





Comhairle Contae Mhaigh Eo Mayo County Council





An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta Department of Housing, Local Government and Heritage



Part B Fire - Inspections & Compliance

NBC & MSO CPD – Building Control Inspections 19th September 2023, Hodsen Bay Hotel, Athlone







CURRENT PROJECTS



National Children's Hospital – St James's Hospital Campus



COMPLETED PROJECTS



Connolly Satellite Centre



Tallaght Satellite Centre



Stages of Inspection

- 1. Review of the approved Fire Safety Certificate documentation and any associated Conditions attached to the Granted Certificate.
- 2. Review of the various Fire Safety Installations to be implemented in the project to identify key fire safety elements which must be inspected e.g., fire rated partitions, fire doors, fire alarm, emergency lighting/signage, fire dampers, smoke extraction systems etc.
- 3. Review of the building contractor's program to identify key stages to conduct and co-ordinate inspections.
- 4. Development of the Preliminary Inspection Plan PIP.



Code of Practice

for

Inspecting and Certifying Buildings and Works

Building Control Regulations 1997 to 2015

September, 2016



An Roinn Tithíochta, Pleanála, Pobail agus Rialtais Áitiúil Department of Housing, Planning, Community and Local Government



The guidelines contained within the Code of Practice for Inspecting and Certifying Buildings and Works is a key tool for an Ancillary Certifier in both the structuring of their inspections and setting out the required documentation necessary to deliver certification.

- 1. Inspection Plan
- 2. Factors in Determining Inspection Plan
- 3. Inspection
- 4. Inspection frequency
- 5. Inspection Notification Framework (INF)
- 6. Follow up procedures
- 7. Tests
- 8. Records of inspection





INSPECTION TOOLS

- iPad / Tablets
- Cameras
- GoPro & Poles
- Scope Cameras
- Gap Measurement tools







Through the incorporation of current technology and tools, it is possible for the building inspector to more readily inspect installations/constructions to ensure a high level of compliance is achieved.



ON SITE STAGES OF INSPECTION

It is important to have hold points or inspection stages throughout the project so that

- Wall Closures Project hold point to allow the inspectorate team to exam the standard of construction of partitions and walls and any subsequent concealed services before the wall is fully closed.
- 2. Ceiling Closures Allows the inspectorate team to review above ceiling installations prior to them becoming fully closed in. Inspections of firestopping, fire alarm (above ceiling), fire dampers, void sprinkler installations are crucial at this stage.
- **3. Room Completion** Allows the inspectorate team to review the completed room. Inspections of fire alarm/emergency lighting, exit signage, fire door installations
- 4. Commissioning Testing and validation of the installed active fire safety systems can be verified. Review of the various certification documents can be undertaken at this stage to confirm compliance.
- Handover Final review of all certification documentation, in particular the contractor/subcontractor BCAR certification, final close out of snags/fire compliance issues to be undertaken before Consultants Ancillary Certification can be issued.



Systems of Recording Inspections and Reporting to the Contractor / Assigned Certifier / Client – Siteworks



The screenshots attached demonstrate a typical inspection conducted within an area. The colour coding reflects different issues identified which are assigned to the contractor to address.





Systems of Recording Inspections and Reporting to the Contractor / Assigned Certifier / Client – Siteworks



Example of a typical inspection issue identified. Take Tag 41 highlighted – firestopping damaged



Systems of Recording Inspections and Reporting to the Contractor / Assigned Certifier / Client – Siteworks



- 1. The Pin identifies the location.
- 2. The photos and the description identify the defect issue and what needs to be addressed.
- 3. This is then issued to the contractor to address who is then responsible for issuing to FCC a confirmation that the issue has been actioned and closed out.



Systems of Recording Inspections and Reporting to the Contractor / Assigned Certifier / Client – BIM 360 Field

A similar system which has been deployed on the current NCH Project is the use of BIM 360 field.

B	AUTODESK" BIM 360"	FIELD) (2406	i3 NCH + $\langle \rangle$ Issues	> All Locations -	M 💄 22344
ź	Search Reset	Close	🕂 Add		Fedit X Void	Print More Actions -	
	Filter [16. Issues Created by Me	•	P	Q	ID	Description	©
1	ID		ß	\bigcirc	056812	Handover - FD60S doorset installed with only 3 hinges. Such doors require 4 hinges. Remediate	SLS Doors
-			ß	9	056256	Handover - riser shaft FD60S contains only 3 hinge fixings and not 4. Confirm 3 hinges meets fire door certification requirements	SLS Doors
-			ß	\mathbf{Q}	059550	Handover - fire door not closing under 90degrees, 45 degree, 10 degree and slave leaf closing too slow so door not closing under double door test.	SLS Doors
•	Description		ß	\bigcirc	072005	Room completion - firestopping damaged and requires repair.	Parkwest Fire Protection
			ß	Q	066993	Room completion - defection head corner interface junction requires fire mastic seal	Parkwest Fire Protection
\$			ß	0	072524	Room completion - firestopping damaged and requires repair	Parkwest Fire Protection
	Company		ß	Q	072006	Room completion - firestopping damaged and requires repair.	Parkwest Fire Protection
à i	all		ß		066998	Room completion - defection head corner interface junction requires fire mastic seal	Parkwest Fire Protection
-			ß	Q	017846	Series of core opes formed for services too close to each other. Integrity of partition compromised.	Parkwest Fire Protection
•	Location		ß	\mathbf{Q}	066994	Room completion - defection head corner interface junction requires fire mastic seal Mastic seal to deflection head board required beside damper	Parkwest Fire Protection
<u> </u>			ß	\bigcirc	070934	Wall closure - complete taping of underside of Siderise *Concourse area*	Parkwest Fire Protection
	all		ß	\bigcirc	070935	Wall closure - Complete fire mastic seals to underside of Siderise. *Concourse area*	Parkwest Fire Protection
	Include sub-locations?		ß	Q	067000	Room completion - excessive gaps around fire wrap. Remediate	Parkwest Fire Protection
			ß	Q	066999	Room completion - defection head corner interface junction requires fire mastic seal	Parkwest Fire Protection
	Date Created		ß	\bigcirc	070921	Wall closure - fire mastic seal corner joint to ensure any deflection head interface gap at board returns has been fire mastic sealed.	Oakleaf
	From		ß	9	070924	Wall closure - fire mastic seal under slab splitting. Remediate	Oakleaf
			ß	\bigcirc	068317	Ceiling void - Door goalpost covered with liner board and not Glasroc protected. Arrangement non-conformant and to be remediated	Oakleaf
	To		ß	\bigcirc	070919	Wall closure - review high level corner taping which covers cloaking angle and remediate.	Oakleaf
			ß	\bigcirc	070918	Wall closure - review high level corner taping which covers cloaking angle and remediate.	Oakleaf
	Status		ß	9	067474	General Inspection - Fire mastic seal incomplete at high level. Remediate	Oakleaf
	Ready to Inspect *		ß	\bigcirc	069398	Room completion - complete fire mastic seal at top of partition	Oakleaf
			ß	\bigcirc	067489	General inspection - Gaps at Glasroc to be fire mastic sealed. Sections of Glasroc damaged/incomplete. Steel goalposts not fully protected. Remedi	Oakleaf
	Tuno		ß	\bigcirc	067482	General inspection - Gaps at Glasroc to be fire mastic sealed. Sections of Glasroc damaged/incomplete. Remediation required.	Oakleaf
	Type		ß	9	067488	General inspection - Gaps at Glasroc to be fire mastic sealed. Sections of Glasroc damaged/incomplete. Steel goalposts not fully protected. Remedi	Oakleaf
	all		ß	\bigcirc	070925	Wall closure - Fire mastic seal high level corner junction at column. Review vertical board junction to column and install additional fire mastic at joint.	Oakleaf
			ß	9	068809	General inspection - trim back plasterboard to ensure 15mm deflection minim7m is being maintained.	Oakleaf
	Custom Properties		ß	\bigcirc	068613	Room completion - excessive fire alarm cable within ceiling void. Additional support required.	Mercury Engineering - Brian Ower
	DAIVI PIVI/Area SuperviS0F		ß	0	068087	Room completion - inaccessible detector and located within 500mm of wall. Installation non-compliant and requires remediation	Mercury Engineering - Brian Ower
	all		ß		054173	Ceiling closure - Missing proprietary fire alarm clipping at det3ctor head	Mercury Engineering - Brian Ower
			R		071855	Room completion - fire alarm cable to be supported (metal tied) where it exits basket	Mercury Engineering - Brian Ower
	Is the issue covered?	4	-				



Systems of Recording Inspections and Reporting to the Contractor / Assigned Certifier / Client – BIM 360 Field

An issue is identified on site. Information such as the description of the issue, the subcontractor assigned to address the issue and its location are recorded.

Edit Issue 072005	Save	Close	
Details			î
Remind assigned company			
Issue type	BCAR Issue		•
* Issue ID	072005		
* Description	Room completion - firestopping damaged and requires repair.		
* Company	Parkwest Fire Protection		•
Author	declan@fire-cert.com		
Priority	High		•
Status	Ready to Inspect		~
Due date	Sep 5, 2023		
* Location	North Fingers>Level 03>NF-L3-Z2>L03-EDU-ETC-L079-07-Seminar Room	- Small 🗶 ,	· •



Systems of Recording Inspections and Reporting to the Contractor / Assigned Certifier / Client – BIM 360 Field

The issue can also be tagged on the construction drawings for the project for ease of identification on site





Systems of Recording Inspections and Reporting to the Contractor / Assigned Certifier / Client – BIM 360 Field



Photographic records are uploaded by the inspector, in this instance FCC highlighting the defect. These are date and time stamped.

Corresponding response photos are then uploaded by the subcontractor who is addressing the issue as evidence that the works have been rectified.

Then the inspector can review the evidence and close out the issue.

This system provides a robust method of both recording the inspections and issues present whilst also offering a high level of close out response to ensure that a high standard of compliance is being achieved.



BENCHMARKS





- Benchmarks or First of a Kind Inspections are fundamental to compliance for a project.
- This sets out the required standard of installation by the contractor and also the level of recording/inspection which must be achieved as required by the inspectorate team.
- Subsequent installations can then be inspected against the benchmark and issues raised where it is considered that the required standard has not been met.



KNOW THE PRODUCTS AND SYSTEMS BEING INSTALLED







- **Review of the Material Approvals** 1. documentation is essential to ensure that only compliant products/systems are being used.
- Know the installation details to 2. ensure that the products/systems are being installed as per manufacturer's recommendations.
- Engage with the product/system 3. manufacturer's where any deviations / variations to standard installations arise.



Building Control Regulations, 1997 to 2015

11. (1) Subject to sub-article (2) and articles 3 and 6, this Part applies to —

(a) works in connection with the design and construction of a new building,

(b) works in connection with the material alteration of—

(i) a day centre,

(ii) a building containing a flat,

(iii) a hotel, hostel or guest building, or

(iv) an institutional building, or

(v) a place of assembly, or

(vi) a shopping centre,

but excluding works to such buildings, consisting solely of minor works,

(c) works in connection with the material alteration of a shop, office or industrial building where—

(i) Additional floor area is being provided within the existing building, or

- (ii) The building is being subdivided into a number of units for separate occupancy,
- (d) works in connection with the extension of a building by more than 25 square metres,
- (e) a building as regards which a material change of use takes place

Revision to Fire Safety Certificate

- During the course of the project variations in design/layout of project may arise.
- This needs to be reviewed to determine the effect on the approved Fire Certificate and whether revision(s) to the Fire Certificate may be necessary before sign off.



SITE SPECIFIC FIRE TESTING

- 1. Fire Testing of variations in firestopping arrangements may be required.
- 2. Project may involve the use of curtain walling which requires fire testing to EN 1364: Parts 3 or Part 4 Fire resistance tests for non-load bearing elements Curtain Wallin
- 3. Project may involve cladding systems which require fire testing to BS 8414 Part 1 or BS 8414 Part 2 as applicable to the construction method (i.e., installation to masonry Walls or installation to steel framed systems (SFS))



- 4. Project may involve complex partition constructions which require fire testing where they vary from the manufacturer's standard installation requirements.
- It is important that any site variations are identified early, the testing conducted as soon as possible as this can become a quite protracted process to ensure that the installations executed on site are compliant.





Factory Inspection of a Modular construction used in a recent Healthcare Project

FACTORY INSPECTIONS

- Depending on the Project requirements inspections may need to be conducted off-site
- The type of construction that is being employed on the project, such as Modular Construction would warrant inspection(s) being conducted at the factory where the construction is being assembled to check the standard of constructions/Quality etc
- Some of the construction elements, such as the application of intumescent coatings, may also be conducted off site so there will be a need to inspect these facilities to check the quality of the work/records etc.
- Records of these Inspections
 will also need to be kept by the
 Inspector/Ancillary Certifier





Photograph 17 – Intumescently coated steel sections ((Christmas tree sections) had been inspected

Photograph 18 – Various Elcometer readings were taken along the sections of treated steel. The sample reading above was indicative of high readings observed generally which exceeded the design loading necessary to achieve the required fire resistances.





Photograph 19 – Sample section of steel inspected

Photograph 20 – Further Elcometer readings taken in various locations. Reading shown above was lowest reading absorbed which still averaged at the required DET.



Factory Inspection of intumescent coatings being applied for the new Children's Hospital in Holland.



ENGAGEMENT WITH BUILDING CONTROL

- It is important to engage with Building Control during the construction process and assist them during their inspections when required.
- Building Control inspections offer the Design/Construction Team the opportunity to demonstrate how they are delivering a compliant building and the systems in place / inspection methods employed by the Ancillary Certifiers to ensure compliance.
- Good engagement with Section 11 requests by the Local Authority is key to show that competent designers/contractors/installers have been engaged on the project.





CERTIFICATION

Questions that need to be considered about your project is how it is expected to be certified.

- 1. Will the building be certified as one complete construction?
- 2. Will there be phased certification? and what form will that take.
- Preparation of advance notice of certification requirements to the contractor is key.
- Issuing of BCAR Deliverable schedules for the various construction packages is critical in the early stages of the project to ensure that the correct certification is prepared and issued by the contractor.
- Additional statutory certification for the various Fire Safety installations e.g., fire alarm, emergency



- Lighting should also be set out and early notification given to the contractor to ensure all relevant certification can be prepared and issued on the project.
- Thorough checking of all issued documentation is key. Ensure that the correct details and format of Ancillary Certificates have been issued to prevent any delays in building sign off and Registration upon project completion.





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