

Determination 2005/81

Refusal of a code compliance certificate for a building with a “monolithic” cladding system: House 71

1 THE DISPUTE TO BE DETERMINED

- 1.1 This is a determination of a dispute referred to the Chief Executive of the Department of Building and Housing (“the Chief Executive”) under section 17 of the Building Act 1991 as amended by section 424 of the Building Act 2004 (“the Act”). The applicant is the building owner and the other party is the territorial authority. The application arises from the refusal by the territorial authority to issue a code compliance certificate for a 2-year old house, unless changes are made to its monolithic cladding systems.
- 1.2 The question to be determined is whether on reasonable grounds that the external monolithic wall cladding as installed to all the external walls of the house (“the cladding”), complies with the building code (see sections 18 and 20 of the Act). By “external monolithic wall cladding as installed” I mean the components of the system (such as the backing sheets, the flashings, the joints and the plaster and/or the coatings) as well as the way the components have been installed and work together.
- 1.3 This determination is made under the Building Act 1991, subject to section 424 of the Building Act 2004. That section came into force (“commenced”) on 30 November 2004, and its relevant provisions are:

“ . . . on and after the commencement of this section,—

- “(a) a reference to the Authority in the Building Act 1991 must be read as a reference to the chief executive; and
- “(b) the Building Act 1991 must be read with all necessary modifications to enable the chief executive to perform the functions and duties, and exercise the powers, of the Authority . . . ”

It should be noted that the new legislation does not amend the determination process set out under the 1991 Act, other than to transfer the power to make a determination from the Building Industry Authority (“the Authority”) to the Chief Executive.

- 1.4 This determination refers to the former Authority.
- (a) When quoting from documents received in the course of the determination, and
 - (b) When referring to determinations made by the Authority before section 424 came into force.
- 1.5 In making my decision, I have not considered any other aspects of the Building Act or the building code.
- 1.6 The house itself is described in paragraphs 2.1 to 2.3, and paragraph 8 sets out my decision.

2 PROCEDURE

The building

- 2.1 The building is a two-storey detached house situated on a slightly sloping excavated site in a low wind zone in terms of NZS 3604: 1999 “Timber framed buildings”. The house is of conventional light timber frame construction on concrete block foundation walls. The external ground floor walls are faced with a brick veneer. The upper floor external walls are entirely sheathed with monolithic cladding. The house is of a relatively simple shape with the concrete tiled roofs at two main levels having hips, valleys, and wall to roof junctions. The aluminium windows and doors are recessed into the cladding. The upper storey is cantilevered a maximum of 1000 mm over the ground floor on two part elevations. A ground floor bay window has a small concrete tiled roof constructed over it. The eaves have 210mm wide eave projections, with the spoutings giving a further 130mm projection.
- 2.2 The owner produced an invoice from the timber supplier that listed H3 treated bottom plates. Apart from this, no evidence has been provided as to what treatment, if any, was applied to the remainder of the exterior wall framing.
- 2.3 The cladding system is what is described as monolithic cladding. As specified in the manufacturer’s data sheets (“the manufacturer’s instructions”), the cladding to the walls of the main building incorporates 60 mm thick polystyrene backing sheets fixed through the building wrap directly to the wall framing. Over the backing sheet a three-coat fibreglass mesh reinforced mineral plaster with a sponge float finish is applied. The backing sheets have 5 to 7 mm corrugations on one side. The system has been subject to an independent opinion (“the opinion”), which was published after the consent had been issued. The manufacturer’s instructions include details for flashings and finishing at various junctions and for flashings and/or sealants to the heads, jambs and sills of exterior joinery units. I note that the cladding system applied to the house is different from the one noted on the consent plans. However, the territorial authority has not made an issue of this change.
- 2.4 The supplier of the mineral plaster system provided a Producer Statement, dated 30 May 2003, covering the plaster coating system and its application. This confirmed that the manufacturer’s 15-year product and 5-year workmanship warranties applied.

However, the manufacturer's warranty excluded any area in which design compromised weather tightness.

Sequence of events

- 2.5 The territorial authority issued a building consent on 25 July 2002.
- 2.6 The territorial authority carried out a final inspection on 11 June 2003 and this was passed, subject to driveway and paths being completed and restrictor stays being installed to the bathroom window. The territorial authority undertook a further final inspection on 4 February 2004. The territorial authority wrote to the owner on 28 April 2004, stating that it had inspected the house, regretted that it may not comply with the building code in a number of respects and described the territorial authority's current concerns as regards weathertightness problems involving monolithic clad buildings. A Notice to Rectify, also dated 28 April 2004, was attached to this letter. The "Particulars of Contravention" attached to the Notice to Rectify noted that in regard to the cladding:

A site inspection of [the] property carried out on the 14 April 2004 revealed that the exterior cladding of the new building constructed at the above address is a monolithic cladding system (60mm [Named] system]) with no provision for ventilation of the wall space. Furthermore the exterior claddings have been installed otherwise than in accordance with the acceptable solutions of the building code and accepted trade practices as detailed below.

1. The following items have not been installed per the acceptable solutions of the building code, (no alternative solutions have been applied for)
 - Buildings shall have claddings that are waterproof. There are two areas where (sic) external roofing components have been installed prior to the cladding system, with no or little consideration given for the thickness of the cladding or the waterproofing.
2. The following items have not been installed per accepted trade practice
 - The junction between the metal bargeboard and the wall cladding (eastern elevation) has been installed prior to the plaster/ paint coat applications. The plaster and paint in conjunction with the flashings form in essence the waterproofing components in the [Named] system. The cladding system cannot be waterproof at this junction.
 - The junction of the eave and upper storey cladding (eastern elevation). The metal fascia and spouting have been installed prior to the cladding system. The spouting is embedded in the plaster and the council cannot be satisfied that adequate flashings have been installed to ensure long term waterproofing at this junction. Also consideration must be given to the maintenance and replacement of the spouting.
3. Ventilated cavity system
 - The Council has recently received information which shows that monolithic cladding systems without a drainage plane/cavity, provision for adequate ventilation, drainage and vapour dissipation will, in the likelihood of leakage and/or the effects of

residual moisture, cause irrevocable damage to the structural elements of the building.

The Council cannot be satisfied that the above building meets the performance requirements of Clauses B1 Structure, B2 Durability, E2 External Moisture, E3 Internal Moisture, G4 Ventilation and H1 Energy Efficiency Provisions of the Building Code... This is in breach of Sections 7(1), of the Building Act 1991...

Also that the owner was required to:

1. Provide adequate ventilation to the monolithic cladding and into the wall frame space by means of either a ventilated cavity or alternative approved system, and ensuring all issues related to the above are resolved.
2. Lodge with the council an application, within 28 days from the date of this notice, for an amended building consent, and provide all necessary information that may be requested to allow this consent application to be processed, alternatively.
3. Confirm to council, within 28 days from the date of this notice, your intention to apply to the Building Industry Authority for a determination in accordance with the Building Act 1991

2.7 The owner wrote to the territorial authority on 24 May 2004, setting out some of the details of the construction and inspection processes undertaken for the house. The owner noted that when the house was completed and inspected in June 2003, there was no requirement for a cavity, and if they had been informed of any shortcomings during construction, these would have been rectified. In addition, the cladding has a corrugated backing, which in the owner's view does provide a cavity. The consultants had indicated that the elements mentioned in items 1 and 2 of the Particulars of Contravention had been installed in accordance with standard trade practice. The owner stated that he was prepared to modify the areas where the roofing and cladding had been installed prior to the cladding installation.

2.8 The territorial authority responded to the owner by letter on 26 May 2004, stating that in the time between the issuing of the building consent and the issue of a code compliance certificate, new information had become available to the building industry. The territorial authority had to base its judgment on this information. It was the view of the territorial authority that to issue a code compliance certificate in the knowledge that there were areas of doubt or non-compliance would constitute negligence on the part of the territorial authority or a breach of its statutory duty.

2.9 The owner applied for a determination on 5 July 2004.

3 THE SUBMISSIONS

3.1 The owner under a "Matter of Doubt or Dispute", made a submission, which in effect repeated the comments made in the owner's letter to the territorial authority of 24 May 2004.

3.2 The owner also provided copies of:

- The building plans;
- The correspondence with the territorial authority;
- The cladding manufacturer's instructions and the independent opinion on the cladding;
- The cladding manufacturer's Producer Statement;
- The territorial authority's Final Check Lists of 11 June 2003, and 4 February 2004; and
- The Notice to Rectify.

3.3 The territorial authority forwarded a lengthy submission. The bulk of the submission was a general comment on monolithic cladding, although some of the material related to this particular extension, and stated that:

- The principle design and current construction methods for the wall assembly do not provide for ventilation and an effective drainage plane. In the event of moisture ingress from a failure of any claddings deflection methods water will enter and accumulate in the wall framing hereby breaching (*sic*) E2 and B2 of the Building Act.
- Secondly the building materials in the wall assembly will be inadequate in the inevitable event of moisture ingress as there has been no allowance for the consequence of failure of the system components or the system as a whole. This relates to the timber framing and the plasterboard linings. The failure to keep water out will wet the timber frame and as there is no drying mechanism designed into the walls construction conditions will exist in the wall likely to cause the timber to degrade and be incapable of lasting 50 years as required by the Building Act.
- The third failure of the wall and cladding system is that it is inadequately designed to allow for the expected movement associated with timber frame construction, and thereby cracks will form and sealants tear letting water in.
- The fourth failure is that work in excess of normal maintenance will be required to keep the [Named product] and wall elements of sufficiently low moisture content to prevent accumulation of water and prevent decay. The homeowner has no ability to determine ongoing compliance with E2 and consequently will not be aware of eventual failure of B2
- [The territorial authority] points out that there are already numerous defects in the cladding envelop that have already been attempted to be passed off as compliant to the code even with the extensive publicity around the leaky building problem. Council is of the opinion that the building is in contravention of the Building Act and that its notices to rectify are valid.

3.4 The submission also included a copy of the Notice to Rectify and a set of photographs, illustrating some of the territorial authority's concerns.

3.5 The territorial authority felt that it must refuse to issue a code compliance certificate on the grounds that there was insufficient scientific evidence on the performance of these building elements.

3.6 The territorial authority in a subsequent letter to the Authority, dated 19 August 2004, elaborated on its original submission and stated that its areas of concern were

those itemised in the Notice to Rectify and then listed them in detail. The territorial authority, using the risk matrix contained in the revised Acceptable Solution E2/AS1, calculated the weathertightness risk to the house to be moderate. Apart from further generalised comments, the territorial authority noted their concerns regarding the embedding of two fascia/spouting junctions in the cladding.

- 3.7 Copies of the submissions and other evidence were provided to each of the parties.
- 3.8 In a letter to the Department dated 16 February 2005, the territorial authority commented on aspects of the Draft Determination. In particular, the territorial authority is concerned that paragraphs 6.11 and 8.2 indicate a scope of work required to make the house code compliant. The territorial authority claims that this is not part of the determination.

4 THE RELEVANT PROVISIONS OF THE BUILDING CODE

- 4.1 The dispute for determination is whether the territorial authority's decision to refuse to issue a code compliance certificate because it was not satisfied that the cladding complied with clauses B2.3.1 and E2.3.2 of the building code (First Schedule, Building Regulations 1992) is correct. The relevant provisions of the building code provide:

Clause B2—DURABILITY

B2.3.1 Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building, if stated, or:

- (a) The life of the building, being not less than 50 years, if:
 - (i) Those building elements (including floors, walls, and fixings) provide structural stability to the building, or
 - (ii) Those building elements are difficult to access or replace, or
 - (iii) Failure of those building elements to comply with the building code would go undetected during both normal use and maintenance of the building.
- (b) 15 years if:
 - (i) Those building elements (including the building envelope, exposed plumbing in the subfloor space, and in-built chimneys and flues) are moderately difficult to access or replace, or
 - (ii) Failure of those building elements to comply with the building code would go undetected during normal use of the building, but would be easily detected during normal maintenance.

Clause E2—EXTERNAL MOISTURE

E2.1 The objective of this provision is to safeguard people from illness or injury, which could result from external moisture entering the building.

E2.2 Buildings shall be constructed to provide adequate resistance to penetration by, and the accumulation of, moisture from the outside.

E2.3.2 Roofs and exterior walls shall prevent the penetration of water that could cause undue dampness, or damage to building elements.

4.2 There are no Acceptable Solutions that have been approved under section 49 of the Act that cover this cladding. The cladding is not accredited under section 59 of the Act. I am therefore of the opinion that the cladding system as installed can be considered to be an alternative solution.

4.3 In several previous determinations, the Authority has made the following general observations about acceptable solutions and alternative solutions, which in my view remain valid in this case.

- Some acceptable solutions cover the worst case, so that in less extreme cases they may be modified and the resulting alternative solution will still comply with the building code.
- Usually, however, when there is non-compliance with one provision of an acceptable solution, it will be necessary to add some other provision to compensate for that in order to comply with the building code.

5 THE EXPERT'S REPORT

5.1 The Authority commissioned an independent expert ("the expert") to inspect and report on the cladding. The expert inspected the building and furnished a report. It stated that the cladding finish quality was of a good standard throughout, and there were no cracks visible. The expert removed small sections of the plaster around one window to examine the sill, head, and jamb flashings, and found that the jamb and sill flashings and sealants are correctly installed. The head flashings installed over the windows stopped short at the jamb recess, but the heads of these windows were well protected by the eaves projections. The expert's report made the following specific comments on the cladding.

- At some locations a 5 mm gap had not been provided at the junction of the window sill flashings and the cladding below them;
- There is a void behind the end of the apron flashing to the bay window roof that is susceptible to wind-driven rain;
- The plaster coating is not continuous behind the end of the barge board on the south-east corner of the house; and
- The gutter fascia and soffit on the southwest corner of the house extend into the line of the framing with the cladding system formed around them.

5.2 The expert carried out a series of moisture tests at the interior linings of the exterior walls, using a non-invasive meter, and no raised moisture levels were detected. The expert also took penetration moisture readings at 6 locations externally, and readings

of 7%, 9% (two), 9.1%, 9.8% and 10.4% were recorded. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

- 5.3 The expert also confirmed that items 1 and 2 of the territorial authority's "Particulars of Contravention" were valid concerns. However, the expert noted that as regards a cavity, the backing sheets are corrugated on their back and have the potential for drainage. A perforated "U" channel has also been provided at the base of the cladding to allow moisture to exit.
- 5.4 Copies of the expert's report were provided to each of the parties. The owner in a letter dated 1 February 2005 noted that the lack of a 5 mm gap at the sill flashing only occurred at one window and that an adjustment to the plaster will rectify this fault.

6 DISCUSSION

General

- 6.1 I have considered the submissions of the parties, the expert's report and the other evidence in this matter. The approach in determining whether building work complies with clauses B2.3.1 and E2.3.2, is to examine the design of the building, the surrounding environment, the design features that are intended to prevent the penetration of water, the cladding system, its installation, and the moisture tolerance of the external framing.

Weathertightness risk

- 6.2 Recent research and experience, both internationally and locally, indicates that the impact of weathertightness problems in monolithic clad houses can be minimised if good and effective design and construction practices are followed.
- 6.3 The installation of exterior cladding to manufacturer's specifications and to accepted good trade practice is an important but not the only requirement to ensure good weathertightness performance.
- 6.4 The next priority is to reduce the ability of moisture to get through the cladding by using design measures that minimise the effects of the rain impacting on the walls:
- 6.5 I consider that the important matters for consideration are:
- Data show a strong relationship between the width of the eaves and the incidence of wall leaks. An effective deflection mechanism, such as eaves greater than 600 mm wide, has been shown by Canadian data to manage more than 90% of rain incidence;
 - While most reported leaks are substantially caused by defects in the cladding that require little or no wind pressure differential, it is believed that buildings in high and very high wind zones (as defined by NZS 3604) are likely to experience wind pressure differentials and thus a higher risk of water ingress;

- Taller buildings result in an effective increase in the catchment area of the wall. Available data suggests a clear correlation between higher number of storeys and an increased incidence of leaking;
- Complex roofs and overall envelope shapes where the roofs frequently intersect with the walls on upper floors create opportunities for leaks into the wall; and
- Recent data also shows that decks and balconies that are exposed in plan and/or cantilevered from the external walls are the most frequent location for water leaks.

6.6 Any likely penetration of moisture through the cladding can then be countered by a combination of effective drainage, ventilation of the drainage cavity and moisture tolerance in the external wall framing timber. In particular:

- The structure should allow water that has penetrated the cladding to drain out as quickly as possible. It is believed that generally a drainage cavity should be provided behind the outer cladding barrier in monolithic construction;
- The design of the outer walls should allow walls to dry to the outside once moisture penetrates the cladding and the moisture barrier. If walls do not dry, decay fungi can become established in as little as 3 months. Until scientific data on the optimum depth and configuration of the ventilation mechanism in New Zealand conditions is available, I consider that the drainage cavity should be not less than 20 mm deep; and
- The external walls should have some degree of decay resistance or moisture tolerance to allow for situations when moisture circumvents the cladding and moisture barriers and moisture levels in the timber rise to more than 18%.

6.7 In relation to these characteristics, I find: that the house:

- Has eaves projections overall 340mm wide that provide some protection to the lower cladding;
- Is built in a low wind zone;
- Is two storeys high, but the cladding in question is to the upper level only, and there is a low risk brick veneer to the lower level;
- Is basically simple on plan, having roofs at two levels with hips, valleys and roof to wall junctions;
- Has no decks or balconies; and
- Has bottom plates to the external wall framing that are H3 treated, which is resistant to decay. However, in the absence of any information to the contrary, I am of the opinion that the remainder of the external wall framing is constructed with untreated timber that is likely to decay if it absorbs and retains moisture.

Weathertightness performance

- 6.8 I have carefully considered the principal points in the territorial authority's main submission (and outlined in paragraph 3.3).
- 6.9 The territorial authority's general submission effectively questions the technical basis of a number of the benchmarks for assessing the likely code compliant performance of timber-framed construction in New Zealand and proposes that an alternative (and more conservative) benchmark be used to assess likely building code compliance for monolithically-clad buildings within its jurisdiction. The Authority considered and commented on these issues in determination no 2004/41. In essence, the Authority determined that the performance of building elements as installed in a house should be based on code compliance benchmarks established in the new external moisture acceptable solution E2/AS1, together with observations of the current state of the building, and not on the higher performance levels suggested by the territorial authority. Accordingly, I have followed the Authority's approach in this determination.
- 6.10 I also note that the territorial authority's main submission makes reference to the non-compliance of various elements in relation to a specific building. However, the majority of the comments do not seem to relate to the house in question. Nor is the cladding referred to in the submission the same as the cladding that has actually been installed on this building. Accordingly, in making this determination, I have only considered those extensive comments where they are directly relevant to this house.
- 6.11 Generally the cladding appears to have been installed according to good trade practice, and I consider it has been effective to date in preventing the penetration of water. There are, however, some defective areas of the house, which if not remedied, will eventually allow the ingress of moisture behind the cladding. These are set out below:
- At one or more locations the lack of a 5 mm gap at the junction of the windowsill flashings and the cladding below them. I note that the owner has commented that this occurs at only one location and I recommend that the territorial authority further investigate this issue;
 - The void behind the end of the apron flashing to the bay window roof;
 - The absence of a plaster coating behind the end of the barge board on the south-east corner of the house; and
 - The extending of the gutter fascia and soffit on the southwest corner of the house into the line of the framing, and the lack of cladding system behind it.
- 6.12 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing, thus inhibiting drainage and ventilation behind the cladding sheets, I find that there are compensating factors that assist the performance of the cladding in this particular case. These are:
- Generally, the cladding appears to have been installed according to good trade practice;

- The house is situated in a low wind zone;
- The exterior windows and doors have effective flashings;
- The backs of the polystyrene sheets are corrugated and provide a potential for drainage;
- The lower roof/upper wall junctions provide some ventilation to the external walls; and
- There is no moisture evident at this time in the external wall cavities.

6.13 I consider that these factors adequately compensate for the lack of a full drainage and ventilation cavity and can allow the house to comply with the weathertightness and durability provisions of the building code.

6.14 I note that all the elevations of the house demonstrate a moderate weathertightness risk rating using the E2/AS1 risk matrix. The matrix is an assessment tool that is intended to be used at the time of application for consent, but must be supplemented at the time of issuing a code compliance certificate by careful inspection of the building as actually built.

7 CONCLUSION

7.1 I consider that the expert's report establishes there is no evidence of external moisture entering the house, and accordingly, that the monolithic cladding does comply with clause E2 at this time.

7.2 However, the building is also required to comply with the durability requirements of clause B2. Clause B2 requires that a building continues to satisfy all the objectives of the building code throughout its effective life, and that includes the requirement for the house to remain weathertight. Because the cladding faults in the house are likely to allow the ingress of moisture in the future, the extension does not comply with the durability requirements of clause B2.

7.3 I also consider that because the faults in the house cladding occur in discrete areas, I am able to conclude that rectification of the identified faults is likely to bring the cladding into compliance with the code. Once the cladding faults listed in paragraph 6.11, have been satisfactorily rectified, this house should be able to remain weathertight and thus comply with both clauses E2 and B2.

7.4 I note that effective maintenance of monolithic claddings is important to ensure ongoing compliance with clause B2 of the building code. That maintenance is the responsibility of the building owner. The code assumes that the normal maintenance necessary to ensure the durability of the cladding is carried out. For that reason clause B2.3.1 of the building code requires that the cladding be subject to "normal maintenance". That term is not defined and I take the view that it must be given its ordinary and natural meaning in context. In other words, normal maintenance of the cladding means inspections and activities such as regular cleaning, re-painting, replacing sealants, and so on.

- 7.5 I emphasise that each determination is conducted on a case-by-case basis. The fact that a particular cladding system has been established as being code compliant in relation to a particular building does not necessarily mean that the same cladding system will be code compliant in another situation.
- 7.6 I decline to incorporate any waiver or modification of the building code in this determination.
- 7.7 In response to the territorial authority's letter to the Department of 16 February 2005, I consider that I am entitled to determine whether proposed building work complies with the code, and in fact I have done so in this case. However, the question of whether the work has been properly completed and is code compliant requires careful inspection. I do not believe in this case that the territorial authority's inspections meet this standard. I note that the territorial authority's inspection described in a "Final Checklist" dated 4 February 2004 passed the following items in respect of the exterior of the building:
- Floor clearance from ground level
 - Cladding clearance from ground level
 - Secondary flow path
 - Cladding Painted
 - Window scribes
 - Flashings
 - Control joints
- 7.8 In addition, the comment on this document noted: "all items completed as required".
- 7.9 The Notice to Rectify issued on 28 April 2004 listed Particulars of Contravention that included:
- Roofing components installed prior to the cladding
 - Bargeboards and fascia and spouting junctions with the cladding
 - Ventilated cavity system
- 7.10 I am disturbed to note that these obvious building defects were not discovered during the February 2004 final inspection. They are also issues that are unrelated to the question of a cavity that the territorial authority has raised. It can be seen that the expert's report provides a comprehensive description of the building's outstanding shortcomings that should have been detected at the final inspection process indicated on the 4 February 2004 "Final Checklist".

8 THE DECISION

- 8.1 In accordance with section 20 of the Act, I determine that the house is weathertight now and, therefore, the cladding complies with clause E2. However, as there are a number of items to be remedied to ensure it remains weathertight and thus meet the durability requirements of the code, I find that the house does not comply with clause B2. Accordingly, I confirm the territorial authority's decision to refuse to issue the code compliance certificate.
- 8.2 I find that once the items of non-compliance that are listed in paragraph 6.11 are rectified to the approval of the territorial authority, together with any other instances of non-compliance that become apparent in the course of rectification, the cladding as installed on the house will comply with the building code, notwithstanding the lack of a drainage cavity.
- 8.3 I note that the territorial authority has issued a Notice to Rectify requiring provision for adequate ventilation, drainage and vapour dissipation. Under the Act, a Notice to Rectify can require the owner to bring the house into compliance with the building code. The Authority has already found in a previous determination (2000/1) that the Notice to Rectify cannot specify how that compliance can be achieved. A new Notice to Fix should be issued that requires the owner to bring the cladding into compliance with the building code, without specifying the features that are required to be incorporated. It is not for me to dictate how the defects described in paragraph 6.11 are to be remedied. How that is done is a matter for the owner to propose and for the territorial authority to accept or reject, with either of the parties entitled to submit doubts or disputes to the Chief Executive for another determination.
- 8.4 Finally, I consider that the cladding will require on-going maintenance to ensure its continuing code compliance.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 31 May 2005.

John Gardiner
Determinations Manager