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Have an IDEA for the **Specifier ?**

We would love to hear from you!

Announcements, upcoming events, or technical articles are welcome and encouraged!

Any submissions for the Specifier can be emailed for review and we will do our best to get it into print.

Deadlines are the last Friday of the month for the following month's newsletter.

Share your knowledge — **this is YOUR industry!**

Randy Smith Newsletter Editor

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2019-2020 PROGRAM

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JULY 14 Fort Langley Golf Club	CSC SPEC GOLF 2019
SEPTEMBER 12 11:30 am Lunch Sandman Hotel, Vancouver	BCBC Changes <i>Andrew Harmsworth, GHl Consultants</i>
OCTOBER 22 3:00 pm - 7:00 pm Italian Cultural Centre, Vancouver	Transforming Building Systems & Innovations in Energy Upgrades in Multi Family Renewals, Planning & Design <i>Tony Gioventu, Executive Director of CHO</i>
NOVEMBER 14 11:30 am Lunch Sandman Hotel, Vancouver	CSA A123.21 Updates for Dynamic Wind-Uplift Requirements <i>James Klassen, RCABC</i>
DECEMBER 12 11:30 am Lunch Sandman Hotel, Vancouver	Understanding Fire Safety Requirements for Exterior Walls <i>Keith Calder, Calder Technologies</i>
JANUARY 9 11:30 am Lunch Sandman Hotel, Vancouver	Roles & Responsibilities of Consultants and How to Mitigate Liability <i>Taymaz Rastin & Stephanie John, Jenkins Marzban Logan LLP.</i>
FEBRUARY 13 11:30 am Lunch Sandman Hotel, Vancouver	Lightweight Insulating Concrete in Relation to Sustainable Building Design <i>John Rose, Siplast</i>
MARCH 12 11:30 am Lunch Sandman Hotel, Vancouver	Importance of Air and Vapour Barriers in Specific Interior Conditions: Observations from the Field <i>Guillaume Vadeboncoeur, P.Eng, WSP</i>
APRIL 9 11:30 am Lunch Sandman Hotel, Vancouver	POSTPONED - Prefab Panels and Modules in Construction. <i>Brian Hubbs, RDH Building Science</i>
Chapter General Meeting 12:00 pm	
MAY 14 11:30 am Lunch TBA	POSTPONED - Building Tour, Location to be Announced
MAY 20 - 24 Montreal	CANCELED - CSC National Conference 2020

** IF ANYONE HAS A PRESSING/DESIRED TOPIC OR SPEAKER, PLEASE REACH OUT TO EITHER TODD, JOSH, OR BRENT.

**STAY POSTED FOR MORE DETAILS
ON THE 2020-2021 PROGRAM**

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WORDS FROM THE CHAIR

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We are living in some very unique times. For most of us, this is the first time we have faced a pandemic “Coronavirus” attack in our lives. The whole world stayed home.

As things start back, it will be slower and more conservative. I think we will learn a lot of lessons from this experience.

- Social Distancing (2 meters) will just feel right.
- Washing our hands often will become a routine habit.
- Sanitizing our work areas will be just good practice.

We will choose to be in open spaces and avoid crowded events. Drive-In Theatres may return.

Who knows? It will be a “Wait and See” item. What I do know is that if someone had told me 20 years ago that I would have to take off my shoes before getting on an airplane, I would have laughed at them. After 911, we had to adapt to the new rules.

Canadians are resilient people. We will simply adapt to whatever is required.

I wish you all a very safe and healthy summer!

Best regards,
Brian Maher
CSC Chapter Chairman



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ANNUAL TRADE FAIR ON HOLD

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On Thursday, October 29th the CSC Vancouver chapter had planned on hosting their annual Trade Fair - 2020: Building for the Future. This annual event was scheduled to be held at the Italian Cultural Centre. Due to the current pandemic, planning for this event has been put on hold until we are confident that we can proceed with this great event. We will keep you informed as more details become available.



2020: Building For The Future



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DIRECTORS REPORT

Todd Gerrard

The Directors held a meeting February 28th-March 1st 2020 in Toronto, just prior to the challenges brought on with the recent COVID-19 situation. It was at this time the Directors discussed some changes to the Strategic Plan for CSC as a whole and those changes will be discussed and finalized at the next Directors meeting as CSC aims to ensure their plan and vision clearly articulates their purpose and remains on target. CSC continues to remain front and centre in the construction industry and a leader in terms of specifications. This meeting was also a chance for the directors to go through the new website. I can honestly say, the new website is very encouraging and if you haven't had a chance to check it out, please go and have a look. It is much better and easier to navigate than the previous version.

In addition, I wanted to share some exciting news with everyone. The CSC Life Membership Award is the highest distinction the Association can bestow upon a member in recognition of significant, distinguished and lasting contribution to CSC and the broader design + construction community. To be considered for this honour, a member must be nominated by no less than seven members reflecting membership in at least three different chapters. The Executive Council and Board of Directors is honoured to announce that Clauge Giguere, FCSC, Susan Morris, FCSC and Don Shortreed, FCSC, RSW were nominated by their peers and are the recipients of the Life Membership Award for 2020. It is very exciting to have our very own Susan Morris receive this award and I look forward to when we can have a meeting to congratulate her personally for this outstanding achievement. Well done Susan!



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EDUCATION UPDATE

Gleen Chatten, Wordclear Specifications

Due to the Covid-19 Pandemic and for the safety of both instructors and attending students, all CSC courses associated and sponsored by the Vancouver Chapter have been cancelled and or suspended until further notice.

We sincerely hope that we will be able to resume our educational class courses and workshops as soon as it is deemed safe by the BC Provincial Health Officer, Dr. Bonnie Henry, to do so.

CSC National is offering the online version of the PCD course beginning June 8, 2020.

To register please contact Clifton Fiola 416-777-2198 or clifton@on.aibn.com

Currently, there is no plan to offer online courses or workshops through our local Chapter.

We will keep everyone posted when and where our class courses will resume.



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How to get Rid of Birds on Roofs - Bird Damage Prevention Guide

Courtesy of IKO Industries Ltd. <https://www.iko.com/>

Bird Damage to Roofs—Bird Management

A bird on the roof may, at first, seem like a welcome and beautiful guest; but you'll soon realize that birds can cause all sorts of damage to your roof and everything you store under it. Though many birds and their nests are protected by law, there are various legal methods to get rid of birds on your roof or to deter them from it, including roof spikes and bird deflectors.

Once you've found a bird-proofing solution that works for your roof, you'll also need to repair the damage the birds have caused. Here's our guide to every type of bird damage and what you can do to keep the birds from nesting on your roof.



Types of Damage from Birds

Birds can damage the roof of your building or risk whatever you have inside. Understanding the type of damage a bird may cause to your building can help you determine which bird prevention strategies you need to employ.



Acidic droppings: A bird on the roof is sure to leave droppings everywhere. Birds have highly acidic droppings that can damage asphalt roofing materials and potentially other equipment on the roof, such as HVAC units. Further, the droppings may stimulate the growth of algae or moss by providing nutrients. Thus, your roof may have a shorter life span if it is exposed to bird droppings.

Water buildup: All roofs are designed to shed water; but if a bird nests in a gutter or drain, it may block the flow of water. This backup may raise the water level, potentially allowing water to rush into areas it isn't designed to go, such as between roof layers, into vents and into any vulnerable areas of the roof. It also causes undue stress on roofing materials, which may wear out faster under the water pressure.

Airflow issues: Birds make their nests out of naturally flammable materials, such as grasses, twigs, bark, moss and other fibers. These materials increase your risk of fires, particularly when they are built next to HVAC equipment or inside of air vents. They may also reduce the quality of air in your building or impede proper roof ventilation, trapping moisture inside. Moisture collection may damage your roof or the rest of the building's



structure, or pose a risk to the goods you store in your building.

Damage to goods: Birds may carry diseases that can affect humans. For example, gulls may carry E. coli, salmonella, psittacosis and fungal infections. This is a risk to anything edible you may manufacture. Bird droppings can also contaminate chemicals, liquids or other goods.

Risks to employees: Bird droppings create unsanitary conditions for employees. Birds may be large enough to attack employees if they approach a nest and may frustrate employees with their

calls. While not physical damage to your building or products, this could certainly damage your business.

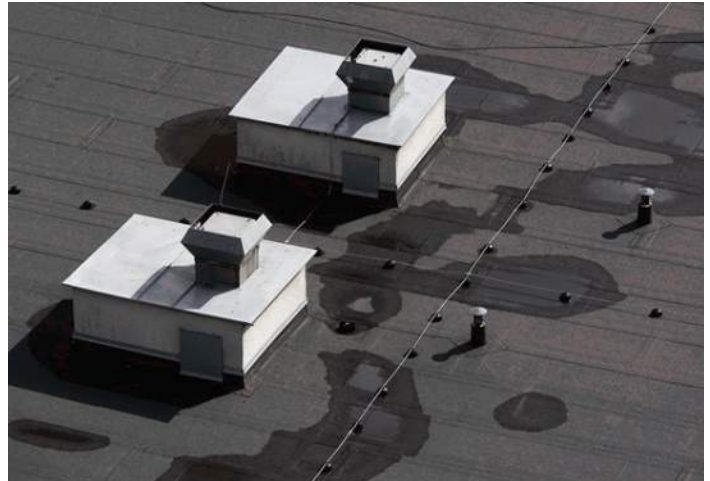
Roof Maintenance as Bird Prevention



It's important to keep your roof maintained in order to discourage birds from taking shelter on it. Here are several roof maintenance concerns you should pay special attention to before nesting season and in the fall.

Fix holes or gaps in roofs: If you have a gap or hole in your roof, a bird may take advantage and build a nest there. A once-popular roofing foam, called spray polyurethane foam (SPF), actually attracts birds because it is a highly insular material, which birds realize makes for a good nest. If you have an SPF roof and part of the acrylic covering has worn away, you should get it repaired or replaced before a bird decides to take advantage of it.

Fix "ponding": When a flat roof isn't level, it may collect water in small "ponds" where the roof dips. Birds may be attracted to this pond as a place to drink or bathe. A roofing professional can fix the underlying problem and level out your roof.



Secure gravel roofs: If your flat roof has loose gravel, it's important to clear it off. Some birds, including pigeons, eat small chunks of gravel to aid in digestion; so they may be attracted to your roof's gravel. Plus, beach-nesting birds, such as killdeer and least terns, may nest on a gravel rooftop because it provides them with the right nest texture and relative safety from predators. To avoid attracting these birds to your roof, you can use a roof system that is not topped off with gravel. A Built-Up Roofing System (BUR), using a modified bitumen layer as the top layer, or cap sheet, will not attract gravel-nesting birds. Or you can keep your existing roof and place a fine mesh over the gravel so the birds cannot access it.



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GLASS FABRICATION AT ITS FINEST

Clean up after predators: In some areas, birds of prey may also take shelter on your rooftop to eat their prey undisturbed. If your roof has predator visitors, you will find their leftovers on the rooftop, which should be cleaned off to avoid attracting more pests, including vultures. You may also find that the sharp talons from the birds of prey puncture small holes into your rooftop, so you may have to use bird-deterrent methods, such as those listed below.

Deal with insect infestations: If you see the signs of an insect infestation in your building, you should get it taken care of by a pest control company right away to prevent attracting birds which eat bugs, such as woodpeckers.

Bird-Proofing Methods and Effectiveness

It is often illegal to remove a bird's nest from the roof, under the Migratory Bird Act. This law protects all migratory birds, their nests and eggs from transport of any kind unless you have a license to move them. The Canadian equivalents of this law are the Migratory Birds Convention Act. You can find protected Canadian birds listed in the Species at Risk Registry. The species are similar as in the United States and are also protected from any nest or egg disturbances.

To avoid breaking these laws, it is important to prevent birds from nesting on the roof in the first place. Further, some birds, including seagulls, have nest fidelity, which means once they successfully raise a brood in one spot, they will return to it year after year, creating a long-term problem for you.



You should especially focus on your bird-proofing efforts during the nesting season. When the nesting season begins depends both on your area and the species of bird, but it generally starts with spring and the return of warm weather. Of course, you may also need to redouble your bird-deterrenting efforts in the fall, when nonmigrating birds will look for shelter from the cold weather, potentially on your roof.

There are many types of bird-proofing or deterring mechanisms, which vary in their effectiveness; but one thing remains true for almost all of them: eventually, the birds get used to them. For long-term success, you may need to combine or alternate bird deterrents.

1. Predator Decoys to Deter Birds



Birds will avoid areas where they believe a predator is waiting for them. You can hire real hawk handlers to have their birds perch on your roof or fly around your building. However, you may have to repeat this frequently to get good results. A much more common tactic is to install a fake predator.

Plastic decoys of owls, hawks, falcons, crocodiles, snakes, foxes and other animals which prey on birds are great deterrents. It doesn't matter if the predator isn't native to your area — birds' fear of these animals is instinctive, not learned.

You will find many predator dummies on the market. The most effective have reflective eyes, which appear more real to the birds. Other reflective items, such as metal discs or mirrors, can also scare birds.



If you have water on your property, such as a pond or fountain, you can purchase battery-operated decoy crocodiles, which will swim around. While not on the roof, these crocodiles may prevent birds from nesting on your roof, because many birds will only nest in an environment with nearby water access. This way, they will seek out more suitable nesting areas.

Alternatively, you can buy kites that look like hawks and move in the wind.

Incorporating sound with the mannequin is another good technique. Using a loudspeaker to broadcast the calls of a predator or the warning calls of birds will help convince real birds that a predator is nearby. Even playing this sound by itself is highly effective.

Birds do eventually learn that the sound and decoy are fake. To avoid this, you can move the decoy every three to four days to a new position, or alternate between dummies, which use different scare tactics (e.g., exchange one that moves in the wind for one that has reflective eyes) so the birds don't have the chance to adjust to the mannequin.

2. Discomfort

You can create a rooftop that isn't comfortable for birds, so they will select better nesting grounds. There are many ways to make your roof uncomfortable; but one of the most popular and effective is to install roof bird spikes, also called anti-roosting strips/heel blocks. These roof bird spikes go by many other names, but they are essentially metal strips with small spikes that you can install on ledges, beams or anywhere the birds like to sit.

These roof bird spikes don't hurt the birds, but make it uncomfortable or impossible for them to sit; so they simply have to fly elsewhere. Installing these on the edges of rooftops can help deter predator birds specifically, which like to perch on the edge to survey their prey.



Aesthetically, anti-roosting strips don't cause a problem, as they aren't usually visible. However, they can be expensive because you need a lot to cover every roof surface or beam, and you need manpower to install them.

There are other designs of these strips intended to cover more space on the roof, such as the anti-perching device with protruding arms pictured below. If birds try to land on this roof, they will run into one of the arms, which makes them feel the surface isn't safe; so they leave.

Other bird-deterrent systems actively hurt birds; such systems include those that deliver small electrical shocks to the bird when it lands. While momentarily painful, these systems can be designed to deliver a very small shock that doesn't do long-term damage to the bird and is very effective. However, such systems can be expensive to install across a large roof and will up your electricity costs too.

You can also buy smelly or sticky substances that you can apply to your roof. Birds won't want to land in them, at least not twice. It's important that these substances are non-toxic, as it's illegal to intentionally kill several species of birds; and you can't control which birds come into contact with your roof.

These substances range in expense and need to be reapplied, especially after rain. And, birds may get used to the substances. If you decide to invest in this solution, don't use a substance made of hot pepper, or capsaicin, as birds lack the taste receptor for peppers and therefore aren't bothered by it. These sprays are intended for use against mammals.

3. Bird-Proofing Netting, Mesh and Vent Covers

To keep birds out of roof vents, your best solution is to install a metal mesh over the top of the vent. Depending on what kind of bird you're dealing with, this mesh may have to be very fine.

If your bird problem is severe, you may wish to install netting over the whole roof. While effective at bird-proofing, this could be a very expensive option. Instead of covering the whole roof,

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you may wish to begin by using netting strategically, covering over the edges of the roof where birds perch or vulnerable areas of the roof, such as gutters or HVAC equipment.

How to Get Rid of Birds on a Roof

If your bird-prevention methods have failed, and you have a bird on the roof, what can you do? Your first step is to identify the bird. While most species are protected by law, invasive species, such as house sparrows, pigeons, and European starlings, are not, and their nests and eggs can be moved or even destroyed. In Canada, several other birds are considered game birds and can be hunted, including Canada geese. While you still need a permit to handle the nest or eggs of Canada geese, permits are frequently issued which allow for the destruction of the eggs.



European Starling

Nests of protected birds can sometimes be removed because the nest is considered unsafe for the birds. Unsafe nests include those built in gutters and drain pipes, in vents or on other rooftop equipment. However, there are restrictions on this removal, so you should contact your local authorities before you attempt to do this. For example, you may not be allowed to move the nest of an endangered bird no matter where it is.

There are always exceptions though. The U.S. Fish and Wildlife

Service does issue permits for otherwise illegal activity under the Migratory Bird Act, including moving nests. You can apply for a permit on the agency’s website. In Canada, you can ask about any special circumstances you may be dealing with at a Canadian Wildlife Service Regional Office, or your provincial wildlife authority.

Once the nesting season has ended, and the fledglings have left, you can remove most nests legally. Yet, it is illegal to remove some empty nests because some species reuse their nests. This is true whether you’re in the U.S. or Canada. So, contact your local wildlife services to confirm your empty nests are safe to remove.

How to remove a bird’s nest from the roof:

Step One: Confirm it is legal to remove the nest with your local officials. Even if the nest is no longer in use, it may be illegal to remove it, as some species use the same nest year after year.

Step Two: Put on thick gloves to protect yourself from a potential disease, which the nest may still harbor.

Step Three: Approach the nest and keep an eye out for the birds. If you see the birds, you should leave, or you may be attacked by an angry parent.

Step Four: Check inside the nest before you touch it. If there are baby birds inside the nest, you have to wait until they have left (in most cases) before continuing. If you want to move the nest while the birds are inside, you should consult your local authorities to find out if it is legal to do so. If the bird species is native to your area, it almost certainly won’t be legal to disturb it.

Step Five: Collect the nest and dispose of it in a trash bag. Seal or tie the bag so you won’t risk spreading any infection the nest may harbor.

Step Six: Clean the spot where the nest was located with warm water and soap. Do not use chemicals that may damage your roof’s surface.

Step Seven: Mark the spot where the nest was built so you can



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install bird deterrents there before nesting season begins again next year. Many birds will return to the exact same spot year after year.

If you have multiple nests to remove, it may make sense to hire a professional pest remover to deal with your birds. They often have licenses to remove nests, which you may not be allowed to touch. They also can legally trap and release birds, under certain circumstances. Further, they may be able to offer you location-specific advice about which deterrents work best on the species in your areas.



Dealing With Damage From Birds

After you have removed the birds, or after they have migrated, you will need to deal with any damage they caused. If your asphalt roof has been heavily soiled with bird droppings, you may have to replace the cap layer rather than attempt to clean it. It is possible that the acid from the droppings has compromised the integrity of the material, affecting its performance.

If you have found any gaps or holes in the roof, they should be fixed immediately in order to prevent a leak or further damage. Any nesting materials should be thoroughly cleaned from all vents and roof surfaces.

You may prefer to have a roofing professional inspect your roof after birds have nested on it so that they can find all of the damage and advise you on whether the roof's material is salvageable or needs replacement. You can find a nearby IKO-certified roofing professional to perform this inspection and complete any repairs your roof needs.

WHO NEEDS A SPEC

WRITTER *Sue McClymonds, AIA, CSI, CCS, SCIP*

Introduction

Everyone knows that nobody looks at a spec until there is a problem in the field, right? The contractor is doing something questionable, the harried architect opens the spec, hoping that the spec writer has written the language they need to back them up, and voila, there it is! Large grin ... phew ... saved by the specs again. And then, there's the old tale about the contractor picking up the spec, weighing it out in his hand, and announcing "10 million dollars!" for his bid. These are old war stories of spec writers everywhere.

Perhaps it is stories like these that have made spec writing one of the least sought-after tasks of our professional practice. Indeed, most architects shudder at the thought of having to write a spec. But the fact of the matter is that writing a spec is a beautiful thing. It's like putting together a complex puzzle, with not one piece missing or one piece left over. The specs and the drawings go hand-in-glove—one completing the other, one conveying information the other does not.

What are specifications?

Specifications are the written description of the materials, products, and workmanship used to construct a design. They also include the requirements for administering and performing the work of a project. The specifications work in conjunction with the drawings to convey the design intent from the first conceptual design through the construction of that design. They are legal documents that define the execution of a contract for construction. In general, the drawings describe quantity, while the specifications describe quality. Specifications can be anything from notes on a drawing to full-blown written specification sections in the project manual.

When did specification writing begin?

Construction specifications have been with us since the beginnings of time. The first specifications were found in the Bible's book of Genesis, in the written description of how to build an ark. In medieval and ancient times, construction drawings began to be supplemented by written words. In the 17th century, contractual elements were added in the form of written contracts between kings and their builders, thus establishing the basic elements of modern construction contracts: the drawings, specifications, agreement, and conditions of the contract. By the beginning of the 20th century, the building process had become complex enough to require extensive written descriptions to supplement the drawings. This point establishes the beginning of the profession of specification writing as we know it today.

In 1948, a group of professional specification writers established the Construction Specifications Institute (CSI) for the purpose of "...improving specification practices in the construction and allied industries." CSI set about defining and developing a

standard method for organizing and writing specifications. In the early 1960s, CSI collaborated with its Canadian counterpart, Construction Specifications Canada (CSC), to establish, develop, and implement standards of practice. In 1961 CSI published a draft standard of practice for specifying, which was developed into the first Manual of Practice (MOP) published in 1967. This Manual of Practice has been enhanced and expanded until the present day. The Project Resource Manual – CSI Manual of Practice (PRM) published in 2005 is the fifth edition and most current version of the MOP. It is recognized by the construction industry in North America as the basis by which construction specifications and project manuals should be written, produced, organized, and administered. NCARB lists the PRM as a resource for those studying for the Architect Registration Examination® (ARE®) and it is a reference for ARE item writers. The PRM is considered the bible for modern specification writers.

Who Writes Specifications?

Typically, specifications are written by a person who has an in-depth knowledge of construction products, materials, and processes. A spec writer also needs field construction experience and a firm understanding of the legal implications of the construction documents. In an architectural firm, this role is handled in a variety of ways, depending on the size and makeup of the firm, the project type, and the time constraints for producing the specifications. In a small firm, a senior architect or a partner may write the specifications. In a larger firm, a dedicated specification writer may be employed, the firm may have a spec department employing a number of specification writers, or a team of architects may write the specifications, with each person assigned a certain number of sections to write and one person coordinating the effort.

Another option for specification writing, for any size firm, is to retain an independent specification consultant, such as a member of the Specifications Consultants in Independent Practice (SCIP) organization, to produce the specifications. A firm may elect to retain such a consultant for all projects designed by the firm, or only for a specific project when, for example, the production schedule cannot be met by the in-house spec writer(s), or when the project is a special building type that requires the expertise of a specialty spec writer. The firm may also hire a consultant to meet certain client-driven equal opportunity hiring goals that require the use of a minority- or woman-owned business.

Regardless of the source of the specification, however, all successful spec writers share a common set of qualifications. They must be proficient at writing, researching information, and analyzing data. They must be able to communicate verbally with project teams and understand graphic information conveyed on drawings, schedules, details, and charts. They must be organized, objective, and knowledgeable about building codes, construction law, insurance, and bonds. They must be up to date on current trends in the building industry, such as sustainability. And above all, they must be a resource and a credible source of information to the project team.

How are specifications developed?

During the conceptual or schematic design phase of a project, the specifications generally consist of a list of materials or assemblies/systems that make up the basis of the design. In this phase, the specs are just a skeleton that establishes the basic framework. Specifications are general (e.g. brick veneer on light gage metal framing for exterior building skin) and exact building materials are not yet established.

During the design development (DD) phase specifications begin to get fleshed-out and an outline specification is prepared. The outline specification can be as brief or as detailed as the project type, client, and project delivery method warrant. For example, if the project delivery method is Construction Manager as Constructor with a Guaranteed Maximum Price (GMP), the DD phase spec may be more detailed than usual, with building materials and systems named by quality standards and/or manufacturer's product names, in order to more exactly define the quality level and basis of design information of the project. In this case, a more detailed outline spec assists in communicating more precisely the owner's and architect's vision of the quality level of the project to the construction manager, and aids the construction manager in arriving at a more accurate estimate for the contemplated construction.

In the construction documents (CD) phase, the specifications become very specific and usually take the form of a multi-page spec section for each material or group of materials. The specifications become the basis for the legal, contractual requirements of the project at the end of the CD phase. They must set forth the myriad of details that outline the quality of materials and workmanship required in the finished project. The format, arrangement, and content of the specifications must be complete and in conformance with established standards to aid in executing the project smoothly, with no unexpected misunderstandings.

How are specifications organized?

The format and organization of specifications has been established by industry-accepted standards that are co-published by the CSI and CSC. These include UniFormat™, the system for the organization of the basic information established in the early stages of a project; MasterFormat™, the organizational structure of the content for project manuals; SectionFormat™, the organizational structure for a section in the project manual; and PageFormat™, the organizational structure for an individual page of a specification section. The underlying reason for establishing these formats is to ensure that all project manuals are based on a consistent standard. These formats establish a hierarchy of information organization.

UniFormat serves to provide the most elementary level of information classification. It organizes construction information into the basic elements of a building—the systems and assemblies—by describing the function of the elements without describing the individual products that make up those systems and assemblies. UniFormat can be best utilized when specifying

preliminary project descriptions and in performance specifying. It is also used in cost estimating and in identifying model elements in projects utilizing Building Information Modeling (BIM) technology.

MasterFormat serves as the next level of organizational complexity for specifications, and is utilized during the later stages of developing project specifications. First published by the Construction Specifications Institute in 1963, MasterFormat provides a standard framework for organizing specifications, filing construction data, and providing cost estimates. For specification writing applications, MasterFormat serves as a sequencing guide for arranging specification sections and documents in a project manual similar to the Dewey decimal system, which indicates the location of books in a library. It organizes information into divisions that have a unique title and number. Each division addresses a basic group of construction materials and information. The most current version, MasterFormat 2004, expanded the original 16 divisions contained in the 1995 version to 50 divisions.

The expansion of MasterFormat, while seemingly confusing to some users, serves an important purpose. It provides more discrete locations for construction data to be placed, thus making it easier to locate information. It also provides new locations (divisions) to place categories of information such as civil, marine and waterways, process equipment, and transportation subjects. For example, Division 15 formerly contained both plumbing and HVAC sections, and fire suppression sections were usually placed in Division 13 by default. In the new MasterFormat, fire suppression is now assigned to Division 21, plumbing to Division 22 and HVAC to Division 23. The expansion of MasterFormat addresses new materials and processes, all construction types, and project life-cycle needs. It also facilitates increased database use, and provides flexibility for future needs. The organizational hierarchy of groups, subgroups, and divisions are now clearly delineated in MasterFormat 2004.

In MasterFormat, a division is further broken down into a group of related sections, and each section describes a particular material or product and its installation. Sections are identified by a six-digit number under MasterFormat 2004 (compared to the five-digit number under MasterFormat 1995). The section number consists of three pairs of two digits, with optional pairs

allowed for further customization. Each pair of digits identifies the level of complexity of section scope. The first two numbers refer to the division, the next two numbers narrow down the scope, and the last two numbers (and additional pairs of numbers, if required) narrow down the scope even further.

A section is also structured in a standardized manner, which is defined by SectionFormat. Every section is divided into three parts. “Part 1 – General” covers administrative and procedural requirements specific to that section. “Part 2 – Products” describes products, materials, manufacturers, mixes, and assemblies that are to be provided, specific to that section. “Part 3 – Execution” addresses the installation of the products, including site preparation, and the assembly of site-built systems or assemblies. Each part is further subdivided into articles delineating a major portion of the work. Articles are subdivided into paragraphs, which are subdivided into subparagraphs.

Finally, PageFormat standardizes each page of a specification section by establishing the page layout—the presentation of the text on a page. It defines the numbering and tabbing of articles, paragraphs, and sub-paragraphs. It also defines margins, headers, and footers. Although this standard established by CSI is generally adhered to in the building industry, it is often common practice to customize the fonts, headers, and footers of spec sections according to office preferences and client requirements. The most important aspect to remember about the format of the page is that every spec section in the project manual, no matter what the source, should look the same—so that the project manual provides a uniform presentation—and can be easily read by the consumer.

What methods are used to specify?

There are four methods of specifying: descriptive, performance, proprietary, and reference standard. All of these methods may be used in the same project manual for different sections, or more than one method may be used in the same spec section. There is no rule on when to use each method; it is up to the specification writer to determine the most efficient and clear way to convey the necessary information.

The descriptive method relies on the specification describing the characteristics and physical properties of the desired products, materials, and methods of installation in detail without naming a

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specific product. Manufacturers' proprietary names are not used. An example of the descriptive way to write a specification is to specify a mortar by its mix (describing the ingredients)—1 part Portland Cement to 1 part lime to 6 parts sand—rather than its compressive strength or ASTM classification. The descriptive method of writing specifications is generally very time consuming and requires the writer to research a product's technical data in depth, and then write about it in great detail. In addition, it is difficult and more time consuming for the field architect evaluating a submittal for a product specified using this method, because he/she must sift through all the data given for both the specified and submitted product and then determine if the submitted product complies with the specification. Although it may not be the preferable approach, the descriptive method of specification writing may be the only choice when proprietary names are not permitted by public law and a reference standard does not exist for the desired product.

The performance method of specifying describes the desired end result of a product or system and the method by which it can be verified. The end result, rather than the means to the end result, is what is important. An example of a performance spec is to specify that concrete must meet or exceed 3000 psi compressive strength at 28 days using a specific test criteria to determine and verify this end result. In this situation, the contractor selects the materials and mix that will fulfill the specified loading criteria, and as the product is delivered to the site a testing lab takes samples of the concrete and sends them to the lab for testing per the specified test method, thus verifying that the performance criteria is met. Under this method of specifying, a contractor may freely select the materials and methods that produce the end result that complies with the performance criteria. Performance specifying encourages innovative ideas and the use of new technologies to achieve the desired end result. It often delegates technical design responsibilities to industry specialists or system designers. For example, the design of building monitoring systems and security systems are often delegated to specialists. Performance specs are commonly used in the preparation of design-build documents and for specifying building components for sustainable design projects.

When the proprietary method of specification writing is used, the spec writer designates a desired product by naming a manufacturer's standard product by its brand name or model number. Additionally, a specification is considered proprietary when only one manufacturer or source is available for a specified product. Proprietary specifications are favored by designers and spec writers because the product selection is closely controlled. Another advantage to utilizing this method is that drawings and specifications generally take less time to complete when a limited and known product source is named. The downside to proprietary specifications is that they limit competition and may therefore drive costs up. There are two variations of proprietary specifications: the closed proprietary specification, where either one or more than one product is named as acceptable and substitutions are not permitted; and the open proprietary specification, where one product is named to establish the

level of quality desired but substitutions are allowed and even encouraged.

Reference standard specifications rely on naming a published, industry-recognized standard as the basis for stating the required qualifications or quality level of a product, material, or system. Examples of types of reference standards include material standards such as ASTM C270 "Standard Specification for Mortar for Unit Masonry"; test-method standards such as ASTM E84 "Surface Burning Characteristics of Building Materials"; installation standards such as ASTM C842 "Application of Interior Gypsum Plaster"; safety standards such as ANSI/ASME A17.1 "Safety Code for Elevators and Escalators"; product standards such as APA PS-1 "Construction and Industrial Plywood"; and basic codes such as ANSI/NFPA 70 "National Electrical Code."

The reference is incorporated into the specification by naming the title and name/number of the reference. Specifications written using the reference standard method have benefits and liabilities. One of the benefits is that the reference standard generally contains a wealth of requirements that would otherwise have to be written out in great length and detail. Also, when the spec writer incorporates a reference standard that is required by a model code or authority having jurisdiction, there is a greater chance of gaining the acceptance or approval of that specification by those authorities. On the other hand, one liability of using reference standards is that the standard may contain requirements that are not desirable for the specific application, that may contradict other requirements stated in the specification, or may contain embedded options. Also, administering the specifications' requirements in the field is often difficult for the architect unless they maintain a complete library of all cited reference standards in the field office. The key to successfully using a reference standard specification is to know the standard, incorporate it properly in the specification, and enforce the requirement in the standard.

How do spec writers protect the public's health, safety and welfare?

As licensed professionals, architects are required to protect the health, safety, and welfare of the public when practicing our profession. The specifications play a large part in meeting that requirement. The spec writer must carefully scrutinize every product that an architect selects before incorporating it into the specification to determine if that product fulfills the building, fire, life-safety, and other codes requirements for the particular application. It is very important for a spec writer to know the codes and how to apply them. Floor covering materials must meet designated levels of slip resistance for different exposures and the technical data for the coefficient of friction (COF) must be analyzed for each product used. Finish materials must meet designated flame spread and flammability requirements for specific applications. The spec writer must carefully research the ratings for each floor, wall, and ceiling finish treatment being considered. Door and frame assemblies have different fire rating requirements for different applications and spec writers must describe the required construction. Every piece of door

hardware that is specified must be considered in the face of the users' life safety; code requirements for latching, panic devices, closers, safety overrides, and smoke and fire seals must be completely understood by the spec writer. The impact resistance, heat resistance, fire resistance, fallout resistance, and ability to withstand wind loading and seismic loading must be specified for all glazing in doors, windows, skylights, and curtain walls. Roof materials must be selected and specified for their surface flame spread on the exterior, wind uplift, perimeter fastening, and interior fire resistance where required. Indoor air quality issues relating to off-gassing of adhesives, paints, and select components of finish materials must be carefully considered. The list goes on and on. In a more global sense, spec writers also protect the health, safety, and welfare of the public by selecting and specifying sustainable products: materials with a high percentage of recycled content, wood from managed forests, plumbing fixtures that save water, and planted roof coverings that give back to the environment. The choices specification writers make play a large role in making the world a better place to live for everyone.

How do you begin writing a specification?

Writing a specification section for the first time can be intimidating for an emerging architect or even a seasoned architect who has thus far avoided the task. Fortunately, today there are many tools available that make writing specifications easier. All specs are produced on the computer these days and having the ability to cut and paste information electronically from various sources simplifies the process and saves a lot of time. Most master specifications or manufacturers' product specs can be supplied in either Microsoft® Word or Corel® WordPerfect® to accommodate a specifier's choice in word processing systems.

Spec sections can either be written from scratch using the guidelines established by CSI, or can be produced by obtaining and editing one of the master guide specifications currently available on the market. The use of a master guide system is the recommended choice for several reasons. Most available master guide systems have dedicated technical staff writers who regularly update the master specification sections to reflect current trends, incorporate new products, and update obsolete standards, thus reducing the research time required of the spec writer. Also, these master guide specifications can act as tutorials for an inexperienced spec writer. The editor's text and notations, and evaluation pages and coordination/checklist sheets assist the spec writer in making informed decisions. Some commonly used master specification systems are MasterSpec® developed by the AIA and available from ARCOM; SPECTEXT® available from the Construction Sciences Research Foundation; and e-SPECS available from InterSpec. In addition, master specifications are also available from some owner entities, such as governmental agencies (like the Navy, the Department of Veterans Affairs, and the Department of State) and schools, colleges, and universities, for use on their projects.

Some products are being developed and/or are currently available that automate the production of specifications by interlinking

design programs such as AutoCAD® and Revit® Architecture with spec production. Integrated spec production will become more prevalent in the future as Building Information Modeling (BIM) is used more often on projects and an integrated delivery approach for projects becomes more common.

Once the spec writer selects a master specification as a starting point, research must be carefully and systematically undertaken to select the appropriate products and materials to incorporate in the specs. The first source of information should be the designers and project architect, as well as the drawings themselves. Products can easily be researched on the internet. There are numerous web sites, such as www.4specs.com, that catalog and organize the available product manufacturers according to MasterFormat sections. They also provide a direct link to the manufacturers' web sites. The project manuals from a firm's previous projects can be a good source of information. The spec writer can review a comparable section from another project and cut-and-paste applicable information into the new spec. A senior architect in a firm is also a good source to provide information on previous office experience in selecting and specifying products and their applications.

A spec writer must know applicable codes and standards, be aware of any updates to these codes and standards as they are published, and know how to apply these codes and standards in the specifications. No matter how experienced a spec writer is, it is important to always strive to make the specs the best they can be and never stop learning.

Why be a spec writer?

There are many good reasons to specialize in spec writing. When I mentor an emerging professional or speak to a new practitioner I tell them there is only one designer on a job and everyone wants to be that person. There is only one spec writer on a job and no one wants to be that person. Being a spec writer allows you to make an important contribution to a project without too much competition. And it is also a fun and rewarding part of the practice of architecture. I highly recommend it to all!

About the Author

Susan B. McClymonds, AIA, CSI, CCS, MAI, SCIP, is the current chair of the New York State Board for Architecture and serves on NCARB's ARE Subcommittee: Construction Documents and Services. She has over 20 years of experience in the preparation of specifications for a variety of project types including federal, institutional, commercial, educational, housing, healthcare facilities, and restoration/preservation. McClymonds has been an independent consultant providing specifications and construction contract services to architects and organizations since 2001. Prior to starting her consulting business, she was corporate director of specifications and contracts and the chief specification writer for Einhorn Yaffee Prescott (EYP) Architecture & Engineering headquartered in Albany, NY. McClymonds holds a B.A. from Wheaton College and a B.Arch from Pratt Institute. She is a CSI MasterFormat Accredited Instructor (MAI) and a CSI Certified Construction Specifier (CCS).

Working from Home: A Guide from the Architectural Community

Daniel Wong, Wordclear Specification

Covid-19 has changed the face of our industry and most of us are working from home now. There have been many guides put out about how to work home from what chairs to buy all the way to routines to maintain but there hasn't been one written by the architectural community for the architectural community.

As a specifier, let me welcome you to working from home. Like many specifiers, I have always worked from home and even consider myself an expert in the matter. I want to contribute to the CSC by sharing my top tips for our community.

Before I get started, let me describe my office for you. I have two young kids and my wife is on mat leave. In the interest of being able to quickly respond to choking on toys or fights, my wife decided it'd be a good idea to put my desk in the middle of the living room so I can watch the kids while I work. There's no zen here; just chaos but I'm going to show you how I still get it done while being handed art and changing diapers. I've got three things that will make your life easier and three practices.

1) Buy a standing desk - Standing desks are great for a multitude of reasons. They allow you to stand while you work which means you need to rely on muscles to maintain posture instead of sinking into your chair. They allow you to come and go from work easily as well. You can drop in and answer an email and be on your way. Most importantly though, they keep your work away from little hands. Nothing is more embarrassing than finding out your kid decided to play the piano on your keyboard in the middle of a 25 page document you just sent off.

2) Buy external displays (plural) - One of the little known things about specifiers is that we don't boast in master specs we've written or how long a project manual is. Our greatest brag is in the specs of our external monitors. Most architects have 2 screens but specifiers have anywhere from 3 to 4. What do we use these for? One for the drawings, one for reference documents, one for the actual spec we're working on and maybe one for whatever else. There are a lot of ways to go about this. You can set one up horizontal and one vertical or two side by side or even four in the shape of a 't'. These screens typically range from 18" to 27" and you can get resolutions up to 6K.

Humble brag here but I've opted for a single screen to rule them all at 43" at 4K. It has the functional space of four 21.5" displays. It really helps me see that tiny roof hatch the architect decided to draw.

3) Buy some wireless headphones - Apple did away with a 3.5mm headphone jack years ago and there were mixed responses to it. If you've been holding out on bluetooth headphones, now is the time to make the switch. Not only can you use them in your home gym or on a run with all that free time you have now; they are also indispensable for working from home. First, it's nice to be able to get up for a snack and not pull your computer to the ground. Second, you'll be taking lots of video calls now. Nothing looks more unprofessional than you showing up like a teenager with those free headphones that came with your phone. Not only are you tethered to your laptop, they also pick up on all the rustling from your clothes. Finally, a good set of headphones can drown out all the screaming and vacuuming in the background. And while we're on the topic of video conferences...

4) Mute the video in chat - Nothing makes video calls more painful than trying to find a quiet space in your home with good lighting and then getting showered and dressed only to sit up straight for an hour and listen in because you don't need to contribute to the conversation. My tip? Mute the display and live your life. Not being glued to the camera isn't the same as not paying attention. You could go for a walk or make lunch all while listening in and taking notes. No one will fault you for it and your eyeballs will thank me for it.

5) Work all the time and not at all - Keeping some sort of routine is helpful so don't wake up at noon and stay up til 2 am but there's no reason to keep a 9 to 5, Monday to Friday anymore. What's important is finishing the work, not sitting at a desk for 8 hours. So work as you need and take time off as you need. Go to the park when it's empty and work after dinner. The best part of this is taking an afternoon nap. I'd highly recommend 20 minutes as the sweet spot between rested and groggy.

6) Enjoy it - Finally, enjoy working from home. Working from home is what it sounds like. You get to be at home. You don't have a commute or have to get changed if you don't want to. In a lot of ways, you're essentially your own boss. Many of us struggle with change but change is inevitable and the change of working from home will be with us for a while. So pick up a hobby, get outside for some exercise, play with your kids, spend time with your spouse/partner, or play with your dog.

As I write this, we would've been in Montreal at the CSC conference but things don't always go the way we want them to. Maybe we'll get to do something together again in a year or two but until then, I hope you're well and let's do our part for our neighbours and community.

DESIGN TEAM

CSC offers members of the Design Team the opportunity to meet with other members and exchange information. It also affords you the chance to help improve technology and its management, and the means to improve ways in which your ideals are translated into clear, concise and complete documentation.

BUILDING TEAM

If you are a member of the Building Team, Construction Specifications Canada offers the opportunity to become involved in formulating specifications. Your valuable input into the programs can help generate time and cost savings as well as improve performance.

SUPPLY TEAM

The multi-disciplinary composition of the CSC allows members of the Supply Team to meet with other members of the construction team. CSC programs in data filing and information retrieval are geared to present convenient and concise information on your products for proper evaluation and specification.

THE STUDENT

If you are a student or architecture, engineering or construction technology, CSC will provide you with greater exposure to and a better understanding of the Construction Industry, giving you an excellent opportunity to plan a career in the construction field.

MEMBERSHIP IN CSC

In the construction industry's fast-paced environment, the need for and value of Construction Specifications Canada is greater than ever. CSC brings together individuals from all segments of the construction industry. All who have a vested interest in Canada's largest industry are invited to join CSC. When you join CSC you become a part of the only association that brings together professionals from all aspects of the construction industry.

**ADVERTISING:
NEWSLETTER & WEB**

Advertising with us will provide you with the opportunity to reach readers within the industry through the newsletter and on the CSC Vancouver website.

Size	Members	Non-Members
1/4 page	\$45	\$60
1/2 page	\$80	\$100
Full page	\$140	\$175

You will receive advertising space on the second page of the Specifier and on the CSC chapter website. The ad will be placed in one issue of the Specifier and reside on the website for one month. Ads must fit on one page only and are not limited to copy content or visual features.

If you are not sure whether the Specifier would be an appropriate tool for you, please email me with your questions. If you would like to advertise, or have any questions, please let me know. All advertising content is subject to pre-approval by the responsible CSC Committee.

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