally no interpretation required by the contractor as the specification covers all the known elements. There may be occasions where all the design elements have not been finalised due to unresolved direction from the client. In this instance, it can be acceptable to hi-light the unknown variables to the Contractor and allow a provisional sum of monies to cover un- specified scope of works.

The specification should also provide a broad outline of the limitations to be implemented by the Contractor during the full design process that are imposed beyond the guidelines of AS3500 and can include the following inputs:

- Geotechnical reports
- Acoustic reports
- Traffic reports
- Specific site constraints
- Client lessee/lessor briefs
- Flood study results
- Building and Architectural constraints

3 SPECIFICATION INPUTS

The format of the design and construct specification can vary in content, however generally includes the following main headings:

Scope of works

This section allows the specification writer to clearly define the scope of work involved in each trade of the overall Hydraulic project. Its purpose is to provide a descriptive outline of the volume of works the Contractor is to allow for.

The Scope of Works section in this document allows the specification writer to complete the "design picture" which coupled with the full detail design provides a clear start and finish point for the Contractor to submit a competitive tender.

If the specification nominates the Contractor to provide "Workshop drawings" the contractor should be reminded of the level of documentation to be submitted.
The specification can include a clause to the following effect:

- *The contractor is required to provide a "Workshop drawings" set of co-ordinated documents prior to installing any works on site.*
- *The hydraulic "Workshop drawing" documents shall include all elements of co- ordination required to install the works without conflict or misinterpretation of the DA conditions, Head Contract specification, Building Code of Australia, Australian Standards or other Codes and Regulations pursuant to the Head Contract or this specification.*

Preliminaries

This section in the specification outlines the legal conditions under which the Hydraulic Contract is established. The specification writer must ensure that the terminology is in line with the Head Contract and there is an understanding of which entity is engaging the Hydraulic Contractor.
The Preliminaries Section of the Hydraulic specification generally compliments the same section in the Head Contract and should not contradict the contractual obligations expected of the Hydraulic Contractor.

Technical

This section in the specification outlines the minimum guidelines the Contractor accepts to determine the make and type of materials that can be used in the installation. It also identifies the method required to be adopted in installing the hydraulic works and can include references to the Australian Standards.
The specification writer should use detailed descriptions when nominating the performance of equipment or materials to ensure there is no discrepancy between the intent of the project and the Contractor's interpretation.

Schedules

This section provides the Contractor with various tables and forms to be completed for the tender process; it can also include a schedule to clearly identify the specific brand and model number of the equipment to be used on the project.

The schedules can also include:

- Equipment and Materials
- Variation rates and charges
- Information to be provided at tender (Insurances, Company information)
- Tender breakdown schedules

ANNEXURE 1F

SITE INSPECTIONS

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the recommended procedures for the Site Inspection of Hydraulic Services during the construction period.

1 BACKGROUND

The Hydraulic Services Consultant is usually commissioned by the Client to carry out Site Inspections to determine the quality of the work being installed and whether it is being carried out in accordance with the design intent.

The frequency of site inspections and responsibilities will vary between projects. The written agreement should clearly identify these responsibilities before commencement of the commission.

The site inspection commission can normally be split into two categories- Minor and Major.

It is unnecessary to list out each and every item that requires review/ checking on the project, as the persons conducting these activities should be experienced and have a good understanding of the trade.

The objective is to ensure the client can be satisfied on the completion of the works that the workmanship and installation meet with acceptable industry standards and that the works will perform satisfactorily in service.

Regular checks will normally expose poor workmanship and non-conforming issues with the installation. These can be identified in any report and remain the responsibility of the contractor to rectify.

A minimum monthly site inspection would normally be required to maintain any form of quality control. Particular attention should be paid to the essential services and their satisfactory completion.

The hydraulic services consultant should attend site with the For Construction design drawings or Approved for Construction workshop drawings and the specification, as a minimum.

2 SITE INSPECTIONS

Minor project

- Conduct a monthly site inspection of the works to inspect workmanship and compliance with the design intent.
- Issue a report on completion of each site inspection commenting on the workmanship aspects of the installation and including an inspection summary for the works that were viewed on each inspection. This report can include non-conforming works, matters of concern and records of any discussions held with the contractor.
- Review Requests for Information (RFI's) and respond to issues concerning the design documents.
- On completion, conduct a final inspection and issue a defects and outstanding works list with a contractor sign off provision.
- Re-inspect defects following sign off provided by the contractor.
- Review works as executed drawings (two reviews of the set allowed)
- Review operations and maintenance manuals (two reviews allowed)

Optional minor site inspections services might include:

- Attendance at site meetings on an as required basis at an agreed cost per meeting.
- Review and comment on technical aspects associated with hydraulic services variation claims initiated by the client at an agreed hourly rate.
- Comment on percentages of works completed on progress claims and variations.
- Conduct a defects liability inspection and issue a report at an agreed cost per visit.

Major Project

- Conduct a monthly site inspection of the works to inspect workmanship and compliance with the design intent.
- Issue a report on completion of each site inspection commenting on the workmanship aspects of the installation and including an inspection summary of the works that were viewed on each inspection. This report can include non-conforming works, matters of concern and records of any discussions held with the contractor.
- Review any contractor Inspection and Test Plan.
- Review workshop drawings provided by the contractor excluding any penetration layouts. (Two reviews per drawing allowed).
- Review technical data, provided by the contractor, and pertaining to fixtures, appliances and equipment.
- Review samples on site during any monthly site inspection (no separate visits allowed).
- Review RFI's and respond to issues concerning the design documents.
- On completion, witness commissioning of systems and equipment in conjunction with any specialist sub-contractor and issue a report detailing any non-conformances or outstanding works associated with the commissioning. Provision for contractor sign off included.
- Reinspect defects on commissioning works following sign off by the contractor (one inspection allowed).
- On completion, conduct a final inspection of the installed hydraulic services, fixtures and appliances and issue a report with defects and outstanding items with provision for contractor sign off.
- Reinspect defects on hydraulic services, fixtures and appliances following sign off by the contractor (one inspection allowed).
- Review works as executed drawings (two reviews of the set allowed).
- Review operations and maintenance manuals (two reviews allowed).
- Conduct a defects liability inspection and issue a report with provision for contractor sign off (two visits allowed).

Optional major site inspections services might include:

- Attendance at site meetings on a regular or as required basis at an agreed fee or cost per meeting.
- Review and comment on technical aspects associated with hydraulic services variation claims initiated by the client.
- Comment on percentages of works completed on progress claims and variations.

ANNEXURE 1G

WORKSHOP DRAWINGS

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the recommended standards for the Preparation of Workshop Drawings.

1 BACKGROUND

Workshop Drawings are prepared by the Contractor and are intended to finally coordinate the Hydraulic Services with the structure and other services prior to commencement of the installation. The Hydraulic Services Consultant is quite often called upon to prepare the drawings on behalf of the Contractor.

2 WORKSHOP DRAWINGS

Workshop Drawings - is the term used to describe a set or series of documents prepared by the workshop drawing consultant which enables the Contractor to install pipework, equipment, ancillary valves, cables, wiring and associated supports generally without the aid of Secondary Documentation. The work required to produce workshop drawings as part of a Fully Documented Contract will be different to workshop drawings produced as part of a Design and Construct Contract. Under a Fully Documented Contract, the workshop drawings produced by the workshop drawing consultant will generally reflect (apart from minor Coordination issues) the tendered hydraulic design. Under a D&C Contract the workshop drawings produced by the workshop drawing consultant may not necessarily reflect the tendered hydraulic design but will incorporate all the implied design intent as detailed in the specification.
Workshop drawings should include all the elements and requirements of the Head Consultant's specification and in all respects the design should comply with the relevant Australian Standards and Codes of practice applicable.
The purpose of producing a workshop drawing is to identify any areas of final coordination required from all services prior to the installation of the works as nominated under the contract.

The workshop drawing should include all the elements as noted under Annexure 1D "Complete Design Drawings" and is required to consider the final specificinstallation needs of the other service trades within the Head Contract.

Typically, workshop drawing documentation should indicate the following minimum information necessary for the Contractor to install the product.

- Aspects of coordination
- Size/dimensions/clearances
- Position/location of fixtures and appliance
- Specification details
- Brand/material/grade/class
- Special considerations
- Fixing requirements

All workshop drawings should incorporate the requirements of all relevant standards from the following sources, including:

- AS3500 National Plumbing & Drainage Code
- The Local Authority Code of Practice or special conditions
- BCA – Building Code of Australia
- Site specific Council D.A. Conditions
- Various related Australian Standards as applicable

The workshop drawings should incorporate key elements affecting design and co-ordination from the following services drawings including:

- Structural
- Electrical
- Mechanical
- Sprinkler
- Civil
- Communications
- Irrigation
- Architectural drawings

In addition, the workshop drawing consultant should have regard to and incorporate issues discussed at site coordination meetings and recorded in site coordination minutes.

The installing contractor should be confident that the workshop drawing consultant has considered, addressed and where necessary incorporated, all major issues relating to coordination, Codes and Compliance during the Design Development process.

ANNEXURE 1H

EXPERT WITNESS REPORTS

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the recommended standards for the preparation of Expert Witness Reports.

1 BACKGROUND

The Hydraulic Services Consultant may be called upon to carry out an Expert Witness report to identify a cause of failure or express an opinion on a matter which falls within his expertise. An Expert Witness report is often used as evidence in Court and must represent the independent, unbiased opinion of the expert who has a duty of care to the Court.

2 EXPERT WITNESS REPORTS

The Hydraulic Services Consultant may be engaged by Lawyer, Loss Assessor or Insurance Agent to prepare an Expert Report on his opinion on the cause of failure of the subject matter of which he has expert knowledge.

The opinions expressed in the Expert Report are used by Lawyers to determine facts in a court of law and by Loss Assessors and Insurance Agents to determine proportion of blame and costs.

The rules of evidence is covered by the Evidence Act of 1995(Commonwealth) and the Evidence Act 1995 (NSW).

For an Expert Witness report to be admissible in the District Court you must have read and understood the expert witness code of conduct, (Part 28, rule 9C and Part 28A, rule 2).

For an Expert Witness report to be admissible in the Supreme Court you must have read and understood the expert witness code of conduct, Schedule "K" - "Expert Witness Code of Conduct.

The above codes address the form of expert reports required for acceptance by the Courts

The opposition in a matter of litigation or an insurance matter will also engage an expert to prepare a report on their behalf. The opposing experts will often have differing opinions on the subject matter.

It is essential that the Expert Witness report is admissible to the Court.

An Expert Report is normally admissible if it is based on the author's area of expertise, knowledge or experience, and it clearly states the expert's opinion and the full reasoning for that opinion.

For the Court to accept that a person is an expert because of his or her experience, such experience needs to be clearly demonstrated as part of the material put forward by the particular expert.

For a Court to determine whether the expert opinion is based on facts it needs to look behind the actual statements and materials put forward. The facts and assumptions that underlay the expert's opinion must be able to be proved by admissible evidence.

This information must be contained within the report.

In summary for evidence to be tendered as expert evidence to be admissible the following criteria must be met:

1. There must be an agreed or demonstrated field of "specialist knowledge".
2. There must be an identified aspect of that field in which the witness demonstrates that by reason of specific training, study or experience, the witness has become an expert.
3. The opinion proffered must be wholly or substantially based on the witness' expert knowledge.
4. So far as the opinion is based on facts "observed" by the expert they must be identified, admissible and proved by the expert.
5. So far as the opinion is based on "assumed" or "accepted" facts they must be identified and proved in some other way.
6. It must be established that the facts on which the opinion is based form a proper foundation for it.
7. The expert's evidence must explain how the field of "specialised knowledge" in which the witness is expert by reason of "training, study or experience" and on which the opinion is "wholly or substantially based" applies to the facts assumed or observed to produce the opinion proposed.

3 THE GOLDEN RULE

An expert report will be admissible if it contains opinions based on the author's area of expertise, knowledge or experience, and if it clearly states the expert's opinion and their full reason for that opinion.

4 GETTING STARTED

Before you start any work in a matter, read your brief, and then read your brief again before you start drafting your report. Make sure you know exactly what is required of you. If what is expected of you is not clear, then seek more detailed instructions from your client, until you know exactly what you need to address in the report.

Your brief should tell you the following things:

- Who is your client?
- Where is the building?
- A history of the problems with the building and the general facts about the construction of the building
- Whether an insurance claim has been lodged/proceedings commenced in respect of the defects affecting the building
- The purpose of the report
- Copies of all relevant documents including the strata plan, any other reports obtained by the client, surveys completed by residents of the building, the relevant expert witness code of conduct or equivalent
- What specific questions are to be answered by you in your report (this is discussed below).

Before commencing work in a matter you should satisfy yourself there is no conflict of interest in doing so.

5 SUBSTANCE OF REPORT

An expert report for a building defects claim should include the following things:

1. A statement of facts (these should be contained in your brief – these are facts that are not in dispute in the matter)
2. Clearly state your observations, any investigations carried out and the results of those investigations, your thought processes, your opinion and your conclusion.
3. Do not make submissions in your report of your client's argument, but state independent and unbiased facts and opinions only.
4. List all documents to which you refer in your report and attach copies of those documents (this is essential, as the court/tribunal/insurer will not otherwise know exactly what it is you have referred to).
5. The report should contain any other issues you consider to be important in reading your opinion, including any thought processes that may fall outside any reference to, or application of, the standards; any qualifications of your opinion should be stated clearly.
6. If your brief requires you to do anything that falls outside your area of expertise, advise your client as soon as possible, and state this in your report – remember, your opinion is only admissible in respect of things you are qualified to give an opinion on.
8. If you subsequently change your opinion in any material respect, you must advise your client immediately and provide a supplementary report, stating your change of opinion at the early opportunity.
9. Answer all of the questions asked in your brief.
10. Include a summary table of key features of the report.
11. List all of the standard, theories, codes, laws or industry standard practices (The Standards) you apply, or refer to, in reaching your conclusion.
12. Clearly state the source of the standards.
13. Explain why the standard is a proper standard.
14. Attach copies of all standards referred to and/or applied to the facts, to your report.
15. Explain how you have applied the relevant standards. For example where you consider there has been a breach of Section 3.4 of AS 3500.2 Plumbing and Drainage – see example below:

    Australian Standard 3500.2, Section 3.4, table 3.2 states that
    "the minimum grade of a 150 mm dia. drain is 1.00%"
    Measurements indicate the minimum grade is 0.3%
    Therefore AS 3500.2 part 3.4 table 3.2 has not been complied with.

16. Assume that your client and the court/tribunal/insurer who will ultimately review your report, know nothing about your area of expertise, and ensure you explain all aspects of your report accordingly.
17. Use plain English.
18. Where technical terms have been used, as required, attach a glossary of those technical terms to your report.
19. Sign your report.
20. Refer, acknowledge, and agree to be bound by the relevant expert witness code of conduct (you should also attach a copy of the expert witness code of conduct, which should be provided to you in your brief).

21. Attach your curriculum vitae (CV).

22. If any other expert from your business assists you in any way in preparing your report, that person must also do the following:

    - sign the report
    - acknowledge and agree to be bound by the relevant expert witness code of conduct, and attach their CV to the report

23. Once you have completed a draft report, read your brief again to check you have answered all of the questions and done everything that was required of you.

6 EXPERT CONCLAVES

Introduction

In court or tribunal proceedings, after all expert reports have been filed by the parties, the court or tribunal may order the experts to meet, in an attempt to narrow the technical issues in dispute between them. This meeting is an expert conclave.

The conclave is usually held on site, with all experts present (and for the Consumer Trade and Tenancy Tribunal (CTTT) proceedings, a member of the tribunal is present at the conclave – however this must not be the member presiding in the matter).

Across differing jurisdictions, the procedures of expert conclaves differ slightly. However the role of the experts at the conclaves and the purpose of the conclaves remain the same.

Purpose of conclaves

The purpose of expert conclaves is to:

1. Assist in the just, efficient and cost effective disposal of the proceedings
2. Identify and narrow the technical issues between the parties
3. Assist the court or tribunal in understanding and determining the technical facts in the matter
4. Bind experts to their stated positions
5. Reduce the need for experts to give evidence in court

Role of experts at conclave

The role of experts at conclaves is to:

1. Assist the court impartially in matters relevant to the expert's area of expertise.

2. Provide the court with a joint report or written record of the conclave, setting out the areas of agreement and areas of disagreement, and reasons for any disagreement, following the conclave.

3. Exercise his or her independent, professional opinion in relation to the conclave, and not act on any instruction to withhold or avoid agreement.

4. Respond to questions posed by the judge or tribunal member, as required.

5. Comply with the relevant expert witness code of conduct.

What's in a name?

Expert conclaves are called different things each of the CTTT, the Supreme Court and the District Court, as follows:

CTTT – "Expert Conclave"
Supreme Court –"Experts Conference"
District Court – "Experts Convention"

Despite the different names of these meetings, the role of the experts remains the same.

Different jurisdictions

In the CTTT, the recent chairperson's directions require that an expert conclave isto be held within 14 days of the second directions hearing in the matter. This reflects the very strict timetable requirements generally imposed by the CTTT.

In the Supreme Court, the experts must be provided with a list of proposed questions to be answered at the conference, and a bundle of relevant material, within a reasonable time before the conference. This is a good idea in all jurisdictions, as it assists the expert in knowing what is required of them at the meeting.

ANNEXURE 1I

TECHNICAL DUE DILIGENCE REPORTS

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This practice note is designed to identify the recommended standards for the preparation of Technical Due Diligence Reports.

1 BACKGROUND

Technical Due Diligence Reports are required by Clients to identify the condition of Hydraulic and Fire services plant and equipment installed in the building. The report is often used by the Client as basis for the purchase of building and /or whether it may be suitable for recycling.

2 TECHNICAL DUE DILIGENCE REPORTS

Technical Due Diligence Reports should include as a minimum the following items:

1. Summary of Hydraulic Services elements installed in the building including model numbers and capacities where available
2. Description of hydraulic and fire services installations including codes originally designed and installed to and "Fitness for Purpose" for current use of the building.
3. Description of any recommended upgrading works due to fair "wear and tear" or non compliance issues
4. Budget estimates (Where requested) of cost for recommended works and prioritisation of elements e.g. Immediate,1-2 years,2-5 years,5-10 years
5. Reference material used to prepare report including "As Built" information, photographs, design data placed at the back of the report in Appendices

Technical Due Diligence Reports should also contain specific information on any testing carried out and the equipment used as a basis for the report.

Reference should be made in the report that it applies to a "walk through" type inspection only, when tests and calculations have not been carried out.

ANNEXURE 1J

NOVATION

SECTION 1 - DESIGN COMMISSIONS I ISSUE 1 I DATE SEPTEMBER 2009

PURPOSE

This appendix identifies the issues concerning Novation of the Hydraulic Services Consultant to a third party.

1 BACKGROUND

In this type of Commission the Hydraulic Services Consultant enters into an agreement whereby he is novated to the Building Contractor during the contract delivery process. He is initially engaged by the client to prepare design documents up to approximately 80% of a normal design commission and then novated to the Building Contractor to complete the design process. The successful Head Contractor then enters into a Design and Construct contract with the Client incorporating the 80% documents prepared by the Hydraulic Services Consultant during the initial design stage.

This type of arrangement emanated from the Gyles Royal Commission (Gyles1992) into productivity in the Building Industry in NSW. A review of the findings of the commission and other studies of Project Alliancing is expertly covered by Professor Tony Sidwell in a report titled "Literature Review Value Alignment Process for Project Delivery." (Report (2001-003 –C 04). www.construction-innovation.info

2 NOVATION

A commission incorporating a Novation clause can create a conflict of interest between the Hydraulic Services Consultant, the Client and the Head Contractor due to the fact that at the initial design period (80% design stage) he has a duty of care to the Client, and that after the Novation process (20% design stage) the duty of care is transferred to the Head Contractor.

The tenderers pricing the project has to accept the condition that the documents are only approximately 80% complete at the time of tender and therefore need to make due allowances in their quotation for normal costs associated with further design development. However should the final design development process uncover design issues that require additional costs to complete the works, then the Head Contractor may look to the Hydraulic Services Consultant to resolve the issue of additional costs. It may be necessary to compromise the design to design out the reason for the additional costs or consider compensating the Head Contractor for these costs. It is noted here that the Contract will normally prevent the Head Contractor from claiming additional costs from the client unless changes are instigated by the Client.

Because the Contractor is engaged on a Design and Construct basis he has the right to change the design to achieve cost savings in the Contract provided he remains within the intent of the contract documents. This may lead to conflict of interests between the Hydraulic Services Consultant and the Contractor whereby initially the Hydraulic Consultant has prepared the design to protect the Clients interests and is now faced with a situation where he is obliged to modify his design standards in accordance with the Contractor's requests. An example would be a request to substitute materials and equipment and other procedures to reduce costs for the Head Contractor.

As the Hydraulic Consultant is now engaged by the Head Contractor he is normally prevented from communicating directly with the Client on these matters. (Note that the Client should engage a separate Hydraulic Consultant to advise him on the technical merits on any changes to the original design documents.)

Often during the construction process and improvement in the original design concept or the use of superior materials or products can be utilised. The client can be denied these benefits under a Novated Design and Construct process due to the fixed lump sum arrangement.

If the Client becomes aware of these issues he can claim that the Hydraulic Consultant should have allowed for these items in the original design. The Head Contractor will take the stance that he is not going to incur additional costs just to improve the works for the Client unless the Client is prepared to pay for the additional costs.

As both parties are not willing to pay for changes to the installation, the Hydraulic Consultant is placed in the unenviable position of knowing that the standards of the final installation may be compromised.

Should this result in unsatisfactory performance of the Hydraulic Services Installation damages could be claimed by the Client against the Head contractor who in turn would claim against the Hydraulic Consultant. (It is noted that most PI Insurance policies do not cover design changes that only provide benefit the client. Claims are normally only paid out when there is a failure caused by a design error and the Client suffers.)

In summary a Novation Style of commission whereby the Hydraulic Consultant can be Novated to a third party which is not of his choice, presents difficulties due to conflicts of interests and should be avoided wherever possible.